

Nutrition Goals Before Transplant

Symptoms of your liver disease may make it difficult to consume enough nutrition.

- Consume adequate calories to correct or prevent undesired weight loss, or if necessary, follow a healthy weight loss diet to restore your nutritional health.
- If you have edema or ascites, restrict sodium in the diet to less than 2,000 mg per day to prevent buildup of fluid.
- If you feel full quickly when eating, consuming four to six smaller meals may help you meet your nutrition needs more comfortably. Choose foods that are high in calories and protein. A protein containing bedtime snack has been shown to help prevent muscle loss.
- If you can't eat enough food, nutritional drinks and shakes may be helpful.
- Consume adequate calories and protein from the diet to help in liver cell regeneration and to improve liver function.
- Aim to eat a variety of foods from each food group.
- Avoid foods that may cause foodborne illness such as unpasteurized dairy products, raw or uncooked meat, poultry, seafood and eggs, raw vegetable sprouts, as well as clams, oysters, mussels and scallops.
- Prevent vitamin and mineral deficiencies. It may be recommended to take a multi-vitamin.
- Follow other diet restrictions as advised by your doctor or dietitian for your health. Ask your dietitian for help if you need more information.

If you have been instructed to lose weight, the following are recommended for you:

- Increase your daily activity as able
- Eat at least three times per day using smaller serving sizes
- Choose lean meats, low-fat dairy, whole grains, fruits and vegetables
- Avoid distractions while eating and pay attention to your body. Eat slowly.
- Use smaller plates. Aim to fill half with vegetables, a quarter with starch and a quarter with meat or other protein sources.

Sodium-Restricted Diet

A low-sodium diet consists of no more than two grams (2,000 mg) of sodium per day. Aim for less than 600 mg per meal and less than 200 mg per snack.



Why You Need to Restrict Sodium in Your Diet

Sodium in the diet encourages the body to retain water. The fluid may gather in the feet, legs, abdomen or other body tissues. Patients with cirrhosis and chronic liver disease are particularly prone to sodium retention. Medications, called diuretics, help the body get rid of extra sodium and water. If you eat too much sodium, these medications can't work as well. Eating a low-sodium diet can help you feel better and lower fluid buildup in the body.

The Facts About Sodium

Sodium is a mineral found in the body and in the food we eat. Salt is the main source of sodium in the diet, with one teaspoon containing 2,000 mg of sodium.


- A food product may contain little salt, but may still contain sources of sodium.
- The average diet includes 4,000 to 6,000 mg of sodium each day, which is much more than the recommended amount.
- All foods naturally contain some sodium. The amount found in unsalted food is adequate to meet your body's need.
- Some sources of sodium are not obvious in the food we eat. Softened water, bottled water and some medications (such as antacids, laxatives and antibiotics) can be sources of hidden sodium.




Read the Labels


- You should read the labels to be aware of serving size and sodium content of foods. The sodium content of food is labeled in milligrams (mg) on food labels.
- Foods which contain greater than 400 mg of sodium per serving should be avoided as a general rule. Limit foods with 200–400 mg of sodium per serving to one to two servings. A good choice would be foods which contain less than 200 mg of sodium per day.
- Use the guidelines below to help with reading labels:
 - Sodium-free – less than 5 mg per serving
 - Very Low Sodium – less than 35 mg per serving
 - Low Sodium – 140 mg or less per serving
 - Reduced Sodium – 25% reduction from usual sodium content
 - Unsalted, Without Salt, or No Salt Added – no salt added during processing

Healthy Food Choices

Eating a low-sodium diet helps you to feel better and lower fluid buildup in the abdomen. The following tool is designed to assist you in making healthy low-sodium choices in your diet. When in doubt, use the nutrition label to determine if a food is a good choice.

| GOOD CHOICES | LIMIT OR AVOID |
|---|---|
| <p>Meats and Meat Alternatives: Fresh beef, pork, veal, lamb, poultry, fish Eggs Dried beans, peas, lentils (choose dry or canned with no salt added) Unsalted nuts, unsalted peanut butter</p>  | <p>Processed meats, such as bacon, sausage, pepperoni, hot dogs, ham, luncheon/deli meats, chipped beef, corned beef, anchovies, sardines, caviar Dried meat, smoked fish Salted nuts, salted peanut butter Microwave/frozen meals</p> |
| <p>Milk, Yogurt, Cheeses: Milk or yogurt Frozen yogurt, ice cream, ice milk Natural swiss cheese Low-sodium cheeses Low-sodium cottage cheeses</p> | <p>Buttermilk, malted milk Processed cocoa Processed cheese Bleu, feta, and other high-sodium cheeses Cottage cheese</p> |
| <p>Breads, Cereal, Rice and Pasta: Bread, rolls, breadsticks Taco shells, tortillas Pasta, barley, rice cooked without added salt Unsalted cooked cereal Low-sodium crackers Homemade soup with low-sodium ingredients</p> | <p>Breads, rolls, breadsticks made with garlic salt, onion salt, or cheese Stuffing mixes Pasta or rice mixes with seasoning packets Salted crackers Regular canned or dry soups, broths, bouillons Baking mixes such as cakes, pancakes, waffles or muffins</p> |

| GOOD CHOICES | LIMIT OR AVOID |
|---|---|
| <p>Vegetables: Fresh or frozen vegetables without salt added Homemade and low sodium tomato sauces Low sodium or no added salt canned vegetables</p>  | <p>Regular canned vegetables Vegetable juices Pre-made spaghetti/tomato sauce Instant mashed potatoes (boxed) Potato mixes Sauerkraut, pickles, olives or other pickled vegetables</p> |
| <p>Fruits: Any kind of fruit or fruit juice (fresh, frozen or canned)</p> | <p>Adding salt to fruits (such as watermelon) Glazed or crystallized fruit</p> |
| <p>Snacks: Fresh fruits and vegetables Unsalted popcorn Unsalted pretzels Unsalted nuts Unsalted crackers</p>  | <p>Regular potato chips, taco chips, corn chips, microwave popcorn Regular pretzels Regular nuts Regular crackers Other salty snack foods</p> |
| <p>Beverages: Water Milk Coffee, decaf coffee Teas Cocoa made with milk Soda with no- or low-sodium (limit 24 ounces or less per day) Fruit juices</p> | <p>Gatorade® Powerade® Vegetable juices Instant cocoa mixes Instant cappuccino mixes</p> |
| <p>Desserts: Fruit ice Homemade tapioca, rice and cornstarch pudding Custard made with milk Hard candy Cake, cookies, pie, sherbert, ice cream and candy (check nutrition label as amount of sodium varies)</p> | <p>Instant pudding or other pre-packaged dessert mix Frozen pies Minced meat pies</p>  |

| GOOD CHOICES | LIMIT OR AVOID |
|--|--|
| <p>Fats, Oils (use sparingly): Vegetable oil and mayonnaise Unsalted butter or margarine Unsalted or low-sodium salad dressing Low-sodium cream, non-dairy creamers Unsalted nuts Avocado Cooking fat or oil</p> | <p>Regular salad dressing Bacon and bacon fat Gravy made with mixes or bouillon Snack dips made with processed cheese or instant soup mixes</p>  |
| <p>Seasonings and Condiments: Herbs and spices without salt Hot sauce Lemon Garlic Onion Fresh horseradish Low-sodium ketchup Low-sodium chili sauce Low-sodium steak sauce</p> | <p>Salt, garlic salt or other flavored salts Nu-salt or lo-salt, lite salt, Butter Buds Soy sauce, tartar sauce, teriyaki sauce, jarred salsa, worchestershire sauce, bouillon, sweet & sour sauce, steak and barbeque sauce Monosodium glutamate (MSG) Prepared horseradish, prepared mustard Ketchup, seasoning/coating mix, meat tenderizers Cooking wine</p> |

Low Sodium Tips:

- Cook low-sodium meals at home and freeze them for later.
- Low-sodium recipe books are often helpful and can be obtained from bookstores, libraries or online.
- When eating convenience or processed foods can't be avoided, read the labels and use these guidelines to make low-sodium choices:
 - *Frozen Meals:* Select one containing 500-600 mg or less of sodium.
 - *Canned Foods:* Select low-sodium or no salt added. Rinsing canned food under water does help to decrease the amount of sodium
- Experiment with salt-free spices and herbs to flavor food without sodium.
- Softened water is higher in sodium. Use bottled water or use a calcium salt in the water softener.

- When dining out follow these guidelines:
 - AVOID FAST FOOD RESTAURANTS
 - Ask for your food to be prepared with no added salt
 - Order sauces, dressings, gravy on the side and limit the amount used

You Should Know

For more information on reducing sodium from your diet, please visit the American Heart Association website at www.americanheart.org or call (800) 242-8721.

Nutrition Goals After Transplant

- Eat enough calories and protein to heal from surgery. Protein is found in meats, poultry, fish, egg, nuts, dairy, dried beans, protein drinks and soy products.
- Follow good food safety to prevent food borne illness.
- Once you have fully healed from surgery, follow healthy eating habits to maintain a healthful weight. Choose lean meats, low fat dairy, whole grains, fruits and vegetables and no added salt diet.
- Some of the medications you are on may cause higher blood sugars or higher potassium levels. Follow the guidelines below to control these levels.

If you have been told to avoid foods high in potassium, these are the foods you should avoid:

- Fruits: Apricots, bananas, dates, dried figs, honeydew, melon, kiwi, mango, nectarine, orange, orange juice, papaya, prunes, prune juice, raisins
- Vegetables: Artichokes, avocado, bamboo shoots, chard, brussel sprouts, fresh or raw beets, green beans, collard or mustard, kohlrabi, okra, parsnips, potatoes, pumpkin, spinach, sweet potatoes, tomatoes, tomato sauce, tomato juice, winter squash, yams
- Miscellaneous: bran, dried beans or peas, salt substitute, soy milk, yogurt
- Use in limited amounts: coffee, milk, peanut butter, nuts and seeds

If you have been told you have high blood sugars, these are the tips you should try:

- Carbohydrates are foods that turn into sugar in your body when you digest them. They are an important source of nutrition, but eating too many at once can cause high blood sugars. Carbohydrates are found in grains, starches, fruit, starchy vegetables, beans, dairy and sweets. Try to eat around the same amount at each meal.
- Eat a variety of foods, aiming to consume protein and fiber at each meal. Avoid skipping meals. Try to eat around the same times each day and the same sized meals.
- Don't drink your carbohydrates. Sugary beverages can increase your blood sugar without providing much nourishment.
- If this is a new problem for you or you are having problems, ask to talk with a dietitian for more information.

Food Safety after Liver Transplant

Indications

After transplant, you take immunosuppressant medications to prevent your body from rejecting your new liver. The suppression of the immune system makes it difficult to fight off infection. Your risk is highest one to six months after transplantation. Therefore, if you are taking a medication to prevent ulcers, you are at a higher risk for food borne illnesses because anti-ulcer medications reduce the normal acid in the stomach that usually kills bacteria. **Food can cause an infection** if proper food safety guidelines are not followed.

Safe Food at the Store

- Buy cans and jars that look perfect
- Dented or bulging cans, cracked jars, unsealed lids may mean food has germs that could make you sick
- Check for “use by” dates – **DO NOT USE IF BEYOND THE EXPIRATION DATE**
- Put refrigerated or frozen items in cart last and take home immediately
- Put raw meat and poultry into a plastic bag so meat juices won’t drip on other foods such as lettuce or fruit that will be eaten raw
- Check eggs – open carton and do not buy if any are broken or cracked. Only buy refrigerated, pasteurized eggs
- **Use caution with deli foods as there is an increased danger of cross-contamination due to frequent handling**
- Be sure food is being stored at safe temperatures – hot food is steaming and cold food is cold
- Make sure counter person washes hands and changes gloves

Quick Tips

- Wash hands frequently when working with food
- Avoid cross-contamination
- Cook all animal foods to appropriate temperatures
- Do not eat raw or undercooked meats
- Drink from safe water supplies

Safe Food at Home

Storing

- After shopping – **go directly home** and put food away immediately
- Water – well water should be tested periodically for contamination. Check with your local water treatment center on the proper protocol to collect water samples. Well water should be avoided unless it is tested frequently.
- **Refrigerator**
 - Use a thermometer to ensure food is being kept at **40° F** or below
 - Make sure thawing juices from meat and poultry do not drip on other foods
 - Leave eggs in carton and do not store in door
 - Keep refrigerator clean
 - Store ground meat, poultry and fish **up to 1-2 days**; other red meats such as steak or roasts **3-5 days**
- **Freezer**
 - Keep food safe by preventing the growth of microorganisms that cause food to go bad and make you sick
 - Use a thermometer to ensure food is being kept at **0° F** or below
- **Pantry**
 - Store canned foods and other shelf stable products in a cool, dry place.
 - Never put them above the stove, under the sink, in a damp garage or basement
 - High acid foods (tomatoes and fruit) – **up to 18 months**
 - Low acid foods (meat and vegetables) – **2 to 5 years**

Cooking/Preparing Food Safely

- Make sure that you and your kitchen are clean
- Always **wash your hands for at least 20 seconds** before and after you touch food.
- Wash everything before and after it touches food

- Cutting boards
 - Use only plastic or glass for cutting raw meat and poultry or have a cutting board you use exclusively for meat and poultry
 - Wash cutting boards with hot soapy water. You may also sanitize with solution of 1 tablespoon liquid chlorine bleach per gallon of water by flooding surface and allowing it to stand for several minutes, then rinse and dry, or you may run plastic cutting boards through the dishwasher.
 - Commercial sanitizers are available – follow directions on product label
- **Fresh fruits and vegetables need to be clean.** Rinse them under warm running water to wash dirt away. Use a produce brush when appropriate.

| FOOD | TEMP |
|--|---|
| Ground Meat & Meat Mixtures | |
| Beef, Veal, Lamb and Pork | 160° F |
| Turkey, Chicken | 165° F |
| Fresh Beef, Veal, Lamb | |
| Medium Rare | Not safe |
| Medium | 160° F |
| Well Done | 170° F |
| Poultry | |
| Chicken and Turkey, whole | 180° F |
| Poultry breasts, roast | 170° F |
| Poultry thighs, wings | 180° F |
| Duck and Goose | 180° F |
| Stuffing (cooked alone or in bird) | 165° F |
| Fresh Pork | |
| Medium | 160° F |
| Well Done | 170° F |
| Eggs & Egg Dishes | |
| Eggs | Cook until yolk and white are firm |
| Egg dishes | 160° F |
| Fish | |
| | Should be opaque, firm and flake easily with fork |
| Leftovers & Casseroles | |
| | 165° F |

- Keep raw meat, poultry, seafood and eggs and their juices away from other foods
 - Remember germs can be spread by a dish towel or wash cloth – when wiping up juices, wash towel before using it again or use paper towels and throw them away
- Meat, poultry and seafood need to stay cold while they thaw. Thaw them:
 - In the refrigerator – **1 to 2 days** before you will cook
 - In the microwave – use the defrost setting
- Cook food to safe temperatures
- Put leftovers in the refrigerator or freezer as soon as you finish eating. Put them in shallow dishes so they cool faster. Germs grow very fast at room temperature.
- Use refrigerated leftovers within **2 days**

Eating Out Safely

- Always order meat, poultry, and fish well done; if the food arrives undercooked, it should be sent back.
- Ask how sauces and dressing are prepared; if raw or undercooked eggs or insufficiently cooked meat drippings are used, do not order those dishes. If the server does not know how the food is prepared, ask him or her to check with the kitchen. If still doubtful, order something else
- Avoid salad bars – others may have left germs behind
- Avoid some buffets. If dirty plates are used for second helping, avoid. If holding temperatures are questionable, avoid (is the hot food hot?). Avoid high-risk foods from buffets (e.g., eggs, cream dishes, rare beef)
- At fast food restaurants, ask for food to be prepared freshly
- Do not eat raw seafood including oysters on the half shell, raw clams, sushi and sashimi; lightly steamed seafood, such as mussels and snails, should be avoided
- Caesar salad dressing should be avoided since it contains raw eggs