

# Bone Health

## Brown Health Services Patient Education Series

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### Why is bone health important?

Building strong bones today may prevent conditions like osteopenia and osteoporosis from occurring in the future. Osteopenia is a decrease in bone mass and increases your risk of developing osteoporosis - a skeletal condition that causes weak, thin bones, and an increased risk of bone fractures.

Bone is a living, growing tissue that is constantly being remodeled, broken down, and reformed. During childhood and adolescence, the body produces bone faster than it is broken down - leading to growth and improving bone density. Many will reach their peak bone mass by the age of 25 and 30. Older adults begin to break down bone faster than it is made. If the bones are not thick and dense at the peak, an individual may be at a higher risk for developing osteopenia or osteoporosis. Hence, it is crucial that young adults “bank” enough calcium in their bones to draw on later in life.

The GOOD news is, there are things that can keep bones healthy:

- Getting enough nutrients, especially calcium and vitamin D
- Engaging in weight-bearing activities (weight lifting, hiking, jogging, dancing, etc.)
- Avoid smoking and excessive alcohol and caffeine

### Calcium and Vitamin D

Calcium is needed for bone development and maintenance, serving an important structural role. Vitamin D helps your body absorb calcium. The recommended amount of each is necessary for bone health.

College-age students need:

- 1200 mg of calcium daily
- 800-1000 IU of vitamin D intake daily

### Calcium

Dietitians recommend choosing calcium-rich foods over calcium supplements because the foods often contain other nutrients to maximize absorption of calcium.

Example of foods with high calcium include:

- Dairy foods (milk, yogurt, cheese, etc.)
- Green vegetables (kale, broccoli, etc.)
- Aim for 3-4 servings per day
- ***\*find calcium rich foods on the last page***

### Supplements:

- Take if your typical diet does not allow you to consume the recommended amount of calcium.
- Keep in mind:
  - Calcium is not as well absorbed with other supplements, especially iron.
  - Multivitamins do not have the amount of calcium needed as a supplement.
  - Over-the-counter calcium supplements exist in different compounds with various concentrations and absorption.
- *Calcium citrate*
  - A bit more expensive but generally absorbed better
  - Best absorbed with food
- *Calcium carbonate*
  - Should be taken with food
- Note:
  - Not to be taken at the same time as iron supplements
  - Adjust supplement dose based on your dietary intake of calcium to reach your daily goal.

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### Vitamin D

Although our bodies can produce vitamin D from the sun, we cannot rely on the sun to produce all the vitamin D we need. Spending too much time in the sun can be harmful. Diet is the best source of vitamin D.

Foods with high vitamin D include:

- Fortified cereals and dairy products
- Salmon
- Canned tuna

Supplements may be necessary. With vitamin D supplements, remember:

- Please discuss with your doctor on the appropriate dosing of vitamin D.
- Should be taken with a fat-containing meal for maximum absorption
- Various doses and brands can be found over the counter

### What else can I do?

Get regular physical activity, especially weight-bearing exercise.

- Why? It applies tension to muscle and bone which encourages the body to respond to the added stress by increasing bone density.
- Activities that result in repeated action of your feet hitting the ground
  - Brisk walking, jogging, racket sports, aerobic dancing
- Weight training with resistance machines or free weights also strengthens bones.
- Swimming and bicycling promotes fitness but they aren't bone builders.
- Be sure to consult with your healthcare provider or dietitian before starting a regular exercise regimen. Physical activity may not be recommended if

dietary intake and/or weight are inadequate.

Maintain a healthy weight.

- Why? If you cut back on food to cut calories, you may come up short on calcium, too.
- Being underweight or exercising too much can affect menstruation (irregular periods or none at all) by affecting hormone levels. Overexercise can overexert stress on bones, increasing the risk of injury.
- Because hormones help deposit calcium in the bones, you lose the natural protections that hormones provide against bone loss and increase your risk for osteoporosis.
- A return to normal eating and exercise patterns may lead to return of normal menstrual periods and prevent further bone loss, but those affected may live the rest of their lives with weakened bones.

Avoid smoking.

- Smoking has many negative health effects, including bone health.

Alcohol

- Excessive drinking interferes with calcium absorption.

Reduce caffeine intake.

- Two to three cups of caffeinated coffee daily has been shown to contribute to bone loss, particularly if calcium intake is low.

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### Calcium Content (approximate)

#### Milk

All types of cow's milk	1 cup	300 mg
Calcium-fortified soy milk	1 cup	300 mg
Low-lactose milk	1 cup	300 mg

#### Yogurt

Plain or flavored yogurt	1 cup	300mg
● top off your baked potato or add fruit to make a smoothie		
Plain greek yogurt	5.30 oz	170mg

#### Cheese and Ice Cream

Swiss cheese	1.5 oz	300 mg
American cheese	2 oz	300 mg
Cheddar cheese	1.5 oz	300 mg
Mozzarella cheese (skim)	1.5 oz	300 mg
● top off your salad		
Parmesan cheese, grated	1 oz	300 mg
● top off your pasta		
Low-fat cottage cheese	1/2 cup	80 mg
Typical ice cream	1/2 cup	90 mg

#### Meat/Protein Group

Canned Salmon with bones	3oz	200 mg
● good substitute for tuna		
Almonds	1/3 cup	120 mg
Tofu (calcium-fortified)	1/2 cup	150 mg

#### Vegetable Group

Kale	1/2 cup	90 mg
Beet greens	1/2 cup	80 mg
Broccoli	1/2 cup	50 mg
● Dark green vegetables are rich in calcium, but little is absorbed. However, they are a good source of vitamin K, which is also important for bone health.		

#### Fruit Group

Orange	1 fruit	50 mg
Calcium-fortified orange juice	8 oz	300 mg
● a very well absorbed source of calcium		
Figs, dried	10 figs	250 mg

#### Grain Group

Enriched English muffin	1 muffin	100 mg
4-inch Pancakes made with milk (2)		70 mg
Hamburger bun	1 bun	50 mg
6-inch corn tortilla	1 tortilla	40 mg
Calcium fortified cereal	1 cup	300 mg
● Start your day with cereal and milk		

#### Combination Foods

Cheese pizza	1 slice	220 mg
Taco Salad	1 salad	280 mg
Taco	1 taco	100 mg
Caffe Latte	12 oz	400 mg
Caffe Mocha	12 oz	300 mg
Cappuccino	12 oz	250 mg

For more information on healthy eating, go to the nutrition section of our Health Education website at [www.brown.edu/bwell](http://www.brown.edu/bwell).