

# Heavy Metals, Hair Testing, Tips and Analysis

Presented by Van D Merkle DC,  
DABCI, DCBCN, CCN

June 17, 2023

## PRESS ON:

- Nothing in the world can take the place of persistence.
- **Talent** will not; nothing is more common than unsuccessful men with talent.
- **Genius** will not; unrewarded genius is almost a proverb.
- **Education** alone will not; The world is full of educated derelicts.
- **Persistence and determination alone are omnipotent.**

**Calvin Coolidge**

# Vitamin Sales Skyrocket in the Pandemic, but Buyer Beware

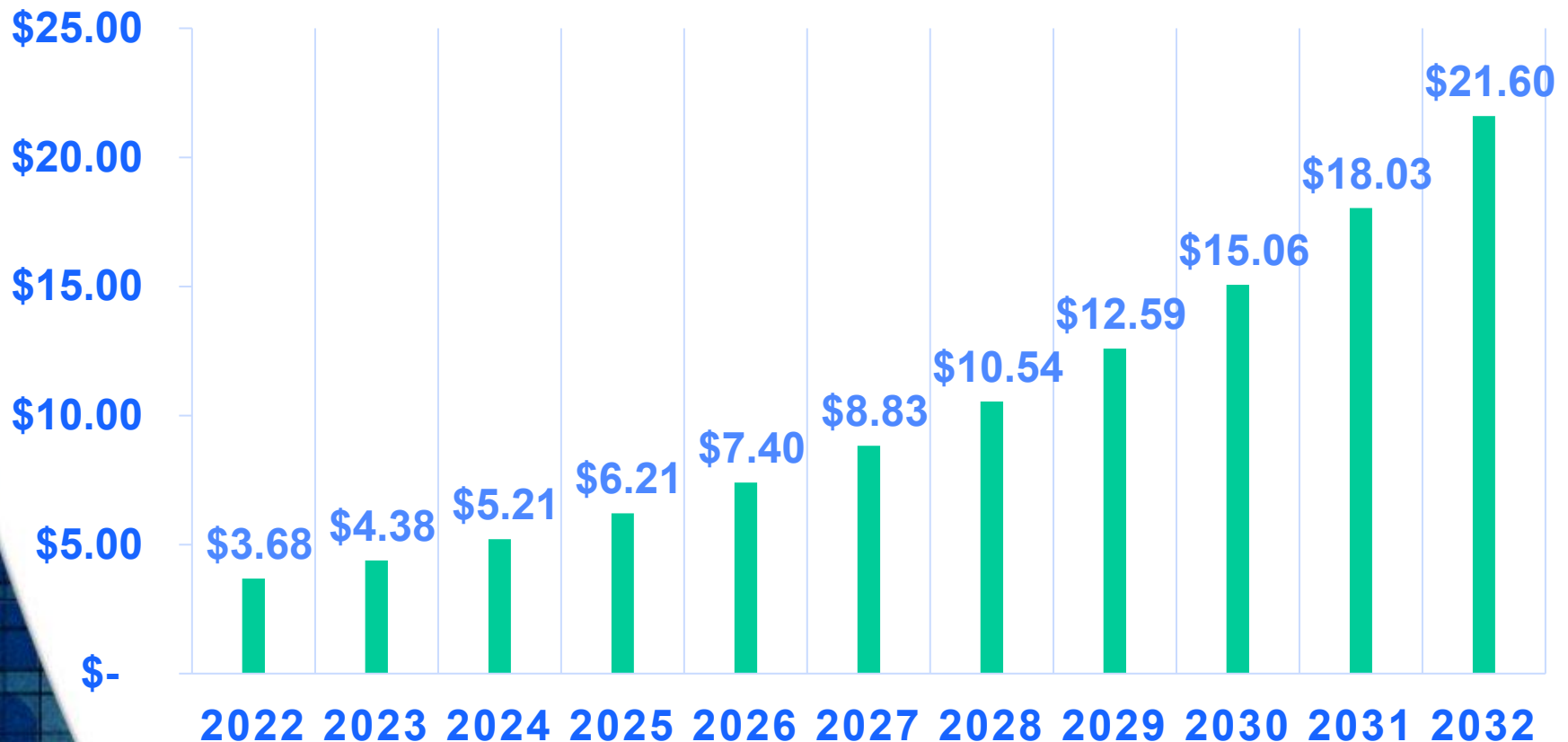
[www.medscape.com](http://www.medscape.com)

- **Mar 2, 2021 — The *supplement market*, valued at \$48 billion in 2019**
- **2020 - \$52 Billion due to pandemic**
- **2021 - \$58 Billion is projected for 2021**
- **2021- \$193.5 Million spent on Chiropractic according to ACA**
  - **ACA Corporate report**



# Direct to Consumer Lab Testing

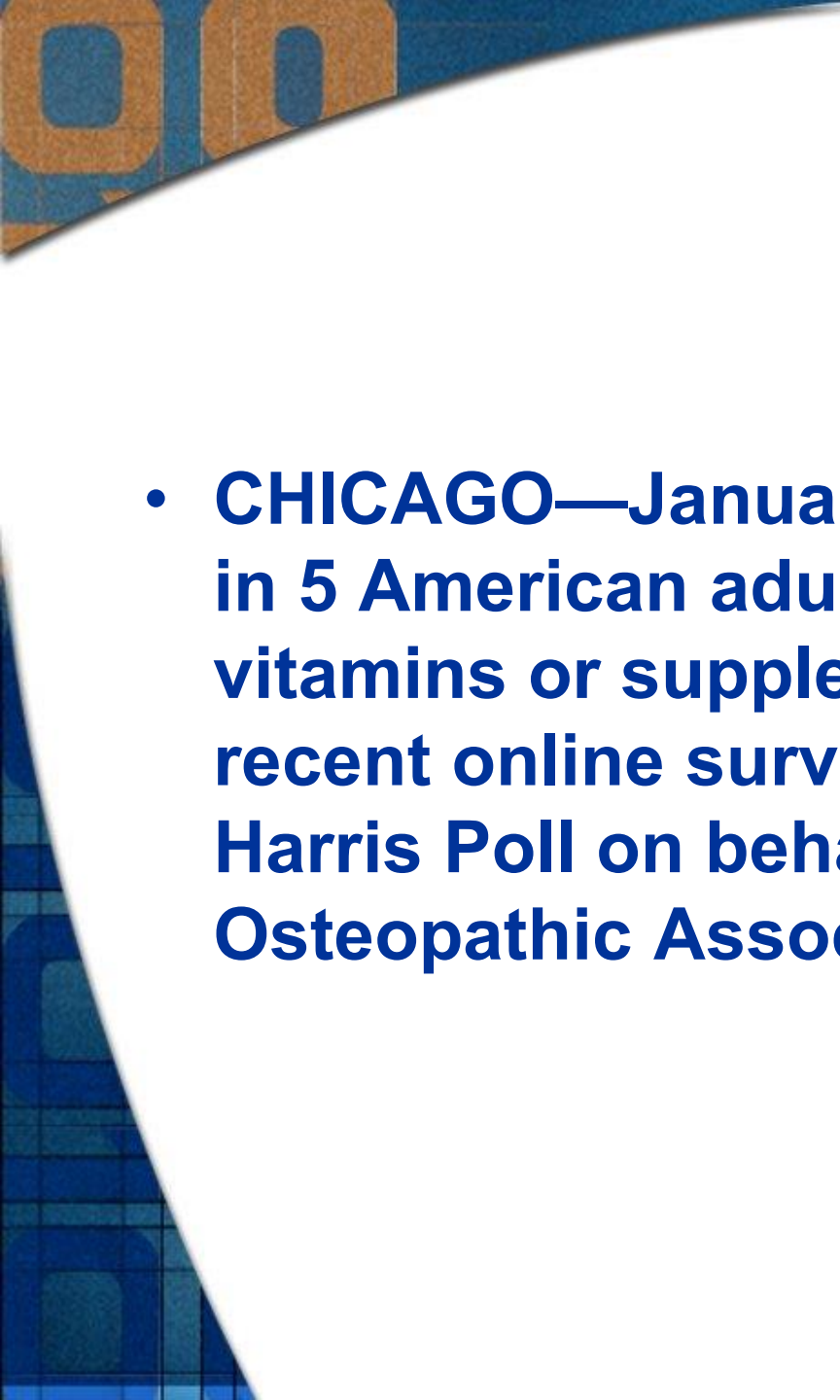
- The global direct-to-consumer laboratory testing market size was valued at USD 3.68 billion in 2022 and is expected to hit around USD 21.6 billion by 2032 with a registered CAGR of 19.4% from 2022 to 2032.



# Beef Up Regulation on 'Wellness' Industry?

MedPage Today September 6, 2024

- The growth of the \$5.6 trillion global wellness industry has led to calls for greater government regulation of supplement makers and medical test companies

- 
- **CHICAGO—January 16, 2019—More than 4 in 5 American adults (86 percent) take vitamins or supplements, according to a recent online survey conducted by The Harris Poll on behalf of the American Osteopathic Association. Jan 16, 2019**

**CHICAGO, Jan. 16, 2019 /PRNewswire/ --**  
**NOTE: This was before the pandemic!**

- **More than 4 in 5 American adults (86 percent) take vitamins or supplements, according to a recent online survey conducted by The Harris Poll on behalf of the American Osteopathic Association.**
- **However, only about a quarter (24 percent) of those taking vitamins or supplements received *objective test results* indicating they have a nutritional deficiency.**

# **The Joint Chiropractic 6-14-2022**

- **Text:**
- **Join today and receive 4 visits for only \$45.00**

# **The Harris Poll** on behalf of the American Osteopathic Association. Jan 16, 2019

**Why people take vitamins:**

- **Recommendations from a physician (51 percent)**
- Their own research, based on personal needs (39 percent)
- Recommendations from a friend or family member (22 percent)
- The survey also found 13 percent of Americans choose their vitamins or supplements based on what items interest them in stores
- 13 percent go off of recommendations from a trainer, exercise professional or nutritionist
- 6 percent base their choices on endorsements by celebrities or social media influencers

# Leaving 'The House of God'

Medpage Today November 26, 2022

- Damaged doctors need to heal our broken hearts
- by Elizabeth LaRusso, MD November 26, 2022
- Consider that **prepandemic**, male and female physicians committed suicide at rates 40% and 130% higher than those of the general population.
- Comment: With 70% of doctors burnt out, it is no wonder that the **AMA**, an organization that supposedly represents physicians in the US, reports that 155,000 physicians will quit in the next 2 years (AMA <https://www.ama-assn.org/pr...>)
- John\_Hsu\_MD - We have gone from the top of the heap to the outhouse. We were the top of the class and we expected our opinions to be of value. Then **we lost self-autonomy. 70% of physicians employed**, meant that the top office was now held by administrators, nurses, pharmacists, EHR computer engineers, **government officials who now tell us what to do. Hospital administrators decide how the business is doing**

# Diagnostic Errors: 1 of every 14 patients hospitalized.

Accepted 12 August 2024

- Harmful DEs were frequently characterised as delays (61.9%). Severely harmful DEs were frequent in high-risk cases (55.1%). In multivariable models, process failures in assessment, diagnostic testing, subspecialty consultation, patient experience, and history were significantly associated with harmful DEs.
- **Conclusions** We estimate that a harmful DE occurred in 1 of every 14 patients hospitalised on general medicine, the majority of which were preventable.



## Mirror, Mirror 2024: A Portrait of the Failing U.S. Health System Comparing Performance in 10 Nations

- **Goal:** Compare health system performance in 10 countries, including the United States, to glean insights for U.S. improvement.
- **Methods:** Analysis of 70 health system performance measures in five areas: access to care, care process, administrative efficiency, equity, and health outcomes.
- **Key Findings:** The top three countries are Australia, the Netherlands, and the United Kingdom, although differences in overall performance between most countries are relatively small.
- **The only clear outlier is the U.S., where health system performance is dramatically lower.**
- **Conclusion:** *The U.S. continues to be in a class by itself in the underperformance of its health care sector.*
- **Mirror, Mirror 2024** is the Commonwealth Fund's eighth report comparing the performance of health systems in selected countries. Since the first edition in 2004, our goal has remained the same: to highlight lessons from the experiences of these nations, with special attention to how they might inform health system improvement in the United States.

# Medscape April 21, 2023

- A recent survey by Elsevier Health predicts that up to **75% of healthcare workers will leave the profession by 2025**. And a 2020 study conducted by the Association of American Medical Colleges (AAMC) **projected a shortfall of up to 139,000 physicians by 2033**.





### SBN TIP

- IF YOU GET HEALTHY ENOUGH, DOES IT REALLY MATTER THE NAME OF THE DISEASE?
- THE CONDITION OF THE BODY IS MORE IMPORTANT THAN THE NAME OF THE DISEASE.



Integrative Oncology International conference in Seoul Korea. Dr. Van Merkle- Key Note speaker April 19, 2019



# Take 2 Healthcare 2017 Stats

•	Dr. Dyer:	Gross Business	Pay	%Pay of business
•	2016	425,132	119,111	28
•	2017	596,373	170,308	28
•	Increase	40%	42%	
•	3% of gross is Chiropractic			
•				
•	Dr. Yahle	Gross Business	Pay	%Pay of business
•	2016	343,711	87,992	25.6%
•	2017	487,458	122,923	25%
•	Increase	40%	39.6%	
•	3% of gross is Chiropractic			



# DR. Yahle: Working 25 to 28 hours a week

Annual Totals	2023	2022	2021	2020	2019	2018	2017
Gross Business	745,868.54	759,780.34	803,541.93	598,610.38	583,108.42	494,320.60	500,971.54
Gross Pay	146,679.56	140,891.75	152,030.89	117,988.55	119,011.97	118,925.66	122,923.41

Gross pay does not include: SSI, Insurance, malpractice, license renewal etc.

**She would make an extra \$130,000 as owner.**

# Andrew R. Dyer, D.C., D.A.B.C.A., D.C.B.C.N.

Total Gross Business	2017	2018	2019	2020	2021	2022	2023
Gross Business	\$596,504.75	\$627,687.86	\$687,246.79	\$717,708.88	\$864,641.62	\$844,178.34	<b>\$913,469.18</b>
Gross Pay	170,308.04	172,061.81	164,877.94	162,701.10	195,096.42	189,096.81	<b>233,398.97</b>

Sees patients about 25 hours a week: starting at 7:30 and out the door by 5pm Takes 3-4 weeks of vacation.  
Is done by noon on Thursdays and Fridays.

**He would make an extra \$130,000 as owner.**

Has been with Take2Healthcare for 20 years as associate.

# Swedish Study and Longevity over 100 yr/o

Bio markers and health, living to age 100.

The global number of centenarians—individuals who survive at least to their 100th birthday—has roughly doubled every decade since 1950 and is projected to quintuple between 2022 and 2050 [

Participants in the population-based AMORIS cohort with information on blood-based biomarkers measured during 1985–1996 were followed in Swedish register data for up to 35 years. We examined bio[1]markers of metabolism, inflammation, liver, renal, anemia, and nutritional status using descriptive statistics, logistic regression, and cluster analysis. In total, **1224 participants (84.6% females)** lived to their 100th birth[1]day.

The final study population consisted of 44,636 participants followed from their first blood measurement until their date of death. Of these, 1224 individuals (2.7%) reached their 100th birthday, comprising the centenarian population. This proportion is very similar to the chance of reaching 100 in the general population of Stockholm in the same time period

Those reaching 100 years:

Higher levels of **total cholesterol and iron**

And lower levels of: **glucose, creatinine, uric acid, aspartate aminotransferase (SGOT), gamma-glutamyl transferase, alkaline phosphatase, lactate dehydrogenase, and total iron-binding capacity.**

**VAN: There are additional tests that I would add due to living in the USA>**

•April 2007, Breast Cancer was diagnosed in a 48 year old female.

• These are the cancer tumor markers- CA 27.29 for the patient below with Breast Cancer.

- ▶ 05-04-2007 185 Medical clinical range is 0-38.60.
- ▶ 05-11-2007 140 2 weeks on her nutritional program
- ▶ 06-07-2007 78.80 4 weeks on her nutritional program
- ▶ 08-03-2007 35.50 All without any medical drugs, chemo, radiation or hormone therapy.

▶ 08-17-2007 29.70 **Total Cost: Out of Pocket to date was \$3,000.00**

(HOW MANY ADJUSTMENTS, THERAPY ETC. WOULD IT TAKE FOR YOU TO MAKE \$3,000.00? HOW MUCH PAPERWORK AND TIME WOULD IT TAKE FOR YOU TO GET PAID THAT MUCH?)

• **3-20-2013 23.20**

▶ 11-16-2013 19.00

▶ **1-10-2015 24.30 Still no hormones, chemo or radiation!**

▶ Biopsy/surgery was immediately recommended but she came to me before the first biopsy/surgery.

▶ 5-4-2007 CA27.29 was 185, this level of CA 27.29 indicates that the cancer has already metastasized, (she started on her complete program after the blood and hair and DMSA urinary challenge tests were done.)

▶ 5-11-2007 CA 27.29 reduced to 140 (this was before ANY medical intervention- no surgery/biopsy, chemo, radiation or hormone therapy)

▶ 5-24-2007 Patient had lumpectomy and 3 out of three lymph nodes were positive, (I was pretty sure that would be). Radiation was immediately recommended daily for 6 weeks followed with chemo and was told that she would probably have 8-10 years to live, which the oncologist thought was pretty good, (she didn't think that was such a great deal for a 48 y/o).

▶ This is far less that the CoPay of conventional cancer treatment for Chemo and/or radiation.

▶ **12-2023- Rochelle is still doing very well, without chemo, radiation, hormones or meds.**



# 48 y/o Female

- CA 27.29      185.70
- Chol      238
- HDL      102
- LDL      191
- CK, LDH, CRP are a Little high

Test Description	Date:	05/04/2007	09/06/2002	Delta
Glucose		100.00	HI	79.00
Hemoglobin A1C (Gly-Hgh)		5.80	hi	5.30
Uric Acid		4.40	Opt	4.60
BUN (Blood Urea Nitrogen)		11.00	lo	14.00
Creatinine		0.70	Opt	0.70
BUN / Creatinine Ratio		16.00	Opt	20.00
Sodium		140.00	lo	137.00
Potassium		4.30	Opt	4.50
Chloride		101.00	Opt	102.00
Magnesium		2.40	Opt	2.00
Calcium		10.10	Opt	9.80
Phosphorus		3.40	lo	4.30
Calcium/Albumin Ratio		2.15	Opt	2.33
Total Protein		7.70	hi	7.30
Albumin		4.70	hi	4.20
Globulin		3.00	Opt	3.10
A/G Ratio		1.60	Opt	1.30
Total Bilirubin		0.40	Opt	0.40
Alkaline Phosphatase 25-150		72.00	Opt	67.00
Creatine Kinase		146.00	hi	79.00
LDH		180.00	hi	162.00
SGOT (AST) (AST)		27.00	hi	23.00
SGPT (ALT) (ALT)		18.00	Opt	19.00
GGT		35.00	Opt	20.00
Serum Iron		105.00	Opt	128.00
Ferritin		77.00	Opt	68.00
Total Cholesterol		238.00	HI	206.00
Triglyceride		83.00	Opt	145.00
HDL Cholesterol		102.00	HI	98.00
VLDL Cholesterol		17.00	Opt	29.00
LDL Cholesterol		119.00	HI	79.00
Total Cholesterol / HDL Ratio		2.30	Opt	2.10
Triglyceride/HDL Ratio		0.81	lo	
T4 Thyroxine		8.40	Opt	6.90
T3 Uptake		30.00	Opt	28.00
T7 Free Thyroxine Index (FTI)		2.50	lo	1.90
White Blood Count		4.90	lo	4.10
Red Blood Count		4.47	lo	4.60
Hemoglobin		12.90	lo	13.00
Hematocrit		37.70	lo	38.90
MCV		84.00	lo	85.00
MCH		28.80	Opt	28.30
MCHC		34.10	Opt	33.50
Platelets		297.00	hi	224.00
Polys/Neutrophils (SEGS-PMNS)		60.00	Opt	64.00
Lymphocytes		31.00	Opt	29.00
Monocytes		7.00	Opt	6.00
Eosinophils		2.00	Opt	1.00
Basophils		0.00	Opt	0.00
ESR-Erythrocyte Sed Rate, Westerg		2.00	Opt	2.00
CRP C-Reactive Protein		4.30	hi	2.90
CA 27.29		185.70	HI	

Test Description	Current Rating 06/03/2008	
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Toxic Elements		
Aluminum	28.00	Very High
Antimony	0.01	★
Arsenic	0.07	high
Barium	3.70	High
Beryllium	0.01	★
Bismuth	0.33	★
Cadmium	0.09	Very High
Lead	0.20	★
Mercury	0.19	★
Platinum	0.01	High
Thallium	0.00	★
Thorium	0.00	★
Uranium	0.01	★
Nickel	0.18	★
Silver	0.06	high
Tin	0.07	★
Titanium	1.50	High
Total Toxic Representation	3.00	High

Essential Elements		
Calcium	1210.00	high
Magnesium	290.00	High
Sodium	570.00	High
Potassium	230.00	Very High
Copper	7.20	Very Low
Zinc	130.00	Low
Manganese	0.13	Low
Chromium	0.33	Low
Vanadium	0.01	Low
Molybdenum	0.07	★
Boron	6.10	High

# Breast Cancer Case cont.

Test Description	Date:	Current Result 05/18/2007	Current Rating	Prior Result 05/12/2007
Agent		DMSA		Pre-Chall
Dose		1000 mg		
Interval		6		6
Toxic Elements				
Aluminum (UA)		0.00	Opt	53.00
Antimony (UA)		0.00	Opt	0.20
Arsenic (UA)		34.00	Opt	42.00
Beryllium (UA)		0.00	Opt	0.00
Bismuth (UA)		0.00	Opt	0.00
Cadmium (UA)		0.80	Opt	0.40
Lead (UA)		62.00	HI	1.10
Mercury (UA)		9.70	HI	1.80
Nickel (UA)		1.00	Opt	7.70
Platinum (UA)		0.00	Opt	0.00
Thallium (UA)		0.20	Opt	0.08
Thorium (UA)		0.00	Opt	0.00
Tin (UA)		3.30	Opt	0.00
Tungsten (UA)		0.00	Opt	0.00
Uranium (UA)		0.00	Opt	0.00



## Gen X, millennials more likely to get cancer, new study shows AXIOS: Jul 31, 2024 – Health

- A sweeping new study is widening the lens on a **puzzling uptick in a range of cancers occurring among younger generations of patients.**
- Why it matters: It's the latest evidence that the burden of cancer could rise in the future despite major advances in treatment and prevention.
- The study from the **American Cancer Society found adults in their 30s, 40s and 50s are more likely than previous generations were to develop 17 different types of cancers**, including breast, liver and pancreatic cancers.
- Previous research has indicated alarming increases in certain cancers among younger adults, such as colorectal cancer.
- A National Cancer Institute study published in June concluded Gen Xers were more likely to be diagnosed with cancer as they aged than previous generations, [NPR reported in June](#).
- What they're saying: "It's really sort of scary to see all in one dataset," said Andrea Cercek, co-director of the
- What they found: The study used data from 23.7 million patients dating back to 1920 through 1990. Of 34 cancers examined, half had increased incidence among younger adults, according to the study published Wednesday in *The Lancet*.
- Incidence of eight different cancers increased with each successive age cohort after 1920.
- In particular, **adults born in the 1990 cohort were two or three times more likely to get cancers of the small intestines, kidney and pancreas (as well as the liver and bile duct in women) compared with those in born in the 1955 cohort at the same age.**
- Zoom in: In the case of five cancers — liver and endometrial in females, as well as gallbladder, testicular, and colorectal cancers — **young adults were more likely to die compared with prior generations.**

# r Test Results

Legend:	<div></div> Warning	<div></div> High Risk	<div></div> Critical
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Test Results		Current Rating 07/21/2010	
Toxic Elements			
Aluminum	2.10	★	
Antimony	0.02	★	
Arsenic	0.03	★	
Barium	0.10	★	
Beryllium	0.01	★	
Bismuth	0.03	★	
Cadmium	0.04	high	
Lead	0.78	high	
Mercury	0.44	★	
Platinum	0.00	★	
Thallium	0.00	★	
Thorium	0.00	★	
Uranium	0.13	High	
Nickel	0.05	★	
Silver	0.03	★	
Tin	0.04	★	
Titanium	0.38	★	
Essential Elements			
Calcium	202.00	low	
Magnesium	110.00	High	
Sodium	110.00	★	
Potassium	16.00	low	
Copper	67.00	Very High	
Zinc	200.00	high	
Manganese	0.32	★	
Chromium	0.48	low	
Vanadium	0.03	low	
Molybdenum	0.03	low	
Boron	0.39	Low	
Iodine	0.36	low	
Lithium	0.01	Low	
Phosphorus	182.00	★	
Selenium	0.88	★	
Strontium	0.18	Low	
Sulfur	48100.00	high	
Cobalt	0.05	High	
Iron	13.00	★	
Germanium	0.04	★	
Rubidium	0.02	low	
Zirconium	0.03	Low	

## Blood Test Results

Legend:	<div></div> Warning	<div></div> High Risk	<div></div> Critical	<div></div> Optimal
Test Description		Current Rating 07/23/2010		Prior 11/30/2009
Glucose	89.00	★		
Hemoglobin A1C (Gly-Hgh)	6.00	High		
Uric Acid	6.60	high		
BUN (Blood Urea Nitrogen)	21.00	high		
Creatinine	1.02	★		
GFR EST (Glomerular Filtration Rate)	59.00	★		
BUN / Creatinine Ratio	21.00	high		
Sodium	140.00	★		
Potassium	4.30	★		
Chloride	100.00	low		
Magnesium	2.50	★		
Calcium	10.00	high		
Phosphorus	2.80	low		
Total Protein	7.60	★		
Albumin	4.90	High		
Globulin	2.70	low		
A/G Ratio	1.80	high		
Total Bilirubin	1.10	high		
Alk. Phosphatase 25-530	97.00	★		
Creatine Kinase	164.00	high		
LDH	174.00	high		
SGOT (AST)	32.00	high		
SGPT (ALT)	50.00	High		
GGT	29.00	★		
Serum Iron	131.00	high		
Ferritin	472.00	High		
Total Cholesterol	182.00	high	186.00	
Triglyceride	70.00	low	80.00	
HDL Cholesterol	47.00	★	44.00	
VLDL Cholesterol	14.00	★	16.00	
LDL Cholesterol	121.00	High	126.00	
Total Cholesterol / HDL Ratio	3.90	★	4.23	
TSH	1.87	★		
T4 Thyroxine	10.00	high		
T3 Uptake	30.00	★		
T7 Free Thyroxine Index (FTI)	3.00	★		
CRP C-Reactive Protein	0.70	★		
White Blood Count	6.80	★		
Red Blood Count	5.16	★		
Hemoglobin	16.90	high		
Hematocrit	46.40	★		
MCV	90.00	★		
MCH	32.80	high		
MCHC	36.40	High		
RDW	13.10	★		
Platelets	292.00	high		
Polys/Neutrophils (SEGS-PMNS)	65.00	high		
Lymphocytes	26.00	★		
Monocytes	7.00	high		
Eosinophils	2.00	★		
Basophils	0.00	★		
Neutrophils/Polys (Absolute)	4.40	★		
Lymphs (Absolute)	1.80	low		
Monocytes (Absolute)	0.50	★		
Eosinophils (Absolute)	0.10	★		
Basophils (Absolute)	0.00	★		
ESR-Erythrocyte Sed Rate, Westergren	2.00	★		
Vitamin D 25-Hydroxy	21.00	Very Low		

# •Herbert H. Chelation Tests

Legend: <span>Warning</span> <span>High Risk</span> <span>Critical</span> <span>Optimal</span> <span>Im</span>			
Test Description		Prior 07/24/2010	Delta
Agent		Pre-Challen	
Dose			
Interval		6	
<b>Toxic Elements</b>			
Aluminum (UA)		3.10	
Antimony (UA)		0.00	
Arsenic (UA)		6.40	
Barium (UA)		2.50	
Beryllium (UA)		0.00	
Bismuth (UA)		0.00	
Cadmium (UA)		0.30	
Cesium (UA)		3.50	
Gadolinium (UA)		0.00	
Lead (UA)		0.50	☹
Mercury (UA)		1.30	☹
Nickel (UA)		2.50	
Palladium (UA)		0.00	
Platinum (UA)		0.00	
Tellurium (UA)		0.00	
Thallium (UA)		0.20	
Thorium (UA)		0.00	
Tin (UA)		2.30	
Tungsten (UA)		0.00	
Uranium (UA)		0.00	



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DABCI, DCBCN, CCN

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## PRESS ON:

- Nothing in the world can take the place of persistence.
- **Talent** will not; nothing is more common than unsuccessful men with talent.
- **Genius** will not; unrewarded genius is almost a proverb.
- **Education** alone will not; The world is full of educated derelicts.
- **Persistence and determination alone are omnipotent.**

**Calvin Coolidge**

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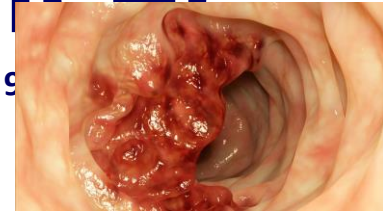
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# Colon Cancer

by Diana Swift, Contributing Writer March 9



- **Colon Cancer has doubled**
  - **in people under 50**
- **New Guideline Lowers Age to Begin Colorectal Cancer Screening**
- The update is timely in that 140,000 new cases of CRC are now diagnosed annually in the U.S., she said, with an alarming increase in people younger than 50. The disease is estimated to account for as much as 10% of all cancer deaths.
- incidence rates have doubled in people ages 20 to 49. It has been estimated that those born around 1990 have twice the risk of colon cancer and quadruple the risk of rectal cancer compared with those born around 1950

# Prostate Cancer- Active Surveillance

by Howard Wolinsky, Contributing Writer, MedPage Today **December 27, 2019**

- Prostate Cancer And The Waiting Game-
- 2 comments at end of article.
- Active surveillance isn't just about avoiding surgery -- it's also buying time
- When I was diagnosed with low-risk (Gleason 3+3) prostate cancer in December 2010, I had few choices.
- The first was to treat the disease with a radical prostatectomy (recommended by my first urologist) or radiation. **Nine years ago, maybe 94% of men like me opted for what was viewed as a "cure."** Of course, what you often got in exchange were major lifestyle disruptions: incontinence and impotence, plus a risk of sepsis and even death.
- The urologist saw it this way on a Tuesday that December: **Bad news, you have cancer. Good news, I have an opening in the OR next Tuesday.**

# Prostate Cancer- Active Surveillance

- The University of Chicago urologist said, "Surgery?" Bad idea. Instead, he proposed active surveillance (AS). Monitor the slow-growing disease and intervene if things became aggressive.
- Men today seem better informed than I was nearly a decade ago about the risks with AS. I find that many men today fear risks from biopsies, including infections, such as sepsis, and surgical misadventures, such as bowel damage.
- MRIs? I used to think they were going to replace biopsies. And some urologists use them, along with PSA testing, to surveil prostate cancer and avoid biopsies. I've had only two MRIs: one in 2016 showed no lesions and the other from 2011 showed two, at least one of which I believe now was an artifact.

# Prostate Cancer- Active Surveillance

## Prostate Cancer And The Waiting Game-

- Now spaces out biopsies by 4-5 years. But there is no consensus on the interval between biopsies. Some get biopsies every two days.
- It will soon be four years since my last MRI and biopsy. Several experts have advised me to stop biopsies altogether – though not my personal urologist.
- Active surveillance, above all, is a waiting game.
- For roughly one-third of the patients, it is more like "anxious surveillance"; they drop out of AS because they find they can't handle the uncertainties of living with cancer. Spouses and friends may be urging them to be "safe" and excise the cancer. One-third drop out because surveillance has shown they have more advanced cancers requiring intervention.

**The remaining third go on to live out their lives and die from something other than prostate cancer.**

- Active surveillance is a waiting game with a difference.

# **Pesticides and Prostate Cancer Incidence**

## **04 November 2024**

- **Prostate cancer is the most common cancer among men in the United States, yet modifiable risk factors remain elusive.**
- **295 distinct pesticides.**
- **Twenty-two pesticides showed consistent, direct associations with prostate cancer**
- **Four pesticides were also associated with prostate cancer mortality.**

# What are my chances of getting cancer?

According to 2020 data from the American Cancer Society

- **Men** have a 40.14 percent—or approximately **one in two**—**chance of developing cancer in their lifetime. The greatest risk is prostate cancer.**
- **Women, 38.7 percent, or a one in three chance. The greatest risk is Breast Cancer**
- **What are my odds of dying from cancer?**
  - Men have a 21.34 percent lifetime risk of dying from cancer.
  - Women around 18.33 percent lifetime risk of dying from cancer.
- **Data suggests that new cancer diagnoses will grow to 27.5 million by 2040, the odds of survival are getting better.**
- **According to the National Cancer Institute, the five-year survival rate from 2009 to 2015 in America was 67.1 percent.**
- **EARLY DETECTION BUT THE END RESULT IS STILL THE SAME**

# **Cancers in people under the age of 19.**

- **Types of Cancers That Develop in Young Adults - American Cancer Society**
- **Breast cancer. Lymphomas (non-Hodgkin and Hodgkin) Melanoma. Sarcomas (cancers of connective tissues like muscles and bones) Cancers of the female genital tract (cervix and ovary) Thyroid cancer. Testicular cancer. Colorectal cancer. Brain and spinal cord tumors.**
- **Cancer in Children and Adolescents - NCI - National Cancer Institute**
- **Among adolescents (ages 15 to 19 years), the most common types of cancer are brain and other CNS tumors and lymphomas, followed by leukemias, thyroid cancer, gonadal (testicular and ovarian) germ cell tumors, and malignant bone tumors ( 1 ). Different racial and ethnic groups have differences in rates of the most common types of childhood cancer.**



# A global epidemic of cancer among people younger than 50 could be emerging

By Brenda Goodman, CNN Updated 1:05 PM EDT, Mon October 17, 2022

- A new review of cancer registry records from 44 countries found that the incidence of early-onset cancers is rising rapidly for colorectal and 13 other types of cancers
- Iana dos Reis Nunes was 43 when she told her husband that she could feel something like a bubble in her abdomen when she lay on her side.
- An ultrasound scan found spots on her liver, which led to blood tests and a colonoscopy.
- “There was a tumor the size of your fist, and she had no pain and no problems with bowel movements or anything like that,” recalled Brendan Higgins, her husband, who works as an artist in New York City.
- By the time doctors found it, dos Reis Nunes’ colon cancer had spread. It was stage 4, meaning it had reached other parts of her body.
- The family was blindsided.
- “She had had a baby 15 months prior to her diagnosis, so she’d had a million blood tests, you know, care from doctors and sonograms ... and there was no indication of anything, nothing whatsoever.”
- When cancer strikes an adult under the age of 50, doctors call it an early-onset case. These cancers at younger ages are becoming more common.



## Erythritol and other artificial and non-nutritive Sweeteners and heart disease

Arteriosclerosis, Thrombosis, and Vascular Biology Published 8 August 2024

**Erythritol should be reevaluated as a food additive**

URL: <https://www.clinicaltrials.gov>; Unique identifier: NCT04731363.

- **Ingestion of the Non-Nutritive Sweetener Erythritol, but Not Glucose, Enhances Platelet Reactivity and Thrombosis Potential in Healthy Volunteers**

- Although artificial and non-nutritive sweeteners are GRAS by the US and European Union regulatory agencies, there have been no clinical trials to assess either long-term cardiovascular disease risks or short-term cardiovascular disease.

- Recent studies report that fasting plasma levels of erythritol, a commonly used sweetener, are clinically associated with heightened incident cardiovascular disease risks and enhance thrombosis

**CONCLUSIONS:** Ingestion of a typical quantity of the non-nutritive sweetener erythritol, but not glucose, enhances platelet reactivity in healthy volunteers, raising concerns that erythritol consumption may enhance thrombosis potential.

# FDA's 'hands-off approach' to additives may allow unsafe ingredients in food, experts suggest

By Berkeley Lovelace Jr. and Mustafa Fattah Aug. 8, 2024

- A loophole means manufacturers don't need approval before adding new ingredients, such as natural sweeteners and texture enhancers, to foods,
- Food additives, including those found in ultra processed foods and energy drinks, may allow unsafe ingredients to enter the nation's food supply,
- The paper, in the American Journal of Public Health, allege that the FDA has failed to take quick action to protect the public from certain additives — including brominated vegetable oil and red dye No. 3 — in food products.
- In July, the FDA banned the use of brominated vegetable oil after studies had shown that it could be potentially harmful to the liver and heart, and may be linked to neurological problems. The ingredient had already been banned in the U.K., the European Union, India and Japan.
- two people died after drinking Panera's highly caffeinated “Charged Lemonade” drinks.
- “We cannot say that our food supply is safe.”
- “Generally Recognized as Safe,” Ingredients deemed GRAS don't need to undergo FDA approval before being used.

# FDA's 'hands-off approach' to additives may allow unsafe ingredients in food, experts suggest

By [Berkeley Lovelace Jr.](#) and [Mustafa Fattah](#) Aug. 8, 2024

## Article continues:

- The rule was intended to simplify the use of common ingredients like salt and vinegar.
- Over the years, food companies began using the rule as what Pomeranz called a “loophole” to add new substances — including natural sweeteners, preservatives and ingredients that enhance the texture of foods — that had not been fully vetted by the agency. Some companies have also used the rule to justify adding higher levels of caffeine to their products, she said.
- While food manufacturers can request an FDA review of new ingredients before they are added to products — and they sometimes do — they are not required to do so.
- From 1990 to 2010, an estimated 1,000 substances were labeled GRAS by manufacturers and were used without notifying the agency, “We have no idea how many substances are in the food supply based on this self-GRAS mechanism,” Pomeranz said. “The food industry has basically made their own decisions about what is GRAS.”

# Glyphosate- Round Up

- What is glyphosate used for? –
- Mar 2, 2022 As worldwide use of glyphosate has increased during the past 25 years or so, human exposures to glyphosate-based herbicides have also risen significantly. **A 2017 study found that human glyphosate exposure increased more than 500% in two decades.**





# Roundup/Glyphosate lawsuits

- **Jan 26, 2024 (Reuters) - Bayer was ordered on Friday to pay \$2.25 billion to a Pennsylvania man** who said he developed cancer from exposure to the company's Roundup weedkiller, the man's attorneys said.
- A jury in the Philadelphia Court of Common Pleas found that John McKivison's **non-Hodgkins lymphoma was the result of using Roundup for yard work** at his house for a period of several years. The verdict includes \$250 million in compensatory damages and \$2 billion in punitive damages.
- **Roundup Maker to Pay \$10 Billion to Settle Cancer Suits** Bayer faced tens of thousands of claims linking the weedkiller to cases of non-Hodgkin's lymphoma. Some of the money is set aside for... Jun 2020
- A California jury on Monday **awarded more than \$2 billion to a couple** who claimed Bayer AG's glyphosate-based Roundup weed killer caused their cancer, in the largest U.S. jury verdict to date against the company in litigation over the chemical. May 2019
- **Monsanto ordered to pay \$289 million** in world's first Roundup cancer trial- August 2018

# Bayer ordered to pay **\$1.56 billion** in latest US trial loss over Roundup weedkiller

- By Tom Hals
- November 20, 2023 11:50 AM EST Updated a month ago
- The company's Roundup weedkiller **caused injuries including cancer**, a verdict that could intensify investor pressure on the German drugs and agricultural chemicals company to change its legal strategy.
- The Cole County, Missouri jury found on Friday that Bayer's Monsanto business was liable **for claims of negligence, design defects and failing to warn plaintiffs of the potential dangers** of using Roundup, according to court documents.
- Valorie Gunther of New York, Jimmy Draeger of Missouri and Daniel Anderson of California were awarded a combined \$61.1 million in compensatory damages and \$500 million each in punitive damages. Each was diagnosed with **non-Hodgkin lymphoma** that they alleged was caused by using Roundup on their family property. Draeger's wife Brenda was awarded \$100,000 for the harm she allegedly suffered from her husband's disease.

# Ben & Jerry's and Glyphosate

- Ben & Jerry's has been directly confronted about their failure to live up to their stated missions, yet they have consistently refused to address the concerns brought against them
- Independent testing reveals traces of glyphosate in 10 out of 11 Ben & Jerry's ice cream flavors — evidence they're using cheap, factory-farmed milk from cows raised on GMO feed and tainted, nonorganic flavor ingredients
- By refusing to use organic milk and organic ingredients that cost more and cut into profits, Ben & Jerry's mission goals have been neglected for 20 years and remain unfulfilled to this day. Join us in encouraging Ben & Jerry's to live up to their promises and deliver the real goods





# US Approves GMO Wheat Grown with Neurotoxic Herbicide

Nov 11, 2024 Mercola

- The U.S. Department of Agriculture (USDA) recently approved the cultivation of genetically modified (GM) wheat, raising concerns about its long-term effects on health and the environment
- HB4, the world's first genetically modified wheat, was developed by Argentine company Bioceres. It's engineered for both drought tolerance and resistance to the herbicide glufosinate ammonium
- Glufosinate ammonium has been banned in several countries, including the European Union. It's classified as a neurotoxin and has been linked to developmental and reproductive health issues
- The United States, one of the largest wheat producers in the world,<sup>5</sup> is the fourth country to permit the production of HB4 wheat, along with Brazil, Argentina and Paraguay.<sup>6</sup>
- **in Argentina there is no labeling for genetically modified (GM) products**

# US Approves GMO Wheat Grown with Neurotoxic Herbicide

Nov 11, 2024 Mercola

- Health and Environmental Impacts of Glufosinate Ammonium (Roundup)
- Glufosinate ammonium, the broad-spectrum herbicide used in the cultivation of HB4 wheat, works by inhibiting glutamine synthetase, an enzyme vital to plant growth.<sup>17</sup> However, its impact is not limited to plants.
- The herbicide is classified as a neurotoxin, and long-term exposure has been linked to a variety of health issues in humans, including developmental, neurological and reproductive effects.<sup>18</sup>
- Animal studies have shown that it interferes with the normal functioning of the nervous system<sup>19</sup> and, in fetuses and infants exposed prenatally and perinatally, it has been linked to poor gut health,<sup>20</sup> behavioral abnormalities and motor function problems.<sup>21</sup> This makes pregnant women and children particularly vulnerable to its harmful effects.

# Non-GMO and Organic

Mercola July 30, 2024

- **"Non-GMO" labeling does not mean chemical-free farming (organic).** These crops may still be treated with pesticides and herbicides. **Many nonorganic grains are heavily sprayed with toxic pesticides like glyphosate just before harvest, a practice called desiccation**
- A recent study found glyphosate in **44 out of 46 organic and nonorganic gluten-free products tested**, with some at alarmingly high levels
- **Glyphosate exposure can disrupt gut health by killing beneficial bacteria and promoting the growth of harmful bacteria. Consuming organic food has been linked to reduced cancer risk, according to a study published in JAMA Internal Medicine**
- The EPA's acceptable daily intake for glyphosate is **7,000 times higher than European standards**

# Paraquat Dichloride | US EPA

<https://www.epa.gov/ingredients-used-pesticide-products/paraquat-dichloride>

- Jul 12, 2022 Paraquat dichloride, commonly referred to as "paraquat," is one of the most widely used herbicides in the United States. Paraquat is also often referred to as Gramoxone (a popular end-use product). It is an important tool for the control of weeds in many agricultural and non-agricultural settings. It is also used for desiccation of crops ...
- **Paraquat | Uses, Toxicity, Poisoning, Link to Parkinson's Disease**
- Feb 3, 2022 Paraquat, also known as paraquat dichloride, is a highly toxic herbicide used to control weeds and grass. The U.S. Environmental Protection Agency restricted paraquat use to commercially licensed users. Paraquat poisoning through ingestion, inhalation or skin exposure can lead to serious health problems, including death.

# **Tomato Pesticide Application in Florida**

- **Average number of pesticide applications**

– Mancozeb	20
– Maneb	12
– Copper Sulfate	13
– Chlorothalonil	8
– Copper Hydroxide	19
– Copper Oxychloride	7

# Breakfast Cereals Scrutinized for Pesticide That May Harm Reproduction

- **found in popular breakfast cereals like Quaker Oats and Cheerios.**
- Chlormequat was detected in the urine of 4 out of 5 people or 80 percent of Americans tested.
- **92 percent of oat-based foods tested contained chlormequat, including Quaker Oats and Cheerios.**
- **What Is Chlormequat?**
- Chlormequat, widely known in the salt form as chlormequat chloride, is an agricultural chemical first registered in the United States in 1962 as a plant growth regulator. Plant growth regulators are chemical substances employed to control and regulate plant growth, flowering, and fruit yield, according to a 2006 study in the International Journal of Andrology.
- **Chlormequat application in grain crops results in reduced stem height, thereby minimizing the occurrence of lodging (bending over), which can reduce the efficiency of the harvesting process.**
- Chlormequat is the world's most common plant growth regulator according to a 2020 study published in Toxicology.
- **"Chlormequat is often the most detected pesticide residue in grains and cereals"**



# Organophosphate and Carbamate Insecticides



The screenshot shows a software window titled 'Test Description' with a 'Current Rating' of 'High Risk'. It displays a list of chemical elements and their associated data, including a 'Test Description' column and a 'Current Rating' column. The elements listed are: Aluminum (AA), Arsenic (AA), Barium (AA), Beryllium (AA), Cadmium (AA), Cesium (AA), Chromium (AA), Cobalt (AA), Copper (AA), Fluorine (AA), Gallium (AA), Germanium (AA), Hydrogen (AA), Iodine (AA), Iron (AA), Lead (AA), Lithium (AA), Manganese (AA), Mercury (AA), Molybdenum (AA), Nickel (AA), Nitrogen (AA), Potassium (AA), Selenium (AA), Silver (AA), Strontium (AA), Sulfur (AA), Tellurium (AA), Thallium (AA), Thorium (AA), Tin (AA), Vanadium (AA), Zinc (AA), and Zirconium (AA). The 'Current Rating' column shows 'High Risk' for Aluminum, Arsenic, Barium, Beryllium, Cadmium, Cesium, Chromium, Cobalt, Copper, Fluorine, Gallium, Germanium, Hydrogen, Iodine, Iron, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Nitrogen, Potassium, Selenium, Silver, Strontium, Sulfur, Tellurium, Thallium, Thorium, Tin, Vanadium, Zinc, and Zirconium. The 'Test Description' column shows 'High Risk' for Aluminum, Arsenic, Barium, Beryllium, Cadmium, Cesium, Chromium, Cobalt, Copper, Fluorine, Gallium, Germanium, Hydrogen, Iodine, Iron, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Nitrogen, Potassium, Selenium, Silver, Strontium, Sulfur, Tellurium, Thallium, Thorium, Tin, Vanadium, Zinc, and Zirconium.

- ▶ These compounds bind to acetylcholinesterase and other cholinesterases.
- ▶ This results in disruption of nervous impulses and/or terminates signal transmission in the brain, killing the insect or interfering with its ability to carry on normal functions
- ▶ Chemical warfare agents (such as sarin, tabun, soman and VX) work in the same way and are organophosphates

# Cholinesterase (Blood test)

- ▶ This **test** looks for signs of chemical poisoning in your blood.
- ▶ **Cholinesterase** is an enzyme that helps your nervous system work properly.
- ▶ Certain toxic chemicals in the environment can interfere with this enzyme and affect your nervous system. These chemicals include organophosphates and other pesticides and chemicals



The image shows a screenshot of a chemical analysis report. The report is titled 'Test Description' and includes a 'Current Rating' of 'High Risk'. The report lists various elements and their concentrations, with some elements marked as 'High Risk'.

Element	Current Rating	Price
Aluminum (AA)	0.00	3.10
Antimony (AA)	0.00	0.00
Arsenic (AA)	0.00	0.00
Boron (AA)	0.00	0.00
Bromine (AA)	0.00	0.00
Cadmium (AA)	0.00	0.00
Calcium (AA)	0.00	0.00
Chromium (AA)	0.00	0.00
Cobalt (AA)	0.00	0.00
Copper (AA)	0.00	0.00
Fluorine (AA)	0.00	0.00
Gold (AA)	0.00	0.00
Iron (AA)	0.00	0.00
Lead (AA)	0.00	0.00
Magnesium (AA)	0.00	0.00
Manganese (AA)	0.00	0.00
Mercury (AA)	0.00	0.00
Molybdenum (AA)	0.00	0.00
Nickel (AA)	0.00	0.00
Palladium (AA)	0.00	0.00
Phosphorus (AA)	0.00	0.00
Potassium (AA)	0.00	0.00
Selenium (AA)	0.00	0.00
Silver (AA)	0.00	0.00
Sulfur (AA)	0.00	0.00
Tantalum (AA)	0.00	0.00
Tellurium (AA)	0.00	0.00
Thallium (AA)	0.00	0.00
Thoron (AA)	0.00	0.00
Tin (AA)	0.00	0.00
Tungsten (AA)	0.00	0.00
Zinc (AA)	0.00	0.00

[illegible]

- ▶ **Low Cholinesterase indicates chemical toxins**
- ▶ **Very low could indicate severe poisoning**
- ▶ Plasma cholinesterase levels are more useful for acute (short-term) exposure, while red cell levels are more useful in the chronic (long-term) setting.
- ▶ **High Cholinesterase**
- ▶ A **high** level of **cholinesterase** in the blood may be a consequence of diabetes with obesity, thyrotoxicosis, schizophrenia, hypertension, mood disorders or after a concussion.
- ▶ If **cholinesterase** levels are very **high**, the most probable cause is due to nephrotic syndrome

[illegible]

- Prevention February 2007

The USDA  
Organic seal  
indicates that a  
product is at  
least 95%  
organic.

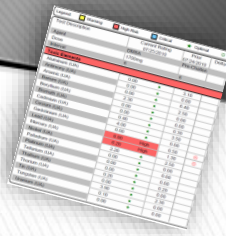


Legend: ☐ Warning ☐ High Risk ☐ Critical

Test Description	Current Rating	Price
Interval	07-25-2010	07-24-2010
Interval	1700mg	Pre-Season
Test Results		
Aluminum (IA)	0.00	3.10
Arsenic (IA)	0.00	0.00
Boron (IA)	0.00	0.00
Cadmium (IA)	0.00	0.00
Copper (IA)	0.00	0.00
Cobalt (IA)	0.00	0.00
Lead (IA)	0.00	0.00
Mercury (IA)	0.00	0.00
Manganese (IA)	0.00	0.00
Nickel (IA)	0.00	0.00
Potassium (IA)	0.00	0.00
Selenium (IA)	0.00	0.00
Silver (IA)	0.00	0.00
Sulfur (IA)	0.00	0.00
Tin (IA)	0.00	0.00
Tungsten (IA)	0.00	0.00
Zinc (IA)	0.00	0.00



# Is Chemical Farming Making Our Food Less Nutritious?



Item	1930	1980	% Change
Calcium	100	81	-19%
Iron	100	78	-22%
Potassium	100	86	-14%

- ▶ USDA nutrient data from 1975 and 1997 has revealed a disturbing trend:
  - Average calcium levels in 12 fresh vegetables have **declined 27%**
  - Iron levels have **dropped 37%**
  - Vitamin A levels, **21%**
  - Vitamin C levels, **30%**
- ▶ British nutrient data from 1930 and 1980 indicate reductions of essential minerals in both fruits and vegetables:
  - Average calcium content **declined 19%**
  - Iron, **22%**
  - Potassium **14%** in the 20 vegetables compared.



# Decreased Protein

- ▶ Journal of Agricultural and Food Chemistry in 2004 analyzed soybeans and soybean meal from the world's top producers: Argentina, Brazil, China, India, and the U.S.
- ▶ Argentina, 98 percent Roundup Ready (RR), had the lowest crude protein content.
- ▶ China, which grew no GM soy at the time, had the highest.
- ▶ "This points directly to the possibility that RR has resulted in significant decline in protein level,"
- ▶ Protein levels in soy and corn in the United States are decreasing.

Test Description	Current Rating	Price	Dose
Aluminum (Al)	0.00	0.00	0.00
Arsenic (As)	0.00	0.00	0.00
Barium (Ba)	0.00	0.00	0.00
Beryllium (Be)	0.00	0.00	0.00
Cadmium (Cd)	0.00	0.00	0.00
Calcium (Ca)	0.00	0.00	0.00
Cobalt (Co)	0.00	0.00	0.00
Copper (Cu)	0.00	0.00	0.00
Lead (Pb)	0.00	0.00	0.00
Manganese (Mn)	0.00	0.00	0.00
Mercury (Hg)	0.00	0.00	0.00
Nickel (Ni)	0.00	0.00	0.00
Potassium (K)	0.00	0.00	0.00
Selenium (Se)	0.00	0.00	0.00
Silver (Ag)	0.00	0.00	0.00
Strontium (Sr)	0.00	0.00	0.00
Sulfur (S)	0.00	0.00	0.00
Tellurium (Te)	0.00	0.00	0.00
Thallium (Tl)	0.00	0.00	0.00
Thorium (Th)	0.00	0.00	0.00
Tin (Sn)	0.00	0.00	0.00
Tungsten (W)	0.00	0.00	0.00
Vanadium (V)	0.00	0.00	0.00

# **48 year old female**

- **Creatine Kinase 4780**
- **Loosing weight, strength the last 3 years most significantly the last 2-3 months**
- **Lost 30 pounds, now under 100lbs at 5'5"**
- **CK dropped to under 700 in less than one week.**

# Breakfast Cereals Scrutinized for Pesticide That May Harm Reproduction

Recent studies further demonstrate chlormequat's reproductive and developmental toxicity, including:

- **Delayed onset of puberty:** According to a 2020 study in Toxicology Letters, male rats exposed to chlormequat from postnatal day 23 to 60 demonstrated reduced prostate weight and delayed onset of puberty.
- **Reduced sperm motility:** Male rats exposed to chlormequat in utero demonstrated a delayed onset of puberty as well as decreased sperm motility, according to a 2021 study in Toxicology Letters.
- **Decreased testosterone:** Male adult rats exposed to chlormequat by oral gavage (delivering substances directly to the stomach via a bulb-tipped needle) demonstrated lower testicular weight, decreased sperm motility, and decreased testicular testosterone, according to a 2018 study in Toxicology Letters.

Moreover, developmental toxicity studies suggest that chlormequat exposure during pregnancy **can disrupt fetal growth and metabolism postnatally, indicating a lasting impact on offspring development** in rats.

For instance, a 2020 study published in Toxicology reported maternal exposure to chlormequat in rats led to adverse effects on postnatal health, including hypoglycemia, hyperlipidemia, and hyperproteinemia seven days after birth compared with controls.

A 2007 study in Analytical and Bioanalytical Chemistry reported detectable levels of chlormequat in blood, as well as its **transfer into milk**, in pigs exposed to chlormequat. While these markers have not been thoroughly investigated in humans, they raise concerns regarding potential implications for fetal exposure during pregnancy and infants' exposure through breastfeeding.

# Forever Chemicals Are Widespread in U.S. Drinking Water

## Scientific American

January 22, 2021

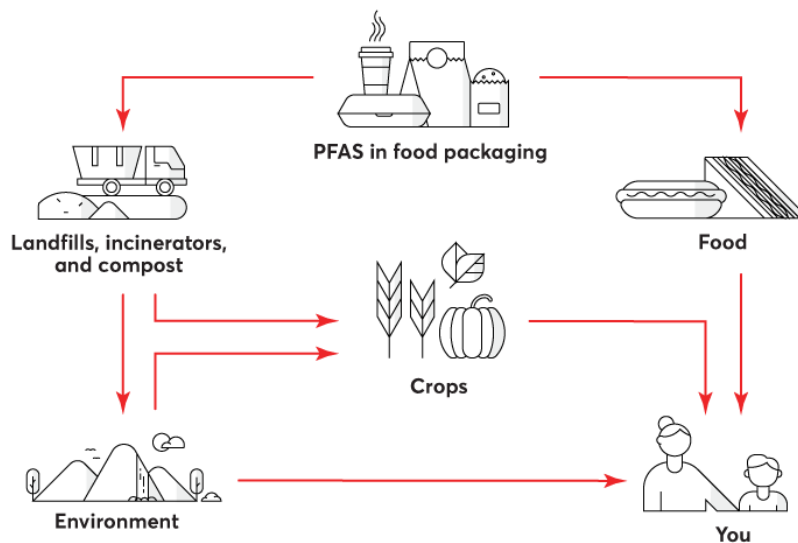
- Now a study from the Environmental Working Group (EWG), a nonprofit advocacy organization, reveals a widespread problem: **the drinking water of a majority of Americans likely contains “forever chemicals.”** These compounds may take hundreds, or even thousands, of years to break down in the environment. They can also persist in the human body, potentially causing health problems.

# **Disease associated with PFAS**

- **Parkinson's**
- **Thyroid**
- **Heart**
- **Auto immune diseases**
- **Kidney disease**
- **Testicular and kidney cancer**
- **Ulcerative colitis**
- **Liver disease**

# Children with higher blood levels of PFAS have more infections.

## How PFAS Gets From Food Packaging to You



Source: ToxicFreeFuture.org



# **PFAS 'forever chemicals' are everywhere. Here's what you should know ...**

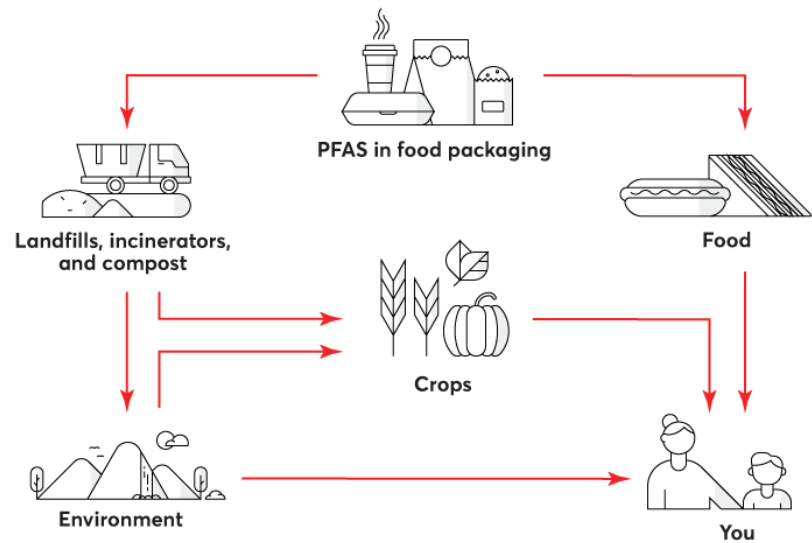
**www.NPR.org 6-22-2022**

- **Jun 22, 2022 Short for "per-and polyfluoroalkyl substances," PFAS are a class of thousands of man-made chemicals that have been around since the 1940s. And as the nickname suggests, "forever chemicals"...**
- **Forever Chemicals Are Widespread in U.S. Drinking Water**
- **nicknamed "forever chemicals" because they do not break down in the environment**

# PFAS are found in many products, including:

- Tap water- drinking water and bottled v
- Fire retardant clothing, blankets
- Firefighting foam
- Paint
- Sunscreen
- Makeup
- Dental floss
- Textiles
- Guitar strings
- Artificial turf
- Microwave popcorn bags
- Fast-food packaging
- Carpeting
- Non stick pots and pans- Teflon

How PFAS Gets From Food Packaging to You



Source: ToxicFreeFuture.org

# Not All In-Home Drinking Water Filters Completely Remove Toxic PFAS

February 5, 2020

- A new study by scientists at Duke University and North Carolina State University finds that – while using any filter is better than using none – many household filters are only partially effective at removing toxic perfluoroalkyl substances, commonly known as PFAS, from drinking water. A few, if not properly maintained, can even make the situation worse.
- “We tested 76 point-of-use filters and 13 point-of-entry or whole-house systems and found their effectiveness varied widely,” said Heather Stapleton, the Dan and Bunny Gabel Associate Professor of Environmental Health at Duke’s Nicholas School of the Environment.
- **“All of the under-sink reverse osmosis and two-stage filters achieved near-complete removal of the PFAS chemicals we were testing for,”** Stapleton said. **“In contrast, the effectiveness of activated-carbon filters used in many pitcher, countertop, refrigerator and faucet-mounted styles was inconsistent and unpredictable. The whole-house systems were also widely variable and in some cases actually increased PFAS levels in the water.”**

## Cancer-Causing Chemicals Found in Tap and Bottled Water

Analysis by [Dr. Joseph Mercola](#) Nov 11, 2024

- Trihalomethanes (THMs) are **known carcinogens found in all water sources**, with tap water containing the highest concentrations and accounting for 94.5% of its total cumulative toxicity
- Heavy metals like lead, arsenic and uranium were also detected in tap and household-treated water samples, posing significant long-term health risks including neurological damage and cancer
- **Bottled water, while often perceived as a safer choice, is not without risks; 8% of bottled samples exceeded safety limits for THMs, and were found to be contaminated with petroleum-derived compounds**

# Plastics Database Tallies Staggering 16,000 Chemicals And It's Still Incomplete



- 4,200 of the chemicals- tendency to persist without degrading, ability to build up in the human body or other organisms, mobility through the environment and toxicity.
- Phthalates—used in coatings and flooring materials to make them thin and flexible—disrupt the reproductive system
- increased risk of asthma at age five. Bisphenols are another group of plastic chemicals that are well-known for disrupting the body's hormonal regulation.
- melamine. This material is used to make bowls and other dinnerware; it's also combined with bamboo and other natural organic materials to make plastic alternatives.
- Melamine is classified as a carcinogen by the European Union and has been detected in drinking water, yet it is widely used
- Exposure to these chemicals is associated with health problems, including developmental disorders, cancer, diabetes and infertility
- Global plastic recycling rates are as low as 9 percent
- plastic pollution in aquatic ecosystems could triple from nine million to 14 million metric tons in 2016 to 23 million to 37 million by 2040.

# Scientists Discover Plastic Nanoparticles in Men's Testicles

July 15, 2024 Analysis by [Dr. Joseph Mercola](#)

- Microscopic Menace — Scientists Discover Plastic Nanoparticles in Men's Testicles
- Scientists discovered **microplastics in men's testicles, raising concerns about their potential impact on reproductive health**
- **The study found microplastics in all the testes examined**, with polyethylene (PE) being the most common type of plastic
- A 2023 study similarly found microplastics in the male reproductive system, including the testis and semen
- Plastics are loaded with chemicals **that are xenoestrogens** that can mimic the effects of estrogen in your body; much of their danger is related to their stimulation of estrogen receptors
- **The average person eats about 5 grams of plastic per week — about the amount found in one credit card.**<sup>1</sup>



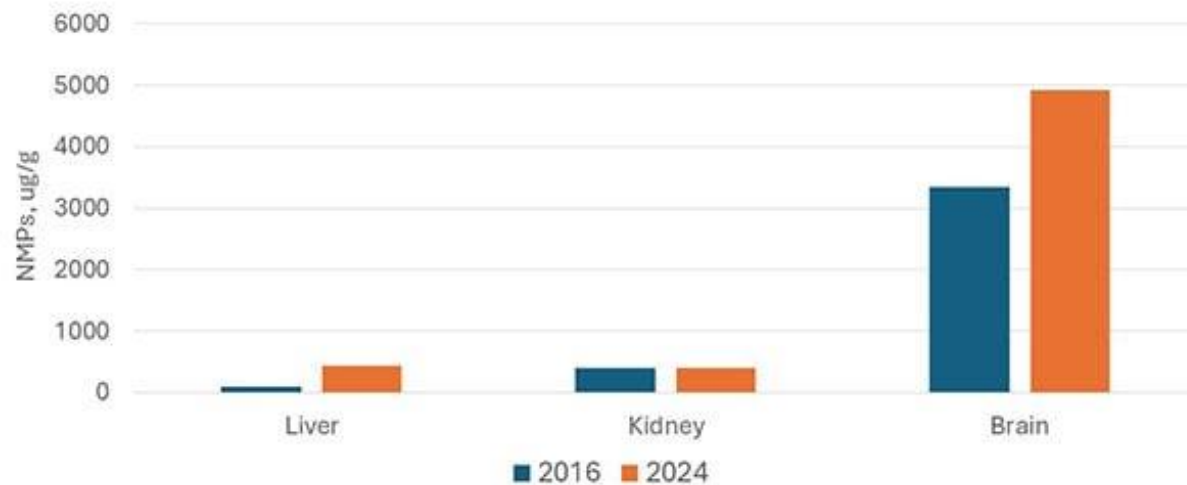
# There's a Sandwich Bag of Plastic in Your Brain

F. Perry Wilson, MD, MSCE Medscape, March 03, 2025

- Microplastics and nanoplastics — tiny bits of plastic as small as 1 nanometer across — have been found in a variety of human tissues: lungs, liver, kidney, placenta, and lipid-rich plaques in the carotid arteries
- nano- and microplastics in the brain — and found a lot more there than anywhere else.

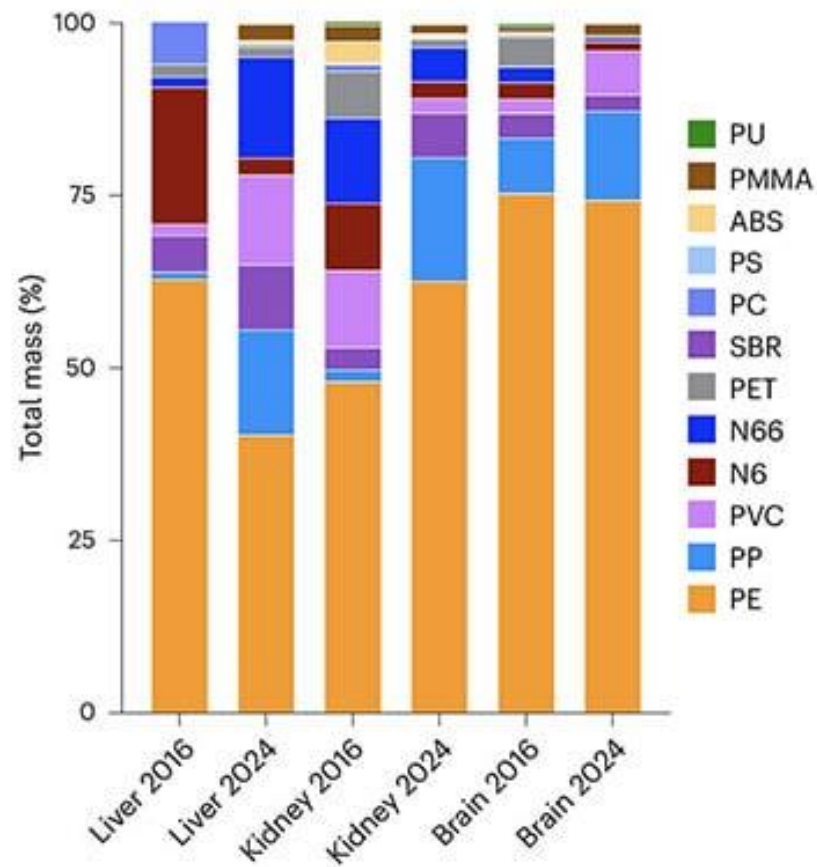
# Plastic in the Brain

Concentration of Nano- and Microplastics



Source: Nihart et al. Nat Med. 2025

# Polyethylene- the most common plastic in orange



# Dementia and Plastic

- A subset of the individuals studied had **dementia at the time of death.**
- Plastic levels were even higher in the brains of that group — on the order of 20,000-50,000 micrograms per gram, or around **10 sandwich bags**

# Plastic Water Bottles

## *Environmental Science & Technology*

- First on the list: plastic water bottles. The bottles themselves (**especially the caps**) are significant sources of microplastics in general and polyethylene in particular.
- A study in *Environmental Science & Technology* estimated that those who drink most of their water via **plastic bottles ingest an extra 90,000 particles of microplastics a year**, compared with **4000 for those who consume only tap water**.
- Use glass or stainless-steel metal bottle with you.
- Takeout containers are probably a problem as well, particularly if you reheat the food in the microwave,
- so maybe transfer food to a plate before you nuke it.
- The other major source of polyethylene exposure is from the air we breathe- fibers from **carpets, textiles and other plastic dust**.
- This study found that perhaps **half of our microplastic ingestion happens just from breathing**.

# **Polyethylene-** **the most common plastic**

- **It doesn't biodegrade, and it is the main component of a ton of stuff we use every day,**
- **Sandwich bags**
- **Water bottles, plastic films, and storage containers.**
- **It's almost unavoidable.**



# " Do microplastics affect your brain?

- Microplastic concentrations were also three to **five times higher in the brains of patients with dementia**, compared to cognitively normal brains.
- It's not clear whether microplastics may cause or contribute to dementia, nor whether dementia-induced changes to the brain might allow more microplastics to enter"

# Aspartame

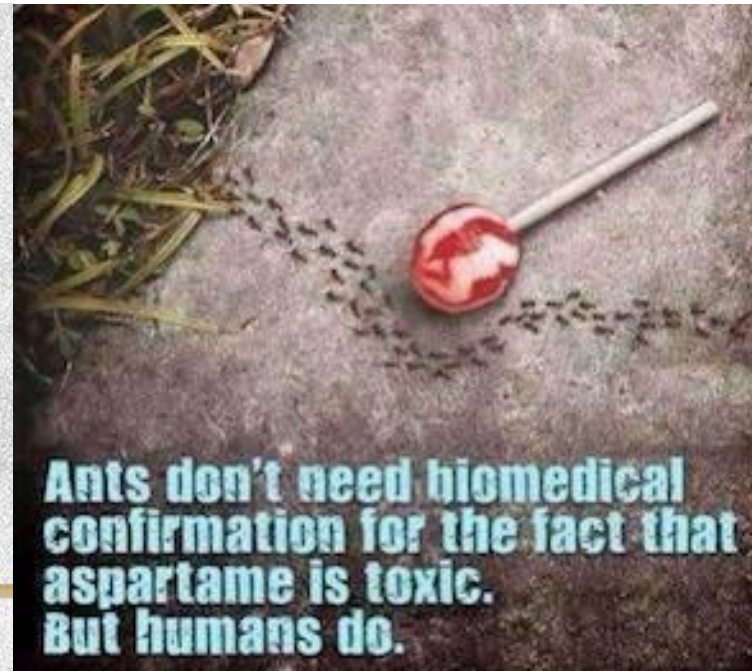
**ASPARTAME** - Roaches and ants won't eat it, cats and dogs won't eat it. Even house flies won't eat it. But the FDA serves Aspartame to you!

Natural News



## Side effects include:

Headaches, Muscle spasms, Irritability, Heart palpitations, Loss of taste, Joint pain, Dizziness, Weight gain, Tachycardia (heart racing), Breathing difficulty, Tinnitus (ringing in the ears), Blurred vision, Seizures, Rashes, Insomnia, Hearing loss, Depression, Vertigo, Nausea, Blindness, Slurred speech, Fatigue, Memory Loss, Numbness.





# Corn: GMO vs Organic

## Which do Squirrels prefer?



# Perchlorate- rocket fuel

USA Today August 15, 2024

- *Perchlorate is a chemical found in rocket fuel, fireworks, matches, highway safety flares, matches, pyrotechnics, explosives, common batteries, and automobile restraints.*
- *FDA has no definition of what a dangerous level is.*
- **"Whether you eat organic or not will not influence whether you're going to be exposed to this chemical," said Rogers.**
- **To avoid drinking it in water, Rogers recommends folks test their water, and if perchlorate is found, they can purchase a reverse osmosis filter to remove it from the tap.**

# Perchlorate- rocket fuel

USA Today August 15, 2024 cont.

- ***Perchlorate affects thyroid function:***
- Thyroid problems can lead to Type 2 Diabetes for adults,
- Children and fetuses can face complications with neurodevelopment, which "can result in a lowering of IQ of the children."
- Exposure to high levels of perchlorate can affect the thyroid in multiple ways, according to the FDA. It can interfere with iodide uptake into the thyroid gland, disrupt thyroid functions, and possibly lead to a reduction in thyroid hormone production.
- ***Foods found with Perchlorate:***
- Beef burritos
- ■ Chicken sandwiches
- ■ French fries
- ■ Fried chicken
- ■ Chicken nuggets
- ■ Steak tacos
- ■ Mac and cheese
- ■ Rice cereal
- ■ Multigrain cereal
- ■ Whole milk yogurt

# Heavy Metals in Baby Food

Published in Undark May 16, 2023

- **The FDA has no standards for heavy metals in foods beyond the action level for arsenic in infant rice cereal** and two draft guidance levels for lead in juice and baby food more broadly.
- And while processed foods can be systematically tested for heavy metals, Hettiarachchi's research has shown that **even individual and community gardens can also be contaminated, meaning that the risk of exposure remains even with homemade food.**



# Heavy Metals in Baby Food

Published in Undark May 16, 2023

- Babies are particularly sensitive to the toxic effects of heavy metals because their bodies are still developing.

Heavy metal exposure is especially dangerous for infants because, compared to adults: **they eat more food relative to their body weight and their diet is less varied.**

Rice cereal is a staple in many American babies' diets, and is often the first solid food an infant eats.

Most cultivated rice grows primarily in South and Southeast Asia, the United States and many other countries.

These flooded fields environment allows contamination from toxic heavy metals, including arsenic, cadmium, lead, and mercury.



# Heavy Metals in Baby Food

Published in Undark May 16,2023

- Some heavy metals appear to harm brain development and cognition; and linked to ailments including lung disease, kidney disease, skin lesions, and cancer.
- Heavy metal exposure is especially dangerous for infants because, compared to adults, they eat more food relative to their body weight and their diet is less varied.
- Babies are also particularly sensitive to the toxic effects of heavy metals because their bodies are still developing.

# Heavy Metals in Baby Food

Published in Undark May 16, 2023

- In February 2021, the U.S. House Oversight and Reform Subcommittee on Economic and Consumer Policy released a report on heavy metals in baby food produced by several of the country's largest manufacturers. The 59-page [document](#) ended with a call for immediate action from the Food and Drug Administration.
- Two months later, the FDA announced the [Closer to Zero](#) initiative, which uses an iterative approach to reduce heavy metal exposure among babies and children.
- The FDA issued draft guidance on lead in fruit and vegetable juice in [April 2022](#) and in baby food more broadly in [January 2023](#).
- Action plans for arsenic, cadmium, and mercury aren't scheduled to be completed until 2024 at the earliest.
- In the meantime, botanists, soil chemists, and plant geneticists— continue to look for potential solutions, from new land management practices to nano-sized fertilizers to genetic engineering. Not all of these technologies are available yet; however, even when they are, eliminating heavy metals entirely won't be easy.

# Heavy Metals in Baby Food

Published in Undark May 16, 2023

- Heavy metals are naturally present in the Earth's crust and make their way into aquifers and rivers when water travels through underground rock formations and dissolves the toxic elements.
- Arsenic, for example, exists in high levels in the groundwater of the U.S., China, and India.
- Agricultural practices have also contributed to heavy metal contamination.
- The U.S. has led the world in the use of arsenic for agriculture and industry
- Insecticides with lead and arsenic were banned in the 1980s; soil, orchards, lumbar, paddy water, and rice grains still have detectable levels of the toxins.
- These contaminants get sucked up by the roots of a rice plant, which absorb nutrients through proteins in their cell walls.
- According to Parkash, arsenic essentially “hijacks” these pathways. As the plant grows, arsenic travels from the roots into the leaves and grains.
- Scientists including Parkash are looking for ways to stop arsenic from hijacking the plants to begin with.
- One approach is to apply more sulfur to paddy soils, which can bind to toxic metals and make them more difficult to absorb.

# Heavy Metals in Baby Food

Published in Undark May 16,2023

- **Study:** rice plants treated with both inorganic arsenic, the element's more toxic form, and nanosulfur accumulated nearly a third less of the toxin in root tissue than plants exposed to inorganic arsenic alone.
- Parkash and Jason White, the Connecticut Agricultural Experiment Station



A thousand words can be generated by just this one picture. This is Tesla's roadside assistance vehicle filling up at the gas pump.



Electric charger powered by diesel generator. We are the stupidest species on the planet...

⚙️ • Rate this translation





# Heavy Metals in Baby Food

Published in Undark May 16,2023

- Wild plants like water spinach and water celery also slurp up nutrients and toxins, and scientists have studied intercropping rice paddies to help remove contaminants.
- When these aquatic vegetables are grown alongside rice, overall concentrations of arsenic in the soil decrease and the wild plants absorb the arsenic.
- Certain species of bacteria can tolerate high levels of arsenic, lead, mercury, and cadmium,
- Some bacteria have been found to mitigate the toxic effects these heavy metals have on plants.
- Other microorganisms can reduce arsenic concentrations in crops.
- Scientists have also genetically engineered bacteria to produce a specific protein that boosts their ability to break down arsenic.

# Heavy Metals in Baby Food

Published in Undark May 16, 2023

- Genetic engineering of rice itself, to help the plant block heavy metals, has proven difficult, Shannon Pinson, a plant geneticist at the USDA's Agricultural Research Service, told Undark.
- There is no genetically modified rice in commercial production in the U.S. to date.

# Heavy Metals in Baby Food

Published in Undark May 16,2023

- The FDA notes that strict limits may not be possible for manufacturers.
- Pinson told Undark that although it is possible to produce rice with relatively low levels of arsenic, supply chain realities make it difficult to achieve low levels in rice-based baby foods, in part **because sellers merge grains from multiple truckloads from different farms into single bins, making low-arsenic rice difficult to trace.**
- The manufacturing process can also increase concentrations in baby food products that make it on the shelf.
- The February 2021 Economic and Consumer Policy Subcommittee report found that, at least in tests from of one company's products, **inorganic arsenic levels were 28 to 93 percent higher in the finished products compared to ingredients.**
- **The report points to high levels of arsenic in additives — like vitamin mixes and spices — as the cause of the spike pre- and post-manufacturing.**

# Heavy Metals in Baby Food

Published in Undark May 16, 2023

- For white rice infant cereal:
- Limit of 100 ppb would reduce cancer by almost 19 percent,
- Limit of 75 ppb would reduce cancer by almost 41%
- Limit of 50 ppb would reduce cancer by almost 79%
- The hazard models the report's authors used are a standard approach, but experts told Undark that the science of calculating health risks around heavy metal contamination is complex.
- FDA recommended inorganic arsenic limits at 100 parts per billion, which it first proposed in draft guidance in April 2016 and finalized in August 2020. This is more lenient than the 10 ppb proposed by national lawmakers in the Baby Food Safety Act, a bill that has stalled in Congress since March 2021

# Heavy Metals in Baby Food

Published in Undark May 16, 2023

- Investigations by [Consumer Reports](#) and the advocacy group [Healthy Babies Bright Futures](#) suggest that at least **some baby food in stores across the U.S. contains more than 100 ppb of arsenic** — **four of seven infant rice cereals that were tested exceeded the FDA's limit.**
- The February 2021 report, along with a follow-up [report](#) issued that September, showed that several companies set internal limits on arsenic above the FDA's guidance. And **some companies found that arsenic levels in infant cereal still surpassed their higher limits.**
- **Baby food manufacturers hold a special position of public trust. [Consumers believe that they would not sell unsafe products.](#)**
- **[Consumers also believe that the federal government would not knowingly permit the sale of unsafe baby food,](#) the report read. Baby food manufacturers and federal regulators had “broken the faith.”**
- **Despite evidence of arsenic in infant rice cereal above 100 ppb, there was no FDA-mandated recall. Instead, some companies voluntarily pulled products from the shelves.**
- **[In June 2021, Beech-Nut announced it was leaving the market for rice cereal entirely.](#)**

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# Metals in the body from pollutants associated with progression of harmful plaque buildup in the arteries

by Columbia University's Mailman School of Public Health 9-18-2024

[Journal of the American College of Cardiology](#)

- Metal exposure from environmental pollution is associated with increased buildup of calcium in the coronary arteries at a level that is comparable to traditional risk factors like smoking and diabetes, according to a study by Columbia University Mailman School of Public Health.
- The findings support the fact that metals in the body are associated with the progression of plaque buildup in the arteries and potentially provide a new strategy for managing and preventing atherosclerosis.
- Widespread cadmium, tungsten, uranium, cobalt, copper, and zinc pollution occurs from agricultural and industrial uses such as fertilizers, batteries, oil production, welding, mining, and nuclear energy production. Tobacco smoke is the main source of cadmium exposure.
- Comparing the highest to lowest quartile of urinary cadmium, CAC levels were 51% higher at baseline and 75% higher over the 10-year period. For urinary tungsten, uranium and cobalt, the corresponding CAC levels over the 10-year period were 45%, 39%, and 47% higher, respectively.
- For copper and zinc, the corresponding estimates dropped from 55% to 33% and from 85% to 57%, respectively, after adjusting for such factors such as cardiovascular risk factors like blood pressure and blood pressure medications, high cholesterol, and diabetes mellitus.
- The urinary metal levels also varied by demographic characteristics. Higher urinary metal levels were seen in older participants, Chinese participants and those with less education. Participants from Los Angeles had markedly higher urinary tungsten and uranium levels, and somewhat higher cadmium, cobalt, and copper levels.
- "Pollution is the greatest environmental risk to cardiovascular health," McGraw said. "Given the widespread occurrence of these metals due to industrial and agricultural activities, this study calls for heightened awareness and regulatory measures to limit exposure and protect cardiovascular health."

Front. Nutr., 30 July 2024

## Sec. Nutrition and Food Science Technology

### A multi-year heavy metal analysis of 72 dark chocolate and cocoa products in the USA

- Contamination of cocoa containing products, such as dark chocolate, with heavy metals including lead, cadmium and arsenic has been reported in the US.
- Methods: From 2014 to 2022, 72 consumer cocoa-containing products were purchased and analyzed for heavy metal contamination with lead (Pb), cadmium (Cd), and arsenic (As) in 4 distinct cohorts (2014, 2016, 2019, 2022).
- More than one serving per day in combination with non-cocoa derived sources heavy metals, may add up to exposure that would exceed the govt guidelines.
- Notably, “organic” products were significantly more likely to demonstrate higher levels of both Cd and Pb.

# What is dust? And where does it all come from?

Published: The Conversation, September 26, 2021  
4.07pm EDT

- Dust is natural, coming from rocks, soils and even cosmic space particles.
- DustSafe program in Australia, for example, revealed that house dust could contain substances like these:
  - DDT and other industrial and farming chemicals
  - Trace metals
  - Radioactive elements
  - Antibiotic resistant genes (genes that make bacteria resistant to Antibiotics,
  - Microplastics
  - Perfluorinated chemicals (PFAS) found in fire-fighting foams, stain and water protection for fabrics and carpets, some packaging and other sources

# Tire Toxicity Faces Fresh Scrutiny After Salmon Die-Offs

By **Jim Robbins** APRIL 24, 2024

- At the top of the list of worries is a chemical called 6PPD, rubber tires to help them last longer. When 6PPD is released. It reacts with ozone which can be extremely repeated fish kills

toxic –  
in Washington sta



- The trouble with tires doesn't stop there. Tires are made primarily of natural rubber and synthetic rubber, but they contain hundreds of other ingredients, often including steel and heavy metals such as copper, lead, cadmium, and zinc.
- As car tires wear, the rubber disappears in particles, both bits that can be seen with the naked eye and microparticles. Testing by a British company, Emissions Analytics, found that a car's tires emit 1 trillion ultrafine particles per kilometer driven — from 5 to 9 pounds of rubber per internal combustion car per year.
- And what's in those particles is a mystery, because tire ingredients are proprietary.
- “You’ve got a chemical cocktail in these tires that no one really understands and is kept highly confidential by the tire manufacturers,” said Nick Molden, CEO of Emissions Analytics. “We struggle to think of another consumer product that is so prevalent in the world and used by virtually everyone, where there is so little known of what is in them.”

# Which foods have the most plastics? You may be surprised

By Sandee LaMotte, CNN Published Mon April 22, 2024

“In almost the same way we’re constantly shedding skin cells, plastics are constantly shedding little bits that break off, such as when you open that plastic container

- **Ninety percent of animal and vegetable protein samples tested positive for microplastics**, teeny polymer fragments that can range from less than 0.2 inch (5 millimeters) down to 1/25,000th of an inch (1 micrometer), according to a February 2024 study. Anything smaller than 1 micrometer is a nanoplastic that must be measured in billionths of a meter.
- Even vegetarians can’t escape, according to a 2021 study. If the plastic is small enough, **fruits and vegetables can absorb microplastics through their root systems and transfer those chemical bits to the plant’s stems, leaves, seeds and fruit.**
- **Salt can be packed with plastic.** A 2023 study found coarse Himalayan pink salt mined from the ground had the most microplastics, followed by black salt and marine salt. Sugar is also “an important route of human exposure to these micropollutants,” according to a 2022 study.
- **Even tea bags, many of which are made of plastic, can release enormous amounts of plastic.** Researchers at McGill University in Quebec, Canada found brewing a single plastic teabag released about 11.6 billion microplastic and 3.1 billion nanoplastic particles into the water.
- Rice is also a culprit. A University of Queensland study found that for every 100 grams (1/2 cup) of rice people eat, they consume three to four milligrams of plastic — the number jumps to 13 milligrams per serving for instant rice. **(You can reduce plastic contamination by up to 40% by washing rice, researchers said. That also helps reduce arsenic, which can be high in rice.)**
- Let’s not forget bottled water. **One liter of water — the equivalent of two standard-size bottled waters — contained an average of 240,000 plastic particles from seven types of plastics, including nanoplastics, according to a March 2024 study.**
- **All types of proteins contained microplastics**
  - **tofu and several plant-based meat alternatives, such as nuggets, plant crumbles similar to ground beef and plant-based fish sticks. Breaded shrimp contained the most tiny plastics by far**
  - **nanoplastics in three popular brands of water sold in the United States to be in between 110,000 and 370,000 per liter, if not higher.**



# Parkinsonism Case Tied to high manganese Welding rods, Improved With Chelation [Medpage October 4, 2023](#)



"The nose is the front door of the brain," Dorsey told *MedPage Today*. "It's not protected by the blood-brain barrier. It's not protected by the liver, which does a good job of detoxifying things we ingest. Manganese is a really small molecule, and like other small molecules that can be inhaled, like dry-cleaning chemicals and pesticides, they can damage the dopamine-producing nerve cells in the brain." Dorsey, who has co-authored a book called *Ending Parkinson's Disease*, believes inhaled toxicants play a significant role in the development of Parkinson's disease and other brain diseases, including Alzheimer's disease, noting a [recent study](#) linking wildfire smoke with dementia.

"You have a wide range of environmental toxicants that can be inhaled and damage different nerve cells in the brain," he said.

## How one team pinpointed manganese toxicity and diminished a patient's motor symptoms. When a 55-year-old man presented to the neurology clinic at a hospital in Israel, researchers knew his symptoms weren't typical for full-blown Parkinson's disease.

He did have some midline signs, blepharospasm, and slurred speech, but he didn't have a prominent tremor and he did have a change in handwriting -- "something you can see in Parkinson's disease, but it's much more common in heavy metal poisoning," Roy Dayan, MD, of Hadassah Hebrew University Medical Center in Jerusalem, told *MedPage Today*.

An MRI from a referring neurology clinic didn't show anything unusual, Dayan said, but his team conducted a revised MRI with new instructions, and what they saw was rare and intriguing.

"He had this bright glow in the globus pallidus, a T1 hyperintensity," said Dayan, who along with his mentor, David Arkadir, MD, PhD, also of Hadassah Hebrew University Medical Center, published the finding under the banner in the *New England Journal of Medicine*.

The globus pallidus is part of the basal ganglia, which is involved in higher control of movement, Dayan said. It's one of the areas often affected in Parkinson's disease, but this was "unlike typical Parkinson's in which the initial pathophysiological problem is in the substantia nigra," he said.

About a year prior, Arkadir had [published a case report](#) about another patient who had a similar clinical and radiological picture, and ultimately was found to have a genetic mutation impacting manganese metabolism.

Manganese moves through the dopamine transporters in the basal ganglia, which is why it tends to accumulate in this brain region, Dayan said.

A language barrier initially made it difficult to get the current patient's full history, but a family member ultimately was able to translate Russian to Hebrew. That's when Arkadir and Dayan learned that in his 30s, the patient worked as a welder, without any personal protective equipment.

One of the biggest risk factors for manganese accumulation in the brain is welding without protective equipment, Dayan said. For a certain type of welding, manganese is often used in the welding rod that binds the two pieces of metal together, according to a [review of welding and parkinsonism](#). While manganese toxicity among American steel workers is rare, welding rods used outside the U.S. tend to have higher concentrations of manganese in rod coverings, the review stated.

With suspicion high once again for manganese toxicity, Arkadir and Dayan ordered a series of lab tests, as well as whole-exome sequencing.

All told, the diagnosis took about a month to put together, Dayan said. Labs came back normal, and the patient had no inherited errors in manganese metabolism. So ultimately, Arkadir and Dayan concluded that the patient had manganese toxicity related to welding.

They started him on a course of intravenous ethylenediaminetetraacetic acid (EDTA), which is also referred to as "chelation," lasting 6 months. Their protocol was "based on the idea that manganese has also accumulated in the bones, and it can still be actively released in the blood," Dayan said. They also gave him zinc supplements as EDTA also chelates zinc, to prevent a zinc deficiency, he added.

A follow-up MRI showed the manganese buildup had cleared, and most of the patient's symptoms had abated. He "reported that he felt much better and his speech was much clearer," Dayan said. He noted that the key to solving the case was using the T1 MRI sequence. "It's frequent that we do MRI for patients with atypical parkinsonism, but usually we would go to the flare [a manipulation of the T2 sequence] or to the other sequences because we're looking for other things," he explained. "T1 is usually innocent, but there are some things you can find."

Ray Dorsey, MD, of the University of Rochester Medical Center in New York, who wasn't involved in the report, said manganese exposure "has long been linked to parkinsonism, and welding has been known to carry a heightened risk of parkinsonism. This is a perfect illustration of that, and of environmental factors contributing to parkinsonism."

"The nose is the front door of the brain," Dorsey told *MedPage Today*. "It's not protected by the blood-brain barrier. It's not protected by the liver, which does a good job of detoxifying things we ingest. Manganese is a really small molecule, and like other small molecules that can be inhaled, like dry-cleaning chemicals and pesticides, they can damage the dopamine-producing nerve cells in

# Parkinson's and The Nose

Medpage Today 10-4-2023

Parkinsonism Case Tied to Welding, Improved With Chelation

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"You have a wide range of environmental toxicants that can be inhaled and damage different nerve cells in the brain," he said.

# Parkinson's Pesticides, Chemicals and Dry Cleaning Chemicals TCE

- Parkinson's disease has more than doubled in the past 25 years. A conservative projection based on aging alone suggests that it's going to double again unless we change something about it. It's now the world's fastest-growing brain disease, and it is growing faster than can be explained by aging alone.
- Rates of Parkinson's are five times higher in industrialized parts of the world, like the United States and Canada, than they are in sub-Saharan Africa.

# Parkinson's Pesticides and Dry Cleaning TCE

- **RO Water filter is necessary to reduce pesticides and chemicals**
  - **TCE Chemicals known to cause cancer**, most strongly tied to non-Hodgkin lymphoma, liver cancer, and renal cancer. It's also linked to multiple myeloma, prostate cancer, probably brain cancer, and probably breast cancer, especially in men.
  - **Chemical, not only in the drinking water but in the produce you buy, the food you eat, what you put on your lawn, what's on the golf course where you play, and the like.**
- 
- Is Most Parkinson's Disease Man-Made and Therefore Preventable?
  - **Indu Subramanian, MD; E. Ray Dorsey, MD**
  - **November 20, 2023**
  - **E. Ray Dorsey, MD:** Trichloroethylene and PD

# Mitochondrial Dysfunction in Neurodegenerative Disorders

Analysis by [Dr. Joseph Mercola](#) March 31, 2025

- Mitochondrial dysfunction is a key driver of neurodegeneration, with research showing that a single resting cortical neuron requires 4.7 billion ATP molecules every second for energy
- When mitochondria lose their efficient shape, electrons escape and form reactive oxygen species (ROS), triggering cellular damage and stress that particularly affects brain cells
- **Research shows 42% of adults over 55 develop dementia by age 95, with projected new cases expected to double from 514,000 in 2020 to 1 million by 2060**
- Mitochondria act as cellular calcium buffers — when this function fails, calcium floods cells and triggers the mitochondrial permeability transition pore, leading to widespread neuron death
- Key mitochondrial health strategies include eliminating seed oils, optimizing carbohydrate intake, reducing environmental toxin exposure, getting proper sun exposure and boosting NAD<sup>+</sup> levels through supplements-
- **Nothing about heavy metals a known cause of neurodegenerative disorders. Van**



# Toxic Household Products and Fragrances

Dec 8, 2023 Mercola

*"The big philosophical difference between how products and chemicals are regulated in Europe versus the U.S. is interesting. In Europe, chemicals are guilty until proven innocent. The precautionary principle says that if we suspect something may be harmful, well then let's not use it. They use common sense. In the U.S., it's the exact opposite. Chemicals are innocent until proven guilty, yet it's virtually impossible to prove guilt."*

According to the Campaign for Safe Cosmetics,<sup>15</sup> the European Union Cosmetics Directive, which was adopted in January 2003 and revised in 2013, bans 1,328 chemicals from cosmetics that are known or suspected to cause birth defects, cancer, genetic mutation or reproductive harm. To date, the FDA has banned only 11 chemicals from cosmetics in the U.S.

"Shampoo, conditioner, deodorant, toothpaste, perfumes, moisturizer, hand sanitizer — each one of those products has about 15 synthetic chemicals in it, so your body's burden is enormous. You're just dumping all this toxic stuff into your bloodstream!"

# Camp Legune and TCE

- It turned out that the Marines who served at Camp Lejeune had a 70% higher risk of developing Parkinson's disease and cancers than the Marines who served at Camp Pendleton.
- 
- Importantly, these Marines, by definition, were healthy. They were young. They were only 20 years old, on average, when they were at Camp Lejeune. They only stayed at a Marine base for a short period of time, so on average, they were only there for 2 years. Yet 30 years later, they had a 70% increased risk of developing Parkinson's disease.

# Dirty Dozen 2023

- The 2023 shopper's guide<sup>12</sup> includes data from 46,569 samples of 46 fruits and vegetables, revealing the presence of 251 different pesticides in total, including some that have already been banned due to their potential health effects. In all, nearly 75% of nonorganic fresh produce sold in the U.S. contain residues of one or more potentially harmful pesticides.
- Many Toxins Remain in Produce After Washing and Peeling
- EPA's 'Allowable Levels' May Be Unsafe for Children
- A total of 210 different pesticides were detected on the fruits and vegetables on the Dirty Dozen list, and of those, more than 50 were found on every crop on the list with the exception of cherries.
- At least one sample of every type of produce on the Dirty Dozen list had 13 or more pesticides. Kale, collard, mustard greens, bell peppers and hot peppers all had detectable levels of 101 to 103 different pesticides.

Here's the full Dirty Dozen list, in order of most contaminated to least contaminated:<sup>13</sup>

**Dec 13, 2023 Mercola**

- Strawberries
- Spinach
- Kale, collard and mustard greens
- Peaches
- Pears
- Nectarines
- Apples
- Grapes
- Bell peppers and hot peppers
- Cherries
- Blueberries
- Green beans
- **80% of Blueberries Are Contaminated**

# Heavy Metals

- **Displace your nutrient minerals and cause deficiency.**
- **There is no positive metabolic function for these metals in the body.**

# How they harm

- **Non-essential metals may mimic the essential metals, causing a disruption in cellular and enzymatic mechanisms.**
- **Cadmium can replace zinc**
- **Thallium can replace potassium**
- **Arsenic can replace phosphates**



# Hair Analysis

## Practical Applications

- Drug testing
- Chronic Heavy Metals exposures
- Physiological excess, deficiency, or maldistribution
- Assess body's ability to eliminate heavy metals

# Diagnosis Depends on Laboratory Testing

- Exposures to toxic elements can be acute (one time, short-term) or chronic (many times, long-term).
- Clinical signs and symptoms of toxicity are often different for acute vs chronic exposures but may be non-specific.
- Due to non-specific signs and symptoms of toxicity, as well as the fact that the duration and extent of exposure is often not known, diagnosis of most toxic element exposures depends on laboratory testing.

# Arsenic and Lead Are in Your Fruit Juice: What You Need to Know

## Consumer Reports January 30, 2019

- CR finds concerning levels of heavy metals in almost half of tested juices. Here's how to protect yourself and your family.
- They may also contain potentially harmful levels of arsenic, cadmium, and lead, according to new tests from Consumer Reports.
- prior research suggests they are common in food and drink.
- Children are particularly vulnerable to the harmful effects of heavy metals.
- “Exposure to these metals early on can affect their whole life trajectory”
- Not just in juices but also in infant and toddler foods, rice and rice products, protein powder, some types of fish, and sweet potatoes. The toxins may also be in the environment, including the water, the air, and the soil.
- Arsenic, cadmium, and lead each pose their own set of potential harms. Lead, for example, is associated with high blood pressure, heart disease, and fertility problems. Arsenic is linked to cardiovascular disease. And long-term cadmium exposure increases the risk of bone damage and kidney disease, among other issues.

## Arsenic and Lead Are in Your Fruit Juice: What You Need to Know Consumer Reports January 30, 2019 cont:

### Among the findings:

- Every product had measurable levels of at least one of these heavy metals: cadmium, inorganic arsenic, lead, or mercury.
- Twenty-one (47 percent) of the 45 juices had concerning levels of cadmium, inorganic arsenic, and/or lead. (None contained concerning levels of mercury.)
- Seven of those 21 juices could harm children who drink 4 ounces (½ cup) or more a day; nine of them pose risks to kids at 8 ounces (1 cup) or more a day.
- Five of the products with elevated levels are juice boxes or pouches ranging from 4 to 6.75 ounces. These pose a risk to a child who drinks more than one box or pouch per day.
- Ten of the juices pose a risk to adults: five of them at 4 ounces or more a day, and five at 8 ounces or more a day.
- Grape juice and juice blends had the highest average heavy metal levels.
- Juice brands marketed for children did not fare better or worse than other juices.
- Organic juices did not have lower levels of heavy metals than conventional ones.



# FDA finds ‘extremely high’ lead levels in cinnamon at Ecuador plant that made tainted fruit pouches

BY JONEL ALECCIA, December 18, 2023

- U.S. food inspectors found “extremely high” levels of lead in cinnamon at a plant in Ecuador that made applesauce pouches tainted with the metal, the Food and Drug Administration said Monday. The recalled pouches have been linked to dozens of illnesses in U.S. kids.
- **Cinnamon tested from the plant had lead levels more than 2,000 times higher than a maximum level proposed by the FDA, officials said.**
- The samples came from ground or powdered cinnamon from Negasmart, an Ecuadorian company that supplied the spice to Austrofoods, which made the pouches. The applesauce pouches were sold under three brands — **WanaBana, Schnucks and Weis**. Officials with Austrofoods did not respond to requests for comment about the investigation.
- FDA said lead has not been detected in WanaBana products made without cinnamon and sold in the U.S.
- One theory is that the cinnamon may have been contaminated for economic reasons, agency officials said. That could mean an ingredient is added or subtracted from a food to to boost its value. **For example, compounds like red brick, red lead salt, lead oxide and lead chromate, which mirror cinnamon’s red color, have been added to increase the value of the spice,**
- At least 125 children from 22 states may have been sickened by lead poisoning since late October, the Centers for Disease Control and Prevention said. Using a different reporting method, the Food and Drug Administration counts at least 65 kids ages 6 and younger sickened in 27 states as of Dec. 8.
- Tests show **children who ate the pouches had blood lead readings up to eight times higher than the reference level** that sparks concern, health officials said. Samples of the puree showed lead contamination more than 200 times higher than the FDA allows, officials said.



# FDA: Public Health Alert July 30, 2024

Exposure to these cinnamon products may be unsafe due to high levels of lead.





## Arsenic and Lead Are in Your Fruit Juice: What You Need to Know Consumer Reports January 30, 2019 cont:

- As for lead, the FDA has set a guideline for juice—50 ppb—but CR thinks it should be much lower. The standard for lead in bottled water, for example, is 10 times lower, at 5 ppb. And the bottled water industry seems to be meeting an even lower level of 1 ppb, according to an analysis of FDA data by the Environmental Defense Fund. That's what the American Academy of Pediatrics says the lead level in school drinking water fountains should be. “Juice should also meet this threshold,” says Tom Neltner, chemicals policy director at EDF.
- Whatever the source, plants often take up heavy metals from contaminated soil and water. So careful sourcing and testing is key.

# Apples and Arsenic

<https://sites.dartmouth.edu/arsenicandyou/arsenic-in-fruits-juices-and-vegetables/>

- Plants absorb arsenic from the soil in varying amounts and move it to different parts depending on the type of plant. Arsenic occurs naturally in soil, but arsenic containing chemicals were historically used on orchard fruit trees in the U.S. Although these chemicals are no longer used in this country, arsenic can stay in the soil for long periods of time.

# Apples and Arsenic

**Lower the Arsenic: Wash your fruits and vegetables and peel root crops before eating.**

<https://sites.dartmouth.edu/arsenicandyou/arsenic-in-fruits-juices-and-vegetables/>

- Fruiting crops like tomatoes, peppers, squash, cucumbers, peas, beans, corn, melons and strawberries – **absorb very little arsenic in the parts that you eat.**
- Leafy vegetables like lettuce, collard greens, kale, mustard and turnip greens – store more arsenic in the leaves than other types of vegetables do but not enough to be of concern.
- Root vegetables like beets, turnips, carrots, radishes and potatoes – have arsenic mostly in their skins. Peeling these vegetables will get rid of most of the arsenic, but **avoid eating the peel or composting as this would put arsenic back into the soil.**
- Apples, pears and grapes – absorb some arsenic that occurs naturally in soil or **came from past use of pesticides.**
- Apple, pear and grape juice – may contain low amounts of arsenic since it is present in the fruit. **Juices you mix from concentrate could have higher arsenic if made with arsenic-containing water.**
- Apple seeds contain cyanide – not arsenic – and the hard coating of the seed protects you from the small amount in each seed.

# Noise, Air, and Heavy Metal Pollution as Risk Factors for Endothelial Dysfunction

European Cardiology Review 2023;18:e09.

- **Endothelium-** The endothelium is a single layer of squamous endothelial cells that line the interior surface of blood vessels and lymphatic vessels.
- **Environmental stressors, such as noise, air or heavy metal pollution, represent important risk factors for the development and progression of cardiovascular disease (CVD).**<sup>1–5</sup> The WHO estimates that at least 1.6 million healthy life years are lost every year in western European countries alone due to the **exposure to environmental noise**. Additionally, within the last years, the GBD study established that **ambient outdoor air pollution due to particulate matter <2.5  $\mu\text{m}$  ( $\text{PM}_{2.5}$ ) was the fifth-ranking global risk factor in 2015, causing 4.2 million deaths annually, with cardiovascular deaths accounting for most of these deaths.**<sup>6</sup> Importantly, this statistic does not include other occupational and environmental stressors, such as smoking, household air pollution, mental stress or noise, which, taken together, arguably could outrank the global impact of many classical risk factors in combination. In addition, **mercury, lead (Pb) or cadmium (Cd) are toxic elements commonly found in the environment, contributing to hypertension.**<sup>7</sup> According to several reports, high concentrations of heavy metals in different natural systems, **including atmosphere, pedosphere, hydrosphere and biosphere, have become a global issue.**<sup>8</sup> Importantly, these heavy metals have been and are **still commonly used in various areas, especially manufacturing and agriculture.**<sup>9</sup> Alterations in vascular function were the earliest pathophysiological mechanism described in response to noise, air, or heavy metal (e.g. **mercury, Pb or Cd**) exposure in humans, and indeed disturbances in endothelial function are a critical initiating event that is widely relevant to almost all classical risk factors.<sup>10–14</sup>

# Mercury in Foods, Fish, Dairy and Grains

<https://fromhungertohope.com/what-foods-contain-the-most-mercury/>

- The US Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) both recommend limiting or avoiding certain types of fish depending on the level of mercury they contain:
  - Skipjack tuna, canned light tuna, mullet, salmon, Pollock, catfish and tilapia are all generally low in mercury.
  - White or albacore tuna tends to have a higher concentration of mercury so it should be limited to no more than 6 ounces per week — that's about one meal for most adults.
  - Orange roughy, marlin, king mackerel and swordfish are among those considered high in mercury content and should not be eaten often. That means no more than once a month for adults who follow an average 2200 calorie diet per day according to FDA guidelines.



# Mercury in Foods, Fish, Dairy and Grains

<https://fromhungertohope.com/what-foods-contain-the-most-mercury/>

- Mercury in Dairy Products
- Milk, cheese, and butter – contain varying amounts of mercury.
- Because mercury accumulates in the environment from industrial processes and pollution from landfills, it enters the food chain and **eventually ends up in dairy products.**
- Studies have found that cheeses made from **raw milk contain highest concentrations, with levels 50 times higher than those found in pasteurized milk products like fresh milk or yogurt.**
- Levels of mercury were also higher for cheeses with high fat content – **as fat collects more toxins such as metals than other components of food.**
- Cow's milk and other animal-based products can **absorb much more mercury due to losing less during the digestion process compared to plant sources.** This means that **consuming large quantities of dairy products could lead to an excess exposure above safe limits.**
- Hence, it is important to **limit the intake of high-mercury dairy products** when possible by choosing pasteurized or organic varieties where available and looking out for nutritional labels on foods which may indicate higher concentrations of the metal present.

# Mercury in Foods, Fish, Dairy and Grains

<https://fromhungertohope.com/what-foods-contain-the-most-mercury/>

- Grains grown in areas with high concentrations of **airborne pollution** may be contaminated with elevated levels of mercury.
- **Marine phytoplankton which are food sources for many seafood species** can transfer heavy metals such as mercury into other food sources.
- **Wheat and rye grown near aquatic regions** or where there has been recent **algal blooms should be avoided** when possible.
- -Wheat (1/2 cup): Up to 0.25 parts per million (ppm)  
-Rye (1/2 cup): Up to 0.19 ppm  
-Barley (1/2 cup): Up to 0.15 ppm  
-Oats (1/2 cup): Up to 0.13 ppm

# Mercury in Foods, Fish, Dairy and Grains

<https://fromhungertohope.com/what-foods-contain-the-most-mercury/>

- Mercury in Fruits and Vegetables
- Fruits and vegetables may contain trace amounts of mercury.
- Mercury exists naturally in the environment and can be released by both natural processes (such as volcanic eruptions) or human activities (such as mining).
- Mercury can become concentrated in living organisms due to its ability to **bioaccumulate – meaning it accumulates in living organs at a higher rate than it is removed from the body.**
- There are no established safe exposure levels for elemental or metallic mercury, additional research is necessary.
- Ultimately, whether eating fruits and vegetables that contain trace amounts of mercury presents an unacceptable level of risk will depend on individual factors including age, gender, body composition mass index (BMI), overall medical history etc., so it is important for individuals to find out their own personal health risks from eating this type of food before making dietary decisions.

# Hair Analysis in Environmental Toxicology

- Analysis of hair samples has many advantages as a preliminary screening method for the presence of toxic substances deleterious to health after exposures in air, dust, sediment, soil and water, food and toxins in the environment.
- The advantages of hair analysis include the non-invasiveness, low cost and the ability to measure a large number of, potentially interacting, toxic and biologically essential elements. Hence, head hair analysis is now increasingly being used as a preliminary test to see whether individuals have absorbed poisons linked to behavioral or health problems.<sup>[2]</sup>
- Detection of long term elemental effects
- There appears to be genuine validity to the use of hair analysis in the measurement of lifelong, or long-term heavy metal burden, if not the measurement of general elemental analysis. Several interesting studies including the analysis of Ludwig van Beethoven's hair have been conducted in conjunction with the National Institutes of Health, and Centers for Disease Control and Prevention to name a few.
- A 1999 study on hair concentrations of calcium, iron, and zinc in pregnant women and effects of supplementation, it was concluded that "From the analyses, it was clear that hair concentrations of Ca, Fe, and Zn could reflect the effects of supplementation... Finally, it could be concluded that mineral element deficiencies might be convalesced by adequate compensations of mineral element nutrients."<sup>[15]</sup>

# **Hair Analysis in Forensic Toxicology**

- **Hair analysis is used for the detection of many therapeutic drugs and recreational drugs, including cocaine, heroin, benzodiazepines and amphetamines.**

# Beware of WEF- and Bill Gates-funded Apeel "Organipeel" food coating chemical on ORGANIC produce

06/20/2023 // Ethan Huff [www.NaturalNews.com](http://www.NaturalNews.com)

- The Organic Consumers Association (OCA) has **dropped a bombshell** this week about a chemical substance called "Organipeel," produced by a company called **Apeel, that is hiding in plain sight as a protective coating on organic produce.**
- The main ingredient, based on this document, is monoacylglycerides extracted from grape seed,
- These solvents can **leave behind toxic residues of mercury, cadmium, lead, arsenic, palladium, heptane, and ethyl acetate in the final product.**
- On Nov. 8, 2021, the European Food Safety Authority (EFSA) conducted a review of monoacylglycerides,
- The EFSA conducted another review that concluded the potential presence of glycidol, **a carcinogen**, in monoacylglycerides.
- And long before that in 2000, the World Health Organization's (WHO) International Agency for Research on Cancer (IARC) classified glycidol as being **"probably carcinogenic to humans."**
- Despite all this, the WEF, Gates, and other globalist entities are insistent that monoacylglycerides, the main ingredient in Organipeel and Edipeel, are **safe to consume even though they are linked to a cancer-causing carcinogen** called glycidol, not to mention all those toxic metals aforementioned that linger on food as well.
- It turns out that monoacylglycerides are **also linked to diabetes**. These environmental compounds, according to evidence provided in **the 2012 issue of *Diabetes Care***, are linked to the "prevalent and chronic" problem of insulin resistance and associated diabetes, which has become a type of plague in modern society.
- In 2021, Apeel was valued at \$2 billion,



# How Energy Drinks Are Draining Your Brain's Power

## The Evolution of Energy Drinks:

Sports drinks market is valued at over \$159 billion.

FEATURED [SUGAR](#) Michelle Standlee Epoch Health August 5, 2023

Some schools have started to ban energy drinks How Energy Drinks Affect

### 1. Neurodegenerative Disorders and accelerated Brain Aging

- **Alzheimer's disease** "[Energy drinks] are often packaged in aluminum, a neurotoxin that has been linked to Alzheimer's disease,"
- **2. ADHD:** Food dyes like red dye 40, are common in energy and sports drinks, decrease the absorption of minerals like zinc and iron.
- **3. Fatigue, Insomnia, and Headaches:** "Sugar and caffeine crashes are very real,"
- Caffeine promotes wakefulness by increasing levels of histamine and glutamate, neurotransmitters that **disrupt sleep cycles**.
- **4. Anxiety- increases heart rate**
- **5. Seizures-** The seizures stopped when individuals stopped consuming energy drinks.

How Energy Drinks Affect the Rest of the Body

- **A. Diabetes** Energy drinks' high sugar content can lead to **Type 2 diabetes**.
- **B. Stress:** caffeine and other stimulating ingredients in energy drinks release excessive amounts of the stress hormone cortisol, leading to **adrenal exhaustion, fatigue, and impaired stress response**.
- **C. Heart Problems:** heart arrhythmias and **sudden cardiac death**

# Lead in Natural Supplements

## Ontario Case Shows Potential Supplement Risk for Consumers

Kerry Dooley Young August 08, 2023 August 8 in the *Canadian Medical Association Journal*.

- A woman's quest to become pregnant resulted in **lead poisoning from an Ayurvedic treatment**. The case triggered the seizure of pills from an Ontario natural-products clinic and the issuance of government warnings about the risks of products from this business, according to a new report.
- The case highlights the need for collaboration between clinicians and public health authorities to address the potential health risks of supplements, including the **presence of lead and other metals in Ayurvedic products**, according to the report.
- "When consumer products may be contaminated with lead, or when lead exposure is linked to sources in the community, involving public health can facilitate broader actions to reduce and prevent exposures to other people at risk," wrote report author Julian Gitelman, MD, MPH, a resident physician at the University of Toronto Dalla Lana School of Public Health, and colleagues.
- Their case study **was published** August 8 in the *Canadian Medical Association Journal*.
- The researchers detailed what happened after a 39-year-old woman sought medical care for **abdominal pain, constipation, nausea, and vomiting**. The woman underwent a series of tests, including **colonoscopy**, laparoscopy, and biopsies of bone marrow and ovarian cysts.
- Only later did clinicians home in on the cause of her ailments: the Ayurvedic medications that the patient had been taking daily for more than a year for **infertility**. Her daily regimen had varied, ranging from a few pills to a dozen pills.
- **Heavy metals are sometimes intentionally added to Ayurvedic supplements for perceived healing properties**, wrote the authors. They cited a previous study of a sample of Ayurvedic pills bought on the internet from manufacturers based in the United States and India that showed that **21% contained lead, mercury, or arsenic**.
- A case report published last year in *German Medical Weekly* raised the same issue.
- Melatonin Gummies
- There has been a "huge and very troubling increase" in US poison control calls associated with gummy-bear products containing **melatonin**, said Canadian Senator Stan Kutcher, MD, at a May 11 meeting of Canada's Standing Senate Committee on Social Affairs, Science, and Technology.
- In April, *JAMA* published a **US analysis** of melatonin gummy products, Kutcher noted. In this research letter, **investigators reported that one product did not contain detectable levels of melatonin but did contain 31.3 mg of cannabidiol**.
- In other products, the quantity of melatonin ranged from 74% to 347% of the labeled quantity. A previous Canadian study of 16 melatonin brands found that the actual dose of **melatonin ranged from 17% to 478% of the declared quantity**, the letter noted.

# Alarming Levels of Lead in Water and Soil From Buried Cables

Analysis by [Dr. Joseph Mercola](#); August 15, 2023

## Wall Street Journal (WSJ) investigation

- revealed a network of lead-covered cables across the U.S. leaching the heavy metal into the soil and water and raising lead levels well above EPA standard
- exposure is linked to 18% of all deaths and 28.7% of all heart deaths, but doctors do not routinely draw lead levels
- A 2022 estimate found roughly half the U.S. population has been exposed to adverse lead levels in early childhood, raising their risk of adverse health effects and IQ loss.<sup>9</sup>
- Water samples tested from Lake Tahoe revealed elevated lead levels in several locations, including in Emerald Bay where lead cables were severed, and levels were measured at 5,510 parts per billion and 38,000 parts per billion. In Wappingers Falls, New York, which is 60 miles north of New York City, soil lead measurements were 1,000 parts per million
- Mississippi, lead in the sediment was 19.8 times higher than EPA guidelines and at a levee in Donaldsonville, Louisiana where families often walk together, readings were 2,850 and 2,880 parts per million, which is seven times the guideline for play areas.

## Alarming Levels of Lead in Water and Soil From Buried Cables

Analysis by [Dr. Joseph Mercola](#); August 15, 2023

Wall Street Journal (WSJ) investigation

- Health Risks From Lead Exposure Is Multigenerational
- Unfortunately, lead can still be found in cosmetics,<sup>20</sup> batteries,<sup>21</sup> pottery and some roofing material.<sup>22</sup> As discussed above, lead is a significant risk factor for heart disease and all-cause mortality.
- Besides heart disease, lead exposure has also been linked to a higher risk of reproductive issues in men and women, low birth weight, premature birth, miscarriage,<sup>23</sup> high blood pressure<sup>24</sup> and neurological challenges such as headaches, seizures, brain damage and possibly Parkinson's and Alzheimer's.<sup>25</sup>

# Organic at Whole Foods



- **California Style Blend of Organic Vegetables**

- **Made in China**

- There are no verifications for 'organic foods' from China.

- Look at the small print on the Back of the package





# Fast Food Loaded With Antibiotics, Hormones, Heavy Metals, but Few Nutrients

by [Dr. Joseph Mercola](#) October 27, 2023

- Most chain restaurants rely on beef and chicken from concentrated animal feeding operations (CAFOs), where **veterinary drugs are routinely used, and 8 of 10 fast food meals sampled tested positive for veterinary drugs**
- Six of the 10 fast food samples (Taco Bell, Dunkin', Wendy's, Domino's, Burger King and McDonald's) contained a **veterinary antibiotic ionophore called monensin, which is not approved for human use** as it can cause severe harm
- Of **43 school lunches tested, 95% had detectable levels of glyphosate, a carcinogenic and endocrine-disrupting weed killer linked to liver inflammation, metabolic disorder, cardiovascular disease and cancer**
- **100% of the school lunches tested contained heavy metals at levels up to 6,293 times higher than the maximum levels allowed in drinking water. Cadmium and lead were found at the highest levels**
- Of 21 fast food meals tested for essential minerals, **none met the recommended daily requirements of calcium, potassium, manganese, copper, zinc and iron**, and none of the 10 fast food meals tested for B vitamins contained detectable levels of B9 or B12. Vitamin B3 (niacin) levels were also exceptionally low
- While high amounts of linoleic acid (LA) is one of the primary reasons why processed foods and fast food are so bad for your health, contaminants like veterinary drugs, antibiotics, hormones and heavy metals — combined with inferior amounts of essential nutrients — are other highly-ranked reasons to steer clear of.



# 123211: Carbohydrate-deficient Transferrin (CDT), Adult | Labcorp

- Testing for Ethyl Alcohol is ok for very recent exposure to alcohol but the CDT shows a longer term use.
- **CDT quantitation is useful in detecting abusive alcohol consumption (defined as ethanol consumption >40 mL per day for at least two weeks)** and a more specific marker for alcohol exposure than other available markers, such as  $\gamma$ -glutamyl transferase (GGT). It enables early detection of alcohol misuses and follow-up of alcoholic patients.

**On stopping alcohol consumption, the CDT level goes back to normal after two to four weeks. If the patient starts drinking after withdrawal, CDT increases in a few days.**

Transferrin is an 80-kDa serum glycoprotein produced by the liver. Its function is to carry iron around an organism mediated by iron-binding properties. Transferrin comprises a single polypeptide chain with two polysaccharide chains ended by a sialic acid residue. There are several isoforms of human transferrin with different levels of sialylation.

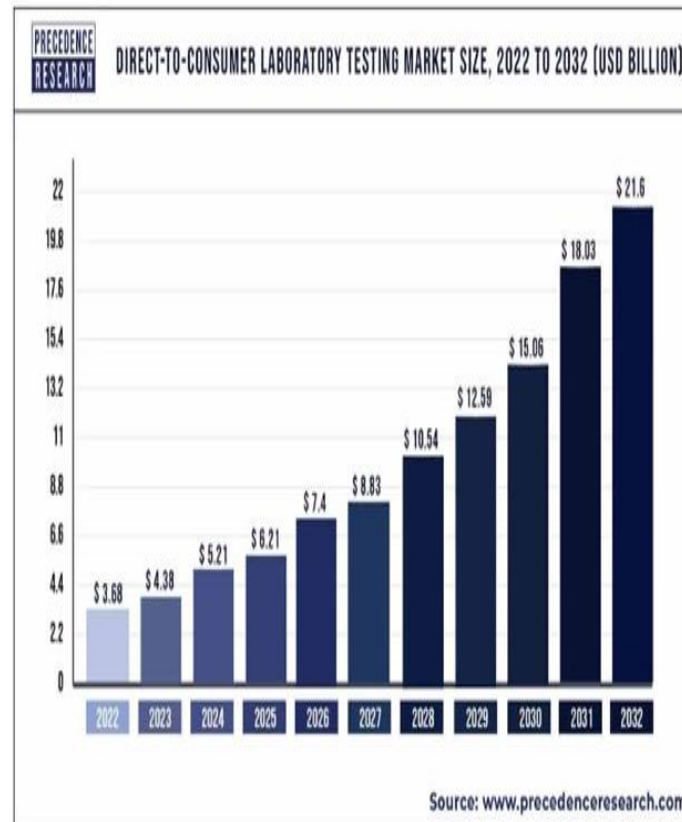
Carbohydrate-deficient transferrin (CDT), defined by 2 sialo and 0 sialo isoforms, is a marker of chronic alcohol abuse.

# Alcohol and Cancer-

## CDC and NAT'L CANCER INSTITUTE

- **The less alcohol you drink, the lower your risk for cancer.** Drinking alcohol raises your risk of getting several kinds of cancer—. Mouth and throat, Voice box (larynx), Esophagus, Stomach, Colon and rectum, Liver, Breast (in women) and prostate cancer.
- **All alcoholic drinks**, including red and white wine, beer, and liquor, **are linked with cancer.**
- **The more you drink, the higher your cancer risk.**

The global direct-to-consumer laboratory testing market size was valued at USD 3.68 billion in 2022 and is expected to hit around USD 21.6 billion by 2032 with a registered CAGR of 19.4% from 2022 to 2032.



#### Key Takeaways:

- North America accounted for more than 47% of the total revenue share in 2022.
- By test type, the [genetic testing](#) segment has dominated the market in 2022.
- By sample type, the saliva segment has captured a major share of over 39% in 2022.

# Swedish Study and Longevity over 100 yr/o

Bio markers and health, living to age 100.

The global number of centenarians—individuals who survive at least to their 100th birthday—has roughly doubled every decade since 1950 and is projected to quintuple between 2022 and 2050 [

Participants in the population-based AMORIS cohort with information on blood-based biomarkers measured during 1985–1996 were followed in Swedish register data for up to 35 years. We examined bio[1]markers of metabolism, inflammation, liver, renal, anemia, and nutritional status using descriptive statistics, logistic regression, and cluster analysis. In total, **1224 participants (84.6% females)** lived to their 100th birth[1]day.

The final study population consisted of 44,636 participants followed from their first blood measurement until their date of death. Of these, 1224 individuals (2.7%) reached their 100th birthday, comprising the centenarian population. This proportion is very similar to the chance of reaching 100 in the general population of Stockholm in the same time period

Those reaching 100 years:

Higher levels of **total cholesterol and iron**

And lower levels of: **glucose, creatinine, uric acid, aspartate aminotransferase (SGOT), gamma-glutamyl transferase, alkaline phosphatase, lactate dehydrogenase, and total iron-binding capacity.**

**VAN: There are additional tests that I would add due to living in the USA>**

•April 2007, Breast Cancer was diagnosed in a 48 year old female.

• These are the cancer tumor markers- CA 27.29 for the patient below with Breast Cancer.

- ▶ 05-04-2007 185 Medical clinical range is 0-38.60.
- ▶ 05-11-2007 140 2 weeks on her nutritional program
- ▶ 06-07-2007 78.80 4 weeks on her nutritional program
- ▶ 08-03-2007 35.50 All without any medical drugs, chemo, radiation or hormone therapy.

▶ 08-17-2007 29.70 **Total Cost: Out of Pocket to date was \$3,000.00**

(HOW MANY ADJUSTMENTS, THERAPY ETC. WOULD IT TAKE FOR YOU TO MAKE \$3,000.00? HOW MUCH PAPERWORK AND TIME WOULD IT TAKE FOR YOU TO GET PAID THAT MUCH?)

• **3-20-2013 23.20**

- ▶ 11-16-2013 19.00
- ▶ **1-10-2015 24.30 Still no hormones, chemo or radiation!**

- ▶ Biopsy/surgery was immediately recommended but she came to me before the first biopsy/surgery.
- ▶ 5-4-2007 CA27.29 was 185, this level of CA 27.29 indicates that the cancer has already metastasized, (she started on her complete program after the blood and hair and DMSA urinary challenge tests were done.)
- ▶ 5-11-2007 CA 27.29 reduced to 140 (this was before ANY medical intervention- no surgery/biopsy, chemo, radiation or hormone therapy)
- ▶ 5-24-2007 Patient had lumpectomy and 3 out of three lymph nodes were positive, (I was pretty sure that would be). Radiation was immediately recommended daily for 6 weeks followed with chemo and was told that she would probably have 8-10 years to live, which the oncologist thought was pretty good, (she didn't think that was such a great deal for a 48 y/o).
- ▶ This is far less that the CoPay of conventional cancer treatment for Chemo and/or radiation.



# 48 y/o Female

- CA 27.29      185.70
- Chol              238
- HDL              102
- LDL              191
- CK, LDH, CRP are a Little high

Test Description	Date:	05/04/2007	09/06/2002	Delta
Glucose		100.00	HI	79.00
Hemoglobin A1C (Gly-Hgh)		5.80	hi	5.30
Uric Acid		4.40	Opt	4.60
BUN (Blood Urea Nitrogen)		11.00	lo	14.00
Creatinine		0.70	Opt	0.70
BUN / Creatinine Ratio		16.00	Opt	20.00
Sodium		140.00	lo	137.00
Potassium		4.30	Opt	4.50
Chloride		101.00	Opt	102.00
Magnesium		2.40	Opt	2.00
Calcium		10.10	Opt	9.80
Phosphorus		3.40	lo	4.30
Calcium/Albumin Ratio		2.15	Opt	2.33
Total Protein		7.70	hi	7.30
Albumin		4.70	hi	4.20
Globulin		3.00	Opt	3.10
A/G Ratio		1.60	Opt	1.30
Total Bilirubin		0.40	Opt	0.40
Alkaline Phosphatase 25-150		72.00	Opt	67.00
Creatine Kinase		146.00	hi	79.00
LDH		180.00	hi	162.00
SGOT (AST) (AST)		27.00	hi	23.00
SGPT (ALT) (ALT)		18.00	Opt	19.00
GGT		35.00	Opt	20.00
Serum Iron		105.00	Opt	128.00
Ferritin		77.00	Opt	68.00
Total Cholesterol		238.00	HI	206.00
Triglyceride		83.00	Opt	145.00
HDL Cholesterol		102.00	HI	98.00
VLDL Cholesterol		17.00	Opt	29.00
LDL Cholesterol		119.00	HI	79.00
Total Cholesterol / HDL Ratio		2.30	Opt	2.10
Triglyceride/HDL Ratio		0.81	lo	
T4 Thyroxine		8.40	Opt	6.90
T3 Uptake		30.00	Opt	28.00
T7 Free Thyroxine Index (FTI)		2.50	lo	1.90
White Blood Count		4.90	lo	4.10
Red Blood Count		4.47	lo	4.60
Hemoglobin		12.90	lo	13.00
Hematocrit		37.70	lo	38.90
MCV		84.00	lo	85.00
MCH		28.80	Opt	28.30
MCHC		34.10	Opt	33.50
Platelets		297.00	hi	224.00
Polys/Neutrophils (SEGS-PMNS)		60.00	Opt	64.00
Lymphocytes		31.00	Opt	29.00
Monocytes		7.00	Opt	6.00
Eosinophils		2.00	Opt	1.00
Basophils		0.00	Opt	0.00
ESR-Erythrocyte Sed Rate, Westerg		2.00	Opt	2.00
CRP C-Reactive Protein		4.30	hi	2.90
CA 27.29		185.70	HI	



Test Description	Current Rating 06/03/2008	
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Toxic Elements		
Aluminum	28.00	Very High
Antimony	0.01	★
Arsenic	0.07	high
Barium	3.70	High
Beryllium	0.01	★
Bismuth	0.33	★
Cadmium	0.09	Very High
Lead	0.20	★
Mercury	0.19	★
Platinum	0.01	High
Thallium	0.00	★
Thorium	0.00	★
Uranium	0.01	★
Nickel	0.18	★
Silver	0.06	high
Tin	0.07	★
Titanium	1.50	High
Total Toxic Representation	3.00	High

Essential Elements		
Calcium	1210.00	high
Magnesium	290.00	High
Sodium	570.00	High
Potassium	230.00	Very High
Copper	7.20	Very Low
Zinc	130.00	Low
Manganese	0.13	Low
Chromium	0.33	Low
Vanadium	0.01	Low
Molybdenum	0.07	★
Boron	6.10	High

# Breast Cancer Case cont.

Test Description	Date:	Current Result 05/18/2007	Current Rating	Prior Result 05/12/2007
Agent		DMSA		Pre-Chall
Dose		1000 mg		
Interval		6		6
Toxic Elements				
Aluminum (UA)		0.00	Opt	53.00
Antimony (UA)		0.00	Opt	0.20
Arsenic (UA)		34.00	Opt	42.00
Beryllium (UA)		0.00	Opt	0.00
Bismuth (UA)		0.00	Opt	0.00
Cadmium (UA)		0.80	Opt	0.40
Lead (UA)		62.00	HI	1.10
Mercury (UA)		9.70	HI	1.80
Nickel (UA)		1.00	Opt	7.70
Platinum (UA)		0.00	Opt	0.00
Thallium (UA)		0.20	Opt	0.08
Thorium (UA)		0.00	Opt	0.00
Tin (UA)		3.30	Opt	0.00
Tungsten (UA)		0.00	Opt	0.00
Uranium (UA)		0.00	Opt	0.00

# r Test Results

Legend:	<span style="background-color: yellow;">   </span> Warning	<span style="background-color: red;">   </span> High Risk	<span style="background-color: lightblue;">   </span> Critical
---------	--	---	--

Test Results		Current Rating 07/21/2010	
Toxic Elements			
Aluminum	2.10	★	
Antimony	0.02	★	
Arsenic	0.03	★	
Barium	0.10	★	
Beryllium	0.01	★	
Bismuth	0.03	★	
Cadmium	0.04	high	
Lead	0.78	high	
Mercury	0.44	★	
Platinum	0.00	★	
Thallium	0.00	★	
Thorium	0.00	★	
Uranium	0.13	High	
Nickel	0.05	★	
Silver	0.03	★	
Tin	0.04	★	
Titanium	0.38	★	
Essential Elements			
Calcium	202.00	low	
Magnesium	110.00	High	
Sodium	110.00	★	
Potassium	16.00	low	
Copper	67.00	Very High	
Zinc	200.00	high	
Manganese	0.32	★	
Chromium	0.48	low	
Vanadium	0.03	low	
Molybdenum	0.03	low	
Boron	0.39	Low	
Iodine	0.36	low	
Lithium	0.01	Low	
Phosphorus	182.00	★	
Selenium	0.88	★	
Strontium	0.18	Low	
Sulfur	48100.00	high	
Cobalt	0.05	High	
Iron	13.00	★	
Germanium	0.04	★	
Rubidium	0.02	low	
Zirconium	0.03	Low	

## Blood Test Results

Legend:	<div><div></div>Warning</div>	<div><div></div>High Risk</div>	<div><div></div>Critical</div>	<div><div></div>Optimal</div>	<div><div></div></div>
Test Description		Current Rating 07/23/2010		Prior 11/30/2009	
Glucose		89.00	★		
Hemoglobin A1C (Gly-Hgh)		6.00	High		
Uric Acid		6.60	high		
BUN (Blood Urea Nitrogen)		21.00	high		
Creatinine		1.02	★		
GFR EST (Glomerular Filtration Rate)		59.00	★		
BUN / Creatinine Ratio		21.00	high		
Sodium		140.00	★		
Potassium		4.30	★		
Chloride		100.00	low		
Magnesium		2.50	★		
Calcium		10.00	high		
Phosphorus		2.80	low		
Total Protein		7.60	★		
Albumin		4.90	High		
Globulin		2.70	low		
A/G Ratio		1.80	high		
Total Bilirubin		1.10	high		
Alk. Phosphatase 25-530		97.00	★		
Creatine Kinase		164.00	high		
LDH		174.00	high		
SGOT (AST)		32.00	high		
SGPT (ALT)		50.00	High		
GGT		29.00	★		
Serum Iron		131.00	high		
Ferritin		472.00	High		
Total Cholesterol		182.00	high	186.00	
Triglyceride		70.00	low	80.00	
HDL Cholesterol		47.00	★	44.00	
VLDL Cholesterol		14.00	★	16.00	
LDL Cholesterol		121.00	High	126.00	
Total Cholesterol / HDL Ratio		3.90	★	4.23	
TSH		1.87	★		
T4 Thyroxine		10.00	high		
T3 Uptake		30.00	★		
T7 Free Thyroxine Index (FTI)		3.00	★		
CRP C-Reactive Protein		0.70	★		
White Blood Count		6.80	★		
Red Blood Count		5.16	★		
Hemoglobin		16.90	high		
Hematocrit		46.40	★		
MCV		90.00	★		
MCH		32.80	high		
MCHC		36.40	High		
RDW		13.10	★		
Platelets		292.00	high		
Polys/Neutrophils (SEGS-PMNS)		65.00	high		
Lymphocytes		26.00	★		
Monocytes		7.00	high		
Eosinophils		2.00	★		
Basophils		0.00	★		
Neutrophils/Polys (Absolute)		4.40	★		
Lymphs (Absolute)		1.80	low		
Monocytes (Absolute)		0.50	★		
Eosinophils (Absolute)		0.10	★		
Basophils (Absolute)		0.00	★		
ESR-Erythrocyte Sed Rate, Westergren		2.00	★		
Vitamin D 25-Hydroxy		21.00	Very Low		

# •Herbert H. Chelation Tests

Legend: <span>Warning</span> <span>High Risk</span> <span>Critical</span> <span>Optimal</span> <span>Im</span>			
Test Description		Prior 07/24/2010	Delta
Agent		Pre-Challen	
Dose			
Interval		6	
<b>Toxic Elements</b>			
Aluminum (UA)		3.10	
Antimony (UA)		0.00	
Arsenic (UA)		6.40	
Barium (UA)		2.50	
Beryllium (UA)		0.00	
Bismuth (UA)		0.00	
Cadmium (UA)		0.30	
Cesium (UA)		3.50	
Gadolinium (UA)		0.00	
Lead (UA)		0.50	☹
Mercury (UA)		1.30	☹
Nickel (UA)		2.50	
Palladium (UA)		0.00	
Platinum (UA)		0.00	
Tellurium (UA)		0.00	
Thallium (UA)		0.20	
Thorium (UA)		0.00	
Tin (UA)		2.30	
Tungsten (UA)		0.00	
Uranium (UA)		0.00	

# Hair Analysis Valid for Mercury Biomonitoring

- The results of the validation showed that the method (hair analysis) is very well suitable for the determination of both species of mercury (total mercury & methylmercury) in hair for biomonitoring purposes.
  - *Determination of Mercury and Methylmercury in Hair of the Czech Children's Population. Bio. Trace. Elem. Res. 2007 Oct 20.*
- Multiple (many very recent) studies are posted at PubMed with regards to using hair analysis to assess chronic mercury, lead, cadmium and nickel exposure.

# Know What the Test Means

- Study: The influence of the extraction and fixing of dental amalgams on the metallic concentrations of hair, urine, saliva and blood.
- The levels of mercury increased in urine, saliva and slightly in blood, with a maximum on the second or third day after the intervention
- The increase in hair was very low even at the end of 40 days.
  - Viala, et.al., *Influence of dental amalgams on the concentration of mercury and silver in biological fluids and hair.* Toxicol Eur Res. 1979 Jan;2(1):47-53
- This makes sense because hair cannot be used for acute exposure...why?
  - Growth rate of hair
  - Hair is excretory...elements that show up in the hair results are what the body is eliminating.
  - If very little elimination is showing up in the test results.
    - We have a problem.

# **Most Important Use of Hair Analysis**

**Raise patient awareness of heavy metals in their environment**



# Limitations

- Hair element analysis is not a diagnostic test of element function, and hair element levels (either high or low) are not always indicative of pathology.
- Not to be used for acute exposure.
- Use a company that washes the hair before analysis.

# Should you clean/wash the hair before analyzing?



# Hair Washing Causes Erratic Results?

- “I would suggest using the supplement suggestions on this site rather than those from Dr. Wilson.
- Dr. Wilson wrote to me saying, "Your readers might want to know that hair analysis tests from Great Smokies Lab, King James Laboratory, and Doctors Data will give significantly different results because they wash the hair in acetone and detergent.
- Analytical Research Labs and Trace Elements, Inc do not wash the hair. In the JAMA study referred to by Dr. Mercola, the labs that wash the hair produced erratic results. This is also what was found in earlier studies.
- Hair is biopsy material and harsh washing chemicals damage it. That is a main reason I use ARL (Analytical Research Labs).“
  - [http://www.ithyroid.com/hair\\_analysis.htm](http://www.ithyroid.com/hair_analysis.htm)

# Hair washing

- From: David Quig, PhD
- Fascinating quote.
- It was actually ARL that had about 10 outlier values!
- Use of a standardized wash procedure, like standardization of any laboratory method, is why the National Institute of Standards and Technology (NIST) exists and strives to get consistency among labs.
- A simple response- does ARL have any legitimate data (published) other than their own self published paperback book to support their claims about the meaning of all of those ratios that they report?
- The utility of hair analysis is to evaluate exposure to toxic elements (see the interpretation sections for hair mercury, lead and arsenic on the Mayo Medical Laboratories web site and the CDC).
- Its labs like ARL that over interpret hair elemental analysis and give the entire industry, and CAM a bad rap.

# Why hair washing?

- Hair grows from within the cell and a hair sample gives a 3-6 month indication of exposure
- Most people wash their hair everyday



# **Hair washing**

- **You want to test hair, not stuff on the hair.**
- **Maybe ingredients of hair products:**
- **Men's hair products to color it darker use or used to use lead.**



# Hair Can Be Used To Determine Drug Use vs External Contamination

- 3 steps are usually employed in order to minimize the possibility of external contamination causing a misinterpretation.
  - First, decontaminating hair samples by washing the hair before analysis
  - Second, detection of the relevant metabolites in the hair samples
  - Third, is the use of cut-off levels.
    - Accessed via PubMed
    - Tsanaclis, et.al., *Differentiation between drug use and environmental contamination when testing for drugs in hair.* Forensic Sci Int. 2007 Nov 1

# Hair Can Be Used To Determine Drug Use vs External Contamination

- A wash protocol needs to be practical and ideally remove any drug deposited on the external portion of the hair.
- For drugs, the analysis of the wash residue (W) and its comparison with the levels detected in hair (H) can be used to reduce confounding factors.
  - Accessed via PubMed
  - Tsanaclis, et.al., *Differentiation between drug use and environmental contamination when testing for drugs in hair.* Forensic Sci Int. 2007 Nov 1

# **Hair Can Be Used To Determine Drug Use vs External Contamination**

- **Where the W/H ratio is less than 0.1 or null, it would tend to indicate drug use as opposed to environmental contamination.**
- **Where the W/H ratio is above 0.1 but less than 0.5, it is likely to indicate possible use possibly combined with a level of external contamination.**

**Does it matter if there is  
external contamination with  
regards to heavy metals?**

**If it's in the environment, it's  
probably in you.**

# **Interpreting Hair Lab Results**

- **Because of pollution, industry, and other environmental factors, there is no way you can totally eliminate your exposure to some of these toxic elements.**
- **However, there are things we can do daily to limit or reduce our exposure to these toxic elements and therefore lessening the total toxic burden on your body.**

# **ADD/ADHD Plus in 12 year old boy**

- **Typical ADD symptoms**
- **Skin rash all over body would occur 2 times per month and last for 2-3 days.**
- **Swollen inflamed gums all the time**
- **Cleared of all symptoms when the intake of 5-6 cans of soda were stopped**



# ALUMINUM

- Any Aluminum is too much.
- Aluminum toxicity is associated with Alzheimer's and Parkinson's disease, behavioral/learning disorders such as ADD, ADHD and autism.
- High levels of aluminum have been found in the hair of delinquent, psychotic, and prepsychotic boys, and in juvenile offenders.
- Aluminum has neurotoxic effects at high levels, but low levels of accumulation may not elicit immediate symptoms.
- Early symptoms of Aluminum burden may include fatigue, headache, and other symptoms.
- Aluminum is a heavy metal that displaces your other good minerals, such as magnesium, calcium, zinc and phosphorus.

# ALUMINUM

## Most Common Sources

- antiperspirants
- aluminum cookware
- antacids
- some baking sodas
- baking powder
- some breath mints
- pickles
- some skin lotion
- some cosmetics
- aluminum foil
- canned goods
- emulsifiers in some processed cheese
- table salt - anti-caking compound
- bleaching agent used in white flour
- buffered aspirin
- some toothpaste
- dental amalgams
- cigarette filters
- drinking water (tap water)
- do not eat or drink anything that comes in a can
- read your labels before you purchase. Aluminum has also been found in a granola bar.

# Aluminum

- Fluoride and Fluoridation increases the absorption of Aluminum.
- Chlorella and Magnesium with Malic Acid have been reported to be quite effective in lowering Aluminum.

# Antimony

- Antimony or Stibium have no known function in living organisms and is **similar to but less toxic than arsenic.**
- Like Arsenic, Antimony is conjugated with glutathione and excreted in urine and feces causing depletion of intracellular glutathione pools.

# Early Sign of Antimony Excess

- fatigue
- muscle weakness
- joint pain
- altered EKG
- low back pain
- headache
- metallic taste
- nausea
- myopathy

# Later Symptoms of Antimony Excess

- hemolytic anemia
- myoglobinuria
- hematuria
- renal failure
- “antimony spots” may resemble chicken pox
- common in patients with ADD/ADHD and autism



# Antimony

## Common Sources

- foods stored in enamel vessels and cans
- cigarette smoke
- textile industry
- paints
- glass
- ceramics
- solder
- batteries
- semiconductors
- antihelminthic & antiprotozoic drugs.
- concentration of Antimony are influenced by geography, season and refining of foods.

# **Chronic Arsenic Exposure**

- **Bone marrow depression**
- **Leukopenia**
- **Normochromic anemia**
- **Exfoliation and pigmentation of skin**
- **Neurological symptoms**
- **Polyneuritis**
- **Altered hematopoiesis**
- **Liver degeneration**
- **Kidney degeneration**
- **Skin cancer**
- **Cancers of the respiratory tract**
- **agitation, learning impairment, and confusion.**

# **Arsenic**

## **Delayed Toxicity Symptoms**

- **abdominal pain**
- **nausea**
- **vomiting**
- **hematuria**
- **jaundice**

# Arsenic

- **Ingestion of large amounts of soluble Arsenic compounds effect the myocardium, causing death within a few hours.**

**The current EPA standard for arsenic in public water systems is 10 ppb, reduced from 50 ppb in 2006. The standard applies only to drinking water sources that serve more than 20 people.**

# **Ingesting Smaller Amounts of Arsenic**

- **epigastric pain**
- **vomiting and diarrhea**
- **inflammation of the conjunctiva and respiratory mucous membranes**
- **epitaxis**
- **transient jaundice**
- **cardiomyopathy**
- **erythematous**
- **visceral rashes**
- **sweating**



# Ingesting Smaller Amounts of Arsenic

- Other symptoms
  - malaise
  - muscle weakness
  - eczema
  - dermatitis
  - increased salivation
  - strong "garlic breath"
  - Alopecia totalis
  - vomiting
  - diarrhea
  - skin cancer
  - Hematological, renal, or pancreatic dysfunction may be observed.
  - Symptoms of neuropathy are experienced and typically appear as with tingling and paresthesia in the extremities.
  - Proteinuria and methemoglobinemia are frequently observed, causing renal failure and death.

# **Arsenic**

## **Symptoms**

- **bone marrow depression**
- **Anemia**
- **skin discolorations**
- **neurological symptoms**
- **liver and kidney degeneration**
- **Cancers**
- **Agitation**
- **learning impairment**
- **confusion**
- **Malaise**
- **Vomiting**
- **Diarrhea**
- **Eczema**
- **muscle weakness**
- **hair loss**
- **stomach pain**
- **respiratory issues**

# Arsenic

- Can be absorbed by the human body through the respiratory and GI tracts and through the skin.
- Elevated hair levels are seen long before clinical signs of arsenic toxicity are obvious.
- The relationship between cognitive functions and hair mineral concentrations of lead, arsenic, cadmium, and aluminum was examined for a random selection of 69 children. The data obtained showed a **significant correlation between reading and writing skill and elevated arsenic levels, as well as interaction between arsenic and lead. Children with reduced visual-motor skills, had clearly elevated aluminum and lead levels.**

# Arsenic, Water, Cancer

- Even small amounts of arsenic might **cause cells to lose some of their ability to repair genetic damage**, a new study has found. The results help explain why **arsenic contamination in drinking water can lead to certain cancers**. Without the ability to repair its DNA, a cell could be vulnerable to damage from pollutants such as cigarette smoke.
  - Dartmouth Medical School, *International Journal of Cancer* 4/2003

# Case: David P.

- **Extreme high Arsenic**
- **Severe abdominal pain and rectal bleeding.**
- **Dx'd with Crohn's disease and had his colon removed at age 20.**
- **MD's refused to consider Arsenic toxicity.**

## Beginning to present

	Current Result 12/12/2003	Current Rating	Prior Result 07/26/2002	Delta
Glucose	116.00	HI	79.00	⊖
Hemoglobin A1C (Gly-Hgh)			4.90	
Uric Acid			6.50	
BUN (Blood Urea Nitrogen)	3.00	LO	4.00	⊖
Creatinine	0.60	lo	0.70	⊖
BUN / Creatinine Ratio			5.00	
Sodium	141.00	Opt	133.00	⊕
Potassium	3.50	LO	4.70	⊖
Chloride	107.00	hi	98.00	⊕
Magnesium	1.70	lo	2.00	⊖
Calcium	8.70	lo	9.30	⊖
Phosphorus	3.50	Opt	3.50	
Calcium/Albumin Ratio	3.30	HI	2.65	⊕
Total Protein	5.30	LO	6.70	⊖
Albumin	2.60	LO	3.50	⊖
Globulin			3.20	
A/G Ratio			1.00	
Total Bilirubin			0.40	
Alkaline Phosphatase 25-150			113.00	
Creatine Kinase			9.00	
LDH			122.00	
SGOT (AST) (AST)	9.00	lo	69.00	⊖
SGPT (ALT) (ALT)	23.00	Opt	89.00	⊖
GGT			39.00	
Serum Iron			12.00	
Ferritin			225.00	
Total Cholesterol			114.00	
Triglyceride			150.00	
HDL Cholesterol			27.00	
VLDL Cholesterol			30.00	
LDL Cholesterol			57.00	
Total Cholesterol / HDL Ratio			4.20	
T4 Thyroxine			7.20	
T3 Uptake			33.00	
T7 Free Thyroxine Index (FTI)			2.30	
White Blood Count			12.70	
Red Blood Count			4.75	
Hemoglobin			14.10	
Hematocrit			40.10	
MCV			84.00	
MCH			29.70	
MCHC			35.20	
Platelets			541.00	
Polys/Neutrophils (SEGS-PMNS)			76.00	
Lymphocytes			11.00	
Monocytes			10.00	
Eosinophils			2.00	
Basophils			1.00	
ESR-Erythrocyte Sed Rate, Westerg			8.00	
CRP C-Reactive Protein			147.70	

## And in between...

	Prior Result 2 03/31/2003	Prior Result 3 10/03/2002	Prior Result 4 10/02/2002	Prior Result 5 10/02/2002
Glucose	85.00	73.00		73.00
Hemoglobin A1C (Gly-Hgh)	4.90			
Uric Acid	4.70			
BUN (Blood Urea Nitrogen)	8.00	10.00		9.00
Creatinine	0.70	0.60		0.40
BUN / Creatinine Ratio	11.00	16.67		22.50
Sodium	139.00	142.00		140.00
Potassium	4.00	3.60		3.80
Chloride	104.00	105.00		105.00
Magnesium	1.90			
Calcium	9.60	8.80		8.70
Phosphorus	3.10			
Calcium/Albumin Ratio	2.28			
Total Protein	7.00			
Albumin	4.20			
Globulin	2.80			
A/G Ratio	1.50			
Total Bilirubin	0.60			
Alkaline Phosphatase 25-150	113.00			
Creatine Kinase	34.00			
LDH	118.00			
SGOT (AST) (AST)	21.00			
SGPT (ALT) (ALT)	19.00			
GGT	15.00			
Serum Iron	56.00			
Ferritin	9.00			
Total Cholesterol	155.00			
Triglyceride	93.00			
HDL Cholesterol	55.00			
VLDL Cholesterol	18.00			
LDL Cholesterol	81.00			
Total Cholesterol / HDL Ratio	2.80			
T4 Thyroxine	5.20			
T3 Uptake	32.00			
T7 Free Thyroxine Index (FTI)	1.60			
White Blood Count	4.20	9.69	16.32	9.67
Red Blood Count	4.92	2.77	3.45	2.84
Hemoglobin	13.40	8.10	10.20	8.30
Hematocrit	41.00	25.00	31.00	25.30
MCV	83.00	90.30	89.90	89.10
MCH	27.30	29.20	29.60	29.20
MCHC	32.70	32.40	32.90	32.80
Platelets	267.00	512.00	628.00	482.00
Polys/Neutrophils (SEGS-PMNS)	54.00			
Lymphocytes	25.00			
Monocytes	9.00			
Eosinophils	11.00			
Basophils	1.00			
ESR-Erythrocyte Sed Rate, Westergren	2.30			
CRP C-Reactive Protein	2.70			

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David P.

3/14/03

2<sup>nd</sup> HA

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>		95 <sup>th</sup>		
Aluminum	2.4	< 7.0					
Antimony	0.033	< 0.066					
Arsenic	0.82	< 0.08					
Beryllium	< 0.01	< 0.02					
Bismuth	0.013	< 0.06					
Cadmium	< 0.009	< 0.15					
Lead	0.18	< 2.0					
Mercury	0.4	< 1.1					
Platinum	< 0.003	< 0.005					
Thallium	< 0.001	< 0.01					
Thorium	< 0.001	< 0.005					
Uranium	0.046	< 0.06					
Nickel	0.02	< 0.4					
Silver	0.02	< 0.12					
Tin	0.36	< 0.3					
Titanium	0.72	< 1.0					
Total Toxic Representation							
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	130	200 - 750					
Magnesium	14	25 - 75					
Sodium	76	12 - 90					
Potassium	56	9.0 - 40					
Copper	10	10 - 28					
Zinc	140	130 - 200					
Manganese	0.05	0.15 - 0.65					
Chromium	0.16	0.2 - 0.4					
Vanadium	0.012	0.018 - 0.065					
Molybdenum	0.088	0.025 - 0.064					
Boron	1.5	0.4 - 3.0					
Iodine	1.1	0.25 - 1.3					
Lithium	0.015	0.007 - 0.023					
Phosphorus	190	160 - 250					
Selenium	1.0	0.95 - 1.7					
Strontium	0.33	0.3 - 3.5					
Sulfur	51500	44500 - 52000					
Barium	0.15	0.16 - 1.6					
Cobalt	0.007	0.013 - 0.035					
Iron	10	5.4 - 13					
Germanium	0.033	0.045 - 0.065					
Rubidium	0.063	0.011 - 0.12					
Zirconium	0.22	0.02 - 0.44					
SPECIMEN DATA				RATIOS		171	

# Arsenic

## Common Sources

- tobacco smoke and is a suspected causative factor in lung cancer.
- metal smelting
- the production of glass, ceramics, insecticides, fungicides and herbicides mobilize environmental arsenic
- drinking water may also be a source of arsenic
- the use of arsenic-containing paints is a known source of arsenic poisoning.

# Arsenic

- **Sources**
  - Tobacco smoke
  - Metal smelting
  - Production of glass
  - Ceramics
  - Artificial Colors
  - Insecticides
  - Fungicides
  - Herbicides
  - Drinking water
  - Wood treatments

# Therapeutic Consideration for Chronic Arsenic Overexposure

- Antioxidant therapy especially ascorbic acid
- Calcium ascorbate
- Vitamin E (all tocopherols)
- Increased intake of sulfur-containing amino acids
- Vitamin B6.
- Arsenic suppresses iodine and selenium.

## As Water Levels Drop, the Risk of Arsenic Rises

By [Melissa Bailey](#) May 24, 2023 reported in Medpage

- As Water Levels Drop, the Risk of Arsenic Rises
- Colorado- Now decades of climate change-driven drought, combined with the over pumping of aquifers, is making the valley desperately dry — and appears to be intensifying the levels of heavy metals in drinking water.
- Arsenic has been appearing in rising levels in drinking water in the valley
- **Nationwide, about 40 million people rely on domestic wells**, estimated Melissa Lombard, a research hydrologist for the U.S. Geological Survey. Nevada, Arizona, and Maine have the highest percentage of domestic well users — ranging from about a quarter to a fifth of well users — using water with elevated arsenic levels, she found in a separate study.
- **During drought, the number of people in the contiguous U.S. exposed to elevated arsenic from domestic wells may rise from about 2.7 million to 4.1 million people**, Lombard estimated, using statistical models.

# Arsenic- getting higher in wells

- Arsenic has been shown to affect health across the human life span, beginning with sperm and eggs, James said. Even a small exposure, added up over the course of a person's life, is enough to cause health problems,
- Lifetime exposure to low levels of inorganic arsenic in drinking water, between 10 and 100 micrograms per liter, or  $\mu\text{g/L}$ , was linked to a higher risk of coronary heart disease.
- Other research has tied chronic exposure to low-level arsenic to hypertension, diabetes, and cancer. Pregnant women and children are at greater risk for harm.
- The World Health Organization sets the recommended limit on arsenic in drinking water at 10  $\mu\text{g/L}$ , which is also the U.S. standard for public water supplies. But research has shown that, even at 5  $\mu\text{g/L}$ , arsenic is linked to higher rates of skin lesions.
- Arsenic, which she said has been gradually increasing in valley drinking wells over the past 50 years



# Arsenic - It's colorless and odorless

- Wells show elevated levels of heavy metals, including arsenic, uranium, tungsten, and manganese, which occur naturally in the soil.
- Unlike public water supplies, private domestic wells are not regulated, and they may go untested for years.
- “It’s colorless, it’s odorless,” Zahringer said. “Most families don’t know if they’re drinking arsenic.”
- If arsenic shows up in a private well, she encourages clients to install reverse osmosis water filtration at the kitchen sink.

# Arsenic in the blood\*\*\*

- Absorbed arsenic is rapidly distributed into tissue storage sites with a blood half-life of less than 6 hours.
- Unless a blood specimen is drawn within 2 days of exposure, arsenic is not likely to be detected in a blood specimen. Report Available
- Mayo Clinic Laboratories

# Barium

- Symptoms of toxicity include muscular and myocardial stimulation, tingling in the extremities, and loss of tendon reflexes.
- Dietary sources of barium include milk, flour, potatoes, and some types of nuts.
- Barium is commonly used in Cat Scans and MRI

# Barium Side effects

1. Cancer
2. Birth defects
3. Allergic reactions
4. Bloating
5. constipation (severe, continuing)
6. cramping (severe)
7. nausea or vomiting
8. stomach pain
9. tightness in the chest
10. trouble breathing
11. Anxiety
12. blood in the urine or stools
13. blurred vision
14. bruising
15. chest pain
16. confusion
17. cough
18. coughing or vomiting blood
19. dizziness, faintness, or lightheadedness
20. fainting
21. fast or slow heartbeat
22. hives or welts, itching, or skin rash
23. noisy breathing
24. persistent bleeding
25. redness of the skin
26. sweating
27. unusual tiredness or weakness
28. Constipation or diarrhea
29. cramping

# Beryllium

- **Toxicity:** Animal tests document that **osteosarcomas can be induced with aerosols containing beryllium** compounds such as beryllium oxide, phosphate and sulfate. Chronic beryllium exposure is increasingly mentioned in medical literature.
- **Symptoms:** Respiratory problems, Hepatic problems
- **Biochemistry:** Beryllium blocks several hepatic enzyme systems.
- Marcotte and Witschi (1972) suggested that this trace element binds to chromatin and **interferes with DNA synthesis.**

# Beryllium Source

- Nuclear industries
- Metal processing, especially beryllium processing
- Telecommunications
- Aeronautical and computer industries
- Certain oil paints
- Like arsenic, beryllium is a by-product of tobacco smoke

**Beryllium exposure is associated with lung cancer.**



# Bismuth

- Bismuth is a major player in the metallurgical industry.
- Many industries are using bismuth instead of lead because lead is so toxic.
- Bismuth is nontoxic in ordinary amounts, but prolonged exposure or excessive use may lead to toxicity.
- It is a basic ingredient in a range of fusible alloys; an additive to aluminum, steel, and cast iron to improve machinability; and widely used to support dyes and molds.

# Bismuth

- Bismuth has been used in health care for centuries.
- Slightly soluble mineral salts are **used in antacids such as Pepto-Bismol.**
- Bacterial properties of bismuth salts are used to treat skin injuries and infection.
- The medical profession used bismuth castings to shield vital organs during radiation therapy.

# Bismuth Toxicity

- nephrotoxicity
- encephalopathy
- constipation
- bowel irregularity
- foul breath
- neurotoxicity
- mental confusion
- memory loss
- lack of coordination
- slurred speech
- joint pain
- tremor
- memory loss
- monoclonic jerks
- dysarthria
- dementia
- seizures
- muscle twitching and spasms
- foul breath
- blue/black gum line
- malaise

# Bismuth Sources

- antacids
- **Pepto-Bismol**
- dental cement
- glass
- ceramics
- optical lenses
- synthetic pearls
- cosmetic formulations where they impart pearlescence to lipstick, nail polish and eye shadow

# Boron

- **Signs of toxicity**
  - nausea
  - vomiting
  - diarrhea
  - dermatitis
  - lethargy
  - inflammation
  - edema in the legs
  - growth problems
  - testicular atrophy
- **Boron is present in some cleaners, cements, ceramics, glass, water and soil.**

# Boron

- Make sure there are adequate levels of calcium, magnesium, phosphorus, riboflavin and B6.
- Recent studies clearly indicate that Boron has an important role in normal bone metabolism/density and may be needed for normal membrane function.
- In post-menopausal women consuming a very low boron diet, boron supplementation significantly lowered urinary excretion of calcium and magnesium and increased serum levels of estrogen.



# Boron Deficiency

- skin allergies
- eczema
- acne
- enteritis
- Osteoporosis
- Estrogen deficiency
- Hormonal imbalance

# Boron

- It is important in adrenaline and in carbohydrate and lipid metabolism
- Boron influences the metabolism of calcium, phosphorus, magnesium and cholecalciferol.
- Calcium supplementation is recommended with Boron.

# Cadmium

- Cadmium is associated or known to cause cancer in:
  - Uterus
  - Mammary Gland
  - Kidney
  - Prostate
  - Testicular
  - Lung
  - Pancreas
  - Because of direct inhibition of DNA mismatch repair
    - McMurray, et.al., *Cancer, cadmium and genome integrity*.  
Nature Genetics 34, 239-241 (2003) doi: 10.1038/ ng0703-239

# Cadmium

- Cadmium (Cd) is a toxic, heavy metal with no positive metabolic function in the body, and is **relatively rare but more toxic than lead**.
- Moderately high cadmium levels are consistent with **hypertension**, while very severe cadmium toxicity can cause hypotension.
- Cadmium absorption **is reduced by zinc, calcium and selenium**.
- **Alkaline Phosphatase is commonly elevated with Cadmium toxicity.**

# Cadmium

- **Cadmium toxicity is common among welders and construction workers (cement dust).**
- **Contamination may come from perms, dyes, bleach and some hair sprays, and can cause false highs for Cd.**

# Cancer, Cadmium and Genome Integrity

- Cadmium is an element with no known biological function and is **one of the most serious environmental pollutants**.
- Cadmium has a high affinity for protein-sulfhydryl groups, competes with Zinc in proteins and binds to DNA bases with little sequence specificity causing single-strand DNA breaks.
- Cadmium toxicity may therefore represent a new mechanism by which genomes can be destabilized, and this observation expands the definition of the term 'mutagen'.



# Cancer, Cadmium and Genome Integrity

- Roughly 15,000 tons of cadmium are produced worldwide each year for nickel-cadmium batteries, pigments, chemical stabilizers, metal coatings and alloys.
- Because of its low excretion rate (biological half-life = 10–30 years), cadmium accumulates in the body.
- Reported mutagenic effects of cadmium include generation of reactive oxygen species, **inhibition of several types of DNA repair, depletion of glutathione and alteration of apoptosis.**
  - *Cancer Epidemiology Biomarkers & Prevention* Vol. 9, 139-145, February 2000 American Association for Cancer Research

# Cadmium & Pancreatic Cancer

- Most of the cadmium produced in the United States is extracted during the smelting of other metals, such as zinc, lead, or copper. Other sources of environmental cadmium are the burning of fossil fuels and waste materials and the use of phosphate fertilizers and sewage sludge.
- Food is the main source of cadmium for the non-smoking population. (found in shrimp, oysters, crawfish, etc.) In the United States, the average person consumes approximately 30 µg of cadmium per day in food and absorbs 1–3 µg from the gastrointestinal tract.
- **Because the body has no mechanism for the excretion of cadmium, it accumulates in tissues. In humans, the largest amount of cadmium is deposited in the kidneys, liver, pancreas and lungs.**

# **Cadmium & Pancreatic Cancer cont.**

- Cadmium is one of the most potent agents known to induce transdifferentiation of the pancreas.
- Cadmium can induce or regulate the activation of several oncogenic proteins and tumor suppressor proteins that are in pancreatic cancers.
- **Summary:**
  - exposure to cadmium > Cadmium accumulates in the pancreas > increased differentiation and DNA synthesis and oncogene activation > increased risk of pancreatic cancer.
    - Departments of Cancer biology and public health sciences, Comprehensive Cancer Center of Wake Forest University, Winston-Salem, North Carolina 27157 (G.G.S)

# Cadmium Mimics Effects of Estrogen

- Environmental contaminants that mimic the effects of estrogen contribute to disruption of hormone-related cancers and diseases in Western populations.
- Previous studies have shown that functionally, **cadmium acts like steroidal estrogens in breast cancer cells** as a result of its ability to form a high-affinity complex with the hormone binding domain of the estrogen receptor
- Exposure to cadmium increased uterine wet weight. In the uterus, the increase in wet weight was accompanied by proliferation of the endometrium and induction of progesterone receptor (PgR) and complement component C3.
- In utero exposure to the metal also mimicked the effects of estrogens. **Female offspring experienced an earlier onset of puberty and an increase in the epithelial area and the number of terminal end buds in the mammary gland.**
  - Nature Medicine 9, 1081-1084 (2003) published online: 3 July 2003; doi:10.1038/nm902

# Association of Cadmium with Renal Cancer

- Sixty-four cases of renal cancer in white males were compared with controls for past exposures to cadmium. Controls were also white males, and were group-matched to the cases on age for the analyses. Data on the three main sources of exposure to cadmium--diet, cigarette smoking and occupation--were obtained by interview.
- The results showed a **significant association of renal cancer with exposure to cadmium**, and favored a synergistic effect between occupational exposure and smoking. The relative risk for men who both smoked and worked in high-risk occupations was more than four times that for men who did neither.
  - Cancer. 1976 April 37(4): 1782-7

# Cd & Prostate

- Cadmium exposure appeared to result in an **increased risk for prostate cancer, most apparent for aggressive tumors.**
- Cases were more likely to have worked in the following industries: mining, paper and wood, medicine and science, and entertainment, recreation and the tobacco industry or having smoked.
- [www.pubmed.gov](http://www.pubmed.gov)



# Hair Cadmium levels used to Dx Mental Retardation

- 415 normal and 85 Mentally Retarded (MR) children's hair cadmium (Cd) contents were measured
- Hair of both male and female MR children were obviously higher than those of normal children
- If the Cd content in the hair of male children is higher than 0.239 microgram/g, and higher than 0.180 microgram/g in the female, MR can be diagnosed.
- Authors concluded, hair Cd can be used as an additional criterion in the diagnosis of MR and may be important in the screening for MR.
- PubMed accessed: Jiang, et.al., *Clinical significance of hair cadmium content in the diagnosis of mental retardation of children.* Chin Med J (Engl). 1990 Apr;103(4):331-4

# Cadmium

- Cadmium (Cd) is a toxic, heavy metal with no positive metabolic function in the body, and is relatively rare but more toxic than lead.
- Moderately high cadmium levels are consistent with **hypertension**, while very severe cadmium toxicity can cause hypotension.
- Cadmium absorption is reduced by zinc, calcium and selenium.
- **Alkaline Phosphatase is commonly elevated with Cadmium toxicity.**

# Cadmium Affects

- Kidneys
- Lungs
- Testes
- Arterial walls
- Bones
- Interferes with many enzymatic systems
- Depletes glutathione
- Leads to anemia
- Proteinuria
- Glucosuria
- Depletes
  - calcium
  - phosphorus
  - zinc

# **Cadmium**

## **Symptoms of Contamination**

- **hypertension**
  - **fatigue**
  - **muscle and joint pain/osteomalacia**
  - **anemia**
  - **learning disabilities**
  - **dyslexia**
  - **delinquency**
  - **schizophrenia**
  - **high anxiety**
  - **atherosclerosis**
  - **kidney damage with associated urinary loss of essential minerals, amino acids and protein.**
- Interferes with many enzymatic systems
  - Leads to anemia
  - Protein and glucose in the urine
  - Depletes calcium, phosphorus and zinc
  - Low back pain
  - Atherosclerosis
  - Affects the kidneys
  - Lungs
  - Testes
  - Arterial walls
  - Bones

# **Cadmium**

## **Common Source**

- refined foods (white flour, white sugar, etc.)
- acid drinks left in galvanized pails or ice trays
- superphosphate fertilizers
- gluten flour
- some cola drinks
- tap water
- atmospheric pollution in the burning of coal and petroleum products
- seafood
- plastic water pipes
- margarine
- canned fruits and beverages
- sugar and molasses
- alcoholic drinks
- cigarette smoke
- zinc smelters
- cadmium plating used in soft drink dispensing machines.

# Cadmium

- **Cadmium toxicity is common among welders and construction workers (cement dust).**
- **Contamination may come from perms, dyes, bleach and some hair sprays, and can cause false highs for Cd.**



# AHA flags CV risk with lead, cadmium, and arsenic exposure

**Publish date:** June 14, 2023 Bv [Megan Brooks](#)

## FROM THE JOURNAL OF THE AMERICAN HEART ASSOCIATION

Mounting evidence supports that chronic environmental exposure to **low levels of lead, cadmium, and arsenic contribute significantly to cardiovascular disease (CVD)**, the American Heart Association says in a new scientific statement.

“In reality, identifying a new type of cardiovascular risk factor leads to more questions than answers,”

Gervasio A. Lamas, MD, chair of the statement writing group, said in an interview.

“For the most part, as cardiologists, we are used to risk factors we can manage with antihypertensives, statins, weight loss, exercise, and avoidance of smoking. **Unfortunately, the ubiquity of toxic metals and their multiple sources increases the complexity of potential treatment,**” said Dr. Lamas, chairman of medicine and chief of the Columbia University division of cardiology at Mount Sinai Medical Center in Miami Beach, Fla.

# Calcium

- High levels of calcium in the hair is most often associated with an imbalance of the calcium to phosphorus ratio in the body. Other causes include hyperparathyroidism and excess vitamin A or D intake.
- Excess calcium may depress nervous functions, and lead to depression, irritability, memory impairment, and psychosis.
- **ODDLY: HIGH HAIR CALCIUM** could be due to inadequate dietary calcium, protein or Vitamin D, physical inactivity, chronic stress, hormonal imbalance, excess phosphorus intake, chronic use of diuretics, laxatives or antacids containing aluminum, or alcohol.

# Calcium

- **Calcium is important not only for healthy teeth and bones, but also for proper heart function and has been found to benefit nerves, muscles, and skin.**
- **Good dietary sources of calcium include dark green leafy vegetables, broccoli, legumes, nuts, and whole grains.**

# Symptoms of Calcium Depletion

- muscle cramps or tetany
- myalgia
- skeletal pain
- insomnia
- heart palpitations
- irritability or agitation
- cognitive impairment
- delusions
- depression
- hyperactivity
- damaged teeth
- eventually osteoporosis
- Low hair calcium has been reported in autistic children versus sibling/neighbor controls.

# Chromium

- Chromium is very important in **carbohydrate and glucose metabolism and in the mechanism of insulin action.**
  - Basically, this mineral is very important for hypoglycemics and diabetics.
- Depletion can result in reduced metabolism of amino acids, glucose and lipid metabolism.
- Associated with protein malnutrition, elevated cholesterol levels, atherosclerosis and corneal damage.

# Chromium

- This has been seen in patients with allergic dermatitis, skin ulcers, bronchitis, lung cancer, cerebral thrombosis, and cerebral hemorrhaging, and has been reported to lead to insomnia and an increase in unpleasant dream activity.
- Elevated levels of chromium have been detected in the hair of children with psychotic and neurotic behavior, and in the hair of children with learning disabilities when compared to controls.
- Sources of exposure include stainless steel manufacturing, wood finishing, leather tanning, and handling of cement.



# Cobalt

- Symptoms of toxicity include weight loss, loss of appetite, electrolyte imbalance, and impairment of myocardial metabolism.
- The only known biological use for cobalt is that it is absolutely necessary for vitamin B12 activity and function.
- Cobalt activates numerous enzymes and is stored in the liver as vitamin B12.

# Cobalt

- Dietary cobalt and inorganic cobalt are poorly absorbed.
- Sources of Cobalt are found in all animal products, meats, fish, cheese, brewer's yeast and yeast extracts.
- Vegetarians (vegans) who refuse eggs and dairy products, as well as people who lack an intrinsic factor, risk vitamin B12 and cobalt deficiencies.
- Recommendation: eat an egg at least 2-3 times per week.

# Symptoms of Copper Deficiency

- elevated cholesterol
- increased inflammatory response
- anemia
- bone disorders
- reproductive failure
- microcytic anemia
- pancreatic dysfunction
- degeneration of the nervous system
- depression
- diarrhea
- impaired immunity
- heart disease

# Copper

- **Dietary sources include dried legumes, nuts, and dark green leafy vegetables.**
- **Insufficient intake of competitively absorbed elements such as Zinc or Molybdenum can lead to, or worsen Copper excess.**
- **Estrogen can increase copper in blood and hair levels**
- **Therapeutic considerations to normalize excess Copper include iron, manganese, selenium, zinc, molybdenum, vitamin C, amino acids and vitamin B6.**

# **Exogenous Copper Contamination Sources**

- **permanent solutions**
  - **Hair dyes –red/orange**
- **dyes**
- **bleaches**
- **swimming pool/hot tubs**
- **water carried thru copper pipes**
- **food**
- **drinking water**
- **excess copper supplementation**
- **occupational or environmental exposure**
- **chocolate**
- **nuts**
- **wheat germ**
- **shellfish**

# Copper

## Symptoms of Contamination

- biliary obstruction (reduced ability to excrete Copper)
- liver disease (hepatitis or cirrhosis)
- renal dysfunctions
- Hodgkin's disease, leukemia and other malignancies
- anemia
- hemochromatosis
- Rheumatic fever
- Major and minor thalassemia
- dyslexia
- collagen diseases
- a potential complication in long-term hemodialysis patients
- muscle and joint pain
- insomnia
- arthritis
- depression
- irritability
- hyperactivity
- emotional instability
- tremor
- hemolytic anemia
- learning disabilities
- behavioral disorders



# Copper

- Copper is an essential trace mineral needed for good health and wellness. **Small amounts of copper is essential for life. However, as with all trace minerals, excess amounts of copper in the body can be toxic.** The liver and brain contain the largest amounts of copper in the body; other organs contain smaller amounts.
- As with mercury and lead, **high levels of copper are also associated with mental and emotional disorders.**

# Frequent Signs & Symptoms

- High systolic and diastolic blood pressure.
- Nausea.
- Eczema.
- Tender calf muscles. Joint pain, swelling, and stiffness.
- Kidney disease.
- Premenstrual syndrome.
- Sickle cell anemia.
- Stomach pain.
- Hemolytic anemia.
- Weakness.
- Severe damage to the central nervous system.
- Constant fatigue.
- Insomnia (frequent difficulty falling asleep, unsound sleep).
- Hair loss.

# Conditions That Suggest Copper Toxicity

- **Ulcerative colitis:** excess copper may be absorbed in the intestinal tissues which lead to intestinal disorders, impaired healing and reduced resistance to infections.
- **Mental, Behavioral & Emotional Disorders:** Mood swings, clinical and postpartum depression, hallucinatory and paranoid schizophrenia, and tinnitus. Hyperactivity. Childhood hyperactivity. Irritability. Autism. Short-term memory failure, trouble concentrating. Senility, senile dementia.
- **Metabolic Disorders:** Hypoglycemia, headaches.
- **Uro-Genital Disorders**
- **Premenstrual syndrome.**
  - Estrogen results in increased copper absorption.
  - Eclampsia/Preeclampsia may be associated with copper toxicity.

# Causes

Copper is a heavy metal that is toxic in the unbound form. Almost all of the copper in the body is bound to proteins, thereby reducing the concentration of unbound copper ions to almost zero. Most diets contain enough copper (2-5 mg) to prevent a deficiency and not enough to cause toxicity. The World Health Organization (WHO) suggests that 10-12 mg per day may be the upper safe limit for consumption. If as little as 2 grams of copper salt are ingested, usually with suicidal intent, the resulting copper-induced hemolytic anemia and kidney damage are generally fatal.

# Copper Toxicity is usually due to:

- Excessive supplementation or low levels of other necessary nutrients. **Low levels of zinc will result in raised levels of copper.**
- The exact mechanism by which **molybdenum prevents copper toxicity** is poorly understood. However, it is known that an insoluble complex of copper and molybdenum can be formed in the gastrointestinal tract thus reducing copper absorption.
- This theory is substantiated by the fact that increasing dietary **copper is an effective treatment of molybdenum toxicity.**

# Continued

- The increasingly common problems of low levels of zinc in the diet. **Copper and zinc compete with each other for absorption in the gastrointestinal tract.**
- **Contaminated food and drinking water due to contact with metallic copper.** Sources of copper include beer, tap water, and pasteurized milk, and various foods. An acidic food or beverage can dissolve milligram quantities of copper sufficient enough to cause acute toxicity and symptoms.
- Copper cookware, copper cooking utensils, copper plumbing pipes (acidic water, such as rain water, left standing in copper pipes) all contribute to contamination of foods and drinking water.



# Continued

- External exposures such as a copper IUD or accidental agricultural overspray (pesticides), swimming pool chemicals, and permanent wave solutions.
- Tobacco use can cause a rise in the amount of copper in the body.
- Elevated estrogen levels often increase the serum copper levels to more than double normal values, while at the same time red blood cell levels, where copper is important, may actually be lower. The use of estrogen-containing oral contraceptives (birth control pills) contributes to the rise in the amount of serum copper in the body.

# Treatment/ Diagnostic Tests

- Copper levels can be determined through blood tests, urine samples, and hair analysis.
- Normal urine samples collected over a 24 hour period contain 15 to 40mcg of copper.
- In people with diseases such as arthritis, heart disease, hypertension, schizophrenia, or cancer, serum copper levels tend to be high.
- **During illness**, copper is released from the tissues into the blood stream to promote tissue repair.
- High serum copper readings during illness should not be taken to mean that the copper is a cause of the illness; rather, it is an indication that the body's natural repair processes have been activated.

# High Copper

- The use of **oral contraceptives** and/or tobacco can cause increase in copper in the body.
- **Excess serum copper** is also characteristic of anemia, cirrhosis of the liver, leukemia, hypoproteinemia, and vitamin B3 (niacin) deficiency.
- Serum copper levels during pregnancy tend to be higher than normal as well.
- **Wilson's disease** is a rare hereditary disorder in which the body is unable to metabolize copper properly, so the metal accumulates in the body.

# Options for High Copper Levels

- Hair analysis can be used to determine levels of copper in the body.
- Extremely high level of copper, may require medical treatment with Chelation Therapy which removes toxic metals from the body and can be used to remove excess copper.
- If the copper levels are higher than normal, but not extreme, this can often be managed with supplements, notably **Zinc, Molybdenum and Manganese**
- If copper levels are very high, treatment with DMSA or EDTA may be needed.
- **Most important** is the reduction of exposure and intake of copper.

# Schizophrenia

- Many people with schizophrenia have been found to have **high levels of copper and iron**, combined with **deficiencies of zinc and manganese**.

# Copper Elimination

- Increasing the **intake of zinc and manganese**, whether through the diet or supplementation, **increases elimination of copper** and helps return copper levels to normal.
- **Quickest way to reduce serum copper: phlebotomy**



# High Copper

- **Decrease your intake of foods rich in copper, such as legumes (especially soybeans), nuts, cocoa, black pepper, seafood, raisins, molasses, avocados, whole grains, and cauliflower.**
- **Have your drinking water tested.**
- **Increase your intake of sulfur, found in such foods as eggs, onions, and garlic.**
  - **These help to rid the body of copper.**
- **Supplement your diet with pectin, which can be found in apples.**
- **Do not take a multivitamin and/or mineral supplement that contains copper.**
- **Do not use copper pots or other cooking utensils.**

# Copper Management

- **Vitamin C w/ bioflavonoids + Rutin**
  - 4000mg/day Vit C (ascorbic acid form)
    - Copper chelator
  - 60mg/day Rutin
    - Lowers serum copper
- **Zinc chelate**
  - 60mg/day... do not exceed 100mg total
  - Needed to balance copper.
  - Zinc deficiency predisposes one to copper excess.
- **Calcium chelate**
  - 1500mg/day
  - Binds with metallic ions in the body
- **Calcium disodium edetate (Ca EDTA)**
  - Adults: The avg daily dosage is 8 tablets (4gm.) in divided doses.
  - Children: Two tablets (1gm.) daily per 35lbs of body weight in divided doses.
  - Available by prescription only.
- **Magnesium**
  - 750mg daily
  - Works with calcium
- **L-Cysteine, L-Cystine, L-Methionine**
  - As directed on label, on an empty stomach. Take with water or juice. Do not take with milk. Take with 50mg Vitamin B6 and 100mg Vitamin C for better absorption.
  - Aids in elimination of copper from the body and protects liver.
- **Manganese**
  - 204mg daily. Take separately from calcium
  - Aids in excretion of excess copper
- **Molybdenum**
  - 30mcg daily
  - Prevents accumulation of excess copper in the body.

# Ceruloplasmin

- **Decreased in most instances of Wilson disease** (hepatolenticular degeneration); hence, ceruloplasmin is used in evaluation of chronic active hepatitis, cirrhosis and other liver disease.
- In Wilson disease, there is decreased ability to incorporate copper into apoceruloplasmin. As a result, free copper levels in plasma and in tissue, especially liver and brain, are greatly increased.
- Ceruloplasmin is high in a variety of neoplastic and inflammatory states, since it behaves as an acute phase reactant, although levels rise more slowly than "acute phase reactants".
- **Increases are described with carcinomas, leukemias, Hodgkin's disease, primary biliary cirrhosis and with SLE and rheumatoid arthritis.**
- High levels occur in pregnancy, with estrogens and with oral contraceptive use when the agent contains estrogen as well as progesterone.
- Increased with copper intoxication.

# Ceruloplasmin

Ceruloplasmin is an  $\alpha_2$ -globulin containing copper.

- Ceruloplasmin is high in a variety of neoplastic and inflammatory states, since it behaves as an acute phase reactant.
- Increases are described with carcinomas, leukemias, Hodgkin's disease, primary biliary cirrhosis, and with SLE and rheumatoid arthritis.
- High levels occur in pregnancy, with estrogens, and with oral contraceptive use when the agent contains estrogen as well as progesterone.
- Increased with copper intoxication.
- Limitations A normal ceruloplasmin does not rule out Wilson's disease. Serum copper should be measured in addition.
- About 70% or more of total serum copper is associated with ceruloplasmin

# Gadolinium Toxicity

- **SURVEY OF THE CHRONIC EFFECTS OF RETAINED **GADOLINIUM FROM CONTRAST****
- **Some of the symptoms are “strange”. They do not really fit any diagnostic criteria for any one disease as such.**
  - Pain – aching; burning, tingling, and/or prickling pain (paresthesia); deep bone pain.
  - Muscle symptoms – twitching – small, local, rapid contractions and weakness
  - Ocular problems – worsening vision, dry eyes, bloodshot eyes
  - Dermal changes – like tight skin, lesions, and hyperpigmentation. Most often feel that something is crawling under the skin and a sense of electrification.
  - Ear, nose and throat – tinnitus, swallowing, and voice problems.
  - Cognitive symptoms.
  - Hair loss.
  - Low body temperature
- Itchy skin

# Germanium

- I use Germanium when it is very low in the hair test and with cancers, be sure to retest to avoid over-dosing.
- Animal studies have shown germanium to have significant anticarcinogenic effects.
- This does not necessarily correlate with high levels of serum germanium.



# Iodine Deficiency

- Seen with goiter, reduced mental response, dry/brittle hair, tendency to be overweight and hair loss.
- The primary sources of dietary iodine are seafood and drinking water
  - the amount of iodine in drinking water can vary greatly from one location to another.
- Iodized table salt has been introduced to help this deficiency
  - Iodine deficiency can be corrected with increased iodine intake.
  - approximately half of the table salt used in the United States contains sodium iodide.
- Added tyrosine supplementation enhances the iodine uptake and conversion into thyroid hormones.

# Excess Iodine

- **Do not recommend/use Iodine if it is high in the hair**
- May be due to external contamination by hair treatments or it may be associated with hypersensitivity reaction, hypothyroidism, thyroiditis, goiter, immunologic or nonimmunologic, dermatological irritation or contact dermatoses, angioedema, burning or soreness of mouth and throat, nausea/diarrhea and autoimmune thyrotoxicosis (Graves'disease) or autonomous thyrotoxicosis (Plummer's disease).

# Iron

- **This does not necessarily correlate with low/high serum iron.**
- **Dietary sources include organ meats, poultry, fish, and dried beans and vegetables.**

# **Lead Puts 30 million Adults at Risk**

- **Those with elevated blood levels of lead early in life have a 46% increased rate of mortality from all causes later on, indicating that children may carry a legacy of lead toxicity as they grow older.**
- **“It indicates that there is increased cardiovascular and cancer mortality in adults at blood lead levels we haven’t been concerned about before.”**
  - **Dr. Peter Orris, Director of the Occupational Health Services Institute at the University of Illinois at Chicago reported in the Archives of Internal Medicine 12-2002**

# Lead

- Physiologically, the renal, nervous, reproductive, endocrine, immune, and hemopoietic systems are affected.
- Sub-toxic oral exposure to lead and cadmium increases the susceptibility to bacterial and viral infections.
- Lead is known to damage the kidney, the liver, and the reproductive system, as well as to interfere with bone marrow function, basic cellular processes and brain functions.
- It is known to be responsible for convulsions, abdominal pain, paralysis, temporary blindness, extreme pallor, loss of weight and appetite, constipation and numerous other problems.

# Lead

- Lead causes nerve and mental problems, especially affecting learning ability in children.
- It was reported that the **IQs of middle-class children dropped five to seven points after lead exposure**, and Moon, et. al., demonstrated that lead levels also related to decreased visual and motor performance.
- Lead interferes with utilization of



# Lead

- **Symptoms**
  - abdominal pain
  - Colics
  - severe and repeated vomiting
  - Irritability
  - Hyperactivity
  - Anorexia
  - loss of appetite
  - mental disturbances
  - Anemia
  - gastric distress
  - Fatigue
  - weight loss
  - Headaches
  - Vertigo
  - Tremor
  - joint pain
  - poor coordination
  - Neuritis
  - poor memory
  - Constipation
  - Interferes with calcium, magnesium, vitamin D and zinc.

# **Lead**

## **Clinical Signs & Symptoms**

- **Abdominal pain**
- **Colics**
- **Severe and repeated vomiting;**
- **Irritability**
- **Hyperactivity**
- **Anorexia**
- **Loss of appetite**
- **Ataxia**
- **Mental disturbances**

# Advanced Lead Contamination

- Mental retardation
- Learning disability
- Speech disturbances
- Stupor or fatigue
- Intermittent fever
- Dehydration
- Constipation
- Diarrhea
- Nausea
- Altered sleep
- Epileptic seizures
- Headaches
- Poor memory
- Inability to concentrate
- ADD/ADHD
- Aberrant behavior
- Decreased coordination
- Irritability
- Pain in abdomen, bones and muscles
- Gout
- Anemia

# Lead: More Symptoms

- fatigue
- weight loss
- vertigo
- tremor
- neuritis
- psychoneuroses
- loss of muscle strength
- muscle tenderness
- paresthesia
- signs of neuropathy

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- **Lead interferes with utilization of Calcium, magnesium, vitamin D and zinc**



# Common Sources of Lead

- lead based paints
- older homes
- crystal
- ceramics
- canned food
- food crops
- automobile emissions
- lead smelting and lead-soldered cans
- water contamination
- newsprint
- industrial pollution
- some fertilizers

## Could used beer yeast be the solution to heavy metal contamination in water?

A study shows that yeast, an abundant waste product from breweries, can filter out even trace amounts of lead.

David L. Chandler | MIT News Office

Publication Date: June 13, 2022

- A new analysis by researchers at MIT's Center for Bits and Atoms (CBA) has found that **inactive yeast could be effective as an inexpensive, abundant, and simple material for removing lead contamination from drinking water supplies.**
- The study shows that this approach can be efficient and economic, **even down to part-per-billion levels of contamination.**
- Serious damage to human health is known to occur even at these low levels.
- **The method is so efficient that the team has calculated that waste yeast discarded from a single brewery in Boston would enough to treat the city's entire water supply.**
- Such a fully sustainable system would not only purify the water but also divert what would otherwise be a waste stream needing disposal.
- The findings are detailed today in the journal *Nature Communications Earth and Environment*, by MIT

## **Could used beer yeast be the solution to heavy metal contamination in water?**

**A study shows that yeast, an abundant waste product from breweries, can filter out even trace amounts of lead.**

**David L. Chandler | MIT News Office**

**Publication Date: June 13, 2022**

- **Lead is highly toxic, even at tiny concentrations, especially affecting children as they grow.**
- **The European Union has reduced its standard for allowable lead in drinking water from 10 parts per billion to 5 parts per billion.**
- **In the U.S., the Environmental Protection Agency has declared that no level at all in water supplies is safe.**
- **Average levels in bodies of surface water globally are 10 times higher than they were 50 years ago, ranging from 10 parts per billion in Europe to hundreds of parts per billion in South America.**

# Patient: Anthony M. Age: 68

POTENTIALLY TOXIC ELEMENTS				
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE	
			68 <sup>th</sup>	95 <sup>th</sup>
Aluminum	18	< 12		
Antimony	0.12	< 0.080		
Arsenic	0.086	< 0.12		
Beryllium	< 0.01	< 0.020		
Bismuth	0.024	< 0.080		
Cadmium	0.31	< 0.15		
Lead	39	< 2.0		
Mercury	0.20	< 1.1		
Platinum	< 0.003	< 0.005		
Thallium	0.005	< 0.010		
Thorium	< 0.001	< 0.005		
Uranium	0.023	< 0.060		
Nickel	0.15	< 0.40		
Silver	0.25	< 0.10		
Tin	0.27	< 0.30		
Titanium	0.96	< 1.0		
Total Toxic Representation				

ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	236	375- 1100					
Magnesium	55	40- 140					
Sodium	840	24- 180					
Potassium	250	20- 80					
Copper	12	9.0- 26					
Zinc	150	120- 200					
Manganese	0.15	0.20- 0.65					
Chromium	0.47	0.20- 0.45					
Vanadium	0.057	0.018- 0.065					
Molybdenum	0.074	0.040- 0.10					
Boron	16	0.70- 4.0					
Iodine	0.48	0.25- 1.3					
Lithium	< 0.004	0.008- 0.040					
Phosphorus	254	250- 400					
Selenium	1.4	0.95- 1.7					
Strontium	0.24	1.0- 6.0					
Sulfur	48100	42000- 49000					
Barium	0.35	0.50- 3.0					
Cobalt	0.007	0.013- 0.050					
Iron	8.9	5.8- 14					
Germanium	0.038	0.045- 0.065					
Rubidium	0.24	0.030- 0.25					
Zirconium	1.7	0.040- 1.0					

POTENTIALLY TOXIC ELEMENTS				
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE	
			68 <sup>th</sup>	95 <sup>th</sup>
Aluminum	3.3	< 7.0		
Antimony	0.047	< 0.066		
Arsenic	0.015	< 0.080		
Beryllium	< 0.01	< 0.020		
Bismuth	0.017	< 0.060		
Cadmium	0.20	< 0.15		
Lead	21	< 2.0		
Mercury	0.22	< 1.1		
Platinum	< 0.003	< 0.005		
Thallium	< 0.001	< 0.010		
Thorium	< 0.001	< 0.005		
Uranium	0.019	< 0.060		
Nickel	0.28	< 0.40		
Silver	0.35	< 0.12		
Tin	0.11	< 0.30		
Titanium	0.64	< 1.0		
Total Toxic Representation				

ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	592	200- 750					
Magnesium	160	25- 75					
Sodium	76	12- 90					
Potassium	21	9- 40					
Copper	42	10- 28					
Zinc	210	130- 200					
Manganese	0.12	0.15- 0.65					
Chromium	0.47	0.20- 0.40					
Vanadium	0.025	0.018- 0.065					
Molybdenum	0.036	0.025- 0.064					
Boron	2.8	0.40- 3.0					
Iodine	0.91	0.25- 1.3					
Lithium	0.005	0.007- 0.023					
Phosphorus	167	160- 250					
Selenium	1.0	0.95- 1.7					
Strontium	4.8	0.30- 3.5					
Sulfur	47800	44500- 52000					
Barium	1.2	0.16- 1.6					
Cobalt	0.037	0.013- 0.035					
Iron	7.3	5.4- 13					
Germanium	0.040	0.045- 0.065					
Rubidium	0.017	0.011- 0.12					
Zirconium	0.22	0.020- 0.44					

**Note: Don't just look at the charts.**  
**The lead value decreased from 39 to 21.**  
**Chelated with chlorella at 4/day and**  
**Essential Daily Defense (EDTA) at 4/day.**

# Therapeutic Considerations

- **Mild lead exposure can be treated successfully**
  - oral chelating agents
  - targeted mineral therapy
  - dietary measures

# Therapeutic Considerations

- The following should be considered:
  - Lead displaced calcium.
    - In the case of calcium deficiency, lead is more readily deposited in tissues.
  - Increase phosphorus intake
  - Increase vitamin C
  - Increase vitamin B-complex
  - Increase pectin and vitamin E
  - Vitamins A and C
  - Chromium can avoid cellular damage and reduce lead levels
  - Inadequate vitamin D intake facilitates the absorption of lead.



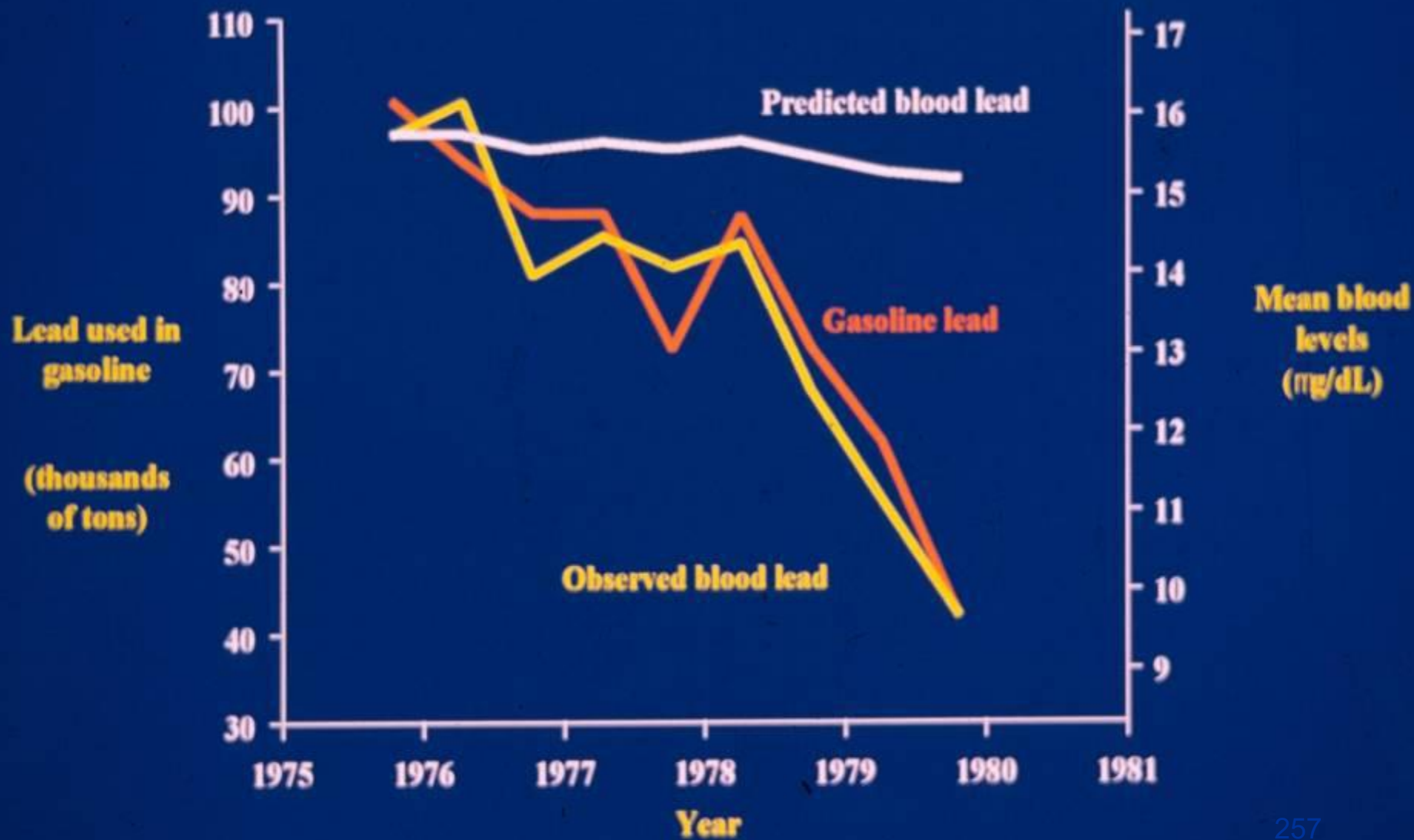
# **Subclinical Lead Poisoning**

- **Decreased IQ**
- **Altered behavior**
- **Slowed nerve conduction**

# **The EPA Decision on Lead in Gasoline**

**Decline in Blood Lead Levels  
Greatly Exceeded Expectation**

**NHANES II blood lead measurements found a substantial decline in blood lead levels, 10 times more than predicted from environmental modeling**



# **Lead and Behavior**

- **Lead Affects more than intelligence**
- **At age 7, Needleman et al. found a borderline association between teachers' ratings for aggression, delinquency, social problems and lead levels**
- **By age 11, increased delinquent and aggressive behavior were clearly evident in children with higher lead levels**
- **By age 18, young adults with higher lead levels at age 7 were more likely to be dyslexic and to have quit school**
- **Boys with higher lead levels were more likely as young men to be incarcerated**

# Lithium

- **Lithium is a prescription medicine used to treat bipolar disorder.**

## **Side Effects of Lithium:**

- Nausea
- Vomiting
- Diarrhea
- Stomach pains
- Dizziness
- Weakness
- Coma
- Hand tremors
- Lack of coordination of arms and legs
- Muscle twitches
- Seizures
- Slurred speech
- Uncontrollable eye movement
- Changes in mental status or altered thinking
- Kidney failure
- Drinking a lot of fluids
- Urinating more or less than normal
- Memory problems
- Movement disorders, muscle twitches, hand tremors
- Problems keeping salts in your body
- Psychosis (disturbed thought processes, unpredictable behavior)
- Coma (decreased level of consciousness, lack of responsiveness)
- Lack of coordination of arms and legs
- Seizures
- Slurred speech
- Slow Heart Rate
- Dermatitis
- Hypotension
- Confusion,
- Edema

# Lithium

- **I recommend Lithium if the hair level is very low and the patient is having mental dysfunction**
- Only very small amounts of Lithium are needed.
- Hair levels of Lithium do not necessarily indicate a deficiency according to most recent studies.
  - If the follow-up hair test and related symptoms have not improved, very light therapy maybe indicated.
- Lithium is used in the manufacture of lightweight metal alloys, glass, lubrication greases, and batteries.



# Lithium and EV Batteries

- By 2050 electric vehicles could require huge amounts of lithium for their batteries, causing damaging expansions of mining
- **The US's transition to electric vehicles could require three times as much lithium as is currently produced for the entire global market, causing needless water shortages, Indigenous land grabs, and ecosystem destruction inside and outside its borders, new research finds.**
- **The global demand for lithium, also known as white gold, is predicted to rise over 40 times by 2040**
- Lithium deposits are geologically widespread and abundant, but 95% of global production is currently concentrated in Australia, Chile, China and Argentina. Large new deposits have been found in diverse countries including Mexico, the US, Portugal, Germany, Kazakhstan, Congo and Mali.
- Lithium mining is, like all mining, environmentally and socially harmful. More than half the current lithium production, which is very water intensive, takes place in regions blighted by water shortages that are likely to get worse due to global heating.

# Low Magnesium

- Low levels of magnesium are often associated with malabsorption, low dietary magnesium, alcoholism, kidney dialysis, renal disorders, antibiotic treatment, and prolonged diarrhea/laxative use.
  - Symptoms include muscle twitching, cramps, cardiac arrhythmia, gastrointestinal disorders, tremor, paresthesia, behavioral problems (including hyperactivity in children), suicidal behavior, dyslexia, poor appetite, skin lesions, insomnia, and mental depression.
- Dietary sources of magnesium include nuts, legumes, dark green leafy vegetables, and cereal grains.

# **Magnesium Deficiency or Platinum Toxicity?**

- **muscle tremors or spasms**
- **muscle weakness,**
- **insomnia or**
- **nervousness,**
- **high blood pressure,**
- **irregular heartbeat,**
- **constipation,**
- **fits or convulsions,**
- **hyperactivity,**
- **depression,**
- **confusion,**
- **lack of appetite,**
- **calcium deposits in soft tissue**
- **kidney stones**

# High Magnesium

- High levels of magnesium in the hair has been associated with hypoglycemia, maldistribution, renal failure, prolonged emotional or physical stress, depression of the central nervous system, and physiological imbalance of calcium and phosphorus.
  - Symptoms include chronic kidney disease, respiratory depression, cardiac arrest, and coma.

# Manganese

This trace element is a cofactor for a number of important enzymes and functions with vitamin K in the formation of prothrombin.

## Functions:

- glucose utilization
- lipid synthesis
- lipid metabolism
- cholesterol metabolism
- pancreatic function and development
- prevention of sterility
- normal skeletal growth and development
- protein and nucleic acid metabolism
- activating enzyme functions
- thyroid hormone synthesis.

# Manganese Deficiency

- fatigue
- lack of physical endurance
- slow growth of fingernails and hair
- impaired metabolism of bone and cartilage
- dermatitis
- weight loss
- reduced fertility
- increased allergic sensitivities
- inflammation
- ataxia
- fainting
- hearing loss
- weak tendons and ligaments
- possible cause of diabetes.



# Manganese

- Manganese activates several enzyme systems and supports the utilization of vitamin C, E, **choline**, and other B-vitamins.
- Inadequate choline utilization reduces the acetylcholine synthesis, causing conditions such as myasthenia gravis (loss of muscle strength).
- Seizures are occasionally reported to be associated with severe Manganese deficiency.

# Excessive Manganese

- lethargy
- disorientation
- memory loss
- anxiety
- emotional instability
- bipolar-like disorders
- Some possible causes of Manganese toxicity are:
  - iron or calcium deficiency
  - chronic infection
  - alcoholism
  - impaired liver or kidney function

# Mercury

- Mercury (Hg) is a toxic element for humans and animals.
- Hair mercury level is often but not always an accurate indicator of mercury body burden.
- A considerable variance in the sensitivity of different individuals to mercury has been observed, with some exhibiting symptoms at 3 to 5 ppm.
- Even very low levels of mercury have been found to suppress biological selenium activity.

# Mercury

- After dental amalgams are used, elevated hair mercury may be observed for six months to over a year.
- Hair mercury has been found to correlate with acute myocardial infarction where on average a 1 ppm mercury was found to correlate with a 9% increase in acute m.i. risk.
- Mercury displaces Selenium (which is a major anti-oxidant), zinc (protein, DNA and energy metabolism) and copper.
  - Supplementation of magnesium, zinc, calcium, selenium, and manganese has been shown to be beneficial in relieving mercury loads.

# Acute Mercury Contamination

- metallic taste
- thirst
- discoloration and edema of oral mucosa
- burning mouth pain
- salivation
- abdominal pain
- vomiting
- bloody diarrhea
- severe gastroenteritis
- colitis
- nephrosis
- anuria
- uremia
- shock

# Chronic Mercury Contamination

- Gingivitis
- weakness
- ataxia
- intention tremors
- Chronic fatigue (caused by inhibition of thyroid conversion of T4 to T3)
- depression
- poor memory and cognitive function
- learning disabilities
- behavioral disorders
- emotional instability
- sleep disturbance
- decreased senses of touch
- hearing or vision
- hypersensitivity and allergies
- persistent infections including chronic yeast overgrowth
- compromised immune function
- cardiovascular disease
- peripheral numbness
- tingling or neuropathy
- speech impairment
- irritability



# Mercury

- It disrupts intracellular transport in neurons and can decrease the production of neurotransmitters.
- Eventually this can lead to autoimmune diseases such as SLE (systemic lupus erythematosus), myelinopathies such as MS and myasthenia gravis, rheumatoid arthritis, MCS (multiple chemical sensitivity), and chronic candidiasis.
- An inverse relationship has been observed between hair mercury levels and intelligence scores in elementary school children.

# **What are the 2 most common sources for exposure to Mercury?**

- **#1 Amalgams**

- **After dental amalgams are used, elevated hair mercury may be observed for 6 months to over a year.**
- **Find a dentist who is trained in the removal of mercury fillings.**
- **Don't do all at once.**

# **What are the 2 most common sources for exposure to Mercury?**

- **#2 Vaccines**

- In the mid-1980s, one in 2,500 children had autism compared with one in about 300 children in 1996
  - an increase of over 800 percent in 20 years.
- As the government has increased the number of mandatory vaccines, some recent studies suggest the rate of autism has had comparable increases
- Some say the cause may be mercury poisoning.

**The study found a two- to six-fold increased occurrence of neurodevelopment disorders after an additional 75- to 100-microgram dosage of mercury from thimerosal-containing vaccines as compared to thimerosal-free vaccines.**

**Journal of American Physicians and Surgeons  
Spring 2003**

# Mercury and Vaccines

- **Other disorders linked to vaccines:**
  - asthma, Diabetes, auto-immune disorders [rheumatoid arthritis]
- **We've traded infectious disease for chronic disease.**
- **Approximately 12 out of the 18 vaccine doses the average American child receives before the age of two contain Thimerosal.**
  - Cumulatively, that's more than 200 micrograms of mercury, which would fit on the head of a pin.
- **Think about the idea of injecting your own child with levels of mercury that are 30-40 times what's considered safe for an adult**

# **Still Think Vaccines Have Nothing To Do With Autism and other Neurological Disorders?**

- **Compare the symptoms of autism vs. the symptoms of mercury poisoning**
- **Meningitis, Encephalitis and Seizures**
- **Does MMR cause Autism?**



# **Alzheimer's and Flu Shot**

- **If you take 5 flu shots in a row**
- **It increases your chances of developing Alzheimer's Disease by 8-fold!**

# The Law

- **Vaccines are “mandated”**
- **Exemptions in Ohio**
- **Email us and we can send you our Vaccine Packet**

# Amalgams

- Number of amalgam restorations had a significant dose-response relationship with urine mercury level.
- Daily gum chewing in the presence of amalgam was associated with high urinary mercury.
  - PubMed accessed: Dunn, et.al., *Scalp hair and urine mercury content of children in the Northeast United States: The New England children's amalgam trial.* Environ Res. **2007** Oct 23

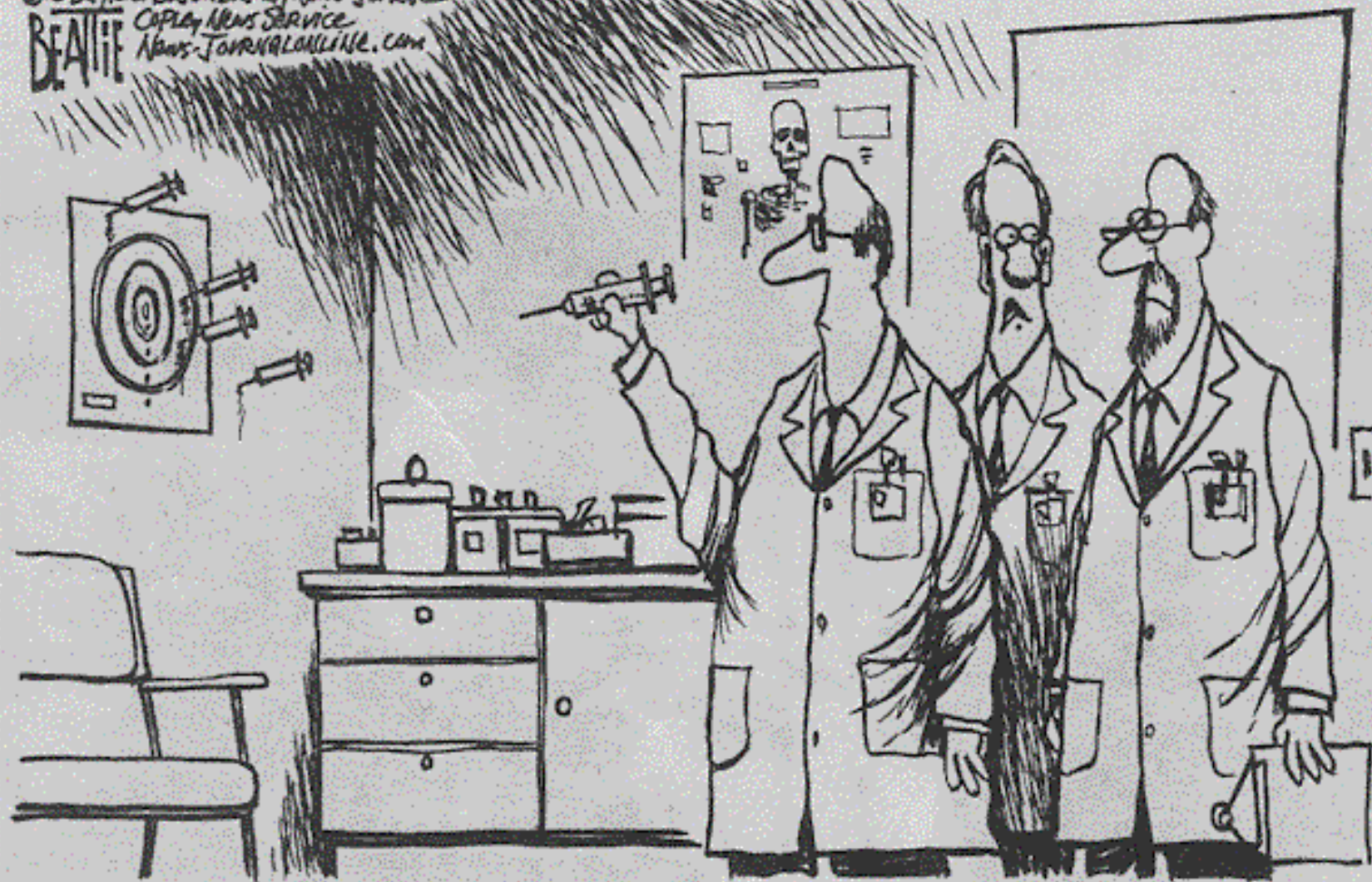
# Tooth Whiteners Release Mercury from Amalgams

- Exposure to hydrogen peroxide bleaching agent was associated with increased metal ion released from dental amalgams compared to treatment with a control solution.
- Metal ion release for the elements (Mercury (Hg), Silver (Ag), Tin (Sn) and Copper (Cu)) increased with exposure to increasing concentrations of hydrogen peroxide.
  - Al-Salehi,et.al., *The effect of hydrogen peroxide concentration on metal ion release from dental amalgam.* J Dent. **2007** Feb;35(2):172-6. Epub 2006 Sep 1

# Mercury Sources

- large fish
- pesticide residues
- mercurial fungicides on seed grains
- dental fillings
- coal burning
- calomel (mercurous chloride)
- Pharmaceuticals
- the manufacture of paper
- pulp and plastic products
- Water
- interior paints





"I hate it when we're not sure we're inoculating against the right strain of flu virus."



# Show Mercury Video

# Mercury and Candida

**THIS MIGHT BE THE MOST IMPORTANT  
SLIDE OF THE DAY!\*\*\*\*\***

- Many practitioners and holistic doctors believe that the deeper underlying cause of **Candida overgrowth is due to mercury toxicity.**
- **When mercury and other heavy metals are in the body, the cell walls of Candida bind to mercury and other heavy metals and prevent it from entering the blood stream. It acts like a sponge soaking up the mercury.**
- There does not appear to be any published research on this relationship between Candida overgrowth and mercury toxicity but that may be since orthodox medicine does not acknowledge that intestinal Candida exists, nor that dental mercury amalgam is dangerous.
  - Detox Mercury If You Want To Cure Candida For Good; The Detox Specialist.com
- **DR MERKLE- I have seen 4-5 patients get severely ill, even hospitalized, after taking drugs and herbs to kill candida and I believe this releases the mercury back into the system, as they all tested high in Mercury and other heavy metals.**
  - **Take care of the heavy metals and glucose problems and the Candida and yeast will resolve.**

# **Mercury Video**

# **Autism and ADD/ADHD**

**Dr. Van D. Merkle**

# **Neurotoxicity of Organophosphate Pesticides**

- **Research stimulated by 1993 NAS Report**
  - **Children are not little adults**
  - **Proportionately greater exposures**
  - **Unique windows of vulnerability in early development**

# Common Environmental Exposures

## ▶ METALS

- Mercury
- Cadmium
- Aluminum
- Lead
- Nickel
- Arsenic
- Cobalt
- Manganese

## ▶ SOLVENTS

- Alcohol
- Chlorinated Solvents
- Benzene

## ▶ INDUSTRIAL CHEMICALS

- PCBs
  - Pesticides
  - Herbicides
- ▶ All induce oxidative stress and Glutathione (GSH) depletion
- ▶ Multiple exposures are additive/synergistic!



# Thimerosal

- **mercury based preservative**
  - **Developed by Eli Lilly in 1929**
  - **Added to drugs in 1931 as an antibacterial, anti fungal agent**
  - **An organic compound that is 49.6 % ethyl mercury**

# Result

- **Autism first diagnosed in 1943**
- **Autism didn't exist before thimerosal was added to vaccines**
  - **Coincidence?**
  - **Diagnosis changes?**
- **Autism has increased significantly as more and more children's immunizations are required.**

# 49 Doses of 14 Vaccines Before Age 6?

Before you take the risk, find out what it is.

Pregnancy	Birth	2 Months	4 Months	6 Months	7 Months	12-15 Months	18 Months	3 Years	4-6 Years
Influenza	Hepatitis B	Diphtheria Tetanus Pertussis Polio Hib PCV Rotavirus Hepatitis B	Diphtheria Tetanus Pertussis Polio Hib PCV Rotavirus	Diphtheria Tetanus Pertussis Polio PCV Rotavirus Hepatitis B Influenza	Influenza	Hib PCV Measles Mumps Rubella Varicella Hepatitis A	Diphtheria Tetanus Pertussis Hepatitis A Influenza	Influenza	Diphtheria Tetanus Pertussis Polio Measles Mumps Rubella Varicella Influenza (2)



Vaccine excipients or ingredients in trace or larger amounts depending on specific vaccine (partial list):  
 gel, altered viruses and bacteria, aluminum, mercury, formaldehyde, phenoxyprenol, glutaraldehyde, sodium borate, sodium chloride, sodium lauryl  
 succinate, glutamine (MSG), hydrochloric acid, hydrogen peroxide, lactose, gelatin, yeast protein, egg albumen, bovine and human serum albumen,  
 antibiotics, unadjuvanted, contaminants.



National  
Vaccine  
Information  
Center

[www.nvix.org](http://www.nvix.org)

# Vaccine Ingredients

- **Present in trace or large amounts depending upon the vaccine**
  - Lab altered virus' and bacteria
  - Aluminum
  - Mercury
  - Formaldehyde
  - MSG
  - Gluteraldehyde
  - Sodium chloride
  - Hydrochloric acid
  - Antibiotics
  - Hydrogen peroxide
  - Bovine serum albumin
  - Human serum albumin

**Each autistic child can cost  
the school system \$30,000**

**500,000 children = \$15 billion**

# Outcome

- ▶ There was great fear of lawsuits against the drug companies
- ▶ There was also fear that if thimerosal was removed that autism would decline making a connection hard to dispute.
  - This is already happening in California
- ▶ A cover-up was initiated
  - CDC paid for a study to debunk link between thimerosal and autism
  - Incriminating findings were hidden by claiming data was “lost”
  - To prevent Freedom of Information, the CDC gave their giant database to a private company and said it was off limits to researchers.



**Looking at the  
Damage the Fire  
Has Caused  
Instead of the  
CAUSE of the  
Fire!**

# Biomarkers Tested

- Autoantibodies
- Free fatty acid response to insulin and glucose stimulation
- Hair amino acids
- Plasma and RBC cholinesterase activity
- Serotonin
- Plasma dopamine-beta-hydroxylase
- Thyroid hormone
- Plasma elements
- Plasma amino acid
- Hemagglutination-inhibition antibody titer
- Plasma levels of folates, riboflavin, vitamin B6, and ascorbate
- Urine peptides
- CSF monoamine metabolites
- Plasma c-AMP and c-GMP
- Hair minerals
- Brain opioids
- Catecholamines
- CSF indoleacetic acid
- Homovanillic acid (HVA)
- Lactic Acid
- Plasma growth hormone response to hypoglycemia

# More biomarkers...

- ▶ Plasma growth hormone response to oral l-dopa
- ▶ Platelet size and number
- ▶ Whole blood tryptophan
- ▶ Antiserotonin antibodies
- ▶ Growth hormone
- ▶ Immunoglobulins
- ▶ Plasma and urinary levels of biopterin, neopterin, and related pterins and plasma levels of folate
- ▶ Plasma norepinephrine
- ▶ Oxytocin
- ▶ Plasma beta-endorphin
- ▶ ACTH
- ▶ Carnitine
- ▶ FMR1 protein
- ▶ N-acetyl galactosaminidase deficiency (Schindler disease)
- ▶ Neuropeptides and neurotrophins
- ▶ PKU
- ▶ Secretin
- ▶ Serum neural cell adhesion molecule (NCAM)
- ▶ Cortex S6 Ribosomal Protein Phosphorylation
- ▶ Mitochondrial Markers
- ▶ Urine Arginine Vasopressin (AVP)
- ▶ CSF beta-endorphin
- ▶ IL-2 receptors
- ▶ Plasma androgens

# Consider the obvious

## AUTISM, ADD/ADHD

Mercury, Lead  
Environmental Toxin

Shift in metabolism

Affect on DNA  
Genetic Expression

Known effects of  
toxic elements  
on nerve structure  
and nerve function

Alterations of brain development  
affecting the higher brain functions

# Autism Testing

- **Environmental effects on metabolism is widespread and can be missed by existing reference ranges**
- **Autism's sensitive physiology may mean trouble for the individual even when labs are within the population "normal" range**

# Autism and the World

- “We.. ...question the universality of Infantile Autism...**Our research of the literature has convinced us that infantile autism appears to be an illness of Western Civilization...the illness seems to be quite infrequent in Latin American countries, Africa, and India...**” -VD Sanuna
- Int J Soc Psychiatry, 1984
- [http://www.iom.edu/Object.File/Master/42/435/Newschaffer%20final%2004\\_19\\_07.pdf](http://www.iom.edu/Object.File/Master/42/435/Newschaffer%20final%2004_19_07.pdf)



# Statistics

- **In the U.S.**
  - **1980s**
    - 1 Child in 2500 was autistic
  - **Today**
    - 1 child in 166 is autistic
    - 1 in 80 for boys
- **In China**
  - **1998**
    - No cases of autism
  - **Today**
    - 1.8 million cases of autism following introduction of drugs from U.S.

# Statistics (cont)

- **Based on study of flu shots from 1970 thru 1980**
  - **Individuals that received five consecutive flu shots were ten times more likely to develop Alzheimer's disease**

# **Why Some Are Autistic**

- **Autistic children have lower levels of mercury in their hair due to a decreased ability to excrete the substance**
- **The less ability to excrete mercury, the more likely a child is to become autistic**
- **The inability to excrete mercury can be caused by glutathione depletion**
- **Boys are 4 times more likely to become autistic than girls**

# Autism

- **Medical treatment: antibiotics**
- **Alternative treatment focus:**
  - **Correct Gut dysfunction and gut toxicity from pathogenic bacteria and chemicals**
  - **Reduce or eliminate toxic exposures**
  - **Eliminate toxic load**
  - **Enhance healing capacities of the body**

# **Possible Diagnostics for Autism**

- **Comprehensive blood test including inflammatory markers**
- **Urine testing including Amino Acids**
- **Stool testing for pathogens and Fatty acids**
- **Heavy Metal Chelation testing- urine**
- **Hair testing**
- **Celiac disease and food sensitivities**

# Possible nutrients

- Calcium
- Vit D
- EPA/DHA
- GLA
- Vit C
- Glutathione
- B Vitamins
- Trace minerals
- Other chelating nutrients including:
  - EDTA
  - DMSA
  - Chlorella
  - Cilantro



# Before Pregnancy

- **Get tested**
- **Eliminated environmental exposures**
- **Improve nutritional status**
- **Exercise**

# Prevent Autism

- **Avoid**
- **Vaccinations**
- **Artificial colors, preservatives and sweeteners**
- **Environmental exposures to lead, mercury, pesticides and other chemicals**
- **Improve essential mineral and antioxidant status**

# **What to do for your Autistic Child**

- **Stop vaccinations**
- **Reduce environmental exposures**
  - **Be persistent!**
- **Get tested**
- **Improve nutritional status**

# **NH...Male, Age 4**

## **Height: 3'0" Weight: 38lbs**

- ▶ Thrush since 18 mo.
- ▶ Has had all shots, was nursed for 18 months, mother avoided soy & dairy or he would get diarrhea
- ▶ Had lot of antibiotics prior w/ ear infections, is on anti-fungals now but not working so well, a lot of food allergies
- ▶ behavior changes (hyperactivity) w/ yeast/thrush infections;
- ▶ 4 sinus infections in 4 months, eats meat but no dairy, ear tubes x3, frequent oral thrush
- ▶ In past year has taken-Fulvicin, Diflucan, Prevacid, Pepcid, Claritin, Zyrtec, Zithromax, Gentian Violet.
- ▶ Identifying and removing the toxins is the first step.
- ▶ Providing proper nutrition is crucial for the safe elimination of the toxic elements and for regeneration and development of the nervous system and the whole body.

# NH...Male, Age 4 Hair Elements 5/23/2007

Toxic Elements		
Aluminum	14.00	HI
Antimony	0.08	HI
Arsenic	0.07	hi
Beryllium	0.01	Opt
Bismuth	0.65	HI
Cadmium	0.03	Opt
Lead	0.15	Opt
Mercury	0.03	Opt
Platinum	0.00	Opt
Thallium	0.00	Opt
Thorium	0.00	Opt
Uranium	0.01	Opt
Nickel	0.04	Opt
Silver	0.06	Opt
Tin	0.23	hi
Titanium	0.77	hi
Total Toxic Representation	2.00	hi

Essential Elements		
Calcium	58.00	LO
Magnesium	3.00	LO
Sodium	36.00	hi
Potassium	46.00	hi
Copper	9.10	lo
Zinc	87.00	LO
Manganese	0.04	LO
Chromium	0.54	HI
Vanadium	0.09	hi
Molybdenum	0.24	HI
Boron	0.59	LO
Iodine	0.69	hi
Lithium	0.01	LO
Phosphorus	156.00	LO
Selenium	0.68	LO
Strontium	0.09	LO
Sulfur	45700.00	lo
Barium	0.06	LO
Cobalt	0.00	LO
Iron	11.00	lo
Germanium	0.04	LO
Rubidium	0.04	Opt
Zirconium	0.18	lo

# NH...Male, Age 4 Urine Challenge

Test Description		Current Result	Current Rating	Prior Result
Date:		05/26/2007		05/23/2007
Agent		DMSA		Pre-Chall
Dose		100 mg		
Interval		6		6
Toxic Elements				
Aluminum (UA)		0.00	Opt	11.00
Antimony (UA)		0.60	Opt	0.50
Arsenic (UA)		26.00	Opt	35.00
Beryllium (UA)		0.00	Opt	0.00
Bismuth (UA)		0.00	Opt	0.00
Cadmium (UA)		0.30	Opt	0.40
Lead (UA)		7.80	HI	0.70
Mercury (UA)		0.90	Opt	0.30
Nickel (UA)		15.00	hi	10.00
Platinum (UA)		0.00	Opt	0.00
Thallium (UA)		0.30	Opt	0.30
Thorium (UA)		0.00	Opt	0.00
Tin (UA)		16.00	hi	13.00
Tungsten (UA)		0.20	Opt	0.40
Uranium (UA)		0.00	Opt	0.00



# NH...Male, Age 4 Urine Comparative Retest

Test Description	Date:	Current Result	Current Rating	Prior Result	Delta
Agent		DMSA		DMSA	
Dose		100mg		100 mg	
Interval		6		6	
<b>Toxic Elements</b>					
Aluminum (UA)		11.00	Opt	0.00	
Antimony (UA)		0.20	Opt	0.60	
Arsenic (UA)		29.00	Opt	26.00	
Beryllium (UA)		0.00	Opt	0.00	
Bismuth (UA)		0.00	Opt	0.00	
Cadmium (UA)		0.40	Opt	0.30	
Lead (UA)		7.10	HI	7.80	😊
Mercury (UA)		0.00	Opt	0.90	
Nickel (UA)		3.80	Opt	15.00	😊
Platinum (UA)		0.00	Opt	0.00	
Thallium (UA)		0.30	Opt	0.30	
Thorium (UA)		0.00	Opt	0.00	
Tin (UA)		34.00	HI	16.00	😞
Tungsten (UA)		0.10	Opt	0.20	
Uranium (UA)		0.00	Opt	0.00	

**Yeast and fungus have the unique ability to bind and hold toxic elements at very high levels without killing the fungus.** In some way this is protective of the body, by binding the toxins up; it keeps them from going into the body. (When anti fungal drugs are used, this can or often does release the toxic elements back into the body.) I believe that this is the case with GH that the fungus is binding up the toxic elements. **When the toxic elements are properly reduced and eliminated, the fungus will go away.**

# NH...Male, Age 4 Supplement Therapy

## 6/12/2007

Vitamin or Supplement		Dosage Per Day	AM	NOON	PM	BED
2	Animal Parade Multi	1	1			
3	Bio-Dophilus	280 mg.	1			
1	Chewable Calcium	1	1			
4	Chlorella Plus	500 mg.	1		1	
5	ProEFA Junior	1	1			
6	S. boulardii	1200 mg.	1		1	
7	Spectramin Chelate	1	1			
8	Lauricidin		See Instructions Below			
9	Mag-Glycinate		See Instructions Below			
10	Manganese Chelate [17mg]		See Instructions Below			
11	PCA-Rx		See Instructions Below			

### Specialty / Instructions

PCA-Rx - Two sprays under tongue daily.

MANGANESE - Take 1/2 pill two times per week for 1 week only.

MAG-GLYCINATE - Take 1/2 pill every day.

LAURICIDIN - Take 1 tsp per day.

# NH...Male, Age 4 Hair Comparative Retest

Test Description	Test Description	Date:	Current Result	Current Rating	Prior Result	Delta
	Essential Elements					
<b>Toxic Elements</b>	Calcium		102.00	LO	58.00	😊
Aluminum	Magnesium		32.00	HI	3.00	😊
Antimony	Sodium		93.00	HI	36.00	😞
Arsenic	Potassium		92.00	HI	46.00	😞
Beryllium	Copper		10.00	Opt	9.10	😊
Bismuth	Zinc		51.00	LO	87.00	😞
Cadmium	Manganese		0.04	LO	0.04	😊
Lead	Chromium		0.56	HI	0.54	😞
Mercury	Vanadium		0.07	hi	0.09	😊
Platinum	Molybdenum		0.31	HI	0.24	😞
Thallium	Boron		1.50	Opt	0.59	😊
Thorium	Iodine		0.78	hi	0.69	😞
Uranium	Lithium		0.01	lo	0.01	😊
Nickel	Phosphorus		161.00	lo	156.00	😊
Silver	Selenium		1.00	lo	0.68	😊
Tin	Strontium		1.20	HI	0.09	😞
Titanium	Sulfur		47900.00	lo	45,700.00	😊
Total Toxic Repres	Barium		0.09	LO	0.06	😊
	Cobalt		0.00	LO	0.00	😊
	Iron		14.00	hi	11.00	😊
	Germanium		0.04	LO	0.04	😊
	Rubidium		0.11	hi	0.04	😞
	Zirconium		0.06	lo	0.18	😞

# Conclusion

- **Autism is epidemic in the United States**
- **There is a direct and proven link to thimerosal based vaccines**
- **There has been a massive cover-up by the agencies that should be protecting us**
- **Everyone has a choice to investigate and decide if their children should be immunized.**

# **What's Glutaraldehyde**

- **Glutaraldehyde can sensitize your skin, lungs and respiratory system.**
- **Once sensitized, further exposure to even very small amounts can lead to:**
  - **Dermatitis**
  - **Rhinitis, conjunctivitis, hay fever.**
  - **Asthma**



# **Impact of Mercury Exposure**

- **Impacts brain development**
  - **Disrupts division and migration of brain cells**
  - **Oxidative stress can kill brain cells**
  - **Mercury moves easily through the blood-brain barrier**
    - **Collects in the cerebellum which controls movement and cognition**
    - **The cerebellum is the region of impairment in autistic children**

# Mercury Levels Above EPA Standard

## ▶ Day of birth

- Hepatitis B
  - 12 mcg
  - 30 times safe level!

## ▶ 4 months

- DTaP & Hib
  - 50 mcg
  - 60 times safe level!

## ▶ 6 months

- Hepatitis B, Polio
  - 62.5 mcg
  - 78 times safe level!

## ▶ 15 months

- 50 mcg
- 41 times safe level!

## ▶ By 2 years of age, a child has received 237 mcg of mercury!

## ▶ Case: 18 month old neighbor's grand daughter

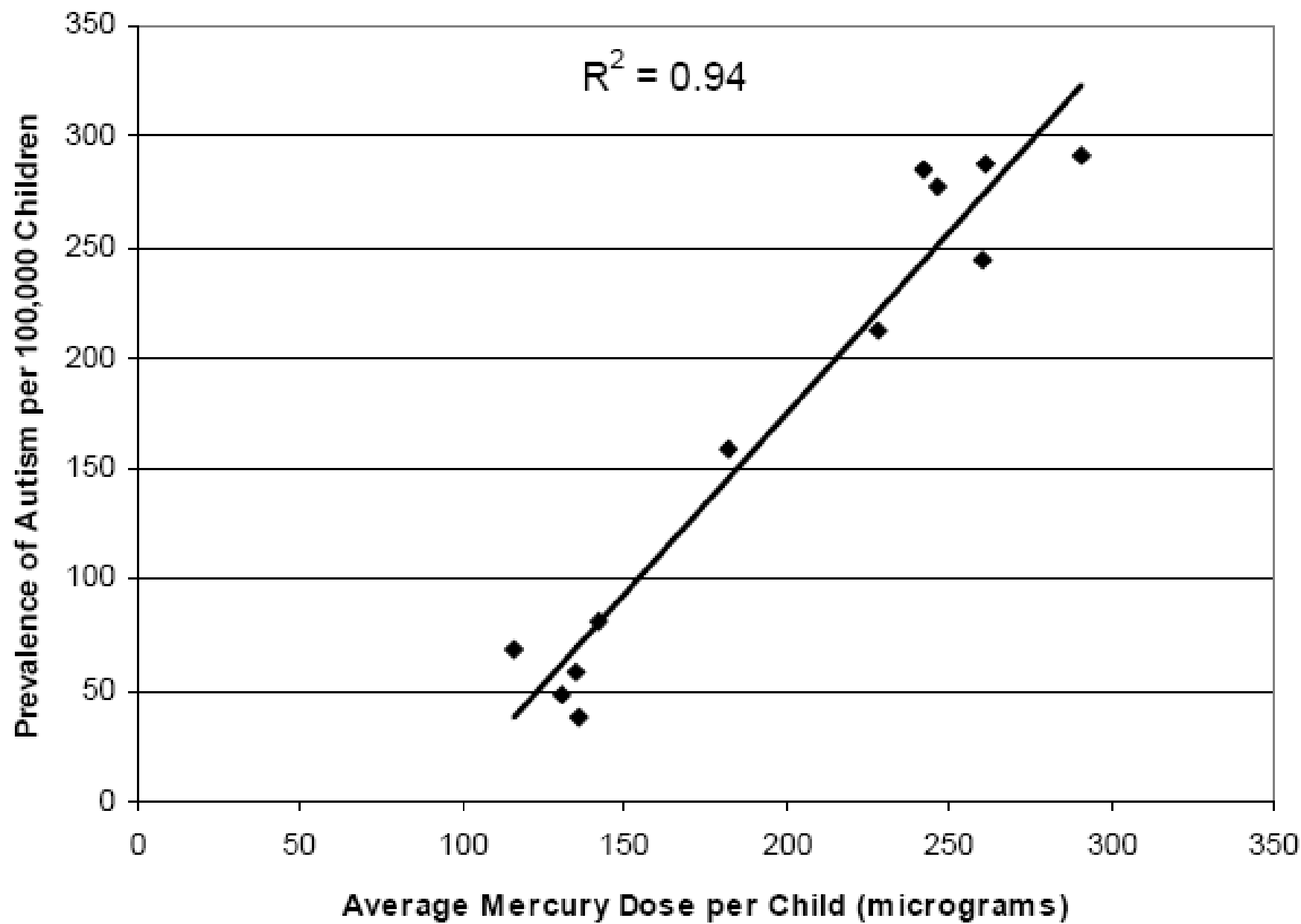
**52% of American dentists  
now are mercury-free.**

**FACT Email Newsletter by Dr.  
Garry Gordon**

**[www.toxicteeth.org/Mercury%20survey.pdf](http://www.toxicteeth.org/Mercury%20survey.pdf)**

# Studies

- **Journal of American Physicians & Surgeons Dr. Mark Geier 2003**
  - thimerosal doses vs guidelines
  - Incidence of autism with & without thimerosal
  - Mercury dose vs disabilities



**“This study provides strong epidemiological evidence for a link between increasing mercury from thimerosal-containing childhood vaccines and neurodevelopment disorders....”**

**-Dr Mark Geier**



# **Amish Study**

- **2005 study of Amish community**
- **As a “control” Amish don’t immunize their children**
- **In population of 22,000 only 4 autistic children where there should have been 130**
- **All had been exposed to mercury outside of the Amish community**

# Joint Statement

- **July 1999**
  - Joint statement from the American Academy of Pediatrics & US Public Health Service called for removal of thimerosal from vaccines.
- **2004**
  - Iowa was the first state to ban thimerosal followed by California
- **Similar bans are being considered in 32 other states.**

-

# **Autism: a national health emergency**

- **1 in 150 children**
  - roughly 1 in 65 families
- **36,000 otherwise normal toddlers will regress into autism in this year alone**
- **Harvard Study: \$3.2 million/child over a lifetime**
  - Society costs: Approx. 2 TRILLION dollars
- **Insurance seldom pays because treatments aren't "research-based"**
- **Families devastated both economically and emotionally**
- **Murder/suicides are on the rise**
  - Laura Bono- NAA (National Autism Association)

# **Autism: environmentally induced**

- **If it is environmental, then it is treatable and preventable.**
- **It is NOT HOPELESS and lifelong.**
- **It is HOPEFUL, with a possible cure.**

# What is autism?

- **Developmental Disorder**
- **Must onset before age 3 years**
- **Development affects symptom expression**
- **Symptoms exacerbated/alleviated by development**
- **One of several Pervasive Developmental Disorders or Autism Spectrum Disorders**
- **Autism Pervasive Developmental Disorder – Not Otherwise Specified**
- **Asperger Syndrome**
- **Rett Disorder**
- **Childhood Disintegrative Disorder**

# **Autism is characterized by:**

- **Deficits in Social Interactions (2 or more)**
- **Impairment in use of nonverbal behaviors**
- **Failure to develop peer relationships**
- **Lack of spontaneous seeking to share enjoyment**
- **Lack of social or emotional reciprocity**
- **Communication deficits (verbal & nonverbal) (1 or more)**
- **Delayed/lack of spoken language**
- **Inability to converse with others**



# **Characterizations continued...**

- **Stereotyped and repetitive or indiosyncratic language**
- **Lack of make-believe or social imitative play**
- **Fixated interests and/or repetitive behaviors (1 or more)**
- **Preoccupation with one or more restricted interests**
- **Inflexible adherence to specific nonfunctional routines**
- **Stereotyped and repetitive motor mannerisms**
- **Persistent preoccupation with parts of objects**

# **Autism: a whole-body problem**

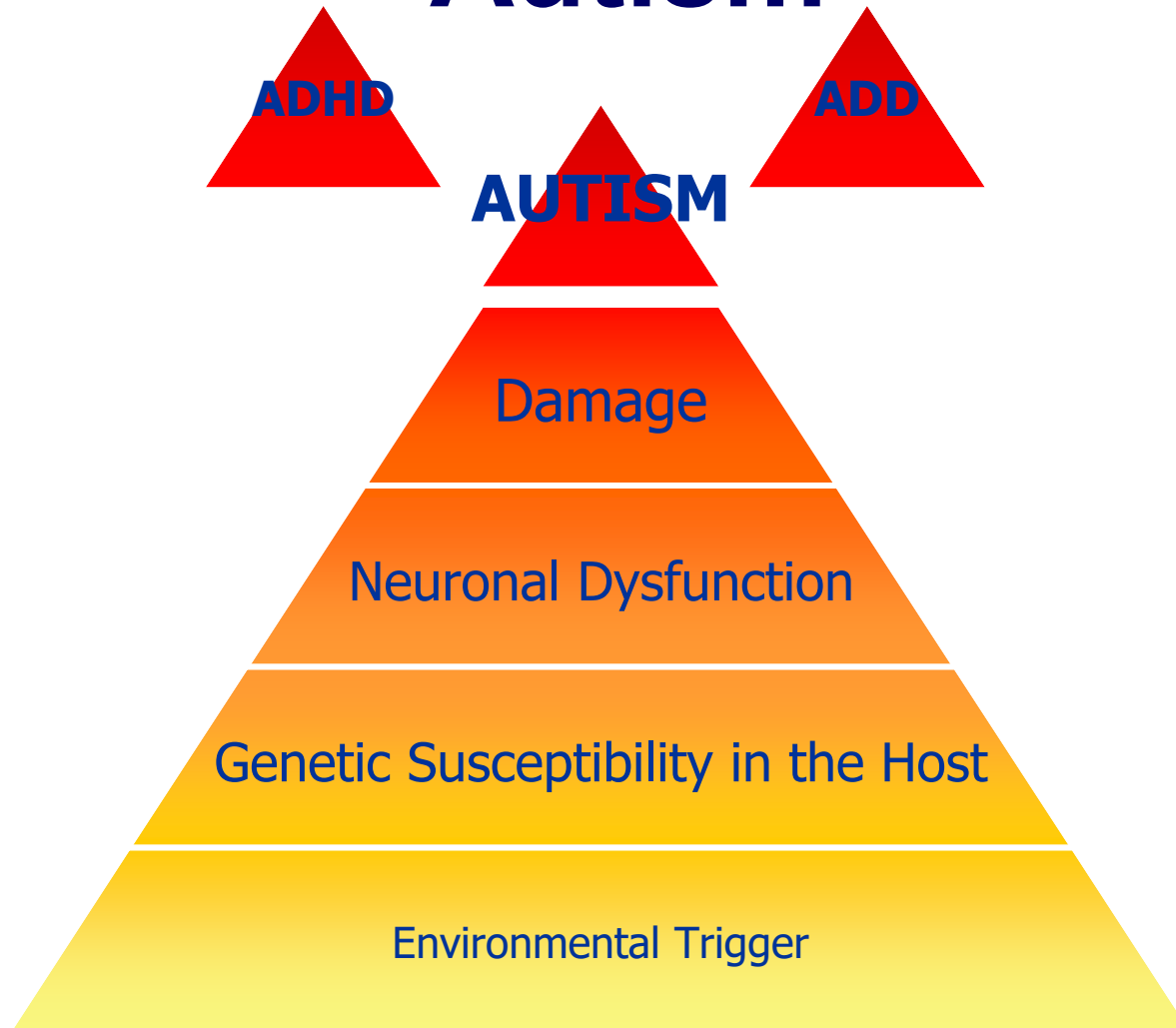
- ▶ Immunological dysregulation with a unique inflammatory bowel disease
- ▶ Oxidative stress, systemic inflammation, and severely disordered urine and serum chemistries
- ▶ Decreased methylation capacity, limited transsulfuration and glutathione deficiency
- ▶ Increased toxic body burdens – primarily of heavy metals esp. mercury and lead
- ▶ Chronic viral, fungal and bacterial infections
- ▶ Central nervous system hypofusion/abnormal regulation of blood supply to the brain
- ▶ Microglial activation, lipid peroxidation, mitochondrial dysfunction, inactive enzyme systems and excitotoxicity

# **Clinical Clues:**

## **Regressive Subtype**

- **Normal development until 12 – 30 months age and then loss of language and social skills**
- **15-50% of autism has regressive features (rate depends on definition of regression)**
- **Reported prognosis for regressive autism is poor**
- **Regression can be acute or slow and subtle**
- **Videotapes often show that development wasn't completely normal before regression occurred, but obvious loss of acquired skills.**

# Pathogenesis of Regressive Autism



# **Autism is treatable.**

- **The research paradigm needs to shift from “autistic children are genetically defective” to “autistic children are sick”.**
- **Study the children’s biochemical imbalances and find more effective ways of intervening medically and nutritionally**
- **Identify toxicities or triggers**

# **Toxic and Essential Elements in Autism and Childhood Behavior**

**David Quig, PhD and Meghan  
Higley, ND**





# A Case-Control Study of Mercury Burden in Children with Autistic Spectrum Disorders

- Evaluations of mercury excretion levels
- 3 day treatment with an oral chelating agent, (DMSA) was undertaken.
- Results showed ↑ urinary mercury concentrations among 221 cases of children with autistic spectrum disorders in comparison to 18 normal controls.
- no association was found between urinary cadmium or lead levels and autistic spectrum disorders among the children examined.
- The mercury measured in this study is compatible with exposure to mercury in childhood vaccines, while the contribution of thimerosal in Rho-D immune globulin and other potential environmental sources of mercury exposure, both acute and chronic, may be contributory.

Population Type	Number of Boys	Number of Girls	Mean Age in Years (Range)	Mean Urinary Mercury (mcg/g creatinine) (Range)
Cases	183	38	6.25 (3 to 15)	4.06 ± 8.59 (0 to 58.65)
Controls	14	4	8.85 (3 to 16)	1.29 ± 1.54 (0 to 6.2)

Analysis of post- DMSA urinary Mercury excretion found a strong, statistically significant association between greatly ↑ urinary mercury concentrations and the presence of autistic spectrum disorders in vaccinated children.

# **Analyses of Toxic Metals and Essential Minerals in the Hair of Arizona Children with Autism and Associated Conditions, and their Mothers**

- ▶ **This study assesses the levels of toxic metals and essential minerals in hair samples of children with autism spectrum disorders and their mothers compared to controls.**
- ▶ **Iodine**
  - **levels were 45% lower in the children with autism ( $p=0.005$ ).**
- ▶ **Chromium**
  - **Autistic children with pica had a 38% lower level of Chromium ( $p=0.002$ ).**
- ▶ **Lithium**
  - **The mothers of young children with autism had especially low levels of lithium (56% lower,  $p=0.005$ ), and the young children (ages 3-6) with autism also had low lithium (30% lower,  $p=0.04$ ).**

# Reduced Levels of Mercury in First Baby Haircuts of Autistic Children

- ▶ First baby haircut samples were obtained from 94 children diagnosed with autism using *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM IV) criteria and 45 age- and gender-matched controls.
- ▶ Information on diet, dental amalgam fillings, vaccine history, Rho D immunoglobulin administration, and autism symptom severity was collected through a maternal survey questionnaire and clinical observation.
- ▶ Hair mercury levels in the autistic group were 0.47 ppm versus 3.63 ppm in controls, a significant difference.
- ▶ The mothers in the autistic group had significantly higher levels of mercury exposure through Rho D immunoglobulin injections and amalgam fillings than control mothers.
- ▶ Hair mercury excretion patterns among autistic infants were significantly reduced relative to control.

# Mineral Status, Toxic Metal Exposure and Children's Behavior

- ▶ 237 children attending grades K-4 in Victoria, British Columbia schools.
- ▶ Children were classified on the basis of behavioral status.
- ▶ Amongst all of the elements considered, calcium in particular appears to be of importance, with significant positive associations observed between low hair levels of this macro-mineral and problematic behavior.
- ▶ With respect to specific problem behaviors, distractibility may be the most affected by mineral status, significant associations were observed between problem behavior of this type and low calcium, high manganese, and high cadmium.

Walker Scale	Associated Element	Odds Ratio (p<0.05)
Acting-Out	↓ Calcium	2.35
Withdrawal	↓ Calcium	11.92
	↓ Magnesium	0.06
Distractibility	↓ Calcium	4.91
	↑ Cadmium	7.53
	↑ Manganese	6.77
Immaturity	↑ Lead	2.76
Disturbed Peer Relations	↑ Zinc	2.86

# Hair Lead and Cadmium Levels and Specific Depressive and Anxiety-Related Symptomology in Children

Problem Behavior	High Lead Odds Ratio for Exhibiting Behavior	High Cadmium Odds Ratio for Exhibiting Behavior
Makes <u>distrustful</u> or <u>suspicious</u> remarks about actions of others towards him/her.	7.744**	7.167*
<u>Somatization</u> . Reacts to stressful situations or changes in routine with general body aches, head or stomach aches, nausea.	3.398*	3.826*
Utters nonsense syllables and/or <u>babbles</u> to himself/herself.	4.533*	6.429*
<u>Anxiety</u> . Expresses concern about something terrible or horrible happening to him/her.	12.118**	3.212

\*p<0.05 \*\*p<0.01

# **Environmental Assaults**



# **What we don't know about environmental triggers---quite a bit!**

- **53,000 commercially important chemicals**
- **NTP survey of 49,000 industrial chemicals**
  - ~80% lack adequate toxicity data (especially DNT)
- **3,400 pesticides are more heavily regulated**
  - ~64% lack adequate data for risk assessment
- **3,400 cosmetic ingredients**
  - ~74% lack adequate data for risk assessment
- **8,600 food additives**
  - ~80 % lack adequate data for risk assessment
- **National Toxicology Program Report (1992)**

# **Environmental Toxicants and Neurobehavioral Development Future Challenges**

- **82,000+ industrial chemicals (~40% polymers)**
  - Food additives, ~8600
  - Cosmetic ingredients, ~3400
  - Pharmaceuticals, ~1800
  - Pesticides (active), ~1000
- **Developmental toxicology data available on only 200**
- **Human neurodevelopment toxicology data available for fewer than 10**
- **Almost no information available on toxicity of mixtures...the chemical cocktail effect**

# Chlorinated hydrocarbon

- ▶ Lindane (head lice, scabies)
- ▶ Hepatchlor (1988)
- ▶ Chlordane (1988)
- ▶ Dieldrin (1987)
- ▶ Kepone (1978)
- ▶ Toxaphene (1990)
- ▶ To appreciate the effectiveness of these materials as termiticides, consider that wood and wooden structures treated with chlordane, aldrin, and dieldrin in the year of their development are still protected from damage--more than 55 years!

# Molybdenum

- Molybdenum is essential for plants.
- Medical research states that it is possibly anti-carcinogenic.
- The states of Colorado and Ohio have soils particularly rich in Molybdenum, and report the lowest incidences of cancer of the esophagus.
  - This type of cancer is particularly widespread in South Africa, which has very low Molybdenum concentration.
- Molybdenum is important for uric acid metabolism.

# Molybdenum Sources

- Meat Sources:
  - Liver and kidney
- Plant Sources:
  - legumes, wheat germ, and leafy vegetables

# Molybdenum Deficiency

- reduced resistance against cancer
- impotence
- uric acid accumulation (gout)
- defects in the metabolism of sulfur amino acids
- dental caries
- susceptibility to asthma



# Excess Molybdenum

- loss of appetite
- anemia
- arthritic conditions
- Sources of exposure are mostly occupational and include lubricants, catalysts, pigments, organic glazes, and steel alloys.

# Nickel Sources

- atmospheric pollution by burning of coal and petroleum products
- cigarette smoking
- nickel coins
- eyeglass frames
- costume jewelry
- kitchen appliances
- pins
- scissors
- hair clips
- hydrogenated oils and margarine
- electronics and computers

# Nickel

- Its widespread presence in environmental pollution and its toxic effects on human health warrant its classification as toxic.
- High nickel tissue levels have been associated with **myocardial infarction**, and are often present in patients who suffered **strokes**, **dermatitis**, **chronic rhinitis**, **hypersensitivity reactions**, **hypersensitize the immune system**, **hyperallergenic responses** to many different substances, **pulmonary inflammation** (due to smoke and dust), **liver necrosis** and **toxemia**.

# Nickel

- **Symptoms**
  - myocardial infarction
  - Strokes
  - Dermatitis
  - chronic rhinitis
  - hypersensitivity reactions
  - autoimmune reactions
  - liver necrosis
  - toxemia
- **Early symptoms**
  - Apathy
  - Diarrhea
  - Dermatitis
  - Dyspnea
  - Fever
  - Insomnia
  - Vertigo
  - Vomiting
  - Headaches
  - gastrointestinal pain
  - Eczema
  - Vitiligo

# 100 Warts

- 14 year old girl with over 100 warts on the back of each hand and fingers for the last 12 months
- Dermatologist - burning, acid, freezing- a futile painful effort, no help
- Patient had been in braces for 15 months

# Nickel

- It is well established to be nephrotoxic and carcinogenic.
- Early symptoms of toxicity include: apathy, diarrhea, dermatitis, dyspnea, fever, insomnia, tachypnea, vertigo, vomiting, headaches, gastrointestinal pain and eczema.
- Other symptoms: Allergies, immunosuppression, vitiligo.



# Platinum

- Platinum is poorly absorbed in the gut but may be absorbed via inhalation.
- Most platinum exposures are industrial.
- Platinum compounds are used in catalytic converters, chemotherapy (they are highly toxic to both cancerous and healthy cells), dentistry and jewelry.

# Platinum

- **Chemotherapeutic agent (Cisplatin) has platinum in it.**
- **30% of patients who receive this drug end up with neuropathy as a result of the platinum in the drug concentrating in the dorsal roots of the spinal nerves, which would cause sensory damage.**
- **Chelation therapy might be able to extract the platinum and help his neuropathy.**

# **Platinum toxicity cont.**

- **Most people are exposed to platinum on a daily basis**
- **It can accumulate in your body over time and cause serious health problems.**
- **Platinum is not ‘inert’**

# Platinum toxicity Cont.

- **Platinum toxicity can cause:**
  - DNA alterations,
  - cause cancer,
  - allergic reactions of the skin and mucous membranes,
  - it can cause damage to organs such as the kidneys and intestines
  - damage hearing

# Platinum toxicity Cont.

- **Platinum can be found:**
  - jewelry,
  - from mining
  - vehicle emission control devices
  - in metal tooth filling amalgams,
  - Used to make silicone rubber and gels
  - medical implants
    - breast implants
    - joint replacements

# **Platinum toxicity Cont.**

## **Common Symptoms**

- **Allergic reactions of the skin & or mucous membranes**
- **Kidney disease's**
- **Intestinal & digestive problems**
- **Muscle spasms**
- **High blood pressure (Hypertension)**
- **Deafness**
- **Cancer**
- **Adverse health condition after medical implants**
- **Allergies to rubber, silicone & gels**



# **Platinum toxicity cont.**

- **It can disrupt essential nutrients mostly magnesium & selenium**
- **A deficiency of magnesium and selenium can also be signs or symptoms of platinum toxicity.**
- **Being deficient in magnesium and or selenium can allow the accumulation of platinum in your body leading to toxicity.**

# **Selenium Deficiency or Platinum toxicity Cont.**

- family history of cancer,
- cancer
- signs of premature aging,
- cataracts,
- high blood pressure,
- frequent infections

# Magnesium Deficiency or Platinum Toxicity?

- muscle tremors or spasms
- muscle weakness,
- insomnia or
- nervousness,
- high blood pressure,
- irregular heartbeat,
- constipation,
- fits or convulsions,
- hyperactivity,
- depression,
- confusion,
- lack of appetite,
- calcium deposits in soft tissue
- kidney stones

# Potassium

- High hair Potassium is not necessarily reflective of dietary intake or nutrient status.
  - However, elevated Potassium may indicate adrenocortical insufficiency, or it may be reflective of metabolic disorders associated with exposure to potentially toxic elements and toxic heavy metals.
- Elevated Potassium may reflect overall retention by the body or maldistribution of this element.

# Potassium

- Hair is occasionally contaminated with Potassium from shampoos
- Symptoms of potassium deficiency include muscle weakness, fatigue, and tachycardia.
  - Eat at least 1-2 servings of potassium rich foods per day.
  - The best sources of Potassium are found in broccoli, bananas, avocado and sweet potatoes.

# Rubidium

- There is inconclusive evidence that rubidium is essential to the body, but high levels have been shown to be toxic.
- Symptoms of rubidium toxicity
  - inhibition of iodine uptake by the thyroid
  - interference with cardiac muscle contraction
- Sources of rubidium include electrical equipment, soybeans, beef, tomatoes, and ground coffee.



# Selenium

- Selenium is found in the liver, Red blood cells, platelets and other tissues.
- It is a strong antioxidant that works with vitamin E.
  - It is an antioxidant that helps prevent chromosomal damage and protects cellular function.
- A deficiency has been associated with many types of cancers and tumors.
- In animals, a deficiency of selenium can lead to brain dysfunction, cardiovascular, liver and muscle problems and can affect fetal development.
- Statistically, the occurrence of cancer is considerably higher in areas with a low selenium content of the soil.
- It also counteracts the effects of chemical allergies and sensitivities.

# Excess Selenium

- This is most often from external exposure, such as to dandruff shampoos.
- Toxicity can cause interference in the metabolism of sulfur-bearing amino acids, structural changes and red pigmentation of the hair and nails, garlic breath, metallic taste in the mouth, discoloration of teeth and skin, and gastroenteritis.
- High hair selenium is an accurate indicator of high serum levels.

# **Selenium Deficiency or Platinum toxicity Cont.**

- family history of cancer,
- cancer
- signs of premature aging,
- cataracts,
- high blood pressure,
- frequent infections

# Silver

- Toxicity: Silver is deposited in the skin and organs, causing gray discoloration.
- Silver occurs naturally in very low concentrations in soil, plants, and animal tissues.
  - also found in food that comes from silver plated vessels, silver solder, silver foil (used in decorating cakes), jewelry, electronic equipment, dental fillings and photographic materials.
  - Silver is found at hazardous waste sites and in water.
  - Some water treatment systems including water filters use silver compounds to kill bacteria.
  - Silver has been used extensively for medicinal purposes particularly in the treatment of burns.

# Silver

- **Symptoms:**
  - Skin disorders
  - organ system function
  - deposited in the skin and organs and interferes with their function
  - causes gray discoloration.
- **Sources:**
  - food in silver plated vessels
  - silver solder
  - silver foil
  - Jewelry
  - dental fillings
  - water contamination
  - used for medicinal purposes particularly in the treatment of burns
  - Intake of colloidal silver has been reported to give rise to tumors in the liver and spleen in laboratory animals.

# Colloidal Silver

- There is much controversy over the long-term safety of consumption of colloidal silver.
- Very high intake of colloidal silver has been reported to give rise to tumors in the liver and spleen of laboratory animals.



# Colloidal Silver

- **Distributors** (usually untrained multi-level marketers and therefore unaware)
- **Argyria**
  - *Permanent* discoloration (slate gray or blue coloration) of the skin following consumption of silver containing products.
  - Made worse by sunlight
  - Numerous documented cases since the rise in popularity with colloidal silver

# Sodium

- Sodium (Na) is an essential element.
- Blood testing for Sodium and electrolyte levels is much more diagnostic and indicative of status.
- High Hair Sodium may be the result of an electrolyte imbalance, or possibly adrenocortical hyperactivity.
  - In this condition, Blood Sodium is elevated while potassium is low.
  - Potassium is elevated (wasted) in the urine.
- High levels of Sodium and Potassium in the hair are commonly high in association with elevated levels of toxic elements or xenobiotics.
  - Elevated Sodium and Potassium levels are frequently concomitant with low levels of Calcium and Magnesium in hair.

# Elevated Sodium

- Commonly associated with dehydration, gastrointestinal losses (vomiting, diarrhea), excessive sweating, renal disease, diuretic use, diabetes mellitus, emotional stress or electrolyte imbalance.
- Symptoms include low blood pressure, reduced immune function, weight loss, cardiovascular weakness, ocular diseases, and anorexia.
- Increased protein intake and sparing use of sea salt are recommended.

# Sulfur

- The mineral sulfur is needed for the manufacture of many proteins, including those forming hair, muscles, and skin.
- Sulfur contributes to fat digestion and absorption, because it is needed to make bile acids.
- Sulfur is also a constituent of bones, teeth, and collagen (the protein in connective tissue).
- As a component of insulin, sulfur is needed to regulate blood sugar.
- Most dietary sulfur is consumed as part of certain amino acids in protein-rich foods.

# **Sulfur Containing Amino Acid Sources**

- **Meat and poultry**
- **organ meats**
- **fish**
- **eggs**
- **beans**
- **dairy products**
- **Sulfur also occurs in garlic and onions.**

# Thallium

- Thallium is odorless and tasteless.
- It is absorbed by plants and easily stored up in fish and shellfish and apparently accumulates in the body with age.
- It is used mostly in manufacturing electronic devices, used in the semi-conductor industry, used in the manufacture of special glass, used in certain medical procedures, and used as a rodent poison.
- Eating contaminated food is a source of exposure for most people, breathing workplace air in industries that use thallium, living near hazardous waste sites, and smoking.



# Symptoms of Thallium Over-Exposure

- autonomic dysfunction
- tachycardia
- hypertension
- numbness in fingers and toes
- vomiting, diarrhea
- hair loss
- effects on the nervous system involving the heart, liver, and kidneys.

# Thallium

- **Studies in laboratory rats, show adverse developmental effects with high levels of thallium.**
- **Data suggests that male reproduction may be susceptible to damage in low levels of thallium.**
- **No levels are available on humans or animals on the carcinogenic effects.**

# Thorium

- Thorium is a naturally-occurring, radioactive metal that is more abundant than uranium.
- Small amounts of thorium are present in all rocks, soil, above-ground and underground water, plants, and animals.
- Thorium is not stable and produces a series of decay substances including radium and radon, as well as alpha, beta and gamma radiation.
- Burning contaminated coal or making products that contain thorium also release thorium into the environment.
- Thorium is used to make ceramics, lantern mantles, and alloys used in the aerospace industry.
- Thorium can also be used as a fuel for generating nuclear energy.

# Thorium Exposure

- The main way it enters the body through thorium-contaminated dust.
- Some forms of thorium can stay in your lungs for long periods of time.
  - However, in most cases, the small amount of thorium left in your lungs will leave your body in the feces and urine within days.
- After you eat or drink thorium, almost all of it leaves your body in the feces.
- The small amount of thorium left in the body may be stored in bones and stay there for many years.
- Thorium can also enter the body through the skin.
- Food grown in thorium-rich areas and water near hazardous waste sites may contain dangerous concentrations of thorium, but most people in the United States are not at risk.

# Thorium Carcinogenicity

- The US Dep. of Health and Human Services has determined that thorium dioxide is a known carcinogen.
- Studies of thorium workers have shown that breathing thorium dust may increase chances of developing lung disease and cancer of the lung or pancreas many years after being exposed.
- Changes in genetic material has also been shown to occur in workers who breath thorium dust.

# Thorium Carcinogenicity

- Liver diseases and effects on the blood have been found in people injected with thorium in order to take special X rays.
- Many types of cancer have also been shown to occur in these people many years after their exposure to thorium injections.
- Since thorium is radioactive and may be stored in bone for a long time, bone cancer is also a potential concern for people exposed to thorium.



# Tin

- Organic Tin has appreciable toxicity.
- Experiments have shown that increased tin ingestion causes depressed growth and reduced hemoglobin levels and liver function in rats.
- Elevated tin resulted in elevated losses of calcium, selenium and zinc.

# Sources of Tin

- processing and packaging of:
  - gelatin
  - smoked fish
  - macaroni
  - dried legumes
  - dried milk
  - milk in large cans
  - tea
  - dental amalgams
  - cosmetics
  - preservatives
  - pewter
  - bronze
  - anticorrosive platings
- tap water
- preserved foods in tin cans
- asparagus packaged in glass

# Symptoms of Excess Tin

- muscle weakness
- anemia
- testicular degeneration
- vomiting
- diarrhea
- abdominal cramps
- loss of appetite
- tightness of chest
- depressed growth
- low hemoglobin
- decreased liver function
- skin, eye, GI tract irritation
- metallic taste
- dry throat
- coma (in very extreme cases)
- pneumoconiosis as a result of excessive inhalation of tin oxide

# **HA Case Study: K. S.**

**2 years old**

**Doctors had told her parents she has asthma  
Parents thought she was having allergic reactions**

K. S.

11-15-2002

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	13	< 8.0					
Antimony	1.0	< 0.066					
Arsenic	0.4	< 0.08					
Beryllium	< 0.01	< 0.02					
Bismuth	0.037	< 0.13					
Cadmium	0.21	< 0.1					
Lead	1.7	< 1.0					
Mercury	0.21	< 0.4					
Platinum	< 0.003	< 0.005					
Thallium	< 0.001	< 0.01					
Thorium	< 0.001	< 0.005					
Uranium	0.061	< 0.06					
Nickel	0.29	< 0.4					
Silver	0.3	< 0.2					
Tin	0.52	< 0.3					
Titanium	1.6	< 1.0					
Total Toxic Representation							
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	112	140 - 500					
Magnesium	8.0	15 - 45					
Sodium	78	12 - 90					
Potassium	97	9.0 - 60					
Copper	12	10 - 22					
Zinc	36	100 - 190					
Manganese	0.32	0.2 - 0.55					
Chromium	0.36	0.26 - 0.5					
Vanadium	0.045	0.03 - 0.1					
Molybdenum	0.13	0.048 - 0.13					
Boron	15	0.35 - 3.0					
Iodine	0.95	0.25 - 1.3					
Lithium	0.008	0.007 - 0.023					
Phosphorus	204	160 - 250					
Selenium	0.78	0.95 - 1.7					
Strontium	0.15	0.19 - 2.0					
Sulfur	45100	45500 - 53000					
Barium	0.24	0.16 - 1.2					
Cobalt	0.017	0.013 - 0.035					
Iron	16	8.0 - 19					
Germanium	0.026	0.045 - 0.065					
Rubidium	0.093	0.012 - 0.16					
Zirconium	0.44	0.03 - 1.0					

# Titanium

- **Titanium generally has low toxicity.**
- **Titanium (Ti) has wide industrial uses, and elevated Ti may be the result of industrial exposure.**
- **Titanium is used in metal alloying and is used as titanium dioxide to coat welding rods.**



# Titanium Dioxide Pigment Present in:

- Paints
- inks
- dyes
- shoe whiteners
- plastics
- some cosmetics
- toothpaste
- conditioners
- shampoos
- paper fillers
- ceramic glazes
- Elevated hair titanium also may be an artifact (false high) of hair treatments such as dyeing or "highlighting"
- Surgical or dental implants may be a source of Titanium in the hair.

# Uranium

- Hair is a good indicator of uranium exposure.
- Blood and urine have been noted as NOT being representative of the body burden since the blood is rapidly cleared of uranium.
- Most forms of uranium are poorly absorbed by the body with the exception of the lungs, which absorb airborne uranium readily.
- Uranium forms many complexes with proteins and bone and can substitute for calcium.
- It is deposited throughout the body and chronic fatigue is often reported in association with high hair levels.
- Published data correlates Uranium exposure, nephrotoxicity and all forms of cancer.

# Uranium

- Kidney and bone are the primary sites of Uranium accumulation.
- Uranium has been noted to be higher in female hair than males living in the same home.
- It is a moderately common element with three isotopes. U238, the most common isotope, represents over 99% of the naturally occurring element.
- It is the only isotope of concern in this analysis.
- It is reasonably stable with a low level of radioactivity and a half life of 4.5 billion years.

# Uranium

- Uranium is used in glass manufacturing, ceramics, colored glass, high phosphate fertilizers and in some chemicals.
- Drinking water is a significant source of U238 in many regions.
- Radon can be a by-product of U238 decomposition.

# Toxic Effects of Vanadium

- Purple/green tongue
- gastrointestinal problems, including diarrhea and cramps (especially when concurring with discoloration of the tongue)
- impaired reflexes and neuromuscular irritation
- eczema
- dermatitis
- conjunctivitis
- respiratory tract irritation (resulting in rhinitis, pharyngitis, chronic bronchitis and diffuse pulmonary fibrosis)
- tachycardia
- manic depression, central nervous system problems
- hematological effects including anemia, neutropenia and leukocyte changes
- hypoglycemia

# Vanadium Deficiency

- Vanadium is found in the body of mammals, and there is evidence that it is essential for chicks, rats, and goats.
- Chickens require vanadium for the growth and development of wings and feathers.
- In rats, inadequate vanadium intake results in stunted growth.
- Vanadium-deficient goats show irreversible bone deformities in their front legs.



# Vanadium

- Catalyzes the oxidation of catecholamines (norepinephrine: adrenergic vasoconstriction, epinephrine, dopamine: vasoconstriction)
- May inhibit cholesterol synthesis and lower phospholipid levels in blood
- May have anti-hyperglycemic function
- A weight-reducing function
- Some anabolic effects
- Reduces caries formation
- Influences sodium/potassium transport.

# Vanadium

- Vanadium supplementation reduced fasting blood glucose levels after only a few days.
  - Vanadium activated transport and conversion of fructose independent of insulin.
- Long-term excessive vanadium supplementation can be toxic because vanadium readily combines and interferes with the biological functions of amino acids, peptides, proteins, enzyme substrates, nucleotides, carbohydrates and ATP.
- Toxicity is higher after inhalation.
- Vanadium is poorly absorbed by the gastrointestinal tract.

# Vanadium Sources

Highest concentration is found in vegetable oils

- liver
- pancreas
- kidneys
- thyroid
- testes
- fiber-rich foods
- dill seeds
- parsley
- black pepper
- Vanadium is a by-product of the heavy metal industry and is found in industrial waste, dust, and fumes.

# Zinc Deficiency

- Low levels of Zinc in the Hair are commonly associated with diabetes, ADD/ADHD, and autism.
- Symptoms of zinc deficiency include fatigue, decreased vision, anorexia, anemia, dermatitis, weak or brittle nails and hair, impaired wound healing, and sexual dysfunction in males.
- Dietary sources of zinc include lean meats, eggs, and whole grain breads and cereals.

# Zinc Excess

- Commonly associated with contaminated water, welding, brass manufacturing, white paint, and pesticide production.
- Symptoms of Zinc toxicity include gastrointestinal disorders, tachycardia, blurred vision, and hypothermia.

# Zirconium

- Low hair zirconium does not necessarily correlate with low serum zirconium.
- High hair levels of zirconium have not been proven to be clinically significant.



# **Artificial colorings (FD&C colors and dyes)**

- **The great bulk of artificial colorings used in food are synthetic dyes.**
  - **For decades synthetic food dyes have been suspected of being toxic or carcinogenic and many have been banned.**
- **In a life's time, a woman will consume 4-6lbs. of lipstick!**
- **Blue 2: The largest study suggested, but did not prove, that this dye caused brain tumors in male mice. The FDA concluded that there is "reasonable certainty of no harm."**

# Artificial Colors

- **Citrus Red 2:** Studies indicated that this additive causes cancer. The dye does not seep through the orange skin into the pulp. No risk except when eating peel.
- **Yellow 6:** Industry-sponsored animal tests indicated that this dye, the third most widely used, causes tumors of the adrenal gland and kidney.

# Red #40

- First introduced in the mid 1960's and approved for use in the United States in 1974.
- The testing procedure was ended after 21 of the 24 months required for testing, when the rat colony being tested was destroyed by pneumonia.
  - **Why did they get pneumonia?**
- Although the United States accepted the toxicology results to date, this fact caused Canada to refuse the dye until later studies were completed.
- However, Sweden, Switzerland, the United Kingdom, the Netherlands, and a few other countries still refuse to accept it (Newsome, p.52).

# HA Case Study: Kara S.

- 2 years old
- Doctors had told her parents she has asthma
- Parents thought she was having allergic reactions

Kara S.  
11-15-2002

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	13	< 8.0					
Antimony	1.0	< 0.066					
Arsenic	0.4	< 0.08					
Beryllium	< 0.01	< 0.02					
Bismuth	0.037	< 0.13					
Cadmium	0.21	< 0.1					
Lead	1.7	< 1.0					
Mercury	0.21	< 0.4					
Platinum	< 0.003	< 0.005					
Thallium	< 0.001	< 0.01					
Thorium	< 0.001	< 0.005					
Uranium	0.061	< 0.06					
Nickel	0.29	< 0.4					
Silver	0.3	< 0.2					
Tin	0.52	< 0.3					
Titanium	1.6	< 1.0					
Total Toxic Representation							
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	112	140 - 500					
Magnesium	8.0	15 - 45					
Sodium	78	12 - 90					
Potassium	97	9.0 - 60					
Copper	12	10 - 22					
Zinc	36	100 - 190					
Manganese	0.32	0.2 - 0.55					
Chromium	0.36	0.26 - 0.5					
Vanadium	0.045	0.03 - 0.1					
Molybdenum	0.13	0.048 - 0.13					
Boron	15	0.35 - 3.0					
Iodine	0.95	0.25 - 1.3					
Lithium	0.008	0.007 - 0.023					
Phosphorus	204	160 - 250					
Selenium	0.78	0.95 - 1.7					
Strontium	0.15	0.19 - 2.0					
Sulfur	45100	45500 - 53000					
Barium	0.24	0.16 - 1.2					
Cobalt	0.017	0.013 - 0.035					
Iron	16	8.0 - 19					
Germanium	0.026	0.045 - 0.065					
Rubidium	0.093	0.012 - 0.16					
Zirconium	0.44	0.03 - 1.0					

# HA Case Study: Christian T.

- 6 years old
- Many food allergies
- Behavioral problems
- Family had lived in an old farm house until he was 5 years old
- Loose bowel movements twice a day



Christian T.  
5-21-2002

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>		95 <sup>th</sup>		
Aluminum	9.2	< 8.0					
Antimony	0.05	< 0.066					
Arsenic	0.46	< 0.08					
Bervllium	< 0.01	< 0.02					
Bismuth	0.068	< 0.13					
Cadmium	0.045	< 0.15					
Lead	0.57	< 1.0					
Mercury	0.42	< 0.4					
Platinum	< 0.003	< 0.005					
Thallium	0.003	< 0.01					
Thorium	< 0.001	< 0.005					
Uranium	0.14	< 0.06					
Nickel	0.04	< 0.4					
Silver	0.01	< 0.2					
Tin	0.34	< 0.3					
Titanium	1.0	< 1.0					
Total Toxic Representation							
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	303	125 - 370					
Magnesium	26	12 - 30					
Sodium	80	12 - 90					
Potassium	52	12 - 40					
Copper	8.9	8.0 - 16					
Zinc	180	100 - 190					
Manganese	0.22	0.2 - 0.55					
Chromium	0.26	0.26 - 0.5					
Vanadium	0.024	0.03 - 0.1					
Molybdenum	0.12	0.05 - 0.13					
Boron	1.2	0.6 - 4.0					
Iodine	0.24	0.25 - 1.3					
Lithium	0.009	0.007 - 0.023					
Phosphorus	225	160 - 250					
Selenium	1.1	0.95 - 1.7					
Strontium	9.3	0.16 - 1.0					
Sulfur	48600	45500 - 53000					
Barium	0.35	0.16 - 0.8					
Cobalt	0.01	0.013 - 0.035					
Iron	26	8.0 - 19					
Germanium	0.064	0.045 - 0.065					
Rubidium	0.065	0.016 - 0.18					
Zirconium	1.1	0.04 - 1.0					
SPECIMEN DATA			RATIOS				

Christian T.

11-15-2002

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	18	< 8.0					
Antimony	0.091	< 0.066					
Arsenic	0.44	< 0.08					
Beryllium	< 0.01	< 0.02					
Bismuth	0.026	< 0.12					
Cadmium	0.53	< 0.15					
Lead	0.79	< 1.0					
Mercury	0.04	< 0.4					
Platinum	< 0.003	< 0.005					
Thallium	< 0.001	< 0.01					
Thorium	< 0.001	< 0.005					
Uranium	0.3	< 0.06					
Nickel	0.12	< 0.4					
Silver	0.11	< 0.13					
Tin	0.22	< 0.3					
Titanium	1.6	< 1.0					
Total Toxic Representation							
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	486	160 - 500					
Magnesium	51	12 - 50					
Sodium	170	12 - 90					
Potassium	420	10 - 40					
Copper	15	9.0 - 30					
Zinc	170	110 - 190					
Manganese	0.52	0.18 - 0.6					
Chromium	0.29	0.23 - 0.5					
Vanadium	0.05	0.025 - 0.1					
Molybdenum	0.17	0.04 - 0.089					
Boron	1.5	0.5 - 3.5					
Iodine	0.33	0.25 - 1.3					
Lithium	0.004	0.007 - 0.023					
Phosphorus	218	160 - 250					
Selenium	0.96	0.95 - 1.7					
Strontium	14	0.21 - 2.1					
Sulfur	50500	45500 - 53000					
Barium	1.5	0.19 - 1.6					
Cobalt	0.063	0.013 - 0.035					
Iron	18	6.0 - 17					
Germanium	0.033	0.045 - 0.065					
Rubidium	0.042	0.008 - 0.08					
Zirconium	0.32	0.06 - 0.7					

# Supplement Recommendations

## After R1:

ATP Plus

Chewable Calcium

Spectramin Chelate

Sublingual B12

Chewable Vitamin C

Vita Kids

## After R2, added:

Chlorella

MLK 1000

Seacure

GLA (Ultralinic)

Vitamin C (non chewable)

# Final Thoughts

- Actually this is pretty much what I was hoping to see.
- Assuming he is not being exposed to higher levels, we actually are starting to see his body eliminate some of these toxic elements.
- There are fewer nutrient deficiencies, in fact we see higher levels of calcium, magnesium, sodium and potassium which your body will use to carry out the toxic elements.
- It looks like his body is cleaning out.
- He is low in a couple of them such as lithium, germanium and selenium. We need to make sure that he is supported with these.
- Overall, I think that he is on the right track. There are certain nutrients that he was on before that I want to make sure that he stays on to help eliminate the toxic elements.

# **HA Case Study: Rita B.**



Rita B.  
3-6-2001

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	16	< 12	<div></div>				
Antimony	0.028	< 0.06	<div></div>				
Arsenic	0.083	< 0.09	<div></div>				
Beryllium	< 0.01	< 0.02					
Bismuth	0.029	< 0.13	<div></div>				
Cadmium	0.023	< 0.1	<div></div>				
Lead	0.89	< 1.0	<div></div>				
Mercury	0.17	< 1.1	<div></div>				
Platinum	< 0.003	< 0.005					
Thallium	0.002	< 0.01	<div></div>				
Thorium	< 0.001	< 0.005					
Uranium	0.016	< 0.06	<div></div>				
Nickel	0.16	< 0.4	<div></div>				
Silver	0.03	< 0.1	<div></div>				
Tin	0.11	< 0.3	<div></div>				
Titanium	2.3	< 1.0	<div></div>				
Total Toxic Representation			<div></div>				
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	5040	475– 1500			<div></div>		
Magnesium	470	45– 180			<div></div>		
Sodium	490	24– 180			<div></div>		
Potassium	170	20– 80			<div></div>		
Copper	7.5	9.0– 24		<div></div>			
Zinc	140	130– 200		<div></div>			
Manganese	0.3	0.2– 0.65		<div></div>			
Chromium	0.38	0.2– 0.45		<div></div>			
Vanadium	0.02	0.018– 0.065		<div></div>			
Molybdenum	0.087	0.04– 0.1			<div></div>		
Boron	7.5	0.7– 4.0			<div></div>		
Iodine	2.0	0.25– 1.3			<div></div>		
Lithium	0.049	0.008– 0.04			<div></div>		
Phosphorus	3060	350– 600			<div></div>		
Selenium	1.3	0.95– 1.7		<div></div>			
Strontium	19	1.0– 8.0			<div></div>		
Sulfur	44200	43000– 50000		<div></div>			
Barium	3.6	0.5– 5.0			<div></div>		
Cobalt	0.01	0.013– 0.05		<div></div>			
Iron	8.3	5.8– 14			<div></div>		
Germanium	0.065	0.045– 0.065			<div></div>		
Rubidium	0.16	0.03– 0.25			<div></div>		
Zirconium	9.3	0.04– 1.0			<div></div>		
SPECIMEN DATA			RATIOS				



# Supplement Recommendations

- **Betaine** 2/meal
- **Calcium MCHC** 3/day
- **Chlorella** 3/day
- **Chromium Picolinate** 6/day
- **Magnesium Glycinate** 3/day
- **Meda-Stim** 2/day
- **MLK1000** 2/night
- **Ultra Preventive** 2/day
- **Vanadyl Sulfate** 3/day
- **Vitamin B6** 1/day
- **Vitamin C** 3/day

Rita B.

10-11-2001

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	3.0	< 7.0	<div></div>				
Antimony	< 0.01	< 0.05	<div></div>				
Arsenic	0.019	< 0.06	<div></div>				
Beryllium	< 0.01	< 0.02	<div></div>				
Bismuth	0.019	< 0.1	<div></div>				
Cadmium	0.01	< 0.1	<div></div>				
Lead	0.08	< 1.0	<div></div>				
Mercury	0.22	< 1.1	<div></div>				
Platinum	< 0.003	< 0.005	<div></div>				
Thallium	< 0.001	< 0.01	<div></div>				
Thorium	< 0.001	< 0.005	<div></div>				
Uranium	0.027	< 0.06	<div></div>				
Nickel	0.12	< 0.4	<div></div>				
Silver	0.02	< 0.15	<div></div>				
Tin	0.24	< 0.3	<div></div>				
Titanium	0.36	< 1.0	<div></div>				
Total Toxic Representation			<div></div>				
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	1270	300- 1200	<div></div>		<div></div>		
Magnesium	200	35- 120	<div></div>		<div></div>		
Sodium	3.0	12- 90	<div></div>		<div></div>		
Potassium	6.0	8.0- 38	<div></div>		<div></div>		
Copper	8.0	12- 35	<div></div>		<div></div>		
Zinc	140	140- 220	<div></div>		<div></div>		
Manganese	0.07	0.15- 0.65	<div></div>		<div></div>		
Chromium	0.23	0.2- 0.4	<div></div>		<div></div>		
Vanadium	0.017	0.018- 0.065	<div></div>		<div></div>		
Molybdenum	0.057	0.028- 0.056	<div></div>		<div></div>		
Boron	0.72	0.3- 2.0	<div></div>		<div></div>		
Iodine	0.28	0.25- 1.3	<div></div>		<div></div>		
Lithium	0.007	0.007- 0.023	<div></div>		<div></div>		
Phosphorus	200	160- 250	<div></div>		<div></div>		
Selenium	1.6	0.95- 1.7	<div></div>		<div></div>		
Strontium	2.7	0.5- 7.6	<div></div>		<div></div>		
Sulfur	51000	44500- 52000	<div></div>		<div></div>		
Barium	0.67	0.26- 3.0	<div></div>		<div></div>		
Cobalt	0.056	0.013- 0.05	<div></div>		<div></div>		
Iron	6.2	5.4- 14	<div></div>		<div></div>		
Germanium	0.046	0.045- 0.065	<div></div>		<div></div>		
Rubidium	0.018	0.007- 0.096	<div></div>		<div></div>		
Zirconium	0.13	0.02- 0.42	<div></div>		<div></div>		
SPECIMEN DATA			RATIOS				



# **HA Case Study: Mike F.**

Mike F.  
5-5-2001

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>		95 <sup>th</sup>		
Aluminum	3.0	< 7.0	<div><div></div></div>				
Antimony	0.036	< 0.066	<div><div></div></div>				
Arsenic	0.023	< 0.08	<div><div></div></div>				
Beryllium	< 0.01	< 0.02	<div><div></div></div>				
Bismuth	0.34	< 0.06	<div><div></div></div>				
Cadmium	0.01	< 0.15	<div><div></div></div>				
Lead	0.54	< 2.0	<div><div></div></div>				
Mercury	0.1	< 1.1	<div><div></div></div>				
Platinum	< 0.003	< 0.005	<div><div></div></div>				
Thallium	< 0.001	< 0.01	<div><div></div></div>				
Thorium	< 0.001	< 0.005	<div><div></div></div>				
Uranium	0.042	< 0.06	<div><div></div></div>				
Nickel	1.2	< 0.4	<div><div></div></div>				
Silver	0.09	< 0.12	<div><div></div></div>				
Tin	0.09	< 0.3	<div><div></div></div>				
Titanium	0.56	< 1.0	<div><div></div></div>				
Total Toxic Representation			<div><div></div></div>				
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	467	200- 750	<div><div></div></div>				
Magnesium	41	25- 75	<div><div></div></div>				
Sodium	57	12- 90	<div><div></div></div>				
Potassium	20	9.0- 40	<div><div></div></div>				
Copper	15	10- 28	<div><div></div></div>				
Zinc	140	130- 200	<div><div></div></div>				
Manganese	0.46	0.15- 0.65	<div><div></div></div>				
Chromium	0.24	0.2- 0.4	<div><div></div></div>				
Vanadium	0.017	0.018- 0.065	<div><div></div></div>				
Molybdenum	0.056	0.025- 0.064	<div><div></div></div>				
Boron	1.4	0.4- 3.0	<div><div></div></div>				
Iodine	0.28	0.25- 1.3	<div><div></div></div>				
Lithium	< 0.004	0.007- 0.023	<div><div></div></div>				
Phosphorus	184	160- 250	<div><div></div></div>				
Selenium	1.1	0.95- 1.7	<div><div></div></div>				
Strontium	3.1	0.3- 3.5	<div><div></div></div>				
Sulfur	45900	44500- 52000	<div><div></div></div>				
Barium	0.99	0.16- 1.6	<div><div></div></div>				
Cobalt	0.006	0.013- 0.035	<div><div></div></div>				
Iron	52	5.4- 13	<div><div></div></div>				
Germanium	0.072	0.045- 0.065	<div><div></div></div>				
Rubidium	0.024	0.011- 0.12	<div><div></div></div>				
Zirconium	0.17	0.02- 0.44	<div><div></div></div>				
SPECIMEN DATA			RATIOS			EXPECTED	



# Supplement Recommendations

- **Betaine** 2/meal
- **Calcium MCHC** 3/day
- **Chromium Picolinate** 3/day
- **Co-Q-10** 3/day
- **Glucoril** 4/day
- **Inflavonoid** 4/day
- **L-Tyrosine** 2/day
- **Lacto-Key** 1/day
- **Liver** 3/day
- **Magnesium Glycinate** 4/day
- **MLK 1000** 3/night
- **Monolaurin** 4/day
- **Niacinamide** 1/day
- **Norwegian Kelp** 1/day
- **Sublingual B12 + Folic Acid** 4/day
- **Vanadyl Sulfate** 1/day
- **Vitamin B6** 1/day
- **Vitamin C** 3/day

Mike F.

10-31-2001

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	2.4	< 7.0	<div><div></div></div>				
Antimony	0.023	< 0.066	<div><div></div></div>				
Arsenic	0.026	< 0.08	<div><div></div></div>				
Beryllium	< 0.01	< 0.02	<div><div></div></div>				
Bismuth	< 0.002	< 0.06	<div><div></div></div>				
Cadmium	0.046	< 0.15	<div><div></div></div>				
Lead	0.97	< 2.0	<div><div></div></div>				
Mercury	0.03	< 1.1	<div><div></div></div>				
Platinum	< 0.003	< 0.005	<div><div></div></div>				
Thallium	< 0.001	< 0.01	<div><div></div></div>				
Thorium	< 0.001	< 0.005	<div><div></div></div>				
Uranium	0.05	< 0.06	<div><div></div></div>				
Nickel	0.09	< 0.4	<div><div></div></div>				
Silver	0.16	< 0.12	<div><div></div></div>				
Tin	0.05	< 0.3	<div><div></div></div>				
Titanium	0.38	< 1.0	<div><div></div></div>				
Total Toxic Representation			<div><div></div></div>				
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	809	200– 750	<div><div></div></div>		<div><div></div></div>		
Magnesium	67	25– 75	<div><div></div></div>		<div><div></div></div>		
Sodium	65	12– 90	<div><div></div></div>		<div><div></div></div>		
Potassium	35	9.0– 40	<div><div></div></div>		<div><div></div></div>		
Copper	17	10– 28	<div><div></div></div>		<div><div></div></div>		
Zinc	170	130– 200	<div><div></div></div>		<div><div></div></div>		
Manganese	0.22	0.15– 0.65	<div><div></div></div>		<div><div></div></div>		
Chromium	0.19	0.2– 0.4	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
Vanadium	0.012	0.018– 0.065	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
Molybdenum	0.054	0.025– 0.064	<div><div></div></div>		<div><div></div></div>		
Boron	3.7	0.4– 3.0	<div><div></div></div>		<div><div></div></div>		
Iodine	0.2	0.25– 1.3	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
Lithium	0.005	0.007– 0.023	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
Phosphorus	244	160– 250	<div><div></div></div>		<div><div></div></div>		
Selenium	1.6	0.95– 1.7	<div><div></div></div>		<div><div></div></div>		
Strontium	5.0	0.3– 3.5	<div><div></div></div>		<div><div></div></div>		
Sulfur	47900	44500– 52000	<div><div></div></div>		<div><div></div></div>		
Barium	1.3	0.16– 1.6	<div><div></div></div>		<div><div></div></div>		
Cobalt	0.006	0.013– 0.035	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
Iron	6.7	5.4– 13	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
Germanium	0.065	0.045– 0.065	<div><div></div></div>		<div><div></div></div>		
Rubidium	0.036	0.011– 0.12	<div><div></div></div>		<div><div></div></div>		
Zirconium	0.076	0.02– 0.44	<div><div></div></div>		<div><div></div></div>		
SPECIMEN DATA			RATIOS				



# **HA Case Study: Jim B.**

Jim B.

1-22-2001

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	18	< 12	<div></div>				
Antimony	0.39	< 0.08	<div></div>				
Arsenic	0.46	< 0.12	<div></div>				
Beryllium	< 0.01	< 0.02	<div></div>				
Bismuth	0.052	< 0.08	<div></div>				
Cadmium	0.22	< 0.15	<div></div>				
Lead	9.3	< 2	<div></div>				
Mercury	0.15	< 1.1	<div></div>				
Platinum	0.003	< 0.005	<div></div>				
Thallium	0.001	< 0.01	<div></div>				
Thorium	< 0.001	< 0.005	<div></div>				
Uranium	0.008	< 0.06	<div></div>				
Nickel	0.17	< 0.4	<div></div>				
Silver	0.02	< 0.1	<div></div>				
Tin	0.49	< 0.3	<div></div>				
Titanium	1.4	< 1	<div></div>				
Total Toxic Representation			<div></div>				
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	518	375– 1100	<div></div>				
Magnesium	54	40– 140	<div></div>				
Sodium	88	24– 180	<div></div>				
Potassium	68	20– 80	<div></div>				
Copper	11	9– 26	<div></div>				
Zinc	80	120– 200	<div></div>				
Manganese	0.52	0.2– 0.65	<div></div>				
Chromium	0.46	0.2– 0.45	<div></div>				
Vanadium	0.043	0.018– 0.065	<div></div>				
Molybdenum	0.083	0.04– 0.1	<div></div>				
Boron	1.9	0.7– 4	<div></div>				
Iodine	0.48	0.25– 1.3	<div></div>				
Lithium	0.005	0.008– 0.04	<div></div>				
Phosphorus	262	250– 400	<div></div>				
Selenium	1.1	0.95– 1.7	<div></div>				
Strontium	3.7	1– 6	<div></div>				
Sulfur	37800	42000– 49000	<div></div>				
Barium	1.4	0.5– 3	<div></div>				
Cobalt	0.013	0.013– 0.05	<div></div>				
Iron	35	5.8– 14	<div></div>				
Germanium	0.046	0.045– 0.065	<div></div>				
Rubidium	0.035	0.03– 0.25	<div></div>				
Zirconium	5.2	0.04– 1	<div></div>				
SPECIMEN DATA			RATIOS				

425



Jim B.

2-11-2002

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>		95 <sup>th</sup>		
Aluminum	6.5	< 12	<div><div></div></div>				
Antimony	0.08	< 0.08	<div><div></div></div>				
Arsenic	0.42	< 0.12	<div><div></div></div>				
Beryllium	< 0.01	< 0.02	<div><div></div></div>				
Bismuth	0.009	< 0.08	<div><div></div></div>				
Cadmium	0.21	< 0.15	<div><div></div></div>				
Lead	1.6	< 2.0	<div><div></div></div>				
Mercury	0.28	< 1.1	<div><div></div></div>				
Platinum	< 0.003	< 0.005	<div><div></div></div>				
Thallium	< 0.001	< 0.01	<div><div></div></div>				
Thorium	< 0.001	< 0.005	<div><div></div></div>				
Uranium	0.019	< 0.06	<div><div></div></div>				
Nickel	0.07	< 0.4	<div><div></div></div>				
Silver	0.02	< 0.1	<div><div></div></div>				
Tin	0.28	< 0.3	<div><div></div></div>				
Titanium	0.29	< 1.0	<div><div></div></div>				
Total Toxic Representation			<div><div></div></div>				
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	349	375– 1100	<div><div></div></div>				
Magnesium	40	40– 140	<div><div></div></div>				
Sodium	89	24– 180	<div><div></div></div>				
Potassium	120	20– 80	<div><div></div></div>				
Copper	9.3	9.0– 26	<div><div></div></div>				
Zinc	120	120– 200	<div><div></div></div>				
Manganese	0.19	0.2– 0.65	<div><div></div></div>				
Chromium	0.39	0.2– 0.45	<div><div></div></div>				
Vanadium	0.029	0.018– 0.065	<div><div></div></div>				
Molybdenum	0.092	0.04– 0.1	<div><div></div></div>				
Boron	2.6	0.7– 4.0	<div><div></div></div>				
Iodine	0.94	0.25– 1.3	<div><div></div></div>				
Lithium	0.013	0.008– 0.04	<div><div></div></div>				
Phosphorus	300	250– 400	<div><div></div></div>				
Selenium	1.6	0.95– 1.7	<div><div></div></div>				
Strontium	5.9	1.0– 6.0	<div><div></div></div>				
Sulfur	44600	42000– 49000	<div><div></div></div>				
Barium	0.9	0.5– 3.0	<div><div></div></div>				
Cobalt	0.007	0.013– 0.05	<div><div></div></div>				
Iron	28	5.8– 14	<div><div></div></div>				
Germanium	0.047	0.045– 0.065	<div><div></div></div>				
Rubidium	0.12	0.03– 0.25	<div><div></div></div>				
Zirconium	0.88	0.04– 1.0	<div><div></div></div>				
SPECIMEN DATA			RATIOS				





**Hair Elements**  
**Test Date: 1/21/2005**

**Patient: RM**  
**Age: 57 yrs**

- Primary Symptoms:**
- Menopause
  - Diverticulitis
  - Sinusitis
  - Hypothyroid

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>		95 <sup>th</sup>		
Aluminum	2.8	< 12					
Antimony	0.024	< 0.060					
Arsenic	2.0	< 0.090					
Beryllium	< 0.01	< 0.020					
Bismuth	0.036	< 0.13					
Cadmium	0.19	< 0.10					
Lead	0.20	< 1.0					
Mercury	0.31	< 1.1					
Platinum	< 0.003	< 0.005					
Thallium	< 0.001	< 0.010					
Thorium	< 0.001	< 0.005					
Uranium	0.012	< 0.060					
Nickel	0.12	< 0.40					
Silver	0.03	< 0.10					
Tin	0.26	< 0.30					
Titanium	2.0	< 1.0					
Total Toxic Representation							
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	1230	475- 1500					
Magnesium	220	45- 180					
Sodium	950	24- 180					
Potassium	160	20- 80					
Copper	10	9.0- 24					
Zinc	190	130- 200					
Manganese	0.62	0.20- 0.65					
Chromium	0.83	0.20- 0.45					
Vanadium	0.034	0.018- 0.065					
Molybdenum	0.13	0.040- 0.10					
Boron	2.4	0.70- 4.0					
Iodine	0.48	0.25- 1.3					
Lithium	0.023	0.008- 0.040					
Phosphorus	698	350- 600					
Selenium	1.1	0.95- 1.7					
Strontium	37	1.0- 8.0					
Sulfur	48200	43000- 50000					
Barium	3.0	0.50- 5.0					
Cobalt	0.010	0.013- 0.050					
Iron	30	5.8- 14					
Germanium	0.032	0.045- 0.065					
Rubidium	0.15	0.030- 0.25					
Zirconium	0.39	0.040- 1.0					

# **Final Thoughts in Hair Testing**

- **Hair grows from within the cell so the findings indicate what is happening inside the body.**
- **If it is on you or in your environment it is in you.**

# **Final Thoughts in Hair Testing**

- **Heavy metals are rarely seen in the blood except for recent exposure**



# Final Thoughts in Hair Testing

- **We commonly test the water for contamination sources.**
- **Test the water coming into the house**
- **Test the water used for showers/bathing.**
- **Test the water used for drinking**
  - **Improperly installed filtration system have revealed high toxic elements.**

# Final Thoughts in Hair Testing

- **SBN Hair testing also shows mineral levels**
  - High levels can be toxic especially copper
  - Low levels are important to identify

## Heavy metals in Electric Car Batteries

- **NMC batteries, which accounted for 72% of batteries used in EVs in 2020 (excluding China), have a cathode composed of nickel, zinc, manganese, and cobalt along with lithium.**

# **Patient: S P – Presenting Symptoms**

- **Ulcerative Colitis (major flare up about once a year, has blood in stool 6 months out of year)**
- **High blood pressure**
- **Low energy**
- **Dry skin**
- **edema**

# **S P - Medications**

- **Norvasc – high blood pressure**
- **HCTZ – (in conjunction w/ Norvasc)**
- **FemHRT – hormone replacement**
- **Colazol – ulcerative colitis**
- **Prednizone – ulcerative colitis**
- **Pentasa – ulcerative colitis**

# S.P. 1st Hair Results 5/29/02

POTENTIALLY TOXIC ELEMENTS							
TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			68 <sup>th</sup>	95 <sup>th</sup>			
Aluminum	2.4	< 7.0					
Antimony	0.013	< 0.05					
Arsenic	0.08	< 0.06					
Beryllium	< 0.01	< 0.02					
Bismuth	0.042	< 0.1					
Cadmium	0.098	< 0.1					
Lead	0.14	< 1.0					
Mercury	0.77	< 1.1					
Platinum	< 0.003	< 0.005					
Thallium	< 0.001	< 0.01					
Thorium	< 0.001	< 0.005					
Uranium	0.22	< 0.06					
Nickel	0.33	< 0.4					
Silver	0.01	< 0.15					
Tin	0.37	< 0.3					
Titanium	0.48	< 1.0					
Total Toxic Representation							
ESSENTIAL AND OTHER ELEMENTS							
ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	614	300 - 1200					
Magnesium	120	35 - 120					
Sodium	250	12 - 90					
Potassium	5.0	8.0 - 38					
Copper	15	12 - 35					
Zinc	250	140 - 220					
Manganese	0.44	0.15 - 0.65					
Chromium	0.23	0.2 - 0.4					
Vanadium	< 0.008	0.018 - 0.065					
Molybdenum	0.033	0.028 - 0.056					
Boron	0.66	0.3 - 2.0					
Iodine	0.32	0.25 - 1.3					
Lithium	0.01	0.007 - 0.023					
Phosphorus	185	160 - 250					
Selenium	0.89	0.95 - 1.7					
Strontium	0.59	0.5 - 7.6					
Sulfur	47700	44500 - 52000					
Barium	1.2	0.26 - 3.0					
Cobalt	0.21	0.013 - 0.05					
Iron	14	5.4 - 14					
Germanium	0.044	0.045 - 0.065					
Rubidium	0.009	0.007 - 0.096					
Zirconium	0.31	0.02 - 0.42					
SPECIMEN DATA			RATIOS			435	



# S.P.

## 1<sup>st</sup> Blood Results

### 5/25/02

Test Description	Current Result	Current Rating	Prior Result	Delta	Healthy	Clinical	Units
Date: 05/25/2002							
Glucose	76.00	lo			84.10 - 100.00	65.00 - 109.00	mg/dL
Hemoglobin A1C (Gly-Hgh)	5.30	Opt			4.61 - 5.40	4.50 - 5.70	%
Uric Acid	5.60	Opt			4.10 - 6.00	2.40 - 8.20	mg/dL
Blood Urea Nitrogen (BUN)	12.00	lo			13.10 - 18.00	5.00 - 26.00	mg/dL
Creatinine	0.80	Opt			0.61 - 0.90	0.50 - 1.50	mg/dL
BUN / Creatinine Ratio	15.00	Opt			13.10 - 17.00	7.50 - 18.50	ratio
Sodium	141.00	Opt			140.10 - 144.00	135.00 - 148.00	meq/dL
Potassium	3.40	LO			3.91 - 4.60	3.50 - 5.50	meq/dL
Chloride	102.00	Opt			100.10 - 106.00	96.00 - 109.00	meq/dL
Magnesium	2.30	Opt			2.21 - 2.50	1.60 - 2.60	mg/dL
Calcium	9.20	lo			9.71 - 10.10	8.50 - 10.60	mg/dL
Phosphorus	2.80	lo			3.41 - 4.00	2.50 - 4.50	mg/dL
Calcium/Albumin Ratio	2.30	Opt			2.10 - 2.50	2.03 - 2.71	ratio
Total Protein	6.80	lo			7.11 - 7.61	6.00 - 8.50	gm/dL
Albumin	4.00	lo			4.10 - 4.51	3.50 - 5.50	gm/dL
Globulin	2.80	lo			2.81 - 3.51	1.50 - 4.50	gm/dL
A/G Ratio	1.40	Opt			1.22 - 1.60	1.10 - 2.50	ratio
Total Bilirubin	0.30	lo			0.39 - 0.93	0.10 - 1.20	mg/dL
Alkaline Phosphatase	60.00	lo			60.10 - 85.10	25.00 - 165.00	mu/mL
LDH	167.00	hi			120.10 - 160.00	100.00 - 250.00	mu/mL
SGOT (AST)	20.00	Opt			18.10 - 26.00	6.00 - 40.00	mu/mL
SGPT (ALT)	12.00	lo			18.10 - 26.00	6.00 - 40.00	mu/mL
GGT	13.00	Opt			10.10 - 36.00	6.00 - 65.00	mu/mL
Serum Iron	106.00	Opt			85.10 - 120.00	35.00 - 155.00	mcg/dL
Ferritin	42.00	Opt			30.10 - 218.30	22.00 - 322.00	ng/mL
Cholesterol	214.00	HI			150.10 - 180.00	100.00 - 199.00	mg/dL
Triglyceride	104.00	Opt			80.10 - 115.00	10.00 - 199.00	mg/dL
HDL Cholesterol	81.00	Opt			55.10 - 120.00	40.00 - 150.00	mg/dL
LDL Cholesterol	112.00	HI			50.10 - 75.00	6.00 - 99.00	mg/dL
VLDL Cholesterol	20.00	hi			5.10 - 20.00	4.00 - 40.00	mg/dL
Total Cholesterol / HDL Ratio	2.60	Opt			-0.01 - 4.00	-0.02 - 5.00	ratio
T4 Thyroxine	7.70	Opt			7.10 - 9.00	4.50 - 12.00	mcg/dL
T3 Uptake	25.00	lo			35.10 - 40.00	24.00 - 39.00	%
T7 Free Thyroxine Index	1.90	lo			2.61 - 3.60	1.20 - 4.90	
White Blood Count	7.00	Opt			5.10 - 8.00	4.00 - 10.50	k/cumm
Red Blood Count	4.00	lo			4.51 - 5.50	3.80 - 5.60	m/cumm
Hemoglobin	12.30	lo			13.91 - 15.00	11.50 - 17.00	gm/dL
Hematocrit	36.00	lo			39.51 - 47.00	34.00 - 50.00	%
MCV	90.00	Opt			85.10 - 97.00	80.00 - 98.00	cu.m
MCH	30.80	Opt			28.10 - 32.00	27.00 - 34.00	pg
MCHC	34.30	Opt			33.10 - 34.99	32.00 - 36.00	%
Platelets	373.00	hi			175.10 - 250.00	140.00 - 415.00	k/cumm
Polys (SEGS-PMNS)	56.00	Opt			55.10 - 65.00	40.00 - 74.00	%
Lymphocytes	35.00	Opt			25.10 - 40.00	14.00 - 46.00	%
Monocytes	5.00	lo			5.10 - 7.10	4.90 - 13.00	%
Eosinophils	3.00	Opt			-0.01 - 4.00	-0.02 - 7.00	%
Basophils	1.00	hi			-0.01 - 0.00	-0.02 - 3.00	%
Erythrocyte Sed Rate (ESR)	10.00	hi			-0.01 - 8.00	-0.02 - 30.00	mm/HR
CRP C-Reactive Protein	14.20	HI			-0.01 - 0.00	-0.02 - 4.90	mg/L
Creatine Kinase	79.00	Opt			50.50 - 150.00	24.00 - 204.00	u/l

# **S P – Primary Findings**

- **Hypercholesterolemia**
  - Total Cholesterol, LDL, VLDL
- **Hypoglycemia**
  - Glucose
- **Low Minerals**
  - Calcium, Phosphorus
- **Low Serum Potassium**
- **Gastro/Intestinal dysfunction**
  - BUN, Calcium, Protein, Albumin
- **Low Functioning Thyroid-T3, T7**
- **Anemia- RBC, Hgb, Hct**
- **Possible infection and/or inflammation**
  - ESR, CRP
- **Chronic Wasting Disorder- Alk Phos**
- **Very High Hair Uranium; Very High Hair Cobalt; Very Low Hair Vanadium**

# S P – Vitamin List

- 2 - Betaine 496mg + Pepsin 140mg
- Calcium 1500mg/day
- Chlorella 750mg/day
- Co-Q-10 150mg/day
- 4 - Thyroid Support with Tyrosine and chromium
- 1 - B-Complex
- 3 - Garlic
- 3 - Turmeric, ginger, bioflavonoids
- Mag. Glycinate 300mg/day
- 2 - Omega-3's EPA,DHA
- 3 - Multiple
- Potassium 99mg/day
- 2 - Chelated trace minerals
- 3 - B12, Folic acid
- Vanadyl Sulfate 500mg/day
- Vitamin C 3000mg
- Vitamin D 5000IU/day + Vit. A 10,000IU/day
- Vit. E 400IU/day w/selenium 50mcg/day
- Zinc 50mg/day

# **S. P. – Self Evaluation**

## **10/23/02**

- **Poor memory/concentration – better**
- **Arthritis – worse**
- **High blood pressure – better**
- **Ulcerative colitis – better**
- **Rough skin – worse**
- **Frequent urination – worse**
- **Patient stopped her HCTZ (for high BP), reduced her Norvasc (for high BP) in half, and reduced her Colazol (for Ulcerative Colitis) by 2/3**

# S.P. 2<sup>nd</sup> blood Results 10/04/2002

Test Description	Current Result Date: 10/04/2002	Current Rating	Prior Result 05/25/2002	Delta	Healthy	Clinical	Units
Glucose	87.00	Opt	76.00	☺	84.10 - 100.01	65.00 - 109.00	mg/dL
Hemoglobin A1C (Gly-Hgh)	5.10	Opt	5.30		4.61 - 5.40	4.50 - 5.70	%
Uric Acid	3.50	lo	5.60	☹	4.10 - 6.00	2.40 - 8.20	mg/dL
BUN (Blood Urea Nitrogen)	10.00	lo	12.00	☹	13.10 - 18.00	5.00 - 26.00	mg/dL
Creatinine	0.80	Opt	0.80		0.61 - 0.90	0.50 - 1.50	mg/dL
BUN / Creatinine Ratio	12.00	lo	15.00	☹	13.10 - 17.00	7.50 - 18.50	ratio
Sodium	141.00	Opt	141.00		140.10 - 144.00	135.00 - 148.00	meq/dL
Potassium	3.80	lo	3.40	☺	3.91 - 4.60	3.50 - 5.50	meq/dL
Chloride	103.00	Opt	102.00		100.10 - 106.00	96.00 - 109.00	meq/dL
Magnesium	2.20	lo	2.30	☹	2.21 - 2.50	1.60 - 2.60	mg/dL
Calcium	9.60	lo	9.20	☺	9.71 - 10.10	8.50 - 10.60	mg/dL
Phosphorus	3.30	lo	2.80	☺	3.41 - 4.00	2.50 - 4.50	mg/dL
Calcium/Albumin Ratio	2.34	Opt	2.30		2.10 - 2.50	2.03 - 2.71	ratio
Total Protein	6.90	lo	6.80	☺	7.11 - 7.61	6.00 - 8.50	gm/dL
Albumin	4.10	Opt	4.00	☺	4.10 - 4.51	3.50 - 5.50	gm/dL
Globulin	2.80	lo	2.80	☺	2.81 - 3.51	1.50 - 4.50	gm/dL
A/G Ratio	1.40	Opt	1.40		1.22 - 1.60	1.10 - 2.50	ratio
Total Bilirubin	0.30	lo	0.30	☺	0.39 - 0.93	0.10 - 1.20	mg/dL
Alkaline Phosphatase	48.00	lo	60.00	☹	60.10 - 85.10	25.00 - 165.00	mu/mL
LDH	174.00	hi	167.00	☹	120.10 - 160.00	100.00 - 250.00	mu/mL
SGOT (AST)	25.00	Opt	20.00		18.10 - 26.00	6.00 - 40.00	mu/mL
SGPT (ALT)	20.00	Opt	12.00	☺	18.10 - 26.00	6.00 - 40.00	mu/mL
GGT	11.00	Opt	13.00		10.10 - 36.00	6.00 - 65.00	mu/mL
Serum Iron	92.00	Opt	106.00		85.10 - 120.00	35.00 - 155.00	mcg/dL
Ferritin	37.00	Opt	42.00		30.10 - 218.30	22.00 - 322.00	ng/mL
Cholesterol	184.00	hi	214.00	☺	150.10 - 180.00	100.00 - 199.00	mg/dL
Triglyceride	52.00	lo	104.00	☹	80.10 - 115.00	10.00 - 199.00	mg/dL
HDL Cholesterol	66.00	Opt	81.00		55.10 - 120.00	40.00 - 150.00	mg/dL
LDL Cholesterol	107.00	hi	112.00	☺	50.10 - 75.00	6.00 - 99.00	mg/dL
VLDL Cholesterol	10.00	Opt	20.00	☺	5.10 - 20.00	4.00 - 40.00	mg/dL
Total Cholesterol / HDL Ratio	2.70	Opt	2.60		-0.01 - 4.00	-0.02 - 5.00	ratio
T4 Thyroxine	8.90	Opt	7.70		7.10 - 9.00	4.50 - 12.00	mcg/dL
T3 Uptake	25.00	lo	25.00	☺	35.10 - 40.00	24.00 - 39.00	%
T7 Free Thyroxine Index	2.20	lo	1.90	☹	2.61 - 3.60	1.20 - 4.90	
White Blood Count	5.00	lo	7.00	☹	5.10 - 8.00	4.00 - 10.50	k/cumm
Red Blood Count	4.11	lo	4.00	☺	4.51 - 5.50	3.80 - 5.60	m/cumm
Hemoglobin	12.40	lo	12.30	☺	13.91 - 15.00	11.50 - 17.00	gm/dL
Hematocrit	37.00	lo	36.00	☺	39.51 - 47.00	34.00 - 50.00	%
MCV	90.00	Opt	90.00		85.10 - 97.00	80.00 - 98.00	cu.m
MCH	30.30	Opt	30.80		28.10 - 32.00	27.00 - 34.00	pg
MCHC	33.60	Opt	34.30		33.10 - 34.99	32.00 - 36.00	%
Platelets	332.00	hi	373.00	☺	175.10 - 250.00	140.00 - 415.00	k/cumm
Polys (SEGS-PMNS)	51.00	lo	56.00	☹	55.10 - 65.00	40.00 - 74.00	%
Lymphocytes	38.00	Opt	35.00		25.10 - 40.00	14.00 - 46.00	%
Monocytes	7.00	Opt	5.00	☺	5.10 - 7.10	4.90 - 13.00	%
Eosinophils	3.00	Opt	3.00		-0.01 - 4.00	-0.02 - 7.00	%
Basophils	1.00	hi	1.00	☺	-0.01 - 0.00	-0.02 - 3.00	%
ESR (Erythrocyte Sed Rate)	7.00	Opt	10.00	☺	-0.01 - 8.00	-0.02 - 30.00	mm/HR
CRP C-Reactive Protein	1.70	hi	14.20	☺	-0.01 - 0.00	-0.02 - 4.90	mg/L
Creatine Kinase	97.00	Opt	79.00		50.50 - 150.00	24.00 - 204.00	u/l



# Pancreas removal averted

- Patient First Name: Susan; Patient DOB: 4/13/1958; Sex: Female
- 2/9/22 Signature: Dr. Laura.
- Comment: This patient just had a CT scan and MRI done of her **pancreas and is being told she has to have it removed because it is double in size. The final diagnosis is chronic pancreatitis.** Her CA 19 was 69. I have a couple questions. What blood tests would have caught this? 2. She definitely doesn't want her pancreas removed, so I would appreciate guidance on a supplement route. Thank you.
- Replied on 2/9/22 at 9:32 AM
- The cancer panel would likely have caught it as you noted the CA 19 is elevated. This is possible a recent acute situation. do another SBN panel and CA 19 to see if the cancer is getting higher. Then do the Cat 1 diet and cancer protocol, must be strict for the next 2 weeks then retest. I would start the Cat 1 and protocol AFTER she retests to get a good baseline before starting your treatment protocol to get her healthy. should see good progress in a couple of weeks if you can help. compliance is likely the key.
- however, we have seen crazy labs after the covid vaccines, this might be one of those. when did she have the vaccine, and how many covid vaccines? IS she on any other meds?
- Van



# **Pancreas removal averted cont.**

- **Signs of pancreatic failure?**
  - **White or clay colored stools**
  - **Stools that float**
  - **Poorly formed stool**

# Pancreas removal averted cont.

- Replied on *11/26/22 at 9:11 AM*
- Creon is a lipase medication. I would use something like PanX10, maybe Ultrazyme and use high doses. I would lean more to PanX10 due to the severity. maybe 2-4/meal maybe between meals too. should take maybe 20 a day.
- the labs look better overall and pt reports stools are darker and not floating.
- I don't see anything urgent.
- I haven't seen the pt but the labs would indicate to stay the course.
- V

# Pancreas removal averted cont.

- Replied on 4/23/23 at 3:39 PM

Mayo, Northwestern and Barnes are all still pushing for surgery for this patient. ( removing the pancreas, spleen, gallbladder and part of the small intestine. Her scans have barely changed, and her Ca19-9 is not increasing. I suggested she get another opinion from Envita in Scottsdale. What are your thoughts. Her hair has improved, and her stools are still darker and more solid. She feels fine also. Should we change anything?

- Dr. Van replied on 4/24/23 at 8:48 AM

I would recommend stay the course for another 3-6 months. especially with these lab numbers. no rush to do anything. I am quite familiar with Envita and that is who I would get a second opinion from but even then, no rush.

the WBC has been this low before.

maybe reduce iron intake and increase silymarin a little to try to lower the iron and ferritin. not sure I would dump a pint of blood, but it wouldn't be bad if she lost a little.

Stay on the same diet and vitamins except as noted above.

good job.

Van

# My Breakfast



**The END**

## **PRESS ON:**

- Nothing in the world can take the place of persistence.
- **Talent** will not; nothing is more common than unsuccessful men with talent.
- **Genius** will not; unrewarded genius is almost a proverb.
- **Education** alone will not; The world is full of educated derelicts.
- **Persistence and determination alone are omnipotent.**

**Calvin Coolidge**



# Neurological Disorders and Longevity

## Fetterman Symposium

- Van D Merkle DC, DCBCN, DABCI, CCN



Diagnostic  
Errors: 1 of  
every 14  
patients  
hospitalized.  
Accepted 12  
August 2024

- Harmful DEs were frequently characterized as delays (61.9%). Severely harmful DEs were frequent in high-risk cases (55.1%). In multivariable models, process failures in assessment, diagnostic testing, subspecialty consultation, patient experience, and history were significantly associated with harmful DEs.
- Conclusions We estimate that a harmful DE occurred in 1 of every 14 patients hospitalised on general medicine, the majority of which were preventable.

# Mirror, Mirror 2024: A Portrait of the Failing U.S. Health System Comparing Performance in 10 Nations

## Abstract

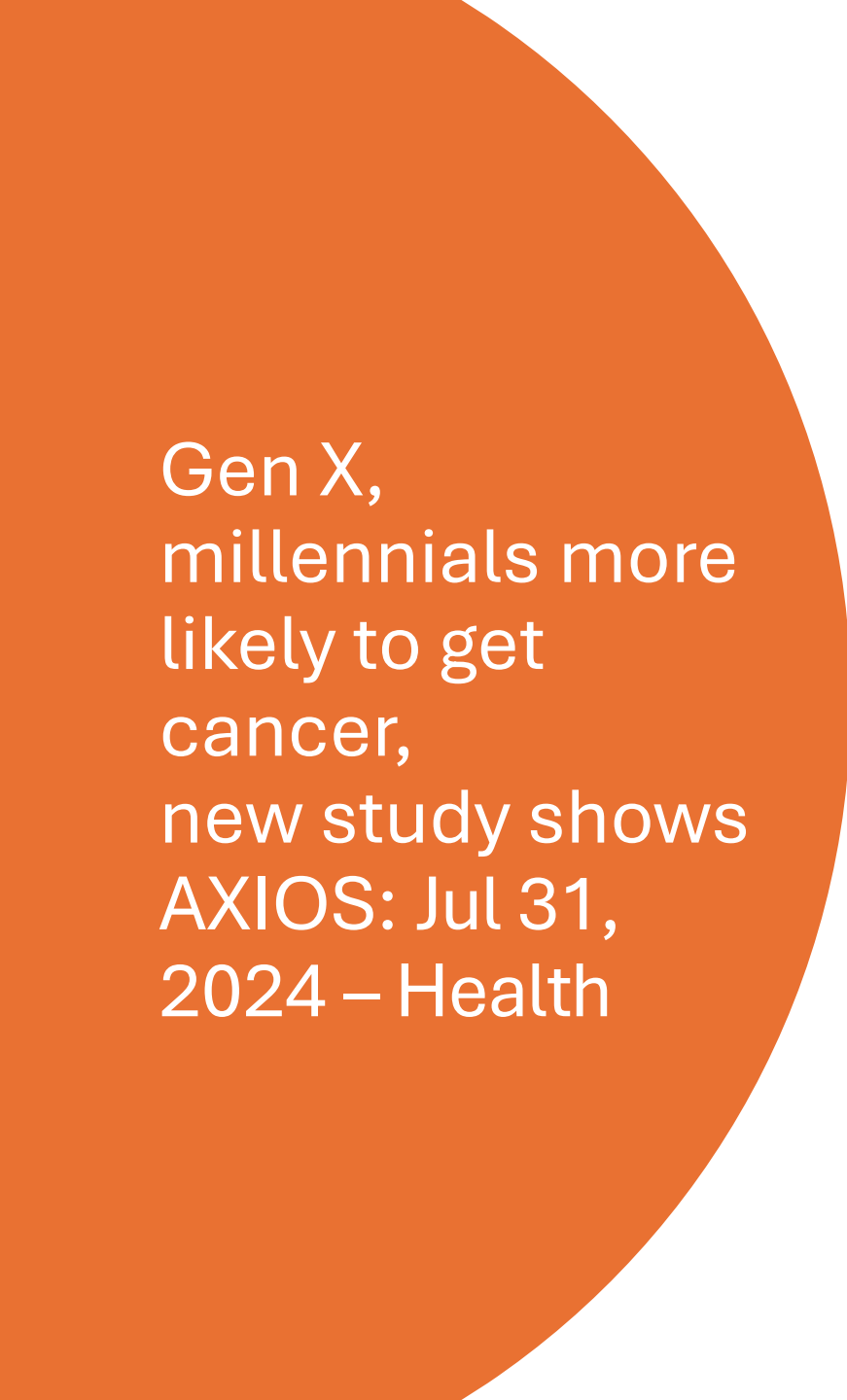
- Goal: Compare health system performance in 10 countries, including the United States, to glean insights for U.S. improvement.
- Methods: Analysis of 70 health system performance measures in five areas: access to care, care process, administrative efficiency, equity, and health outcomes.
- Key Findings: The top three countries are Australia, the Netherlands, and the United Kingdom, although differences in overall performance between most countries are relatively small. The only clear outlier is the U.S., where health system performance is dramatically lower.
- Conclusion: *The U.S. continues to be in a class by itself in the underperformance of its health care sector.*
- \Mirror, Mirror 2024 is the Commonwealth Fund's eighth report comparing the performance of health systems in selected countries. Since the first edition in 2004, our goal has remained the same: to highlight lessons from the experiences of these nations, with special attention to how they might inform health system improvement in the United States.

# Swedish Study and Longevity over 100 yr/o

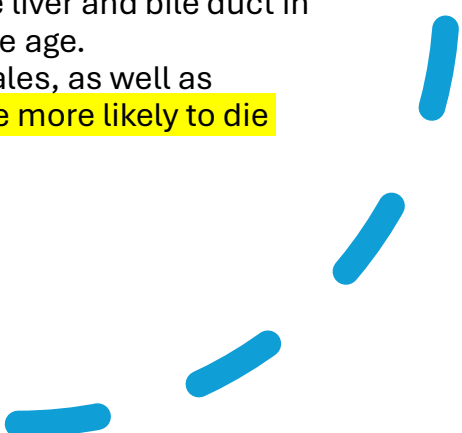
- Bio markers and health, living to age 100.
- The global number of centenarians—**individuals who survive at least to their 100th birthday—has roughly doubled every decade since 1950** and is projected to quintuple between 2022 and 2050.
- Participants in the population-based AMORIS cohort with information on blood-based biomarkers measured during 1985–1996 were followed in Swedish register data for up to 35 years. We examined biomarkers of metabolism, inflammation, liver, renal, anemia, and nutritional status using descriptive statistics, logistic regression, and cluster analysis. In total, **1224 participants (84.6% females)** lived to their 100th birthday.
- The final study population consisted of 44,636 participants followed from their first blood measurement until their date of death. Of these, 1224 individuals (2.7%) reached their 100th birthday, comprising the centenarian population. This proportion is very similar to the chance of reaching 100 in the general population of Stockholm in the same time period

Those reaching 100 years:

- **Higher levels of total cholesterol and iron**
- **And lower levels of: glucose, creatinine, uric acid, aspartate aminotransferase (SGOT), gamma-glutamyl transferase, alkaline phosphatase, lactate dehydrogenase, and total iron-binding capacity.**
- **VAN: There are additional tests that I would add due to living in the USA>**

A large orange circle on the left side of the slide, partially cut off by the edge.

# Gen X, millennials more likely to get cancer, new study shows AXIOS: Jul 31, 2024 – Health

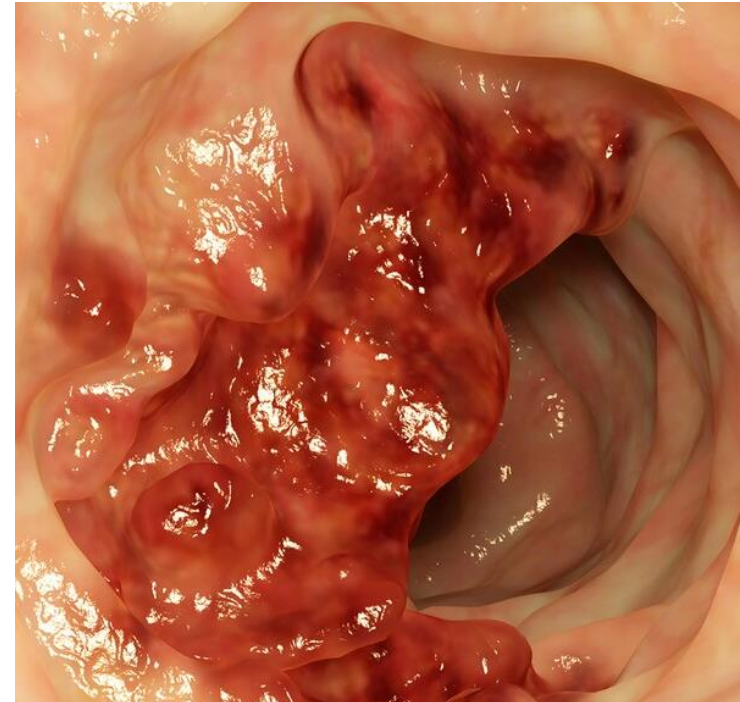
- A sweeping new study is widening the lens on a puzzling uptick in a range of cancers occurring among younger generations of patients.
  - Why it matters: It's the latest evidence that the burden of cancer could rise in the future despite major advances in treatment and prevention.
  - The study from the American Cancer Society found **adults in their 30s, 40s and 50s are more likely than previous generations were to develop 17 different types of cancers**, including breast, liver and pancreatic cancers.
  - Previous research has indicated alarming increases in certain cancers among younger adults, such as colorectal cancer.
  - A National Cancer Institute study published in June concluded Gen Xers were more likely to be diagnosed with cancer as they aged than previous generations, [NPR reported in June](#).
  - What they're saying: "It's really sort of scary to see all in one dataset," said Andrea Cercek, co-director.
  - What they found: The study used data from 23.7 million patients dating back to 1920 through 1990 of 34 cancers examined, half had increased incidence among younger adults, according to the study published Wednesday in *The Lancet*.
  - Incidence of eight different cancers increased with each successive age cohort after 1920.
  - In particular, adults born in the 1990 cohort were two or three times more likely to get cancers of the small intestines, kidney and pancreas (as well as the liver and bile duct in women) compared with those in born in the 1955 cohort at the same age.
  - Zoom in: In the case of five cancers — liver and endometrial in females, as well as gallbladder, testicular, and colorectal cancers — **young adults were more likely to die compared with prior generations.**
- 
- Four blue curved lines of varying lengths and orientations, located in the bottom right corner of the slide.

# Colon Cancer

by Diana Swift, Contributing  
Writer March 9, 2021 MedPage

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- Colon Cancer has doubled in people under 50
- New guideline lowers age to begin colorectal cancer screening
- The update is timely in that 140,000 new cases of CRC are now diagnosed annually in the U.S., she said, with an alarming increase in people younger than 50. The disease is estimated to account for as much as 10% of all cancer deaths.
- Incidence rates have doubled in people ages 20 to 49. It has been estimated that those born around 1990 have twice the risk of colon cancer and quadruple the risk of rectal cancer compared with those born around 1950.



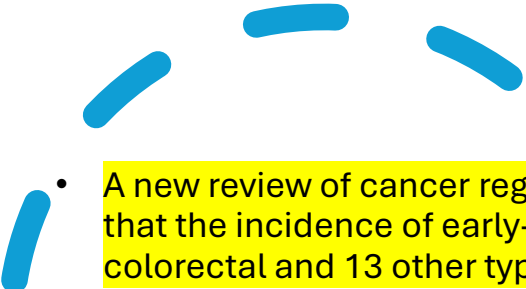


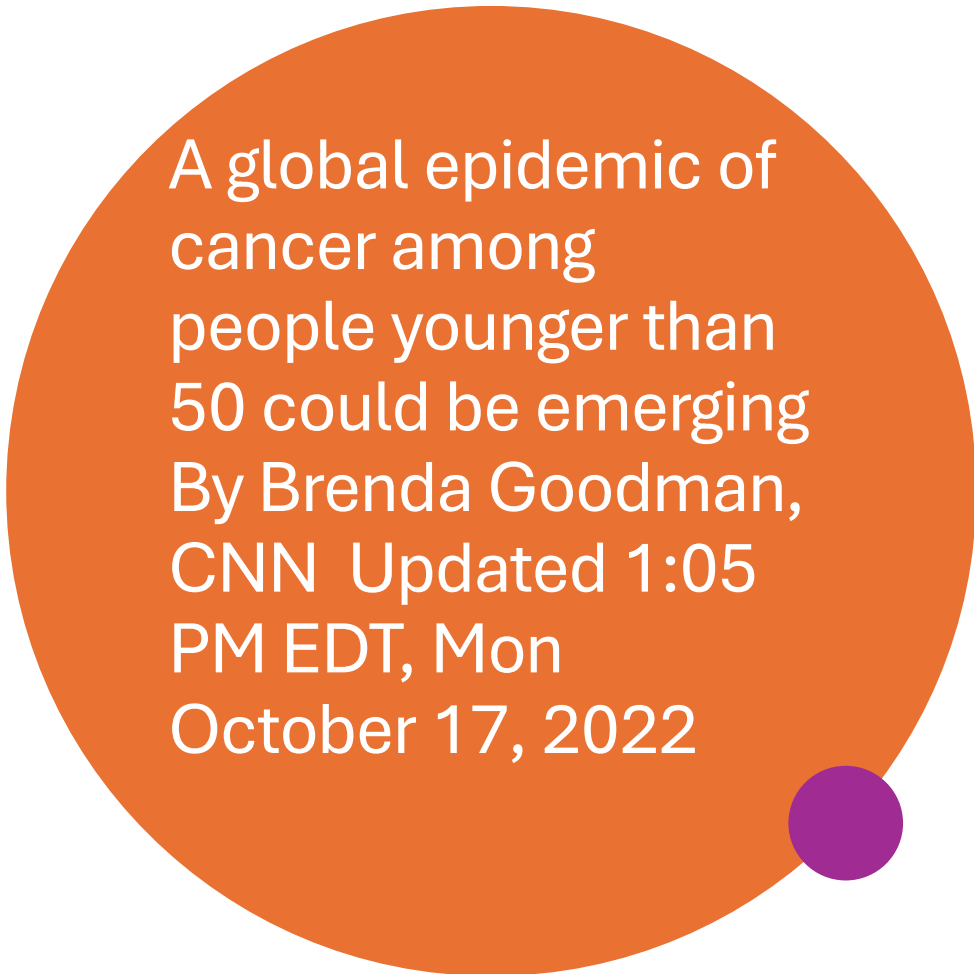
# What are my chances of getting cancer?

## According to 2020 data from the American Cancer Society

- Men have a 40.14 percent—or approximately one in two—chance of developing cancer in their lifetime. The greatest risk is prostate cancer.
- Women, 38.7 percent, or a one in three chance. The greatest risk is Breast Cancer.
- What are my odds of dying from cancer?
  - Men have a 21.34 percent lifetime risk of dying from cancer.
  - Women around 18.33 percent lifetime risk of dying from cancer.
- Data suggests that new cancer diagnoses will grow to 27.5 million by 2040, the odds of survival are getting better.
- According to the National Cancer Institute, the five-year survival rate from 2009 to 2015 in America was 67.1 percent.
- EARLY DETECTION BUT THE END RESULT IS STILL THE SAME.



- 
- A new review of cancer registry records from 44 countries found that the incidence of early-onset cancers is rising rapidly for colorectal and 13 other types of cancers
  - Iana dos Reis Nunes was 43 when she told her husband that she could feel something like a bubble in her abdomen when she lay on her side.
  - An ultrasound scan found spots on her liver, which led to blood tests and a colonoscopy.
  - “There was a tumor the size of your fist, and she had no pain and no problems with bowel movements or anything like that,” recalled Brendan Higgins, her husband, who works as an artist in New York City.
  - By the time doctors found it, dos Reis Nunes’ colon cancer had spread. It was stage 4, meaning it had reached other parts of her body.
  - The family was blindsided.
  - “She had had a baby 15 months prior to her diagnosis, so she’d had a million blood tests, you know, care from doctors and sonograms ... and there was no indication of anything, nothing whatsoever.”
  - When cancer strikes an adult under the age of 50, doctors call it an early-onset case. These cancers at younger ages are becoming more common.



A global epidemic of cancer among people younger than 50 could be emerging  
By Brenda Goodman,  
CNN Updated 1:05 PM EDT, Mon  
October 17, 2022

# Non-GMO and Organic - Mercola July 30, 2024

- "Non-GMO" labeling does not mean chemical-free farming (organic). These crops may still be treated with pesticides and herbicides. Many nonorganic grains are heavily sprayed with toxic pesticides like glyphosate just before harvest, a practice called desiccation.
- A recent study found glyphosate in 44 out of 46 organic and nonorganic gluten-free products tested, with some at alarmingly high levels.
- Glyphosate exposure can disrupt gut health by killing beneficial bacteria and promoting the growth of harmful bacteria. Consuming organic food has been linked to reduced cancer risk, according to a study published in JAMA Internal Medicine.
- The EPA's acceptable daily intake for glyphosate is 7,000 times higher than European standards.

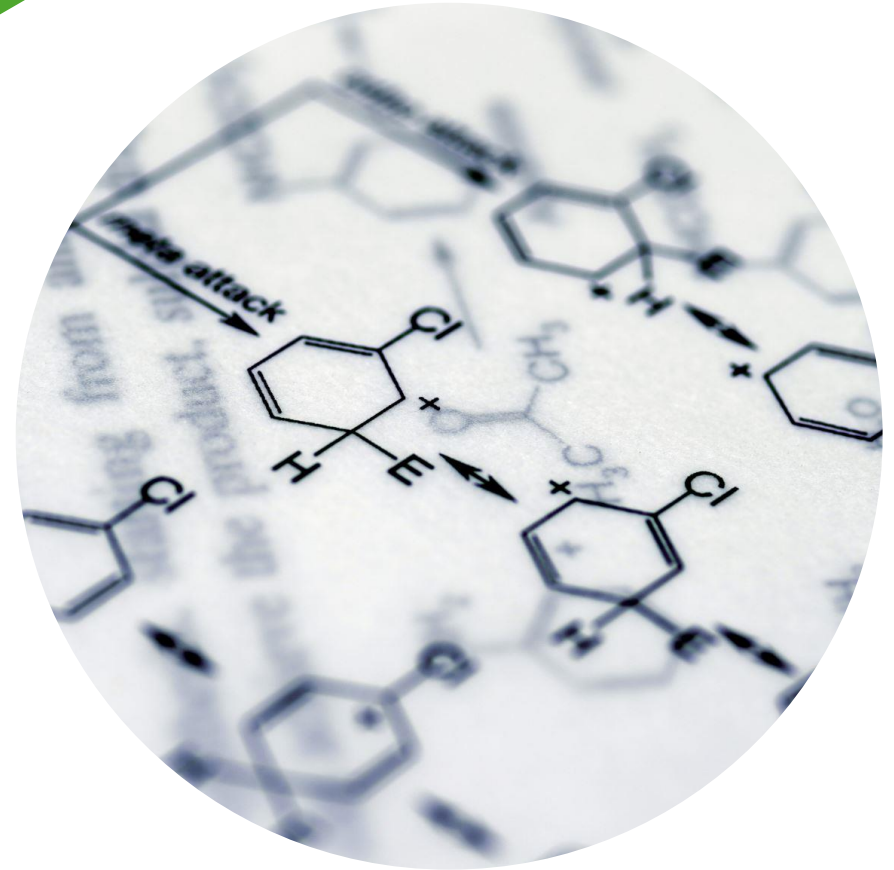
# Tomato Pesticide Application in Florida

- Average number of pesticide applications
  - Mancozeb 20
  - Maneb 12
  - Copper Sulfate 13
  - Chlorothalonil 8
  - Copper Hydroxide 19
  - Copper Oxychloride 7
  - Pesticide applications= 79



# Cholinesterase - chemical exposure and overall health

- This **blood test** looks for signs of chemical poisoning in your blood.
- **Cholinesterase** is an enzyme that helps your nervous system work properly.
- Certain toxic chemicals in the environment can interfere with this enzyme and affect your nervous system. These chemicals include organophosphates and other pesticides and chemicals



# Cholinesterase - chemical exposure and overall health

The Cholinesterase is low. Cholinesterase (aka: Acetylcholinesterase, RBC cholinesterase; Pseudocholinesterase; Plasma cholinesterase; Butyrylcholinesterase; Serum cholinesterase).

Enzymes that are necessary for proper nerve function.

**Low levels of Cholinesterase are seen with chemical exposures, including pesticides and is most often used to determine insecticide exposure or poisoning.**

**Low levels of Cholinesterase are also seen with chronic infection, malnutrition, heart attack, liver damage, metastasis, obstructive jaundice, and inflammation.**

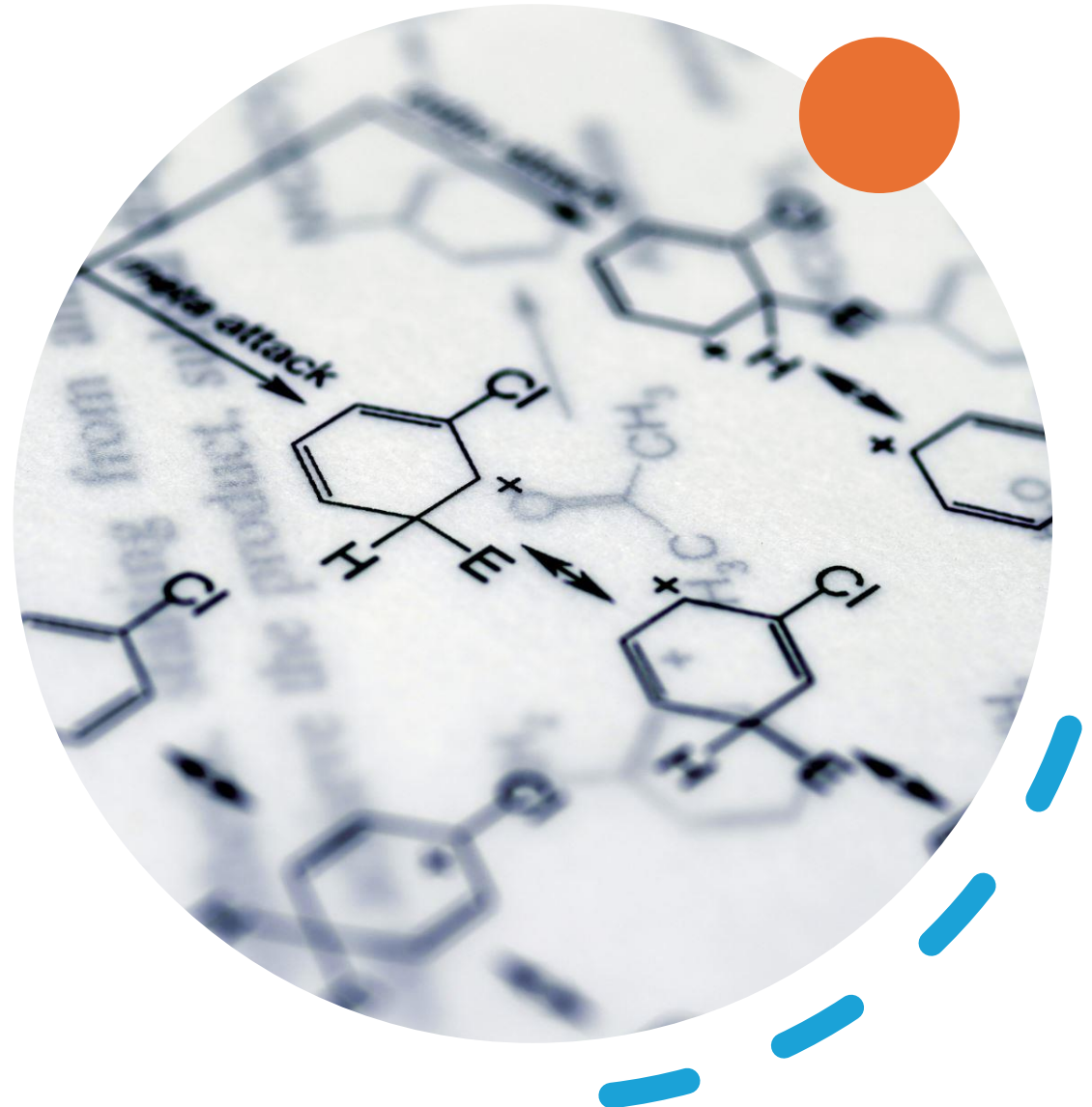
Minor decreases in pregnancy and use of birth control pills.

Common indications of exposures to chemical toxins include miosis (constricted pupils), blurred vision, muscle weakness, involuntary muscle twitching, bradycardia, nausea, diarrhea, vomiting, salivation, sweating, pulmonary edema, arrhythmias and convulsions.

**To support Cholinesterase, increase choline rich foods like eggs and also other healthy foods and anti-inflammatory nutrients.**

**For low levels of Cholinesterase: Brain sustain, SBN CC (double both for - 3), D-Hist, Vit C, B complex**

High levels of Cholinesterase can be seen with diabetes, obesity, thyrotoxicosis, schizophrenia, hypertension, mood disorders or concussion and very high levels are seen with nephrotic syndrome.





# Cholinesterase (Blood test)


## Low Cholinesterase

- Indicates chemical toxins
- Very low could indicate severe poisoning
- Plasma cholinesterase levels are more useful for acute (short-term) exposure, while red cell levels are more useful in the chronic (long-term) setting.

## High Cholinesterase

- A **high** level of **cholinesterase** in the blood may be a consequence of diabetes with obesity, thyrotoxicosis, schizophrenia, hypertension, mood disorders or after a concussion.
- If **cholinesterase** levels are very **high**, the most probable cause is due to nephrotic syndrome

# Forever Chemicals Are Widespread in U.S. Drinking Water - Scientific American January 22, 2021

- Now a study from the Environmental Working Group (EWG), a nonprofit advocacy organization, reveals a widespread problem: the drinking water of a majority of Americans likely contains “forever chemicals.”
  - These compounds may take hundreds, or even thousands, of years to break down in the environment. They can also persist in the human body, potentially causing health problems.
- 



# Diseases associated with PFAS

- Parkinson's
- Thyroid
- Heart
- Auto immune disease
- Kidney disease
- Testicular and kidney cancer
- Ulcerative colitis
- Liver disease



# Perchlorate - rocket fuel USA Today August 15, 2024



- *Perchlorate is a chemical found in rocket fuel, fireworks, matches, highway safety flares, matches, pyrotechnics, explosives, common batteries, and automobile restraints.*
- *FDA has no definition of what a dangerous level is.*
- "Whether you eat organic or not will not influence whether you're going to be exposed to this chemical," said Rogers.
- To avoid drinking it in water, Rogers recommends folks test their water, and if perchlorate is found, they can purchase a reverse osmosis filter to remove it from the tap.

# Perchlorate - rocket fuel USA Today August 15, 2024 cont.

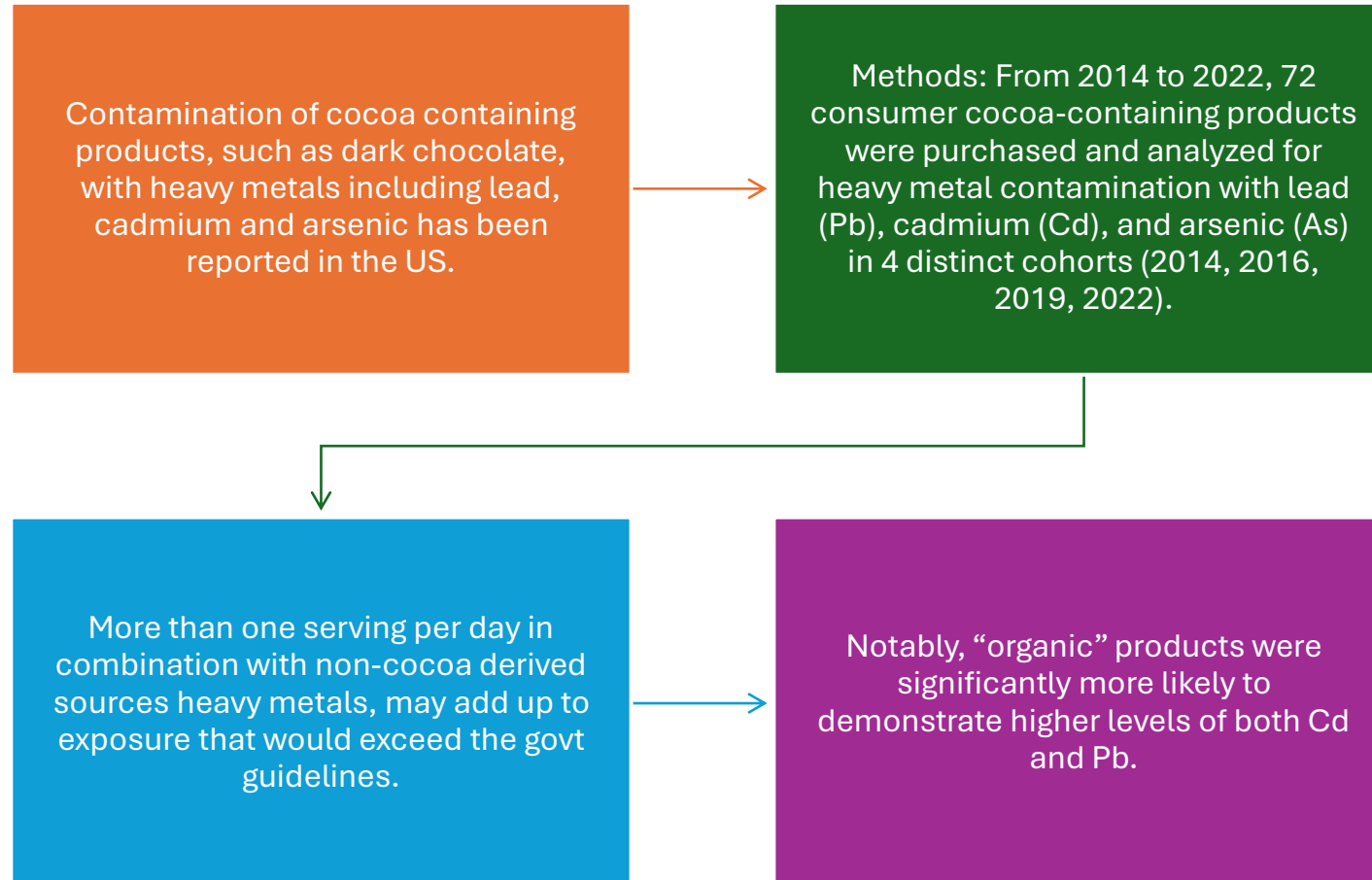
- *Perchlorate affects thyroid function:*
- Thyroid problems can lead to Type 2 Diabetes for adults.
- Children and fetuses can face complications with neurodevelopment, which "can result in a lowering of IQ of the children."
- Exposure to high levels of perchlorate can affect the thyroid in multiple ways, according to the FDA. It can interfere with iodide uptake into the thyroid gland, disrupt thyroid functions, and possibly lead to a reduction in thyroid hormone production.
- *Foods found with Perchlorate:*
  - Beef burritos
  - Chicken sandwiches
  - French fries
  - Fried chicken
  - Chicken nuggets
  - Steak tacos
  - Mac and cheese
  - Rice cereal
  - Multigrain cereal
  - Whole milk yogurt

# Heavy Metals in Baby Food Published in Undark May 16, 2023

- The FDA has no standards for heavy metals in foods beyond the action level for arsenic in infant rice cereal and two draft guidance levels for lead in juice and baby food more broadly.
- And while processed foods can be systematically tested for heavy metals, Hettiarachchi's research has shown that even individual and community gardens can also be contaminated, meaning that the risk of exposure remains even with homemade food.



## A multi-year heavy metal analysis of 72 dark chocolate and cocoa products in the USA





**"The nose is the front door of the brain,"** Dorsey told *MedPage Today*. "It's not protected by the blood-brain barrier. It's not protected by the liver, which does a good job of detoxifying things we ingest. Manganese is a really small molecule, and like other small molecules that can be inhaled, like dry-cleaning chemicals and pesticides, they can damage the dopamine-producing nerve cells in the brain." Dorsey, who has co-authored a book called *Ending Parkinson's Disease*, believes inhaled toxicants play a significant role in the development of Parkinson's disease and other brain diseases, including Alzheimer's disease, noting a recent study linking wildfire smoke with dementia.



"You have a wide range of environmental **toxicants that can be inhaled and damage different nerve cells in the brain,**" he said.

# Parkinson's Pesticides, Chemicals and Dry Cleaning Chemicals TCE

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Parkinson's disease has more than doubled in the past 25 years. A conservative projection based on aging alone suggests that it's going to double again unless we change something about it. It's now the world's fastest-growing brain disease, and it is growing faster than can be explained by aging alone.



Rates of Parkinson's are five times higher in industrialized parts of the world, like the United States and Canada, than they are in sub-Saharan Africa.

# Parkinson's Pesticides and Dry Cleaning TCE

- RO Water filter is necessary to reduce pesticides and chemicals
- TCE Chemicals known to cause cancer, most strongly tied to non-Hodgkin lymphoma, liver cancer, and renal cancer. It's also linked to multiple myeloma, prostate cancer, probably brain cancer, and probably breast cancer, especially in men.
- Chemicals, not only in the drinking water but in the produce you buy, the food you eat, what you put on your lawn, what's on the golf course where you play, and the like.
- Is Most Parkinson's Disease Man-Made and Therefore Preventable?
  - Indu Subramanian, MD; E. Ray Dorsey, MD November 20, 2023
  - E. Ray Dorsey, MD: Thanks very much for having me, Indu. I'm delighted to be with you.
  - Trichloroethylene and PD

## How Energy Drinks Are Draining Your Brain's Power

### The Evolution of Energy Drinks -

Sports drinks market is valued at over \$159 billion.

FEATURED SUGAR

Michelle Standlee

Epoch Health August 5, 2023

Some schools have started to ban energy drinks

How Energy Drinks Affect Neurodegenerative Disorders and accelerated Brain Aging

- Alzheimer's disease "[Energy drinks] are often packaged in aluminum, a neurotoxin that has been linked to Alzheimer's disease."
- ADHD: Food dyes like red dye 40, are common in energy and sports drinks, decrease the absorption of minerals like zinc and iron.
- Fatigue, Insomnia, and Headaches: "Sugar and caffeine crashes are very real."
- Caffeine promotes wakefulness by increasing levels of histamine and glutamate, neurotransmitters that disrupt sleep cycles.
- Anxiety- increases heart rate
- Seizures- the seizures stopped when individuals stopped consuming energy drinks.

How Energy Drinks Affect the Rest of the Body

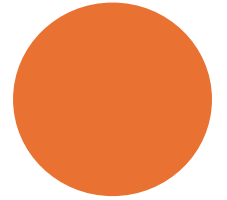
- Diabetes: energy drinks' high sugar content can lead to Type 2 diabetes.
- Stress: caffeine and other stimulating ingredients in energy drinks release excessive amounts of the stress hormone cortisol, leading to adrenal exhaustion, fatigue, and impaired stress response.
- Heart Problems: heart arrhythmias and sudden cardiac death.

# Organic at Whole Foods

- California Style Blend of Organic Vegetables
  - Made in China

There are no verifications for 'organic foods' from China.

Look at the small print on the back of the package





# Ethylene Oxide - to test for chemical toxins

- **Ethylene oxide** is a toxic gas used to make chemicals, sterilize medical devices and food products.
- It can cause acute and chronic health problems, including cancer, and is regulated by the EPA as a hazardous air pollutant.
- **Ethylene oxide** is a flammable gas used to produce other chemicals and to sterilize products. **It is a carcinogen and can damage DNA and cause lymphoma, leukemia, stomach and breast cancers.**
- EtO is a colorless gas used to make chemicals and sterilize devices and food.
- Ethylene oxide is a flammable gas with a sweet odor. It dissolves easily in water, alcohol, and most organic solvents.
- Ethylene oxide is produced in large volumes and is primarily used to make other chemicals; particularly ethylene glycol, a chemical that is used to **make antifreeze and polyester.**
- Most ethylene oxide is used in the factories where it is produced.
- Is used to **control insects on stored agricultural products, to sterilize food and cosmetics, and in hospitals and factories to sterilize medical equipment and supplies.**
- The U.S. Environmental Protection Agency ([EPA 2008](#)) Registration Eligibility Decision document (RED) indicates that approximately 1,900 hospitals in the United States have ethylene oxide sterilization chambers.

# Ethylene Oxide- to test for chemical toxins

- The limited information available regarding ethylene oxide toxicity following dermal exposure suggests that it is a contact dermal and ocular irritant in humans and animals.
- The most sensitive non-cancer targets of ethylene oxide toxicity appear to be hematological, endocrine, neurological, reproductive, and developmental endpoints; cancer effects also occur at lower exposure levels.
- A systematic review of non-cancer endpoints (see [Appendix C](#) for details) resulted in the following hazard identification conclusions:
  - Respiratory effects represent a presumed health effect endpoint for humans
  - Hematological effects represent a suspected health effect endpoint for humans
  - Endocrine system is a suspected health effect endpoint for humans
  - Neurotoxicity is a presumed health effect for humans
  - Reproductive toxicity is a presumed health effect for humans
  - Developmental toxicity is a presumed health effect for humans

# MMP-9 - inflammation and diseases

- MMP-9 is a marker of inflammation, tissue remodeling, wound healing, and mobilization of tissue-bound growth factors and cytokines.
- Its expression correlates with abnormal collagen deposition accompanying pancreatic cancer, with lymph node metastasis in breast cancer and with regional vessel invasion by giant cell tumor or bone.
- MMP-9 contributes to the pathogenesis of numerous clinical disease states, including rheumatic arthritis, coronary artery disease, chronic obstructive pulmonary disease, multiple sclerosis, asthma, and cancer.
- Nutrients for high levels: SBN IFM, SBN CC, D-Hist, Lauricidin, Vitality C

# Beta Amyloid 42,40 and 42/40

- The plasma A42/40 ratio is intended for use as an adjunct to diagnostic evaluations of Alzheimer's disease (AD), including neurological and cognitive performance examinations and PET neuroimaging.
- The diagnostic hallmarks of Alzheimer's disease (AD) are extracellular deposits of beta amyloid plaques and neurofibrillary tangles observed in the cortex and limbic brain region upon autopsy.
- The major molecular components of beta amyloid plaques and neurofibrillary tangles are beta amyloid 1-42 and tau proteins, aggregate to form amyloid plaques.
- Reduced concentrations of beta amyloid 42 in EDTA plasma are associated with increased retention of beta amyloid tracers in the brain beta amyloid plaques observed with positron emission tomography (PET) and are inversely correlated.
- Low beta amyloid 42/40 ratios are more associated with patients having a clinical diagnosis of AD or beta amyloid PET positivity.
- Higher ratios are less associated with AD diagnosis or beta amyloid PET positivity.

Beta Amyloid 42, 40  
and 42/40 -  
Alzheimer's and  
Vision loss  
from Mercola  
January 2024 and  
parts: Lancet  
Volume  
38100988 August  
2021

- Amyloid Beta deposition is seen with AD and in vision loss, plus the eye is kind of an extension of the brain. If the brain is deteriorating so, are the eyes.
- One study, published in Alzheimer's & Dementia,<sup>4</sup> found a correlation between A $\beta$  accumulation and glucose metabolism in the brains of Alzheimer's patients. Contrary to popular belief, regions with higher average glucose metabolism showed greater A $\beta$  deposition. This suggests that A $\beta$  may accumulate more readily in areas of the brain with higher metabolic activity as a protective measure. (OR is this a sign of Type 3 diabetes? Van)
- Normal cognition and hippocampal volume are associated with preservation of high soluble A $\beta$ 42 levels despite increasing brain amyloidosis.
- Think of A $\beta$  as your brain's attempt to shield itself from damage in its most active regions. However, this protection appears to have limits. In individual brain regions of Alzheimer's patients, higher A $\beta$  levels corresponded with lower glucose metabolism, indicating that excessive A $\beta$  accumulation may eventually impair normal brain function.
- This dual nature of A $\beta$  — protective at first but potentially harmful in excess — could explain why Alzheimer's treatments targeting A $\beta$  removal have been largely unsuccessful.<sup>5</sup>

# Amyloid Beta

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- Might this be Type 3 diabetes?
- Think of A $\beta$  as your brain's attempt to shield itself from damage in its most active regions. However, this protection appears to have limits. In individual brain regions of Alzheimer's patients, higher A $\beta$  levels corresponded with lower glucose metabolism, indicating that excessive A $\beta$  accumulation may eventually impair normal brain function.
- This dual nature of A $\beta$  — protective at first but potentially harmful in excess — could explain why Alzheimer's treatments targeting A $\beta$  removal have been largely unsuccessful.<sup>5</sup>



# Amyloid Beta- Positive function?

- Monkeys, fish, mice and other animals have Amyloid Beta
- Amyloid Beta is important
- It is a weapon against microbes
- It kills microbes by clumping around the microbe to neutralize and kill it
- Bacteria injected into the brains of mice, amyloid beta forms clumps around the bacteria
- Mice without Amyloid Beta die of the bacterial injections.



# Amyloid Beta

## Remember to Brush and Floss

- Several microbes have been found in Alzheimer's brains
- Herpes Virus
- Chlamydophila pneumoniae
- Porphyromonas gingivalis- Gingivitis
- Periodontitis
- People in their 60's with gum disease have greater risk of Alzheimer's and heart disease



# P Tau 181

- The pTau181 and pTau217, Beta-amyloid 42/40 Ratio, Beta-amyloid 40, and Beta-amyloid 42 are optimal. Alzheimer's Disease (AD) involves 2 specific proteins: amyloid found outside the brain nerves and phosphorylated tau (pTau) found inside the brain nerves.
- Amyloid plaque is due to a derangement or misfolding of amyloid called amyloid plaque, which accumulates outside the brain nerves and is seen on PET scans.
- pTau neurofibrillary tangles develop inside the brain nerve cells and are seen on autopsies and CFS (cerebrospinal fluid).
- Both, amyloid plaque and pTau neurofibrillary tangles causes the brain nerves to separate, deteriorate, die off and the brain shrinks or atrophies as the degeneration continues resulting in progressive Alzheimer's Disease, dementia and other mental and neurological decline.
- These amyloid plaque fragments and pTau tangle fragments were found in the CFS. These amyloid plaque and pTau fragments diffuse into the blood and now with advanced technology can be found in the plasma.
- In regards to Alzheimer's, dementias and neurological decline, in the brain nerves, there are 2 specific pTau proteins: pTau- 181 and pTau- 217, that are most significant.
- pTau-181 and pTau- 217 levels are generally higher in patients with preclinical AD (i.e., early stage disease where individuals do not have overt symptoms, yet, but are positive for CSF or PET biomarkers).
- Plasma pTau-181 and pTau- 217 concentrations increase with AD disease progression and worsening of cognition and brain atrophy. Numerous studies have reported that measurement of plasma pTau-181 and pTau- 217 can predict the extent of brain amyloid and tau as measured by PET. Also noted is that plasma pTau-181 was also found with chronic kidney disease (CKD), myocardial infarction (MI) or clinical stroke though the clinical significance of this has not been determined.
- P-tau- 217 was generally superior to cerebrospinal fluid (CSF) tests in classification of brain pathology associated with Alzheimer's diseases, cognitive impairment and dementias. The Amyloid Plaque, pTau-217 and pTau-181 can be used to facilitate biological identification, similar to PET scan and CSF to detect AD, dementias, neurological decline and brain atrophy at the earliest possible time and to slow the course of disease.

# Case Study: P- Tau Dr. Dyer 10-2024

71yr/o Female forced to retire.  
Not able to keep facts, faces, names, clients  
who she had known for several years.

P-Tau was 1.020 on 7-5-2024  
Dropped to 0.720 on 9-27-2024

Monitoring the p-Tau protein has the best laboratory connection to progression of Alzheimer's, dementia and cognitive decline

Case presented by Andrew R. Dyer, DC, DABCA, DCBCN

## What is p-Tau 181 and why is it significant?

A plasma phosphorylated tau 181 (P-tau181) blood test is a diagnostic tool that measures the level of P-tau181 proteins in the blood to help diagnose and stage Alzheimer's disease and the progression as well as other neurological changes indicative of cognitive decline.

## Case details:

A 71-year-old female patient was forced into an early retirement because of changes to her brain that left her unable to keep up with the demands of her career in international banking. She grew frustrated about not being able to keep facts, faces, and names in order even after knowing those clients for many years.

She was diagnosed with and treated for a brain tumor called meningioma. Several of her doctors were thinking about a potential multiple sclerosis diagnosis but this was ruled out after cerebrospinal fluid testing.

Her initial blood testing was done on July 5<sup>th</sup>, 2024. Due to her past medical history of brain pathology and other family history details it was decided that testing the p-Tau 181 value would be a good starting point during her baseline evaluation.

Fig 1.1.

Test dates:	9/27/24	7/5/2024				
pTau-181	0.720 high	1.020	😊	0.000 - 0.150	0.000 - 0.970	pg/mL

At the time her value came back a 1.020, which was higher than the clinical range (0.00-0.970) allows. We immediately started her on a vitamin and supplement program to target brain changes and improve overall health.

Within 3 months her p-Tau marker has dropped down inside the clinical range to a current value of 0.72. This isn't all the way back inside our optimal range yet, but it is an encouraging start within a very short window of time.

If you or someone you know is struggling to complete tasks of daily living, losing productivity at home or work and you don't know what else to do, then get them tested at Take2Healthcare.

Don't delay, call us today...



# Plasma Neurofilament Light (NFL)

- A rise in NfL is not specific for a specific disease factor.
- May be caused by both neurodegenerative diseases or a head impact during sports. Results should only be used in conjunction with other clinical information when evaluating patients with neurodegeneration.
- Due to a lack of specificity to a particular neurodegenerative disease, its role as a diagnostic marker is limited.
- There are numerous demographic, lifestyle, and comorbidity factors that potentially influence NfL levels in plasma. Variables such as exercise,<sup>2</sup> blood volume, body mass index may impact measured plasma NfL levels.
- NfL levels measured in the morning are more than 10% higher than those measured in the evening.<sup>3,4</sup>
- Plasma NfL levels can be decreased in patients with high immunoglobulin G (IgG) levels.
- Higher concentrations of NfL may be found in persons with history of stroke, atrial fibrillation, myocardial infarction, chronic kidney disease, pregnancy, and diabetes.
- Lower concentrations of NfL may be found in individuals who are obese (BMI > or =30).

# Homocysteine

- Homocysteine can be considered to be an independent risk factor for the development of cardiovascular disease.<sup>1-3</sup> Patients with cardiovascular disease, including heart disease, stroke, peripheral vascular disease, and thromboembolic disease generally have higher homocysteine levels than matched controls. The results of a large number of epidemiological studies have been analyzed through a meta-analysis.<sup>1</sup> The increased risk, or odds ratio (OR), for coronary artery disease in patients with increased homocysteine levels was estimated to be 1.7. The OR for stroke was estimated to be 2.5 and the OR for peripheral vascular disease was estimated to be 6.8.
- Several conditions, other than specific genetic defects or cardiovascular disease, have been associated with hyperhomocysteinemia.<sup>1</sup>
- High homocysteine: vitamin deficiency, advanced age, hypothyroidism, impaired kidney function, and systemic lupus erythematosus.
- Medications including nicotinic acid, theophylline, methotrexate, and L-dopa have been reported to cause elevated homocysteine levels.
- Vitamin therapy for elevated Homocysteine: B complex; SBN CC; Vit C, Vit E



# Thrombin Antithrombin Complex (an optional blood test)

- The **Thrombin Antithrombin Complex** (TAT) marker is an important blood test used to evaluate the balance between clot formation and dissolution in the body, which is crucial for understanding certain blood clotting disorders.
- **Thrombin** is a protein that plays a central role in the blood clotting process, helping to convert **fibrinogen** into **fibrin**, which forms the basic structure of a blood clot.
- **Antithrombin**, on the other hand, is a protein that helps regulate blood clot formation by inhibiting thrombin and other enzymes involved in the coagulation process.
- When thrombin is generated in the bloodstream, it binds to antithrombin, forming the **thrombin-antithrombin complex**.
- Measuring the levels of this complex can provide valuable information about the activation of the coagulation system and the body's response to it.
- **High levels of the TAT complex** may indicate an active clotting process, which can be seen in conditions such as deep vein thrombosis, pulmonary embolism, disseminated intravascular coagulation, and in **patients with a high risk of clot formation**. It can also be elevated in certain surgeries or medical conditions that predispose to clotting. Understanding the levels of TAT can help healthcare providers diagnose and manage conditions related to abnormal clotting. By integrating this marker into a comprehensive evaluation, it helps in guiding treatment decisions, such as the need for anticoagulant therapy, which aims to prevent or reduce the formation of harmful blood clots.

# Interleukin 4 (an optional test)

- **IL-4 is the most common cytokine produced by  $T_H2$  lymphocytes** and the key cytokine that regulates  $T_H2$  cell polarization.<sup>12,16</sup> In addition, IL-4/IL-4R signaling promotes B cell proliferation and stimulates immunoglobulin class-switching to IgE antibody, the major antibody in allergic reactions.<sup>12,16</sup> Production of these cytokines by  $T_H2$  lymphocytes and other cells accounts for the activation of the mast cells, basophiles, eosinophiles and smooth muscle cell contraction as well as stimulation of B cell differentiation into IgE-producing plasma cells, thus promoting several allergic reactions including allergic rhinitis, anaphylaxis, atopic dermatitis and asthma.<sup>12,16,17</sup>  $T_H2$  cells are often observed in tissues in allergic patients and are known to play critical roles in the pathogenesis of allergic diseases.<sup>9,12,18-22</sup> Allergic diseases are characterized by aberrant activation of  $T_H2$  cells in response to innocuous environmental proteins (allergens)<sup>23</sup> and subsequent production of Type 2 cytokines at sites of allergic inflammation.<sup>24,25</sup> These reactions involve inflammatory mediators released in the early-phase reaction by mast cells and basophils, and allergen-specific  $T_H2$  lymphocytes.<sup>26</sup>  $T_H2$  cells act synergistically with type 2 innate-like lymphoid cells activated during the acute phase. They recruit effector cells such as eosinophils, basophils, as well as other lymphocytes, to the site of allergen exposure.<sup>27-29</sup> IL-4, IL-5, and IL-13 drive  $T_H2$  cells towards a specialized  $T_H2A$  phenotype associated with persistent allergy and high cytokine expression.<sup>30,31</sup>
- Asthma is a heterogeneous disease that can be classified into phenotypes and endotypes based upon clinical or biological characteristics.<sup>13,32-34</sup> IL-4, along with IL-13, plays a key role in  $T_H2$  asthma.<sup>32</sup> Over expression of IL-4 in asthmatics is associated with exacerbations, compromised lung function, airway remodeling and airway epithelium injury.<sup>35</sup> Approximately 50% of mild-to-moderate asthma and a large portion of severe asthma is associated with  $T_H2$ -dependent inflammation.<sup>33</sup> IL-4 mediates pro-inflammatory functions in asthma, including induction of the expression of vascular cell adhesion molecule-1 (VCAM-1), promotion of eosinophil transmigration across endothelium and mucus secretion.<sup>36,37</sup>  $T_H2$  inflammation is characterized by elevations in absolute peripheral or sputum eosinophil counts and levels of IgE (total and allergen-specific) and fractional exhaled nitric oxide, which serve as biomarkers for the presence of this type of inflammation.<sup>13</sup> Compared with healthy controls, children and adults with asthma have higher serum levels of IL-4,<sup>38,39</sup> and higher IL-4 levels may differentiate individuals with atopic asthma from those with nonatopic asthma.<sup>38,39</sup> Persistence of asthma in children and adults may be predicted by elevated levels of IL-4.<sup>19,20</sup>
- **IL-4 regulates the protective immune response against helminths and other extracellular parasites.**<sup>3,7</sup> Plasma levels of IL-4 have been reported to be elevated in patients with eosinophilic esophagitis, indicating the role of adaptive  $T_H2$  immunity in this disease.<sup>40</sup> A meta-analysis found that elevated IL-4 was strongly associated with acute respiratory distress syndrome mortality.<sup>41</sup>
- There have been extensive clinical trials targeting IL-4 for the treatment of asthma.<sup>24</sup> Modulation of IL-4 signaling<sup>42</sup> represents an important therapeutic approach to target the drivers **of allergy and asthma.**<sup>18,42-45</sup> Dupilumab targets the shared receptor for IL-4 and IL-13 and is approved for treatment of atopic dermatitis and asthma.<sup>2</sup> Dupilumab has been shown to provide efficacy in the treatment of moderate-to-severe atopic dermatitis, allergic asthma, chronic rhinosinusitis and eosinophilic esophagitis, all known to be driven largely by type 2 inflammation.<sup>18,43-45</sup>
- **IL-4 and IL-13 produced by  $T_H2$  cells activate macrophages and epithelial cells and enhance the production of extracellular matrix, an element crucial for tissue repair.**<sup>10</sup> **However, when the tissue repair process becomes chronic, excessive or uncontrolled, it may induce the development of pathological fibrosis in various organ systems.**<sup>10</sup> It was recently shown that  $T_H2$  cells include pathogenic  $T_H2$  (Tpath2) cells that highly express the receptor for IL-33 (a cytokine that is released during tissue injury) and produce large amounts of IL-5.<sup>9,10</sup>

## Dihydrotestosterone (DHT)

### What is DHT?

- Dihydrotestosterone (DHT) is a sex hormone created from testosterone in the body. It plays a major role in the development of masculine characteristics (body hair, muscle growth, and a deep voice).
- High DHT - good effects
  - Glucose control, memory, sexual function, heart, strength and muscle mass, reduced autoimmune diseases, mental health, reduced anxiety and depression, bone density.
  - **Bad effects** - male pattern baldness, acne, prostate cancer, depression in women.



# DHT Percent Free Dialysis and DHT Free

- Conditions where the body either underutilizes or overutilizes androgens can be better understood through this test. For instance, in cases of androgen insensitivity syndrome, where the body does not respond to DHT effectively, free DHT levels may still be normal or elevated.
- In patients undergoing testosterone replacement therapy, evaluating DHT levels helps ensure that excessive DHT, which can contribute to side effects like prostate enlargement or hair loss, is not being produced.
- The DHT, Percent Free Dialysis test specifically measures the fraction of circulating DHT that is not bound to proteins like sex hormone-binding globulin (SHBG). **Most DHT in the blood is tightly bound to SHBG, rendering it biologically inactive. However, the free fraction (DHT not bound to SHBG) represents the bioavailable DHT - the portion of the hormone that can actively interact with cells and tissues.**
- **This measurement is critical because only the free fraction of DHT is available to exert its physiological effects.** Assessing the free fraction of DHT provides a more accurate reflection of how much of the hormone is available to the body, which can be useful in diagnosing certain hormonal disorders and assessing androgen utilization.



# Fetterman Events

## Diamond Sponsors



**Cutting Edge Laser Technologies**, the world leader in light-based technologies for medical professionals, offers a full line of patented and clinically validated therapy lasers for the progressive practitioner. MLS® (Multi-Wave Locked System) Laser Therapy – a patented technology exclusive to Cutting Edge – is quickly becoming the standard of care for alleviating pain, reducing inflammation, and precipitating recovery.



**Simplified Functional Medicine** - Revolutionize your clinic's approach to common health conditions with Simplified Functional Medicine—a program that prioritizes efficiency, staff empowerment, and scalable growth. Our system not only enhances patient care but also grants practitioners the freedom to reclaim their time. Seamlessly integrating staff-driven components, we've redefined healthcare operations, helping over 200 clinics nationwide achieve significant revenue growth.



**Healthcare Equipment Resource** - Your X-Ray Equipment Resource Specialist!  
Healthcare Equipment has been a family owned, independent distributor since 1982 and has provided quality x-ray supplies, accessories, equipment and service for chiropractors, veterinarians, podiatrists, schools and training facilities.



## Gold Sponsors



Science Based Nutrition

# FASTING, CLEANSSES AND FLUSHES

- Different types of fast
  - Complete fast
  - Intermittent fast
  - Meatless fast
  - Specialty fasts- sugar free, alcohol free, etc.



# THE ULTIMATE DETOX AND REGENERATION

- What is really needed?
- What are the 'detox' and cleanse products doing?
- 6 patients ended up in hospital
- 2 nearly died from extreme reactions to 'detox and cleanse' products and protocols

# IT TAKES TIME: MORE OR LESS

- 59y/o male 5'9", 240 pounds
- Symptoms: CFS, IBS, panic attacks, high BP, high pulse, decreasing memory and concentration, slow stream, cystitis, testicular pain, bloating, high cholesterol, abdominal pains, bloating, peptic ulcer, nausea, dry skin and rash (cellulitis) on legs, headaches, joint stiffness
- These problems had been progressing over the last 25 years and were very significant the last 10 years

# IT TAKES TIME CONT.

- Medications:
  - Capozide (for high BP) for 25 years
  - Prevacid (for Barrett's: precancerous esophagus) for 10 years
  - Cardura (for high BP) for 7 years
  - Zocor (for high Cholesterol) for 10 years
  - Levbid (for IBS) for 5 years
  - Had been on Prilosec/Prevacid/Zantac or similar for +20 years

NAME: ST20032

WEIGHT:238

GENDER: MALE

BLOOD TYPE: B

AGE:57

TEST # 1

Test Description	Current Result	Current Rating
Date	3/2/2000	HI
Glucose	112	LO
Phosphorus	2.3	LO
Calcium	5.75	LO
Calcium-Phosphorus Index	13.23	HI
Alkaline Phosphorus	166	HI
GGT	106	HI
Ferritin	448	HI
Cholesterol	210	HI
Triglycerides	224	HI
VLDL	44	HI
T3	31	LO
Red Blood Count	5.65	HI
Hemoglobin	16.5	HI
Hematocrit	48.1	HI

Homeostatic		Clinical	units
85.00 - 100.00		65.00 - 110.00	mg/dl
3.40 - 4.00		2.40 - 4.60	mg/dl
7.90 - 10.10		7.00 - 10.11	
30.00 - 40.00		20.00 - 40.20	ratio
60.00 - 80.00		41.00 - 138.00	mu/ml
1.00 - 36.00		0 - 65.00	mu/ml
12.50 - 218.30		10.00 - 291.00	mg/ml
150.00 - 180.00		140.00 - 200.00	mg/dl
80.00 - 115.00		10.00 - 195.00	mg/dl
5.00 - 20.00		5.00 - 40.00	mg/dl
36.00 - 40.00		32.00 - 43.00	%
4.50 - 5.50		4.50 - 5.50	m/cumm
14.00 - 15.00		12.00 - 16.00	gm/dl
40.00 - 47.00		37.00 - 47.00	%



# ST20032 VITAMIN PROGRAM

## Back To Health™ Center Chiropractic and Nutrition

5761 Far Hills Avenue  
Dayton, OH 45429  
Phone: (937) 433-3241 Fax: (937) 433-3140

Personal Vitamin and Supplement Program For:

2 Month  
Supply

Case: ST March 2000 Page 1

Vitamin or Supplement	Dosage Per Day	AM	NOON	PM	BED	Bottles	Quantity	Price	Extended Price
1 Beta Carotene (A-Caro)	50000 I.U.	1		1		1	250 @	\$16.50	\$16.50
2 Vitamin C (Ascocid 1000)	3000 mg.	1	1	1		1	250 @	\$21.75	\$21.75
3 Chlorella	670 mg.	1		1		1	180 @	\$25.00	\$25.00
4 Chromium Picolinate w/ boron	800 mcg.	2		2		2	180 @	\$12.60	\$25.20
5 Co-Q-10	200 mg.	2		2		4	60 @	\$26.25	\$105.00
6 Vitamin D (D-Natural 5)	5000 I.U.	1				1	250 @	\$11.25	\$11.25
7 Energenics	4	2		2		1	270 @	\$28.45	\$28.45
8 Glucosamine Sulfate	2250 mg.	1	1	1		1	120 @	\$45.00	\$45.00
9 Glucosamine Sulfate						1	60 @	\$22.50	\$22.50
10 Hepatagen	3	1	1	1		2	90 @	\$10.45	\$20.90
11 Arginine	1000 mg.	1		1		2	60 @	\$8.60	\$17.20
12 Magnesium Glycinate	400 mg.	2		2		1	240 @	\$25.50	\$25.50
13 Calcium (MCHC)	750 mg.	1	1	1		2	120 @	\$13.50	\$27.00
14 EPA/DHA (MLK 1000)	2000 mg.				2	2	100 @	\$10.50	\$21.00
15 B6 (Neuro-K-500)	1000 mg.	1		1		2	100 @	\$16.50	\$33.00
16 Pantothenic Acid	500 mg.	1		1		2	100 @	\$9.75	\$19.50
17 Potassium	99 mg.	1				1	100 @	\$4.10	\$4.10

Supplements Must Be Paid In Full Upon Receipt  
Take All Supplements With Meals Unless Otherwise Noted

Thursday, March 16, 2000

Page 1 of 2

NAME: ST20032    GENDER: MALE    AGE:57  
 WEIGHT: 238    BLOOD TYPE: B    TEST # 2

Test Description	Current Result	Current Rating	Prior Result	Delta	Homeostatic	Clinical	units
Date	5/15/2000		3/2/2000				
Glucose	106	HI	112	😊	85.00 - 100.00	65.00 - 110.00	mg/dl
Phosphorus	3.1	LO	2.3	😊	3.40 - 4.00	2.40 - 4.60	mg/dl
Calcium	7.75	LO	5.75	😊	7.90 - 10.10	7.00 - 10.11	
Calcium-Phosphorus Index	24.03	LO	13.23	😊	30.00 - 40.00	20.00 - 40.20	ratio
Alkaline Phosphorus	132	HI	166	😊	60.00 - 80.00	41.00 - 138.00	mu/ml
GGT	72	HI	106	😊	1.00 - 36.00	0 - 65.00	mu/ml
Ferritin	218	OPT	448	😊	12.50 - 218.30	10.00 - 291.00	mg/ml
Cholesterol	119	LO	210	😞	150.00 - 180.00	140.00 - 200.00	mg/dl
Triglycerides	102	OPT	224	😊	80.00 - 115.00	10.00 - 195.00	mg/dl
VLDL	20	OPT	44	😊	5.00 - 20.00	5.00 - 40.00	mg/dl
T3	34	LO	31	😊	36.00 - 40.00	32.00 - 43.00	%
Red Blood Count	5.04	OPT	5.65	😊	4.50 - 5.50	4.50 - 5.50	m/cumm
Hemoglobin	14.8	OPT	16.5	😊	14.00 - 15.00	12.00 - 16.00	gm/dl
Hematocrit	42.9	OPT	48.1	😊	40.00 - 47.00	37.00 - 47.00	%



# IT TAKES TIME CONT.

- First analysis on 3-02-2000
- Most recent 10-25-2001
- 6 SBN Panel blood tests
- 2 hair analysis
- 5 UA's
- 1 ECG
- 1 Alcat
- Over \$3,500.00 in supplements
- 45 chiropractic treatments and therapy
- **Was it worth it? Was it a good value?**

## IT TAKES TIME: CURRENT STATUS

- ◎ 11-25-2001 “Overall I feel 95% better. My digestion and overall health is great!! It took a long time but it was worth every penny.”
- ◎ He told me that for 3 years from 1960-1963 he worked at a boiling degreasing tank with tetrachlorethane.
  - Tetrachlorethane is no longer used in industry due to its high carcinogenicity.
- ◎ This tetrachlorethane, I believe contributed or caused his problems. It more than likely affected his blood work (CBC, liver, Monocytes, kidney/bladder), prolonged his recovery and will probably continue to be a factor.
- ◎ He has avoided or at least delayed some very serious problems associated with this poison.

# 6-24-2010 EMAIL FROM A DO TO AN SBN MEMBER DC AFTER USING 'CLEANSE/FLUSH' ON 3 PATIENTS THAT ENDED UP IN ER WITHIN 1 MONTH.

**“The colon cleansing is something disproved by many scientific studies and only supported by unfounded testimonials and outright ‘scare tactics’ on patients. The colon was designed by God to handle the body’s waste products and help eliminate them from the body as well as maintain proper water balance. It does a wonderful job and does not need to be ‘washed out or cleansed to rid the body of spackle or toxic wastes.’”**

The outcomes on all these patients were good. They are all back on their previously prescribed medicines that were working just fine for a number of years.

I respect the practice of Chiropractic and often refer patients for management of musculoskeletal issues. Please also respect my practice of medicine and trust that science can also play a role in taking care of patients. Thank you.

Respectfully,





# 21 DAY DETOX

- If you're recommending "detox programs" and multiple herbals...you'd better be testing to monitor what you're doing is **SAFE AND EFFECTIVE!**
- From a fellow doctor:
  - We were doing great with this patient until she decided to do the 21day detox with (name of supplement company removed)...NOTE: this is a VERY popular supplement company).
  - After that the test results after the detox were not the best. She decided to continue with the acupuncturist rep of (supplement company) to do muscle testing for the past 2 months and see if they can help her. **Her new liver results are 5 times worse.** She has now have come back to fully work with me.

	Current Rating 05/03/2017		Prior 02/06/2017	
SGOT (AST)	173.00	Very High	24.00	⊗
SGPT (ALT)	91.00	Very High	31.00	⊗
TSH	10.26	Very High	9.26	⊗
T4 Thyroxine	11.60	high	10.10	⊗

# PERIPHERAL VASCULAR DISEASE





13 DAYS WITH NO FOOD AND NO WATER.





# THE ULTIMATE FAST AND THE POWER OF THE HUMAN BODY.

- An unhealthy diet can in many ways and to some extent – **be neutralized by total fast** or at least with a consistent time-restricted eating plan
- A total or partial fast might really be the best thing to do for longevity, far more than taking a lot of pills, potions or foods.



# Fetterman Events

## Diamond Sponsors



**Cutting Edge Laser Technologies**, the world leader in light-based technologies for medical professionals, offers a full line of patented and clinically validated therapy lasers for the progressive practitioner. MLS® (Multi-Wave Locked System) Laser Therapy – a patented technology exclusive to Cutting Edge – is quickly becoming the standard of care for alleviating pain, reducing inflammation, and precipitating recovery.



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## Gold Sponsors



Science Based Nutrition



# Total Protein

- A depletion of plasma protein causes rapid mitosis of the hepatic cells and actual growth of the liver to a larger size until the plasma concentration returns to normal. A most important function of the liver is to synthesize certain amino acids, other important chemical compounds and so-called nonessential amino acids.
- To maintain more important functions and amino acids the body will break down muscle and other nonessential tissue from which the liver will manufacture these more important nutrients.
- There are over 100,000 proteins in the human body.

# Lay Lecture: BP and Pulse

- Who lives the longest? How long do you want to live?
- #1 cause of death
- What are the effects of aging? Preventable? Delayable?
- Plaques/ blood clots/ inflammation
- Medical treatments: surgery, drugs, transplant
- Circulation: transporting oxygen and nutrients
- What do these mean? How do they change with age?
  - Blood Pressure
  - Pulse:

• 60	86,400	
• 65	93,600	+7,200
• 70	100,800	+14,400
• 75	108,000	+21,600
• 80	115,200	+28,800
• 55	79,200	-7,200
- Nutrients: what should you take: basics Vit C, E, Beta Carotene, CoQ10, Magnesium, selenium, carnitine
- How do you know what you really need?

# Heart Rate Reduction and Longer Life

- Humans, with a mean heart rate of 70 b.p.m. and a life expectancy of 80 years, are an exception to the relationship between heart rate and life expectancy shown in mammals, as their life expectancy is higher than that predicted by their heart rate. **It has been estimated that a decrease in heart rate from 70 to 60 b.p.m. would further increase life expectancy from 80 to 93.3 years in humans.**[17](#)
- **Heart rate reduction reduces myocardial energy expenditure**  
Adenosine triphosphate (ATP) is the primary source of energy in the heart and is used for electrical excitation, contraction, relaxation, and recovery of the resting electrochemical gradients across membranes.
- The heart may suddenly increase its output up to six-fold, thus requiring a huge amount of energy, unlike other tissues, it only stores low quantities of ATP, just sufficient to support a few beats. However, the low ATP levels in the heart are counterbalanced by a higher level of creatine phosphate which permits availability of ATP from the adenosine diphosphate, through a phosphorylation reaction catalyzed by creatine kinase.[23](#)
- In the heart, ATP is synthesized in the mitochondria from a variety of aerobic substrates.[24](#) At rest, ATP is also generated from fatty acid  $\beta$ -oxidation (60–70%) and carbohydrate catabolism (30%) including exogenous glucose and lactate catabolism. Amino acids and ketone bodies are utilized as substrates, however, less frequently.
  - Oxford Journals
  - European Heart Journal Supplements
  - Volume 7, Suppl H
  - Pp. H16-H21
  - [eurheartjsupp.oxfordjournals.org/cgi/content/full/7/suppl\\_H/H16](http://eurheartjsupp.oxfordjournals.org/cgi/content/full/7/suppl_H/H16)

# Focus on Elements: Alkaline Phosphatase

Clinical Range: 40-120 IU/L Healthy range: 60-80 IU/L.

**Use:** An enzyme which normally originates from liver and bone. **As a tumor marker. Only three laboratory markers were consistently abnormal, in screening for metastatic carcinoma of breast, prior to clinical detectability of metastases: these were alkaline phosphatase, GGT and CEA. Alk Phos is elevated in 85% of skeletal metastases.**

## **DECREASED in:**

Excess vit D  
Hypothyroidism  
Pernicious anemia (deficient in B12 and folic acid)  
Anemia  
Celiac disease  
Malnutrition  
Scurvy

## **Zinc deficiency**

## **Magnesium deficiency**

## **Vitamin C deficiency**

## **Drugs:**

Estrogen  
Corticosteroids  
Trifluoperazine  
Clofibrate  
Azathioprine  
Antilipemics: Atromid, Colestid, Lipitor, Lescor, Zocor, Mevacor, Niaspan, Pravachol and Baycol  
Azathioprine drugs – drugs to treat hemolytic anemias, systemic lupus erythematosus, rheumatoid arthritis and leukemias

## **Nutrients to consider:**

Vit C, magnesium, Zinc, potassium

## **INCREASED in:**

primarily bone and liver disease and  
Biliary duct obstruction  
Degenerative joint disease  
Nonfasting test  
Bone growth  
Healing fracture  
Polymyalgia Rheumatica  
Chronic fatigue syndrome  
Fibromyalgia  
Liver cancer  
Bone cancer  
Osteoporosis  
Acromegaly  
Osteogenic sarcoma  
Primary or Metastatic liver tumor  
Bone metastases  
Leukemia  
Myeloma  
Osteomalacia  
Rickets  
Hypervitaminosis D  
Celiac sprue due to vitamin D  
Malabsorption  
Paget's disease  
Hyperthyroidism  
Hyperparathyroidism  
Alcoholics  
Biliary obstruction  
Cirrhosis  
Gilbert's syndrome (genetic trait)  
Fanconi syndrome (genetic ;  
hyperphosphatasemia, idiopathic)

## **INCREASED in continued:**

Pancreatitis  
Cancer of pancreas  
Cystic fibrosis  
Hepatitis  
Fatty liver  
Diabetes mellitus  
Bacterial infections  
Viral infections  
Pulmonary infarct (1-3 weeks ; after embolism)  
Tumors  
Peptic ulcer  
Intestinal obstruction or ulcer  
Steatorrhea  
Malabsorption  
Ulcerative colitis  
Gallbladder obstruction  
Biliary obstruction  
Gall stones  
Inflamed gallbladder  
Gastrointestinal problems  
Prostate cancer when infiltrates bone  
Hodgkin's disease  
TB  
Infectious mononucleosis  
Cytomegalovirus  
Congestive heart failure

## **INCREASED in continued:**

## **Drugs:**

Estrogens  
Birth control drugs  
Methyltestosterone  
Phenothiazines  
Oral hypoglycemic drugs  
Many common and uncommon drugs elevate alkaline phosphatase up to tenfold  
Chlorpropamide  
Phenobarbital  
Phenytoin  
Antibiotics  
Erythromycin

## **Nutrients to consider:**

Vit D, Lipogen, vit C, pantothenic acid



# Aspartate Aminotransferase AST (SGOT)

Clinical 10-35 IU/L    Healthy 18-26 IU/L

## DECREASED in:

Uremia  
Vitamin B6 deficiency  
Metronidazole  
Trifluoperazine  
Diabetic ketoacidosis  
Severe liver disease  
Severe kidney disease  
Azotemia: a very high BUN and Creatinine

**Nutrients to consider:** B-Complex, Milk Thistle and B6

## INCREASED in:

Hypothyroid  
Viral hepatitis  
Heart failure  
Cirrhosis  
Biliary obstruction  
Gall stones  
Cancer  
eclampsia  
Myocardial infarction  
Pancreatitis  
Intestinal infarction  
Radiation  
Pulmonary infarction  
Cerebral infarction  
Renal infarction  
Burns  
Heat exhaustion  
Anemia  
Chronic alcohol ingestion  
Alcoholism  
Hepatitis  
Cirrhosis  
Alcohol  
acetaminophen  
Viral hepatitis  
Hemochromatosis  
Gall bladder disease  
Reye's syndrome  
Infectious mononucleosis  
Dystrophy  
Dermatomyositis  
Muscle diseases

## INCREASED in continued:

Trichinosis  
Polymyositis  
Fibromyalgia  
Myositis  
Gangrene  
Duchenne's muscular dystrophy  
Myocardial infarction  
Congestive heart failure  
Legionnaires' disease  
Typhoid fever  
Salmonella typhosa

## Environmental:

Radiation  
Toxic mushrooms  
Lead poisoning  
Carbon tetrachloride poisoning

## Drugs:

Heparin therapy  
Salicylates  
Opiates  
Tetracycline  
Thorazine  
Isoniazid  
Phenothiazines  
Erythromycin  
Progesterone  
Anabolic' androgenic steroids  
Halothane  
Methyldopa

## INCREASED in continued:

Opiates  
Indomethacin

**Nutrients to consider:** the same as the AST therapy and Pancreatic enzymes and digestive enzymes

Order:

Lauricidin

Vit C

Lipogen

Beta Carotene



# Alanine Aminotransferase ALT (SGPT)\*\*\*

**Clinical:** 10-40 IU/L

**Healthy** 20-28 IU/L

## **DECREASED in:**

Urinary infection  
Cancer  
Malnutrition  
Pregnancy  
Alcoholic liver disease

## **Drugs:**

Birth control pills  
Estrogens  
Progestin

**Nutrients to consider:** Vit B complex, milk thistle extract, Methionine if sulfur is low on hair analysis, choline and inositol if AST (SGOT) is low.

## **INCREASED in:**

Obesity  
Biliary obstruction  
Cirrhosis  
Hepatitis  
Reyes' syndrome  
Diabetic acidosis (Glucose over 300)  
Leukemia  
Congestive heart failure  
Pancreatitis  
Thrombotic Thrombocytopenic Purpura  
Wilson's disease

## **Environmental:**

Parasites  
Amebiasis possibly *Entamoeba histolytica*

## **Drugs:**

Acetaminophen  
Alcohol  
Narcotics  
Heroin  
Cholinergics  
Codeine  
Meperidine (Demerol)  
Morphine (heroin)  
Antihypertensives  
Guanethidine analogs  
Hydralazine  
Erythromycin  
Isoniazid

## **INCREASED in continued:**

### **Nutrients to consider:**

acidophilus if on antibiotics,  
antronex, liver glandular,  
Methionine if sulfur is low in the  
hair analysis, beta carotene, vit c,  
Lauricidin, choline, inositol

Order:

Lauricidin

Vit C

Lipogen

Beta Carotene





Before 2020, we were pretty wild! Remember how we all used to eat cake after someone had **blown on it**? Crazy times!

# Gamma Glutamyl Transferase (GGT)

**Clinical 5-65 IU/L**

**Healthy 10-35 IU/L.**

**Use:** To differentiate liver from bone disease: GGT is not affected by bone like ALP. Unlike AST, GGT is not elevated in skeletal muscle disease. As a tumor marker only three laboratory markers were consistently abnormal, in screening for metastatic carcinoma of breast, prior to clinical detectability of metastases: these were alkaline phosphatase, GGT and CEA.

## **DECREASED in:**

Hypothyroidism  
Chronic idiopathic pancreatitis

## **INCREASED in:**

**Alcoholics:** can be over 3.5 times upper limit  
Fatty liver disease  
Gall bladder disease  
Pancreatitis  
Obesity  
Renal disease  
Cardiac disease  
Postoperative state  
Cancer  
Metastatic carcinoma of liver  
Malignant melanoma  
Breast, Lung  
Kidney  
Acute myocardial infarction within 2-4 days  
Acute hepatitis  
Cholestasis >6 times upper limit  
Chronic active hepatitis >7 times upper limit  
Cirrhosis >10-20 times upper limit  
Obstructive jaundice >5 to 50 times upper limit  
Liver metastases >14 times upper limit  
Systemic lupus erythematosus  
Hyperthyroidism  
Epilepsy  
Diabetes mellitus  
Severe trauma  
Post radiation therapy

## **INCREASED in continued:**

### **Drugs:**

Barbiturates  
Dilantin (phenytoin)  
Antidepressants  
Acetaminophen

**Nutrients to consider:** Beta Carotene, Vit C., Liver glandular, Antronex, Methionine

Order:

Lauricidin

Vit C

Lipogen

Beta Carotene



# Dr. (MD) no longer wants to do liver transplant. :) (in just 2 months)

- Paul KXXX- (SBN member)
- New info.
- Dr. no longer wants to do liver transplant. :)
- Since starting SBN diet and vitamins, His quality of life has increased significantly. Had a good Thanksgiving. Thank you! He was losing wt, now he is gaining so MD is happy about that.

# Uric Acid

**Clinical range 2.5-8.2      Healthy range 4.0-6.0**

Excess uric acid can crystallize in joints and causes painful inflammation and severe arthritic symptoms. It is not clear what makes the uric acid precipitate in the joints, but it is not simply because there is too much present. Some patients can have chronically elevated uric acid levels with no other gout symptoms.

## **DECREASED in:**

Caffeine; Tea  
High intake of vit C  
Possible inappropriate secretion of ADH  
(antidiuretic hormone) of the posterior pituitary.  
Low intake of protein  
Kidney disease  
Malignant neoplasms

**Environmental:** Lead poisoning

## **Drugs:**

Aspirin  
Antibiotics  
Corticosteroids  
Theophylline (antiasthmatic drug)  
Allopurinol  
Probenecid Salicylate  
Cinchophen  
Corticotrophin  
Coumarin  
Furosemide (Lasix)  
Ethacrynic acid  
Thiazide  
Diuretics  
Acetohexamide  
Indomethacin  
Barbiturates

**Nutrients to consider:** Magnesium, B6 and pancreatic enzymes, **Protein**

## **INCREASED in:**

**GOUT: All meats, fish, poultry, and peanuts contain small amounts of purines.**

**Fructose in processed food**

**Alcohol**

Arteriosclerosis  
Hypertension  
High triglycerides  
Exercise and lactic acid  
Weight loss, dieting and fasting  
Diabetes  
Renal failure  
Psoriasis  
High protein diet  
Hypothyroidism  
Hypoparathyroidism  
Primary Hyperparathyroidism  
Polycystic kidneys  
Von Gierke's disease  
Maple syrup urine disease  
Sarcoidosis  
Berylliosis  
Leukemia  
Multiple myeloma  
Polycythemia  
Lymphoma, especially post irradiation  
Cancers  
Chemotherapy  
Anemias  
Resolving pneumonia  
Toxemia of pregnancy

## **INCREASED in continued:**

### **Environmental:**

Methyl alcohol  
Ammonia  
Carbon monoxide  
Lead poisoning  
Mercury poisoning

### **Drugs:**

Aspirin  
Antibiotics  
Cytotoxic drugs: Methotrexate, busulfan, vincristine,, Azathioprine  
Prednisone  
Thiazides  
Diuretics  
Furosemide  
Mercurials  
Mitomycin C  
L-dopa  
Phenytoin sodium  
Methyldopa  
Ascorbic acid

### **Nutrients to consider:**

Pantothenic acid, cherries, Vit C  
Turmeric, ginger, bioflavonoids





# Uric Acid, High Fructose and Liver Disease

Mercola 11-11-2015

- ◎ By "stimulating the 'hedonic pathway' of the brain both directly and indirectly," Dr. Lustig noted, "fructose creates habituation, and possibly dependence; also paralleling ethanol."
- ◎ **How Excess Fructose Directly Contributes to NAFLD** (Non Alcohol Fatty Liver Disease)
- ◎ Writing in the journal *Hepatobiliary Surgery and Nutrition*, researchers noted that the rapid rise in NAFLD prevalence supports the role of environmental factors.  
  
(HFCS) in soda is associated with NAFLD, while the study also concluded "ingested carbohydrates are... more likely to directly contribute to NAFLD than dietary fat intake."<sup>5</sup>
- ◎ The fat-forming and pro-inflammatory effects of fructose appear to be due to transient ATP (the chemical storage form of energy) depletion, according to the study. This, in turn, leads to uric acid formation.
- ◎ **Fructose increases uric acid through a complex process that causes cells to burn up their ATP rapidly, leading to "cell shock" and increased cell death.**
- ◎ After eating excessive amounts of fructose, cells become starved of energy and enter a state of shock, just as if they have lost their blood supply.
- ◎ Cells that are depleted of energy become inflamed and more susceptible to damage from oxidative stress. Fat cells actually become "sickly," bloating up with excessive amounts of fat.

# Uric Acid, High Fructose and Liver Disease

Mercola 11-11-2015

- ⊙ Massive cellular die-off leads to increased uric acid levels. Uric acid is a normal waste product found in your blood. It functions both as an antioxidant and as a pro-oxidant once inside your cells.
- ⊙ So, if your uric acid levels are too high, it tends to increase to harmful levels inside your cells as well, where it acts as a pro-oxidant. According to Dr. Richard Johnson, who conducted years of research on the role of fructose in obesity uric acid appears to take on a lead role in creating health problems when it reaches levels in your body of 5.5 mg per dl or higher.
- ⊙ **High uric acid is associated with an increased risk for developing high blood pressure, as well as diabetes, obesity, and kidney disease. The ideal range for uric acid lies between 3 to 5.5 mg per dl.**
- ⊙ **The connection between fructose consumption and increased uric acid is so reliable that a uric acid level taken from your blood can actually be used as a marker for fructose toxicity.** I now recommend that a uric acid level be a routine part of your blood screening.
- ⊙ **One Sugary Drink Daily Increases Your Risk of NAFLD**
- ⊙ Sugary beverages, including not only soda but also fruit juice, lemonade, fruit punch, and the like, are a major source of fructose in the US diet.

# Uric Acid, High Fructose and Liver Disease

Mercola 11-11-2015

New research from Tufts University revealed this could be putting your health at risk, as those who consumed at least one sugary drink daily had a higher risk of liver damage and NAFLD.<sup>6</sup>

- ◎ Sugary drinks are likely one major factor in why even children are developing NAFLD at alarming rates. The longer you have NAFLD, the more likely it is to progress into more serious disease like liver fibrosis (accumulation of abnormal fibrous tissue), cirrhosis (accumulation of scar tissue), and NASH.
- ◎ In fact, the *Hepatobiliary Surgery and Nutrition* study linked HFCS consumption to the severity of fibrosis in patients with NAFLD.<sup>7</sup> Therefore, it's very concerning that children are developing this so early in their lives. The following facts about pediatric NAFLD are disturbing:<sup>8</sup>
- ◎ **Nearly 10 percent of US children have NAFLD**
- ◎ This includes 1 percent of 2- to 4-year-olds and 17 percent of 15- to 19-year-olds
- ◎ Approximately 38 percent of obese children have NAFLD
- ◎ **Children with NAFLD are at particular risk of complications and poor prognosis, including the need for a liver transplant in adulthood**

# Amid Obesity Epidemic, Liver Cancer Deaths Surge

by Ian Ingram, Deputy Managing Editor, MedPage Today  
July 17, 2018

The death rate for liver cancer increased by 43% since 2000, a new report from the CDC indicated, with fingers pointing to the obesity epidemic as the main root cause.

For adults 25 and over, mortality from liver cancer rose from 7.2 to 10.3 per 100,000 from 2000 to 2016, according to Jiaquan Xu, MD, of the CDC's National Center for Health Statistics in Hyattsville, Maryland, even as overall [cancer mortality rates in the U.S. have dropped](#).

"Liver cancer (including intrahepatic bile duct cancer) was the ninth leading cause of cancer death in 2000 and rose to sixth in 2016," wrote Xu in an [NCHS Data Brief](#).

Among men, the age-adjusted death rate increased from 10.5 to 15.0 per 100,000 during this time period (a 43% rise); among women, the death rate increased from 4.5 to 6.3 per 100,000 (a 40% rise).

But while death rates increased for white (48%), black (43%), and Hispanic (27%) adults, the mortality rate among Asians and Pacific Islanders decreased by 22%.

Adults ages 45 to 54 saw a 20% drop in liver cancer death from 2012 to 2016 (from 5.5 to 4.4 per 100,000), while those ages 55 to 64 had stable rates from 2013 to 2016.

Commenting on the report, Ghassan Abou-Alfa, MD, a medical oncologist at Memorial Sloan Kettering Cancer Center in New York City, cited **non-alcoholic associated steatohepatitis (NASH) due to obesity and diabetes as the most important risk factor for**

**hepatocellular carcinoma (HCC) in the U.S. today.** "Unfortunately, the obesity epidemic is ongoing and is increasing, with a forecasted rate between 40% and 50% by 2030," he said.

## Need for Liver Transplants Rising Sharply in Seniors

— Post-transplant mortality still higher versus younger patients, but improving over time

by [Zaina Hamza](#), Staff Writer, MedPage Today November 17, 2021

- **Over the past 2 decades, the need for liver transplants more than doubled among older folks, with non-alcoholic steatohepatitis (NASH) becoming the number one indication for transplantation during this time**, a researcher said.
- Comparing the periods 2002-2005 and 2018-2020, the proportion of transplant candidates ages 65 or older increased from 8.9% to 23.1% ( $P < 0.0001$ ), reported Maria Stepanova, PhD, of the Center for Outcomes Research in Liver Diseases in Washington, D.C
- The average body mass index (BMI) was 29, and average Model for End-Stage Liver Disease (MELD) score was 19.
- The most common transplant indication was NASH (31%), followed by hepatocellular carcinoma (HCC; 30%) and hepatitis C (23%).

# Glyphosate (Round UP) Is Causing Fatty Liver Disease

Written by [Dr. Joseph Mercola](#) Fact Checked  
•May 28, 2019



- People with a more severe form of nonalcoholic fatty liver disease (NAFLD) called nonalcoholic steatohepatitis, or NASH, had significantly higher residues of glyphosate in their urine
- That exposure to glyphosate may lead to more severe forms of liver disease is concerning, since those with NASH are at increased risk of liver cirrhosis, liver cancer and higher liver-related and non-liver-related mortality
- Two-thirds of the total volume of glyphosate applied in the U.S. from 1974 to 2014 was applied in the last 10 years<sup>1</sup> — a time during which rates of NAFLD also increased.
- Glyphosate Exposure Linked to Advanced Liver Disease in Humans**
- Animal Studies Show Low-Level Exposure to Roundup Damages the Liver**
- Choline Deficiency Also Linked to Fatty Liver Disease**
- Verdicts in Glyphosate Trials Side With Victims, Awarding Billions in Damages**
- In August 2018, a jury ruled in favor of plaintiff Dewayne Johnson, Non-Hodgkin lymphoma. Monsanto paid: \$78 million.
- Bayer to pay more than \$80 million** to Edwin Hardeman, Roundup was responsible for his cancer diagnosis.<sup>23</sup>
- Alva and Alberta Pilliod, who claimed they both developed Non-Hodgkin lymphoma after regular use of Roundup. **Bayer to pay \$2 billion**<sup>24</sup>
- At least 13,400 lawsuits** are still looming from people who claim exposure to Roundup herbicide caused them health problems, including cancer.



# Bilirubin

**Clinical range 0.2-1.2 mg/dL**

**Healthy range 0.5-0.7mg/dL**

A major end-product of hemoglobin decomposition. RBC's rupture = hemoglobin is released and split into globin and heme. Heme = free bilirubin in the plasma, blood, interstitial fluids. Free bilirubin is absorbed into hepatic cells and is combined with glucuronic acid, sulfate and other chemicals to form conjugated bilirubin. A small portion of conjugated bilirubin returns to plasma, but most of the conjugated bilirubin is excreted by the hepatic cells directly into the bile ducts.

## Two types of jaundice.

1. **Liver disease**/Hemolytic Jaundice: Excess Red blood cell destruction, the liver cannot excrete the Free Bilirubin quickly enough.
2. Obstructive Jaundice: Obstruction of the bile ducts or by damage to the liver cells. The rate of RBC is normal but the Conjugated bilirubin from the liver cells cannot get into the intestines.

### DECREASED in:

Caffeine

### Drugs:

Barbiturates

Anemia

### INCREASED in:

#### Think gall bladder first

Hepatitis A

Pancreatic cancer possible with bilirubin at 12-25

Pulmonary embolism may elevate bilirubin after 4 days

Myocardial infarction may elevate bilirubin after 4 days

Liver disease

Fasting

Pancreatic disease

Jaundice over 2.4mg/dL

High doses of vit C and/or vit A

### INCREASED in continued:

High doses of nicotinic acid

Gilbert's disease (familial benign high bilirubin with normal AST & ALT and urinalysis)

Hodgkin's disease

Sickle cell disease

Alcoholism

Anemia

Wilson's disease

Chronic congenital hemolytic anemia

Bacteremia (with bilirubin up to 10)

Toxic shock syndrome

Malaria

### Drugs:

Cholinergics: (Most of these drugs cause direct effects, others cause effects in combination with other drugs)

Tensilon

Prostigmin

Camptosar

Cognex

Mestinon

Levsin

Robinul

Salagen

### INCREASED in continued:

Urecholine

Adineton

Aphrodyne

Cytospaz

Zemuron

Transderm

Humorsol

Risperdal

Pilopine

Isopto Carpine/Carbachol

Protopam Chloride

Effexor

Luvox

Quinidex

Donnatal

Cardioquin

Petro

Zoloft

Neurontin

Parafor Forte

Norcuron

Clozaril

Singulair

Ovide

Nicotrol

Zyprexa

### INCREASED in continued:

Quinidine

Gluconate

Axid

Ergamisol

Tracium Inj

Nuromax Inj

Nimbex Inj

Mivacron Inj

Propine

Ocufen

Betagan

Acular Ophthalmic Sol

Dextran

Theophylline

Acetaminophen

## Nutrients to consider:

**B-6 Pyridoxine**

**HCL/betaine, vit C, EPA/DHA, Gall Bladder procedure**





Integrative Oncology International conference in Seoul Korea. Dr. Van Merkle- Key Note speaker April 19, 2019





# The Liver:

## 500 chemical functions

- ⦿ Makes proteins
- ⦿ Stores vitamins iron, minerals and sugars
- ⦿ Regulates fat stores
- ⦿ Controls production and excretion of cholesterol
- ⦿ Regulates blood clotting
- ⦿ Produces bile for proper digestion of fats
- ⦿ Purify blood by neutralizing and destroying poisonous substances
- ⦿ Metabolizes alcohol and other drugs
- ⦿ Maintaining hormone balance
- ⦿ Produces immune factors
- ⦿ Removes bacteria for the blood
- ⦿ Regenerates its own damaged tissue

# Email from Patient

From: Alan O  
Sent: Friday,  
To: Pam  
Subject: My health

Dear Dr. Merkle:

I want right ahead into the program you told me do the catagory 2 program. I had to go to the hospital today for a chemical burn. I asked to be weighed. I knew I had lost weight but to my surprise... **I started out around 460ish now of today I weigh 370(actually the scale said 369.2).** I feel AWESOME. I am taking my supplements of which I can afford. Thank you so much and GOD bless you--I have struggled for years with this weight. I feel like a new man. My blood pressure is around 125/85 and I have enjoying walking 2 to 3 miles a day now. I am sending you a most resistant picture of me(about three weeks old)

Your Friend Alan L. O



### Primary Symptoms:

1. Reflux/Hiatal Hernia
2. Indigestion in 2 hours or more after meals
3. Belching and burping after eating
4. Indigestion

46 y/o male 5'10" 135 lbs

Todd: This is one very sick guy. I'd refer this one out for a second opinion. This looks like some sort of Leukemia. One of the worst I've seen. They might filter some of the white blood cells out.  
VAN

Alk. Phosphatase 25-530	66.00	Opt
Creatine Kinase	35.00	lo
LDH	1174.00	HI
SGOT (AST)	36.00	hi
SGPT (ALT)	22.00	Opt
GGT	21.00	lo
Serum Iron	106.00	Opt
Ferritin	817.00	HI
Total Cholesterol	184.00	hi
Triglyceride	163.00	HI
HDL Cholesterol	36.00	LO
VLDL Cholesterol	33.00	hi
LDL Cholesterol	115.00	HI
Total Cholesterol / HDL Ratio	5.10	HI
TSH	2.10	Opt
T4 Thyroxine	9.70	hi
T3 Uptake	29.00	Opt
T7 Free Thyroxine Index (FTI)	2.80	Opt
CRP C-Reactive Protein	1.70	hi
White Blood Count	237.30	HI
Red Blood Count	3.83	LO
Hemoglobin	12.10	lo
Hematocrit	36.10	lo
MCV	94.00	Opt
MCH	31.60	Opt
MCHC	33.50	Opt
RDW	17.50	HI
Platelets	356.00	hi
Polys/Neutrophils (SEGS-PMNS)	31.00	LO
Lymphocytes	13.00	LO
Monocytes	2.00	LO
Eosinophils	2.00	Opt
Basophils	1.00	Opt
Neutrophils/Polys (Absolute)	73.60	HI
Lymphs (Absolute)	30.80	HI
Monocytes (Absolute)	4.70	HI
Eosinophils (Absolute)	4.70	HI
Basophils (Absolute)	2.40	HI
ESR-Erythrocyte Sed Rate, Westerg	7.00	hi

# Email with SBN provider

- SBN provider: **He looks fine, and his only significant complaint is acid reflux.** I did some research, and saw that the only leukemia that causes ALL the white cells to go up (in adults) is CML...and that there is a drug available (Glivec) that has an ~ 90% 5year survival rate.  
[//en.wikipedia.org/wiki/Chronic\\_myelogenous\\_leukemia](http://en.wikipedia.org/wiki/Chronic_myelogenous_leukemia)
- His previous CBC, nine months ago, showed some "elevated WBC's, probably just a infection".
- Interestingly, he was a little reluctant to do the lab work initially, partly because I told him that a significant cause of his reflux was probably stemming from nerve irritation in his thoracic spine. Needless to say, he and his wife are now very glad that I insisted on running the blood work. He is also getting chiro. care 3x/wk, and had his first nearly complete relief from his typical reflux symptoms in 6 months, after just three adjustments.



# CML continued:

Todd,

I reviewed your previous email letter again and see that with Glivec he has a 90% 5 year survival rate. The question I want to know is what is the 10 year survival rate? SURVIVAL is the key term, which could mean drooling in agony and misery for 5 years but he didn't die.

What is the rate or return of the CML with medical treatment?

You have a lot more to offer and are truly his Last Best Hope for a long and happy life. I'd do all the testing possible: hair, DMSA etc. as soon as he can to get his system as healthy as possible.

Sincerely,

Van



# CML cont:

Email

Van,

Thank you for helping prepare me to handle a patient like this. I fully expect to start fielding all manner of (relatively) exotic pathologies from this day forward.

In a review of the things that could of caused this (ionizing radiation, benzene, etc.), he revealed to me that he did numerous 14-hour flights, twice a week for several years. I'm thinking that could be enough rads to express CML. Especially given the data I've seen that suggests that the "diagnostic" (chromosomal translocation) bcr-abl gene is present in one out of every 2 or 3 people, while the clinical neoplastic changes only occur in one in a hundred thousand. **This is one of the classic epigenetically-expressed diseases that expose the big lie of genetic determinism.**

The big trial that follows all the CML patients who are planning on taking Gleevec forever (\$70K/year), has gone on for eight years now, with 90+% remission, which is an eternity to oncologists. But the drug company's own "prescribing information" declares that imatinib **causes kidney cancer in rats, and heart failure in (some) humans.** A study in Europe (where financial imperatives reward less use of overpriced pharmaceuticals) has shown that 46% of CML patients (in complete metabolic remission for at least 2 years), have maintained remission after CESSATION of imatinib (for at least twelve months).

**I reassured my patient that a man who has caught this dysfunction early on, who takes much better care of himself than most of the average, sick, nutrient-deficient, toxin-overloaded people that are represented in all the current studies, stands a decent chance of putting this thing back into some kind of conservatively managed, permanent remission.**

Best, Todd Bxxxxxxx, DC



# U.N. Predicts Disaster if Global Warming Not Checked

PETER JAMES SPIELMAN June 29, 1989

UNITED NATIONS (AP) — A senior U.N. environmental official says entire nations could be wiped off the face of the Earth by rising sea levels if the global warming trend is not reversed by the year 2000.

There are over 100 years between the two photos. You can see the ever rising sea levels very well, can't you?

⚙ · Rate this translation



# Hepatitis A

- ⊙ Disease of **filth**: oral contact with feces of infected people
- ⊙ Often no symptoms
- ⊙ Older people affected more than younger
- ⊙ Before age 5 symptoms are rare
- ⊙ Incubation period is one month (can be infected for one month and only then begin to have symptoms)
- ⊙ Common symptoms: fever, loss of appetite, nausea, vomiting, stomachaches, dark urine, and jaundice
- ⊙ Symptoms 2-6 months
- ⊙ No cure
- ⊙ Vaccination is recommended for travelers. Sewage workers, food, health care workers and daycare workers should not be routinely vaccinated.(?) Under 2 years of age cannot be vaccinated
- ⊙ Immunoglobulin can be given after infection to ameliorate symptoms  
NOTE: antibodies indicate immunity

# Hepatitis A

- Mild, self-limiting disease in 4-8 weeks with no treatment.
- Pediatrics: “Most HAV infections in young children are asymptomatic... Clinical hepatitis occurs in fewer than 10 percent of infected children.”
- NIH: “Most people who have hepatitis A get well on their own after a few weeks.”
- 90% of children have no symptoms

# Hepatitis A

- ◎ Most cases are found in Third World areas, outside the US.
- ◎ Why is the U.S. the only country in the world which recommends the vaccine on a mass scale?
  - CDC recommends vaccination for all children between 12 months and 12 years of age
  - CDC recommends vaccination for travel south of the US and just about everywhere overseas.



# Hepatitis: Inflammation of liver

- If the liver is functioning poorly, so is almost everything else in the body.
- Common signs: Rashes, eczema, aches and pains, and other organ failures
- Increased risk of liver cancer

# Hepatitis B: Blood borne transmission

- ⊙ Incubation 45-180 days.
- ⊙ **Not all infected people get symptoms**
- ⊙ **Most get sick, recover and have immunity from then on.**
- ⊙ Symptoms: loss of appetite, tiredness, muscle and joint pain, stomachaches, diarrhea and vomiting, jaundice.
- ⊙ A large number develop chronic infections **(WHY?)**
- ⊙ 200,000 new cases of HBV, 20,000 remain chronically infected
- ⊙ 1.25 million Americans now have chronic HBV
- ⊙ 5,000 die each year from this liver disease and the liver cancer HBV caused
- ⊙ most common in drug users and sexually active 20-39 year olds, also **be aware of tattoos**, ear piercing, acupuncture, needles
- ⊙ Vaccine is available: its effectiveness is questionable, side effects can be more serious than the hepatitis B.
- ⊙ **NOTE: antibodies indicate immunity**
- ⊙ Medically the goal is to vaccinate everyone under 18 years of age.

# Hepatitis C: the nasty one

- ◎ The most common blood borne infection in the USA
- ◎ 4 million: most are unaware they are chronically infected
- ◎ The most frequent reason for liver transplants
- ◎ Medical expenses more than \$600 million per year
- ◎ Blood borne: drugs, tattoos, piercings, blood transfusions (most before 1992), transplants, accidental needle sticks
- ◎ Can be sexually transmitted
- ◎ Without/before drugs: 80% of infected people never get rid of it, but **20% do get rid of it!! NEJM**
- ◎ **50% of children are completely cleared in 20 years NEJM**
- ◎ 70% have chronic liver disease leading to liver cancer and death
- ◎ 40% of all liver disease in USA is HCV

# Medical Tx of HCV

- ◎ TX: Interferon and Ribavirin-poor results and severe side effects: fatigue, hair loss, low blood count, confusion, depression, psychiatric problems, thyroid disease, seizures, acute heart & **kidney failure**, eye & lung problems, hearing loss, blood infection, serious anemia, birth defects
- ◎ Latest 'new' treatment: Pegasys and Peg-Interon (Long acting interferon) are once a week injections combined with ribavirin.
- ◎ **Six months** after the 48-week treatment stopped 56% of patients had eliminated all traces of the virus.
  - same side effects as Interferon and Ribavirin
  - Research funded by Roche, the Swiss pharmaceutical company that is developing Pegasys and a new brand of ribavirin DDN 9-24-2002

# Hepatitis C: signs

- ◎ flulike symptoms-malaise, chills, fever, indigestion, loss of appetite, diarrhea
- ◎ pain at upper right side of abdomen beneath rib cage
- ◎ stomach bloating
- ◎ pain in the joints
- ◎ mood disturbances, mental fatigue
- ◎ frequent or continuous headaches
- ◎ exhaustion, and poor sleep patterns
- ◎ bad reactions to alcohol or fatty food
- ◎ fluid retention or puffy face
- itchy skin
- lymph node swelling
- frequent urination
- blood sugar disorders
- irregular menses, lower libido, menopausal symptoms
- chest pains
- dizziness or vision problems
- numbness in the extremities
- **good reasons to do a comprehensive blood test!**

# Hepatitis C Stats

*DDN 10-27-2005*

- 200,000 Ohioans
- \$30,000- cost of drugs
  - harsh side effects of drug treatment
- \$340,000- cost of liver transplant



# Hepatitis C: Treatment

- HCV RNA, Interferon, Ribavirin
- Expensive
- Not highly effective
- Only sometimes efficacious
- Many serious side effects

# Hepatitis C Cases Soar Due to Drug Use- USA Today 5-8-2015

“We’re in the midst of a national epidemic.” and the rising infection rates “staggering”.

- John Ward, CDC 3.2 million Americans have Hepatitis C

Newly approved drug- Sovaldi, cures hepatitis C in 90% of patients- cost \$84,000.00 for a 12 week treatment.

The increased is due drug use and the prescription injected painkiller called Opana.

# Hepatitis C Viral Load.

<https://www.webmd.com/hepatitis/hepatitis-c-viral-load#1>

- **High viral load:** more than 800,000 IU/mL.
- If your viral count is high at the start, it can be hard or impossible for your treatment to completely get rid of the virus.
- Some researchers consider high levels anything above 400,000 IU/mL.
- **Low viral load:** This is a count below 800,000 IU/mL. Your odds that treatment will make all or most of your HCV go away are better than with a high viral load.
- **Undetectable viral load:** This doesn't necessarily mean you have no viruses. Undetectable levels can differ, depending on how precise your test is, the lab you use, and how it handled the blood sample. You still may have viruses, but too few for the tests to pick up.

# Hepatitis C Viral Load.

<https://www.webmd.com/hepatitis/hepatitis-c-viral-load#1>

- Two newer tests -- transcription-mediated amplification (TMA) and polymerase chain reaction (PCR) -- can measure as few as 5-10 IU/mL. A third one, called branched-chain DNA (bDNA), may miss viral loads below 615 IU/mL.
- **Sustained virological response:** no trace of HCV in your blood 12 weeks after you stop treatment. It's also called a viral cure.
- It means your disease is in remission and your hep C is no longer active. Your liver may start to heal, and your chances for [liver failure](#) and [liver cancer](#) may drop.
- To confirm, you may need to repeat the test or take a qualitative test that checks if you're negative for any trace of viral genetic material.

Pharmaceutical companies are developing new drugs in only two therapeutic areas these days -- cancer and rare diseases.

by Milton Packer MD April 18, 2018 MedPage 4-19-2018

Most new drugs for cancer and rare diseases are being priced above \$400,000 a year per patient. Some at \$1 million per treatment. And prices continue to soar.

**The analyst asks: "Is curing patients a sustainable business model?"**

According to an [article by Tae Kim on CNBC](#), Goldman Sachs issued a report (by Salveen Richter): **drug developers might want to think twice about making drugs that were too effective.** Richter's report, entitled "The Genome Revolution," was issued on April 10 and says:

**“such treatments offer a very different outlook with regard to recurring revenue versus chronic therapies with sustained cash flow.**



# Now it seems that curing people isn't profitable enough.

Just imagine a company has a new drug that can cure a disease in >90% of patients with one dose.

- The obvious suggestion: **Could you possibly make the drug a bit less effective**, so that people would need to continue to take it on an ongoing basis, so you would be able to generate more money?

- **Or could we propose that you charge \$1 million for a course of treatment?**

Early this year, Spark Therapeutics introduced its new drug (Luxturna) for a rare form of blindness. It promises a cure with a single dose. The price tag is \$425,000 per eye. That means \$850,000 for a cure.



- The Goldman Sachs report cites the example of Gilead Sciences (ticker symbol GILD), which gained approval for its novel hepatitis C treatment Sovaldi in 2013, followed by Harvoni less than a year later.
- Their introduction was a landmark event: a near-certain cure for hepatitis C in 12 weeks. When Harvoni was introduced, a 12-week course in the U.S. cost \$94,500. Interestingly, in India, the same 12-week course of treatment cost only \$900. (I assume that the company was still making a profit on its sales in India.)
- In her report, Ms. Richter notes that U.S. sales for the hepatitis C treatments peaked at \$12.5 billion in 2015, but have been falling ever since. Goldman estimates the U.S. sales for these treatments will be less than \$4 billion this year. Ms. Richter laments this development.
- She writes: "GILD is a case in point, where the success of its hepatitis C franchise has gradually exhausted the available pool of treatable patients," the analyst wrote. "In the case of infectious diseases such as hepatitis C, curing existing patients also decreases the number of carriers able to transmit the virus to new patients, thus the incident pool also declines."
- "[Gilead]'s rapid rise and fall of its hepatitis C franchise highlights one of the dynamics of an effective drug that permanently cures a disease, resulting in a gradual exhaustion of the prevalent pool of patients," the analyst wrote. "... diseases such as common cancers -- where the 'incident pool remains stable' -- are less risky for business."

- Want to make money? Develop drugs that cure nothing, but yet promote long-term use and dependency, and shorten life. Bankers and payers will love it.
- We have those drugs already. They're called opiates.
- 04.18.2018
- — Spring Texan
- Thanks. I share your anger. It's insane that pharma is still mouthing stuff about "value-based pricing" (meaning, **if we save your life, no price is too extortionate regardless of what our costs are**) and patting itself on the back.

- 04.18.2018
- — **tbran10**
- Let's talk basics. The allopathic medicine model focuses on treating the symptoms of disease states add nauseam.
- **TWO Trillion dollars are spent annually treating the symptoms. Seniors consume 50% of the Rx drugs per year. That's 225 BILLION dollars worth.**
- It's not space science. It's common sense that we have a toxic food lifestyle in the US impacting the majority of Americans.
- USDA knows it and NIH denies it.
- **The US spends about 50% more per capita on healthcare than any other country and we don't have longevity in life.** In fact life span in the US has flattened. Isn't it time we have a honest public discussion on our sickcare system.
- **2024: the USA is 47 in longevity in the world.**

# Cure for Hepatitis B Pushed

## Disease affecting 257 million people needs better treatment

by Ed Susman, Contributing Writer, MedPage Today April 10, 2019

VIENNA – The International Liver Conference kicked off here today with a push to find a cure – not just maintenance treatment – for the one quarter billion people living with hepatitis B virus (HBV) infection, but researchers said that finding **a cure could be elusive, and it certainly won't come quickly.**

"I think we are still at least 3 years away from starting a Phase III clinical trial that would probably include a combination therapy," said Massimo Levrero, PhD, a member of the governing body of the International Coalition to Eliminate HBV (ICE-HBV) and director of the Cancer Research Centre of Lyon in France.

Levrero, one of several participants in a press conference at the start of the 5-day annual meeting of the European Association for the Study of the Liver, told *MedPage Today* that there are numerous drug treatment candidates being tested to attack various structures of the virus, but he compared HBV to HIV rather than

**hepatitis C virus – for which an 8-week functional cure is now available.**

"Hepatitis B is very different than hepatitis C, and it is very difficult to eradicate, as is HIV," he said.

While HIV eradication is very rare – with only two known and verified cures worldwide, hepatitis B has been cured by various methods – but in less than 10% of cases, said Peter Revill, PhD, senior medical scientist at the Victorian Infectious Diseases Reference Laboratory in Melbourne, Australia. At the press conference, Revill suggested that as many as one million people in the world have been cured of hepatitis B – but there are an estimated 257 million people living with hepatitis B infection.

# Hepatitis C: Etiology

- ◎ The body's immune system attacks virus in two ways. One by producing antibodies that destroy the virus as in HVA and HVB.
- ◎ The HVC virus has the ability to alter its “appearance”, essentially changing its form every time the immune system devises a response to it. **It may be that, as with HIV, even more new and resistant strains begin to develop when drugs are used to attack HCV**
- ◎ Thus, since the antibodies can't figure a way to kill the virus. The body sends cyto-toxic (Killer) T lymphocytes to destroy the liver cells that the virus has attacked.
- ◎ There is a lot of liver and it is good at regenerating itself, however, eventually—sometimes after many years—fibrosis and further inflammation progress to cirrhosis.
- ◎ **In fact, the virus may be less significant than the immune system response that it provokes.** Some people with high viral loads have very little damage.

# Hepatitis to Cirrhosis

- ◎ Lymphocytes, while attacking the virus, also harm the liver.
- ◎ Causing scarring, called fibrosis
- ◎ When scarring is severe enough to impede blood flow, this is called Cirrhosis
- ◎ Blood backs up into other organs and tissues and serous fluid leaks into the peritoneal cavity, this is called ascites.



# Dismissed by specialist

- ◎ Patient E, with Hepatitis C for 5+years.
- ◎ Started her SBN program and in 3 months her 'viral load' was back to normal.
- ◎ Her MD was upset that she didn't do the Interferon and dismissed her as an uncooperative patient.
- ◎ She told me that the MD seemed upset that she improved so much without the drugs.

# Hepatitis B and C Screening

- ◎ Hepatitis Profile VIII (Hep. B and C Profile) is a test that tests, evaluates, and stages the patient with HBV and HCV.
- ◎ The Hepatitis Panel, Acute would be a screening for ABC.
- ◎ The Hepatitis C Antibody EIA-2 test is a good screening test for Hepatitis C Virus infection.
  - When this test is positive it can indicate chronic Hepatitis, recovered or recent acute hepatitis C. This can be a false positive, if there are no symptoms, low-risk behavior and a normal SGPT (ALT) level then the diagnosis of HCV can be supported or confirmed by the recombinant immunoblot assay (RIBA) or tests for HCV RNA.
- ◎ The Hepatitis QuantaSure is really only done if a patient is a known positive for Hep. C.
- ◎ Hepatitis C Virus (HCV) QuantaSure™ Plus, Quantitative, by TaqMan™ PCR Test number 550033 CPT code 87522 This will measure the number of copies of Hep C virus in HCV positive patients.

## The HBV quantitative real-time PCR assay has a quantitative range of 10 to 1,000,000,000 IU/mL.

- An **HBV viral load** of greater than 2,000 IU/mL indicates that the **virus** is active and has the potential to cause damage to the liver.
- If the **HBV viral load** is above these numbers, treatment is considered necessary.
- 
- Instead of writing 100,000 copies/mL, labs may report it as one to the fifth power or  $10^5$  or 5 log. In mathematical jargon, a “log” equals a number multiplied by 10. If you have a viral load of  $10^5$  copies/mL, it is actually,  $10 \times 10 \times 10 \times 10 \times 10$  or 100,000. When you read a medical report that describes a patient with a high viral load as having HBV DNA that is greater than 100,000 copies/mL, it may be written HBV DNA > 5 log copies/mL or  $10^5$  copies/mL.
- Every log rise or fall is equivalent to a ten-fold increase or decrease. A change from 10 to 100 is a 1-log increase; a change from 1,000,000 to 10,000 is a 2-log decrease. Someone with a viral load of 300,000 copies/mL who experiences a one-log decrease achieves a viral load of 30,000 copies/mL. When someone is treated, doctors monitor HBV DNA levels carefully.
- A one- or two-log decrease in viral load means an antiviral is working. A one- or two-log increase means an antiviral has stopped working and that viral resistance has developed.
- An undetectable viral load (which means fewer HBV DNA than a lab’s equipment can identify) generally is lower than about 300 copies/mL. •Moderate levels of HBV DNA begin at about 10,000 to copies/mL. •High levels of HBV DNA can exceed 100,000 copies/mL.
- It is not unusual for someone with the hepatitis B “e” antigen (HBeAg) to have millions of HBV DNA



# Leslie's Test

## June 21 and July 6, 2004

Test Description	Current Result	Current Rating	Prior Result	Delta	Healthy	Clinical	Units
Date: 07/06/2004			06/21/2004				
Glucose			111.00	😊	80.00 - 95.00	65.00 - 99.00	mg/dL
Hemoglobin A1C (Gly-Hgh)			6.00	😊	4.61 - 5.40	4.50 - 5.70	%
Uric Acid			5.40		4.10 - 6.00	2.40 - 8.20	mg/dL
BUN (Blood Urea Nitrogen)			11.00	😊	13.10 - 18.00	5.00 - 26.00	mg/dL
Creatinine			0.80		0.61 - 0.90	0.50 - 1.50	mg/dL
BUN / Creatinine Ratio			14.00	😞	13.10 - 20.00	8.00 - 27.00	ratio
Sodium			130.00	😊	140.10 - 144.00	135.00 - 148.00	meq/dL
Potassium			4.60	😊	3.91 - 4.60	3.50 - 5.50	meq/dL
Chloride			94.00	😊	100.10 - 106.00	96.00 - 109.00	meq/dL
Magnesium			1.60		2.21 - 2.51	1.60 - 2.60	mg/dL
Calcium			9.20	😊	9.71 - 10.10	8.50 - 10.60	mg/dL
Phosphorus			2.80		3.41 - 4.00	2.50 - 4.50	mg/dL
Calcium/Albumin Ratio			2.36		2.10 - 2.50	2.03 - 2.71	ratio
Total Protein			7.00	😞	7.11 - 7.61	6.00 - 8.50	gm/dL
Albumin			3.90	😊	4.10 - 4.51	3.50 - 5.50	gm/dL
Globulin			3.10	😞	2.81 - 3.51	1.50 - 4.50	gm/dL
A/G Ratio			1.30	😞	1.22 - 1.60	1.10 - 2.50	ratio
Total Bilirubin			0.60		0.39 - 0.93	0.10 - 1.20	mg/dL
Alkaline Phosphatase 25-150			290.00	😊	66.00 - 108.00	25.00 - 150.00	IU/L
Creatine Kinase			103.00		64.00 - 133.00	24.00 - 173.00	u/l
LDH			280.00		120.10 - 160.00	100.00 - 250.00	mu/mL
SGOT (AST)			146.00	😊	18.10 - 26.00	6.00 - 40.00	mu/mL
SGPT (ALT)			115.00	😊	18.10 - 26.10	6.00 - 40.00	mu/mL
GGT			1890.00		10.10 - 36.00	6.00 - 65.00	mu/mL
Serum Iron			74.00		85.10 - 120.00	35.00 - 155.00	mcg/dL
Ferritin			1255.00		30.10 - 218.30	10.00 - 291.00	ng/mL
Cholesterol			1090.00	😊	140.10 - 170.00	100.00 - 199.00	mg/dL
Triglyceride			4920.00	😊	80.10 - 115.00	10.00 - 199.00	mg/dL
HDL Cholesterol			74.00		55.10 - 120.00	40.00 - 150.00	mg/dL
VLDL Cholesterol					5.10 - 20.10	4.10 - 40.10	mg/dL
LDL Cholesterol					50.10 - 75.10	6.00 - 99.10	mg/dL
Total Cholesterol / HDL Ratio			14.70		0.00 - 4.00	0.00 - 5.00	ratio
T4 Thyroxine			1.80		7.10 - 9.00	4.50 - 12.00	mcg/dL
T3 Uptake			43.00		29.10 - 35.10	24.00 - 39.00	%
T7 Free Thyroxine Index (FTI)			0.80		2.61 - 3.60	1.20 - 4.90	
White Blood Count			3.40	😊	5.10 - 8.00	4.00 - 10.50	k/cumm
Red Blood Count			3.38	😞	4.51 - 5.50	3.80 - 5.60	m/cumm
Hemoglobin			11.00	😞	13.30 - 15.20	11.50 - 17.00	gm/dL
Hematocrit			31.50	😞	39.51 - 47.00	34.00 - 50.00	%
MCV			93.00	😞	85.10 - 97.00	80.00 - 98.00	cu.m
MCH			32.50	😞	28.10 - 32.00	27.00 - 34.00	pg
MCHC			34.90	😞	33.10 - 34.99	32.00 - 36.00	%
Platelets			154.00	😞	175.10 - 250.00	140.00 - 415.00	k/cumm
Polys (SEGS-PMNS)			33.00	😊	55.10 - 65.00	40.00 - 74.00	%
Lymphocytes			40.00	😞	25.10 - 40.00	14.00 - 46.00	%
Monocytes			27.00	😊	5.10 - 7.10	4.90 - 13.00	%
Eosinophils			0.00		0.00 - 4.10	0.00 - 7.00	%
Basophils			0.00	😞	0.00 - 0.00	0.00 - 3.00	%
ESR (Erythrocyte Sed Rate)			60.00	😊	0.00 - 8.00	0.00 - 30.00	mm/HR
CRP C-Reactive Protein			6.10		0.00 - 0.00	0.00 - 4.90	mg/L
Carbon Dioxide (CO2)					20.90 - 26.10	17.00 - 30.00	mmol/L

# Leslie's Test

## June 21 and July 6, 2004

Test Description	Current Result	Current Rating	Prior Result	Delta	Healthy	Clinical	Units
Date:	07/06/2004		06/21/2004				
Glucose	71.00	lo	111.00	☹	80.00 - 95.00	65.00 - 99.00	mg/dL
Hemoglobin A1C (Gly-Hgh)	5.00	Opt	6.00	☹	4.61 - 5.40	4.50 - 5.70	%
Uric Acid			5.40		4.10 - 6.00	2.40 - 8.20	mg/dL
BUN (Blood Urea Nitrogen)	17.00	Opt	11.00	☹	13.10 - 18.00	5.00 - 26.00	mg/dL
Creatinine	0.70	Opt	0.80		0.61 - 0.90	0.50 - 1.50	mg/dL
BUN / Creatinine Ratio	24.00	hi	14.00	☹	13.10 - 20.00	8.00 - 27.00	ratio
Sodium	135.00	LO	130.00	☹	140.10 - 144.00	135.00 - 148.00	meq/dL
Potassium	4.00	Opt	4.60	☹	3.91 - 4.60	3.50 - 5.50	meq/dL
Chloride	100.00	lo	94.00	☹	100.10 - 106.00	96.00 - 109.00	meq/dL
Magnesium			1.60		2.21 - 2.51	1.60 - 2.60	mg/dL
Calcium	9.30	lo	9.20	☹	9.71 - 10.10	8.50 - 10.60	mg/dL
Phosphorus			2.80		3.41 - 4.00	2.50 - 4.50	mg/dL
Calcium/Albumin Ratio	2.20	Opt	2.36		2.10 - 2.50	2.03 - 2.71	ratio
Total Protein	6.50	lo	7.00	☹	7.11 - 7.61	6.00 - 8.50	gm/dL
Albumin	4.20	Opt	3.90	☹	4.10 - 4.51	3.50 - 5.50	gm/dL
Globulin	2.30	lo	3.10	☹	2.81 - 3.51	1.50 - 4.50	gm/dL
A/G Ratio	1.80	hi	1.30	☹	1.22 - 1.60	1.10 - 2.50	ratio
Total Bilirubin	0.60	Opt	0.60		0.39 - 0.93	0.10 - 1.20	mg/dL
Alkaline Phosphatase 25-150	96.00	Opt	290.00	☹	66.00 - 108.00	25.00 - 150.00	IU/L
Creatine Kinase			103.00		64.00 - 133.00	24.00 - 173.00	u/l
LDH			280.00		120.10 - 160.00	100.00 - 250.00	mu/mL
SGOT (AST)	34.00	hi	146.00	☹	18.10 - 26.00	6.00 - 40.00	mu/mL
SGPT (ALT)	31.00	hi	115.00	☹	18.10 - 26.10	6.00 - 40.00	mu/mL
GGT			1890.00		10.10 - 36.00	6.00 - 65.00	mu/mL
Serum Iron			74.00		85.10 - 120.00	35.00 - 155.00	mcg/dL
Ferritin			1255.00		30.10 - 218.30	10.00 - 291.00	ng/mL
Cholesterol	194.00	hi	1090.00	☹	140.10 - 170.00	100.00 - 199.00	mg/dL
Triglyceride	82.00	Opt	4920.00	☹	80.10 - 115.00	10.00 - 199.00	mg/dL
HDL Cholesterol	71.00	Opt	74.00		55.10 - 120.00	40.00 - 150.00	mg/dL
VLDL Cholesterol	16.00	Opt			5.10 - 20.10	4.10 - 40.10	mg/dL
LDL Cholesterol	107.00	HI			50.10 - 75.10	6.00 - 99.10	mg/dL
Total Cholesterol / HDL Ratio			14.70		0.00 - 4.00	0.00 - 5.00	ratio
T4 Thyroxine			1.80		7.10 - 9.00	4.50 - 12.00	mcg/dL
T3 Uptake			43.00		29.10 - 35.10	24.00 - 39.00	%
T7 Free Thyroxine Index (FTI)			0.80		2.61 - 3.60	1.20 - 4.90	
White Blood Count	6.50	Opt	3.40	☹	5.10 - 8.00	4.00 - 10.50	k/cumm
Red Blood Count	2.55	LO	3.38	☹	4.51 - 5.50	3.80 - 5.60	m/cumm
Hemoglobin	8.40	LO	11.00	☹	13.30 - 15.20	11.50 - 17.00	gm/dL
Hematocrit	25.70	LO	31.50	☹	39.51 - 47.00	34.00 - 50.00	%
MCV	101.00	HI	93.00	☹	85.10 - 97.00	80.00 - 98.00	cu.m
MCH	33.10	hi	32.50	☹	28.10 - 32.00	27.00 - 34.00	pg
MCHC	32.80	lo	34.90	☹	33.10 - 34.99	32.00 - 36.00	%
Platelets	355.00	hi	154.00	☹	175.10 - 250.00	140.00 - 415.00	k/cumm
Polys (SEGS-PMNS)	75.00	HI	33.00	☹	55.10 - 65.00	40.00 - 74.00	%
Lymphocytes	12.00	LO	40.00	☹	25.10 - 40.00	14.00 - 46.00	%
Monocytes	9.00	hi	27.00	☹	5.10 - 7.10	4.90 - 13.00	%
Eosinophils	3.00	Opt	0.00		0.00 - 4.10	0.00 - 7.00	%
Basophils	1.00	hi	0.00	☹	0.00 - 0.00	0.00 - 3.00	%
ESR (Erythrocyte Sed Rate)	59.00	HI	60.00	☹	0.00 - 8.00	0.00 - 30.00	mm/HR
CRP C-Reactive Protein			6.10		0.00 - 0.00	0.00 - 4.90	mg/L
Carbon Dioxide (CO2)	19.00	lo			20.90 - 26.10	17.00 - 30.00	mmol/L



# Leslie's Medications

- Ambien
- Effexor
- Gemfibrozil
- Lisinopril
- Loratadine
- Ranitidine
- Toprol
- Tylenol
- Warfarin Sodium
- Welchol
- Xalatan

# Leslie's Supplement List

## ● **FOR 2 WEEKS:**

- Greens First 2/day
- Glutagenics 3 tsp./day
- RM-10 9/day
- Liver 6/day
- Lauricidin 1/2 tsp. 4 times a day,
- Vitamin C Powder 2 tsp./day
- Acidophilus 2/day,
- Sublingual B12 6/day
- CO Q 10 2/day
- **In two weeks retest the SGOT, SGPT, GGT, CBC and ESR**

# Leslie's Complete Supplement List

## Post Retest

- |                |        |                       |        |
|----------------|--------|-----------------------|--------|
| • Bio-Dophulis | 2      | • Spectramin Chelate  | 2      |
| • Calcium MCHC | 3      | • Pwdr Vitamin C      | 2 tsp. |
| • Chlorella    | 4      | • Greens First        | 2      |
| • Co-Q-Melt    | 2      | • Sublingual B12 Plus | 6      |
| • Glutagenics  | 3 tsps | • Ultra Preventive    | 2      |
| • Liver        | 6      | • RM-10               | 9      |
| • Mag Malate   | 3      | • Lauricidin          | 4      |

# SBN member JW: 8-2019

## Pt: female 62yr/o; 5'3", 206lbs

- Presenting symptoms:
- 1. Osteoporosis M81.0
- 2. Irritable Bowel Syndrome K58.9
- 3. Anxiety Disorder F41.9
- 4. Obesity E66.9

- Medications:

- Alprazolam – Insomnia
- Atenolol – hypertension
- Gabapentin – antiepileptic
- Hydroxyzine - anxiety
- Lidocaine – pain
- Lomotil - diarrhea
- Metformin HCL – diabetes
- Methocarbamol - pain
- Naprosyn - pain
- Trazodone -antidepressant

# SBN member JW: 8-2019

## Pt: female 62yr/o; 5'3", 206lbs

JW on 9/25/19 at 2:28 PM HELP !!

My first patient with SBN!! This patient is going seriously downhill fast. She has non-alcoholic fatty liver disease (cirrhosis). They just took 2 liters of fluid off her abdomen. Medically they aren't doing much but giving her more drugs. In addition to the TEN listed on her report she's also taking albuterol, dovonex, cholecalciferol, temovate, romosuzumab, lidex, furosemide, nizoral, omeprazole, aldactone, valtrex, reconst (some of these are topicals). I think the Rx are killing her... literally. I don't think any one body can handle 21 different drugs. I put her on the SBN/Merkle supplements. After one day she got severe diarrhea and had to quit. She's nauseated and has no appetite. I have her drinking carrot/greens juices.

Questions: Are any of those drugs 'necessary' or helpful? I am considering taking her off most (she is the significant other of my nephew so I have a little bit more latitude with her than a regular patient).

Which of the SBN supplements would be most critical to support her liver and I'll try to introduce them gradually? Any other recommendations.

Van Merkle replied on 9/26/19 at 11:31 AM

heart to heart with the patient: she is not going to live long. I would only have her take the bp drug. Anxiety, depression, insomnia, drugs: she has more serious problems and these drugs are bad. I'd also stop the metformin: very bad for gi, liver etc. not worried about diabetes, the cat 1 diet will fix that. In fact, I'd have her do the Fresh Start Diet for 7-10 days. along with those vitamins only during that time.

I would bet that the drugs are shutting the liver down too and that this can be reversed if the patient is willing to try this for 2 weeks. can she tolerate being 'depressed and anxious' for 2 weeks?

JW replied on 12/4/19 at 12:39 PM

When you said "heart to heart with the patient: she is not going to live long" you knew what you were talking about. We only had a couple of days on the intensive you recommended and then had to put her in the hospital. She was in one of our best local hospitals for 3-4 weeks, out to a rehab hospital for one week and then in and out of the U of M hospital until she went in a couple of weeks ago for a liver transplant. She died on the operating table two hours into the surgery with a blood clot to the heart, apparently not an uncommon thing with liver transplants.

Thank you for your assistance and consulting on this case. I am just sorry we didn't get to her a year earlier.

Approve

Done

Test Description	Current Rating 08/12/2019	Prior	Delta
Glucose	137.00 High		8
Hemoglobin A1C (Gly-High)	6.80 High		
Uric Acid	3.10 low		
BUN (Blood Urea Nitrogen)	11.00 *		1
Creatinine	0.56 Low		
GFR Est.	100.00 *		5
BUN / Creatinine Ratio	20.00 *		1
Sodium	138.00 low		13
Potassium	4.30 *		
Chloride	101.00 low		10
Magnesium	1.90 *		
Calcium	8.30 Low		
Phosphorus	3.00 low		
Total Protein	5.90 Low		
Albumin	3.30 Low		
Globulin	2.60 low		
A/G Ratio	1.30 *		
Total Bilirubin	1.00 high		
Alk. Phosphatase	123.00 High		6
Creatine Kinase	60.00 *		3
LDH	267.00 Very High		15
SGOT (AST)	151.00 Very High		1
SGPT (ALT)	71.00 Very High		
GGT (r-GTP)	95.00 High		1
Serum Iron	87.00 *		5
Ferritin	107.00 *		4
Total Cholesterol	127.00 low		15
Triglyceride	75.00 *		5
HDL Cholesterol	44.00 low		5
VLDL Cholesterol	15.00 *		
LDL Cholesterol	68.00 *		5
Total Cholesterol / HDL Ratio	2.90 *		
TSH	3.17 *		
T4 Thyroxine	10.70 high		
T3 Uptake	22.00 Low		2
T7 (Free T4 Index) (FTI)	2.40 low		
CRP C-Reactive Protein	21.00 Very High		
White Blood Count	4.10 low		
Red Blood Count	4.52 *		
Hemoglobin	12.90 *		1
Hematocrit	39.80 *		3
MCV	88.00 *		8
MCH	28.50 low		2
MCHC	32.40 low		3
RDW	14.00 *		1
Platelets	114.00 Low		25
Polys/Neutrophils (SEGS-PMNS)	64.00 high		5
Lymphocytes	33.00 *		2
Monocytes	2.00 Low		
Eosinophils	0.00 *		
Basophils	1.00 *		
Neutrophils/Polys (Absolute)	2.60 low		
Lymphs (Absolute)	1.40 *		
Monocytes (Absolute)	0.10 Low		

# Press On

- ◎ Nothing in this world can take the place of persistence.
- ◎ Talent will not: nothing is more common than unsuccessful people with talent.
- ◎ Genius will not: unrewarded genius is almost a proverb.
- ◎ Education will not: the world is full of educated derelicts.
- ◎ Persistence and determination alone are omnipotent.
  
- ◎ Calvin Coolidge



# Hepatitis Recommendations

- ◎ Strict diet: semi vegan, organic, low glycemic diet
- ◎ Treat the whole body
- ◎ Vitamins for the liver, dosage based on severity and chronicity:
  - Vitamin C
  - Beta Carotene
  - Liver glandular
  - Lauricidin
  - Specialty products: RM 10; Immuni T, etc

# Thiamine (B1) in the Tx of Chronic Hepatitis B

- ◎ Thiamine may be antiviral.
- ◎ May slow or reverse liver damage
- ◎ Correlation exists between thiamine deficient populations and the prevalence of Chronic HBV.
- ◎ During thiamine administration Aminotransferase levels dropped substantially.
- ◎ When the thiamine was removed from the patients, Aminotransferase levels rose again.
- ◎ Thiamine and lipoic acid are coenzymes for the decarboxylation of pyruvate and the oxidation of alpha keto-glutamic acid.
  - **The study was small but is there any harm in using Thiamine?**
  - *The American Journal of Gastroenterology* March 2001; 96: 864-868

JH23694 Test 6-25-2004

22 year old weight lifter.

Diagnosed with Lupus  
and told to prepare for a  
liver or kidney transplant  
in 10 years. ANA was  
negative

Advil, Coumadin,  
Plaquenil, Prednisone

**Even on these drugs  
he felt no better.**

Test Description	Current Result	Current Rating	Prior Result	Delta	Healthy	Clinical	Units
Date: 06/25/2004							
Glucose	91.00	Opt			80.00 - 95.00	65.00 - 99.00	mg/dL
Hemoglobin A1C (Gly-Hgh)	5.50	hi			4.61 - 5.40	4.50 - 5.70	%
Uric Acid	8.50	HI			4.10 - 6.00	2.40 - 8.20	mg/dL
BUN (Blood Urea Nitrogen)	12.00	lo			13.10 - 18.00	5.00 - 26.00	mg/dL
Creatinine	1.00	hi			0.61 - 0.90	0.50 - 1.50	mg/dL
BUN / Creatinine Ratio	12.00	lo			13.10 - 20.00	8.00 - 27.00	ratio
Sodium	138.00	lo			140.10 - 144.00	135.00 - 148.00	meq/dL
Potassium	4.50	Opt			3.91 - 4.60	3.50 - 5.50	meq/dL
Chloride	98.00	lo			100.10 - 106.00	96.00 - 109.00	meq/dL
Magnesium	1.70	lo			2.21 - 2.51	1.60 - 2.60	mg/dL
Calcium	9.30	lo			9.71 - 10.10	8.50 - 10.60	mg/dL
Phosphorus	3.60	Opt			3.41 - 4.00	2.50 - 4.50	mg/dL
Calcium/Albumin Ratio	2.60	hi			2.10 - 2.50	2.03 - 2.71	ratio
Total Protein	6.60	lo			7.11 - 7.61	6.00 - 8.50	gm/dL
Albumin	3.60	lo			4.10 - 4.51	3.50 - 5.50	gm/dL
Globulin	3.00	Opt			2.81 - 3.51	1.50 - 4.50	gm/dL
A/G Ratio	1.20	lo			1.22 - 1.60	1.10 - 2.50	ratio
Total Bilirubin	0.90	Opt			0.39 - 0.93	0.10 - 1.20	mg/dL
Alkaline Phosphatase 25-150	73.00	Opt			66.00 - 108.00	25.00 - 150.00	IU/L
Creatine Kinase	345.00	HI			64.00 - 133.00	24.00 - 173.00	u/l
LDH	189.00	hi			120.10 - 160.00	100.00 - 250.00	mu/mL
SGOT (AST)	30.00	hi			18.10 - 26.00	6.00 - 40.00	mu/mL
SGPT (ALT)	22.00	Opt			18.10 - 26.00	6.00 - 40.00	mu/mL
GGT	10.00	lo			10.10 - 36.00	6.00 - 65.00	mu/mL
Serum Iron	83.00	lo			85.10 - 120.00	35.00 - 155.00	mcg/dL
Ferritin	59.00	Opt			30.10 - 218.30	10.00 - 291.00	ng/mL
Cholesterol	197.00	hi			140.10 - 170.00	100.00 - 199.00	mg/dL
Triglyceride	162.00	hi			80.10 - 115.00	10.00 - 199.00	mg/dL
HDL Cholesterol	40.00	LO			55.10 - 120.00	40.00 - 150.00	mg/dL
VLDL Cholesterol	32.00	hi			5.10 - 20.10	4.10 - 40.10	mg/dL
LDL Cholesterol	125.00	HI			50.10 - 75.10	6.00 - 99.10	mg/dL
Total Cholesterol / HDL Ratio	4.90	hi			0.00 - 4.00	0.00 - 5.00	ratio
T4 Thyroxine	8.50	Opt			7.10 - 9.00	4.50 - 12.00	mcg/dL
T3 Uptake	34.00	Opt			29.10 - 35.10	24.00 - 39.00	%
T7 Free Thyroxine Index (FTI)	2.90	Opt			2.61 - 3.60	1.20 - 4.90	
White Blood Count	3.60	LO			5.10 - 8.00	4.00 - 10.50	k/cumm
Red Blood Count	4.15	lo			4.51 - 5.50	3.80 - 5.60	m/cumm
Hemoglobin	14.60	Opt			13.30 - 15.20	11.50 - 17.00	gm/dL
Hematocrit	42.60	Opt			39.51 - 47.00	34.00 - 50.00	%
MCV	103.00	HI			85.10 - 97.00	80.00 - 98.00	cu.m
MCH	35.10	HI			28.10 - 32.00	27.00 - 34.00	pg
MCHC	34.20	Opt			33.10 - 34.99	32.00 - 36.00	%
Platelets	232.00	Opt			175.10 - 250.00	140.00 - 415.00	k/cumm
Polys (SEGS-PMNS)	64.00	Opt			55.10 - 65.00	40.00 - 74.00	%
Lymphocytes	21.00	lo			25.10 - 40.00	14.00 - 46.00	%
Monocytes	12.00	hi			5.10 - 7.10	4.90 - 13.00	%
Eosinophils	2.00	Opt			0.00 - 4.10	0.00 - 7.00	%
Basophils	1.00	hi			0.00 - 0.00	0.00 - 3.00	%
ESR (Erythrocyte Sed Rate)	18.00	hi			0.00 - 8.00	0.00 - 30.00	mm/HR
CRP C-Reactive Protein	1.30	hi			0.00 - 0.00	0.00 - 4.90	mg/L

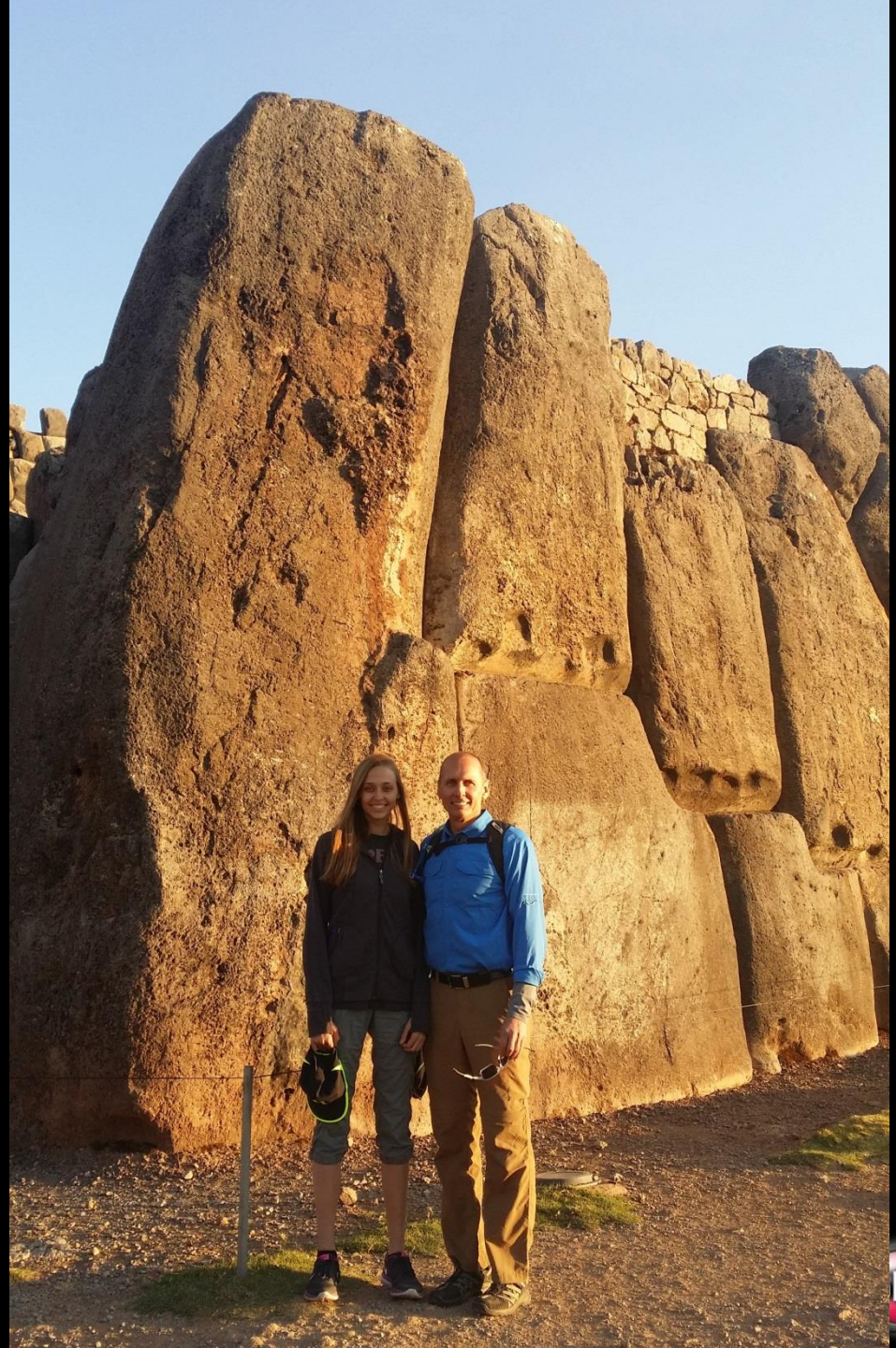
# JH23694 Supplement List

• Betaine HCL	3	• Marine Fish Oil	2
• Bio-Dophilus	1	• Pantothenic Acid	2
• Calcium MCHC	3	• Seacure	3
• Chlorella	3	• Spectramin Chelate	2
• Co-Q-Melt	3	• Sublingual B12 Plus	4
• EDTA	3	• Ultra Preventive III	2
• L-Carnitine	1	• Vitamin C	4
• Magnesium	1	• Lauricidin	6
		• Iron	1 every other day











Guinea Pig



# High Cholesterol of 621, High Triglycerides of 766 \*\*\*\*\*

- Patient RB 5623, a 52 year old woman, presented on 1/22/97:
  - Irritable Bowel Syndrome, Tension Headaches,
  - Gained 50 lbs. In The Last Three Years
  - Had Four Biopsies on Both Breasts Which Were Benign
  - Sinus and Ear Infections, Gets Hives Frequently
- **Within two months on the program:**
  - Cholesterol improved from **621 down to 198**
  - Triglycerides went from **766 down to 199**
  - Feels much better
  - Everything has greatly improved
  - Thyroid is back to functioning normally
  - Weight **Loss: 20 lbs.**
  - Is off of all her prescription drugs (4), including Synthroid
  - Hot flashes are much improved

# Causes of Gallstones

- Too much hydrogenated fat
- Too much absorption of water
- Dehydration, trying to save the water
- Inflammatory process
- Frequent consumption of fatty foods
- Fried foods
- Smoked foods
- Large meals
- Decreased vegetable consumption
- Increased sugar intake (soft drinks and sweets)
- Low fiber diet
- Gallbladder infections
- An inherited tendency to form gallstones.
- Pregnancy
- Obesity
- Conditions that cause increased red blood cell breakdown, which may be inherited or acquired. An example of such a condition is sickle cell anemia.

# Symptoms of GB disease

## ● Abdominal pain

- Severe
- Located on the right upper quadrant or in the upper middle of the abdomen (epigastric)
- May subside over 12 to 18 hours in uncomplicated cases
- Recurrent with similar pain in past
- Occurs within minutes following meals
- During deep inspiration
- Radiating to back or below the right shoulder blade (right scapular area)
- Worsened after eating or drinking greasy (high fat) foods or fluids

- Abdominal fullness, gaseous
- Fever
- Nausea
- Vomiting
- Jaundice, yellow color of the skin
- Heartburn
- Chills and shaking
- Chest pain under the breastbone

# Gallbladder

- ◎ Blood flow from the portal vein through the liver sinusoids: **1000 ml/minute**
- ◎ Total secretion of bile each day: **800-1000 ml**
- ◎ Maximum volume of the gallbladder: **40-70 ml**
- ◎ Bile normally concentrated: **5 fold** to maximum of **12 fold**

# Gallbladder

- For the Gall Bladder to empty: Sphincter of Oddi must relax and the gall bladder must contract causing the bile to actually “Squirt out”.
- When fat is not in the meal, the gallbladder empties poorly.
  - Normally the gallbladder empties completely in about one hour.
  - Textbook of Medical Physiology 5th Edition



# Bile

- ◎ Bile: bile salts, bilirubin, cholesterol, lecithin and electrolytes. Water and most of the electrolytes are reabsorbed.
- ◎ Bile salts two important functions:
  - Emulsify/detergent function to break fat globules in to minute sizes.
  - Help in the absorption of fatty acids, monoglycerides, cholesterol and other lipids from the intestinal tract.
- ◎ **94% of bile salts are reabsorbed** by the intestinal mucosa in the distal ileum and re-circulated into the bile. Studies show as much as **18 times re-circulated**.

# Bile

- Without proper bile salts, up to 40% of lipids are lost into the stools, and the person often develops a metabolic deficit due to this nutrient loss.
- In the absence of bile salts, vitamins A, D, E and K are poorly absorbed.

# Deficiency or supplementation of Vit K is associated with:

- Results in serious impairment of blood coagulation
- Cancer
- Celiac disease
- Crohn's disease
- Inflammation
- Myopathy
- Osteoporosis
- Pain
- Nausea and vomiting of pregnancy with Vit C deficiency
- Rheumatoid arthritis

# Deficiency or supplementation of Vitamin A is associated with:

- Est. 1 million people develop Vit A deficiency each year
- 20% of pop. gets <70% of RDA
- Commonly inadequate in elderly
- Acne rosacea
- Acne vulgaris
- Dry Hair
- Fatigue
- Growth Impairment
- Insomnia
- Hyperkeratosis
- Infections
- Night blindness
- Weight Loss
- Xerophthalmia
- Xerosis
- Breast disease
- Cancer
- Cataracts
- Cervical dysplasia
- Infections
- Peptic ulcers
- Psoriasis
- AIDS
- Sickle cell Anemia
- Candidiasis
- Celiac disease
- Crohn's disease
- Diabetes mellitus
- Eczema
- Glaucoma
- Gout
- Hepatitis
- Hypertension
- Lupus
- Kidney stones
- ✎ Immunodepression infect.
- ✎ Inner ear dysfunction
- ✎ Macular degeneration
- ✎ Menorrhagia
- ✎ Muscle cramps
- ✎ Myopathy
- ✎ Periodontal disease
- ✎ Peripheral vascular disease
- ✎ PMS
- ✎ Psoriasis
- ✎ Ulcerative colitis
- ✎ Ulcers
- ✎ Skin ulcers
- ✎ Wound healing
- ✎ Sexual dysfunction
- ✎ Liver dysfunction
- ✎ Diminished taste
- ✎ Diminished olfactory sense

# Deficiency or supplementation of Vit D is associated with:

- Atherosclerosis
- Bronchial asthma
- Cancer
- Capillary fragility
- Cardiac arrhythmias
- Cataract
- Epilepsy
- Hypertension
- Immunodepression
- Heart disease
- Inner ear dysfunction
- Multiple sclerosis
- Muscle cramps
- Osteoporosis
- Periodontal disease
- Psoriasis
- Ulcerative colitis

# Deficiency or supplementation of Vit E is associated with:

Acne	PMS	Ulcers(duodenal & gastric)
Acne vulgaris	Lupus	Wound healing
Allergy	Macular degeneration	Breast disease
Anemia	Multiple sclerosis	Cancer
Atherosclerosis	Myopathy	Cataracts
Auto-immune disorders	Neuralgia	Diabetes
Benign breast disease	Neuropathy	Epilepsy
Capillary fragility	Neuromuscular deg.	Gallstones
Cardiac arrhythmias	Pain	Heart disease
Cardiomyopathy	Periodontal disease	Herpes simplex
Cervical dysplasia	Peripheral vascular dis.	Infection
Dysmenorrhea	Pregnancy related illness	Inflammatory bowel disease
Eczema    Edema	Raynaud's syndrome	Inner ear dysfunction
Epilepsy    Hepatitis	Restless legs	Menopausal symptoms
Gall bladder disease	Rheumatism	Menstrual cramps
Herpes simplex	Scleroderma	Muscle cramps
Herpes zoster	Seborrheic dermatitis	Osteoarthritis
Hyperestrogenism	Ulcerative colitis	Parkinson's disease
Immunodepression	Ulcers (skin)	Peptic ulcers
Fibro cystic breast dis.	Vasculitis	Premenstrual tension



Over 600,000 people in the  
US had their gall bladders  
removed last year

The operations and hospitalization cost more than \$5 billion a year, and the problem is the most common and costly digestive disease requiring hospitalization, according to the National Institutes of Health.



# Gallstones

- Gallstone disease affects 10-20% of the population in the United States
- Gall bladder disease is a common ailment affecting an estimated **20 million Americans**. Most gallstones seen in the United States are composed of cholesterol or cholesterol mixtures
- Although **gallstones are common, only 30% of patients ever develop symptoms**

# Gallbladder and Fats

- ◎ Fats **liquid** at room temperature resulted in a significantly greater contraction of the gallbladder than **solid** fats. Almost 50% greater contraction.
  - *Nutritio Dieta* 2:219-22, 1960
- ◎ The incidence of gallstones may be higher when fats come from polyunsaturates and transfatty acids than from saturated fats and cholesterol.
  - *N Engl J Med* 288 (1):24-27, 1973

# Vitamin deficiencies associated with gallstones:

- Vitamin C, Vitamin E, Choline, Taurine
- Several studies show a correlation of gallbladder dysfunction and gastric hypo secretion.
- Nearly all of my patients with gall bladder problems take Betaine HCL .

# Gallbladder Recommendations

- ◎ HEAT

- ◎ BETAIN HCL

- ◎ ADJUSTMENTS

- ◎ BLOOD TESTING

- ◎ Vegetarians have half the risk of forming gallstones compared with meat eaters. Vegetarians often eat fewer calories and less cholesterol. They also tend to weigh less than meat eaters which may reduce their risk.
- ◎ Constipation has been linked to gallstones. When constipation is successfully resolved, it appears to reduce the risk of gallstone formation.

# Providing Hope...

- Patient with non small cell lung carcinoma (Pretty rare)... No hope.
- He had started our program and is feeling better. He is not coughing and spitting up and has more energy.
- **Eight months on His Program the scans showed no sign of cancer.** His Oncologist said this is impossible, his MD said it is miraculous.
- ...He died 6 months later.



# Praying for Miracles

- It is OK to Pray for Miracles
- But sometimes God provides opportunities...and you have to do your part
- The Miracle is already inside of you
- Maybe another miracle brought you here...

# Cholesterol

- ◎ Precursor of the bile acids and the sex hormones
- ◎ Cell membranes
- ◎ Used in seminal fluid and vaginal lubrication
- ◎ Essential part of nerve-fiber structure
- ◎ Manufactured primarily in the liver (all tissues of the body except the brain can make it), cholesterol is present in almost all cells and is particularly high in the liver, brain and nervous tissue, and the blood.
- ◎ Transported by lipoproteins.

# Mevacor

- **Testosterone response to HCG was slightly but not significantly** reduced after treatment with lovastatin 40 mg daily for 16 weeks in 21 men. The effects of HMG-CoA reductase inhibitors on male fertility have not been studied in adequate numbers of male patients. The effects, if any, on the pituitary-gonadal axis in premenopausal women are unknown. optic nerve degeneration in dogs treated for 14 weeks...
- CNS vascular lesions, characterized by perivascular hemorrhage and edema, necrosis of small vessels, were seen in dogs
- Similar optic nerve and CNS vascular lesions have been observed with other drugs of this class.
- Cataracts were seen in dogs treated for 11 and 28 weeks at 180 mg/kg/day and 1 year at 60 mg/kg/day.
- *Carcinogenesis, Mutagenesis, Impairment of Fertility*
- **In a 24-month carcinogenicity study in rats, there was a positive dose response relationship for hepatocellular carcinogenicity in males at drug exposures between 2-7 times that of human exposure at 80 mg/day (doses in rats were 5, 30 and 180 mg/kg/day).**

# Mevacor continued

- ◎ An increased incidence of **thyroid neoplasms** in rats appears to be a response that has been seen with other HMG-CoA reductase inhibitors.
- ◎ A chemically similar drug in this class was administered to mice for 72 weeks at 25, 100, and 400 mg/kg body weight, which resulted in mean serum drug levels approximately 3, 15, and 33 times higher than the mean human serum drug concentration (as total inhibitory activity) after a 40 mg oral dose. **Liver carcinomas** were significantly increased in high dose females and mid- and high dose males, with a maximum incidence of 90 percent in males. The incidence of **adenomas of the liver** was significantly increased in mid- and high dose females. Drug treatment also significantly increased the incidence of **lung adenomas** in mid- and high dose males and females. Adenomas of the Harderian gland (a gland of the eye of rodents) were significantly higher in high dose mice than in controls.

# Mevacor continued

- ◎ ***Hypersensitivity Reactions:*** An apparent hypersensitivity syndrome has been reported rarely which has included one or more of the following features: anaphylaxis, angioedema, lupus erythematosus-like syndrome, polymyalgia rheumatica, vasculitis, purpura, thrombocytopenia, leukopenia, hemolytic anemia, positive ANA, ESR increase, eosinophilia, arthritis, arthralgia, urticaria, asthenia, photosensitivity, fever, chills, flushing, malaise, dyspnea, toxic epidermal necrolysis, erythema multiforme, including Stevens-Johnson syndrome.
- ◎ ***Gastrointestinal:*** pancreatitis, hepatitis, including chronic active hepatitis, cholestatic jaundice, fatty change in liver; and rarely, cirrhosis, fulminant hepatic necrosis, and hepatoma; anorexia, vomiting.
- ◎ ***Skin:*** alopecia, pruritus. A variety of skin changes (e.g., nodules, discoloration, dryness of skin/mucous membranes, changes to hair/nails) have been reported.
- ◎ ***Reproductive:*** **gynecomastia**, loss of libido, **erectile dysfunction**.
- ◎ ***Eye:*** **progression of cataracts** (lens opacities), ophthalmoplegia.
- ◎ ***Laboratory Abnormalities:*** elevated transaminases, alkaline phosphatase, (gamma)-glutamyl transpeptidase, and bilirubin; thyroid function abnormalities.

# Lipitor: side effects

- Lipitor (lipid or cholesterol lowering drug) causes liver dysfunction; **SGOT and SGPT three times the upper limit of normal; CPK values greater than 10 times the normal limit.** Adrenal failure, diffused muscle pain; **muscle tenderness; weakness; malaise;** fever; myopathy or muscle disease if used with certain other drugs (these drugs include: antacid (maylox), dioxin, erythromycin, and oral contraceptives).
- Long term use in laboratory studies of two years indicated an **increase in liver cancer.** Should not be used in pregnant women. Other adverse reactions include: edema (part or whole of the body), digestive problems, gastritis, colitis, vomiting, ulcers, bleeding gums, bleeding ulcers, hepatitis, pancreatitis, gall bladder disease, asthma, decreased libido, leg cramps, vercitis, monocytis, itching, alopecia, dry skin, acne, cystitis, hemoturia, kidney stone, breast tenderness, various hemorrhage, loss of taste, palpitations, migraines, arrhythmia, gout
- Nutrients Depleted: Co-Enzyme Q-10



# Pravochol: side effects

- ◎ Pravochol: (for high cholesterol) Warnings: chest pain; rash; nausea and vomiting;
- ◎ Diarrhea; abdominal pain; constipation; flatulence; heartburn; fatigue; localized pain; myalgia; headaches; dizziness; urinary abnormality; rhinitis; cough; memory loss; insomnia; depression; anxiety; arthralgia; flushing; pancreatitis; hepatitis; cirrhosis; anorexia; alopecia; loss of libido; erectile dysfunction; progression of cataracts
- ◎ Nutrients Depleted: Coenzyme Q10

# Are 'Vaccine Skeptics' Responsible for Flu Deaths?

02.17.2018

Dr. CC,

I support appropriate vaccination, but I feel it is irresponsible to label patients exercising their decision for informed consent as being responsible for deaths. Clearly, we as a medical profession, have done a poor job of educating the public and gaining their trust and trying to badger them into compliance only increases the distrust they have in medicine. **I have to say I even had to rethink my support of the flu vaccine when I learned that the efficacy numbers used were misleading to the public. Most assume that "20% efficacy" means 1 in 5 people would be protected from the flu - as do many of my fellow physicians. It took a colleague of mine to point out that it is a 'relative' risk reduction, which means you actual are only reducing the typical estimated 4% risk a person has each year, down to 3.2%. In other words out of 100 vaccinated people, 1 person (0.8%) would be protected from the flu if all 100 were vaccinated.**

What is more disheartening, and something patients are becoming increasingly aware of, is the fact that the 'flu deaths' reported are actually "flu-associated" illnesses which includes pneumonia of all causes. Van: this doctor laments that fact that the public is becoming aware that many 'flu deaths' are not really deaths caused by the flu, no wonder people are becoming for skeptical especially when the facts do come out.

**Are 'Vaccine Skeptics' Responsible for Flu Deaths?** by Molly Walker, Staff Writer, MedPage Today February 17, 2018



# Do Statins Work? 02-2008

- ◎ On Jan. 14, 2008 when Merck and Schering-Plough (SGP) revealed results of a trial in which one popular cholesterol-lowering drug, a statin, was fortified by another, Zetia, which operates by a different mechanism. The combination did succeed in forcing down patients' cholesterol further than with just the statin alone. **But even with two years of treatment, the further reductions brought no health benefit.**
- ◎ In Pfizer's own Lipitor newspaper ad. **the dramatic 36% figure has an asterisk.** Read the smaller type. It says: "That means in a large clinical study, **3% of patients taking a sugar pill or placebo had a heart attack compared to 2% of patients taking Lipitor.**"
- ◎ **DOING THE MATH**
- ◎ The numbers in that sentence mean that **for every 100 people in the trial, which lasted 3 ½ years, three people on placebos and two people on Lipitor had heart attacks.**
- ◎ **\*\*\*Now do some simple math**
- ◎ The difference credited to the drug? **One fewer heart attack per 100 people. So to spare one person a heart attack, 100 people had to take Lipitor for more than three years. The other 99 got no measurable benefit.** Or to put it in terms of a little-known but useful statistic, the number needed to treat (or NNT) for one person to benefit is 100.

# Statins Shown to Extend Life by Mere Days

Analysis by [Dr. Joseph Mercola](#) Fact Checked September 11, 2019

- ◎ A 2015 systematic review of statin trials found that in primary prevention trials, the median postponement of death was just 3.2 days. In secondary prevention trials, **death was postponed 4.1 days**
- ◎ Tactics used in statin studies to exaggerate benefits include **excluding unsuccessful trials, cherry-picking data, ignoring the most important outcome — an increase in life expectancy** — and using a statistical tool called relative risk reduction to amplify trivial effects
- ◎ If you look at absolute risk, statin drugs **benefit just 1%** of the treated participants. **Out of 100 people treated with statins for five years, one person will have one less heart attack**
- ◎ **Statin trials minimize health risks by using a run-in period. Participants are given the drug for a few weeks, after which those who suffer adverse effects are simply excluded, thereby lowering the perceived frequency and severity of side effects**





# Liver Worksheet 1



	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Alk Phos	32 - low	10 - LOW				
SGOT	14 - low		14 - low			
SGPT	12 - low		33 - high			
GGT						

	Conditions	Considerations
Case 1	Low Liver Function <b>Nutrients:</b> Zinc, B-Complex, Vitamin C, Magnesium	Poor Diet, Malnutrition, Drug
Case 2	Possible Osteolytic Sarcoma <b>Nutrients:</b> Zinc, Vit C, Magnesium, Potassium	Nutrient Deficiency, Drugs
Case 3	Liver Dysfunction <b>Nutrients:</b> B-Complex, Vit C, Milk Thistle Extract	Drugs

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Alk Phos	32 - low	10 - LOW				
SGOT	14 - low		14 - low		4 - LOW	11 - low
SGPT	12 - low		33 - high		6 - LOW	16 - low
GGT				40 - LOW		9 - low

	Conditions	Considerations
Case 4	Severe Pancreatitis – Possible End Stage <b>Nutrients:</b> Pancreatic Glandular, B-Complex, Lauricidin	Drugs, Cancer
Case 5	Severe Liver Disorder <b>Nutrients:</b> Liver, Glandular, Milk Thistle, B6, Choline, Inositol	Cirrhosis, Possible End Stage, Drugs
Case 6	Low Liver Function <b>Nutrients:</b> B-Complex, Milk Thistle	Diet, Drugs

# Liver Worksheet 2

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Alk Phos			97-high	90-high		
SGOT	31-high	33-high	37-high			
SGPT		31-high	37-high	33-high		
GGT			41-high			

	Conditions	Considerations
Case 1	Inflamed Liver <b>Nutrients:</b> Lauricidin	Drugs – Even Aspirin, Food Poisoning
Case 2	Inflamed Liver <b>Nutrients:</b> Lauricidin, Liver Glandular	Drugs, Food Poisoning, Infection
Case 3	Inflamed Liver / Possible Smoldering Hepatitis <b>Nutrients:</b> Lauricidin, Milk Thistle, Vitamin C	Drug, Gall Bladder, Digestion, Infection
Case 4	Inflamed Liver w/ Possible Arthritis <b>Nutrients:</b> Glucosamine / MSM, Lauricidin, Vitamin C	Drugs

XXX	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12
Alk Phos					190-HIGH	
SGOT		75-HIGH	230-HIGH	37-high		110-HIGH
SGPT		60-HIGH	250-HIGH	37-high		120-HIGH
GGT	60-high			300-HIGH	150-HIGH	200-HIGH

Case 9	Hepatitis <b>Nutrients:</b> Lauricidin, Vitamin C, Liver, Methionine, Beta Carotene, Choline, Inositol	Drugs – Multiple Drugs, Recent Hepatitis Exposure
Case 10	Pancreatitis <b>Nutrients:</b> Liver, Vitamin C, Beta Carotene	Drugs, Alcohol, UA, Glucose, Hgb A1c
Case 11	Bone Lesion, Arthritis, Liver Disease <b>Nutrients:</b> Vitamin C, Lauricidin, Glucosamine/MSM	Drugs, UA, LDH, ESR, CRP, Glucose, Hgb A1c, Alcohol
Case12	Inflamed Liver <b>Nutrients:</b> Liver, Vitamin C, Lauricidin	Drugs, Alcohol, UA, Glucose, Hgb A1c, Kidney

XXX	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case11	Case 12
Alk Phos			97-high	90-high							190-HIGH	
SGOT	31 - high	33-high	37-high					75-HIGH	230-HIGH	37-high		110-HIGH
SGPT		31-high	33-high	38-high	31-high	37-high		60-HIGH	250-HIGH	40-high		120-HIGH
GGT			41-high		44-high		60-high			300-HIGH	150-HIGH	200-HIGH
		Conditions						Considerations				
Case 1		Inflamed Liver Nutrients: Lauricidin						Drugs - Even Aspirin, Food Poisoning				
Case 2		Inflamed Liver Nutrients: Lauricidin, Liver Glandular						Drugs, Food Poisoning, Infection				
Case 3		Inflamed Liver / Possible Smoldering Hepatitis Nutrients: Lauricidin, Milk Thistle, Vitamin C						Drugs, Gall Bladder, Digestion, Infection				
Case 4		Inflamed Liver w/ Possible Arthritis Nutrients: Glucosamine / MSM, Lauricidin, Vitamin C						Drugs				
Case 5		Liver / Pancreatic Inflammation Nutrients: Lauricidin, Vitamin C						Drugs, Glucose, Hgb A1c, Gall Bladder, Digestion, Alcohol				
Case 6		Inflamed Liver Nutrients: Vitamin C, Milk Thistle						Drugs - Especially Cholesterol Lowering Drugs				
Case 7		Pancreas Nutrient: Vitamin C, Milk Thistle, Lauricidin						Drugs, Alcohol, Glucose				
Case 8		Serious Liver Disease Nutrients: Lauricidin, Vitamin C, Liver, Methionin, Beta Carotene, Choline, Inositol						Drugs Check Everything: UA, Stool, Metabolic UA, EKG				
Case 9		Hepatitis Nutrients: Lauricidin, Vitamin C, Liver, Methionin, Beta Carotene, Choline, Inositol						Drugs - Multiple Drugs, Recent Hepatitis Exposure				
Case 10		Pancreatitis Nutrients: Liver, Vitamin C, Beta Carotene						Drugs, Alcohol, UA, Glucose, Hgb A1c				
Case 11		Bone Lesion, Arthritis, Liver Disease Nutrients: Vitamin C, Lauricidin, Glucosamine / MSM						Drugs, UA, LDH, ESR, CRP, Glucose, Hgb A1c				
Case 12		Inflamed Liver Nutrients: Liver, Vitamin C, Lauricidin						Drugs, Alcohol, UA, Glucose, Hgb A1c, Kidney				





**You got into Harvard Law?**



**What, like it's hard?**

# It takes time: more or less

- ◎ 59y/o male 5'9", 240 pounds
- ◎ Symptoms: CFS, IBS, panic attacks, high BP, high pulse, decreasing memory and concentration, slow stream, cystitis, testicular pain, bloating, high cholesterol, abdominal pains, bloating, peptic ulcer, nausea, dry skin and rash (cellulitis) on legs, headaches, joint stiffness.
- ◎ These problems had been progressing over the last 25 years and were very significant the last 10 years.

# It takes time cont.

- Medications:

- Capozide (for high BP) for 25 years
- Prevacid (for Barrett's: precancerous esophagus) for 10 years
- Cardura (for high BP) for 7 years
- Zocor (for high Cholesterol) for 10 years
- Levbid (for IBS) for 5 years
- Had been on Prilosec/Prevacid/Zantac or similar for +20 years

Name: ST20032  
Weight:238

Gender: Male  
Blood Type: B

Age:57  
Test # 1

Test Description	Current Result	Current Rating	Homeostatic		Clinical	units
Date	3/2/2000	HI				
Glucose	112	LO	85.00 - 100.00		65.00 - 110.00	mg/dl
Phosphorus	2.3	LO	3.40 - 4.00		2.40 - 4.60	mg/dl
Calcium	5.75	LO	7.90 - 10.10		7.00 - 10.11	
Calcium-Phosphorus Index	13.23	HI	30.00 - 40.00		20.00 - 40.20	ratio
Alkaline Phosphorus	166	HI	60.00 - 80.00		41.00 - 138.00	mu/ml
GGT	106	HI	1.00 - 36.00		0 - 65.00	mu/ml
Ferritin	448	HI	12.50 - 218.30		10.00 - 291.00	mg/ml
Cholesterol	210	HI	150.00 - 180.00		140.00 - 200.00	mg/dl
Triglycerides	224	HI	80.00 - 115.00		10.00 - 195.00	mg/dl
VLDL	44	HI	5.00 - 20.00		5.00 - 40.00	mg/dl
T3	31	LO	36.00 - 40.00		32.00 - 43.00	%
Red Blood Count	5.65	HI	4.50 - 5.50		4.50 - 5.50	m/cumm
Hemoglobin	16.5	HI	14.00 - 15.00		12.00 - 16.00	gm/dl
Hematocrit	48.1	HI	40.00 - 47.00		37.00 - 47.00	%

# ST20032 Vitamin Program

**Back To Health™ Center**  
**Chiropractic and Nutrition**

5761 Far Hills Avenue  
 Dayton, OH 45429  
 Phone: (937) 433-3241 Fax: (937) 433-3140

Personal Vitamin and Supplement Program For:

2 Month  
 Supply

Case: ST March 2000 Page 1

Vitamin or Supplement	Dosage Per Day	AM	NOON	PM	BED	Bottles	Quantity	Price	Extended Price
1 Beta Carotene (A-Caro)	50000 I.U.	1		1		1	250 @	\$16.50	\$16.50
2 Vitamin C (Ascocid 1000)	3000 mg.	1	1	1		1	250 @	\$21.75	\$21.75
3 Chlorella	670 mg.	1		1		1	180 @	\$25.00	\$25.00
4 Chromium Picolinate w/ boron	800 mcg.	2		2		2	180 @	\$12.60	\$25.20
5 Co-Q-10	200 mg.	2		2		4	60 @	\$26.25	\$105.00
6 Vitamin D (D-Natural 5)	5000 I.U.	1				1	250 @	\$11.25	\$11.25
7 Energenics	4	2		2		1	270 @	\$28.45	\$28.45
8 Glucosamine Sulfate	2250 mg.	1	1	1		1	120 @	\$45.00	\$45.00
9 Glucosamine Sulfate						1	60 @	\$22.50	\$22.50
10 Hepatagen	3	1	1	1		2	90 @	\$10.45	\$20.90
11 Arginine	1000 mg.	1		1		2	60 @	\$8.60	\$17.20
12 Magnesium Glycinate	400 mg.	2		2		1	240 @	\$25.50	\$25.50
13 Calcium (MCHC)	750 mg.	1	1	1		2	120 @	\$13.50	\$27.00
14 EPA/DHA (MLK 1000)	2000 mg.				2	2	100 @	\$10.50	\$21.00
15 B6 (Neuro-K-500)	1000 mg.	1		1		2	100 @	\$16.50	\$33.00
16 Pantothenic Acid	500 mg.	1		1		2	100 @	\$9.75	\$19.50
17 Potassium	99 mg.	1				1	100 @	\$4.10	\$4.10

**Supplements Must Be Paid In Full Upon Receipt**  
**Take All Supplements With Meals Unless Otherwise Noted**

Thursday, March 16, 2000

Page 1 of 2





Name: ST20032

Gender: Male

Age: 57

Weight: 238

Blood Type: B

Test # 2

Test Description	Current Result	Current Rating	Prior Result	Delta	Homeostatic	Clinical	units
Date	5/15/2000		3/2/2000				
Glucose	106	HI	112	😊	85.00 - 100.00	65.00 - 110.00	mg/dl
Phosphorus	3.1	LO	2.3	😊	3.40 - 4.00	2.40 - 4.60	mg/dl
Calcium	7.75	LO	5.75	😊	7.90 - 10.10	7.00 - 10.11	
Calcium-Phosphorus Index	24.03	LO	13.23	😊	30.00 - 40.00	20.00 - 40.20	ratio
Alkaline Phosphorus	132	HI	166	😊	60.00 - 80.00	41.00 - 138.00	mu/ml
GGT	72	HI	106	😊	1.00 - 36.00	0 - 65.00	mu/ml
Ferritin	218	OPT	448	😊	12.50 - 218.30	10.00 - 291.00	mg/ml
Cholesterol	119	LO	210	😞	150.00 - 180.00	140.00 - 200.00	mg/dl
Triglycerides	102	OPT	224	😊	80.00 - 115.00	10.00 - 195.00	mg/dl
VLDL	20	OPT	44	😊	5.00 - 20.00	5.00 - 40.00	mg/dl
T3	34	LO	31	😊	36.00 - 40.00	32.00 - 43.00	%
Red Blood Count	5.04	OPT	5.65	😊	4.50 - 5.50	4.50 - 5.50	m/cumm
Hemoglobin	14.8	OPT	16.5	😊	14.00 - 15.00	12.00 - 16.00	gm/dl
Hematocrit	42.9	OPT	48.1	😊	40.00 - 47.00	37.00 - 47.00	%



# It takes time cont.

- ◎ First analysis on 3-02-2000
- ◎ Most recent 10-25-2001
- ◎ 6 SBN Panel blood tests
- ◎ 2 hair analysis
- ◎ 5 UA's
- ◎ 1 ECG
- ◎ 1 Alcat
- ◎ Over \$3,500.00 in supplements
- ◎ 45 chiropractic treatments and therapy
- ◎ **Was it worth it? Was it a good value?**

# It takes time: current status

- ◎ 11-25-2001 “Overall I feel 95% better. My digestion and overall health is great!! It took a long time but it was worth every penny.”
- ◎ He told me that for 3 years from 1960-1963 he worked at a boiling degreasing tank with tetrachlorethane.
  - Tetrachlorethane is no longer used in industry due to its high carcinogenicity.
- ◎ This tetrachlorethane, I believe contributed or caused his problems. It more than likely affected his blood work (CBC, liver, Monocytes, kidney/bladder), prolonged his recovery and will probably continue to be a factor.
- ◎ He has avoided or at least delayed some very serious problems associated with this poison.

6-24-2010 email from a DO to an SBN member DC after using 'Cleanse/flush' on 3 patients that ended up in ER within 1 month.

**"The colon cleansing is something disproved by many scientific studies and only supported by unfounded testimonials and outright 'scare tactics' on patients. The colon was designed by God to handle the body's waste products and help eliminate them from the body as well as maintain proper water balance. It does a wonderful job and does not need to be 'washed out or cleansed to rid the body of spackle or toxic wastes.'"**

The outcomes on all these patients were good. They are all back on their previously prescribed medicines that were working just fine for a number of years.

I respect the practice of Chiropractic and often refer patients for management of musculoskeletal issues. Please also respect my practice of medicine and trust that science can also play a role in taking care of patients. Thank you.

Respectfully,

*James R. Williams, D.O.*

# 21 DAY DETOX

- If you're recommending "detox programs" and multiple herbals...you'd better be testing to monitor what you're doing is **SAFE AND EFFECTIVE!**
- From a fellow doctor:
  - We were doing great with this patient until she decided to do the 21day detox with (name of supplement company removed)...NOTE: this is a VERY popular supplement company).
  - After that the test results after the detox were not the best. She decided to continue with the acupuncturist rep of (supplement company) to do muscle testing for the past 2 months and see if they can help her. **Her new liver results are 5 times worse.** She has now have come back to fully work with me.

	Current Rating 05/03/2017		Prior 02/06/2017	
SGOT (AST)	173.00	Very High	24.00	⊗
SGPT (ALT)	91.00	Very High	31.00	⊗
TSH	10.26	Very High	9.26	⊗
T4 Thyroxine	11.60	high	10.10	⊗



# Fetterman Events

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Science Based Nutrition



# Begin it Now

- “Until one is committed, there is hesitancy, the chance to draw back, always ineffectiveness. Concerning all acts of initiative (and creation), there is one elementary truth the ignorance of which kills countless ideas and splendid plans: that the moment one definitely commits oneself, then Providence moves too. All sorts of things occur to help one that would never otherwise have occurred. A whole stream of events issues from the decision raising in one's favor all manner of unforeseen incidents and meetings and material assistance, which no man could have dreamed would have come his way. Whatever you can do or dream you can do, begin it.”
- Boldness has genius, power, and magic in it. Begin it now.

William Hutchison Murray





# Warning Signs and Observations

- Frequently sick
- Bruises easily
- Heals slowly
- Ulcers that heal slowly
- Chronic skin problems (rashes, psoriasis, boils, change in mole)
- Fingernails and toenails
- Osteoarthritis and Redness of the fingers but not the hand
- Fissures/cracks of heels and finger tips/hands
- Edema in the ankles and sore feet
- Discoloration/darker color of the skin of the feet and ankles
- Weak or absent pulses
- Tremors
- Dizziness
- Decreased memory/concentration
- Frequent changes in vision, floaters, eye problems, glaucoma, macular degeneration
- High BP
- High Pulse
- Low Oxygen
- Low bone density
- Unusual chronic fatigue



# Warning Signs (cont.)

- Digestive aids – especially chronic usage
- Constipation
- Diarrhea
- Stool that floats
- Gas/bloating
  - Little boy with extremely foul gas
  - Senior drug toxicity, overdose, low or slow clearance, drug induced conditions (Alzheimers)
- Bad breath/Coated tongue/ Cracked lips
- Blood out of any orifice that it isn't supposed to be in
- Long term drug use/frequent short term drug use
- Skin, hair, eyes
- Posture



# Warning Signs

- A doctor must not dismiss or minimize “Warning Signs” these should lead to a nutritional consultation and you will...save a life sometimes.
- “Warning Signs” are tools to create:
  - awareness about their present state of health
  - doubt in the patients mind about their true health
  - the potential critical or serious situation
  - a desire to find out what is really happening
  - establish you, the doctor, as the expert: caring, thorough and knowledgeable



# Getting Started: Marketing Tips

- Do Urinalysis day
- Do a vitals day, BP/Pulse
- Do file updates
- Put up 'Warning Signs' and 'Pulse' pictures in office
- GO FISHING



# The Best Investment- Residual income ROI:

- 2 pt per month for 12 months= \$12,000/year  
+600% ROI
  - Net \$500.00/patient which includes vitamin sales at 20% profit
- Vitamin sales, getting started:
  - Sell \$500.00 / month with 20% profit of \$100...ROI 20%/month
  - 240% ROI of \$1,200.00 if you sell \$500.00/month for 12 months at 20% profit



# Long Term Growth

- At one new patient per week and 30% retention  
These are very conservative estimates.
- 1 pt per week for 1 year (50 pts) at \$500.00 per patient net  
= \$25,000.00
- 1st year \$25,000 X 30% = \$7500
- 2nd year \$32,500 + \$25,000.00 + \$7500
- 3rd year \$40,000 (\$25K + \$7500 + \$7500)
- 4th year \$47,500
- 5th year \$55,000
- 6th year \$62,500
- 7th year \$70,000
- ***NOTE: This does not take into consideration retesting, additional vitamin sales, consultations etc.***





# Planning

- Patients
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- ?????????



# Identifying Hemochromatosis

- Standard Blood Tests
  - High Ferritin
  - Low or slight low transferrin
  - High serum iron
- Liver biopsy is the "Gold Standard"
- Genetic testing is also available for a price.



# Identifying Hemochromatosis

- **Ferritin**

- Correlates with total body iron stores
- Decreases before anemia occurs
- May contain only a small amount of iron or a relatively large amount
  - Guyton: Textbook of Medical Physiology 5th edition

# Ferritin

(Ferritin is a biomarker of poor COVID illness outcome.)

- **DECREASED in:**

- Iron deficiency
- **Exhausted iron stores with ferritin < 12ng/mL**

- **INCREASED in:**

- Iron overload
- Hemochromatosis
- Acute and chronic liver diseases
- Alcoholism (declines during abstinence)
- Malignancies: note: poor prognosis with increased ferritin.
- Leukemia
- Hodgkin's disease
- Renal cell carcinoma
- Infection

- **Increased in:**

- Malignant lymphoma
- Hepatocellular carcinoma
- Prostate Cancer
- Inflammation
- Rheumatoid arthritis
- Hyperthyroidism
- Acute myocardial infarction
- Anemias not due to iron deficiency
- Megaloblastic, Hemolytic, Thalassemia

- Recommendations for increased Ferritin:

- Silymarin/Milk Thistle
- Phlebotomy



There are over 100 years between the two photos.  
You can see the ever rising sea levels very well, can't  
you?

⚙ Rate this translation



# CLINICAL SYNOPSIS of hemochromatosis<sup>131</sup>

- Skin:

- Hypermelanotic pigmentation

- Cardiac:

- Cardiomyopathy
- Congestive heart failure
- Arrhythmia

- Endocrine:

- Diabetes mellitus
- Hypogonadism

- Liver:

- Cirrhosis
- Primary hepatocellular carcinoma

- Skeletal:

- Arthropathy

- Abdomen:

- Abdominal pain
- Hepatomegaly
- Splenomegaly

- Inheritance:

- Autosomal recessive





# Hemochromatosis is excess iron stores.

- The Ferritin is very high. This may be an inflammatory condition possibly involving the liver. This may also be a condition associated with improper utilization of iron known as Hemochromatosis. These values would indicate an iron handling problem and this could possibly lead to Hemochromatosis. Donating blood as noted below is advised.
- Hemochromatosis is excess iron stores. The solution for Hemochromatosis is periodic phlebotomies (blood letting) in order to pull excess iron out of your system and lower your iron levels. Ferritin is a blood test that detects the level of iron stores and iron reserves. The Ferritin test determines the severity of Hemochromatosis and can be used to monitor the need for therapeutic phlebotomies. In the early stages there are no symptoms or only vague symptoms such as **painful joints, fatigue, weakness, a loss of libido/sex drive, abdominal pains and swelling, auto immune thyroid problems, auto immune disease, and various heart problems**, such as a-fib and heart flutters and **low testosterone in men**. If left untreated, the excess iron (Ferritin) builds up in the organs for hemochromatosis patients - especially in the liver, heart, spleen, and pancreas - **it tends to destroy cells**. Eventually, **the iron builds up in the organs similar to rust**.
- This 'rust' or iron overload in the brain is linked with the neurofibril tangles and amyloid-beta plaques that are common in Alzheimer's patients. Basically, to help avoid or slow **Alzheimer's disease**, it would be prudent to reduce Ferritin and Serum Iron to optimal or even slightly lower levels.
- Long term excess iron can cause hormonal problems in men and women as well as frequent infections, skin bronzing or hair loss. Hemochromatosis can be a significant cause of early death especially in men who are being treated for heart, liver, kidney disease, cancer, high blood pressure, diabetes, stroke or other chronic problems. Liver cirrhosis (liver scarring), spleen enlargement (splenomegaly), liver cancer, heart failure, diabetes, and arthritis are all possibilities for advanced untreated hemochromatosis sufferers as the excess iron builds up to cause tissue damage.
- Hemochromatosis is rare in women who are having monthly periods. However, as a women enters menopause, **women develop it at the same rate as men once menses stops**. Various extensive drugs, hormones and treatments might be tried when the most important thing to do is to get rid of some iron using phlebotomies on a regular basis. Genetic or not, this is a familial condition- if one person in the family has it, more than likely other members and extended family are also affected. It is recommended that one phlebotomy (having blood taken or drawn) of one pint of blood at least 2-4 weeks before your next blood test is recommended if cancer, anemia or other contraindications for phlebotomy are absent.



# SBN member case: CP 9-22-1969\*\*\*\*\*

- The Ferritin is very high, the MCV and MCH are high, the Red Blood Count (RBC) is very low, the Hemoglobin and Hematocrit are low, the RDW is a little high, and the Serum Iron is a little low. This may be an inflammatory condition possibly involving the liver. This may also be a condition associated with improper utilization of iron known as Hemochromatosis.
- The first consideration to determine is the possibility of cancer. Ferritin is a multi-functional protein with possible roles in proliferation, angiogenesis, immunosuppression, and iron delivery. In the context of cancer, ferritin is detected at higher levels in many cancer patients, commonly in Hodgkin's lymphoma and including some cancers of the colon, pancreas, lung, breast, liver, ovarian and prostate. A resistant high ferritin level correlates with aggressive disease and poor clinical outcome. Reducing Ferritin could interrupt the tumor microenvironment, kill cancer cells, and increase sensitivity to chemotherapy. Lab testing of tumor markers is recommended if not already done and possibly additional testing.
- Donating blood as noted below is often advised but not with this level of anemia due to the RBC being very low and the Hemoglobin and Hematocrit being low. Once malignancy is ruled out then hemochromatosis is considered.
- Hemochromatosis is possibly the most common genetic condition in the world. These values would indicate an iron handling problem and this could possibly lead to or be Hemochromatosis. Hemochromatosis is excess iron stores. The solution for Hemochromatosis is periodic phlebotomies (blood letting) in order to pull excess iron out of your system and lower your iron levels. Ferritin is a blood test that detects the level of iron stores and iron reserves. The Ferritin test determines the severity of Hemochromatosis and can be used to monitor the need for therapeutic phlebotomies. In the early stages there are no symptoms or only vague symptoms such as painful joints, fatigue, weakness, a loss of libido/sex drive, abdominal pains and swelling, auto immune thyroid problems, auto immune disease, and various heart problems, such as a-fib and heart flutters and low testosterone in men. If left untreated, the excess iron (Ferritin) builds up in the organs for hemochromatosis patients - especially in the liver, heart, spleen, and pancreas - it tends to destroy cells. Eventually, the iron builds up in the organs similar to rust.
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- Hemochromatosis is rare in women who are having monthly periods. However, as a women enters menopause, women develop it at the same rate as men once menses stops. Various extensive drugs, hormones and treatments might be tried when the most important thing to do is to get rid of some iron using phlebotomies on a regular basis. Genetic or not, this is a familial condition- if one person in the family has it, more than likely other members and extended family are also affected. It is recommended that one phlebotomy (having blood taken or drawn) of one pint of blood at least 2-4 weeks before your next blood test is recommended if cancer, anemia or other contraindications for phlebotomy are absent.
- There is severe anemia indicated with the low Hemoglobin and Hematocrit and very low Red Blood Count (RBC) that is likely due to the Hemochromatosis or a lack of other nutrients. The very high Ferritin would usually indicate a need for a phlebotomy/donation of blood but this level of anemia will delay a phlebotomy until the Hemoglobin, RBC, and Hematocrit are not so low.
- The elevated Red cell Distribution Width (RDW) is usually seen with iron deficiency anemia.
- The MCH is the weight of hemoglobin in the average red cell. The MCV (Mean Corpuscular Volume) is the size (volume) of the average red cell. This may be dehydration or it may indicate a B12/folate deficiency. With these anemia values light iron therapy is recommended to aid in the production of RBC's.



# SBN member case: CP 9-22-1969\*\*\*\*\*

BTW: I just checked this patients and they have advanced lung cancer and is on chemotherapy.

The first consideration to determine is the possibility of cancer. Ferritin is a multi-functional protein with possible roles in proliferation, angiogenesis, immunosuppression, and iron delivery. In the context of cancer, ferritin is detected at higher levels in many cancer patients, commonly in Hodgkin's lymphoma and including some cancers of the colon, pancreas, lung, breast, liver, ovarian and prostate. A resistant high ferritin level correlates with aggressive disease and poor clinical outcome. Reducing Ferritin could interrupt the tumor microenvironment, kill cancer cells, and increase sensitivity to chemotherapy. Lab testing of tumor markers is recommended if not already done and possibly additional testing. Donating blood as noted below is often advised but not with this level of anemia due to the RBC being very low and the Hemoglobin and Hematocrit being low. Once malignancy is ruled out then hemochromatosis is considered. Hemochromatosis is possibly the most common genetic condition in the world. These values would indicate an iron handling problem and this could possibly lead to or be Hemochromatosis. With these anemia values light iron therapy is recommended to aid in the production of RBC's.



# SBN member case: CP 9-22-1969\*\*\*\*\*

- BTW: I just checked this patients and they have advanced lung cancer and is on chemotherapy.
- 
- With these anemia values light iron therapy is recommended to aid in the production of RBC's.
- 6 nutrient recommendations:
  - B6 100mg,
  - Methyl B12 Plus 2,
  - L-Carnitine 2
  - Silymarin
  - Artemisinin (sweet wormwood, artemisinin annua) 200-300mg/day- is notable in the treatment of malaria. It contains a chemical compound that reacts with iron to form free radicals within the cancer cells, which have been shown to kill cancer cells
  - Reacted Iron from Orthomolecular products -.5/day. (ONLY >% because the serum iron is only a little low but we do want to provide some serum iron for the production





# *SIDEBAR: WHAT IS FERRITIN?*

- *Ferritin is a protein complex that binds to iron and has a direct correlation to the level of iron stores in the body.<sup>2</sup>*
- *Approximately 250mg of iron exit the body with each blood donation thereby lowering overall Ferritin levels without significantly altering other tests such as serum iron.<sup>3</sup>*
- *Excess stores of iron, indicated by high Ferritin, can increase cellular oxidative stress and damage tissues. This may lead to insulin resistance and abnormal glucose metabolism.<sup>1,4</sup>*
- *Several studies show that decreasing Ferritin levels directly correlates to a reduced Hemoglobin A1C.<sup>1,4</sup>*

1. Jiang R, et.al. Body iron stores in relation to risk of type 2 diabetes in apparently healthy women., JAMA. 2004 Feb 11;291(6):711-7.

2. <http://en.wikipedia.org/wiki/Ferritin>

3. <http://www.labtestsonline.org/understanding/analytes/ferritin/faq.html>

4. Fernández-Real José Manuel, Penarroja Georgina, Castro Antoni, Garcia-Bragado Fernando, Hernández-Aguado Idefonso, Ricart Wifredo. *Blood Letting in High Ferritin Type 2 Diabetes – Effects on Insulin Sensitivity and B-Cell Function.* Diabetes. 2002; 51:1000-1004.



# Identifying Hemochromatosis

**The simple keys to diagnosis and management of Hemochromatosis**



Note: Phlebotomy will not be done if the Hct is below 38%, and/or Hgb is below 14gm/dl regardless of the level of Ferritin or Transferrin. Better check the ESR, CRP, Diabetes, liver or something else that would cause the Ferritin and/or Transferrin to be elevated. Manage the rate of phlebotomy with the Ferritin, Hct and Hgb levels.





# Traumatic Brain Injury 6-2018

## now: “I feel like a million Bucks!”

- 6-2018 Email from SBN member:
- I can't tell you how much better I feel since taking your recommended nutrition. I have a history of TBI and my symptoms have been getting progressively worse over the last few years. As it turns out, the symptoms that I was attributing to my TBI turned out to be from hemochromatosis. Now that I've dealt with that and am working to heal my damaged organs I feel like a million bucks! I am able to work almost twice the amount of hours I was before, I no longer have daily headaches and I can now have a glass of wine without feeling like crap. Everyone in my life has noticed the difference, and honestly, this has been life changing for me.



# Classic case 64 y/o female 6-2018 Question from SBN member

## What is wrong?

Progressive thyroid problems,  
Hormone problems developing: hot  
flashes, decreased sex drive, brain  
fog, insomnia, fatigue, feels cold, leg  
cramps, thinning hair, poor memory

Levothyroxine and Nature-Throid  
-even higher levels of thyroid support  
are not helping.

EASY: Hemochromatosis!!!



Test Description	Current Value 06/12/2018	Flag	Delta	Healthy	Critical	Units
Glucose	87.00	*		80.00 - 95.00	65.00 - 99.00	mg/dL
Hemoglobin A1C (Gly-Hgh)	5.40	*		5.00 - 5.60	4.80 - 6.40	%
Uric Acid	3.40	low		3.50 - 6.60	2.50 - 7.10	mg/dL
BUN (Blood Urea Nitrogen)	20.00	*		11.00 - 24.00	8.00 - 27.00	mg/dL
Creatinine	0.76	*		0.70 - 0.87	0.57 - 1.00	mg/dL
GFR Est.	83.00	*		59.00 - 145.00	45.00 - 150.00	/min/1.73
BUN / Creatinine Ratio	26.00	High		14.00 - 23.00	11.00 - 26.00	ratio
Sodium	142.00	*		139.00 - 143.00	134.00 - 144.00	mmol/L
Potassium	4.30	*		3.80 - 4.50	3.50 - 5.20	mmol/L
Chloride	104.00	*		102.00 - 105.00	97.00 - 106.00	mmol/L
Magnesium	2.20	*		1.90 - 2.20	1.60 - 2.30	mg/dL
Calcium	9.30	low		9.61 - 10.00	8.70 - 10.20	mg/dL
Phosphorus	3.30	low		3.40 - 4.00	2.50 - 4.50	mg/dL
Total Protein	7.10	*		7.10 - 7.61	6.00 - 8.50	g/dL
Albumin	4.40	*		4.10 - 4.50	3.50 - 5.50	g/dL
Globulin	2.70	low		2.80 - 3.51	1.50 - 4.50	g/dL
A/G Ratio	1.60	*		1.20 - 1.60	1.10 - 2.50	ratio
Total Bilirubin	0.50	*		0.30 - 0.90	0.00 - 1.20	mg/dL
Alk. Phosphatase	76.00	*		64.74 - 91.26	39.00 - 117.00	IU/L
Creatine Kinase	113.00	*		32.00 - 116.00	24.00 - 173.00	U/L
LDH	201.00	high		154.31 - 190.70	119.00 - 226.00	IU/L
SGOT (AST)	25.00	*		10.00 - 26.00	0.00 - 40.00	IU/L
SGPT (ALT)	17.00	*		8.00 - 26.00	0.00 - 32.00	IU/L
GGT (r-GTP)	13.00	*		10.00 - 35.00	0.00 - 60.00	IU/L
Serum Iron	113.00	high		64.00 - 102.00	27.00 - 139.00	ug/dL
Ferritin	252.00	Very High		45.00 - 110.00	15.00 - 150.00	ng/mL
Total Cholesterol	205.00	High		150.00 - 180.00	100.00 - 199.00	mg/dL
Triglyceride	49.00	low		50.00 - 125.00	0.00 - 149.00	mg/dL
HDL Cholesterol	73.00	*		55.00 - 120.00	39.00 - 140.00	mg/dL
VLDL Cholesterol	10.00	*		6.00 - 20.00	5.00 - 40.00	mg/dL
LDL Cholesterol	122.00	High		50.00 - 75.00	6.00 - 99.00	mg/dL
Total Cholesterol / HDL Ratio	2.80	*		0.00 - 4.00	0.00 - 4.40	ratio
TSH	3.87	high		0.50 - 3.50	0.45 - 4.50	uIU/mL
T4 Thyroxine	6.30	low		7.10 - 9.00	4.50 - 12.00	ug/dL
T3 Uptake	24.00	Low		29.00 - 35.00	24.00 - 39.00	%
T7 (Free T4 Index) (FTI)	1.50	low		2.61 - 3.60	1.20 - 4.90	
CRP C-Reactive Protein	0.70	*		0.00 - 1.50	0.00 - 4.90	mg/L
White Blood Count	4.80	low		5.70 - 8.50	3.40 - 10.80	k/cumm
Red Blood Count	4.25	low		4.27 - 4.78	3.77 - 5.28	m/cumm
Hemoglobin	14.20	*		12.60 - 14.50	11.10 - 15.90	g/dL
Hematocrit	42.10	high		38.00 - 42.00	34.00 - 46.60	%
MCV	99.00	High		84.00 - 92.00	79.00 - 97.00	fL
MCH	33.40	High		28.60 - 31.00	26.60 - 33.00	pg
MCHC	33.70	*		33.20 - 34.50	31.50 - 35.70	g/dL
RDW	13.50	*		13.30 - 14.40	12.30 - 15.40	%
Platelets	180.00	low		215.00 - 319.00	150.00 - 379.00	k/cumm
Polys/Neutrophils (SEGS-PMNS)	53.00	*		51.00 - 63.00	40.00 - 74.00	%



# Case #9 - Presenting Symptoms

## *High BP, Sexual Dysfunction*

- Name: RB
- Gender: Male
- Age: 55
- Weight: 240
- Blood Type: B
- Presented: 02/00
- Claims general good health
- High blood pressure
- Overweight
- Gained about 10-15 lbs. in the last 5 years
- Significant decrease in sexual function
- Edema or puffiness under his eyes
- Drinks about 1-2 Pepsi's daily
- PSA of 4.1 in '99



Name: **RB**      Gender: **Male**      Age: **55**

Weight: **240**      Blood Type: **B**      Test #: **1**

Test Description	Current Result	Current Rating	Homeostatic	Clinical	units
Date	3/28/1900				
Glucose	88	opt	85.00 - 100.00	65.00 - 110.00	mg/dl
Hemoglobin A1C	5.7	hi	4.00 - 5.40	3.40 - 6.10	%
SGOT	61	HI	18.00 - 26.00	0 - 40.00	mu/ml
SGPT	84	HI	18.00 - 26.00	0 - 47.00	mu/ml
GGT	53	hi	10.00 - 36.00	5.00 - 65.00	mu/ml
Serium Iron	113	opt	85.00 - 120.00	50.00 - 180.00	mcg/dl
Ferritin	842	HI	12.50 - 218.30	10.00 - 291.00	ng/ml
Hemoglobin	16.4	HI	14.00 - 15.00	12.00 - 16.00	gm/dl
Hematocrit	47.1	HI	40.00 - 47.00	37.00 - 47.00	%
Erythrocyte Sed Rate	5	opt	0 - 8.00	0 - 9.00	mm/HR
C Reactive Protein	5.1	HI	0 - 0	0 - 4.90	mg/L





Name: **RB**      Gender: **Male**      Age: **55**

Weight: **240**      Blood Type: **B**      Test #: **2**

Test Description	Current Result	Current Rating	Prior Result	Delta	Homeostatic	Clinical	units
Date	5/18/2000		3/28/2000				
Glucose	97	opt	88		85.00 - 100.00	65.00 - 110.00	mg/dl
Hemoglobin A1C			5.7		4.00 - 5.40	3.40 - 6.10	%
SGOT	46	HI	61	😊	18.00 - 26.00	0 - 40.00	mu/ml
SGPT	33	hi	84	😊	18.00 - 26.00	0 - 47.00	mu/ml
GGT	23	opt	53	😊	10.00 - 36.00	5.00 - 65.00	mu/ml
Serium Iron	48	LO	113	😞	85.00 - 120.00	50.00 - 180.00	mcg/dl
Ferritin	362	HI	842	😊	12.50 - 218.30	10.00 - 291.00	ng/ml
Hemoglobin	14.8	opt	16.4	😊	14.00 - 15.00	12.00 - 16.00	gm/dl
Hematocrit	45.3	opt	47.1	😊	40.00 - 47.00	37.00 - 47.00	%
Erythrocyte Sed Rate	6	opt	5		0 - 8.00	0 - 9.00	mm/HR
C Reactive Protein	0	opt	5.1	😊	0 - 0	0 - 4.90	mg/L





Name: **RB**

Gender: **Male**

Age: **55**

Weight: **240**

Blood Type: **B**



LAB#: 99414-0039

PATIENT: [REDACTED]

SEX: Male

AGE: 55

CLIENT#: 22044

DOCTOR: Van D. Merkle, DC

5761 Far Hill Ave  
Dayton, OH 45429

## HAIR ELEMENTS

06/99

### POTENTIALLY TOXIC ELEMENTS

TOXIC ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE	
			68 <sup>th</sup>	95 <sup>th</sup>
Aluminum	13	< 7		
Antimony	0.073	< 0.066		
Arsenic	0.027	< 0.08		
Beryllium	< 0.01	< 0.02		
Bismuth	0.077	< 0.06		
Cadmium	0.034	< 0.15		
Lead	0.29	< 2		
Mercury	0.37	< 1.1		
Platinum	0.007	< 0.005		
Thallium	< 0.001	< 0.01		
Thorium	< 0.001	< 0.005		
Uranium	0.006	< 0.06		
Nickel	0.12	< 0.4		
Silver	0.01	< 0.12		
Tin	0.23	< 0.3		
Titanium	1.9	< 1		
Total Toxic Representation				

### ESSENTIAL AND OTHER ELEMENTS

ELEMENTS	RESULT µg/g	REFERENCE RANGE	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium	201	200- 750					
Magnesium	42	25- 75					
Sodium	6	12- 90					
Potassium	7	9- 40					
Copper	9.8	10- 28					
Zinc	89	130- 200					
Manganese	0.09	0.15- 0.65					
Chromium	0.2	0.2- 0.4					
Vanadium	0.022	0.018- 0.065					
Molybdenum	0.034	0.025- 0.064					
Boron	2.7	0.4- 3					
Iodine	0.9	0.25- 1.3					
Lithium	0.01	0.007- 0.023					
Phosphorus	169	160- 250					
Selenium	0.67	0.95- 1.7					
Strontium	2.4	0.3- 3.5					
Sulfur	41800	44500- 52000					
Barium	0.92	0.16- 1.6					
Cobalt	0.006	0.013- 0.035					
Iron	7.3	5.4- 13					
Germanium	0.036	0.045- 0.065					
Rubidium	0.012	0.011- 0.12					
Zirconium	0.55	0.02- 0.44					

### SPECIMEN DATA

#### COMMENTS:

Date Collected: 2/15/2000

Date Received: 2/18/2000

Date Completed: 2/19/2000

Methodology: ICP-MS

Sample Size: .182 g

Sample Type: Head

Hair Color:

Shampoo: Mane N Tail

### RATIOS

ELEMENTS	RATIOS	EXPECTED RANGE
Ca/Mg	4.76	4- 30
Ca/P	1.19	0.8- 8
Na/K	0.847	0.5- 10
Zn/Cu	9.07	4- 20
Zn/Cd	> 999	> 800

Name: **RB**

Gender: **Male**

Age: **55**

Weight: **245**

Blood Type: **B**

Patient noticed  
significant increase in  
sexual function

(Wife complained!)

## Nutritional Evaluation Update

date 5-31-00

Welcome! To expedite certain routine questions so that we may more effectively utilize the time set aside for you, please fill out this evaluation form. Feel free to make any comments that need to be addressed in regards to your personal case. Please keep questions directed to your personal health concerns only! Thank you!

NAME: \_\_\_\_\_ EVALUATION #: 2

Below we've listed your previous presenting symptoms. Please rate how these have improved by circling the number provided.

1 = better, 2 = same, 3 = worse,

Energy	①	2	3		1	2	3
Digestion	1	②	3		1	2	3
Sleep	1	②	3		1	2	3
Blood pressure	①	2	3		1	2	3
Weight	①	2	3		1	2	3
Joint Pain	①	2	3		1	2	3
Swelling	①	2	3		1	2	3

3 notches on belt, lost 20 lbs. Face cleared up, dark spots on face cleared up. Joints in Hands/Fingers. Knees - pain/swelling is gone. Looks lot better. ~~At~~ A lot of people/friends ask him what he is doing. He looks good. Has a 100% aunt & is pretty good. Definite increase in sex function. Eyes clear. Below we've listed the medications that you presented with at your last report. Please indicate your current status with each:

Atenolol	NONE
Allopurinol	NONE
Triamterene	YES
Claritin	NONE

Please read your new report thoroughly and list any questions that you have:

The first 2-3 wks urinated at night then got better.  
Bowel movements are not ~~fast~~ foul smelling; Body odor is better.  
Ate a pizza & didn't feel good; can tell very quickly if he eats something off the diet.









8-30-2018

Dear Dr. Merkle,

I just wanted to thank you for what you are doing. Last year I got tested and my iron was 706!! Yikes!! I was just tested yesterday and my level was 63!! Liver enzymes were also down.. What can I say except thanks for saving me!! Once again you had a life changing effect on someone. All my thanks come from the heart.

Sincerely,

Gary LaRocca, DC





Herbert H.

## AGE related Complaints? His MD said: 'Just getting older'

July 2010 63 y/o Male 5'6" 175 lbs

### Primary Complaints:

1. High Blood Pressure
2. High Cholesterol
3. Gastro/Intestinal Dysfunction
4. Anemia
5. ED
6. Mild Fatigue
7. Headaches

### Medications:

Aspirin +2 years  
Simvastatin +2 years  
Lisinopril +2 years

A DMSA urinary challenge was ran on this patient because nearly all of the toxic elements in his hair results were yellow or clear/optimal.



## Hair Test Results

Legend: <div><div></div> Warning</div> <div><div></div> High Risk</div> <div><div></div> Critical</div>		
Test Description	Current Rating 07/21/2010	
Toxic Elements		
Aluminum	2.10	★
Antimony	0.02	★
Arsenic	0.03	★
Barium	0.10	★
Beryllium	0.01	★
Bismuth	0.03	★
Cadmium	0.04	high
Lead	0.78	high
Mercury	0.44	★
Platinum	0.00	★
Thallium	0.00	★
Thorium	0.00	★
Uranium	0.13	High
Nickel	0.05	★
Silver	0.03	★
Tin	0.04	★
Titanium	0.38	★
Essential Elements		
Calcium	202.00	low
Magnesium	110.00	High
Sodium	110.00	★
Potassium	16.00	low
Copper	67.00	Very High
Zinc	200.00	high
Manganese	0.32	★
Chromium	0.48	low
Vanadium	0.03	low
Molybdenum	0.03	low
Boron	0.39	Low
Iodine	0.36	low
Lithium	0.01	Low
Phosphorus	182.00	★
Selenium	0.88	★
Strontium	0.18	Low
Sulfur	48100.00	high
Cobalt	0.05	High
Iron	13.00	★
Germanium	0.04	★
Rubidium	0.02	low
Zirconium	0.03	Low

## Blood Test Results

Legend: <span>Warning</span> <span>High Risk</span> <span>Critical</span> <span>★ Optimal</span> <span>⊖</span>			
Test Description	Current Rating 07/23/2010		Prior 11/30/2009
Glucose	89.00	★	
Hemoglobin A1C (Gly-Hgh)	6.00	High	
Uric Acid	6.60	high	
BUN (Blood Urea Nitrogen)	21.00	high	
Creatinine	1.02	★	
GFR EST (Glomerular Filtration Rate)	59.00	★	
BUN / Creatinine Ratio	21.00	high	
Sodium	140.00	★	
Potassium	4.30	★	
Chloride	100.00	low	
Magnesium	2.50	★	
Calcium	10.00	high	
Phosphorus	2.80	low	
Total Protein	7.60	★	
Albumin	4.90	High	
Globulin	2.70	low	
A/G Ratio	1.80	high	
Total Bilirubin	1.10	high	
Alk. Phosphatase 25-530	97.00	★	
Creatine Kinase	164.00	high	
LDH	174.00	high	
SGOT (AST)	32.00	high	
SGPT (ALT)	50.00	High	
GGT	29.00	★	
Serum Iron	131.00	high	
Ferritin	472.00	High	
Total Cholesterol	182.00	high	186.00
Triglyceride	70.00	low	80.00
HDL Cholesterol	47.00	★	44.00
VLDL Cholesterol	14.00	★	16.00
LDL Cholesterol	121.00	High	126.00
Total Cholesterol / HDL Ratio	3.90	★	4.23
TSH	1.87	★	
T4 Thyroxine	10.00	high	
T3 Uptake	30.00	★	
T7 Free Thyroxine Index (FTI)	3.00	★	
CRP C-Reactive Protein	0.70	★	
White Blood Count	6.80	★	
Red Blood Count	5.16	★	
Hemoglobin	16.90	high	
Hematocrit	46.40	★	
MCV	90.00	★	
MCH	32.80	high	
MCHC	36.40	High	
RDW	13.10	★	
Platelets	292.00	high	
Polys/Neutrophils (SEGS-PMNS)	65.00	high	
Lymphocytes	26.00	★	
Monocytes	7.00	high	
Eosinophils	2.00	★	
Basophils	0.00	★	
Neutrophils/Polys (Absolute)	4.40	★	
Lymphs (Absolute)	1.80	low	
Monocytes (Absolute)	0.50	★	
Eosinophils (Absolute)	0.10	★	
Basophils (Absolute)	0.00	★	
ESR-Erythrocyte Sed Rate, Westergren	2.00	★	
Vitamin D 25-Hydroxy	21.00	Very Low	

# Herbert H. Chelation Tests

Legend: <span>Warning</span> <span>High Risk</span> <span>Critical</span> <span>Optimal</span> <span>Im</span>			
Test Description		Prior	Delta
Agent		7/24/2010	
Dose		Pre-Challen	
Interval			
<b>Toxic Elements</b>			
Aluminum (UA)		3.10	
Antimony (UA)		0.00	
Arsenic (UA)		6.40	
Barium (UA)		2.50	
Beryllium (UA)		0.00	
Bismuth (UA)		0.00	
Cadmium (UA)		0.30	
Cesium (UA)		3.50	
Gadolinium (UA)		0.00	
Lead (UA)		0.50	☹
Mercury (UA)		1.30	☹
Nickel (UA)		2.50	
Palladium (UA)		0.00	
Platinum (UA)		0.00	
Tellurium (UA)		0.00	
Thallium (UA)		0.20	
Thorium (UA)		0.00	
Tin (UA)		2.30	
Tungsten (UA)		0.00	
Uranium (UA)		0.00	



# Important Questions



- What were Herbert's **real** problems?
- What are symptoms of the **real** problem?
- Would **functional tests** have been positive in urine or saliva?
- **Adrenal function?** Would patient 'feel' better on adrenal support?
- Hormones: Cortisol? Testosterone? DHEA? Testosterone? Growth Hormone?
- **SIBO** (Small Intestinal Bacteria Overgrowth)
- **Electrolyte imbalance**
- Amino Acids?
- Fatty Acids?
- **Neurotransmitters?**
- Urine Organic Acids?
- **Microbiome?**
- Digestion: food allergies? gluten sensitivities?
- Psychological/mental impact of toxic elements?
- **Muscle Testing?**



# Consultation:

The most important question

- How long have you had this problem?
- Secondary:
  - Why are you sick now?
  - What is different now?



# Keys to Completing The Consultation

- I don't have a cure or vitamin for your problem.
- Our goal is to get you healthier.
- **If we can get you as healthy as you were \_X\_ years ago, that would be good, wouldn't it?**
- Let's get started, the longer you wait the more damage can be done.
- We need some testing.....
  - Case: S—Lupus



# Basic Keys To The Consultation

- Acknowledge the problem, why they came in, how it is affecting their life
- Identify the medications and relate that your goal is not to take them off of the medications but to get them healthy so that they no longer need them.
- Identify how long they have had the problem and that something has changed.
- The main focus is not to treat their problem but to get them as healthy as they were before the problem started.
- Let's get started before more serious conditions develop.





# Hormones: Where did they come from?

- Daryl E.: low testosterone around **125** for years even on a testosterone patch, he had taken shots to no avail. After being on the SBN program for 4 months his testosterone is **325** (clinical range: 241-827; healthy range: 390-652) Among other things he says he feels “A thousand percent better”.
- No ‘natural’ hormones were used: yam, DHEA, Melatonin etc.



Ready

Shoot

AIM!



The Doctor of  
the Future...

...is you!



It is not the critic who counts, not the man who points out how the strong man stumbled, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena; whose face is marred by dust and sweat and blood; who strives valiantly, who errs and comes short again and again; who knows the great enthusiasms, the great devotions, and spends himself in a worthy cause; who, at the best, knows in the end the triumph of high achievement; and who, at the worst, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who know neither victory nor defeat.

Theodore Roosevelt



Do something today to be healthier  
than you were yesterday.

-Van D. Merkle

Van D Merkle DC, DABCI,CCN,  
DCBCN, Vice President of  
CBCN

Currently in training to be the  
future

World Record Holder in the 800  
m run...for 110 year olds.





AUG 16 2007



















Chloe Merkle  
8 years old

Stress Free!





2012







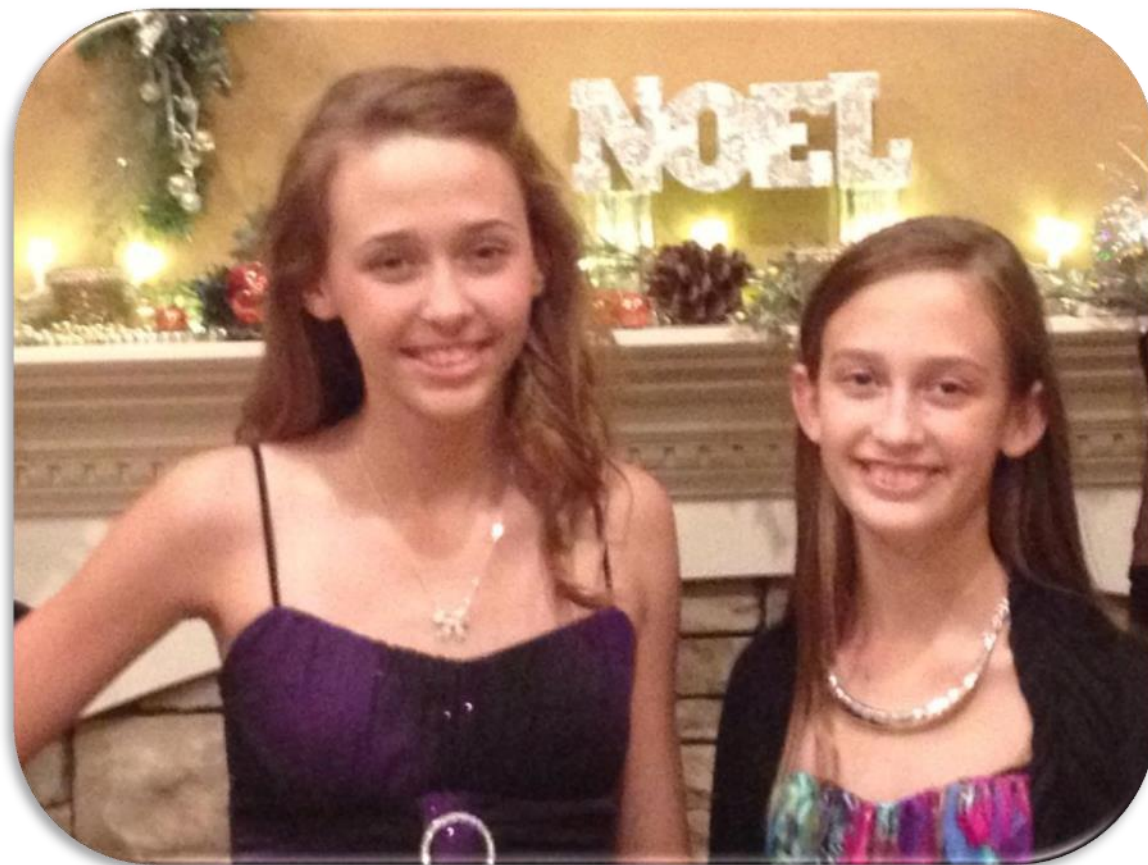








































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Science Based Nutrition

# Longevity

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- ▶ Popular Mechanics

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Two studies remind us of what we already know  
(but sometimes forget). *Alex Hutchinson*

- ▶ The link between strength, muscle mass, and mortality
- ▶ Found that those with low muscle strength were more than twice as likely to have died during the follow-up period than those with normal muscle strength.
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# The Longest-Lived People on Record

- ▶ 122 years    Jeanne Calment    4'11"
- ▶ Shorter people live longer than tall people



# Interspecies Longevity - being tall or large is not conducive to long life

- ▶ Big dogs die earlier than smaller dogs
- ▶ Large mice do not live as long as smaller mice
- ▶ The largest elephants do not live as long as smaller elephants.

# Rapamycin – (Currently, I'm not taking Rapamycin, Van)

- ▶ Is used in high doses with organ transplants to reduce the immune system, reduce cellular turnover and aging
- ▶ Low doses extends life in lab mice by 20%
- ▶ Human self reporting is using Rapamycin for longevity are positive (of course)
- ▶ Currently: scientists are giving Rapamycin to 40 family dogs to try to extend their life. So far, improved heart function but living longer...only time will tell

# Rapamycin by Prescription for Longevity-

Self trials are ongoing.

- ▶ Promotes Autophagy- effectively clearing toxic debris and promoting cellular rejuvenation.
- ▶ Targets Senescence-By targeting the mTOR pathway, rapamycin provides a defense against cellular senescence—a fundamental cause of aging—boosting cellular health and performance.
- ▶ Reduces Systemic Inflammaging- reduces Age related, senescent-associated inflammation
- ▶ Strengthens Immune Function
- ▶ By decreasing inflammation, Rapamycin enables immune stem cells

# Rapamycin and mTOR

- ▶ mTOR- a protein complex that promotes growth activity and speeds up aging and leads to issues such as cancer, cognitive decline, and metabolic challenges.
- ▶ Rapamycin inhibits mTOR, thus reducing growth and extends life
  - ▶ Extends life 20% in mice...
  - ▶ What would 20% translate to in Human lifespan?
  - ▶ One company boasts a reduction of biological age of 8 years- from 60y/o down to 52 biological age years. However, the details are not provided.



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- Reduces Systemic Inflammaging- reduces Age related, senescent-associated inflammation.
- Strengthens Immune Function.
- By decreasing inflammation, Rapamycin enables immune stem cells.

# Rapamycin and mTOR

- mTOR- a protein complex that promotes growth activity and speeds up aging and leads to issues such as cancer, cognitive decline, and metabolic challenges.
- Rapamycin inhibits mTOR, thus reducing growth and extends life
  - Extends life 20% in mice...
  - What would 20% translate to in Human lifespan?
  - One company boasts a reduction of biological age of 8 years- from 60y/o down to 52 biological age years. However, the details are not provided.

# Autophagy

- Self-eating
- Specifically breaks down damaged cellular components
- The Cell's garbage collection system
- The Garbage is broken down by Lysosomes into building blocks where are reused by the cells
- Autophagy is critical to life
- Autophagy declines with age- senescence

# Autophagy

- Old people/old cells are bad at removing junk
- Autophagy declines with age

# How to Improve Autophagy

- Increases in Autophagy cause mice to get stronger, leaner and live longer



# Practical Longevity

Van D Merkle

DC, DABCI, DCBCN, CCN

Who is likely to live over 100?

Don't Die; Don't get injured

Don't get cancer or serious disease

Avoid smoking or vaping

Avoid Alcohol



Maintain a good weight  
(Probably less than you think.)

# Avoid junk food- you know what it is

- ▶ Avoid/reduce refined sugar
- ▶ Avoid fried food
- ▶ Avoid Vegetable oils
- ▶ Avoid sodas
- ▶ Avoid processed meats
- ▶ Avoid processed foods

# Ferritin- Giving blood



Drink Filtered RO water

# Check the score at least annually

## Baseline testing

- ▶ Cancer screening
- ▶ Heart disease screening
- ▶ Hormone levels
- ▶ Systems check
- ▶ Inflammation
- ▶ Mineral and vitamin levels

# Heavy metal testing





# Genetics - genetic variations, epigenetics and double testing for health, nutrition and vitamins.

- ▶ It is far from a definitive science
- ▶ What genes do you have?
- ▶ What turns them on? what turns them off?
- ▶ Genetics: Low carb, drink milk, vegan, meat eater.
- ▶ One might try vegan, while another does low carb and both feel great or maybe both feel bad. It is genetics and environment.
- ▶ The blind, double blind approach rarely works for vitamins, diet and health.
- ▶ There is no perfect diet for everyone and no perfect vitamin protocol for everyone.

# Longevity- it isn't one thing and often that is mis understood- Red Wine

- ▶ Several studies indicate that drinking red wine makes you live longer.
- ▶ This effect is correlated to several molecules found in red wine.
- ▶ HOWEVER, Red Wine is disproportionally favored by rich, educated people, who already tend to have better diets, lower BMI/weight and better health habits

# Meat Eater vs. Vegans/nonmeat eaters

- ▶ Vegans get about 3 additional years on average
- ▶ Blue Zones, Seventh-Day Adventists, Hindu etc
  - ▶ Higher education
  - ▶ Overall, tends to take better of their health and body.
  - ▶ Tend to drink less alcohol
  - ▶ Have lower BMI's
  - ▶ More exercise
  - ▶ Less smoking
  - ▶ Eat better/less junk food
- ▶ Once the other factors noted above are considered, veganism no longer extends life



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# HORMESIS RESPONSE:

## WHAT DOESN'T KILL YOU, MAKES YOU STRONGER

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- Hormesis is a biphasic dose response phenomenon, characterized by a low dose stimulation and a high dose inhibition.
- Where a toxin or activity is beneficial in low or very low doses are toxic even lethal at higher doses.
- Homeopathy would possibly be an example

# THRESHOLD RESPONSE

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- Where a certain level of an element, stimulant or irritant will cause a positive or negative response.
- Most medical drugs and treatments are based on this model
  - Chemo, radiation, drugs



# HORMESIS AND ARSENIC

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- Research: *C. elegans* (a type of worm) used in the study.
- High amounts of arsenic is a 'sure-fire' killer.
- However, if the worms are instead exposed to a fixed low dose, they actually, live longer than usual, become more resistant to heat stress and other poisonous substances.

# HORMESIS AND PARAQUAT (PRO-OXIDANT HERBICIDE)

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- Research: *C. elegans* (a type of worm) used in the study.
- Reliably increased lifespan of the worms using low dose Paraquat
- **However, if they were given antioxidant nutrients, then the damage was neutralized and the worms lived no longer than usual.**

# HORMESIS AND RADIOACTIVE AREA IN TAIWAN IN THE 1980'S

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- Construction steel was contaminated with radioactive cobalt-60
- 10,000 people in contaminated apartments exposed to radioactivity far above normal levels.
- **However, doctors found that the apartment residents had fewer cases of virtually all types of cancer than comparable Taiwanese people.**

# HORMESIS AND TOXINS IN AMERICAN HISTORY

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- American shipyard workers working with nuclear submarines have a lower mortality rate than workers at normal shipyards.
- US population living in areas with slightly higher-than-usual background radiation live longer than average.
- Radiologists- exposed to radiation live longer than other doctors and have a lower risk of cancer.

# HORMESIS AND TODAY'S CULTURE

- Alcohol- possible the reasons behind some studies from years ago indicated a possible connection of limited wine and longevity
- Drugs
- Marijuana
- Smoking
- French Fries
- Chocolate
- Caffeine/Coffee?
- Soda
- **Is pizza healthy in small doses?**





# HORMESIS AND VACCINES

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- Is it possible that 50 years ago, fewer vaccines were of benefit?
- Now too many vaccines are going to have a negative/toxic effect?
- Are the chemical, heavy metals, adjuvants in somehow causing a positive Hormesis effect?
- The medical community are adamant that vaccines are one of the major, if not the major, reasons for longevity in the US, compared to 100 years ago.
- The people living the longest today had far fewer vaccines as children, compared to children today.



# HORMESIS IN ANIMALS

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- Long-lived birds don't have less oxidative stress than short-lived birds.
- Naked mole-rats have at least as much oxidative stress as the shorter-lived cousins, mice
- Naked mole-rats live a long time not because they are stress free but because they are equipped to deal with stressors.
- Naked mole-rats fare far better than mice when exposed to DNA-harming chemicals, low oxygen levels, heavy metals and exposure to extreme heat.
- **Maybe the secret to a long life is not to live without difficult times but to be able to withstand the onslaught and stressors.**

# HORMESIS IN HUMANS AT HIGH ALTITUDE

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- People who live at high altitudes tend to live longer and experience fewer age-related diseases than those who live a sea level.
- High altitude:
  - Thinner atmosphere,
  - Less oxygen
  - More UV rays from sun and cosmic radiation
  - Exposure to cold

# HORMESIS IN HUMANS AT HIGH ALTITUDE

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- Heat shock proteins: when cells are damaged in some way, many proteins end up in the wrong shape. But heat shock proteins help them recover their form and function so that they don't turn into cellular junk.

Heat shock proteins are produced

- with radiation exposure
- low oxygen
- Ice baths
- **Saunas** (beware men: long stints in hot tubs and saunas reduce fertility)





# ZOMBIE CELLS AND HOW TO GET RID OF THEM: APOPTOSIS

# DAILY APOPTOSIS VS. SENESCENCE/ZOMBIES

- 50-70 BILLION CELLS DIE EACH DAY TO APOPTOSIS,
  - A TINY FRACTION OF YOUR ENTIRE BODY.
  - COMMON, NORMAL AND EASILY REPLACED
- SENESCENCE - DAMAGED CELLS
- CELLS THAT HAVE RUN OUT OF TELOMERES BECOME ZOMBIE CELLS
- VIRUSES, INFLUENZA TYPE A CAN CAUSE ZOMBIE CELLS (QUERCETIN CAN BE USEFUL)
- UNHEALTHY IMMUNE SYSTEM LEADS TO ZOMBIE CELLS



# SENESCENCE/ZOMBIES AND AGING

- STOP OR SLOWS NORMAL ACTIVITY
- STOPS DIVIDING
- CELLS MALFUNCTION RELEASING DAMAGING MOLECULES INTO SURROUNDING TISSUES
- THESE CELLS PROMOTE AGING



# SENESCENCE/ZOMBIES AND AGING

- ZOMBIE CELLS FROM OLD MICE CAUSED YOUNG MICE TO SLOW DOWN AND BECOME WEAK
  - THE MICE NEVER FULLY RECOVERED FROM JUST ONE ZOMBIE CELLS TRANSPLANT
  - MORE ZOMBIE CELLS TRANSPLANTED CAUSED WORSE OUTCOME.
  - DIED EARLIER

# SENESCENCE/ZOMBIES AND AGING

- OLD PEOPLE HAVE MORE ZOMBIE CELLS THEN YOUNGER PEOPLE
- REMOVING ZOMBIE CELLS FROM MICE, **ON A REGULAR BASIS** LIVED **25% LONGER THAN NORMAL/CONTROL MICE**



# SENESCENCE/ZOMBIES – HOW TO KILL THEM

- ZOMBIE CELLS SOMEHOW INHIBIT NORMAL CELLULAR SUICIDE

# SENESCENCE/ZOMBIES AND SENOLYTICS

- SENOLYTICS: COMPOUNDS THAT TRIGGER NORMAL CELLULAR SUICIDE
- MOST SENOLYTICS ARE FLAVONOIDS FROM PLANTS
- Fisetin- FOUND IN APPLES AND STRAWBERRIES
- PROCYANIDIN C1- FOUND IN GRAPES
- QUERCETIN FOUND IN ONIONS AND CABBAGE AND SUPPLEMENTS



# ZOMBIES AND SENOLYTICS AND DRUGS

- DRUGS LIKE DASATINIB (A TX FOR LEUKEMIA) COMBINE WITH QUERCETIN HAS BEEN EFFECTIVE IN SOME CLINICAL TRIALS
- HOWEVER, ZOMBIE KILLING COMPOUNDS, SUPPLEMENTS, DRUGS ETC CAN BE COUNTER-PRODUCTIVE
- TOO MUCH OR TOO HIGH OF A DOSE OF SENOLYTICS ARE TOXIC TO NORMAL CELLS

# ZOMBIES AND SENOLYTICS AND MELATONIN

- MELATONIN TO OPTIMIZE SLEEP CAN HELP BRING ZOMBIE CELLS BACK TO A HEALTHY STATE
- OPTIMIZING SLEEP
- NORMAL REGULAR SLEEP



# SPERMIDINE- AUTOPHAGY

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- Autophagy- the natural process of collecting and disposing of damaged molecules and cells.
- Autophagy declines with age causing cells to develop junk, thus slowing function and repair causing sickness and weakness called **senescence**.

# SPERMIDINE- AUTOPHAGY

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- Spermidine increases the activity of the cellular garbage collectors causing lab mice, naked mole-rats and bats live longer than other mammals their size.
- Increasing autophagy in mice causes them to get stronger and leaner and also live longer.
- Higher spermidine intake is associated with a lower risk of death.

# SPERMIDINE- HISTORY

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- 1678 it was discovered in human semen and sperm
- There are other sources of spermidine
- All cells that have a nucleus- cells found in plants, animals, fungi etc can make spermidine.

# SPERMIDINE- AUTOPHAGY

---

- Higher spermidine intake is associated with a lower risk of death.
- Spermidine supplement is [VWheatgerm](#).
- Spermidine is found in wheatgerm, certain mushrooms, sunflower seeds, corn and cauliflower.
  - **I've started eating more cauliflower as a result of these studies.**

# SPERMIDINE

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- In the body, spermidine is created from its precursor, putrescine. It is the precursor for another polyamine called spermine, which is also important for cellular function.
- Spermidine and putrescine are known to stimulate autophagy, a system that breaks down waste inside cells and recycles cellular components. This is a quality control mechanism for the mitochondria, the powerhouses of our cells.
- They support processes such as cellular growth, DNA stability, cellular proliferation, and apoptosis [2]. It also appears that polyamines function in a similar way to growth factors during cell division.



# SPERMIDINE PRODUCTION

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- Arginine is converted through several complicated metabolic processes to get to spermidine



# SPERMIDINE – SOURCES

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- Vegetables
- Mushrooms
- Broccoli
- Cauliflower
- Red, green pepper
- Mediterranean diet
- Natto
- Shitake mushroom
- Amaranth grain
- Durian
- **Wheat germ**
- Aged cheeses - cheddar, parmesan, gruyere etc.
- Grapefruit
- Chickpeas
- Peas
- Oranges
- Green tea
- Rice bran

# SPERMIDINE- POSSIBLE BENEFITS

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- Reduce age related diseases
- Cancer, metabolic disease,
- Heart disease
- Neurodegeneration
- Improve cognition and memory
- Dissolving amyloid-beta protein to prevent memory loss and dementia
- Protects DNA by reducing oxidative stress
- May reduce telomere attrition
- Can inhibit several hallmarks of aging

# SPERMIDINE BENEFITS- JAPANESE MED RECORDS:

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- Minimize deep wrinkles
- Stimulate hair growth and longer lashes
- Make nails stronger
- More youthful appearance.
- Increase formation of elastin, collagen and lipids
- Might improve fertility in both sexes
- Might delay menopause

# SPERMIDINE AND FERTILITY

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- Spermidine is important in sperm production
- Reduced levels of cortisol
- Reduced estrogen in men
- Increased levels of testosterone and DHEAS

# SPERMIDINE INCREASES AUTOPHAGY

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- Nearly all cells contain Spermidine, but it declines with age
- Diet: higher increase of spermidine is associated with lower risk of death
- Spermidine cannot be made into a supplement- (unless it is just Wheatgerm or other foods that contain it.)

## Foods with most Spermidine:

- Wheatgerm
- Some mushrooms,
- sunflower seeds,
- corn,
- Cauliflower
- Adzuki beans
- Durian fruit



# SPERMIDINE AND IMMUNITY (COVID 19)

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- Helped restore T Cell function and autophagy
  - Possibly increased vaccine efficacy in older subjects
  - Reduced viral replication





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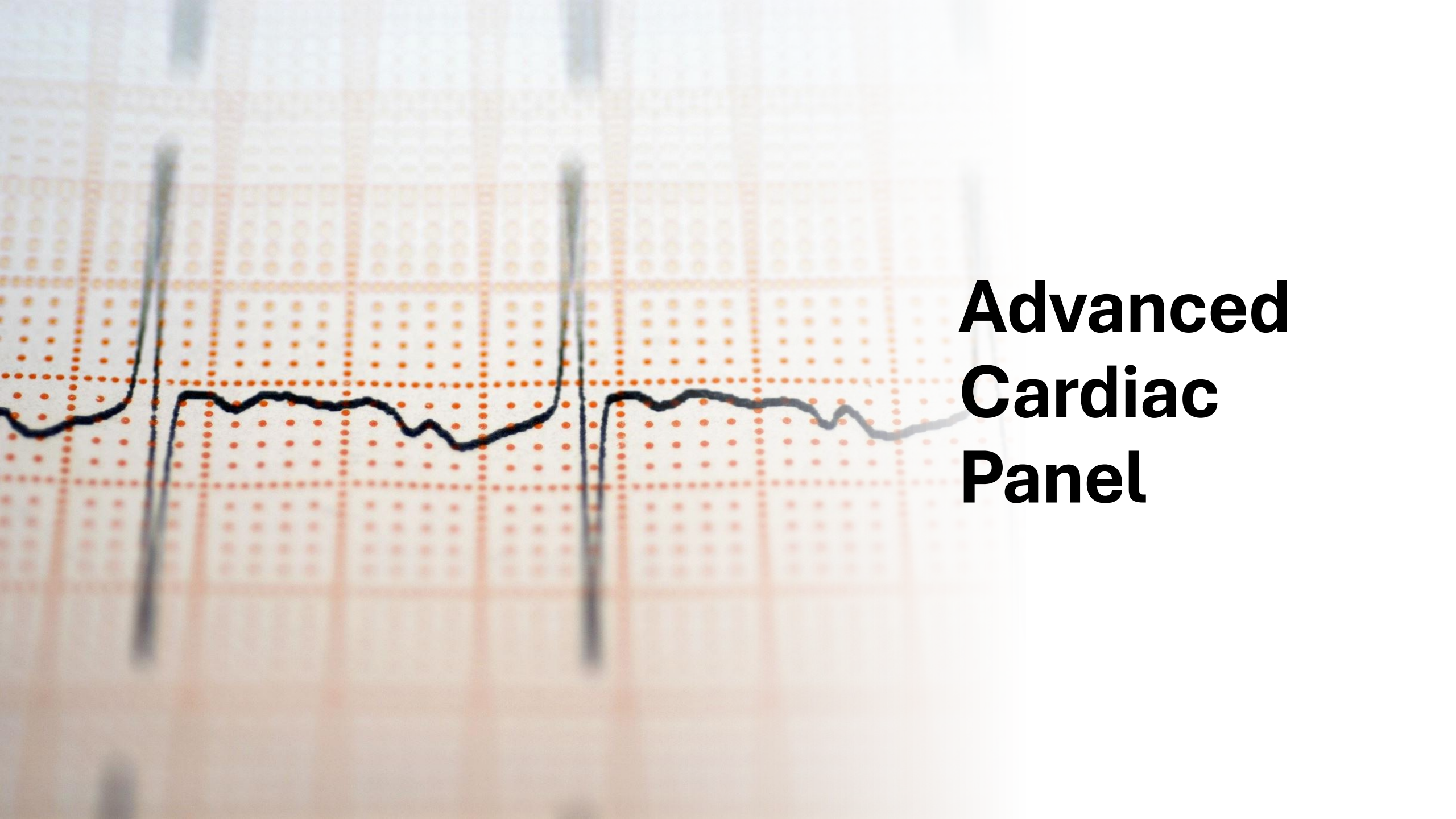
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# **Advanced Cardiac Panel**



# OmegaCheck – Total Omega 3, DPA, DHA, EPA

The OmegaCheck level and Total Omega 3 Fatty Acids are very low, the Omega-3 FA DPA is low, and the Omega-3 FA DHA and Omega-3 Fatty Acid (FA) EPA are a little low. The OmegaCheck value is a formula calculation that takes into consideration all of the fatty acids. Basically, the higher the OmegaCheck: the lower the coronary risk. The Fatty Acids EPA, DHA and DPA are known to lower inflammation of all forms including inflammation associated with heart disease as well as inflammation associated with autoimmune disease. O3FA lower triglycerides, help with depression and anxiety, improves vision in adults and neurological development in infants, may help prevent macular degeneration, improve cognitive function, and aid in sleep, inhibits platelet aggregation that can lead to blood clots and aids in improving circulation. They promote wound-healing and helps to prevent angiogenesis. Optimizing these Omega-3 FA's will likely help to reduce coronary risk and sudden death due to cardiovascular disease and improve overall health. With intake of 3 g/day or less of EPA and DHA, there is no significant risk for increased bleeding time beyond the normal range. A daily dosage of 1 gram of EPA and DHA can also lower triglycerides. Fish and Fish oil supplements are the best source of these fatty acids.

---

# Total Omega 6

The Total Omega 6 Fatty Acids are optimal. The most important Omega 6 Fatty Acids are Arachidonic Acid (ARA) and Linoleic Acid (LA). These tend to be pro-inflammatory and pro-thrombotic and tend to increase coronary heart disease. A low or optimal level is desired.

# Omega 6 Arachidonic Acid (ARA)

The Omega 6 Arachidonic Acid (ARA) is low. ARA does have a significant role in inflammation related to injury and many disease states and is most abundant in the brain, muscles and liver.

How ARA is metabolized in the body dictates its inflammatory or anti-inflammatory activity. High ARA consumption is not advised when there is a history of inflammatory disease, poor health or those who have elevated cardiovascular risk factors. Basically, **elevated ARA is due to increased physical activity, increased consumption of Omega 6 fats or the bad vegetable oils or due to exposure to toxic chemicals.**

ARA appears to be the proper response to stress in nearly all forms and is the body's attempt to neutralize or minimize damage with inflammation and constriction and then to promote healing and repair with anti-inflammatory properties. The cause of the elevated ARA is the key to determining the proper course of therapy.

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# Omega 6 Alpha-Linoleic Acid (LA)

The Omega 6 Alpha-Linoleic Acid (LA) is high. LA is an essential fatty acid that serves as a source of energy and as a building block for DHA and EPA. Medical conditions like diabetes or certain allergies may significantly limit the human body's capacity for metabolizing of EPA from LA.

LA is abundant in many nuts, fatty seeds (flax seeds, hemp seeds, poppy seeds, sesame seeds, etc., which are good). A deficiency of LA might show symptoms of mild skin scaling, hair loss, and poor wound healing. Heart disease, cancer and other degenerative conditions are associated with increased LA especially when the source of LA is from vegetable oils like canola, corn, soybean, cottonseed and margarines. It is also recommended to reduce or limit safflower, sunflower, grapeseed and peanut oils.



# Omega-6 to Omega-3 Ratio

The Omega-6 to Omega-3 Ratio is high. Industry-sponsored studies have suggested that omega-6 fatty acids should be consumed closer to a 1:1 ratio to omega-3, though many individuals today have a ratio of about 16:1, mainly from vegetable oils. **Currently, the optimal ratio is thought to be 4 to 1 or lower and some sources suggest ratios as low as 1:1.** A ratio of 3:1 omega 6 to omega 3 helped reduce inflammation in patients with rheumatoid arthritis. A ratio of 5:1 had a beneficial effect on patients with asthma but a 10:1 ratio had a negative effect. **A ratio of 2.5:1 reduced rectal cell proliferation in patients with colorectal cancer,** whereas a ratio of 4:1 had no effect.

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# ARA/EPA Ratio

The ARA/EPA Ratio is a very important test as it measures the level of cellular inflammation in the body.

Lowering cellular inflammation is very beneficial for preventing heart disease and other inflammatory diseases as well as reducing the chance of developing chronic disease in the future. [An anti-inflammatory diet and EPA supplements are the only ways to reduce the ARA/EPA ratio.](#)



# F2 Isoprostane/Creatinine (F2-IsoPs) Ratio

The F2 Isoprostane/Creatinine (F2-IsoPs) level is a little high. A low or optimal level is desired. Elevated F2-IsoPs levels show an increased risk of atherosclerosis and coronary heart disease and are elevated with cancers, inflammatory conditions, chronic disease, and act as a potent vasoconstrictor and promote platelet activation resulting in blood clots.

F2-IsoPs are usually increased in smokers and excessive intake of red meat. Improved fitness and diet will often help to lower F2-IsoPs levels. Note: Individuals who exercise a lot may be at risk of increased oxidative stress in their bodies due to a lack of nutritional balance and insufficient exercise recovery.

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# Lp-PLA2

The Lp-PLA2 is a vascular-specific **inflammatory enzyme that plays a direct role in the development of atherosclerosis**. Increased Lp-PLA2 activity is associated with a higher risk of coronary heart disease (CHD).

People with elevated Lp-PLA2 are twice as likely to develop CHD at 7 years and **are twice as likely to experience a CHD event (MI or CHD related death) at 5 years**. A low or optimal level of Lp-PLA2 is desired.

# Myeloperoxidase (MPO)

The Myeloperoxidase (MPO) is an inflammatory enzyme, which measures disease activity of the arterial wall. MPO in the blood is a specific marker of vascular inflammation and vulnerable plaque/erosions/fissures formation that leads to arterial blockage and reduced blood flow.

As such, **elevated levels of MPO are associated with or predict risks for cardiovascular disease, myocardial infarction and future cardiovascular events.** Basically, elevated levels of MPO indicate current or developing blockage of arteries. A low or optimal level of MPO indicates a low probability of plaque rupture in vessels.

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# Oxidized LDL (OxLDL)

The Oxidized LDL (OxLDL) when elevated OxLDL is associated with coronary artery disease, development of atherosclerosis and elevated levels may be seen in cardiovascular disease, metabolic syndrome, acute myocardial infarction, kidney disease, polycystic ovary syndrome, autoimmune disorders, Alzheimer's and similar diseases.

Foods will have unpleasant odors and flavors as the fats (lipids) become oxidized. **This same oxidative process can occur in the body leading to a myriad of adverse health effects as noted above.** OxLDL levels usually respond to improvements in diet, weight loss, nutritional supplements and exercise. An optimal or low level of Ox LDL is desired.



Asymmetric  
Dimethylarginine (ADMA)

Symmetric  
Dimethylarginine (SDMA)

The Asymmetric Dimethylarginine (ADMA) is optimal and the Symmetric Dimethylarginine (SDMA) are metabolites of L-arginine and reduce NO production. Elevated levels are associated with endothelial dysfunction, insulin resistance, hypertension and subclinical or early atherosclerosis and correlates with internal carotid artery thickness and plaque formation.

Elevated ADMA and SDMA in young adults has been associated with increased CT scan coronary artery calcification and are associated with twice the risk for adverse events including MI and stroke than those with normal levels. Elevated SDMA is also associated with impaired kidney function.

# F2 Isoprostanes (F2-IsoPs)

The F2 Isoprostanes (F2-IsoPs). A low or optimal level indicates levels of oxidation in your body are low, which is good. Elevated F2-IsoPs levels show an increased risk of atherosclerosis and coronary heart disease and are elevated with cancers, inflammatory conditions, chronic disease, and act as a potent vasoconstrictor and promote platelet aggregation resulting in blood clots.

F2-IsoPs are usually increased in smokers and excessive intake of red meat. Improved fitness and diet will often help to lower F2-IsoPs levels. Note: Individuals who exercise a lot may be at risk of increased oxidative stress in their bodies due to a lack of nutritional balance and insufficient exercise recovery.



# Longevity, Neurological Disorders and Chemical Toxins Panel

DR. VAN MERKLE DC, DABCI, DCBCN, CCN

Beta Amyloid  
42/40 Ratio

Beta Amyloid 42

Beta Amyloid 40

- ▶ The Beta Amyloid 42/40 Ratio is high and the Beta Amyloid 40 and Beta Amyloid 42 are a little high. The Plasma Beta Amyloid 42/40 Ratio is useful with the diagnosis of Alzheimer's disease, including neurological and cognitive performance examinations and PET neuroimaging. A low 42/40 Ratio typically indicates a higher risk of Alzheimer's disease pathology. The higher the Ratio, the less amyloid beta plaque buildup in the brain. While a high Beta Amyloid 40 level might seem concerning, it's the 42/40 Ratio that is considered more important in assessing Alzheimer's risk.

# Phosphorylated Tau 181 (pTau- 181) and Phosphorylated Tau 217 (pTau- 217)

Alzheimer's Disease (AD) involves 2 specific proteins: amyloid found outside the brain nerves and phosphorylated tau (pTau) found inside the brain nerves. Amyloid plaque is due to a derangement or misfolding of amyloid called amyloid plaque, which accumulates outside the brain nerves and is seen on PET scans. pTau neurofibrillary tangles develop inside the brain nerve cells and are seen on autopsies and CFS (cerebrospinal fluid). Both, amyloid plaque and pTau neurofibrillary tangles causes the brain nerves to separate, deteriorate, die off and the brain shrinks or atrophies as the degeneration continues resulting in progressive Alzheimer's Disease, dementia and other mental and neurological decline. These amyloid plaque fragments and pTau tangle fragments were found in the CFS. These amyloid plaque and pTau fragments diffuse into the blood and now with advanced technology can be found in the plasma. In regards to Alzheimer's, dementias and neurological decline, in the brain nerves, there are 2 specific pTau proteins: pTau- 181 and pTau- 217, that are most significant.

pTau-181 and pTau- 217 levels are generally higher in patients with preclinical AD (i.e., early stage disease where individuals do not have overt symptoms, yet, but are positive for CSF or PET biomarkers). Plasma pTau-181 and pTau- 217 concentrations increase with AD disease progression and worsening of cognition and brain atrophy. Numerous studies have reported that measurement of plasma pTau-181 and pTau- 217 can predict the extent of brain amyloid and tau as measured by PET. Also noted is that plasma pTau-181 was also found with chronic kidney disease (CKD), myocardial infarction (MI) or clinical stroke though the clinical significance of this has not been determined.

P-tau- 217 was generally superior to cerebrospinal fluid (CSF) tests in classification of brain pathology associated with Alzheimer's diseases, cognitive impairment and dementias. The Amyloid Plaque, pTau-217 and pTau-181 can be used to facilitate biological identification, similar to PET scan and CSF to detect AD, dementias, neurological decline and brain atrophy at the earliest possible time and to slow the course of disease.

# Neurofilament Light (NFL) Plasma

Neurofilaments are cytoskeletal proteins that are highly specific for neurons. NfL are parts of the myelin sheath that surrounds and protects the neuronal cells and axons. NfL comprise 85% of neuronal structural proteins and determine axonal diameter. Neurofilaments are present in both the central nervous system (CNS) and peripheral nervous system (PNS) neurons.

Since neurofilaments are released from neurons due to almost any type of injury or disease, virtually all disorders and diseases of the CNS or PNS, which disrupt neurons can lead to release of neurofilaments into the Cerebral Spinal Fluid (CSF) (for the CNS) or blood (for the PNS). Once neurofilaments are released into the CSF, they will eventually flow into the periphery and are measurable in both plasma and serum. A rise in NfL can be influenced by various neurodegenerative diseases or a head impact during athletics. NfL results should be used with other clinical information when looking at patients with neurodegeneration. Demographic, lifestyle, and comorbidity factors all influence NfL serum levels. Exercise, blood volume, and body mass index are all examples of factors that impact levels.

Decreased levels are seen in patients with high immunoglobulin G (IgG) levels. Decreased levels are also found in individuals who are obese and have BMI numbers greater than or equal to 30. Increased levels are seen in people with stroke history, atrial fibrillation, myocardial infarction, chronic kidney disease, MS, pregnancy, and diabetes.

Levels of NfL in otherwise healthy adults increase with age, renal insufficiency, and medical conditions such as diabetes. NfL levels were significantly increased and are possible pathological indicators in Multiple Sclerosis (MS), Alzheimer's' Disease (AD), cognitive decline, Parkinson's, and amyotrophic lateral sclerosis (ALS) and it has been suggested as a peripheral biomarker of neurodegeneration.

Many studies have reported an association between elevated serum NfL and subsequent disability progression especially in MS. In fact, it has been stated that NfL can be used as a biomarker for the diagnosis of MS. NfL appears to reflect the focal inflammation (e.g. clinical relapses and new/active MRI lesions) sometimes seen in progressive MS. NfL might be utilized in routine patient management and guide to MS diagnosis, state of the disease and used for monitoring MS and the response to treatment. It may be helpful to monitor, as an overall trend of any neuronal tissue injury.

Supplement Recommendations: B Complex, D-Hist, SBN CC Curcumin, Ubiquinol



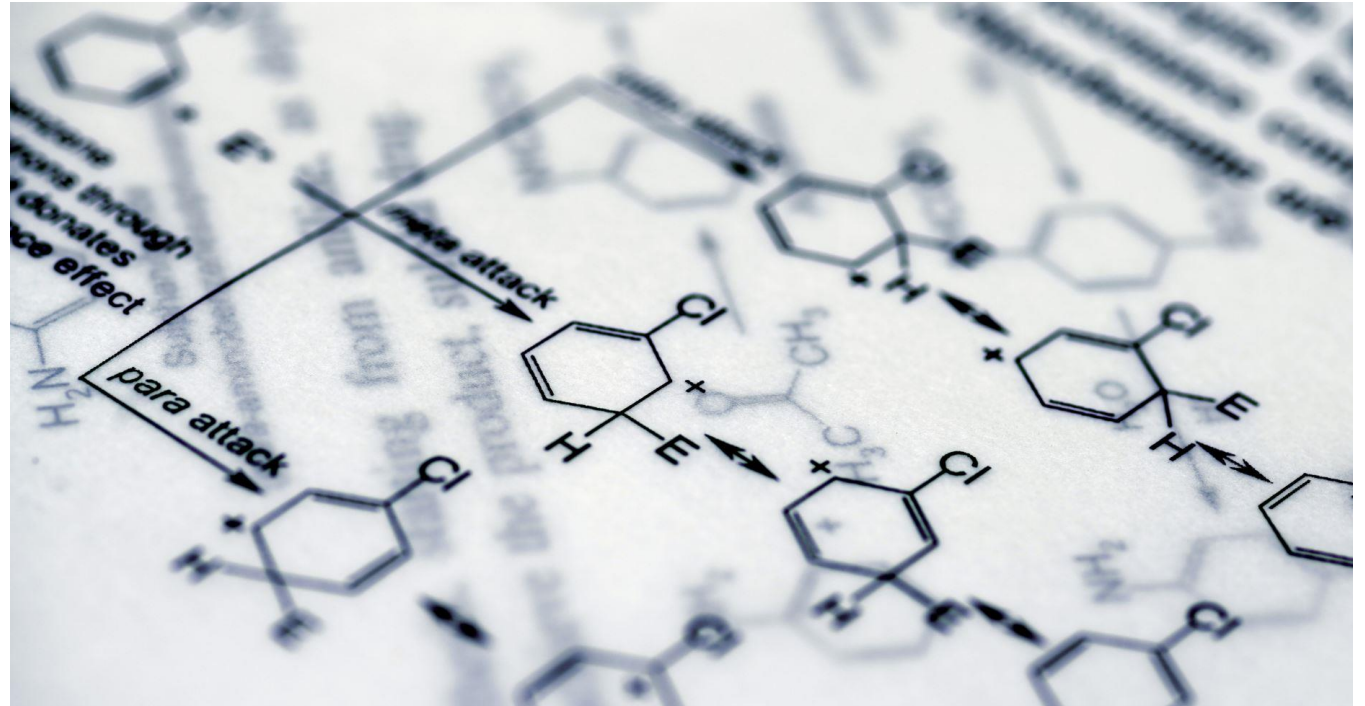
# Cholinesterase

Cholinesterase is a test that measures acetylcholinesterase and pseudocholinesterase, which are substances that help the nervous system work properly. **This test is usually done to determine exposure, even toxic chemical poisoning from pesticides and other chemicals. A decline of more than 35% is considered to indicate severe poisoning** from toxic chemicals like organophosphate, insecticides and pesticides. Liver disease, or other conditions can also affect these enzymes.

If these chemicals get into your body, they can affect how you breathe and can cause general muscle weakness. They are called cholinesterase inhibitors. An overdose of these chemicals can be fatal. Symptoms of exposure to toxic chemicals can have signs of slow heart rate, chest tightness, pupils in your eyes get smaller with eye pain or headache, more saliva than normal, urinating more often than normal, trouble breathing, watery eyes or blurred vision, runny nose, coughing, or wheezing, vomiting and diarrhea and general muscle weakness. **Signs of poisoning may start to appear in low ranges of 40% to 80% of normal.** The primary concern is to reduce and eliminate exposure and drink plenty of water.

# Ethylene Oxide

The K078-IgE Ethylene Oxide test is used to detect possible allergic responses to environmental substances including animals, antibiotics, foods, grasses, house dust, and molds. It also evaluates hay fever, asthma, and respiratory allergies.



# MMP-9

**MMP-9 is a marker of inflammation, tissue remodeling, wound healing, and mobilization of tissue-bound growth factors and cytokines.** Repair and maintenance is normal in a healthy body, therefore there should naturally be some MMP-9 as part of a normal healthy system. **Elevated levels of MMP-9 correlates with excess inflammation, abnormal collagen deposition accompanying pancreatic cancer, with lymph node metastasis in breast cancer and with regional vessel invasion by giant cell tumor of bone.** MMP-9 belongs to a superfamily of zinc containing proteases and has been associated with tumor growth. **High levels are correlated with many types of tumor progression and has been found in colorectal adenomas and carcinomas.** MMP-9 contributes to several clinical disease states, including rheumatic **arthritis, coronary artery disease, chronic obstructive pulmonary disease (COPD), multiple sclerosis, asthma, and cancer.** **Elevated expression of MMP-9, along with MMP-2 is usually seen in invasive and highly tumorigenic cancers.** MMP-9 is a beneficial disease marker as well as a therapeutic target. Protocols for cancer, healing and inflammation are recommended as indicated with supporting tests.

# Homocysteine



High Homocysteine is found to contribute to an increased coronary risk. Low thyroid is also commonly associated with increased Homocysteine levels. Having low Homocysteine levels is good, indicating a low level of this type of inflammation.



Supplement Recommendations: B6, B12, SBN CC Curcumin

# Neurological Disorders and Longevity

- Van D Merkle DC, DCBCN, DABCI, CCN



Diagnostic  
Errors: 1 of  
every 14  
patients  
hospitalized.  
Accepted 12  
August 2024

- Harmful DEs were frequently characterized as delays (61.9%). Severely harmful DEs were frequent in high-risk cases (55.1%). In multivariable models, process failures in assessment, diagnostic testing, subspecialty consultation, patient experience, and history were significantly associated with harmful DEs.
- Conclusions We estimate that a harmful DE occurred in 1 of every 14 patients hospitalised on general medicine, the majority of which were preventable.



# Mirror, Mirror 2024: A Portrait of the Failing U.S. Health System Comparing Performance in 10 Nations

## Abstract

- Goal: Compare health system performance in 10 countries, including the United States, to glean insights for U.S. improvement.
- Methods: Analysis of 70 health system performance measures in five areas: access to care, care process, administrative efficiency, equity, and health outcomes.
- Key Findings: The top three countries are Australia, the Netherlands, and the United Kingdom, although differences in overall performance between most countries are relatively small. The only clear outlier is the U.S., where health system performance is dramatically lower.
- Conclusion: *The U.S. continues to be in a class by itself in the underperformance of its health care sector.*
- \Mirror, Mirror 2024 is the Commonwealth Fund's eighth report comparing the performance of health systems in selected countries. Since the first edition in 2004, our goal has remained the same: to highlight lessons from the experiences of these nations, with special attention to how they might inform health system improvement in the United States.



# Swedish Study and Longevity over 100 yr/o

- Bio markers and health, living to age 100.
- The global number of centenarians—individuals who survive at least to their 100th birthday—has roughly doubled every decade since 1950 and is projected to quintuple between 2022 and 2050.
- Participants in the population-based AMORIS cohort with information on blood-based biomarkers measured during 1985–1996 were followed in Swedish register data for up to 35 years. We examined bio[1]markers of metabolism, inflammation, liver, renal, anemia, and nutritional status using descriptive statistics, logistic regression, and cluster analysis. In total, 1224 participants (84.6% females) lived to their 100th birth[1]day.
- The final study population consisted of 44,636 participants followed from their first blood measurement until their date of death. Of these, 1224 individuals (2.7%) reached their 100th birthday, comprising the centenarian population. This proportion is very similar to the chance of reaching 100 in the general population of Stockholm in the same time period

## Those reaching 100 years:

- Higher levels of total cholesterol and iron
- And lower levels of: glucose, creatinine, uric acid, aspartate aminotransferase (SGOT), gamma-glutamyl transferase, alkaline phosphatase, lactate dehydrogenase, and total iron-binding capacity.
- VAN: There are additional tests that I would add due to living in the USA>

# Gen X, millennials more likely to get cancer, new study shows AXIOS: Jul 31, 2024 – Health

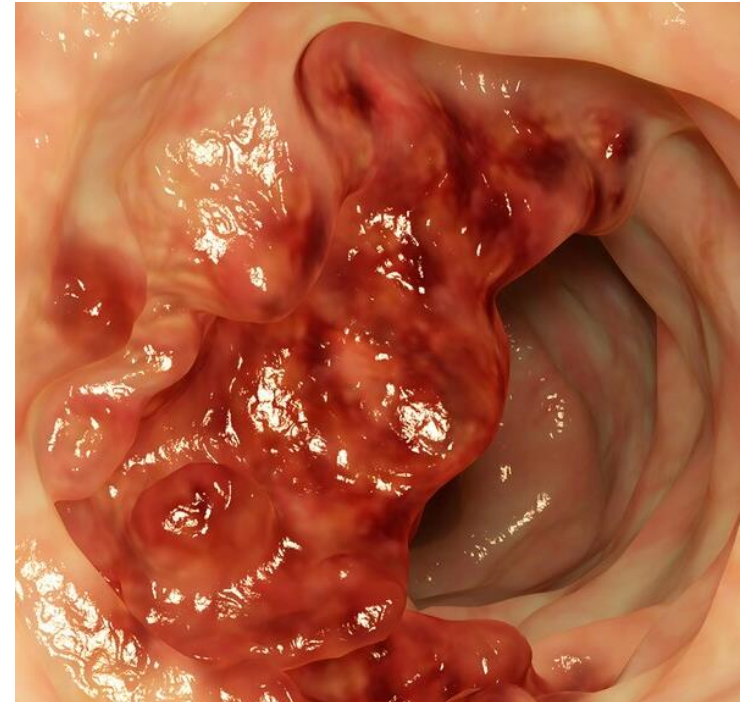
- A sweeping new study is widening the lens on a puzzling uptick in a range of cancers occurring among younger generations of patients.
- Why it matters: It's the latest evidence that the burden of cancer could rise in the future despite major advances in treatment and prevention.
- The study from the American Cancer Society found adults in their 30s, 40s and 50s are more likely than previous generations were to develop 17 different types of cancers, including breast, liver and pancreatic cancers.
- Previous research has indicated alarming increases in certain cancers among younger adults, such as colorectal cancer.
- A National Cancer Institute study published in June concluded Gen Xers were more likely to be diagnosed with cancer as they aged than previous generations, [NPR reported in June](#).
- What they're saying: "It's really sort of scary to see all in one dataset," said Andrea Cercek, co-director.
- What they found: The study used data from 23.7 million patients dating back to 1920 through 1990 of 34 cancers examined, half had increased incidence among younger adults, according to the study published Wednesday in *The Lancet*.
- Incidence of eight different cancers increased with each successive age cohort after 1920.
- In particular, adults born in the 1990 cohort were two or three times more likely to get cancers of the small intestines, kidney and pancreas (as well as the liver and bile duct in women) compared with those in born in the 1955 cohort at the same age.
- Zoom in: In the case of five cancers — liver and endometrial in females, as well as gallbladder, testicular, and colorectal cancers — young adults were more likely to die compared with prior generations.

# Colon Cancer

by Diana Swift, Contributing  
Writer March 9, 2021 MedPage

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- Colon Cancer has doubled in people under 50
- New guideline lowers age to begin colorectal cancer screening
- The update is timely in that 140,000 new cases of CRC are now diagnosed annually in the U.S., she said, with an alarming increase in people younger than 50. The disease is estimated to account for as much as 10% of all cancer deaths.
- Incidence rates have doubled in people ages 20 to 49. It has been estimated that those born around 1990 have twice the risk of colon cancer and quadruple the risk of rectal cancer compared with those born around 1950.

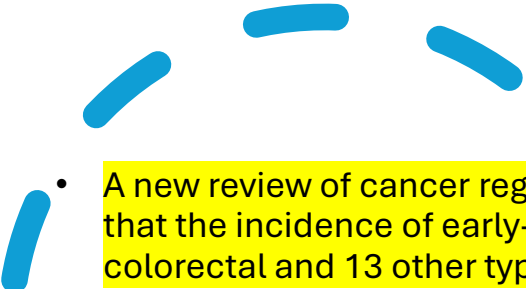


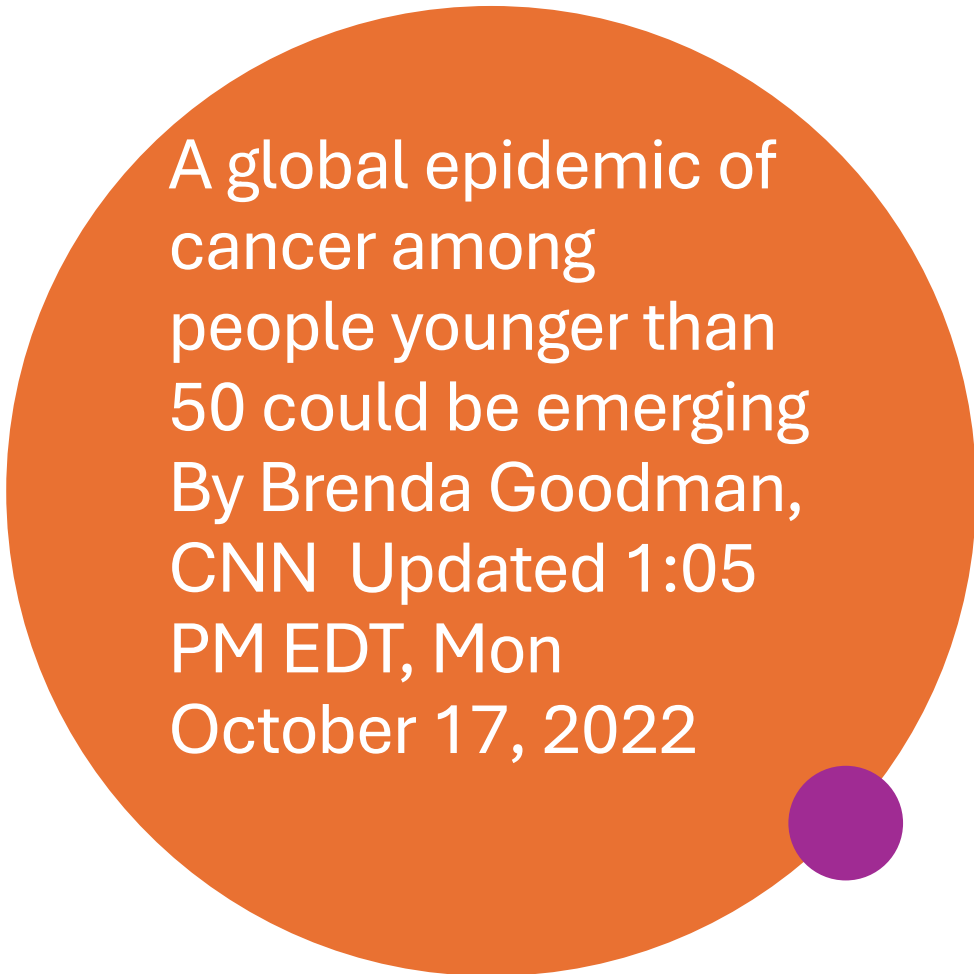
# What are my chances of getting cancer?

## According to 2020 data from the American Cancer Society

- Men have a 40.14 percent—or approximately one in two—chance of developing cancer in their lifetime. The greatest risk is prostate cancer.
- Women, 38.7 percent, or a one in three chance. The greatest risk is Breast Cancer.
- What are my odds of dying from cancer?
  - Men have a 21.34 percent lifetime risk of dying from cancer.
  - Women around 18.33 percent lifetime risk of dying from cancer.
- Data suggests that new cancer diagnoses will grow to 27.5 million by 2040, the odds of survival are getting better.
- According to the National Cancer Institute, the five-year survival rate from 2009 to 2015 in America was 67.1 percent.
- EARLY DETECTION BUT THE END RESULT IS STILL THE SAME.



- 
- A new review of cancer registry records from 44 countries found that the incidence of early-onset cancers is rising rapidly for colorectal and 13 other types of cancers
  - Iana dos Reis Nunes was 43 when she told her husband that she could feel something like a bubble in her abdomen when she lay on her side.
  - An ultrasound scan found spots on her liver, which led to blood tests and a colonoscopy.
  - “There was a tumor the size of your fist, and she had no pain and no problems with bowel movements or anything like that,” recalled Brendan Higgins, her husband, who works as an artist in New York City.
  - By the time doctors found it, dos Reis Nunes’ colon cancer had spread. It was stage 4, meaning it had reached other parts of her body.
  - The family was blindsided.
  - “She had had a baby 15 months prior to her diagnosis, so she’d had a million blood tests, you know, care from doctors and sonograms ... and there was no indication of anything, nothing whatsoever.”
  - When cancer strikes an adult under the age of 50, doctors call it an early-onset case. These cancers at younger ages are becoming more common.



A global epidemic of cancer among people younger than 50 could be emerging  
By Brenda Goodman,  
CNN Updated 1:05 PM EDT, Mon  
October 17, 2022



# Non-GMO and Organic - Mercola July 30, 2024

- "Non-GMO" labeling does not mean chemical-free farming (organic). These crops may still be treated with pesticides and herbicides. Many nonorganic grains are heavily sprayed with toxic pesticides like glyphosate just before harvest, a practice called desiccation.
- A recent study found glyphosate in 44 out of 46 organic and nonorganic gluten-free products tested, with some at alarmingly high levels.
- Glyphosate exposure can disrupt gut health by killing beneficial bacteria and promoting the growth of harmful bacteria. Consuming organic food has been linked to reduced cancer risk, according to a study published in JAMA Internal Medicine.
- The EPA's acceptable daily intake for glyphosate is 7,000 times higher than European standards.

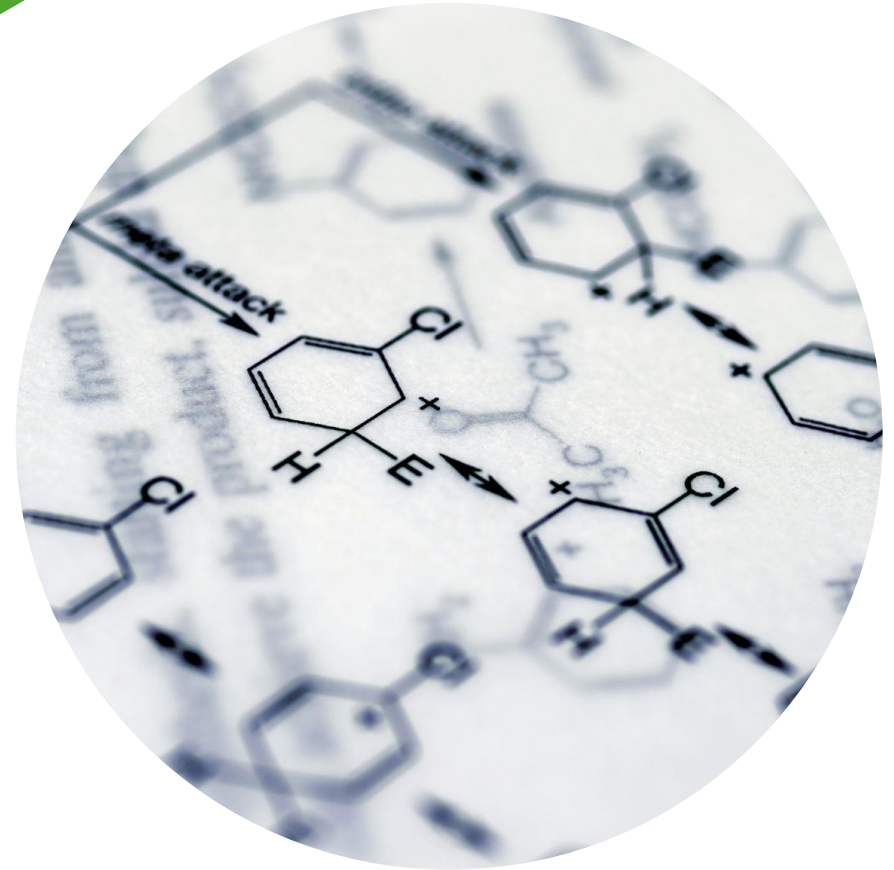
# Tomato Pesticide Application in Florida

- Average number of pesticide applications
  - Mancozeb 20
  - Maneb 12
  - Copper Sulfate 13
  - Chlorothalonil 8
  - Copper Hydroxide 19
  - Copper Oxychloride 7



# Cholinesterase - chemical exposure and overall health

- This **test** looks for signs of chemical poisoning in your blood.
- **Cholinesterase** is an enzyme that helps your nervous system work properly.
- Certain toxic chemicals in the environment can interfere with this enzyme and affect your nervous system. These chemicals include organophosphates and other pesticides and chemicals



# Cholinesterase - chemical exposure and overall health

The Cholinesterase is low. Cholinesterase (aka: Acetylcholinesterase, RBC cholinesterase; Pseudocholinesterase; Plasma cholinesterase; Butyrylcholinesterase; Serum cholinesterase).

Enzymes that are necessary for proper nerve function.

**Low levels of Cholinesterase are seen with chemical exposures, including pesticides and is most often used to determine insecticide exposure or poisoning.**

**Low levels of Cholinesterase are also seen with chronic infection, malnutrition, heart attack, liver damage, metastasis, obstructive jaundice, and inflammation.**

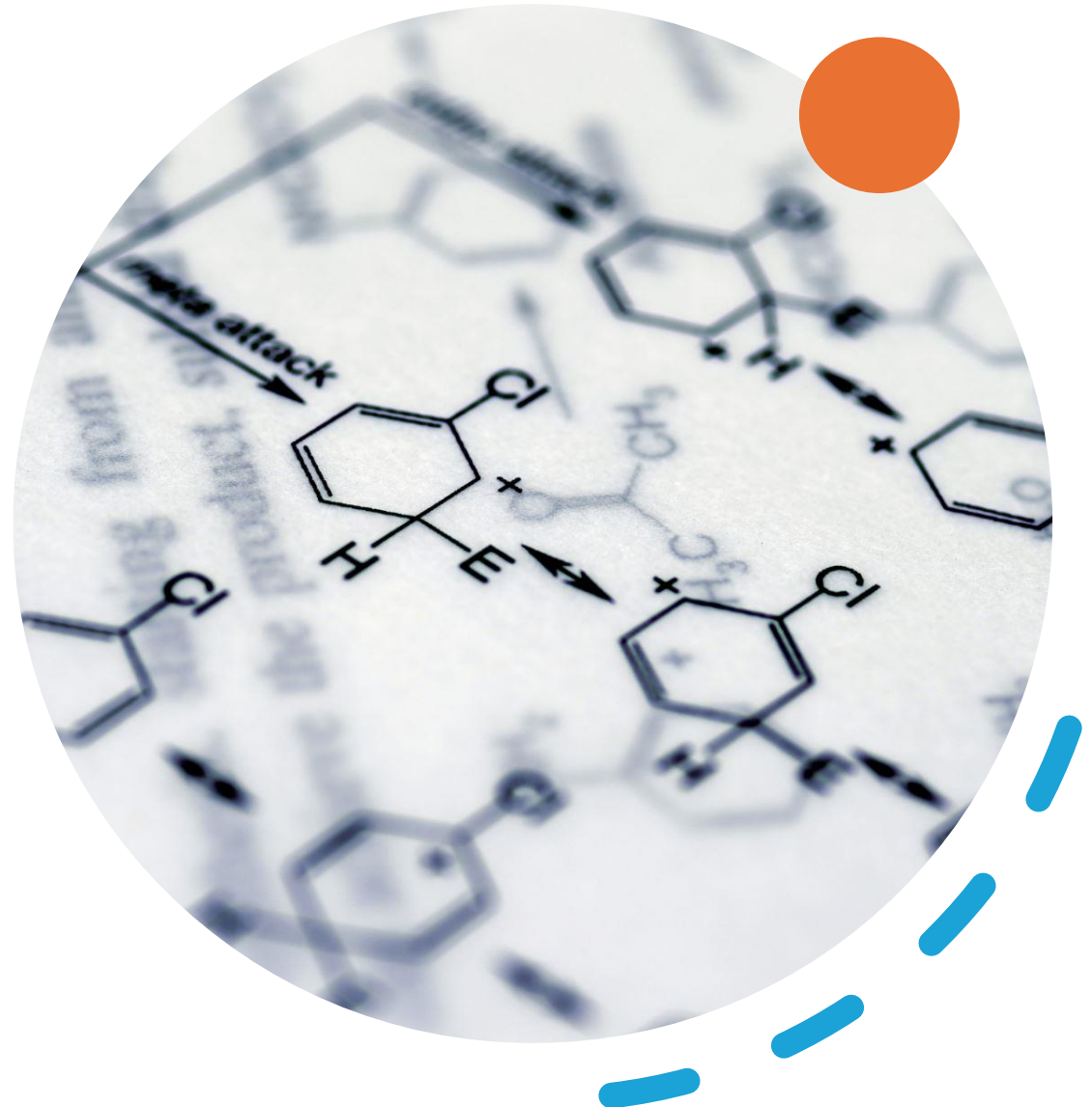
Minor decreases in pregnancy and use of birth control pills.

Common indications of exposures to chemical toxins include miosis (constricted pupils), blurred vision, muscle weakness, involuntary muscle twitching, bradycardia, nausea, diarrhea, vomiting, salivation, sweating, pulmonary edema, arrhythmias and convulsions.

**To support Cholinesterase, increase choline rich foods like eggs and also other healthy foods and anti-inflammatory nutrients.**

**For low levels of Cholinesterase: Brain sustain, SBN CC (double both for -3), D-Hist, Vit C, B complex**

High levels of Cholinesterase can be seen with diabetes, obesity, thyrotoxicosis, schizophrenia, hypertension, mood disorders or concussion and very high levels are seen with nephrotic syndrome.



# Cholinesterase (Blood test)


## Low Cholinesterase

- Indicates chemical toxins
- Very low could indicate severe poisoning
- Plasma cholinesterase levels are more useful for acute (short-term) exposure, while red cell levels are more useful in the chronic (long-term) setting.

## High Cholinesterase

- A **high** level of **cholinesterase** in the blood may be a consequence of diabetes with obesity, thyrotoxicosis, schizophrenia, hypertension, mood disorders or after a concussion.
- If **cholinesterase** levels are very **high**, the most probable cause is due to nephrotic syndrome

# Forever Chemicals Are Widespread in U.S. Drinking Water - Scientific American January 22, 2021

- Now a study from the Environmental Working Group (EWG), a nonprofit advocacy organization, reveals a widespread problem: the drinking water of a majority of Americans likely contains “forever chemicals.”
  - These compounds may take hundreds, or even thousands, of years to break down in the environment. They can also persist in the human body, potentially causing health problems.
- 



A large orange circle on the left side of the slide, partially cut off by the edge.

# Diseases associated with PFAS

- Parkinson's
- Thyroid
- Heart
- Auto immune disease
- Kidney disease
- Testicular and kidney cancer
- Ulcerative colitis
- Liver disease





# Perchlorate - rocket fuel USA Today August 15, 2024



- *Perchlorate is a chemical found in rocket fuel, fireworks, matches, highway safety flares, matches, pyrotechnics, explosives, common batteries, and automobile restraints.*
- *FDA has no definition of what a dangerous level is.*
- "Whether you eat organic or not will not influence whether you're going to be exposed to this chemical," said Rogers.
- To avoid drinking it in water, Rogers recommends folks test their water, and if perchlorate is found, they can purchase a reverse osmosis filter to remove it from the tap.

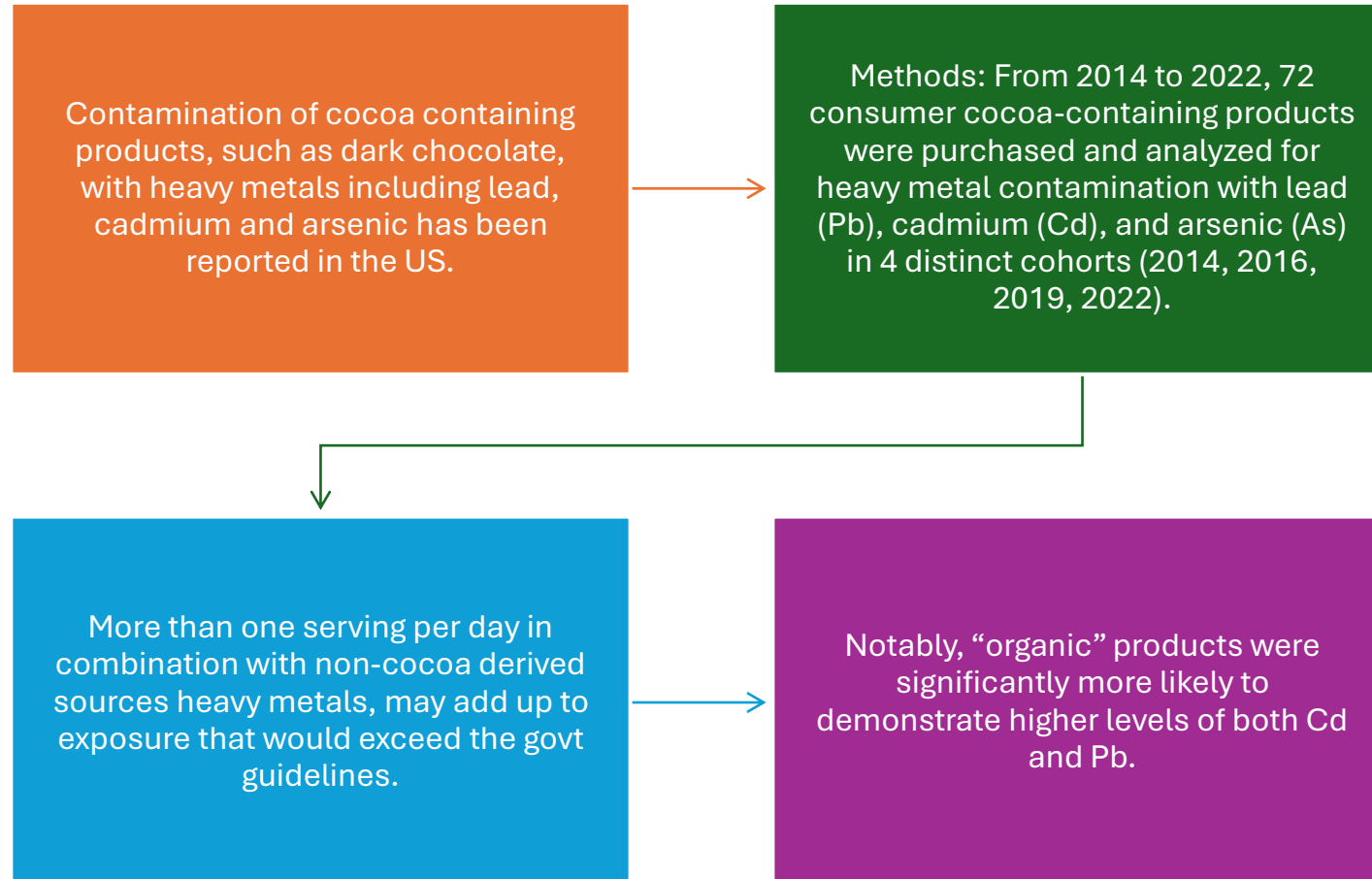
# Perchlorate - rocket fuel USA Today August 15, 2024 cont.

- *Perchlorate affects thyroid function:*
- Thyroid problems can lead to Type 2 Diabetes for adults.
- Children and fetuses can face complications with neurodevelopment, which "can result in a lowering of IQ of the children."
- Exposure to high levels of perchlorate can affect the thyroid in multiple ways, according to the FDA. It can interfere with iodide uptake into the thyroid gland, disrupt thyroid functions, and possibly lead to a reduction in thyroid hormone production.
- *Foods found with Perchlorate:*
  - Beef burritos
  - Chicken sandwiches
  - French fries
  - Fried chicken
  - Chicken nuggets
  - Steak tacos
  - Mac and cheese
  - Rice cereal
  - Multigrain cereal
  - Whole milk yogurt

# Heavy Metals in Baby Food Published in Undark May 16, 2023

- The FDA has no standards for heavy metals in foods beyond the action level for arsenic in infant rice cereal and two draft guidance levels for lead in juice and baby food more broadly.
- And while processed foods can be systematically tested for heavy metals, Hettiarachchi's research has shown that even individual and community gardens can also be contaminated, meaning that the risk of exposure remains even with homemade food.

Front. Nutr., 30 July 2024  
Sec. Nutrition and Food Science Technology  
A multi-year heavy metal analysis of 72 dark chocolate and cocoa products in the USA





"The nose is the front door of the brain," Dorsey told *MedPage Today*. "It's not protected by the blood-brain barrier. It's not protected by the liver, which does a good job of detoxifying things we ingest. Manganese is a really small molecule, and like other small molecules that can be inhaled, like dry-cleaning chemicals and pesticides, they can damage the dopamine-producing nerve cells in the brain." Dorsey, who has co-authored a book called *Ending Parkinson's Disease*, believes inhaled toxicants play a significant role in the development of Parkinson's disease and other brain diseases, including Alzheimer's disease, noting a recent study linking wildfire smoke with dementia.



"You have a wide range of environmental toxicants that can be inhaled and damage different nerve cells in the brain," he said.



# Parkinson's Pesticides, Chemicals and Dry Cleaning Chemicals TCE

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Parkinson's disease has more than doubled in the past 25 years. A conservative projection based on aging alone suggests that it's going to double again unless we change something about it. It's now the world's fastest-growing brain disease, and it is growing faster than can be explained by aging alone.



Rates of Parkinson's are five times higher in industrialized parts of the world, like the United States and Canada, than they are in sub-Saharan Africa.

# Parkinson's Pesticides and Dry Cleaning TCE

- RO Water filter is necessary to reduce pesticides and chemicals
- TCE Chemicals known to cause cancer, most strongly tied to non-Hodgkin lymphoma, liver cancer, and renal cancer. It's also linked to multiple myeloma, prostate cancer, probably brain cancer, and probably breast cancer, especially in men.
- Chemicals, not only in the drinking water but in the produce you buy, the food you eat, what you put on your lawn, what's on the golf course where you play, and the like.
- Is Most Parkinson's Disease Man-Made and Therefore Preventable?
  - Indu Subramanian, MD; E. Ray Dorsey, MD November 20, 2023
  - E. Ray Dorsey, MD: Thanks very much for having me, Indu. I'm delighted to be with you.
  - Trichloroethylene and PD

## How Energy Drinks Are Draining Your Brain's Power

### The Evolution of Energy Drinks -

Sports drinks market is valued at over \$159 billion.

FEATURED SUGAR

Michelle Standlee

Epoch Health August 5, 2023

Some schools have started to ban energy drinks

How Energy Drinks Affect Neurodegenerative Disorders and accelerated Brain Aging

- Alzheimer's disease "[Energy drinks] are often packaged in aluminum, a neurotoxin that has been linked to Alzheimer's disease."
- ADHD: Food dyes like red dye 40, are common in energy and sports drinks, decrease the absorption of minerals like zinc and iron.
- Fatigue, Insomnia, and Headaches: "Sugar and caffeine crashes are very real."
- Caffeine promotes wakefulness by increasing levels of histamine and glutamate, neurotransmitters that disrupt sleep cycles.
- Anxiety- increases heart rate
- Seizures- the seizures stopped when individuals stopped consuming energy drinks.

How Energy Drinks Affect the Rest of the Body

- Diabetes: energy drinks' high sugar content can lead to Type 2 diabetes.
- Stress: caffeine and other stimulating ingredients in energy drinks release excessive amounts of the stress hormone cortisol, leading to adrenal exhaustion, fatigue, and impaired stress response.
- Heart Problems: heart arrhythmias and sudden cardiac death.

# Organic at Whole Foods

- California Style Blend of Organic Vegetables
  - Made in China

There are no verifications for 'organic foods' from China.

Look at the small print on the back of the package



# Ethylene Oxide - to test for chemical toxins

- **Ethylene oxide** is a toxic gas used to make chemicals, sterilize medical devices and food products.
- It can cause acute and chronic health problems, including cancer, and is regulated by the EPA as a hazardous air pollutant.
- **Ethylene oxide** is a flammable gas used to produce other chemicals and to sterilize products. **It is a carcinogen and can damage DNA and cause lymphoma, leukemia, stomach and breast cancers.**
- EtO is a colorless gas used to make chemicals and sterilize devices and food.
- Ethylene oxide is a flammable gas with a sweet odor. It dissolves easily in water, alcohol, and most organic solvents.
- Ethylene oxide is produced in large volumes and is primarily used to make other chemicals; particularly ethylene glycol, a chemical that is used to **make antifreeze and polyester.**
- Most ethylene oxide is used in the factories where it is produced.
- Is used to **control insects on stored agricultural products, to sterilize food and cosmetics, and in hospitals and factories to sterilize medical equipment and supplies.**
- The U.S. Environmental Protection Agency ([EPA 2008](#)) Registration Eligibility Decision document (RED) indicates that approximately 1,900 hospitals in the United States have ethylene oxide sterilization chambers.

# Ethylene Oxide- to test for chemical toxins

- The limited information available regarding ethylene oxide toxicity following dermal exposure suggests that it is a contact dermal and ocular irritant in humans and animals.
- The most sensitive non-cancer targets of ethylene oxide toxicity appear to be hematological, endocrine, neurological, reproductive, and developmental endpoints; cancer effects also occur at lower exposure levels.
- A systematic review of non-cancer endpoints (see [Appendix C](#) for details) resulted in the following hazard identification conclusions:
  - Respiratory effects represent a presumed health effect endpoint for humans
  - Hematological effects represent a suspected health effect endpoint for humans
  - Endocrine system is a suspected health effect endpoint for humans
  - Neurotoxicity is a presumed health effect for humans
  - Reproductive toxicity is a presumed health effect for humans
  - Developmental toxicity is a presumed health effect for humans



# MMP-9 - inflammation and diseases

- MMP-9 is a marker of inflammation, tissue remodeling, wound healing, and mobilization of tissue-bound growth factors and cytokines.
- Its expression correlates with abnormal collagen deposition accompanying pancreatic cancer, with lymph node metastasis in breast cancer and with regional vessel invasion by giant cell tumor or bone.
- MMP-9 contributes to the pathogenesis of numerous clinical disease states, including rheumatic arthritis, coronary artery disease, chronic obstructive pulmonary disease, multiple sclerosis, asthma, and cancer.
- Nutrients for high levels: SBN IFM, SBN CC, D-Hist, Lauricidin, Vitality C

# Beta Amyloid 42,40 and 42/40

- The plasma A42/40 ratio is intended for use as an adjunct to diagnostic evaluations of Alzheimer's disease (AD), including neurological and cognitive performance examinations and PET neuroimaging.
- The diagnostic hallmarks of Alzheimer's disease (AD) are extracellular deposits of beta amyloid plaques and neurofibrillary tangles observed in the cortex and limbic brain region upon autopsy.
- The major molecular components of beta amyloid plaques and neurofibrillary tangles are beta amyloid 1-42 and tau proteins, aggregate to form amyloid plaques.
- Reduced concentrations of beta amyloid 42 in EDTA plasma are associated with increased retention of beta amyloid tracers in the brain beta amyloid plaques observed with positron emission tomography (PET) and are inversely correlated.
- Low beta amyloid 42/40 ratios are more associated with patients having a clinical diagnosis of AD or beta amyloid PET positivity.
- Higher ratios are less associated with AD diagnosis or beta amyloid PET positivity.

Beta Amyloid 42, 40  
and 42/40 -  
Alzheimer's and  
Vision loss  
from Mercola  
January 2024 and  
parts: Lancet  
Volume  
38100988 August  
2021

- Amyloid Beta deposition is seen with AD and in vision loss, plus the eye is kind of an extension of the brain. If the brain is deteriorating so, are the eyes.
- One study, published in Alzheimer's & Dementia,<sup>4</sup> found a correlation between A $\beta$  accumulation and glucose metabolism in the brains of Alzheimer's patients. Contrary to popular belief, regions with higher average glucose metabolism showed greater A $\beta$  deposition. This suggests that A $\beta$  may accumulate more readily in areas of the brain with higher metabolic activity as a protective measure. (OR is this a sign of Type 3 diabetes? Van)
- Normal cognition and hippocampal volume are associated with preservation of high soluble A $\beta$ 42 levels despite increasing brain amyloidosis.
- Think of A $\beta$  as your brain's attempt to shield itself from damage in its most active regions. However, this protection appears to have limits. In individual brain regions of Alzheimer's patients, higher A $\beta$  levels corresponded with lower glucose metabolism, indicating that excessive A $\beta$  accumulation may eventually impair normal brain function.
- This dual nature of A $\beta$  — protective at first but potentially harmful in excess — could explain why Alzheimer's treatments targeting A $\beta$  removal have been largely unsuccessful.<sup>5</sup>

# Amyloid Beta

- One study, published in Alzheimer's & Dementia,<sup>4</sup> found a correlation between A $\beta$  accumulation and glucose metabolism in the brains of Alzheimer's patients. Contrary to popular belief, regions with higher average glucose metabolism showed greater A $\beta$  deposition. This suggests that A $\beta$  may accumulate more readily in areas of the brain with higher metabolic activity as a protective measure.
- Might this be Type 3 diabetes?
- Think of A $\beta$  as your brain's attempt to shield itself from damage in its most active regions. However, this protection appears to have limits. In individual brain regions of Alzheimer's patients, higher A $\beta$  levels corresponded with lower glucose metabolism, indicating that excessive A $\beta$  accumulation may eventually impair normal brain function.
- This dual nature of A $\beta$  — **protective at first but potentially harmful in excess** — could explain why Alzheimer's treatments targeting A $\beta$  removal have been largely unsuccessful.<sup>5</sup>

# P Tau 181

- The pTau181 and pTau217, Beta-amyloid 42/40 Ratio, Beta-amyloid 40, and Beta-amyloid 42 are optimal. Alzheimer's Disease (AD) involves 2 specific proteins: amyloid found outside the brain nerves and phosphorylated tau (pTau) found inside the brain nerves.
- Amyloid plaque is due to a derangement or misfolding of amyloid called amyloid plaque, which accumulates outside the brain nerves and is seen on PET scans.
- pTau neurofibrillary tangles develop inside the brain nerve cells and are seen on autopsies and CFS (cerebrospinal fluid).
- Both, amyloid plaque and pTau neurofibrillary tangles causes the brain nerves to separate, deteriorate, die off and the brain shrinks or atrophies as the degeneration continues resulting in progressive Alzheimer's Disease, dementia and other mental and neurological decline.
- These amyloid plaque fragments and pTau tangle fragments were found in the CFS. These amyloid plaque and pTau fragments diffuse into the blood and now with advanced technology can be found in the plasma.
- In regards to Alzheimer's, dementias and neurological decline, in the brain nerves, there are 2 specific pTau proteins: pTau- 181 and pTau- 217, that are most significant.
- pTau-181 and pTau- 217 levels are generally higher in patients with preclinical AD (i.e., early stage disease where individuals do not have overt symptoms, yet, but are positive for CSF or PET biomarkers).
- Plasma pTau-181 and pTau- 217 concentrations increase with AD disease progression and worsening of cognition and brain atrophy. Numerous studies have reported that measurement of plasma pTau-181 and pTau- 217 can predict the extent of brain amyloid and tau as measured by PET. Also noted is that plasma pTau-181 was also found with chronic kidney disease (CKD), myocardial infarction (MI) or clinical stroke though the clinical significance of this has not been determined.
- P-tau- 217 was generally superior to cerebrospinal fluid (CSF) tests in classification of brain pathology associated with Alzheimer's diseases, cognitive impairment and dementias. The Amyloid Plaque, pTau-217 and pTau-181 can be used to facilitate biological identification, similar to PET scan and CSF to detect AD, dementias, neurological decline and brain atrophy at the earliest possible time and to slow the course of disease.

# Case Study: P- Tau Dr. Dyer 10-2024

71yr/o Female forced to retire.  
Not able to keep facts, faces, names, clients  
who she had known for several years.

P-Tau was 1.020 on 7-5-2024  
Dropped to 0.720 on 9-27-2024

Monitoring the p-Tau protein has the best laboratory connection to progression of Alzheimer's, dementia and cognitive decline

Case presented by Andrew R. Dyer, DC, DABCA, DCBCN

## What is p-Tau 181 and why is it significant?

A plasma phosphorylated tau 181 (P-tau181) blood test is a diagnostic tool that measures the level of P-tau181 proteins in the blood to help diagnose and stage Alzheimer's disease and the progression as well as other neurological changes indicative of cognitive decline.

## Case details:

A 71-year-old female patient was forced into an early retirement because of changes to her brain that left her unable to keep up with the demands of her career in international banking. She grew frustrated about not being able to keep facts, faces, and names in order even after knowing those clients for many years.

She was diagnosed with and treated for a brain tumor called meningioma. Several of her doctors were thinking about a potential multiple sclerosis diagnosis but this was ruled out after cerebrospinal fluid testing.

Her initial blood testing was done on July 5<sup>th</sup>, 2024. Due to her past medical history of brain pathology and other family history details it was decided that testing the p-Tau 181 value would be a good starting point during her baseline evaluation.

Fig 1.1.

Test dates:	9/27/24	7/5/2024				
pTau-181	0.720 high	1.020	😊	0.000 - 0.150	0.000 - 0.970	pg/mL

At the time her value came back a 1.020, which was higher than the clinical range (0.00-0.970) allows. We immediately started her on a vitamin and supplement program to target brain changes and improve overall health.

Within 3 months her p-Tau marker has dropped down inside the clinical range to a current value of 0.72. This isn't all the way back inside our optimal range yet, but it is an encouraging start within a very short window of time.

If you or someone you know is struggling to complete tasks of daily living, losing productivity at home or work and you don't know what else to do, then get them tested at Take2Healthcare.

Don't delay, call us today...





# Plasma Neurofilament Light (NFL)

- A rise in NfL is not specific for a specific disease factor.
- May be caused by both neurodegenerative diseases or a head impact during sports. Results should only be used in conjunction with other clinical information when evaluating patients with neurodegeneration.
- Due to a lack of specificity to a particular neurodegenerative disease, its role as a diagnostic marker is limited.
- There are numerous demographic, lifestyle, and comorbidity factors that potentially influence NfL levels in plasma. Variables such as exercise,<sup>2</sup> blood volume, body mass index may impact measured plasma NfL levels.
- NfL levels measured in the morning are more than 10% higher than those measured in the evening.<sup>3,4</sup>
- Plasma NfL levels can be decreased in patients with high immunoglobulin G (IgG) levels.
- Higher concentrations of NfL may be found in persons with history of stroke, atrial fibrillation, myocardial infarction, chronic kidney disease, pregnancy, and diabetes.
- Lower concentrations of NfL may be found in individuals who are obese (BMI > or =30).

# Homocysteine

- Homocysteine can be considered to be an independent risk factor for the development of cardiovascular disease.<sup>1-3</sup> Patients with cardiovascular disease, including heart disease, stroke, peripheral vascular disease, and thromboembolic disease generally have higher homocysteine levels than matched controls. The results of a large number of epidemiological studies have been analyzed through a meta-analysis.<sup>1</sup> The increased risk, or odds ratio (OR), for coronary artery disease in patients with increased homocysteine levels was estimated to be 1.7. The OR for stroke was estimated to be 2.5 and the OR for peripheral vascular disease was estimated to be 6.8.
- Several conditions, other than specific genetic defects or cardiovascular disease, have been associated with hyperhomocysteinemia.<sup>1</sup>
- High homocysteine: vitamin deficiency, advanced age, hypothyroidism, impaired kidney function, and systemic lupus erythematosus.
- Medications including nicotinic acid, theophylline, methotrexate, and L-dopa have been reported to cause elevated homocysteine levels.
- Vitamin therapy for elevated Homocysteine: B complex; SBN CC; Vit C, Vit E

# Thrombin Antithrombin Complex

- The **Thrombin Antithrombin Complex** (TAT) marker is an important blood test used to evaluate the balance between clot formation and dissolution in the body, which is crucial for understanding certain blood clotting disorders.
- **Thrombin** is a protein that plays a central role in the blood clotting process, helping to convert **fibrinogen** into **fibrin**, which forms the basic structure of a blood clot.
- **Antithrombin**, on the other hand, is a protein that helps regulate blood clot formation by inhibiting thrombin and other enzymes involved in the coagulation process.
- When thrombin is generated in the bloodstream, it binds to antithrombin, forming the **thrombin-antithrombin complex**.
- Measuring the levels of this complex can provide valuable information about the activation of the coagulation system and the body's response to it.
- **High levels of the TAT complex** may indicate an active clotting process, which can be seen in conditions such as deep vein thrombosis, pulmonary embolism, disseminated intravascular coagulation, and in **patients with a high risk of clot formation**. It can also be elevated in certain surgeries or medical conditions that predispose to clotting. Understanding the levels of TAT can help healthcare providers diagnose and manage conditions related to abnormal clotting. By integrating this marker into a comprehensive evaluation, it helps in guiding treatment decisions, such as the need for anticoagulant therapy, which aims to prevent or reduce the formation of harmful blood clots.

# Interleukin 4

- IL-4 is the most common cytokine produced by  $T_H2$  lymphocytes and the key cytokine that regulates  $T_H2$  cell polarization.<sup>12,16</sup> In addition, IL-4/IL-4R signaling promotes B cell proliferation and stimulates immunoglobulin class-switching to IgE antibody, the major antibody in allergic reactions.<sup>12,16</sup> Production of these cytokines by  $T_H2$  lymphocytes and other cells accounts for the activation of the mast cells, basophiles, eosinophiles and smooth muscle cell contraction as well as stimulation of B cell differentiation into IgE-producing plasma cells, thus promoting several allergic reactions including allergic rhinitis, anaphylaxis, atopic dermatitis and asthma.<sup>12,16,17</sup>  $T_H2$  cells are often observed in tissues in allergic patients and are known to play critical roles in the pathogenesis of allergic diseases.<sup>9,12,18-22</sup> Allergic diseases are characterized by aberrant activation of  $T_H2$  cells in response to innocuous environmental proteins (allergens)<sup>23</sup> and subsequent production of Type 2 cytokines at sites of allergic inflammation.<sup>24,25</sup> These reactions involve inflammatory mediators released in the early-phase reaction by mast cells and basophils, and allergen-specific  $T_H2$  lymphocytes.<sup>26</sup>  $T_H2$  cells act synergistically with type 2 innate-like lymphoid cells activated during the acute phase. They recruit effector cells such as eosinophils, basophils, as well as other lymphocytes, to the site of allergen exposure.<sup>27-29</sup> IL-4, IL-5, and IL-13 drive  $T_H2$  cells towards a specialized  $T_H2A$  phenotype associated with persistent allergy and high cytokine expression.<sup>30,31</sup>
- Asthma is a heterogeneous disease that can be classified into phenotypes and endotypes based upon clinical or biological characteristics.<sup>13,32-34</sup> IL-4, along with IL-13, plays a key role in  $T_H2$  asthma.<sup>32</sup> Over expression of IL-4 in asthmatics is associated with exacerbations, compromised lung function, airway remodeling and airway epithelium injury.<sup>35</sup> Approximately 50% of mild-to-moderate asthma and a large portion of severe asthma is associated with  $T_H2$ -dependent inflammation.<sup>33</sup> IL-4 mediates pro-inflammatory functions in asthma, including induction of the expression of vascular cell adhesion molecule-1 (VCAM-1), promotion of eosinophil transmigration across endothelium and mucus secretion.<sup>36,37</sup>  $T_H2$  inflammation is characterized by elevations in absolute peripheral or sputum eosinophil counts and levels of IgE (total and allergen-specific) and fractional exhaled nitric oxide, which serve as biomarkers for the presence of this type of inflammation.<sup>13</sup> Compared with healthy controls, children and adults with asthma have higher serum levels of IL-4,<sup>38,39</sup> and higher IL-4 levels may differentiate individuals with atopic asthma from those with nonatopic asthma.<sup>38,39</sup> Persistence of asthma in children and adults may be predicted by elevated levels of IL-4.<sup>19,20</sup>
- IL-4 regulates the protective immune response against helminths and other extracellular parasites.<sup>3,7</sup> Plasma levels of IL-4 have been reported to be elevated in patients with eosinophilic esophagitis, indicating the role of adaptive  $T_H2$  immunity in this disease.<sup>40</sup> A meta-analysis found that elevated IL-4 was strongly associated with acute respiratory distress syndrome mortality.<sup>41</sup>
- There have been extensive clinical trials targeting IL-4 for the treatment of asthma.<sup>24</sup> Modulation of IL-4 signaling<sup>42</sup> represents an important therapeutic approach to target the drivers of allergy and asthma.<sup>18,42-45</sup> Dupilumab targets the shared receptor for IL-4 and IL-13 and is approved for treatment of atopic dermatitis and asthma.<sup>2</sup> Dupilumab has been shown to provide efficacy in the treatment of moderate-to-severe atopic dermatitis, allergic asthma, chronic rhinosinusitis and eosinophilic esophagitis, all known to be driven largely by type 2 inflammation.<sup>18,43-45</sup>
- IL-4 and IL-13 produced by  $T_H2$  cells activate macrophages and epithelial cells and enhance the production of extracellular matrix, an element crucial for tissue repair.<sup>10</sup> However, when the tissue repair process becomes chronic, excessive or uncontrolled, it may induce the development of pathological fibrosis in various organ systems.<sup>10</sup> It was recently shown that  $T_H2$  cells include pathogenic  $T_H2$  (Tpath2) cells that highly express the receptor for IL-33 (a cytokine that is released during tissue injury) and produce large amounts of IL-5.<sup>9,10</sup>

## Dihydrotestosterone (DHT)

### What is DHT?

- Dihydrotestosterone (DHT) is a sex hormone created from testosterone in the body. It plays a major role in the development of masculine characteristics (body hair, muscle growth, and a deep voice).
- High DHT - good effects
  - Glucose control, memory, sexual function, heart, strength and muscle mass, reduced autoimmune diseases, mental health, reduced anxiety and depression, bone density.
  - **Bad effects** - male pattern baldness, acne, prostate cancer, depression in women.



# DHT Percent Free Dialysis and DHT Free

- Conditions where the body either underutilizes or overutilizes androgens can be better understood through this test. For instance, in cases of androgen insensitivity syndrome, where the body does not respond to DHT effectively, free DHT levels may still be normal or elevated.
- In patients undergoing testosterone replacement therapy, evaluating DHT levels helps ensure that excessive DHT, which can contribute to side effects like prostate enlargement or hair loss, is not being produced.
- The DHT, Percent Free Dialysis test specifically measures the fraction of circulating DHT that is not bound to proteins like sex hormone-binding globulin (SHBG). Most DHT in the blood is tightly bound to SHBG, rendering it biologically inactive. However, the free fraction (DHT not bound to SHBG) represents the bioavailable DHT - the portion of the hormone that can actively interact with cells and tissues.
- This measurement is critical because only the free fraction of DHT is available to exert its physiological effects. Assessing the free fraction of DHT provides a more accurate reflection of how much of the hormone is available to the body, which can be useful in diagnosing certain hormonal disorders and assessing androgen utilization.



# BIOMARKERS FOR AGING

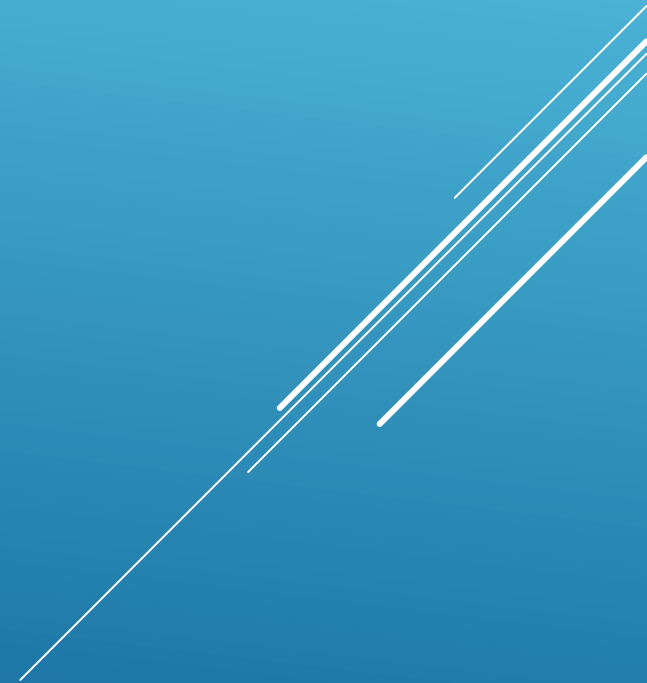
An abstract graphic consisting of several thin, white, parallel lines that originate from the bottom right and extend diagonally towards the top right corner of the image. The background is a smooth gradient of blue, transitioning from a lighter shade at the top to a darker shade at the bottom.

- ▶ Telomers get shorter throughout our lives
- ▶ Shorter telomeres tend to correlate with an earlier death
- ▶ However, mice have longer telomers than humans
- ▶ Leach-a seabird, has telomers that get longer as it ages and it does have a longer lifespan for a bird of its size.
- ▶ Cancer cells tend to have shorter telomeres
- ▶ Cells normally divide 50-70 times
- ▶ Telomers do not shorten in tissues where cells do not continually divide such as heart muscle.

## BIOMARKERS FOR AGING- TELOMERS

- ▶ An enzyme named telomerase adds bases to the ends of telomeres.
- ▶ In young cells, telomerase keeps telomeres from wearing down too much. But as cells divide repeatedly, there is not enough telomerase, so the telomeres grow shorter and the cells age.
- ▶ Telomerase remains active in sperm and eggs, which are passed from one generation to the next. If reproductive cells did not have telomerase to maintain the length of their telomeres, any organism with such cells would soon go extinct.

*TELOMERASE COUNTERACTS TELOMERE  
SHORTENING*




## 3-3'-Diindolylmethane (DIM) for Breast, Prostate and Hormone Related Cancers.


- (DIM) is a biologically active dimer derived from the endogenous conversion of indole-3-carbinol (I3C), a naturally occurring glucosinolate found in many cruciferous vegetables.
- Investigated for its potential pharmacological use in prostate cancer prevention and treatment.
- Whether the plant tissues are crushed or cooked, an endogenous thioglucosidase (myrosinase) is activated and converts glucosinolates to indoles, principally to I3C [5]. When I3C is orally ingested, due to its chemical instability in acidic conditions, such as in the stomach environment, the compound is promptly condensed into DIM, which is the bioactive product.


# DIM and Anticancer Properties

- DIM has been shown to possess hepatoprotective, antioxidant and anticancer properties [[11](#),[12](#),[13](#)]
- The anticancer effect of DIM has been positively associated with a reduction of cancer incidence when a regular consumption of cruciferous vegetables is part of the dietary regime [[14](#)]

- 
- DIM can induce apoptosis and can reduce proliferation and metastasis of tumor cells, as well as the inflammation process



- 
- Moreover, DIM appears to be a promising agent for the prevention of the recurrence of hormone-dependent cancers, such as prostate cancer [6]. In this context, hormone-dependent prostate cancer represents the sixth leading cause of cancer deaths in males.

- 
- Clinical trial results have demonstrated the therapeutic efficacy of DIM in the treatment of patients with high-grade prostatic intraepithelial neoplasia.


# DIM and Breast Cancer


- First, DIM can be considered an anti-initiating agent through its ability to stimulate cellular detoxification pathways.
- DIM effectively increases detoxification and reduces inflammatory signaling, blocking what could otherwise be cancer-initiating events. Furthermore, modulation of AhR by DIM inhibited the growth of mammary gland cell cancer.
- Evidence from mammary cell lines has demonstrated the role of DIM in reducing oxidative stress by stimulating the phosphorylation of BRCA1.

# Requirement for DIM in Breast Cancer

- DIM at 10 $\mu$ M have been shown to activate estrogen receptor  $\alpha$  signaling pathways in human breast cancer cell lines in vitro, increasing cellular proliferation in an estradiol-independent manner, yet an opposite effect (growth arrest) can be demonstrated when higher concentrations of DIM (50 $\mu$ M) are provided.<sup>42</sup>
- These dose-dependent studies suggest that protective associations between DIM and breast cancer may require exposures (SUPPLEMENTATION) well above what would be possible with human dietary modulation.


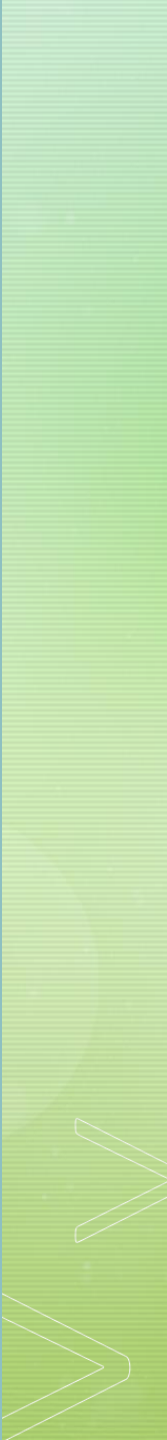
DIM may reduce the invasive and metastatic potential of breast tumors.


- 
- DIM alters cancer growth through modulation of protein kinase B (Akt)-dependent bioactivity. An increase in Akt activity allows cells to evade death.


- 
- There are a limited number of studies describing the role of DIM in targeting mammalian target of rapamycin (mTOR), a key regulatory molecule in cell growth. Cancers with overexpression of mTOR exhibit a 3 times greater risk of recurrence.<sup>49</sup> One study showed DIM significantly inhibited mTOR and Akt activity in cancer cells expressing platelet-derived growth factor-D (PDGF-D).<sup>51</sup> This is important because inhibition of mTOR and Akt activity is correlated with decreased cell proliferation and invasion.


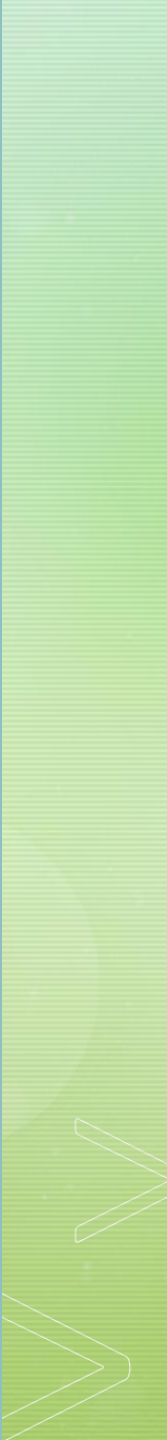


- In combination with Taxotere, a concentration of 40μM DIM resulted in a 78% inhibition of growth and a decreased invasive capacity of the aggressive breast cancer cell line MDA-MB-231; these findings were associated with decreased activation of FoxM1. MDA-MB-231 cells express higher levels of FoxM1 than MCF-7 breast cancer cells. Cells treated with DIM showed reduced FoxM1 mRNA levels. Downregulation of FoxM1 expression induced the growth-inhibitory effect of DIM, suggesting a mechanistic role of FoxM1 and a regulatory role of DIM.<sup>46</sup>
- DIM has been shown to induce select tumor-suppressing proteins, including p21 and p27<sup>kip</sup>, in cell culture.<sup>53,54</sup> In breast cancer cell lines that overexpress both human epidermal growth factor receptor 2 (Her2) and activated Akt, DIM exposure resulted in inhibition of activated Akt expression as well as independent induction of both p27<sup>kip</sup> transcript expression and nuclear localization of p27<sup>kip</sup>, ultimately resulting in apoptosis.<sup>53</sup> Apoptosis was also evident in Her2/neu-positive human breast cancer cells treated with a combination of DIM and paclitaxel, resulting in G<sub>2</sub> phase cell cycle arrest. Moreover, treatment with DIM alone decreased activation of the Her2/neu receptor, affecting cell growth and differentiation.<sup>55</sup>

- 
- More recently, DIM has been demonstrated to protect against ionizing radiation through activation of the protein kinase ataxia telangiectasia mutated (ATM), which regulates responses to DNA damage and oxidative stress as well as cell survival signaling through nuclear factor- $\kappa$ B (NF- $\kappa$ B).<sup>56</sup> Overexpression of PDGF-D is linked to increased DNA-binding activity of NF- $\kappa$ B in aggressive breast tumors.<sup>52</sup> Conversely, DIM did not protect human breast cancer xenograft tumors against radiation, suggesting its potential use to mitigate undesirable side effects of cancer treatment.<sup>56</sup>
- 

- 
- Importantly, DIM supplementation has been shown to enhance the 2-hydroxylation of estrogen, resulting in selective activation of estrogen receptor  $\beta$  target genes, which is thought to contribute to anti-inflammatory effects in hormone-responsive cell lines.<sup>60</sup> The influence of DIM on AhR, as described above, results in reduced production of the carcinogenic 4-hydroxysterone (4OHE<sub>1</sub>).<sup>61</sup> Increased 4OHE<sub>1</sub> has been associated with breast tumor formation and related to initiating mutations through formation of depurinating DNA adducts.<sup>62</sup>

- 
- DIM selectively induced cell cycle arrest and apoptosis in both estrogen receptor–positive and estrogen receptor–negative breast cancer cells, without producing evidence of antiproliferative activity in normal breast epithelial cells.<sup>53</sup>
  - The chemopreventive activity of DIM may have clinical applications in both hormone-dependent and hormone-independent disease. This may expand therapeutic options for triple-negative breast cancer.


- 
- Cruciferous vegetables are the primary source of DIM in the human diet. Data from studies evaluating the association between cruciferous vegetable intake and cancer risk or prognosis are therefore of value in estimating the role of DIM in cancer prevention and control.
- 




# Cruciferous Vegetables

- Broccoli and sprouts
- Broccolini and sprouts
- Brussels Sprouts
- Sauerkraut
- Cole slaw
- Cauliflower
- Cabbage
- Chinese cabbage
- Collard or mustard greens
- Bok choy
- Chard
- Japanese radish
- Rutabaga
- watercress



- 
- A cross-sectional analysis of 1005 middle-aged Chinese women found the inflammatory markers tumor necrosis factor  $\alpha$ , interleukin  $1\beta$ , and interleukin 6 to be inversely associated with higher intakes of cruciferous vegetables.

- 
- Supplementation with specialized formulations of DIM is necessary to achieve these higher exposures and, in turn, to evaluate the potential chemo-preventive activity of DIM in humans.

# Mitochondria

# Mitochondria- the power house of the cell

- Declines with age
- Muscles get weaker with age



# Mitochondria Biogenesis - mitochondria dividing, making more mitochondria

- Exercising sufficiently can greatly reduce age related loss of mitochondria

# Mitochondria Autophagy and Spermadine

- Spermadine stimulates Mitochondria to divide
- Spermadine: Removal of damaged or aged mitochondria
- Spermadine optimized Mitochondria Autophagy leading to healthier cell- heart
- Higher intake of Spermadine lowers risk of cardiovascular disease



# Mitophagy and Urolithin A

- Found in pomegranates, walnuts and raspberries
- Urolithin A is very similar in function to Spermadine
  - Increases Mitochondria division
  - Improves endurance

# Mitochondria

- Healthy Mitochondria
  - Trigger apoptosis- cellular suicide
  - Immune system: killing pathogens



# ZOMBIE CELLS AND HOW TO GET RID OF THEM: APOPTOSIS

# DAILY APOPTOSIS VS. SENESENCE/ZOMBIES

- 50-70 BILLION CELLS DIE EACH DAY TO APOPTOSIS,
  - A TINY FRACTION OF YOUR ENTIRE BODY.
  - COMMON, NORMAL AND EASILY REPLACED
- SENESENCE - DAMAGED CELLS
- CELLS THAT HAVE RUN OUT OF TELOMERES BECOME ZOMBIE CELLS
- VIRUSES, INFLUENZA TYPE A CAN CAUSE ZOMBIE CELLS (QUERCETIN CAN BE USEFUL)
- UNHEALTHY IMMUNE SYSTEM LEADS TO ZOMBIE CELLS



# SENESCENCE/ZOMBIES AND AGING

- STOP OR SLOWS NORMAL ACTIVITY
- STOPS DIVIDING
- CELLS MALFUNCTION RELEASING DAMAGING MOLECULES INTO SURROUNDING TISSUES
- THESE CELLS PROMOTE AGING

# SENESCENCE/ZOMBIES AND AGING

- ZOMBIE CELLS FROM OLD MICE CAUSED YOUNG MICE TO SLOW DOWN AND BECOME WEAK
  - THE MICE NEVER FULLY RECOVERED FROM JUST ONE ZOMBIE CELLS TRANSPLANT
  - MORE ZOMBIE CELLS TRANSPLANTED CAUSED WORSE OUTCOME.
  - DIED EARLIER



# SENESCENCE/ZOMBIES AND AGING

- OLD PEOPLE HAVE MORE ZOMBIE CELLS THEN YOUNGER PEOPLE
- REMOVING ZOMBIE CELLS FROM MICE, **ON A REGULAR BASIS** LIVED **25% LONGER THAN NORMAL/CONTROL MICE**

# SENESCENCE/ZOMBIES – HOW TO KILL THEM

- ZOMBIE CELLS SOMEHOW INHIBIT NORMAL CELLULAR SUICIDE



# SENESCENCE/ZOMBIES AND SENOLYTICS

- SENOLYTICS: COMPOUNDS THAT TRIGGER NORMAL CELLULAR SUICIDE
- MOST SENOLYTICS ARE FLAVONOIDS FROM PLANTS
- Fisetin- FOUND IN APPLES AND STRAWBERRIES
- PROCYANIDIN C1- FOUND IN GRAPES
- QUERCETIN FOUND IN ONIONS AND CABBAGE AND SUPPLEMENTS

# ZOMBIES AND SENOLYTICS AND DRUGS

- DRUGS LIKE DASATINIB (A TX FOR LEUKEMIA) COMBINE WITH QUERCETIN HAS BEEN EFFECTIVE IN SOME CLINICAL TRIALS
- HOWEVER, ZOMBIE KILLING COMPOUNDS, SUPPLEMENTS, DRUGS ETC CAN BE COUNTER-PRODUCTIVE
- TOO MUCH OR TOO HIGH OF A DOSE OF SENOLYTICS ARE TOXIC TO NORMAL CELLS



# ZOMBIES AND SENOLYTICS AND MELATONIN

- MELATONIN TO OPTIMIZE SLEEP CAN HELP BRING ZOMBIE CELLS BACK TO A HEALTHY STATE
- OPTIMIZING SLEEP
- NORMAL REGULAR SLEEP

# Genetic Testing 23 & Me March 24, 2025

By Anushadevan Shah and Surbhi Misra

23andMe files for bankruptcy to sell itself; CEO leaves after failed bids

March 24 (Reuters) - 23andMe (ME.O),

Filed for bankruptcy in the U.S. after struggling with the fallout of a data breach and weak demand for its ancestry testing kits that featured in Oprah Winfrey's annual list of favorite things just eight years ago.

- The biotech unicorn has seen a sharp fall in its market value since then. On Monday, its shares fell 46% to 96 cents after co-founder and CEO Anne Wojcicki, who made multiple failed takeover bids, also resigned

In 2021, billionaire Richard Branson's SPAC took 23andMe public at a \$3.5 billion valuation. AncestryDNA, which offers similar tests, was also bought by Blackstone Group that same year, despite slowing sales for both the genetic testing companies.

- A five-month-long data breach in 2023 that exposed personal data of nearly 7 million customers, dealt a major blow to 23andMe's reputation. Late last year, it laid off 200 employees and stopped development of all therapies.



# Blood Donors Live Longer

- Blood transfusion experiments started in 1864
- 2005- Stanford University sewed together an old mouse with a young mouse
  - The old mouse rejuvenated while young mouse weakened.
  - It wasn't red blood cells or stem cells from the young mouse but this and other studies show that **all that is needed for the rejuvenation is blood plasma. (the blood minus the cells).**

# Blood Plasma

- Plasma contains all kinds of proteins, nutrients and hormones other stuff
- Blood plasma changes as we age.

# Vampires and Plasma

- 2016, a company called Ambrosia
  - Its model was to pay young people to donate blood then sell the blood/plasma at high margins to elderly millionaires.
  - Claims about 'immortality'
  - The company closed after the FDA issued a warning notice.

# Alzheimer's and Blood Plasma Transfusions

- Alzheimer's patients received plasma from young people...
  - It didn't work.

# Plasma and Rejuvenation

- It's not necessary to replace old blood with young blood to rejuvenate old mice.
- If you remove blood from old mice and replace the fluid and protein containing salt/electrolytes causes rejuvenation.
- "Old" blood must contain 'pro-aging factors' that is beneficial to remove.

# Donating Blood and Longevity

- Blood donors live longer than other people
- The donating effects gets stronger the more blood donations a donor makes.
- The effect is moderate, you are not going to live forever because you donate blood
- But it is a good thing to do anyway.



# Bloodletting is Back

- History has many connections to bloodletting and health
- Barbershops used to do blood letting- the red in the pole is for blood
- It was used for all kinds of health claims, even gunshot wounds.

# Bloodletting and Hormesis

- Losing a half pint or pint of blood is a stress factor to the body that the body is designed to resolve
- Old blood contains 'pro-ageing factors'- molecules that somehow promote ageing
- Possible thousands of factors
- Possible major negative factor is iron.

# Iron and Donating Blood

- Most people with Alzheimer's and Parkinson's disease have abnormal amount of iron (rust) in the diseased areas of the brain
- Alzheimer's progresses more rapidly in those with high brain-iron levels.
- High levels of iron in the plaque that accumulates in blood vessels with age that lead and can cause heart attacks and strokes.

# Donating Blood, Iron and Cancer

- A trial of 1,300 people
- Cancer cases were 35% lower in people had regular blood drawn.
- In the people that regular blood draws, there was a 60% increased chance of surviving
- People genetically prone to higher iron levels seem to die earlier

# High Ferritin, Death and Cancer

- Danish study- high ferritin levels were associated with greater risk of early death, especially amount men.
- Women's Health Study of 39,000 women found those taking iron supplements had a higher risk of dying early than those how didn't, even those taking multiple vitamins containing iron.
- The body has no system for excreting excess iron.
- Mild loss of iron from passive sweat, dead cells and bleeding but not enough iron loss.

# Hemochromatosis- Hereditary/Genetic

- Die early from cancer and heart disease but also have all kinds of health problems.
- European descent, Ireland, Scandinavia, Vikings



# Microorganisms Love Iron

- Iron works like fertilizer for growth of bacteria
- Iron supplements increases children's risk of getting malaria and various bacterial infections and increase the severity of disease
- During infection,
  - your body will increase Ferritin to bind up the iron so that microbes can't use it.
  - your body produces a protein called Hepcidin, which blocks iron uptake from food.

# Kidney Disease and Antibiotics

- 35 million adults in the US have chronic kidney disease
  - 1 out of 7 people.
- Asymptomatic until late stages- less than 20% renal function
- A leading cause of death
- Costly to Treat
- Kidney disease is growing at an alarming rate

# Kidney Disease- most common risk factors

- Diabetes
- High blood pressure
- Heart disease
- Obesity
- Smoking.

# Kidney Disease - less recognized factors

- Prescription drugs
- Industrial chemicals
- Pesticides
- Herbicides
- Heavy metals

# Kidney Disease and Antibiotics

Medpage February 19, 2025

Researchers observed that excessive antibiotic use altered the kidney microbiome, shifting the balance away from beneficial *Lactobacillus* and toward stone-promoting *E coli*.

**This may explain why individuals on long-term antibiotics have a higher risk of developing kidney stones.**

Miller and Agudelo also referenced a 2019 study suggesting that gut and urinary microbiome dysbiosis may be a factor in the increasing prevalence of kidney stones

**Dr. DANIEL GOLDMAN** February 19, 2025

**. No one should "screen" for UTIs with the exception of pregnant women since this can precipitate pre-term labor.**

The reason is if you do this and you detect bacteria but no signs or symptoms of a UTI, this is called Asymptomatic Bacteriuria, and if you treat this with antibiotics, you will cause more SYMPTOMATIC UTIs requiring more antibiotic use leading to more bacterial resistance.

# Kidney Disease Testing

- Dipstick Urinalysis- Protein
- Blood test- Creatinine: can be affected by obesity, diet and muscle mass, malnutrition, high meat diet
- Blood test- BUN
- Blood test- eGFR creatinine
- Blood test- Cystatin C: can also be elevated with diabetes, obesity, and inflammation
  - Generally, is more accurate in kidney disease progression than eGFR Creatinine



# Kidney Disease and Cystatin C

- When eGFR Creatinine is below 45, guidelines recommend a Cystatin C, even if there is no albuminuria.
- Cystatin C and eGFR Creatinine can be both be important in charting the course of kidney failure leading to dialysis and transplant.

# Natural Solutions to Kidney Disease

- Idiopathic progressive kidney disease is often mentioned by medical when an obvious cause is not found but it is well known that drugs cause kidney disease but also heavy metals especially lead, arsenic and mercury.
- Proper testing would identify the heavy metals.

# Natural Solutions to Kidney Disease

- Obviously, reduce exposure to drugs and chemicals

# Dietary Guides for Kidney Disease Not on Dialysis

- Avoid red meat: pork, beef
- Plant based protein but not soy.
- Steamed vegetables to make digestion easier.
- Clean diet: Cat 1 diet.



# EASY LONGEVITY

1. Don't Die
2. Don't get injured
3. Don't be obese
4. Don't smoke - anything
5. Don't drink alcohol
6. Do have close friends/own a dog: loneliness = early death
7. Do have a powerful sense of purpose and responsibility
8. Be optimistic about the future
9. Positive vs. Negative thoughts: Self fulfilling prophecy.
10. Exercise- aerobic is most important but including weightlifting or HIIT is best (although activity is better than none.)



# EASY LONGEVITY

- 11. maintain optimal BP- Processed food, infections and heavy metals.
- 12. Eat Garlic- lowers BP and regulates cholesterol





# FOODS TO EAT FOR LONGEVITY

- Garlic
- Apples
- Pears
- Psyllium/whole grains, beans for fiber to regulate cholesterol



# FOODS TO EAT FOR LONGEVITY

- Rich educated people tend to live longer
  - More fiber?
  - Less processed food?
  - Higher quality food?

# LONGEVITY, DIABETES AND METFORMIN

- French lilac (Goat's Rue) was used in the Middle Ages to treat symptoms of diabetes- unquenchable thirst, fatigue, frequent urination etc.
- Metformin uses a substance from French Lilac to treat diabetes
- FDA approved in 1957
- Anti-aging: Diabetics on Metformin lived longer than non-diabetics on average

# METFORMIN AND LONGEVITY

- Some consider Metformin like fasting in pill form as it switches the cell into an energy conservation state.
- Transferring gut bacteria from a Metformin treated mouse into a regular mouse, conferred increased insulin sensitivity even though it never got the drug – Metformin.
- Interesting: the effects of Metformin are well known but not HOW it works.

# Van's Plan: Exercise

- Starts first thing in the morning
  - 50 push ups, then stretching - maybe 5 minutes then shower then 50 more push ups.  
Note: these are not full extension or full range of motion
    - Has been doing this daily for more than 6 years

# Van's Plan: Exercise

- I do fitness classes 4-7 times a week - (Zumba, Body Works w Abs, Pilates) using 1-2 risers on the step
- I limit the weight to 25 lbs. in each hand to preserve the shoulder joints



# Van's Plan: Exercise

- I usually take an evening walk in the neighborhood or go to the park and hike alone or with one of my daughters 2-3 times a week
- During good weather, I take frequent bike rides
  - I usually use an electric bike, with pedal assist will usually encourage me to get out and take the hills and get out of the house and enjoy nature and the fresh air
- I prefer to take the stairs than take elevator or escalator
  - I will usually walk up or down the escalator if possible
  - I walk between airport terminals rather than take the train if time permits

# Van's Plan: Specialty things for health

- PEMF - 2-4 times a week for about 2 hours at a time.



PEMF

# PEMF Rep

- Mike Schiele was our former rep who educated us/sold us the equipment but he is since retired. He personally recommended:

Michelle Mostert

[www.PEMFaustin.com](http://www.PEMFaustin.com)

512-387-1887

[PEMFaustin@gmail.com](mailto:PEMFaustin@gmail.com)

# PMT-120P Portable Professional Model



# PEMF Treatment Room





# PEMF Contraindications

- Pregnancy
- Patient with Pacemakers or other implanted electrical devices
- Do not treat patient within one day before or after surgery as blood is temporarily thinner
- Patients on Chemotherapy

# Other Considerations

- Patients with low blood pressure could become dizzy for a few minutes when first standing up
- Patients with inactive lifestyles may experience sore muscles after the first few treatments.
- Any chemicals in the body (such as pain medications) are more effective after using PEMF. Monitor these patients as they may become groggy after PEMF Tx

# Warning Display in PEMF Treatment Room

- Electronic Devices May Be Adversely Affected by the PEMF Field.
- Please keep all items listed below at least 3 feet away from PEMF equipment.
  - Computers
  - Cell Phones
  - Credit Cards
  - Identification Cards
  - Electronic Car Key Fobs
  - Tags with Magnetic Stripes
  - Any other Electrical Devices

# PEMF Fee Schedule

- Consultation is \$20
  - Includes one session of PEMF that day
- Office visits for follow up PEMF consult are \$20 as well.
- Each individual session is \$25. (20 minutes)
- The packages are 5 for \$100, 10 for \$200, 15 for \$300 or 20 for \$400.
  - These are 20 minute sessions.

# PEMF Fee Schedule cont.

- The patients can also schedule:
  - 1 hour session for \$50
  - 2 hour session for \$100
  - 3 hour session for \$150.

# PEMF New Pt Form



## PEMF EVALUATION

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Home: \_\_\_\_\_ Cell: \_\_\_\_\_  
Email: \_\_\_\_\_

Whom may we thank for referring you to our office? \_\_\_\_\_

Sex: M F Birthdate: \_\_\_\_/\_\_\_\_/\_\_\_\_ ☐ Single ☐ Married ☐ Divorced ☐ Widowed ☐ Separated

Occupation: \_\_\_\_\_ Employer: \_\_\_\_\_

Emergency Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

Do you currently have any of the following?

### Yes No

- ☐ ☐ Currently receiving chemotherapy
- ☐ ☐ Pacemaker
- ☐ ☐ Cochlear implant
- ☐ ☐ Other Electronic implant(s)

Please describe: \_\_\_\_\_

\_\_\_\_\_

- ☐ ☐ I have had an organ transplant

Please describe: \_\_\_\_\_

\_\_\_\_\_

- ☐ ☐ Hip implant
- ☐ ☐ Dental implants
- ☐ ☐ Metal stents

Please describe: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Yes No

- ☐ ☐ Other metal implant(s)

Please describe: \_\_\_\_\_

\_\_\_\_\_

- ☐ ☐ I have other implants not safe for MRI

Please describe: \_\_\_\_\_

\_\_\_\_\_

- ☐ ☐ Breast implants

- ☐ ☐ There is a possibility that I may be pregnant



# PEMF New Pt Form cont



What problems do you hope to resolve with PEMF therapy?

- 1.
- 2.
- 3.
- 4.

On a scale of 1-10 (with 10 being the worst), how much pain is associated with the above symptoms?

Symptom #1 \_\_\_\_\_

Symptom #3 \_\_\_\_\_

Symptom #2 \_\_\_\_\_

Symptom #4 \_\_\_\_\_

Please list all medication(s), dosage(s) and how long you've been taking them.

Medications	Dosage	How long have you taken this medication?
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

What other treatment methods have you tried for this problem? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

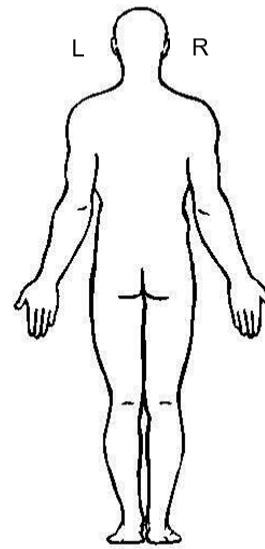
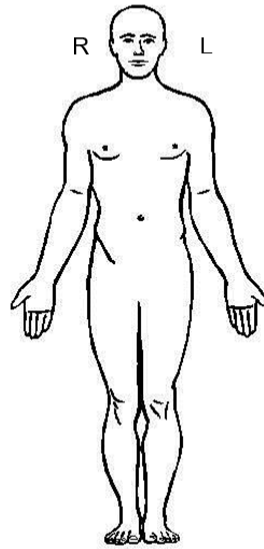
# PEMF Tracking Sheet

## Documentation for every visit

- C = Chair
- T = Table
- Attachment
  - M = Mat
  - B = Butterfly
  - R = Rope
  - L = Loop
  - P = Paddle
  - LC = Lg Coil
  - MC = Med Coil
  - SC = Sm Coil

PEMF Tracking Sheet					
Patient Name:			Patient #:		
	DATE	Duration	Intensity	Location/ Attachment	Notes/Comments
1			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
2			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
3			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
4			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
5			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
6			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
7			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
8			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
9			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	
10			< $\frac{1}{2}$ $\frac{1}{2}$ 1	C T / M B R L P L C M C S C	

# PEMF Tracking Sheet



Patient Name: \_\_\_\_\_

Pt # \_\_\_\_\_

Location:    Chair    Table

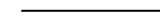
## Attachment Key



Mat



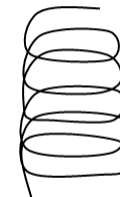
Butterfly



Rope



Loop



Large Coil



Medium Coil



Small Coil



Paddle

Chief Complaint: \_\_\_\_\_

Pulse Intensity:   ☐ < ½ sec   ☐ ½ sec   ☐ 1 sec

# of Treatments Advised: \_\_\_\_\_

After Treatment plan:

☐ schedule follow up consult/exam

☐ send doctor a ticket

Duration of Treatment: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Doctor Signature

\_\_\_\_\_  
Date

# Follow Up Form



DATE

Dear (Patient Name),

As a follow-up to your PEMF appointments we would really like to know how you are doing.

Please check the appropriate answer to the following questions and return, mail or email back to our office so we may update your records.

**How are you feeling?**

\_\_\_\_\_much better    \_\_\_\_\_a little better    \_\_\_\_\_no change    \_\_\_\_\_worse

**Please explain:**

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**On a scale of 1-10 what level is your pain (with 10 being the worst)?** \_\_\_\_\_

**Overall, what percentage improvement did you see with PEMF Therapy as of today?** \_\_\_\_\_

**Please specify any other observations:** \_\_\_\_\_

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If you have any questions or problems, please feel free to call or email us.

**Thank you for completing this questionnaire and returning it to our office.**

Sincerely,

# Van's Plan: Sauna

- Sauna- a small personal sauna
- 2-3 times a week for maybe 1 hour- take a good 10-15 minutes to heat up and about ½ hour to get a good sweat going.
  - Some is good but can get too much
    - Too dehydrated
    - Too overheated- I have gotten heat exhaustion from staying in too long.

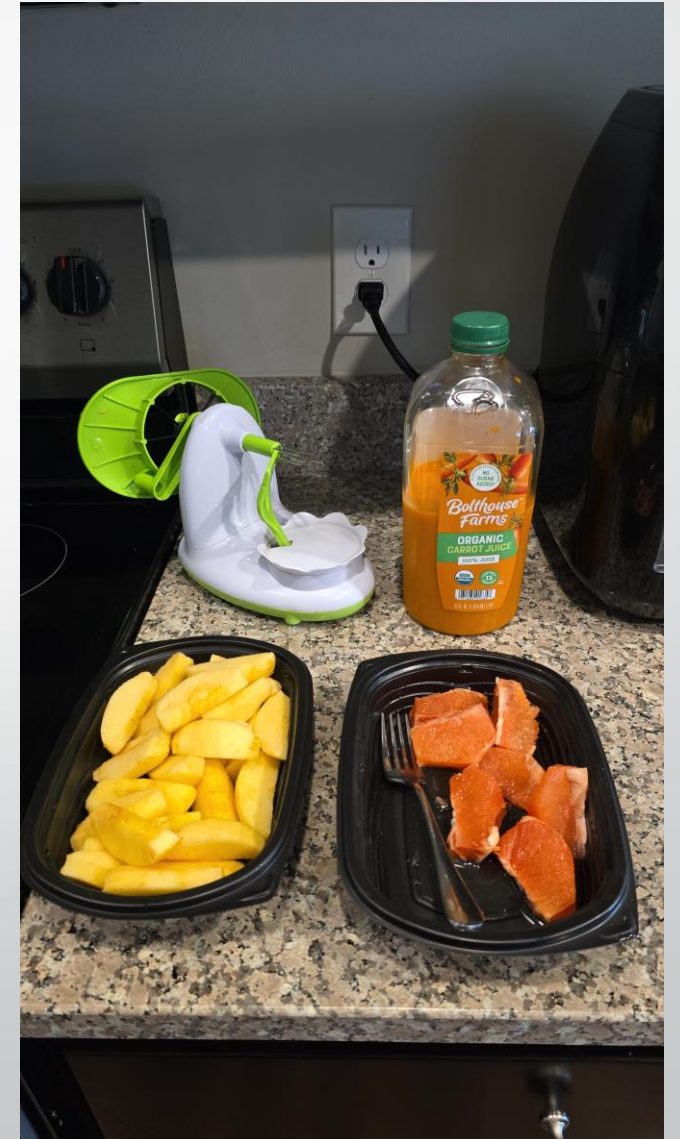
# Van's Plan - Sauna





# Van's Diet

- When eating at home it is very basic and simple:
  - Fish, chicken, hamburger, steak about 4-6 oz portions
  - Broccoli, cauliflower, onions, Asparagus
  - No potatoes, rice, pasta- reducing calories
- When eating out:
  - Extremely rare to eat fast food-except Chipotle
  - Still eat very selective and might eat the carbohydrate or some of it
  - Usually no desserts
  - Drink nearly always water or include Ginger Beer- Fever Tree
- Indulgences: quality dark chocolate and ice cream







# Van's Vitamins

- Beta Carotene- 5K/d
- Vit D- 10K/d
- Mag malate- 300/d
- Ubiquinol -300/d
- SBN Vital Trace min- 2/d
- SBN Calcium- 2-3/week
- SBN CC- 2/d
- Vitality C 1/d
- Zinc loz 20 mg
- Baxyl- 8-10/day
- Brain Sustain 2/d
- Kombucha for probiotics- 2-3/week
- DMSA 12 caps 2 times a week.
- Protein/vitamin shake maybe 3-4/week.