

The Food and Vitamin Controversy



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Published data continue to validate the favorable impact of the right **dietary** choices on healthy **longevity**. Yet many influencers proclaim you can obtain all the **nutrients** you need from **food**.

These assertions are often based on studies demonstrating benefits of **healthy diets**, such as a **2018** publication showing a **25% lower** risk of cardiovascular disease in women with the *greatest* adherence to a **Mediterranean diet**, compared to the *lowest* adherence.¹

A **2024** study published in the *Journal of the American Medical Association* corroborates this. It showed **23% reduced** all-cause **mortality** in a large group of women with the *highest* adherence to a **Mediterranean diet** over a multi-decade period.²

These data sets demonstrate the benefits of ingesting health-promoting foods as opposed to the **toxic** ones that dominate today's dietary patterns.

This has little relevance, however, to the scarcity of critical **nutrients** contained even in the best diets.

"As long as a person's diet falls within a wide range of what medical professionals consider balanced, it's unlikely they would benefit from any dietary supplement."³

David Seres, MD, ScM, PNS, is a professor in the Department of Medicine and Institute of Human Nutrition at Columbia University Vagelos College of Physicians and Surgeons.

When nutrition experts claim people can get their **nutrients** in a "balanced diet," they appear unaware of how little of these nutrients are contained in foods. They also seem to not fully realize how few Americans ingest the wide variety of nutrient-dense foods they espouse.

We at **Life Extension** long ago advocated healthy dietary practices but also warned of the strikingly low potencies of **nutrients** contained in foods.

This editorial quotes those who claim that **supplements** are unnecessary and reveals the inadequate **potencies** of nutrients derived from **foods**.

"As far as nutrition, we should get those [nutrients] by consuming 30 different types of plants per week. It's better to get them from real food than from supplements and additives."⁴

Eric Schlosser, author of "Fast Food Nation: The Dark Side of the All-American Meal."

The media reports on studies showing the life-shortening impact of **ultra-processed** foods that now dominate the Standard American Diet (SAD).⁵

The data sets are consistent, with the most startling study showing that people with the *highest* intake of **ultra-processed** foods are **62% more** likely to **die** over a **15-year** period as compared to those with a low intake.⁶

The life-shortening culprits in **ultra-processed** foods include all kinds of artificial compounds and natural ones like sugars and salt.

Nutritional professionals point out that **ultra-processed** foods are low in essential nutrients such as fiber, vitamins, and minerals, leading to increased risk of **chronic diseases**.⁷ These experts state that people can mitigate these risks by eating a healthier, balanced diet.

The problem is that nutrient **potencies**, even in most healthy foods, do not add up to what many experts believe are needed.

“Supplements may offer some modest compensation for deficiencies of diet, but no supplement can do for the immune system what a balanced diet of wholesome foods can do.⁸ Supplements are not a substitute for a good diet.”⁹

Dr. David Katz is the founding director of the Yale-Griffin Prevention Research Center and an expert in nutrition and preventive medicine.



Vitamin D

Vitamin D is the most widely recommended nutrient by physicians due to its multiple roles, including in protecting against **age-related** pathologies.

The minimal blood level of *25-hydroxyvitamin D* to achieve protective effects is **30 ng/mL**.¹⁰ Levels below **20 ng/mL** are considered deficient.

Many experts view **40 to 60 ng/mL** of *25-hydroxyvitamin D* as optimal ranges.¹¹ We at **Life Extension** believe **50-80 ng/mL** may confer the greatest benefits.

A randomized controlled trial published in **2022** showed that in people over age 70, supplementing with **2,000 IU/day** of **vitamin D** combined with an **omega-3** supplement and modest exercise reduced their risk of **invasive cancer** by **61%**.¹²

In a **2023** published meta-analysis of three randomized-controlled trials, people **supplementing** with vitamin D and maintaining a *25-hydroxyvitamin D* level of at least **50 ng/mL** reduced their absolute three-year risk for diabetes by **18.1%** compared to those who had *25-hydroxyvitamin D* levels between **20-29 ng/mL**.¹³

To achieve these *higher* beneficial ranges may require **2,000 to 8,000** International Units (IU) per day of **vitamin D**. The dose depends on body weight and individual absorption/utilization rates.

One of *highest* dietary sources is **sockeye salmon** which provides approximately **570 IU** of **vitamin D** per **3-ounce** serving.¹⁴

Other commonly consumed dietary sources of vitamin D have lower potencies as follows:¹⁵

- **SARDINES:** Approximately **164 IU** per 3-ounce serving
- **TUNA:** Approximately **231 IU** per 3-ounce serving
- **SOY MILK:** Approximately **119 IU** per cup
- **MILK:** Approximately **117 IU** per cup
- **FORTIFIED ORANGE JUICE:** Approximately **100 IU** per cup
- **EGGS:** Approximately **44 IU** per egg¹¹

If a person attempted to ingest even minimum amounts of vitamin D from **foods**, he or she would have to ingest **sockeye salmon** each day, plus lots of high-calorie/glucose-spiking foods and beverages, some of which are considered “processed.”

Low-cost **supplements** provide individualized **vitamin D** doses without unwanted calories. Yet, experts claim humans can get enough vitamin D from a “balanced diet,” which mathematically does not make sense.

“Unless there’s a medically identified deficiency, there’s no scientific evidence to show that supplements make healthy people healthier.”¹⁶

Marion Nestle is a professor of nutrition, food studies, and public health at New York University and a well-known author on food politics and health.

Difference Between Processed and Ultra-Processed

Processed foods are those that have been altered from their natural state for safety reasons or for convenience. This includes processes like milling, pasteurizing, cooking, and canning.^{24,25}

Ultra-processed foods go through multiple stages of processing and often contain additives such as preservatives, sweeteners, artificial colors, and flavors. They are typically ready-to-eat or ready-to-heat and have a long shelf life.^{24,25}

The public is increasingly warned to reduce their intake of **processed** and **ultra-processed** foods, yet these toxic food groups continue to be overconsumed.



Coenzyme Q10

Coenzyme Q10 (CoQ10) plays a crucial role in **mitochondrial energy** production, but CoQ10 levels decline with normal aging and/or statin drug use.¹⁷

Since its introduction to the United States in **1983**,¹⁸ CoQ10 **potencies** and **absorption** qualities have substantially increased. Aging individuals often take **100 mg** a day (and higher) of CoQ10 supplements that are formulated to deliver more CoQ10 to the bloodstream.

A clinical study showed that healthy people taking **100-150 mg** of **CoQ10** daily had reduced fatigue and improved **energy** levels.¹⁹

Clinical studies have also found that those with **heart failure** taking *higher* dosages had reduced their cardiac symptoms and lessened major vascular events.²⁰⁻²²

To obtain **113 mg** of regular CoQ10 in the diet, a person would have to ingest **2.2 pounds** of **beef heart** every day. Another way of obtaining around **100 mg/day** of CoQ10 is to eat around **4.4 pounds** of **beef liver**. Neither of these options makes sense to me.

Other **dietary** sources of **CoQ10** are:²³

- **BEEF MUSCLE:** Approximately 40.1 mg/kg* (35 oz)
- **PORK MUSCLE:** Approximately 45 mg/kg (35 oz)
- **SARDINES:** Approximately 64.3 mg/kg (35 oz)
- **MACKEREL:** Approximately 67.7 mg/kg (35 oz)
- **SPINACH:** Approximately 10.2 mg/kg (22 cups)
- **BROCCOLI:** Approximately 8.6 mg/kg (13 cups)
- **PEANUTS:** Approximately 26.7 mg/kg (8 cups)
- **SOYBEAN OIL:** Approximately 279 mg/kg (35 fl oz)

*Note a kilogram (kg) is **2.2 pounds** of food, which is a lot of **calories!**

I doubt anyone reading this article could come close to ingesting the **pounds** of **food** needed to obtain **100 mg** of **coenzyme Q10**.

Can anyone imagine drinking a **pound** of **soybean oil** to acquire **100 mg** of CoQ10? Soybean oil can be classified as “processed” or “ultra-processed,” depending on the extent of industrial processing it undergoes.

Yet, what has become a virtual cliché in the conventional world, **supplements** are not needed, and it is better to obtain vital nutrients via one’s **diet**.

Lutein and Zeaxanthin

Lutein and **zeaxanthin** are carotenoids that are important for maintaining vision. They may help reduce the risk of **macular degeneration** and cataracts.²⁶

The average American ingests **1-2 mg** of **lutein** a day. If the person eats lots of spinach, kale, and collard greens, daily lutein intake can increase to around **10 mg/day**, which may confer protective effects.²⁷

Zeaxanthin is contained in lutein-rich foods and different colored vegetables. The average American dietary intake of zeaxanthin is **1 to 3 mg**, which is close to what meaningful protective dietary levels may be.²⁸

In the instance of lutein and zeaxanthin, it is possible to obtain enough from dietary sources, provided one can ingest these vegetables virtually every day.

Published studies show that people who regularly consume spinach and collard greens have lower levels of age-related **macular degeneration**.^{29,30}

A meta-analysis of 46 different studies evaluated the effects of **lutein** and **zeaxanthin** from diet or supplements. The findings revealed that an intake of

less than **5 mg** per day **lutein** and **zeaxanthin** was not enough to improve a marker of macular health. However, increments of **5-20 mg** per day did result in significant improvements and even greater improvements were observed at a total daily intake of **20 mg** or more.³¹

Meso-Zeaxanthin

Meso-zeaxanthin is a carotenoid that makes up about one-third of our **macular density**.

Unlike lutein and zeaxanthin, **meso-zeaxanthin** is not typically present in most foods in significant amounts. Instead, it is primarily formed in the retina by the conversion of lutein.

With age, conversion of **meso-zeaxanthin** from lutein in the retina diminishes, which is why it is included in some eye health supplements that target macular health.

Those who rely on **diet** alone to maintain **macular density** may be deficient in the **meso-zeaxanthin** carotenoid.

***“If we have a well-balanced diet consisting of lean proteins, whole grains, fruits and vegetables, then we should find that we don’t necessarily need vitamins or have supplements on board.”**³²*

Fatima Cody Stanford, MD, MPH, MPA, an obesity medicine physician-scientist at Massachusetts General Hospital and Harvard Medical School.



Vitamin K

The intake of **vitamin K** in the typical American diet is estimated to be around **90-120 mcg** per day. This is more than sufficient to enable healthy blood coagulation.³³

Vitamin K's other effects are maintaining **calcium** in **bone** and reducing **calcium infiltration** into arteries and heart valves.

These beneficial effects require *higher* vitamin K intake, along with intestinal conversion of vitamin **K1** from plants to the more active vitamin **K2** (found in natto, cheese, dairy, and meats).³⁴

A randomized-controlled trial found that for people with coronary artery **calcification** who were taking daily multivitamins, adding **500 mcg** of vitamin K1 daily led to a **6%** decrease in their three-year coronary disease progression compared to those taking only the multivitamin.³³



Vitamin K2 is considered the most active form, and some K1 is converted to K2 in the body.³⁴

Vitamin K2 supplement doses start around **100 mcg/day** and increase to **45,000 mcg/day**.³³

Major sources of vitamin **K1** in the diet:¹¹

- **KALE:** Approximately 493 mcg per cup, raw³⁴
- **SPINACH:** Approximately 121 mcg per cup, raw³⁴
- **BROCCOLI:** Approximately 220 mcg per cup, cooked³⁴
- **BRUSSELS SPROUTS:** Approximately 156 mcg per cup, cooked³⁵
- **LETTUCE:** Approximately 44 mcg per cup, raw³⁴
- **ASPARAGUS:** Approximately 45 mcg per cup, cooked³⁵

Major sources of vitamin **K2** in the diet:³³

- **NATTO** (fermented soybeans): Approximately 1,000 mcg per 100 grams
- **CHEESE:** Varies significantly; generally, around 8-10 mcg per 100 grams

If one eats lots of healthy plant foods, they get plenty of vitamin **K1**. The question is how much K1 gets converted to **K2**.

Some vitamin K1 is converted to vitamin K2 in the body, but the efficiency of this process is limited. To ensure optimal amounts from dietary sources, it would be important to consume vitamin K1 from vegetables and vitamin K2 from fermented foods or animal products.³⁶

Fermented foods do not comprise a large part of American diets and health-conscious people often seek to reduce intake of animal products.

Vitamin K2 supplements provide an alternative/addition to dietary sources.

“For most people, they don’t need multivitamins or supplements. If you have a well-balanced diet, you don’t need a multivitamin or a supplement.”³⁷

Dr. Matthew Silvis, vice chair of clinical operations for Penn State Health Family and Community Medicine and medical director of primary care sports medicine for Penn State Health.



Taurine

Taurine is a low-cost amino acid that may be one of the most important **anti-aging** interventions available today.

A major study published in the journal **Science** (June 2023) revealed:³⁸

- **Taurine** blood levels plummet in mice and people with age.
- The median **lifespan** of **taurine**-treated mice was **10%-12% longer** than controls. Life expectancy at **28 months** increased by **18%-25%**.
- Middle-aged mice receiving **taurine** had less body fat and more bone mass.
- **Taurine**-fed mice perform better in muscle strength, endurance, coordination, and insulin sensitivity.
- Blood levels of **taurine** are **80% lower** in elderly **humans** relative to **youth**.
- Lower taurine levels in **humans** were found to be associated with **age-related** problems.

Older people need about **3,000 to 5,000 mg** per day of **taurine** to restore *youthful* levels and attempt to emulate the pro-longevity study published in **Science**.^{39,40}

The typical American diet, however, provides only **100-180 mg** of **taurine** each day, mostly from meat, eggs, dairy, and seafood.

Those who follow strict plant-based diets (vegetarians/vegans) only obtain about **17 mg** of taurine each day.⁴¹



In the case of **taurine**, it is not possible to safely obtain *high* doses from dietary sources.

Experts Should Do the Math!

It's hard for people to abstain from habitual clichés, even when the **math** proves the concept incorrect.

As it relates to the **quantities** of **nutrients** obtainable from **dietary sources**, they are often inadequate to meet even minimally recommended daily intake, let alone the **optimal** levels that published studies indicate help confer healthier **longevity**.

Until the low potencies of **nutrients** in foods become more widely understood, even otherwise credible influencers who advocate **disease-preventing** foods will continue to confuse consumers.

For longer life,

William Faloon, Co-Founder
Life Extension

“Cobern explained that, when possible, it's best to get vitamins and minerals from your diet, focusing on increasing vegetable intake and limiting red meat consumption, rather than relying solely on a supplement.”⁴²

Dr. Jade A Cobern, MD, MPH, board-certified physician in pediatrics and general preventive medicine.

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