

Food	Internal Temperature or State
Beef, pork, veal, lamb (chops, roasts, steaks)	145° F Let rest for 3 minutes after removing from heat
Ground meat	160° F
Ham	145° F
Poultry (ground, parts, whole and stuffing)	165° F
Eggs	Cook until yolk and white are firm
Egg dishes	160° F
Fin fish	145° F or flesh is opaque and separates easily with fork
Shrimp, lobster, crabs	Cook until flesh is pearly and opaque
Clams, oysters, mussels	Cook until shells open during cooking
Scallops	Cook until flesh is milky-white or opaque and firm
Leftovers, casseroles	165° F

If you do not have a meat thermometer:

- Cook steaks to medium-well done
- Cook ground meat, poultry, and fish to well done
- Cook eggs until the yolks are hard

Effects	Caused By	What You Can Do
Increased appetite and weight gain	Prednisone	<ul style="list-style-type: none"> - Be physically active. - Control portion sizes. - Limit high-calorie foods. - Include high-fiber foods in your diet. - Limit drinks that contain sugar. - See “Weight Control” on page 24.
Loss of muscle mass	Prednisone	<ul style="list-style-type: none"> - Eat high-protein foods. - Be physically active.
Decreased absorption of calcium and low bone density	Prednisone	<ul style="list-style-type: none"> - Eat dairy foods every day. - Your provider may prescribe calcium and vitamin D supplements. - See “Calcium and Vitamin D” on page 21.

Effects	Caused By	What You Can Do
High blood glucose	Cyclosporine Prednisone Sirolimus Tacrolimus	- Limit foods that are high in sugar, like desserts, candy, jelly, soda, and fruit juice. - Control portion sizes. - Be physically active. - See “Blood Glucose and Carbohydrates” on page 12.
High blood pressure	Cyclosporine Tacrolimus	- Limit sodium and salty foods. - See “Low Sodium Diet” on page 19.
Anemia	Cyclosporine Mycophenolate Prednisone Tacrolimus	- Your provider may prescribe iron supplements and iron-rich foods. - Eat foods that are high in vitamin C at the same time you eat iron-rich foods to help absorption. - Do not take iron supplements at the same time as calcium-rich foods and supplements.
Problems with how medicines work	Cyclosporine Sirolimus Tacrolimus	- Avoid grapefruit, grapefruit juice, pomegranates, pomelos, pomegranate juice, and starfruit.
High cholesterol and triglyceride levels	Cyclosporine Prednisone Sirolimus Tacrolimus	- Limit saturated and trans fats. - Eat healthy fats like olive or canola oil, nuts, and salmon. - Limit foods that are high in sugar, like desserts, candy, jelly, soda, and fruit juice. - Control portion sizes. - Be physically active. - See “Heart Health” on page 22.

More Food Safety Tips

Eating at Restaurants

- For the first 3 months after transplant, choose cooked vegetables and fruits when eating out.
- Do not eat at buffet-style restaurants or from salad bars.
- Choose hot sandwiches. All sliced meats must be heated.
- Avoid sushi (raw or cooked), poke, or ceviche.
- Avoid using toothpicks and eating mints from an open bowl.
- Ask the server how the foods are prepared.

Cleaning

- Before touching food, wash your hands for 20 seconds in warm, soapy water.
- Wash kitchen surfaces and tools with hot soapy water or bleach solution after each use.
- Wipe off the top of canned foods before opening them. Clean the can opener after each use.

Raw and Unpasteurized Foods

- Avoid homemade fermented foods such as sauerkraut, kimchi, or yogurt.
- Avoid raw probiotic drinks such as kombucha or kefir.
- Avoid raw bean or alfalfa sprouts. If cooked, they are OK to eat.
- To wash fresh foods that are hard to clean, soak them in water first, then rinse with fresh water. This includes leafy greens, berries, and mushrooms.
- Bagged, pre-washed vegetables such as spinach and other leafy greens must be washed before eating.
- Heat frozen vegetables and entrees before eating.

Food Handling

- Avoid smelling foods to check for freshness. You may breathe in mold spores.
- Avoid tasting raw or partly-cooked meats, poultry, eggs, fish, or shellfish. This includes cake batter or cookie dough that contains raw eggs.
- Avoid eating luncheon and deli meat directly from the package. Instead, you can:
 - Heat luncheon meats in the microwave or on the stovetop before eating.
 - Freeze luncheon meats and defrost them in the microwave when you are ready to make a sandwich.
- Marinate and defrost foods in the refrigerator, not at room temperature.
- If you defrost foods in the microwave, cook right after defrosting.
- Throw out canned foods that have bulges, dents, holes, or leaks.
- Use different dishes and utensils for raw and cooked foods.
- Throw away dishes, utensils, pots, pans, and cutting boards that are cracked. They are too hard to clean well.
- Clean the can opener after each use.

Refrigeration and Storage Tips

- Refrigerate leftovers with 2 hours of preparing the food.
- Throw away leftovers after 3 to 4 days.
- Do **not** eat foods that have been left out at room temperature for longer than 2 hours. This includes foods such as meat, potato salad, or pasta salad at picnics or barbecues.

Table: How Transplant Medicines Affect Your Nutrition Care

Effects	Caused By	What You Can Do
Diarrhea	Antibiotics and antivirals Cyclosporine Magnesium supplements Mycophenolate Tacrolimus	- Do not drink liquids with your meals, or for 30 minutes before and after eating. - Eat foods with soluble fiber, such as applesauce, bananas, or oatmeal.
Fluid retention	Prednisone	- Limit sodium and salty foods. - See “Low Sodium Diet” on page 19.
Slow wound healing	Prednisone Sirolimus	- Eat enough calories and protein. - Talk with your healthcare provider about supplements.
High potassium levels	Tacrolimus Cyclosporine	- Limit high-potassium foods. - See “Potassium” on page 14.
Low magnesium levels	Tacrolimus Cyclosporine	- Your provider may prescribe supplements. - Include diet sources if advised. - See “Magnesium” on page 15.
Low phosphorus levels	Tacrolimus	- Your provider may prescribe supplements. - Include diet sources if advised. - See “Phosphorus” on page 16.

Join Team Transplant!

Team Transplant is a running and walking support group for transplant recipients and donors. The group is made up of transplant recipients, donors, caregivers, family, and friends who value health, physical fitness, and the chance to regain life through organ transplant.

Since 2001, Team Transplant has been dedicated to raising organ donation awareness and ensuring the future health of those who have had, or will have, an organ transplant. As we train for and walk, jog, or run in local half-marathons and other races, our green-clad team brings attention to the issue of organ donation and its benefits.



Why should I join Team Transplant?

- You will have a lot of fun!
- The training will increase your fitness and energy levels.
- You will train in a safe, friendly, and supportive environment with your own personal coach.
- You will also find that being a part of Team Transplant – whether or not you compete in a race – can be incredibly rewarding and motivating.

When you join Team Transplant, you will not only benefit your own health – you will also be a symbol of health and fitness for others.

To learn more, email teamt@uw.edu or visit www.uwmedicine.org/teamtransplant.com.

Don't just survive ... Thrive!

- Move food from hot pans to containers before putting it in the refrigerator. Use shallow containers to help food cool quickly.
- Keep refrigerator temperatures just below 40°F (4.5°C).
- Keep freezer temperatures at 0°F (-18°C).

Your Protein and Calorie Needs

Eating extra protein and calories right after your transplant is important. Good nutrition helps your body:

- Heal your surgery wounds
- Fight infection
- Maintain muscle strength

Protein is even more important if you are on prednisone, since this medicine can cause muscle loss.

Protein is found in foods like lean meat, fish, poultry, eggs, milk, cheese, yogurt, beans, nuts, and seeds.

Right After Transplant

- You will need to eat _____ grams of protein, eaten throughout the day.
- You will need to eat _____ calories a day.

After About 8 to 12 Weeks

- Decrease your protein intake to _____ grams of protein, eaten throughout the day.
- Your dietitian may adjust your calorie needs based on your wound healing, your activity level, and to promote long-term healthy weight maintenance.

High-Protein Foods

Protein Food	Serving Size	Protein Grams
Beans, cooked:		
- Black, garbanzo, kidney, pinto	½ cup	7
- Lentils, split peas	½ cup	8
Cheese:		
- Cottage cheese	¼ cup	6
- Hard (cheddar, Swiss)	1 oz.	7
- Ricotta	¼ cup	7
- Soft (goat, mozzarella)	1 oz.	5
- String	1 oz. (1 stick)	7
Eggs	1 whole, 2 whites, or ¼ cup egg substitute	7
Fish, canned:		
- Anchovies, sardines	1 oz.	7
- Salmon, tuna	1 oz.	7
Fish, cooked:		
- Fillet	3 oz.	21
- Salmon patty	3 oz. patty	21
Meat, cooked:		
- Chicken breast	3 oz.	21
- Hamburger, lean	1 patty, 3 oz.	21
- Pork chop	3 oz.	21
- Steak, lean	3 oz.	21

- Try these low-calorie, low-fat snacks:

- Baked chips with salsa
- Fresh fruits
- Low-fat yogurt
- Plain popcorn
- Raw vegetables and low-calorie dip
- Sugar-free popsicles

My healthy weight goal is _____.

Weight Control

It is important to be at a healthy weight before and after your transplant. Being at a healthy weight will:

- Reduce your risk of heart disease
- Lower your risk of getting diabetes
- Improve your blood pressure
- Improve your blood glucose control (if you have diabetes)
- Ease joint and back pain
- Increase your energy

After transplant, you will be feeling better and have fewer limits on your diet than you did before transplant. As a result, your appetite may increase.

Taking medicines such as prednisone may increase your appetite even more. This can lead to overeating and weight gain.

Tips for Keeping a Healthy Weight

- Plan to include regular exercise as part of your lifestyle after transplant. Exercise helps control weight and builds muscle.
- Eat from a smaller plate or bowl than usual. This tells your mind that you are eating more food.
- During the day, eat 3 small meals and 1 snack.
- Wait 20 minutes before getting extra helpings. It takes that long for your body to feel full after eating.
- Limit sweets and sugars. Eating sugary foods can leave you feeling more tired and cause hunger between meals.
- Chew on gum instead of eating between meals.
- Drink plenty of water

Protein Food	Serving Size	Protein Grams
Milk:		
- Whole, 2%, 1%, skim, or soy	1 cup	8
- Nonfat, powdered	¼ cup	10
- Whole, powdered	¼ cup	7
Nuts and seeds:		
- Almonds, peanuts, sunflower	1 oz.	6 to 7
- Cashews, flaxseed (ground), walnuts	1 oz.	4 to 5
- Nut butters	2 tablespoons	5 to 8
Protein drinks:		
- Ensure Clear, Glucerna	8 oz.	8 to 10
- Boost High Protein, Boost Plus, Ensure High Protein, Ensure Plus	8 oz.	13 to 16
- Boost VHC, Nepro	8 oz.	19 to 22
- Carnation Instant Breakfast mixed with 1 cup milk	8 oz.	13
Quinoa, cooked	1 cup	8
Shellfish, cooked:		
- Crab	1 oz.	6
- Scallops, steamed	1 oz.	7
- Shrimp	1 oz.	6
Tempeh	1 oz.	5
Tofu (soft, firm, extra firm)	3 oz.	5 to 9
Whey protein powder (protein content depends on brand)	1 oz.	12 to 20
Yogurt:		
- Greek	5.3 oz	12 to 18
- Regular	5.3 oz	5 to 6

How to Boost Your Protein Intake

- Eat 5 to 6 small meals and snacks during the day instead of 3 large meals. Aim to include:
 - 20 or more grams of protein at each meal
 - 7 or more grams of protein at each snack
- Eat Greek yogurt in place of regular yogurt. Greek yogurt has 2 times more protein than regular yogurt.
- Add diced meat, beans, cheese, nuts, or seeds to salads, soups, and casseroles.
- For easy snacks, keep ready-made, protein-rich foods on hand such as hard-boiled eggs, cheese sticks, single-serving yogurts, unsalted nuts, and trail mix.
- Spread nut butters or hummus on toast, crackers, or raw fruits and vegetables.
- Try ricotta or cottage cheese with fruit, vegetables, or mixed into casseroles.
- Add a glass of milk or protein drink to your meals or as a snack.
- Add protein powder or powdered milk to casseroles, soups, or oatmeal.
- Make your own smoothie using Greek yogurt, milk, protein powders, tofu, or other high-protein foods.
- Include whole grains such as quinoa and high-protein cereals and breads in your diet.

Choose Heart-Healthy Foods

- **Increase your fiber intake to 25 to 35 grams a day.** Fiber binds to fat and cholesterol so you don't absorb as much. Sources of fiber include beans, whole grains, fruits, and vegetables.
- **Add more heart-healthy fats to your diet.** Unsaturated fats and omega-3 fatty acids may lower cholesterol and triglycerides:
 - Heart-healthy fats are found in avocado, olive oil, canola oil, ground flaxseed, chia seeds, hemp seeds, and walnuts.
 - Eat 2 to 3 servings of fish every week. Salmon, tuna, and mackerel are good sources of healthy fats.
- **Limit your intake of saturated fats:**
 - Choose low-fat or nonfat dairy products.
 - Limit red meat intake to 2 times a week. When you eat meat, choose lean cuts such as loins or rounds.
 - Limit your intake of fried foods and butter.
- **Limit your sodium intake.** (See "Low-Sodium Diet" on page 19.)
- **Ask your doctor** if you have questions about drinking alcohol.

Heart Health

Over time, the medicine tacrolimus may raise your cholesterol and triglyceride levels. This can increase your risk of heart disease.

A heart-healthy lifestyle will help prevent heart problems. To keep your heart healthy:

Exercise

Exercise for 30 to 60 minutes at least 5 days a week. Some types of heart-healthy exercise are:

- Aerobics
- Biking
- Gardening
- Housework
- Running
- Strength training
- Swimming
- Walking
- Yoga

Weekly Exercise Goals

I will:

- _____ for _____ minutes ____ days a week.
- _____ for _____ minutes ____ days a week.

Fluid Needs

- Your goal is to drink _____ liters of fluid every day. This equals _____ cups or _____ oz.
- Please ask your doctor if they have a specific fluid goal for you.
- We may ask you to write down what you drink to help keep track of your fluid intake.

How to Meet Your Daily Fluid Goal

- Drink even when you're not thirsty.
- Sip liquids slowly and pace yourself during the day.
- Drink a small amount before, during, and after meals and snacks.
- Set a timer or alarm to ring every 1 to 2 hours to remind yourself to drink fluids.
- Carry a full water bottle wherever you go.
- Limit coffee, tea, and soda that contain caffeine.
- Do **not** drink energy drinks such as Red Bull, Monster, and Rock Star.
- Whenever you can, choose healthful drinks such as water, milk, unsweetened tea, smoothies, low-sodium vegetable juices, flavored or sparkling waters, or nutritional supplements.

Blood Glucose and Carbohydrates

Some of the medicines you are taking can raise your blood *glucose* (sugar) levels. **Carbohydrates in foods also raise your blood glucose levels.** To improve your blood glucose control, learn which foods raise these levels, eat the right portion sizes, and limit simple sugars in your diet.

Foods with Carbohydrates	Foods with Little or No Carbohydrates
Fruits and fruit juice	Most vegetables
Starches: Grains, beans, and starchy vegetables	Meat, poultry, fish, eggs, cheese, and meat substitutes
Milk and yogurt	Fats (butter, oil)
Sweets and snacks	

Examples of 1 Carbohydrate Serving

Fruits

- ½ banana
- 4 oz. juice
- 1 small piece fruit

Starches

- 1/3 cup cooked rice or pasta
- 1 slice bread
- ½ cup corn, beans, or peas
- ½ cup hot cereal
- 1 small tortilla

Dairy

- 1 cup milk
- 1 cup “lite” yogurt

Calcium and Vitamin D

Calcium and vitamin D help keep your bones strong. But, long-term use of prednisone increases your risk of osteoporosis, bone fractures, and joint weakness. Even if you are not taking prednisone, make sure you are getting enough calcium to maintain your bone health.

These foods are high in calcium, vitamin D, and phosphorus. Most of them are also good sources of protein:

- 1 cup milk (cow’s milk, soy milk, and almond milk with added calcium and vitamin D)
- 1 cup yogurt or ½ cup Greek yogurt
- 1 oz. cheese
- ½ cup cottage cheese
- ¾ macaroni and cheese
- 3 oz. tofu (processed with calcium)
- 3 ounces salmon with bones, canned

Try to eat 4 servings of low-fat, calcium-rich foods every day. These will also add to your protein intake.

If you do not eat high-calcium foods, you will need to take a calcium supplement. Talk with your doctor or dietitian about what type of supplement would be best.

Reading Food Labels

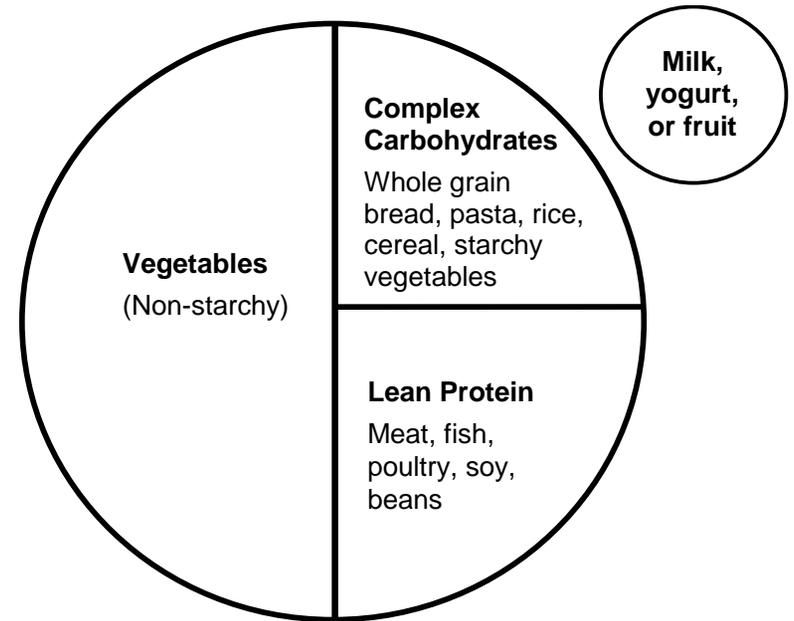
The “Nutrition Facts” label was updated in 2016. When you read a label, focus on serving size, total carbohydrate, protein, and potassium content.

Nutrition Facts	
8 servings per container	
Serving size	2/3 cup (55g)
Amount per serving	
Calories	230
% Daily Value*	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Healthy Plate Model

Use the picture below to plan your meals. Include protein with all meals. Fill half your plate with **non-starchy vegetables** (these do not contain a lot of carbohydrates, but provide good nutrients) and **fiber**, which helps you feel full.



Limit or avoid simple sugars such as juice, regular soda, sugar, syrups, and candy. These foods tend to quickly raise blood glucose levels without providing many nutrients.

Basic meal goals (*your needs may be different*):

- Women: about 3 to 4 servings (45 to 60 grams carbs)
- Men: about 4 to 5 servings (60 to 75 grams carbs)

Potassium

The mineral potassium keeps muscles and nerves working well. Too much or too little potassium can affect your heart.

Medicines such as cyclosporine and tacrolimus can make your potassium blood levels higher than normal. This means you may need to limit your dietary intake of potassium for a short time.

Potassium-rich foods have many health benefits. Once your blood levels are stable, it's important to increase your servings of potassium-rich foods.

Foods High in Potassium

- Apricots
- Artichokes
- Avocado
- Bananas
- Beans, dried (cooked)
- Beets and beet greens
- Broccoli, cooked
- Brussels sprouts
- Coconut, coconut milk, coconut water
- Dairy (milk, yogurt)
- Dark leafy greens (kale, spinach)
- Fruit, dried
- Fruit and vegetable juices
- Kiwi
- Mango
- Melons (cantaloupe, honey dew)
- Nectarines
- Nutritional supplements (Ensure, Glucerna)
- Oranges
- Potatoes, sweet potatoes
- Prunes, prune juice
- Some sports drinks
- Tomatoes, tomato products
- Winter squash (acorn, butternut, pumpkin)

Low-Sodium Diet

A low-sodium (low-salt) diet is healthy for everyone. To help keep your blood pressure under control, forget about the salt shaker and choose low-sodium foods.

Sodium is sneaky! Salt increases the shelf-life of food, so packaged and prepared foods usually contain a lot of salt. It is very important to read the "Nutrition Facts" label so that you know how much sodium you are eating.

Tips to Reduce Sodium

We advise eating 2,000 mg of sodium a day. To help reduce your sodium intake:

- Do **not** add salt when cooking or at the table.
- Cook at home from scratch. Use fresh produce and meats. This allows you to control the amount of sodium.
- Season foods with spices, herbs, lemon juice, and vinegars instead of salt.
- Choose products labeled Without Added Salt, No Salt Added, or Unsalted.
- Limit your intake of fast foods and packaged foods.
- Check out low-sodium cookbooks or food blogs for recipes and ideas.
- Read the "Nutrition Facts" label to find the sodium content of packaged foods (see example on page 20):
 - For a main meal, avoid foods with more than 600 mg sodium per serving.
 - For a side dish or condiment, avoid foods with more than 150 mg sodium per serving.

Part 2

Long-Term Changes and Nutrition Care

Starting about 2 months after your transplant surgery, it is time to start focusing on your long-term goals:

- **Eating well**
- **Low-sodium diet** – Helps keep blood pressure under control.
- **Calcium and vitamin D** – Help keep your bones strong.
- **Heart health** – Choose healthy fats and high-fiber foods to control cholesterol and triglycerides.
- **Weight control** – A healthy weight is good for your overall health.

Eating Well

- Eat a balanced diet by choosing a variety of colorful foods. Include fruits and vegetables throughout the day to increase your nutrient and fiber intake.
- Review the healthy plate model (see page 13). Fill $\frac{1}{2}$ of your plate with vegetables, $\frac{1}{4}$ with protein foods, and $\frac{1}{4}$ with carbohydrate foods.
- Choose lean sources of protein such as chicken, fish, pork, beans, nuts, or tofu.
- For carbohydrates, choose whole grain items such as brown rice and whole wheat pasta. Whole grains are higher in fiber and may lower cholesterol and control blood glucose.
- Snack on fruit.
- Be sure to include nonfat or low-fat dairy for calcium.

Magnesium

Magnesium is vital for our bodies to work well. It helps maintain muscles, prevents cramping, helps control blood pressure and blood glucose, and keeps our heartbeat steady.

Tacrolimus and cyclosporine may deplete your magnesium. You may need to take pills to keep your levels in a healthy range. If you eat magnesium-rich foods every day, you can reduce your need for more supplements. Foods high in magnesium also contain fiber, protein, and phosphorus.

Tips for Increasing Magnesium

- Make your food your medicine. Eat a variety of high-magnesium foods every day.
- Crush magnesium tablets if they are hard to swallow. Crushing may help your body absorb the mineral.
- Some people have diarrhea when they take a high dose of magnesium. Tell your provider if this happens. A different form of magnesium may work better for you.

Foods High in Magnesium

- | | | |
|--------------------------------|--|--|
| - Beans and peas | - Fruits such as avocado, dried fruit, bananas | - Vegetables such as artichokes, potatoes, corn, spinach, tomatoes |
| - Chocolate and chocolate milk | - Nuts and seeds, nut butters | - Whole grains such as brown rice, wild rice |
| - Coffee | - Quinoa | - Whole grain cereals and bran |
| - Fish and other seafood | - Soymilk | |

Phosphorus

Our bodies use phosphorus to form bones and teeth, support kidney and muscle function, keep our heartbeat normal, send nerve signals, and help us process nutrients.

It is important to include high-phosphorus foods in your diet if your blood levels are low. Sometimes phosphorus supplements are needed if diet alone does not raise blood levels.

Phosphorus levels can be high after transplant. This is a short-term problem. It does not usually mean you need to limit your dietary intake of phosphorus. Your healthcare provider will tell you if you need to follow a low-phosphorus diet after transplant.

Foods High in Phosphorus

- Bran cereal
- Dairy products
- Dried beans
- Fish
- Lentils
- Meat
- Pork
- Poultry
- Soy and soy products
- Split peas

Calcium and Bone Health

One long-term side effect of taking prednisone is bone and joint weakness. To help avoid *osteopenia* (low bone mass) and *osteoporosis* (brittle bones), you must eat enough calcium, phosphorus, and vitamin D every day. Even if you are not taking prednisone, calcium is important for your bone health.

Be sure to include several servings of calcium-rich food in your daily diet. If you do not choose to eat calcium-rich foods, you may need to take a calcium supplement.

Foods High in Calcium

Calcium content in these foods may vary.

Food	Serving Size
Bok choy, boiled or steamed	1 cup
Broccoli, boiled or steamed	1 cup
Collard greens, boiled or steamed	1 cup
Kale, boiled or steamed	1 cup
Milk	1 cup
Yogurt	1 cup
Cheese	1 oz.
Orange juice, with added calcium	1 cup
Salmon	3 oz.
Soy or almond milk, with added calcium	1 cup
Tofu, firm (processed with calcium)	½ cup
Sesame seeds	2 tablespoons