

DIET AND NUTRITION

Kidney Transplant Nutrition Therapy

Your child's nutrition plays a big role in promoting the best possible health after a transplant. A good nutrition plan can help reduce many potential problems such as elevated blood fats, blood sugar, blood pressure, excessive weight and decreased bone strength. After transplant, you will work closely with a registered dietitian to help plan your child's diet.



Recommended Nutrition Therapy

1. Your child should follow a **heart healthy** (no added salt, low fat) diet. He/she should consume a variety of foods based on the Recommended Dietary Guidelines for Americans.
 - Use low-fat dairy products instead of full-fat milk, yogurt and cheeses.
 - Limit egg yolks to three to four per week, which includes those used in processed and many baked goods. Egg substitutes may be used to replace eggs, which are low in cholesterol.
 - Go lean with protein. Serve skinless chicken or turkey, fish, extra-lean fresh beef or pork, dry beans, unsalted nuts, tofu or egg whites. Remember to cut away extra fat on meats before cooking.
 - Fruits and Vegetables. Choose fresh fruits and vegetables. If using canned vegetables remember to choose unsalted or if fruits choose in juice rather than syrup.
 - Increase dietary fiber. Fiber is found in whole grain breads, cereals, fruits, vegetables, and dried beans. Look for whole grain breads, rice, pasta, whole grain wild rice and whole grain unsweetened cereals. Fiber can help lower blood fat levels when incorporated in a heart healthy diet.
2. **Sodium restriction** is recommended because some of the medications used to prevent rejection can cause high blood pressure. The usual recommended intake of sodium is about 2,000 mg/day. Your dietitian will provide a specific recommendation.
 - Seasonings. Look for salt-free and sodium-free seasonings. Choose fresh or dried cooking herbs.
3. Normal weight gains and height growth is promoted. **Excessive weight gain** can be a side effect of too many calories eaten and limited exercise, especially while on steroid medications.

4. A diet low in **saturated fats** is encouraged, as some preventative rejection medications can increase blood fat levels. For a heart healthy diet, less than 300 mg/day of cholesterol should be consumed.
- Choose healthy fats like olive oil, canola oil, soy, safflower, sunflower, corn, sesame and walnut.
 - Processed foods like cookies, desserts and crackers may contain saturated fats such as beef fat, lard, hydrogenated fats, coconut oil or palm kernel oil which elevate blood fat levels. Look at food labels for these fats.

**For children less than two years of age, your registered dietitian will provide you with specific nutrition guidelines.

Vitamins and Minerals

After transplant, your child's diet will most likely be liberalized to include a wide variety of nutrients. However, there are certain circumstances, such as immune-suppressing medications, which may lead to a temporary or permanent restriction or promotion of certain minerals.

- Magnesium – Some of the drugs your child will be taking can cause his/her body to waste magnesium. Sometimes your doctor may prescribe a magnesium supplement to make sure they are getting enough. This may be avoided if they can get enough from their diet.
 - Foods high in magnesium include: green vegetables, nuts, seeds, whole grains, halibut, beans and other legumes
- Potassium – Some medications that your child is on may temporarily cause blood levels to be elevated. In this case, we recommend restricting dietary potassium.
 - Foods high in potassium: banana, orange, avocado, white potato, sweet potato, melon, spinach, milk, cheese, yogurt, beans, chocolate, nuts and whole grains
- Phosphorus – After transplant your child will likely no longer be phosphorus restricted or on phosphorus binders. As the newly transplanted kidney will start rebuilding bone density, your phosphorus levels may drop. The registered dietitian will encourage good sources of phosphorus.
 - Foods high in phosphorus: low-fat dairy (milk, cheese, yogurt), nuts, seeds, whole grains, salmon, beans and other legumes
- Calcium – The steroids your child will be taking will require additional calcium in the diet to maintain healthy bones.
 - Foods high in calcium: low-fat dairy (milk, cheese, yogurt), dark green leafy vegetables and almonds. Limit hard cheese to 1 oz/day due to high salt and fat content.

- Multivitamin with Vitamin D – In general, individual or mega doses of vitamin or mineral supplements are not necessary after kidney transplant. However, an over-the-counter multivitamin with vitamin D is recommended to make sure that your child is receiving the recommended daily amount (RDA) of all essential nutrients including Vitamin D for adequate bone health.
 - Multivitamin suggestions: Flintstone Complete Chewable (two to 12 years), Centrum Junior Complete (four to 12 years), One-A-Day Teen Advantage (12 to 17 years)

Importance of Hydration and Fluids

Your child needs to drink plenty of fluids to help keep the newly transplanted kidney well hydrated and working properly. The registered dietitian will encourage intake of mostly water or low-calorie beverages to avoid excessive calorie intake.

- Keep track of your child’s fluid intake. Your child’s transplant team will ask you about it at each visit.
- Water, milk, oral supplements and juice all count toward your child’s fluid goals
- Smartphone apps for tracking fluids:
 - KidneyDiet (iPhone/iPad/Android/Kindle Fire) – tracks food and fluids
 - MyNetDiary (iPhone, iPad, Android, Blackberry) – tracks food and fluids; has a bar code scanner
 - WaterLogged (iPhone, iPad/iPod touch)-tracks fluid with helpful charts and reminders. Works with Fitbit and MyFitnessPal.



Growing Kids with Enteral Nutrition

Some children cannot keep up with high fluid demands or nutritional requirements to grow properly after transplant. In these situations a temporary or permanent feeding tube may need to be placed. You will work closely with a registered dietitian who will determine specific nutrition and fluid goals to meet your child’s specific needs.

For children using a feeding tube, our team will encourage use of occupational therapy or feeding therapy programs to continue to promote some by mouth feedings, as the child is able. What the child is unable to finish by mouth, the remainder will be placed through the tube into the stomach. If the child cannot tolerate any by mouth feedings, then a pump delivering food slowly overnight may work better. Your dietitian will work with your family to create a feeding schedule that fits your lifestyle.

Food Safety After Organ Transplant

Food safety is important, as your child's immune system is weakened by some of the medications they are taking. It is important to avoid food-borne illness by practicing safe food handling. Safe food practices:

- Do not eat raw or undercooked meat/seafood (no sushi)
- Avoid raw or unpasteurized juices, milks and cheeses
- Avoid alfalfa sprouts
- Wash all fruits and vegetables well with water
- Remember to wash your hands before cooking and eating foods.
This should take about 20 seconds with soap and water.



Medications & Herbal Supplementation

Medications and herbal supplementation can affect your child's nutrition and overall wellbeing. It is important to share with your health care team all of your child's medications including vitamins, minerals and herbal supplements as they may interact with one another. Consult with the registered dietitian or medical doctor before starting any herbal supplements.

- Tacrolimus/cyclosporine – avoid grapefruit and grapefruit juices as they interfere with these medications.

References:

Nutrition Care Manual

National Kidney Foundation

Academy of Nutrition and Dietetics, Nutrition Care Manual