

Optimal Nutrient Potencies Safely Improve Overall Health and May Reduce or Reverse Premature Aging

Optimal potencies of supplemental vitamins and minerals dramatically improve overall health, while reducing unnecessary, accelerated or premature aging. These dosages are generally higher potencies, as you will see as you read through this summary of studies.

Although growing older is inevitable, many people age faster than they have to, usually in part because of a lifetime of essential nutrient deficiencies, which can be addressed by simply taking an optimal potency multivitamin regularly.

Surveys confirm that over 90% of Americans don't get all the daily essential nutrients that keep us healthy from diet alone.¹

As we will see from this summary of dose-comparison studies, improvements in multiple aspects of health with reductions in the degenerative effects of aging confirm the benefits of higher, more optimal supplemental nutrient potencies.

As superior nutrition has become more available to humans, we have seen improvements in mental and physical human performance and quality of life and an increase in healthy human lifespan.

About 7,000 years ago, average human life expectancy was about 20 years and only increased to 25 years by about 500 years ago. About 100 years ago average human life expectancy increased to 45 years.

Today, average American human life expectancy is about 78.7 years² and increasing rapidly as superior nutrition and the information about it becomes more available to more people.

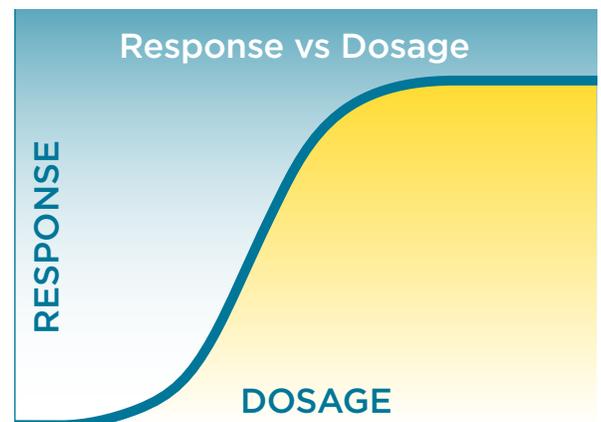


A LOOK AT THE SCIENCE BEHIND VITAMIN AND MINERAL POTENCIES THAT SUPPORT OPTIMAL EVERY DAY AND LONG-TERM HEALTH

Dose-effectiveness is defined as the principle that vitamins and minerals, like foods and medicines, deliver optimal benefits in specific potencies. Over 25,000 studies in the National Library of Medicine illustrate this principle, including the ones we discuss below.

In "Some Rules for Studies Evaluating Nutrient Effects,"³ Dr. Robert E. Heaney, Creighton University professor and publisher of over 380 nutrient studies since 1956, underlines that nutrient dose responses consistently show an S-shaped (sigmoid) curve, where a small amount of the nutrient exhibits little in beneficial effects.

As potency increases, the beneficial effects increase until a dosage is reached where these responses level off and no additional benefits occur even if the dosage increases. This pattern means that higher nutrient potencies deliver greater benefits up to a certain dosage.



CALCIUM AND BONE HEALTH

The average American diet provides approximately 600 to 700 mg of calcium from food per day. All available published scientific studies show that adding only low doses of supplemental calcium (regardless of type or form) are not effective for building bone for people who typically lose bone, such as postmenopausal American women.

WOMEN CAN IMPROVE BONE DENSITY BY SUPPLEMENTING WITH 1,000 MG OF DAILY CALCIUM

A 2-year placebo-controlled trial of postmenopausal American women showed that participants who consumed an average daily food calcium intake of 683 mg experienced 3% bone loss. A second group consumed an average of 345 mg of extra calcium by

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drinking 4 glasses of milk per day (for a total of 1,028 mg of calcium). They lost less bone, -1.5%, but they still lost bone because this amount of calcium wasn't enough. Thus, we see a trend—more calcium equals less bone loss. A third group that supplemented their diet with 1,000 mg of daily calcium carbonate (for a total of 1,683 mg of calcium) gained +3.7% in their spinal bone density and +3% in their hip bone density.⁴ They had 4.8% more total bone density than the placebo group after 2 years. These women not only reduced age-related bone loss as calcium dosing increased, but they gained more bone density when they consumed an optimal potency of supplemental calcium.

AS AGE INCREASES HIGHER CALCIUM POTENCIES SHOULD BE CONSIDERED: 1,300 TO 2,400 MG PER DAY

Another study conducted by calcium authority, Dr. Robert Heaney, looked at senior women and men and concluded, *"...supplemented [calcium] intakes of 1,300 to 1,700 mg per day have been shown to arrest age-related bone loss and to reduce fracture risk in individuals 65 and older and intakes of 2,400 mg, to restore the setting of the parathyroid glands to young adult values."*⁵ *"Restoring the setting of the parathyroid glands to young adult values"* helps bones retain calcium.

HEALTHIER NEWBORN BABY'S BONES: SUPPLEMENTAL CALCIUM AT 1,200 MG OR MORE PER DAY

While a calcium dose of 1,000 mg or more is important for bone health for senior women, a double-blind, placebo-controlled study of 256 pregnant women showed that if women who ate an average American diet that provided less than 600 mg of calcium per day were given 1,200 to 2,000 mg of supplemental calcium carbonate per day, their babies were born with about 15% more total body bone mineral content than women who took less than 1,200 mg of daily calcium. This study showed no adverse effects, even when mothers consumed 3,000 mg and more of supplemental calcium carbonate per day.⁶

VITAMIN B6 AND PMS

HIGHER DOSES REDUCE PMS DISCOMFORT WHILE LOWER DOSES DO NOT: 100 TO 200 MG A DAY

A study of 630 women showed that while 40 mg of vitamin B6 produced no significant reduction in PMS discomfort, 100 to 150 mg reduced PMS discomfort in about 66% of the women, while 160 to 200 mg of Vitamin B6 reduced PMS discomfort in about 79% of the women.⁷

VITAMIN C AND BONE HEALTH

HIGHER DOSES IMPROVE BONE DENSITY AND REDUCE RISK OF FRACTURES: 1,000 TO 5,000 MG

A 3-year study showed that postmenopausal women who took 1,000 to 5,000 mg of supplemental vitamin C per day had 5% greater spinal bone density than women who took 500 mg or less.⁸ Vitamin C stimulates the production of bone collagen,⁹ which increases bone density and gives bone its flexibility and the ability to absorb impact without fracturing. That's one reason that higher supplemental vitamin C intake has been shown to reduce the rate of bone fractures in seniors.¹⁰

VITAMIN C AND LIFESPAN

INCREASED HUMAN LIFESPANS: VITAMIN C AT 800 MG PER DAY

One of the first human studies that demonstrated increased human lifespans showed that men who took 800 mg of vitamin C per day lived an average of 6 years longer than men who consumed 60 mg per day, vitamin C's Recommended Daily Value.¹¹

VITAMIN D₃ AND BONE HEALTH

OPTIMAL POTENCIES REDUCE FRACTURES AND FALLS AND CAN IMPROVE CALCIUM ABSORPTION

A major review of scientific studies since 1960 found that 700 to 800 IU of supplemental vitamin D reduced bone fractures 23 to 26%, while 400 IU was not sufficient for fracture prevention.¹² Vitamin D improves muscle function and strength. That's why another study showed that 800 IU per day reduced the risk of falls that cause fractures for seniors by 72%, where lower doses had no effect.¹³ Vitamin D improved their muscle function, so they fell less. Optimal vitamin D status can also improve calcium absorption by as much as 65% for people deficient in vitamin D.¹⁴

VITAMIN D₃ AND PRENATAL HEALTH

4,000 IU PER DAY REDUCES PRETERM BIRTHS BY HALF

A randomized, controlled trial of vitamin D doses of 400, 2,000 and 4,000 IU showed that the pregnant women who took 4,000 IU of daily vitamin D experienced half as many preterm deliveries as the groups taking lower doses.¹⁵

VITAMIN D₃ AND LIFESPAN

2,000 IU PER DAY INCREASED LIFESPANS BY 7%

A meta-analysis of 18 randomized controlled trials with daily doses of 300 to 2,000 IU concluded that having enough vitamin D reduced total mortality by 7%. Thus, vitamin D joins the list of antiaging nutrients, when potency is high enough.¹⁶

VITAMIN E AND HEART HEALTH

OPTIMAL DOSES PROTECT ARTERIAL HEALTH WHILE LOWER DOSES DO NOT

Vitamin E is one of the body's main protectors against increased oxidation that can damage the cardiovascular system. Two studies taken together showed that increasing doses of vitamin E progressively decreases the oxidation of LDL cholesterol that can precede the formation of plaque in the arteries. While 60 and 200 IU of Vitamin E did not significantly reduce LDL oxidation, 400 and 800 IU reduced LDL oxidation by 25 and 58%, respectively.^{17,18}

FOLIC ACID AND PRENATAL HEALTH

REDUCING BIRTH DEFECTS WITH 400 TO 4,000 MCG

Folic acid reduces the risk of neural tube birth defects in a dose-dependent manner. One study showed a reduction of 40 to 75%, with 400 mcg reducing birth defects by 40%, 1,000 mcg by 50%, and 4,000 mcg by 75%.¹⁹ Taking supplemental, isolated USP-type folic acid is all the more important when considering that it absorbs about 40% better than folate found in foods.²⁰

FOLIC ACID AND MEMORY

IMPROVED MEMORY WITH 800 MCG: AGES 50 TO 70

A 3-year double-blind, placebo-controlled trial of 818 men and women, aged 50 to 70 years, showed that, compared to placebo, participants who took an 800 mcg folic acid supplement had improvements in 3 areas that commonly worsen with age, including improved memory (13% better memory scores), improved information processing (about 8% better), and improved nervous system processing (6% better sensorimotor speed).²¹

ZINC AND MEMORY

IMPROVED MEMORY FOR MIDDLE-AGED AND OLDER ADULTS: 30 MG A DAY

Zinc supplementation at 30 mg a day improved spatial working memory in a study of 387 American adults, aged 55 to 87 years, with some effects superior compared to 15 mg a day.²²

IMPROVED MEMORY, WORD RECOGNITION AND SUSTAINED ATTENTION FOR 7TH GRADERS

A placebo-controlled study of 209 7th graders compared daily zinc supplementation of 20 mg, 10 mg and a placebo group that took no zinc. It showed that 20 mg of daily zinc decreased reaction time by 12 vs 6% in the placebo group in a visual memory task, increased “percent correct” by 9 vs 3% in the placebo group on a word recognition task, and increased the percentage of “target detections” by 6 vs 1% in the placebo group in a sustained attention (vigilance) task. Ten milligrams of zinc was not effective, except that girls taking zinc had 10% less conduct problems than girls taking placebo.²³

NIACIN AND AGING

REVERSING AGING IN MICE: HUMANS STUDIES ARE NEXT

A ground-breaking study published in the December 2013 issue of *Cell* showed that nicotinamide adenine dinucleotide (NAD⁺) returned the cellular mitochondria of 22-month-old mice to those of 6-month-old mice.²⁴ This profound reversal of aging caused the researchers to call it the equivalent of turning a 60-year old into a 20-year old. Researchers were so excited by this finding that they are planning human studies.

The backbone of the NAD⁺ molecule is niacin,²⁵ the primary nutrient that SuperNutrition has championed for over 36 years. We recognized long ago that optimal potencies of niacin exhibited antiaging effects, including supporting cardiovascular health and improving cognitive functions. For instance, a moderate dose of niacin (425 mg/day) has been shown to improve memory test scores and sensory register by as much as 40%.²⁶

MULTIVITAMINS AND MOOD

TEN TIMES RDA IMPROVES MOOD, SLEEP AND REACTION TIMES

A double-blind, placebo-controlled 1-year study of 129 students showed that participants who took a multivitamin with 10 times the RDA potency of vitamins B1, B2, B3, B6, B12, C, E, and biotin had better reaction times, better mood, and more restful sleep, and described themselves as more agreeable and better composed.²⁷

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SUMMARY

So we see that optimal nutrient potencies that produce optimal effects are, in general, higher potencies, where lower potencies do not deliver the same health benefits. Also important to note is that each of the higher potencies that produce optimal effects have been shown to be safe, as seen in the following Vitamin and Essential Mineral Safety Table. These levels have been established by the US Government, Food and Nutrition Board of the Institute of Medicine and the Pharmacy Times Vitamin Safety Index.

Vitamin and Essential Mineral Doses and Safety

DV: DAILY VALUE (Previously RDA - Recommended Daily Allowance)

US Government-recommended level for prevention of deficiency diseases. These dosages represent the minimum amount necessary for good health as determined by the National Academy of Sciences Institute of Medicine, acting for the US Government. New nutritional research is leading some researchers and clinicians to estimate that these doses may not be high enough to support optimal health in today's stressful world.

LOAEL: LOWEST OBSERVED ADVERSE EFFECT LEVEL

No adverse effects ever reported below this level. These dosages were determined by the Food and Nutrition Board of the Institute of Medicine to be safe for almost everyone, but "may require the application of a safety factor to calculate safe intake" for people with unusual vitamin or mineral sensitivities.

MTD: MINIMUM TOXIC DOSE

No deaths reported, but some kind of toxicity is possible from one single dose at this level. These dosage levels were published by John Hathcock, PhD in Pharmacy Times Vitamin Safety Index, May 1985, as conservative estimates of the minimum doses that may cause toxic effects (side effects).

NUTRIENT		DV	LOAEL	MTD
Vitamin A	IU	5,000	21,600	25,000-50,000
Vitamin C	MG	60	None Found	None Found
Vitamin D	IU	400-600	4,000	50,000
Vitamin E	IU	30	None Found	None Found
Vitamin K	MCG	80	None Found	None Found
Thiamine (B1)	MG	1.5	None Found	300
Riboflavin (B2)	MG	1.7	None Found	1,000
Niacin (B3)	MG	20	1,000	1,000
Niacin Slow-Release	MG	20	500	1,000
Niacinamide (B3)	MG	20	3,000	None Found
Pyridoxine (B6)	MG	2	500	2,000
Folic Acid	MCG	400	None Found	400,000
Vitamin (B12)	MCG	6	None Found	None Found
Biotin	MCG	300	None Found	50,000
Pantothenic Acid (B5)	MG	10	None Found	10,000
Calcium	MG	1,000	5,000	12,000
Phosphorus	MG	1,000	2,500	12,000
Iron	MG	18	100	100
Iodine	MCG	150	None Found	2,000
Magnesium	MG	400	None Found	6,000
Zinc	MG	15	60	500
Selenium	MCG	70	910	1,000
Copper	MG	2	None Found	100
Manganese	MG	2	None Found	None Found
Chromium (III)	MCG	120	None Found	None Found
Molybdenum	MCG	75	None Found	None Found

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