

## Vitamin-Mineral Interactions

By Deanna Minich, PhD

For many body processes to function optimally, you must have the right balance of essential nutrients. A deficiency in one might exacerbate a deficiency in another. Other nutrients are antagonists and may negatively impact the absorption of each other. The chart below indicates interactions among essential nutrients. Please note that this refers to high doses of nutrients; the moderate nutrient levels in multivitamins are not enough to trigger these interactions. For details on the interactions between these nutrients, read the full blog at [DeannaMinich.com](http://DeannaMinich.com).

Nutrient	Synergistic Relationship	Varies Based on Nutrient Levels	Antagonistic Relationship
Vitamin A <sup>1-23</sup>	Iodine, Iron, Zinc	Vitamin E	Vitamin K, Vitamin D
Vitamin B <sub>1</sub> <sup>15, 24, 25</sup> (Thiamin)	Magnesium		Vitamin B <sub>6</sub>
Vitamin B <sub>2</sub> <sup>15</sup> (Riboflavin)			Calcium
Vitamin B <sub>3</sub> <sup>26</sup> (Niacin)	Zinc		
Vitamin B <sub>5</sub> <sup>15</sup> (Pantothenic acid)			Copper
Vitamin B <sub>6</sub> <sup>15, 25, 27-36</sup> (Pyridoxine)			Vitamin B <sub>1</sub> , Vitamin B <sub>9</sub> , Zinc
Vitamin B <sub>7</sub> <sup>15, 25, 27-36</sup> (Biotin)		Vitamin B <sub>5</sub>	
Vitamin B <sub>9</sub> <sup>15, 31, 39-43</sup> (Folic acid)			Vitamin B <sub>6</sub> , Vitamin B <sub>12</sub> , Zinc
Vitamin B <sub>12</sub> <sup>15, 39-41</sup> (Cobalamin)			Vitamin B <sub>9</sub> , Vitamin C
Vitamin C <sup>15, 44-50</sup>	Vitamin E	Copper, Iron, Selenium	Vitamin B <sub>12</sub>
Vitamin D <sup>1, 51-60</sup>	Vitamin K, Calcium, Magnesium, Selenium		Vitamin A, Vitamin E
Vitamin E <sup>1-15, 44, 45, 61-65</sup>	Vitamin C, Selenium, Zinc	Vitamin A	Vitamin D, Vitamin K
Vitamin K <sup>1, 15, 51-55</sup>	Calcium	Vitamin D	Vitamin A, Vitamin E
Calcium <sup>15, 55, 56, 65-83</sup>	Vitamin D, Potassium		Magnesium, Phosphorus, Sodium, Iron, Manganese, Zinc
Magnesium <sup>15, 24, 27-30, 57-60, 74, 84-86</sup>	Vitamin B <sub>1</sub> , Vitamin B <sub>6</sub> , Vitamin D, Potassium		Calcium, Phosphorus, Zinc
Phosphorus <sup>15, 77, 78, 86</sup>			Calcium, Magnesium
Potassium <sup>15, 69, 84, 87-94</sup>	Calcium, Manganese, Sodium		
Sodium <sup>69, 79-81, 87-94</sup>	Potassium		Calcium
Copper <sup>15, 46, 50, 95-106</sup>		Vitamin C	Iron, Molybdenum, Selenium, Zinc
Iodine <sup>15, 16, 110</sup>	Vitamin A, Selenium		
Iron <sup>15, 18, 20, 47-49, 65, 70-73, 95, 111, 112</sup>	Vitamin A, Vitamin C		Vitamin E, Calcium, Copper, Manganese, Zinc
Manganese <sup>75, 76, 111, 112</sup>			Calcium, Iron
Molybdenum <sup>94</sup>			Copper
Selenium <sup>15, 57, 61-64, 97, 98, 110</sup>	Vitamin D, Vitamin E, Iodine	Vitamin C	Copper
Zinc <sup>15, 21-23, 26, 35, 36, 42, 43, 73, 82, 83, 85, 99-109</sup>	Vitamin A, Vitamin B <sub>3</sub>		Calcium, Magnesium, Copper, Iron
Sulfur <sup>113</sup>	Molybdenum		

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