

## DIET AND NUTRITION

After a heart transplant, following a heart-healthy diet is important to help prevent heart disease. The goal of a heart healthy-diet is to eat a variety of foods while limiting saturated fat, cholesterol and sodium. The dietitian can help plan a diet to meet nutritional needs.

### Fats in Your Body

The body needs fat to make cell membranes and hormones and for other important body functions. Too much fat can cause build up in the inner walls of arteries. This leads to narrowing of the arteries and reduced blood flow, a process called atherosclerosis. Blockage of the arteries can cause chest pain and ultimately lead to a heart attack or stroke.

As a heart transplant recipient, your child may not feel chest pain because his/her heart is now denervated (nerves cut during surgery).

#### *Cholesterol*

About two-thirds of cholesterol is made in the liver. Its production is stimulated by saturated fat. The remaining one-third of our total cholesterol comes from the food we eat. Excess blood levels of cholesterol can be damaging to the heart. For this reason, it is important to limit how much saturated fat and cholesterol your child eats.

#### **There are two main types of cholesterol in your blood:**

**LDL Cholesterol:** This is “bad” cholesterol. Too much LDL cholesterol in the blood can lead to atherosclerosis.

**HDL Cholesterol:** This is “good” cholesterol. It carries cholesterol away from your arteries and back to the liver, where it can be eliminated from the body. A high HDL level in the blood can lower the risk of heart attack and stroke.

#### *Triglycerides (Trig)*

This is the most common type of fat in the body. A high triglyceride level combined with either low HDL or high LDL cholesterol can speed up atherosclerosis.

## Fats Found in Food

Fat is an important energy source and it increases absorption of fat-soluble vitamins. Everyone needs to eat fat, but eating too much of some fats can lead to heart problems.

## Fats to Limit or Avoid

Diets high in these types of fat increase LDL and total cholesterol levels in the blood. Reducing the amount of these fats can help lower these levels.

### *Cholesterol*

A fat found in foods that come from animals. Plants do not contain cholesterol.

#### **Sources of Dietary Cholesterol:**

- Fatty meats
- Egg yolks
- Organ meats (liver, kidney)
- Shellfish (lobster, shrimp, crab, etc.)

### *Saturated Fats*

These are usually solid at room temperature and most often come from animals.

#### **Sources of Saturated Fat:**

Animal Sources:

- Fatty cuts of meat (beef, lamb, pork)
- Poultry with skin
- Whole and 2% milk
- Butter
- Cheese
- Lard



Plant Sources:

- Palm kernel oil
- Palm oil
- Coconut oil
- Cocoa butter

### *Trans Fatty Acids*

A fat formed when manufacturers “hydrogenate” vegetable oils. This process stabilizes oils to prevent them from spoiling and to keep them solid at room temperature. Avoid foods with hydrogenated or partially hydrogenated fats listed on the ingredients list on the food label.

### **Sources of Trans Fat:**

- Baked goods (crackers, cookies, cakes, donuts)
- Hard margarines
- Commercially produced white breads
- French fries
- Snack foods

## **Choose From These Fats**

These fats can lower your LDL when used in place of saturated fats in the diet.

### *Monounsaturated Fats*

These fats are liquid at room temperature and come from vegetables. The majority of the fat you eat should come from monounsaturated fats.

### **Sources of Monounsaturated Fats:**

- Canola, olive, peanut oils
- Tub margarines
- Olives
- Avocados
- Tree nuts

### *Polyunsaturated Fats*

These are usually liquid at room temperature and come from vegetable products. They have been shown to have many positive effects. They can reduce inflammation and blood clotting and decrease blood pressure and triglyceride levels. However, they can also lower “good” HDL cholesterol. No more than 10 percent of your child’s daily fat intake should come from polyunsaturated fats.

### *Omega-3 Fatty Acids*

Omega-3 fatty acids are a form of polyunsaturated fats. They are essential to health and cannot be made by the body. These fats must come from the foods we eat. Research indicates Omega-3 fatty acids reduce inflammation and offer protection against heart disease.

#### **Sources of Polyunsaturated Fats:**

- Safflower, sunflower, corn and cottonseed oils
- Fatty fish and fish oils (tuna, salmon, trout, herring and sardines)
- Flaxseed
- Walnuts
- Soybeans

## **Other Nutrition Recommendations**

### *Reduce Sodium Intake*

**Salt:** Also known as sodium chloride. It is needed for many body functions. Almost all foods naturally contain sodium. Salt added during food processing and preparation is the major source of salt in our diet. Healthy adults only need 2,400 milligrams of sodium per day, yet the average American consumes 6,000 to 8,000 mg of sodium daily. When we eat a high-salt diet, our blood levels of sodium increase. This makes the body pump more water into the blood. The extra blood volume causes the heart to work harder to pump the extra fluid. Reducing the amount of sodium in the diet may help to reduce high blood pressure.



**High-Sodium Foods:**

- Cured meats
- Sausages, hot dogs
- Lunch meats
- Canned vegetables, soups, beans, fish
- Salted nuts and seeds
- Soy products
- Restaurant and fast-food meals
- Box dinners (seasoning packets)
- Frozen meals
- Cheeses, especially processed cheese
- Olives, pickles, relish
- Meat tenderizer
- Mayonnaise, salad dressings
- Seasoning salts (garlic salt, onion salt, celery salt)
- Ketchup
- Sauces (barbecue, soy, steak, Worcestershire)

**Low-Sodium Alternatives:**

- Spices such as garlic, oregano, basil, onion, pepper
- Vinegar
- Lemon juice
- Fresh ground horseradish (not spread)
- Use low-sodium condiments whenever available such as ketchup, mustard and salad dressings

*Maintain a Healthy Weight*

Being overweight adds a great strain to the heart. Avoid empty sources of calories like candies, sugar, regular soda, sweet desserts and snack foods. Stick to recommended portion sizes and limit second helpings. Your child's doctor or dietitian can help determine a healthy weight.

### *Increase Fiber Intake*

Increasing water-soluble fiber in the recipient's diet may help lower cholesterol as well. Foods high in water-soluble fiber are oatmeal, oat bran, oat bran muffins, legumes (dried beans and peas), barley and fruit.

### *Limit Caffeine Intake*

Caffeine is a stimulant that may increase the heart rate. It is recommended that individuals with heart disease limit their servings of regular coffee and tea to one or two servings per day. Avoid "energy drinks," which are high in caffeine.



## **General Shopping and Cooking Tips**

- Read food labels to select foods low in saturated fat, cholesterol and sodium.
- Trade snack foods for fresh fruits and vegetables. Produce is naturally heart healthy.
- Buy oils, margarines and salad dressings which list the specific type of oil used. Look for corn, sunflower, olive and canola oil.
- Choose whole grain breads and cereals. Look for whole wheat, barley, brown rice, quinoa, cornmeal, wild rice or bulgur.
- Stop using table salt (1 tsp = 2300 mg salt) and limit how often your child eats high-sodium foods.
- Limit sugar-sweetened beverages and juice.
- Choose nonfat (skim) or low-fat dairy products.
- Buy the leanest cuts of meat, such as rump, round, chuck and tenderloin. Be sure ground beef is lean. Choice grade has less fat within the meat and is a better buy than prime grade.
- Trim fat from meats and remove skin from poultry before eating.
- Use vegetable proteins (dried beans, peas or tofu) instead of meat in some entrees.

## **Heart Transplant in Infants**

Prior to heart transplantation in infants, our goal is to optimize your child's nutrition status to ensure they are achieving age-appropriate growth. Sometimes, in order to achieve this goal, fortified breastmilk with formula, fortified formula and/or tube feedings are needed. As your child grows and nutrition needs change your dietitian will be following closely to ensure their unique nutrition needs are met.