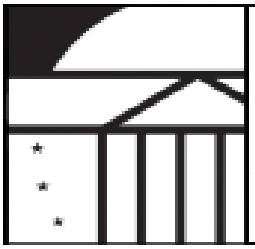

UVA Nutrition Services

UVA Digestive Health Center

Calcium, Vitamin D, and Bone Health

Why do we need calcium?
About 99% of the calcium in our bodies is in our skeletons. The rest is in our body fluids and other tissues. Calcium is vitally important for bone strength, and is also needed for muscle contraction, blood clotting, and nerve function. If your diet is inadequate in calcium, your body will take it from the bones. Loss of calcium and other minerals over time will result in softening and weakening of the bone structure.

What is osteoporosis?
- A disease in which bones lose calcium and become weak
- Increased risk for fractures, "hump-back," and loss of height

What are the risk factors for osteoporosis?

Caucasian or Asian race	Smoking
Lack of exercise	Alcohol abuse
Small bone frame, lean build, light weight	Menopause
Corticosteroid medications ("steroids")	Family history of osteoporosis
Women have 8x more risk than men	
Inadequate intake of calcium and/or Vitamin D	

How much Calcium do I need?
- Calcium needs depend on age, gender, and other factors.
- Make sure to include the calcium in the foods you eat as well as any supplements when determining your total calcium intake.

Dietary Reference Intakes (DRI's) for Calcium intake
Food and Nutrition Board, Institute of Medicine (1997)

Age and other considerations	Calcium (mg) per day
Children ages 1-3 years (yrs)	500
Children ages 4-8 yrs	800
Adolescents and young adults (9-18 yrs)	1300
Men and women (19-50 yrs)	1000
Men and women (> 51 yrs)	1200
Pregnant or lactating women $\leq$ 18	1300
Pregnant or lactating women $\geq$ 19	1000

Reading Labels

The amount of calcium in a product as listed on the food label is expressed as a percentage (%). This percentage is based on the recommended calcium intake for many adults of 1000 mg per day.

Example: A product label says the food contains 30% of the daily need for calcium: 30% of 1000 mg per day = 333 mg of calcium

These percentages are meant to be used as a guide; however, since individuals may have different calcium needs.

Calcium needs (mg)	Calcium needed per day based on food labels
1000	100 %
1200	120 %
1500	150 %

Calcium content of some foods

Calcium is often found in dairy products, although there also non-dairy sources

Food	Serving Size	Approximate Calcium Content (mg)*
Calcium fortified orange juice	1 cup	290-300
Milk	1 cup	285-300
Yogurt	1 cup	275-450
Salmon, canned, with bones	3 oz	205
Cheese	1 oz	175-275
Tofu, firm	½ cup	155-260
Ice cream	½ cup	90-135
Frozen yogurt	½ cup	105
Turnip greens	½ cup	100
Dried figs	3	80
Broccoli	½ cup	45
Soy milk**	1 cup	varies widely by brand (check label)
Fortified cereals	1 serving	varies widely by brand (check label)
Multivitamin with minerals	1 dose	0 -210

*Calcium content of foods may vary; read labels to determine the actual calcium content of a certain food.

** The nutrient content of soy milk varies greatly depending on the manufacturing process and whether the product is fortified.

Calcium Supplements

- If you are unable to get enough calcium through diet alone, calcium supplements are available. The most common types of calcium supplements are calcium carbonate and calcium citrate.

- Calcium is best absorbed in doses of 500mg or less, and if taken with meals. If you need to take more than 500mg of calcium supplements per day, consider taking several smaller doses throughout the day.

Examples of Commonly Available Calcium Supplements

Type of Calcium	Calcium (mg)	Vitamin D (IU)
Calcium Carbonate		
Tums®	200	0
Extra Strength Tums®	300	0
Tums® Ultra	400	0
Oscal® 500 + D	500	200
Oscal® 500 + Extra D[1]	500	600
Oscal® Ultra®[2]	600	500
Caltrate® 600 + D	600	400
Caltrate® 600 + D Plus Minerals[1, 2]	600	400
Viactiv® [2]	500	500
Calcium Citrate		
Citracal® regular	250	200
Citracal® Maximum	315	250
Citracal® Petites with Vitamin D	200	250
Citracal® Plus with magnesium[2]	250	125

[1]Available in chewable form.
[2]Contains additional vitamins &/or minerals; also, Viactiv® contains 20 calories per piece

Vitamin D

Why is vitamin D important?

Vitamin D helps your intestines to absorb the calcium from your food, and also helps the kidneys reabsorb it into your system. Your body can also make vitamin D in your skin after exposure to sunlight depending on the time of year, where you live and the amount of sunscreen worn. If you have a medical condition that interferes with your body's ability to absorb vitamin D, or if you are already deficient in vitamin D, you might need more vitamin D than the usual recommended amounts. If you have inadequate vitamin D in your diet, or if you do not get enough sunlight exposure, you may need a vitamin D supplement—ask your doctor.

Daily recommended vitamin D needs

Adequate Intake (AI) published by the National Academy of Sciences. Institute of Medicine. Food and Nutrition Board (1997).

Age group	**Vitamin D**	
	IU*	**micrograms (mcg)**
Children & adults up to age 50	200	5
Adults age 50 - 70	400	10
Adults over age 70	600	15

*1 microgram of vitamin D = 40 IU; IU = "International Unit"

Food sources of vitamin D include eggs (vitamin D is in the yolk), fatty fish such as herring and salmon, vitamin D fortified milk (including fortified skim and soy milk), and puddings made with milk. You will also notice a growing number of calcium and vitamin D fortified foods in your grocery store. Many breakfast cereals, orange juice, breakfast bars, soy milk, tofu, and even some margarine now contain added calcium or calcium plus vitamin D.

Some food sources of vitamin D

Food	Serving size	Vitamin D (IU)
Salmon, pink, canned	3 oz	530
Fortified milk (skim, low fat, whole, soy)	1 cup	100-120
Fortified breakfast cereals (check labels)	1 oz	40-50
Egg with yolk	1 large	21
Cheddar cheese	1 oz	3

Other considerations

If you have any of the following conditions, ask your physician if you might benefit from taking higher doses of calcium and vitamin D:

- If you are a post-menopausal woman
- If you have inflammatory bowel disease, celiac disease, or nutrient malabsorption
- If you are taking corticosteroid medications ("steroids")

You may also want to ask your doctor whether you may need a bone density study if you have any of these conditions.

Vitamin K is important for bone health, thus it is also important to eat foods that contain vitamin K, such as green leafy vegetables. If you are on the blood thinner medication, Coumadin, then discuss vitamin K with your registered dietitian or physician prior to changing your intake of vitamin K foods.

Additional Resources

For more information on Calcium and Vitamin D, see the National Osteoporosis Foundation, and the National Institute of Health websites: www.nof.org and www.nih.gov/.