

## VITAMIN AND ESSENTIAL MINERAL SAFETY TABLE

### Vitamin and Essential Mineral Doses and Safety

**DV: Daily Value (Previously RDA - Recommended Daily Allowance)**

U.S. Government recommended level for good health and prevention of deficiency diseases. These dosages represent the minimum amount necessary for good health as determined by the National Academy of Sciences, acting for the U.S. 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 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	3,800	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

*SuperNutrition is a family owned and operated vitamin company founded in 1977 in the San Francisco Bay Area. We strive to produce the most effective, comprehensive, optimal potency multi-vitamin formulas because we are passionate about improving people's health. We welcome your questions and comments.*

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**References**

*These studies are all publicly available, and can be located on the internet by searching by title and the first author's name.*

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# Vitamin & Mineral Doses Safety & Effectiveness



**Optimal Levels  
of Nutrients**

**Health Benefits**

**Dose-Effective  
Potencies**

**Bone Health**

**Heart Health**

# Super Nutrition

Scientifically Proven Potencies

**Formulas You Feel**

San Francisco Bay Area

Family Owned & Operated Since 1977

Some of our customers ask whether higher doses of vitamins and minerals are more effective than Daily Value (DV or RDA) levels, and inquire about the safety of higher levels of nutrients. This document examines both these questions in the light of independent scientific research about optimal vitamin and mineral dosages.

## Dosing & Effectiveness

### Higher Doses Are Required to Support Optimal Long-Term Health

Dose-effectiveness is defined as the principle that vitamins and minerals, like foods and medicines, deliver optimal benefits in specific amounts. There are over 20,000 studies in the National Library of Medicine that illustrate this principle, including those we discuss below.

## Calcium

The average American diet provides approximately 600 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 are losing bone.

### Women Need 1,000 mg of Supplemental Calcium

A two-year placebo-controlled study of postmenopausal American women consuming an average daily food calcium intake of 683 mg showed that those who received only their dietary calcium had 3% bone loss.<sup>1</sup> When 345 mg of calcium was added by drinking four glasses of milk per day (for a total of 1,028 mg of calcium) bone loss dropped to 1.5%. Those who supplemented with 1,000 mg of calcium as 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.

### As Age Increases Higher Calcium Doses Are Needed

Another study of senior women and men stated "...supplemented intakes [of calcium] of 1,300 to 1,700 mg per day have been shown to arrest age-related bone loss and to reduce fracture risk in people 65 and older" while lower doses have not been shown to be effective.<sup>2</sup>



## Better Baby's Bones

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 also given 1,200 mg or more of supplemental calcium carbonate per day, their babies were born with about 15% more total body bone mineral content than women who took less calcium.<sup>3</sup> This study showed no adverse effect on their babies' bones, even when mothers consumed 3,000 mg of supplemental calcium carbonate per day.



## Vitamin B6

### Higher Doses Reduce PMS Symptoms while Lower Doses Do Not

A study of 630 women showed that while 40 mg of vitamin B6 produced no significant benefit, 100 mg to 150 mg reduced PMS symptoms in about 66% of the women, while 160 mg to 200 mg of Vitamin B6 reduced PMS symptoms in about 79% of the women.<sup>4</sup>

## Vitamin C

### Higher Doses Improve Bone Density

A three-year study showed that senior 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.<sup>5</sup>

## Vitamin D

### Optimal Potencies Reduce fractures & Improve Calcium Absorption

A major review of scientific studies since 1960 found that 700-800 IU of supplemental vitamin D reduced bone fractures 23% to 26%, while 400 IU was not sufficient for fracture prevention.<sup>6</sup> Optimal vitamin D status can improve calcium absorption by as much as 50%.<sup>7</sup>

(references and chart on back panel)

## Vitamin E

### Optimal Doses Protect Cardiovascular 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. Increased oxidation rates are involved in many of the major diseases, including cardiovascular disease. Two studies taken together showed that increasing doses of vitamin E progressively decreased the oxidation of LDL cholesterol that can precede the formation of plaque in the arteries.<sup>8,9</sup> While 60 IU and 200 IU of Vitamin E did not significantly reduce LDL oxidation, 400 IU reduced oxidation by 25% and 800 IU reduced oxidation by 58%.<sup>9</sup>

## Folic Acid

### Reduced Birth Defects

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%, 1000 mcg by 50%, and 4000 mcg by 75%.<sup>10</sup>



### Improved Male Fertility

Folic acid doses between 722 and 1150 mcg improved male fertility by 20% to 40% over lower doses, such as the 400 mcg RDA. Folic Acid worked by reducing sperm aneuploidy, which may be responsible for as many as one third of all miscarriages, and can cause children to be born with Down Syndrome and other rare chromosomal disorders.<sup>11</sup> Taking supplemental, isolated USP-type folic acid is all the more important when it is considered that supplemental USP-type folic acid absorbs about 40% better than folic acid in foods.<sup>12</sup>

## Multi-Vitamins

### Ten Times RDA Improves Mood, Sleep & Reaction Times

A double-blind, placebo-controlled one-year study of 129 students showed that those who took a multi-vitamin with ten 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.<sup>13</sup>