

## Vitamin D and Calcium

### Vitamin D

Vitamin D is a fat-soluble vitamin that is naturally present in very few foods. It is produced in the body when ultraviolet rays from sunlight strike the skin and trigger vitamin D synthesis. Vitamin D is necessary for calcium absorption in the intestine and is important for bone growth. Together with calcium, vitamin D helps prevent osteoporosis. Due to increased use of sunscreen and less time spent outdoors, the current recommendation is to supplement vitamin D 1000 IU/day. If you are taking vitamin D by itself (without calcium), you can take 10,000 IU/week as a single dose.

### Dietary Calcium

Women need 1200 mg of calcium each day. If nutritional calcium intake is not adequate, calcium is taken from the bone or teeth to maintain the blood calcium level and osteoporosis may occur. Dietary sources of calcium include:

<b>Milk/Milk Products (1 cup)</b>	<b>Ca in mg.</b>	<b>Fish (3 oz)</b>	<b>Ca in mg.</b>
2% fat milk	352	Sardines, canned with bones	372
Skim milk (nonfat)	296	Salmon, canned with bones	167
Whole milk	288	Oysters	81
Plain yogurt	272		
Low-fat yogurt	452	<b>Fruits</b>	
Nonfat yogurt	451	Dried figs (5 medium)	135
Ice Cream	104	Almonds (10 g)	165
		Fruit juice – orange fortified	300
<b>Cheese</b>		<b>Vegetables (1/2 cup)</b>	
Swiss cheese	262	Broccoli	158
Cheddar	213	Collard greens	145
American	198	Dandelion greens	126
Edam	208	Spoon cabbage or bok choy	126
Gruyere	287		
Ricotta ½ cup	335		

Other food sources of calcium are fortified breads and cereals. High fat dairy products should be avoided. Foods are the best source of usable calcium. If you are unable to obtain all the necessary calcium from your diet, consider taking a calcium supplement.

### Calcium Supplements

The amount of "elemental calcium" refers to the amount of calcium in a supplement that's available for absorption. Elemental calcium is bound to carbonate, citrate, or gluconate. It is important to read the label carefully to determine how much elemental calcium is in the supplement and whether to take the calcium with a meal or on an empty stomach.

For best absorption, it is recommended to consume only 500-600 mg of calcium at one time. More than 2500 mg of calcium per day may cause kidney stone formation. Avoid taking calcium supplements at the same time as any medication that needs to be taken on an empty stomach. Don't take calcium at the same time as tetracycline (an antibiotic), iron supplements, thyroid hormones, or corticosteroids, because calcium binds to these substances, interfering with their effectiveness and also its own absorption. Consider calcium citrate supplements over other calcium carbonate supplements if you take proton pump inhibitors (PPIs) such as Prevacid®, Prilosec® and Nexium®. Because these medications block stomach acid, your body may better absorb calcium citrate which does not need stomach acid for absorption.

Calcium carbonate (40% absorption) gives you the largest percentage of usable calcium. Calcium carbonate should be taken with meals or snacks to increase absorption. Calcium citrate (21% absorption) can be taken at any time. It is less likely to cause constipation than calcium carbonate.