An Integrative Orthomolecular Medicine (IOM) Perspective

Health Sovereignty Through Root-Cause Medicine

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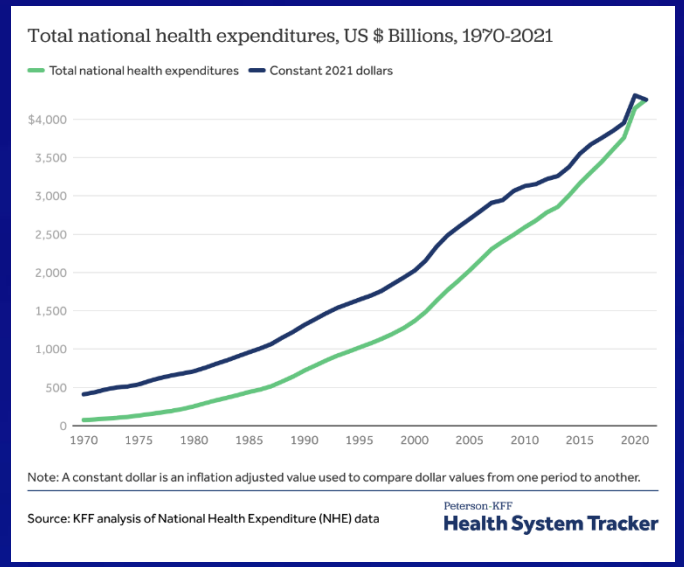
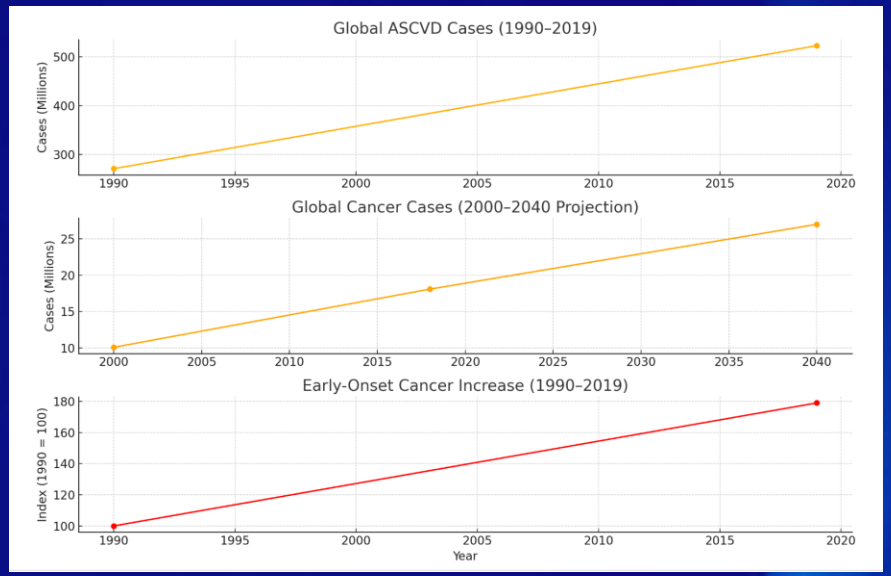
Contents

1.1 A Troubling Health Paradox: Rising Costs, Worsening Outcomes





The Total National Health Expenditure (NHE) in USA has increased by 6300% in the last 50 years.

And yet, chronic diseases have surged:

- Early Onset cancer went up by 80% in 30 years (1).
- Globally, ASCVD cases have doubled (2, 3).

1. Zhao et al. BMJ Oncol. 2023. PMID: 39886513.
2. Roth et al. 2020 PMID: 33309175
3. Virani et al. 2023 PMID: 37471501.

1.2 Sharp Rise of Major Diseases – A Global Crisis

Despite progress in medicine, chronic diseases have surged worldwide in recent decades—especially in women and children:

- Metabolic & Cardiovascular

ASCVD & Hypertension: The leading cause of death globally, with steadily rising incidence of atherosclerosis, hypertension, and metabolic syndrome (1).

Obesity & Type 2 Diabetes: Tripled globally since 1975; rising fastest in women & youth (2)

- Cancer

Breast Cancer: Now the most common cancer worldwide (3)

Thyroid & Endometrial Cancers: Rising rapidly, with the thyroid cancer being the fastest growing cancer among women (4)

1. Nedkoff et al. 2023. PMID: 37914585
2. Sulu et al. 2024. PMID: 38310627
3. Sung et al. 202. PMID: 33538338
4. American Thyroid Association

1.3 Sharp Rise of Major Diseases – A Global Crisis

Autoimmune Disorders (1-3)

- Hashimoto's, Lupus, Sjögren's: 80% of autoimmunity disproportionately affects women
- Juvenile Autoimmune Diseases: Increasing in children and teens

Neurodevelopmental & Mental Health (4-6)

- Autism Spectrum Disorder (ASD): 30-fold increase in ~30 years, Now ~1 in 31 U.S. children (7-10)
- ADHD, Anxiety, Depression: Sharp increases in children, especially adolescent girls
- Eating Disorders: Soaring in teenage girls amid social media and body image pressures

Neurodegenerative (11, 12)

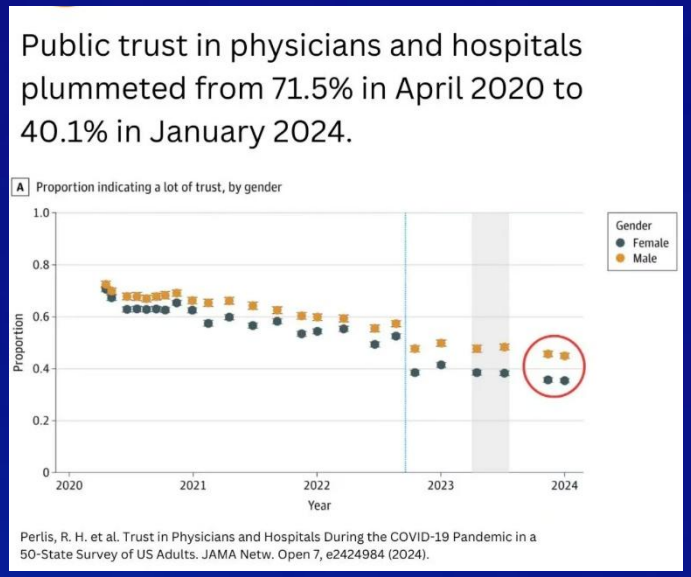
- Alzheimer's Disease: 2 out of 3 patients are women; cases projected to triple by 2050

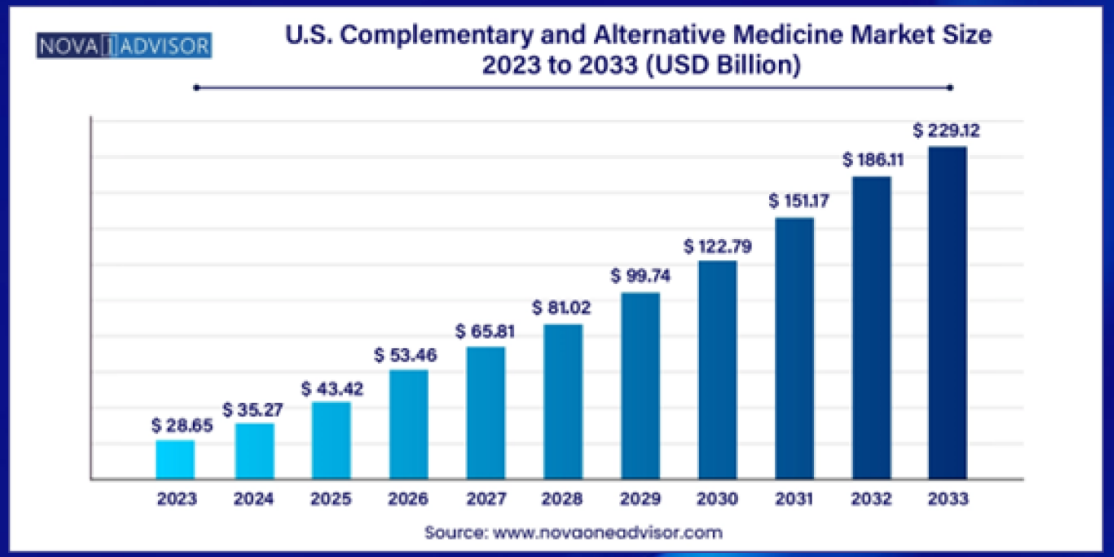
1. Conrad, N. et al. (2023) PMID: 37156255
2. Miller, FW. (2023) PMID: 36446151
3. Desai, Brinton (2019) PMID: 31110493
4. CDC (2024) Data and Statistics on ADHD
5. Peper, E. Reflections on the Increase in Autism, ADHD, Anxiety, and Depression: Part 1 – Bonding, Screen Time, and Circadian Rhythms. NeuroRegulation 10, 134–134 (2023).
6. Sunny, M. E. US sees rise in suicide rates among preteens, especially young girls | Reuters. 2024-07-30
7. Blaxill MF. 2004. PMID: 15504445
8. Rutter M. 2005. PMID: 15858952
9. Szpir M. 2006. PMID: 16835042.
10. CDC ADDM (March 2023 report, for 8-year-olds)
11. Park et al. ()2024 PMID 39822906
12. Desai et al. (2024) PMID 38217613

1.4 As Conventional Medicine Falls, Complementary & Alternative Medicine (CAM) Rises

JAMA: Public trust in conventional medicine fell >40% since Covid-19 Pandemic

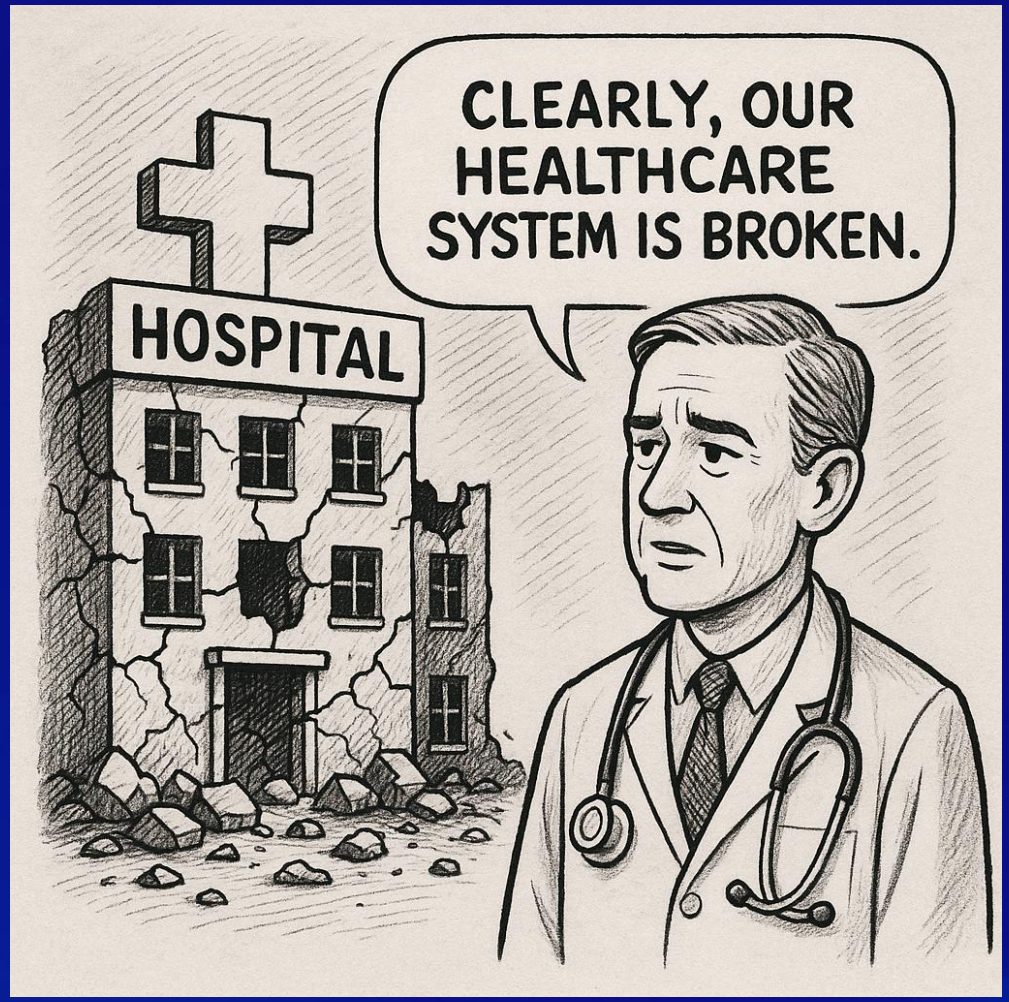
Sharp Rise of CAM in USA by 800% (2023 -2033)





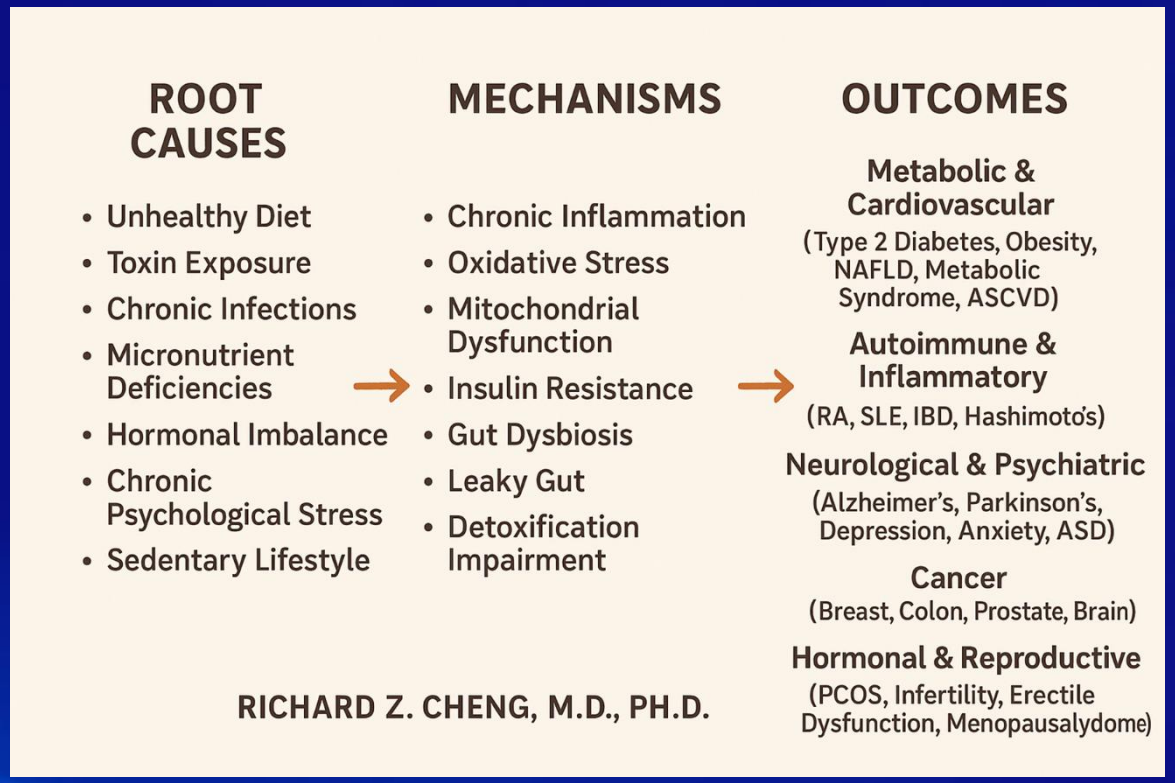
More and more Americans are demanding a transformation in medicine

1.5 Clearly, Our Healthcare System is Broken



1.6 Conventional Medicine Violates a Basic Principle of Logic & Healing: Root Cause Analysis

Conventional Western medicine treats symptoms and downstream mechanisms, not root causes—driven by profit, not health, and shaped by special interest groups like Big Pharma.



Flaws of Conventional Medicine

- Treats symptoms — not root causes
- Focuses on parts — not the whole person
- Ignores upstream drivers (root causes): toxins, nutrient deficiencies, poor lifestyle
- Neglects key mechanisms: gut dysfunction, metabolic imbalance, oxidative stress, inflammation
- Prioritizes pharma — not patient-centered healing

2.1 Infants Can’ t Detox Like Adults

Underdeveloped liver enzymes—especially cytochrome P450—mean infants can’t effectively process vaccine ingredients.

- → Higher toxic burden
- → Greater risk of adverse effects
- → Possible link to SIDS

Int J Med Sci. 2025 Apr 28;22(10):2434-2445. doi: 10.7150/ijms.114402. eCollection 2025.

The Immature Infant Liver: Cytochrome P450 Enzymes and their Relevance to Vaccine Safety and SIDS Research

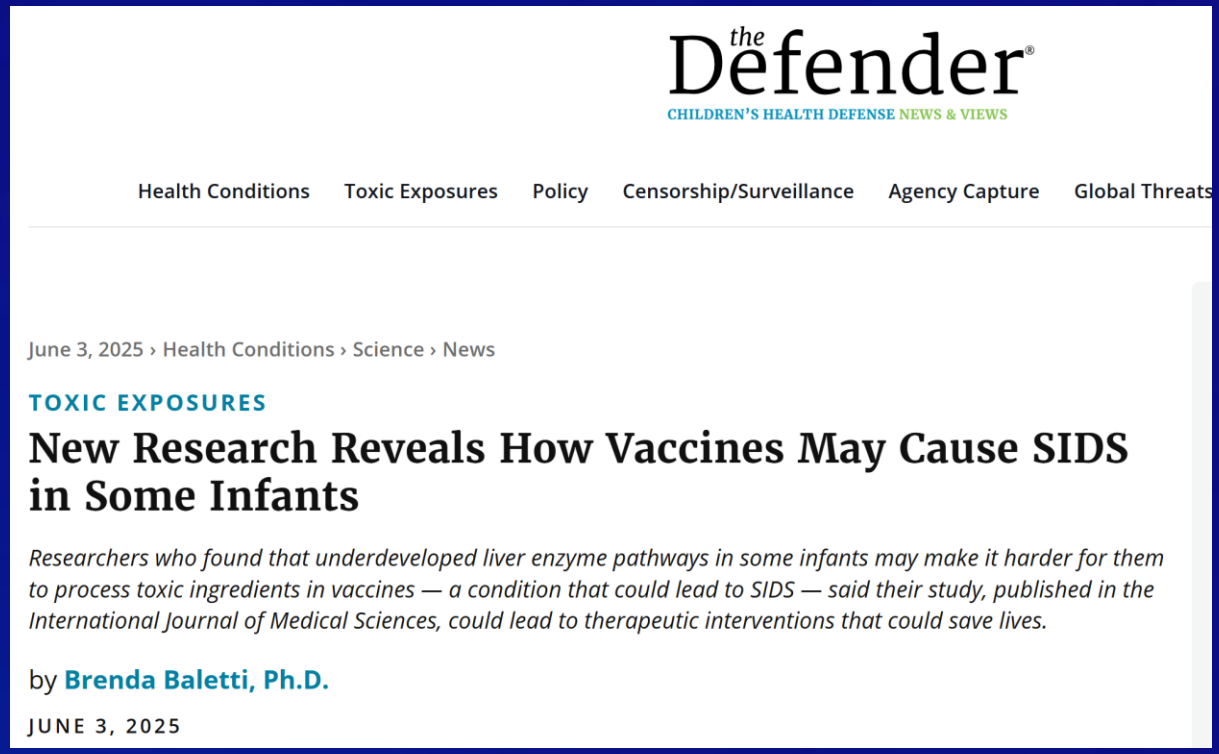
Gary S Goldman [1], Richard Z Cheng [2]

Affiliations + expand

PMID: 40386062 PMCID: PMC12080585 DOI: 10.7150/ijms.114402

Goldman GS, Cheng RZ. The Immature Infant Liver: Cytochrome P450 Enzymes and their Relevance to Vaccine Safety and SIDS Research. Int J Med Sci. 2025 Apr 28;22(10):2434-2445. doi: 10.7150/ijms.114402. PMID: 40386062; PMCID: PMC12080585.

2.2 Toxins and Liver Detox: The Overlooked Key to Health & Disease



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June 3, 2025 › Health Conditions › Science › News

TOXIC EXPOSURES

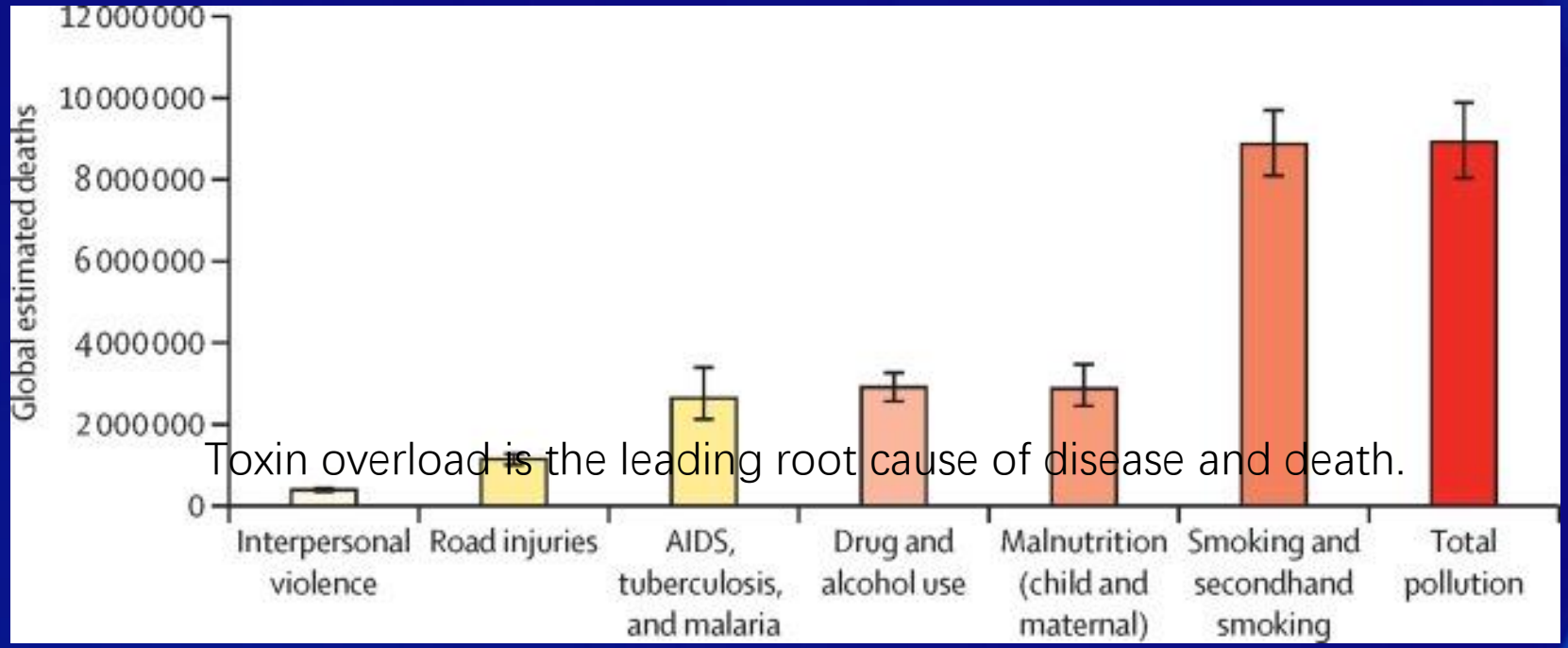
New Research Reveals How Vaccines May Cause SIDS in Some Infants

Researchers who found that underdeveloped liver enzyme pathways in some infants may make it harder for them to process toxic ingredients in vaccines — a condition that could lead to SIDS — said their study, published in the International Journal of Medical Sciences, could lead to therapeutic interventions that could save lives.

by **Brenda Baletti, Ph.D.**

JUNE 3, 2025

2.3 Toxins, Top Driver of Diseases and Death



Toxin overload is the leading root cause of disease and death.

deaths attributable to ambient air pollution and toxic chemical pollution (ie, lead). Deaths from these modern pollution risk factors, which are the unintended consequence of industrialisation and urbanisation, have risen by 7% since 2015 and by over 66% since 2000. Despite ongoing efforts by UN

Fuller et al. 2022. Lancet Planet Health. PMID: 35594895

2.4 Everyday Toxins and Vaccine-Related Burden on the Body

- We live in a world heavily polluted by household chemicals and personal care products. (1-3)
- The average person is exposed to over 700,000 synthetic chemicals daily—from air, water, food, cosmetics, to cleaning supplies—many of which are untested for long-term safety. A NIOSH review found that of 2,983 common household chemicals, over 800 are toxic, 314 cause genetic mutations, 148 induce tumors, and 218 harm fertility.
- Even newborns are not spared—over 280 industrial chemicals have been detected in umbilical cord blood, including pesticides, flame retardants, and heavy metals (EWG, 2005).Toxic exposure is worsened by vaccine-related adjuvants:
  - Aluminum salts, polysorbate 80, formaldehyde, lipid nanoparticles
- These substances may overwhelm the liver and immune system, especially in those with micronutrient deficiencies or poor detox capacity.

1. Thornton et al. 2002. PMID: 12477912.
2. Svingen et al. 2016. PMID: 26612875.
3. https://www.cdc.gov/niosh/docs/2019-132/default.html

2.5 The Liver: Central Detox Organ

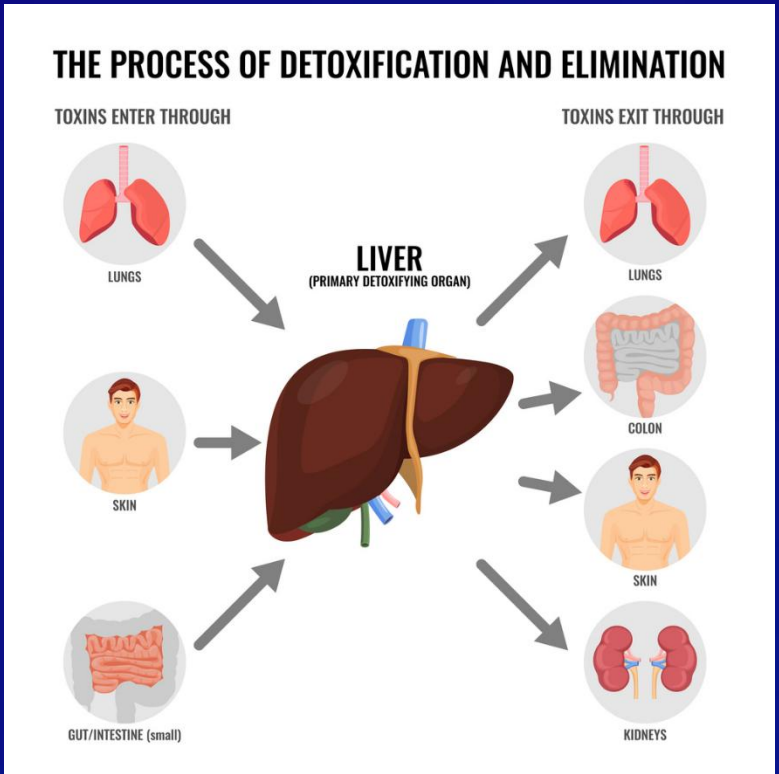
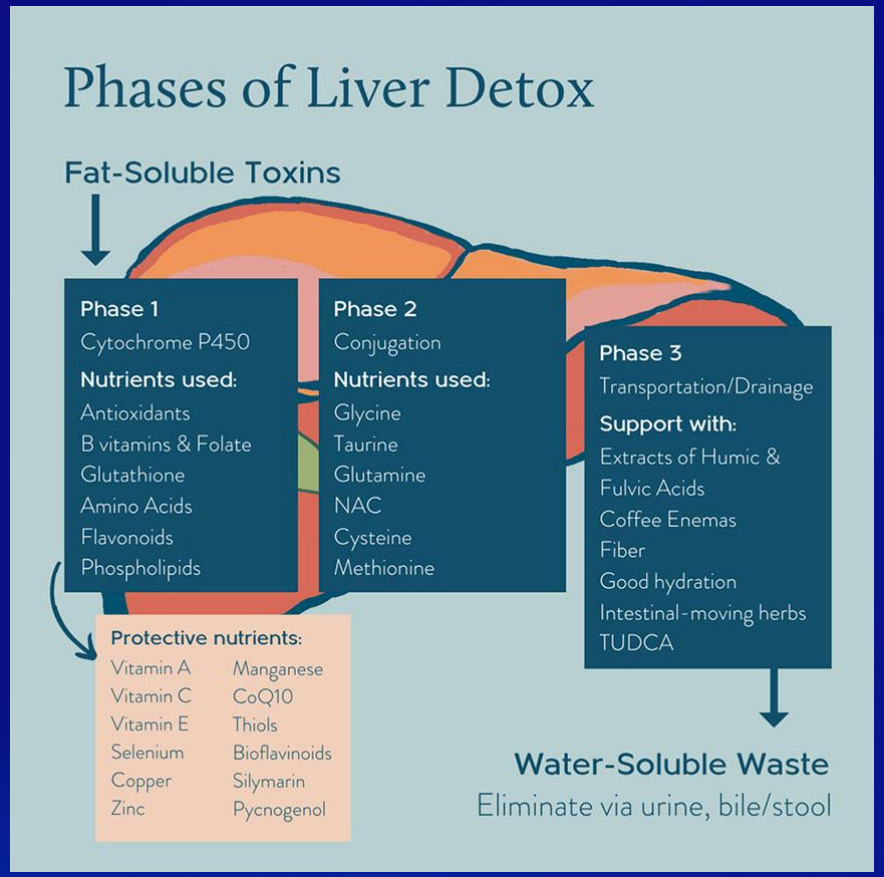


Image credit: www.avatarnutrition.com

- It filters the blood and metabolizes drugs, hormones, toxins, and metabolic waste. Through a three-phase process, the liver converts harmful fat-soluble substances into water-soluble forms, allowing for their safe excretion via bile or urine (1-6).
- Toxins are broadly classified into two types:
  1. Water-soluble toxins are efficiently excreted through the urine.
  2. Fat-soluble toxins must first undergo liver detoxification to become water-soluble before they can be eliminated via urine or bile.
     a) Infants' underdeveloped liver detox pathways increase vulnerability to environmental toxins—including vaccine-related exposures.

1. Grant DM. 1991. PMID: 1749210
2. Almazroo et al. 2017. PMID: 27842765
3. Roth et al. 2020. PMID: 33309175
4. Zhao et al. 2021. PMID: 34884615
5. Virani et al. 2023 PMID: 37471501
6. Zhao et all. 2023. PMID: 39886513

2.6 Phase I Liver Detox: Bioactivation/Transformation



- Phase I: Enzymes: Mainly cytochrome P450
  1. Process: Oxidation, reduction, hydrolysis
  2. Purpose: Converts fat-soluble toxins into reactive intermediates (often more toxic)
- Key Points:
  1. Generates free radicals → risk of cellular damage
  2. Essential Nutrients Required
     1) Antioxidants (C, E, A, flavonoids, minerals) needed to neutralize free radicals
     2) Cofactor nutrients required: B vitamins, vitamin C, zinc, amino acids, flavonoid

2.7 Phase II Liver Detox: Conjugation (Neutralization)

Attaches molecules to Phase I toxins → makes them water-soluble and less toxic for elimination

- Conjugation Types:
  1. Glucuronidation
  2. Glutathione conjugation
  3. Amino acid conjugation
  4. Sulfation
  5. Methylation
- Essential Nutritional Requirements for Phase II Detoxification
  1. Amino Acids: Glycine, taurine, cysteine
  2. Antioxidants & Conjugates: Glutathione, N-acetylcysteine (NAC)
  3. B Vitamins: Especially B2, B3, B6, B9 (folate), and B12 – critical for methylation and conjugation
  4. Minerals: Magnesium (Mg), zinc (Zn), molybdenum (Mo) – essential enzyme cofactors
  5. Methylation Support: Choline, SAMe, trimethylglycine (TMG)
  6. Phytonutrients: Flavonoids and polyphenols – support detox enzyme expression and antioxidant defense

2.8 Phase III Liver Detox: Transport/Excretion

Transport proteins move water-soluble toxins into bile (stool) or blood (urine) for excretion.

- Key Points:
  1. Prevents toxin reabsorption
  2. Healthy gut & regular bowel movements are essential
- Essential Nutrients Required
  1. Fiber & hydration – promote bowel motility and toxin binding
  2. Calcium D-glucarate – supports glucuronidation & prevents reabsorption (enterohepatic recirculation)
  3. Bile-supporting herbs – e.g., dandelion root, artichoke, milk thistle
  4. Magnesium – supports bowel regularity and bile flow
  5. Phosphatidylcholine – aids bile composition and liver transport
  6. Probiotics & prebiotics – maintain gut integrity, prevent reabsorption
  7. Vitamin C & B6 – support bile metabolism and antioxidant protection

2.9 Key Lab Tests for Liver Detox Function

Test Type	Examples / Markers	What It Shows
OAT (Organic Acids)	Pyroglutamate, Orotate, Benzoate, Hippurate	Indirect signs of glutathione status & detox overload
Phase I Detox	Caffeine Clearance, CYP450 tests	Oxidation capacity (Cytochrome P450 activity)
Phase II Detox	Glucuronidation, Sulfation, GSH Conjugation (e.g., Genova)	Conjugation pathway function (methylation, GSH, etc.)
Glutathione Status	GSH/GSSG ratio, GGT, Pyroglutamate (from OAT)	Oxidative stress & GSH recycling efficiency
Liver Panel (LFT)	ALT, AST, ALP, GGT, Bilirubin	General liver function, not detox-specific
Toxin Load Tests	GPL-TOX, heavy metals, chemical toxins	Body burden of environmental or industrial toxins
Methylation Markers	Homocysteine, B12, Folate, SAMe/SAH	Phase II detox readiness via methylation pathways

2.10 Toxin Test: Heavy Metals

					参考值
Aluminum	Al	铝	6.590		<11.0
Lead	Pb	铅	1.114 ↑		<0.700
Arsenic	As	砷	0.095		<0.100
Mercury	Hg	汞	1.025		<2.000
Cadmium	Cd	镉	0.021		<0.025
Nickel	Ni	镍	0.388		<0.470

单位:μg/g

具毒性元素				参考值	参考值
Antimony	Sb	锑	0.064 ↑		<0.030
Thallium	Tl	铊	0.001		<0.0020
Barium	Ba	钡	0.373		<1.500
Tin	Sn	锡	0.130		<0.150
Beryllium	Be	铍	<dl		<0.002
Tungsten	W	钨	0.005		<0.0070
Bismuth	Bi	铋	<dl		<0.020
Uranium	U	铀	0.007		<0.020

4 yo boy with mental and physical developmental delay: Lead Overload

高毒性元素					参考值
Aluminum	Al	铝	20.05 ↑		<11.0
Lead	Pb	铅	0.643		<0.700
Arsenic	As	砷	0.025		<0.100
Mercury	Hg	汞	1.692		<2.000
Cadmium	Cd	镉	0.013		<0.025
Nickel	Ni	镍	0.336		<0.470

单位:μg/g

具毒性元素				参考值	参考值
Antimony	Sb	锑	0.040 ↑		<0.030
Thallium	Tl	铊	<dl		<0.0020
Barium	Ba	钡	2.043 ↑		<1.500
Tin	Sn	锡	0.438 ↑		<0.150
Beryllium	Be	铍	0.002 ↑		<0.002
Tungsten	W	钨	0.019 ↑		<0.0070
Bismuth	Bi	铋	<dl		<0.020
Uranium	U	铀	0.084 ↑		<0.020

4 yo girl with T1DM: Aluminum Overload

3.1 Liver Detox Is Epigenetic: Toxins & Nutrients Over Genes

- Epigenetic mechanisms regulate gene expression and are highly sensitive to environmental inputs—especially in early childhood development (1, 2).
- Toxins like arsenic, lead, and persistent organic pollutants disrupt DNA methylation, histone modification, and microRNA expression (3, 4).
- Prenatal exposure to toxic metals can induce epigenetic changes—potential biomarkers for future disease risk (4).
- Digestive tract is a major site of epigenetic influence from environmental exposures (2).
- Highlights the need to address environmental toxins and nutrient support to protect epigenetic integrity and long-term health.

1. Marsit CJ. 2015. PMID: 25568453
2. Zilbauer et al. 2016. PMID: 26628441
3. Pizzorno et al. 2013. https://doi.org/10.14200/JRM.2013.2.0104
4. Nye et al. 2014. PMID: 24955086

3.2 Autism Surge: It's Not Just Genes

A 30-fold rise in ASD over 30 years can't be blamed on genetics alone. Modifiable epigenetic factors—toxin overload, nutrient deficiencies, and immune stress—are the real drivers. The autism epidemic demands action on environmental and nutritional fronts.

Year	Age 8, Prevalence	Equivalent	Source / Notes
1990s	~1 in 1,000	≈0.1%	Early estimates before systematic tracking, 1, 2.
2000	1 in 150	≈0.67%	CDC ADDM Network Reporting Begins
2006	1 in 110	≈0.91%	CDC Data
2010	1 in 68	≈1.47%	ADDM Data
2014	1 in 59	≈1.69%	ADDM
2016	1 in 54	1.85%	ADDM
2018	1 in 44	2.27%	ADDM
2020	1 in 36	2.76%	ADDM
2022	1 in 31	3.22%	ADDM
2020-22 (ages 3-17)	3.4% had ASD Dx	3.4%	NHIS survey

1. Autism Through the Years: How Understanding Has Evolved Over Two Decades - Southwest Autism Research & Resource Center (SARRC)
2. Epidemiology of autism - Wikipedia

3.3 Micronutrients – Essential for Liver Detoxification

- Liver detox relies on Phase I (CYP450) and Phase II (conjugation) pathways
- Micronutrients are critical enzyme cofactors, including:
  - B vitamins: B2, B3, B6, B12, Folate
  - Antioxidants: Glutathione, Vitamin C, Vitamin E
  - Minerals: Zinc, Magnesium, Selenium
- These nutrients support:
  - Cytochrome P450 enzyme activity
  - Conjugation reactions (glucuronidation, sulfation, methylation)
  - Antioxidant defense systems

1. Grant DM. 1991. PMID: 1749210
2. Almazroo et al. 2017. PMID: 27842765
3. Roth et al. 2020. PMID: 33309175
4. Zhao et al. 2021. PMID: 34884615
5. Virani et al. 2023 PMID: 37471501
6. Zhao et all. 2023. PMID: 39886513

3.4 Vitamin C and CYP450

- Oxidative Stress: Low vitamin C fails to counteract reactive oxygen species (ROS) that damage CYP450 enzymes. Sepsis models show vitamins C and E restore CYP1A1, CYP1A2, and CYP2E1 function by reducing lipid peroxidation (1, 2).
- Metabolic Dysregulation: In diabetic rats, vitamin C deficiency elevates CYP2E1 activity (linked to toxin activation), while supplementation normalizes it. This highlights vitamin C's role in regulating CYP isoforms during metabolic stress (2).
- Low vitamin C levels may impair CYP3A4 catalytic efficiency, potentially reducing the liver’s overall detoxification capacity (3).
- Reduced CYP450 activity under deficiency states limits biotransformation of toxins, increasing susceptibility to chemical injury (1, 2)

1. Kim et al. 2006. PMID: 16483564.
2. Clarke et al. 1996. PMID: 9001594.
3. Shumiantseva et al. 2014. PMID: 24837311.

3.5 Vitamin C and CYP450

- Reduced CYP450 Expression:
  - Vitamin C deficiency significantly decreases hepatic CYP450 protein content, particularly CYP2B1/2B2 isoforms, as observed in scurvy-prone rats. This reduction directly compromises toxin metabolism (1, 2).
- Diminished Enzyme Activity:
  - Deficiency lowers catalytic function of CYP1A1/2 and CYP2B1/B2, critical for detoxifying xenobiotics. Guinea pig studies confirmed impaired CYP450 induction under low vitamin C conditions (2).

1. Kobayashi et al. 2014. PMID: 25036135
2. Liu et al. 2000. PMID: 11234917

3.6 B Vitamins and Liver Detoxification

- B2, B3, B6, B9, and B12 are key cofactors for liver detox enzymes, especially CYP450.
- Support both phase I (oxidation/reduction) and phase II (conjugation) pathways.
- Deficiency in these vitamins may impair detox efficiency and toxin clearance.
- Mechanistic and clinical reviews confirm that nutritional status modulates CYP450 activity.
- Adequate B vitamin intake is critical for maintaining effective detox function.

1. Kobayashi et al. 2014. PMID: 25036135
2. Liu et al. 2000. PMID: 11234917

3.7 Vitamin D & Liver Detoxification: Emerging Evidence

- Vitamin D is essential for liver detox, toxin clearance, inflammation control, and immune balance (1-3).
- Early-life deficiency suppresses liver detox and immune genes long-term (animal studies) (2).
- These molecular changes persist into adulthood, even after later vitamin D repletion (2).
- Vitamin D deficiency disrupts cholesterol and energy metabolism, further impairing liver function (2).
- In liver disease (e.g., NAFLD, cirrhosis), vitamin D deficiency is common and linked to worse outcomes.(1, 3).
- Animal studies confirm causality; in humans, strong mechanistic links exist, but causation needs further study (2, 3).
- Maintaining optimal vitamin D levels may enhance liver detoxification and resilience (1-3).

Bottom Line: *Vitamin D is a modifiable detox support—especially in early life, where deficiency can cause lasting damage, similar to early Vitamin C deficiency.*

1. Iruzubieta et al. 2014. 25544877
2. Knuth et al. 2024. PMID: 38800476
3. Keane et al. 2018. PMID: 29659559

3.8 Nutrients Deficiency Impairs Detox – Evidence from Clinical Studies

- Micronutrient deficiencies reduce detox enzyme efficiency (1-9)
  - ↑ Oxidative stress and toxin accumulation
- Observed in liver conditions such as (2-4, 7):
  - Chronic hepatitis C
  - NAFLD
  - Toxic environmental exposures
- Clinical improvements seen with repletion (3, 4):
  - ↑ Detox enzyme function
  - ↓ Liver inflammation
  - ↑ Overall clinical outcomes
- ➤ Micronutrient optimization = safe, effective detox strategy

1. Bidlack et al. 1986. PMID: 3510912
2. Llibre-Nieto et al. 2021. PMID: 33920134
3. Kozeniecki et al. 2020. PMID: 31840874
4. Nicoll et al. 2022. PMID: 34491307
5. https://mosaicdx.com/resource/the-liver-supportive-nutrient-in-detoxification/
6. https://www.lifeextension.com/protocols/metaboli-health/metabolic-detoxification

7. Gupta et al. 2019. PMID: 31212984
8. Pickett-Blakely et al. 2018. PMID: 30294653
9. https://interclinical.com.au/newsletter/nutrient-support-for-detoxification/

3.9 Nutrition: The Structural & Functional Foundation of Life

✅ Nutrition provides the essential building blocks and regulatory molecules for all biological systems.

✅ Nutrition is not just fuel — it builds, protects, and regulates life. While macronutrients provide energy (fuel), nutrition also includes structural components (e.g., amino acids, fatty acids, minerals) and functional regulators (e.g., vitamins, phytonutrients, antioxidants, cofactors).

🔬 Structural Role: Provides the raw materials for all body tissues

- Proteins → muscles, enzymes, hormones
- Fats → cell membranes, brain tissue, hormones
- Minerals → bones, teeth, cofactors

⚙️ Functional Role: Powers and regulates every biochemical process

- Vitamins & minerals → enzyme cofactors
- Amino acids & fatty acids → neurotransmitters, immune signals
- Phytonutrients & antioxidants → cellular defense and repair

🧬 Without optimal nutrition, the body cannot build, detox, defend, or heal

3.10 Liver Detox in Infants – Genetics vs. Epigenetics

🧬 **Why Genetics Matter More in Infants than in adults.**

- **Liver detox enzymes (CYP450, UGTs) are immature at birth due to genetic programming**
- **Key enzymes (e.g., UGT1A1, CYP3A4) not fully expressed until weeks/months after birth**
- **Genetic polymorphisms (e.g., CYP2D6, GSTs, NATs) have greater impact during this underdeveloped stage**

System	% Activity in Infants	Implications
CYP450 (Phase II)	~30-50% of adult levels	Slow detox → ↑ drug/toxin accumulation
CYP3A7 (Fetal)	High at birth, drops by ~80% in 1 yr	Limited detox of xenobiotics
CYP3A4 / 2D6 / 1A2	10–30% of adult levels at birth	↑ Drug sensitivity, slower metabolism
UGT (Glucuronidation)	<10% at birth, matures over months	Jaundice, impaired bilirubin & toxin clearance
SULT (Sulfation)	~80–100% of adult levels	Early compensation for UGT immaturity
GST (Glutathione Pathway)	~20–40% of adult levels	Oxidative stress, poor environmental toxin defense

3.11 Epigenetics Still Dominates Detox Capacity

Why Epigenetic Factors Matter More Clinically

- Micronutrient deficiencies (B2, B6, B12, folate, zinc, selenium, glutathione) worsen enzyme immaturity
- Toxins (medications, vaccines, pollutants) can overwhelm limited detox systems
- Actionable Interventions: Nutrient sufficiency + toxin avoidance = best protection

Summary:

In infants, genetics shape baseline detox capacity—but epigenetic factors (toxins & nutrients) ultimately determine real-world risk and outcomes.

4.1 My 50-Year Medical Journey Toward a Happy, Healthy & Long Life

- ~33 Years Ago (UAMS – Medical Residency)

I began to realize that modern medicine has fundamental flaws—it treats symptoms, not root causes.

That same year, I came across a small book on Vitamin C — *"the secret the FDA doesn't want you to know"*

➞ It left a lasting impact and sparked my journey into deeper truths about health and healing.

- ~30 Years Ago (NCI/NIH – Clinical Practice)

While at NIH, I worked part-time in a weight-loss clinic.

➞ First hands-on experience with lifestyle medicine for obesity and diabetes.

- ~20 Years Ago

Motivated by my own health and my aging parents' struggles—

They had severe, drug-resistant hypertension (180–220/100–130 mmHg).

➞ I turned to orthomolecular and anti-aging medicine.

With high-dose Vitamin C, D3, B-complex, magnesium + one Rx:

➞ Their BP normalized to ~130/80 mmHg.

4.3 My 50-Year Medical Journey Toward a Happy, Healthy & Long Life

That turning point reshaped my mission—

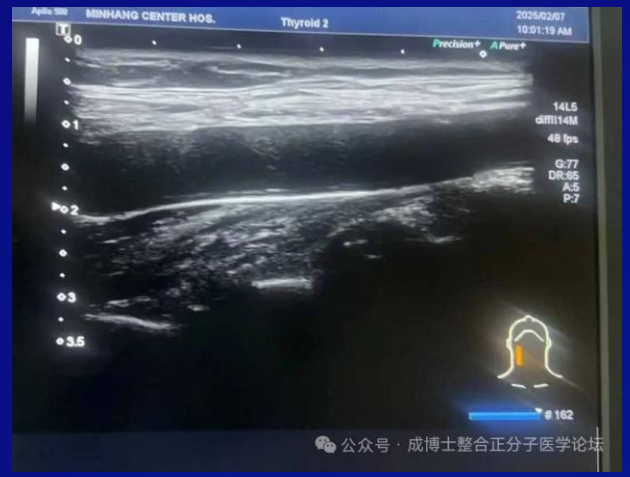
From disease management to the pursuit of

a Happy, Healthy, and (hopefully) Long Life.

Integrative Orthomolecular Medicine (IOM) is my answer.

The rest of this presentation is the story of that transformation..

4.4 Longevity in Action: My 90- and 88-Year-Old Parents Are Thriving



At **90 and 88 years of age**, both my parents are **healthier than ever**, as confirmed by a recent comprehensive physical exam for all three of us. Notably, **Doppler ultrasound revealed squeaky-clean carotid arteries**—a remarkable finding at their age.

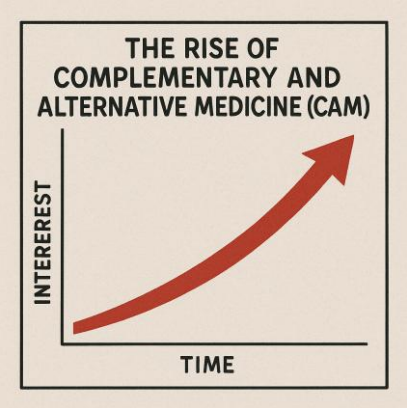
4.5 Outperforming at 65: The Science of Ketosis, Fasting, and Orthomolecular Health

Won a badminton championship

Summited Jade Dragon Snow Mountain (15,000 ft) without supplemental oxygen.

At **65**, I play badminton several times a week—**two hours per session, non-stop and on an empty stomach**. Most of my opponents are **20 to 30 years younger**, yet few can match my endurance. This level of performance is the result of **years of low-carb, intermittent ketogenic eating, regular fasting, consistent exercise, and orthomolecular nutritional supplementation**.

4.6 Why CAM Is Rising Fast



📈 *Health-driven, Root-Cause Focused, Holistic Healing*

🔍 Dissatisfaction with Conventional Care

Symptom-based, drug-heavy, fails to address root causes; chronic disease still rising

🌿 Demand for Holistic, Patient-Centered Care

Treats mind-body-environment; prevention > treatment

🧬 Chronic Disease Epidemic

Obesity, diabetes, autoimmunity need lifestyle + personalized solutions

💊 Rise of Nutritional & Functional Therapies

Supplements, herbs, acupuncture, mind-body tools; growing scientific support

🧠 Empowered Patients

Educated via internet/social media; demand for natural, bio-individualized care

4.7 Pros V Cons of Alternative Approaches?

- **Orthomolecular Medicine**
  - ✅ Strong foundation in high-dose nutritional therapy
  - ❌ Historically lacked integration with metabolic, hormonal, detox, and lifestyle strategies
  - ❌ Less emphasis on dietary reform and circadian health
- **Functional / Anti-Aging Medicine**
  - ✅ Emphasizes systems biology and personalized care
  - ❌ Dietary approach lags behind Low Carb Medicine

(Many still promote the Mediterranean diet, which is less effective than a low carb ketogenic diet)

  - ❌ Nutritional supplementation lags behind Orthomolecular Medicine
  - ❌ Often costly, fragmented, and overly reliant on testing without nutritional depth
- **Low Carb Medicine**
  - ✅ Excellent for managing blood sugar and reversing metabolic disease
  - ❌ Lacks focus on micronutrient sufficiency, toxin burden, and hormonal health

4.7 各类替代医学方法的优劣比较

- **正分子医学（Orthomolecular Medicine）**
  - ✅ 坚实的高剂量营养治疗基础
  - ❌ 历史上缺乏与代谢、激素、排毒和生活方式策略的整合
  - ❌ 对饮食改革和昼夜节律健康关注较少
- **功能医学 / 抗衰老医学（Functional / Anti-Aging Medicine）**
  - ✅ 强调系统生物学和个体化治疗
  - ❌ 饮食策略落后于低碳医学（许多仍提倡地中海饮食，而其效果不如低碳生酮饮食）
  - ❌ 营养补充策略不如正分子医学
  - ❌ 往往成本高、碎片化，过度依赖检测而缺乏营养深度
- **低碳医学（Low Carb Medicine）**
  - ✅ 在控制血糖和逆转代谢疾病方面效果显著
  - ❌ 缺乏对微量营养素充足性、毒素负担和激素健康的系统关注

4.8 Integrative Orthomolecular Medicine (IOM)

🧬 *Integrative Orthomolecular Medicine (IOM)*

- *Evolved from decades of clinical experience and integrative medical practice*
- Integrates the Best from *orthomolecular, functional, low-carb, anti-aging, and TCM principles*

🌈 **Core Principle: Orthomolecular Medicine** – high-dose, individualized nutrients to optimize health

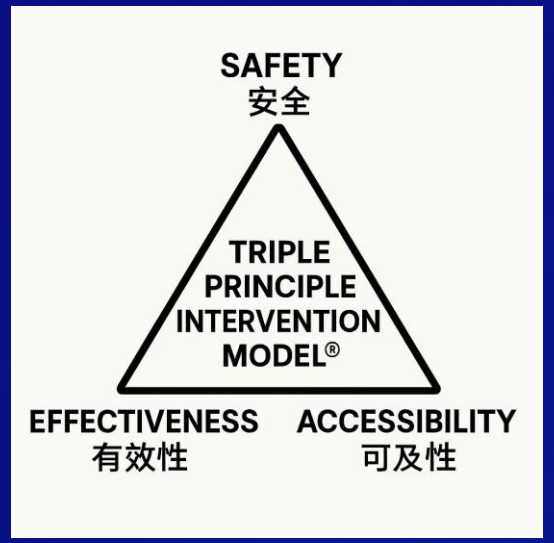
🌟 **Integrative Approaches:**

- ✅ **Functional Medicine** – root-cause focus
- ✅ **Low-Carb Medicine** – metabolic optimization
- ✅ **Anti-Aging Medicine** – hormonal & regenerative support
- ✅ **TCM** – holistic, natural, and balanced philosophy

🧩 **Key Focus Areas: Root-Cause Resolution**

- 🎯 **Optimal Nutrition-Based**
- 🧪 **Healthy Lifestyle, Diet & Detoxification**
- 🔄 **Hormonal & Metabolic Balance**
- 💡 **Regenerative Therapies**

4.9 TRIPLE PRINCIPLES INTERVENTION MODEL®



TRIPLE PRINCIPLES INTERVENTION MODEL®

- Ethical and Practical Foundation of all Integrative Orthomolecular Medicine (IOM) interventions.

- **SAFETY**
  — In line with the Hippocratic Oath: First, do no harm
- **EFFECTIVENESS**
  — Scientifically validated with real-world outcomes
- **ACCESSIBILITY**
  — Affordable and available to all in need

4.9 The IOM Trinity: Science, Nature, Harmony

❌ **Conventional Medicine**

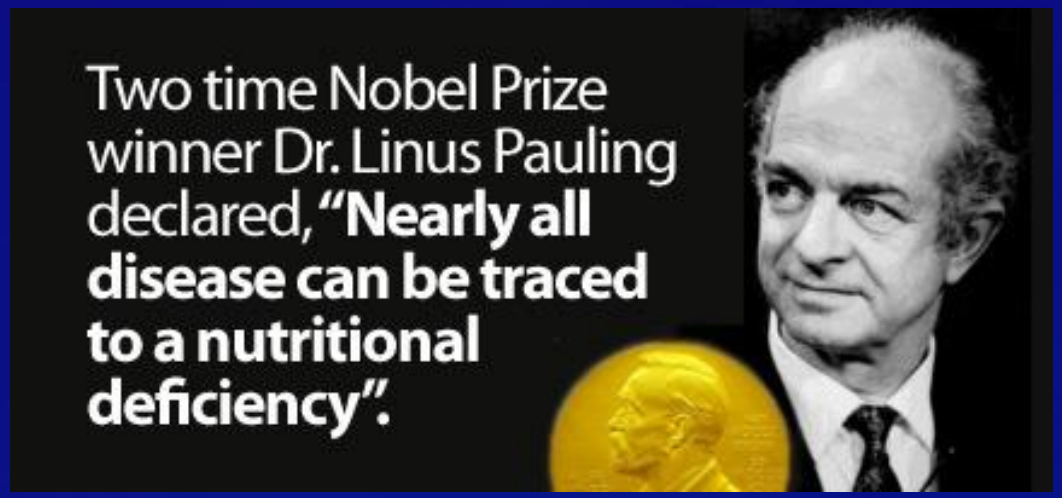
- Focuses on short-term symptom control
- Relies heavily on drugs and surgery
- Often ignores root causes like nutrition, toxins, and metabolic imbalances

✅ **Integrative Orthomolecular Medicine (IOM)**

Restores long-term health by addressing the root problems:

- Poor diet and nutrient deficiencies
- Toxin overload and impaired detox
- Chronic inflammation and oxidative stress
- Hormonal imbalance and circadian disruption

4.10 Historical Foundation of Orthomolecular Medicine



Ortho = Correct
Orthomolecular = Correct Molecules

Science

Current Issue First release papers Archive About Su

Orthomolecular Psychiatry: Varying the concentrations of substances normally present in the human body may control mental disease.

LINUS PAULING Authors Info & Affiliations

SCIENCE • 19 Apr 1968 • Vol 160, Issue 3825 • pp. 265-271 • DOI: 10.1126/science.160.3825.265

4.11 The IOM Trinity: Science, Nature, Harmony

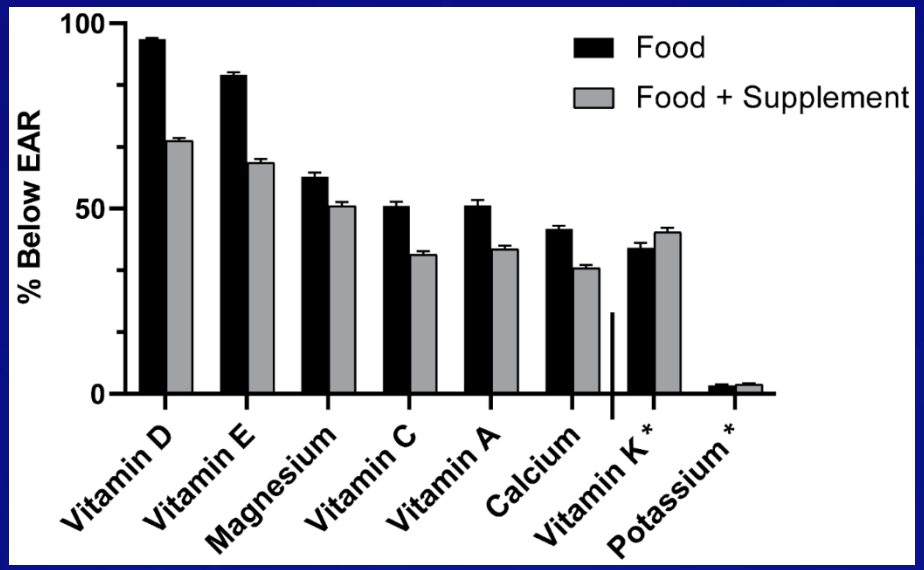
🌿 **Orthomolecular Medicine** was founded on the idea that many diseases can be prevented or treated by optimizing nutrition—especially vitamins and minerals.

👨‍🔬 **Dr. Linus Pauling**, two-time Nobel Prize winner, coined the term **"Orthomolecular Medicine"** and believed that "nearly all diseases can be traced to a nutrient deficiency."

🧠 **Dr. Abram Hoffer** used high-dose nutrients like **vitamin B_3 (niacin)** to successfully treat mental illness.

Orthomolecular Medicine predates most other Complementary and Alternative Medicine (CAM) approaches, including functional medicine.

4.12 The Root Causes: Vitamin/Micronutrient Deficiency

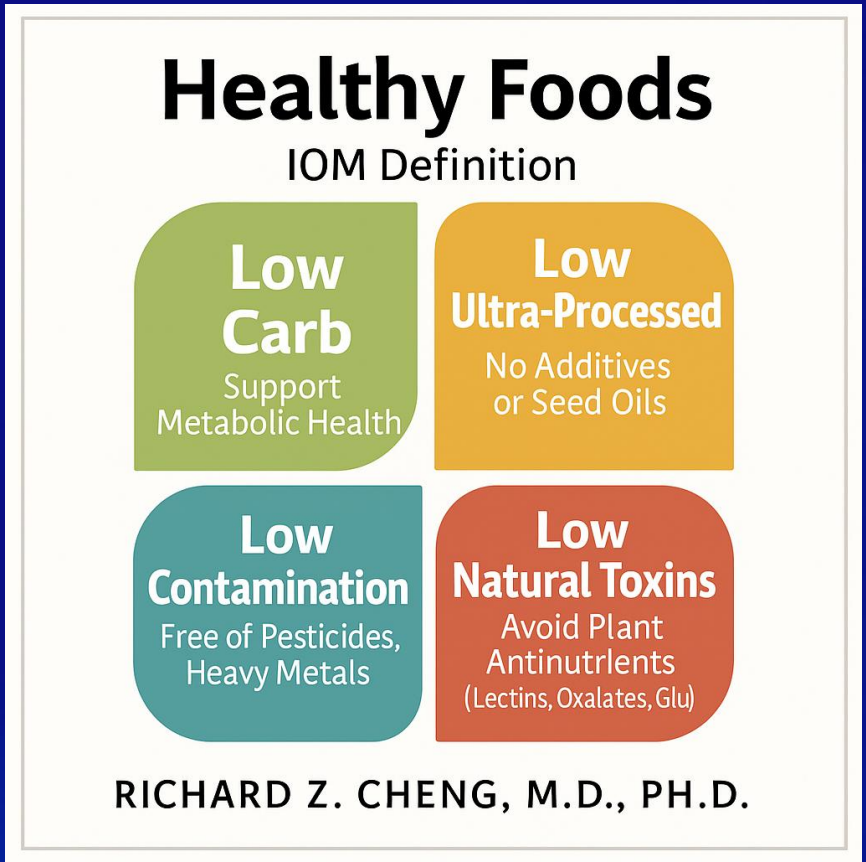


National Nutrition Survey (NHANES):

Even among people taking nutritional supplements, >40% people still are deficient of these essential nutrients.

Reider et al. Inadequacy of Immune Health Nutrients: Intakes in US Adults, the 2005-2016 NHANES. Nutrients. 2020 Jun. PMID: 32531972

4.13 The LCKD/IF – The Ancestral Diet



The Low-Carb Ketogenic Diet and Intermittent Fasting

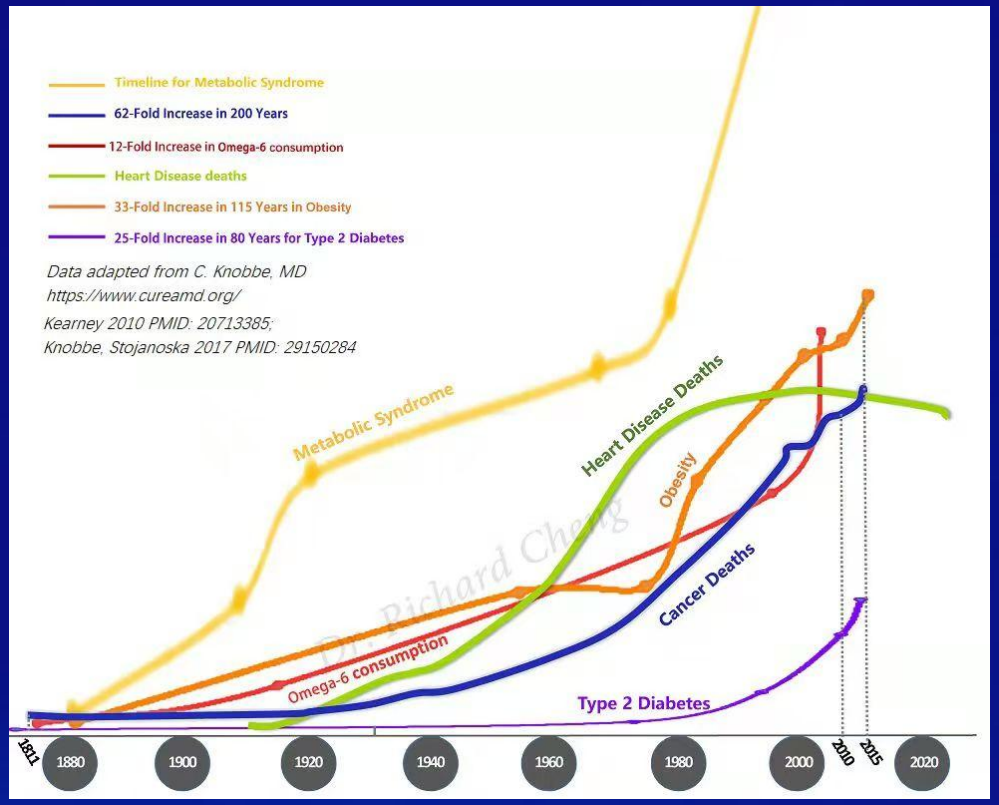
Represent the **dominant ancestral dietary pattern** followed by humans for **millions of years**, shaped by cycles of food scarcity and metabolic adaptation—not modern agriculture.

4.14 The Three Stages of Human Dietary Evolution

Human dietary evolution can be divided into three major stages:

1. **Pre-agricultural era** (millions of years to ~10,000 years ago): humans primarily consumed high-fat, animal-based foods with natural intermittent fasting;
2. **Agricultural era** (past 10,000 years): diets shifted toward higher carbohydrate intake from grains and cultivated plants;
3. **Industrial era** (past 200 years): the rise of ultra-processed foods, refined sugars, and seed oils dramatically altered human nutrition, contributing to modern chronic diseases.

4.15 The Rise of Modern Chronic Diseases: UPF



Correlated with Industrialized Diet & Omega-6 Surge

- **Metabolic Syndrome** ↑ sharply with processed food era
- **Omega-6 Consumption** ↑ 12-fold since ~1900
- **Obesity** ↑ 33-fold in 115 years
- **Type 2 Diabetes** ↑ 25-fold in 80 years
- **Heart Disease Deaths** rose with diet shift, then plateaued
- **Cancer Deaths** and chronic diseases followed similar trends

4.16 The IOM Health-Focused Eating Plans

🥩 Ancestral Diet

- Humans ate low-carb, high-fat foods for 99.5% of history—only switched post-agriculture
- Our metabolism is designed for fat-burning and nutrient-dense whole foods

📊 Clinically Superior

Outperforms Mediterranean diet in reversing:

- Diabetes & insulin resistance
- Obesity & metabolic syndrome
- Fatty liver, brain disorders, and **early-stage renal insufficiency**

🛠 Root-Cause Healing

- Lowers inflammation, oxidative stress, and insulin load
- Enhances mitochondrial function and cellular repair

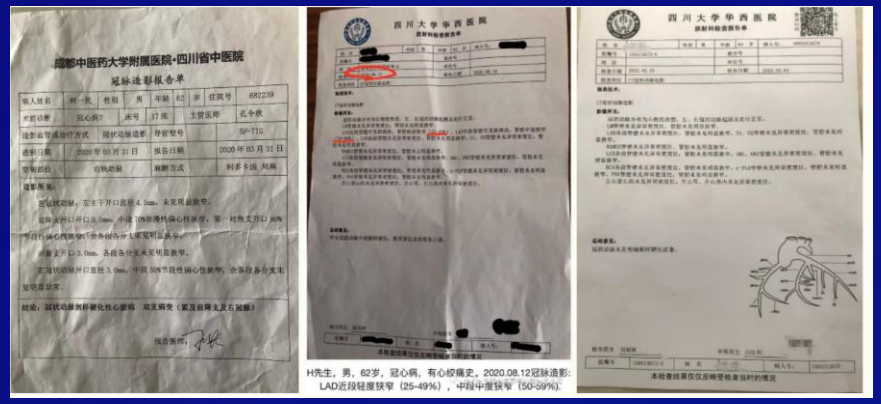
🧠 Brain & Longevity Benefits

- Ketones fuel the brain, improve focus, and support neuroprotection
- Anti-aging effects through metabolic and hormonal optimization

4.17 Seven Pillars of Integrative Orthomolecular Medicine

1. **Lifestyle & Empowerment:** Sleep, exercise, oral health, stress, and patient education for long-term success
2. **Low-Carb / Ketogenic Diet + Fasting:** Reduce insulin resistance, inflammation, and support mitochondrial health
3. **Optimal Nutrition:** High-dose vitamins & minerals to correct deficiencies and restore cellular function
4. **Toxin Identification & Detoxification:** Identify dietary, environmental, and endogenous toxins; support liver and gut pathways for effective elimination.
5. **Hormonal & Metabolic Rhythm Regulation:** BHRT and endocrine balancing (thyroid, adrenal, sex hormones, circadian)
6. **Regenerative & Anti-Aging Therapies:** Stem cells, PBMT, NAD+, GH for mitochondrial and tissue rejuvenation
7. **Functional Lab Testing:** Root-cause analysis: nutrition, hormones, toxins, inflammation, biological age

5.1 Severe Coronary Stenosis Completely Reversed in 18 Months



A 62-year-old man with a history of symptomatic coronary artery disease (CAD) showed a **complete reversal of his multi-site coronary stenosis** after adopting our integrative orthomolecular medicine protocol.

- *Left (Mar. 31st, 2020, 5 months prior to the start of our program): **70% diffuse stenosis** of the mid Left Anterior Descending (LAD) artery, 80% stenosis of the first diagonal branch of the LAD, and 50% stenosis of the mid Right Coronary Artery (RCA).*
- *Center (Aug. 19th, 2020, just before beginning our program): mild stenosis (**25–49%**) of the proximal LAD and moderate stenosis (50–69%) of the mid LAD.*
- *Right (Feb. 25th, 2022, after 18 months on our program): **no stenosis** observed in any artery.*

Cheng, R. Z., Duan, L., & Levy, T. E. (2024, November 27). *A holistic approach to ASCVD: Summary of a novel framework and report of 10 case studies*. Orthomolecular Medicine News Service.https://orthomolecular.org/resources/omns/v20n20.shtml

5.2 Severe Coronary Stenosis Completely Reversed in 24 Months

A 64-year-old woman with CTA-confirmed coronary artery stenosis:

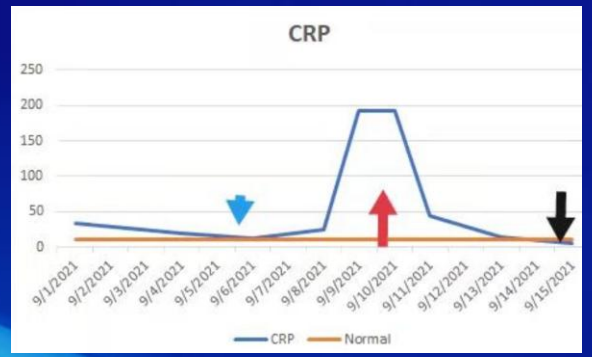
- Before IOM: 60–70% stenosis
- After 1 year on IOM: Reduced to 1–24%
- After 2 years on IOM: No detectable stenosis

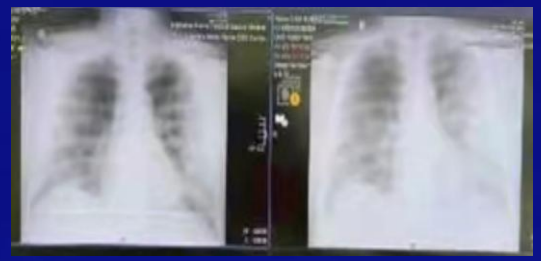
5.3 Unexpected Success Linked to IOM Root-Cause Model

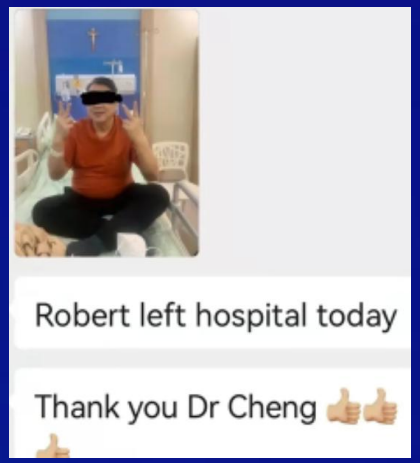
Figure 2b. Left: Oct. 2020; Center: Jul. 23rd, 2023; Right: Dec. 3rd, 2023. Notice the significant fading of the facial age spot.

Unexpected but favorable outcomes: Pulmonary nodules resolved, thyroid nodules decreased in size (data not shown), and a prominent age spot on the left cheek noticeably faded—likely attributable to our root-cause-targeted Integrative Orthomolecular Medicine (IOM) approach.

5.4 IOM for Critical Covid-19



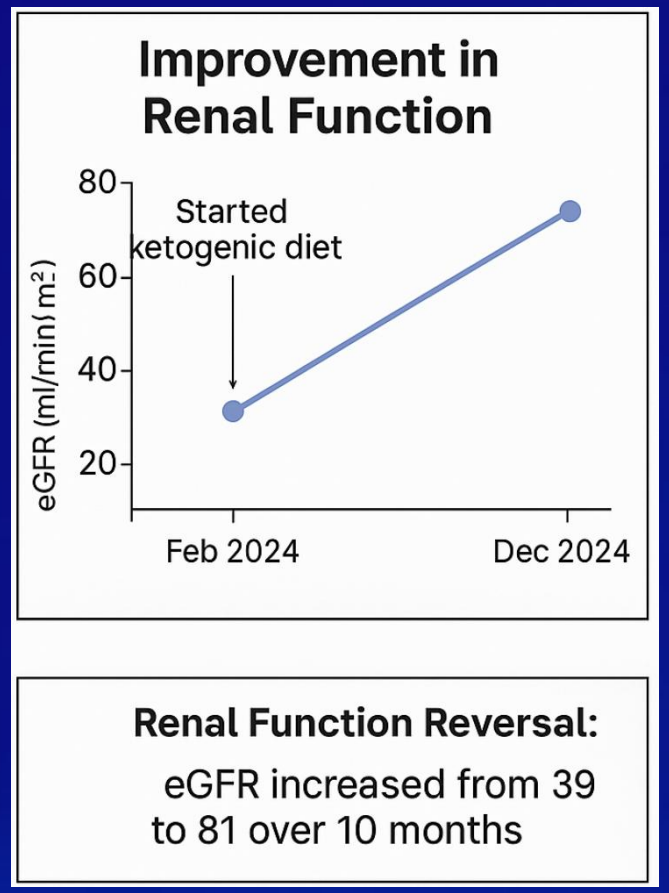




Cheng, RZ. (2022) A Hallmark of Covid-19: Cytokine Storm/Oxidative Stress and its Integrative Mechanism https://orthomolecular.org/resources/omns/v18n03.shtml

- Patient: Robert, hospitalized with COVID-19 and severe lung involvement
- Received our IOM protocol
- Initially expected to require oxygen therapy for at least 1 month post-discharge
- By Day 2, showed dramatic clinical improvement
- By Day 4, chest X-ray and ABG confirmed oxygen no longer needed
- Discharged on Day 6 after two days of observation off oxygen
- Recovery pleasantly surprised family and many hospital staff, including the pulmonologist
- Key question raised: *What triggered such a rapid turnaround—Vitamin C, Vitamin D, or something else?*
- Conclusion:
  Orthomolecular nutrients may be effective not only for chronic conditions, but also for critically ill ICU patients.

5.5 Reversing T2DM, Renal Decline & Parkinsonism at 94 with IOM



A 94-year-old woman with T2DM, chronic UTIs, renal insufficiency, and Parkinsonism showed significant recovery after switching to an Integrative Orthomolecular Medicine (IOM) protocol. Despite worsening under conventional care, a ketogenic diet, high-dose nutrients, red light therapy, and bladder irrigation led to marked improvements in glucose control, kidney function, immunity, and neurological health—highlighting IOM's power to reverse complex chronic conditions even at advanced age.

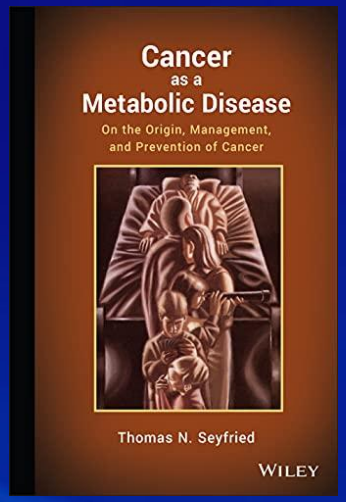
- **Reversal of Renal Function Decline**
- **Neurological Improvement**
- **Restoration of Glycemic Control**

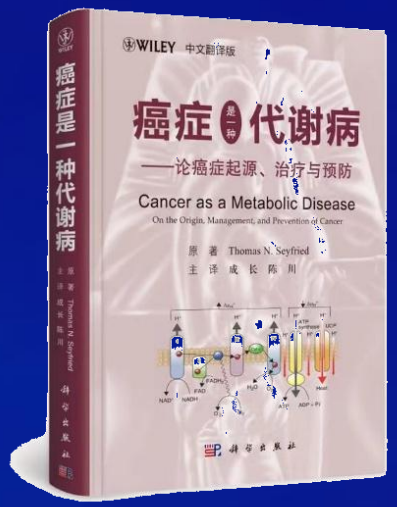
https://orthomolecular.org/resources/omns/v21n25.shtml

An Integrative Orthomolecular Medicine (IOM) Approach to Reverse Type 2 Diabetes, Chronic Urinary Tract Infections, Renal Insufficiency, and Parkinsonism in a 94-Year-Old Patient: A Case Study

Judy Onghai, M.Ed, Ph.D., Richard Z. Cheng, M.D., Ph.D.

5.6 IOM Cancer Metabolic Therapy





Aasmund's Case: 7+ Years Cancer-Free

- Diagnosed in 2012 with aggressive mediastinal B-cell lymphoma
- Switched to a restricted ketogenic diet + supplements after chemo side effects
- Tumor shrank from 10 cm to 2–3 cm over 2–3 years
- Later developed Hodgkin's lymphoma → treated to remission by March 2018
- As of May 2025: **Over 7 years cancer-free**, maintained with keto diet + nutrients

5.7 Real-World IOM Successes: Disease Reversal Across Lifespan

Real-world results show IOM's power in root-cause healing and recovery

Over the years, we have successfully reversed or significantly improved a wide range of **chronic and acute diseases** using the IOM approach, including:

- **Metabolic Diseases**: Type 2 diabetes, fatty liver, obesity, gout
- **Cardiovascular Diseases**: Atherosclerosis, coronary artery stenosis, hypertension
- **Autoimmune Diseases**: Sjögren's syndrome, Hashimoto's, lupus, psoriasis
- **Neuro, Psychiatric, Emotional & Behavioral Disorders**: Parkinsonism, cognitive decline, anxiety, depression, brain fatigue, attention issues
- **Cancer**: Lymphomas, breast cancer, ovarian cancer, liver cancer, prostate cancer
- **Infectious Diseases**: COVID-19 (including ICU cases), pneumonia, recurrent UTIs
- **Organ Dysfunction**: Renal insufficiency, liver failure, etc
- **Hormonal Imbalances**: Menopause, low testosterone, adrenal fatigue, PCOS, infertility
- **Pediatric and Geriatric Care**: From neuroblastoma to 94-year-old multimorbidity cases

6.1 Conclusion: A New Path Forward

- Rising healthcare costs, yet public—especially children's—health is worsening
- Root cause: a system designed for symptom management, not true healing
- IOM offers a science-based, health-oriented, patient-centered model for disease prevention and reversal
- Built on the foundation of Pauling's orthomolecular medicine and Ames' triage theory, integrating low-carb medicine, functional medicine, anti-aging medicine, and more
- Empowers families through health freedom, integrity, and sovereignty
- In today's health crisis, restoring health is urgent—and possible
- Reclaiming our health is no longer optional

👉 It is urgent, achievable, and essential

6.2 Thank You

Thank you all for your attention.

Special thanks for your kind invitation to:

Mary Holland, Esq.

Ms. Filomena Lafforgia

Dr. Gary Goldman

And to **Eileen Dannermann**, for

introducing me to this wonderful group.