

NUTRITION



Eating Well,
Living Well
after
Transplant

Eating Well *after* Transplant

We all need food and water to live. The calories in food are the fuel our body needs to grow and function.

- Protein-rich foods help the body build, maintain and repair muscle and body tissue.
- Vitamins and minerals keep blood, skin and the nervous system functioning properly.

Transplant recipients have unique nutritional requirements. The high-dose chemotherapy and/or total body irradiation prior to transplant stresses a patient's organs and tissues. To repair any damage that occurs, transplant patients need to increase their caloric and protein intake.

Transplant recipients can need up to 50-60 percent more calories and twice as much protein in their diets than healthy individuals of similar age and gender. The need for extra calories and protein can continue several months after transplant.

Eating Challenges after Transplant

Getting enough calories, protein and fluids into your body can be difficult, particularly during the first few weeks after transplant. Mouth sores, nausea, vomiting, dry mouth, diarrhea, taste changes, constipation, depression and fatigue can make mealtimes a chore, rather than a pleasure. Certain medications may also cause a loss of appetite.

The following suggestions for managing eating difficulties were developed by dietitians who



have extensive experience working with transplant recipients.

Mouth and Throat Sores

Mouth and throat sores are common after transplant. They may be caused by chemotherapy, total body irradiation or infection. Try the following:

- Eat foods lukewarm or cold, rather than hot.
- Cook foods until tender and soft, adding moisture with sauces, butter or gravy.
- Drink through a straw to bypass mouth sores.
- Eat high-protein, high-calorie foods such as peanut butter, pasteurized cottage cheese or yogurt to speed healing of the sores.
- Try a liquid or blenderized diet or an oral nutrition supplement such as Ensure[®], Boost[®], or Carnation Instant Breakfast[®].
- Eat soft foods such as mashed potatoes, cooked eggs, chicken or tuna salad, puddings, soft canned fruit and cooked cereals.
- Eat cold foods such as milk shakes, cottage cheese, yogurt and watermelon.
- Eat soft, frozen foods such as popsicles, frozen yogurt, ice cream and slushes.
- Drink pasteurized fruit nectars and apple or grape juice instead of acidic juices.
- Maintain good mouth and dental care. Rinse often with a mixture of 1 cup water, 1/4 tsp baking soda and 1/8 tsp of salt.
- Request pain medicine before your meal if discomfort is keeping you from eating.

Avoid

- tart or acidic foods and beverages such as citrus fruits and juices, pineapple juice and some tomato products
- salty foods
- strong spices such as peppers, chili powder, nutmeg and cloves
- coarse foods such as raw vegetables, dry toast, grainy cereals and breads and crunchy snacks
- alcoholic beverages and mouthwashes that contain alcohol
- extremely hot foods or beverages

Dry Mouth

Dry mouth is a common side effect of total body irradiation, nausea medications, and antihistamines. Try the following:

- Add sauces, gravies, broth and dressings to foods.
- Eat cooked moist foods like soups and pasta.
- Suck on ice chips, popsicles, or sugar-free hard candies to keep your mouth moist.
- Eat foods with citric acid such as oranges, orange juice, lemons, lemonade and sugarless lemon drops.
- Drink clear liquids with and between meals.
- Practice good mouth and dental care to decrease the risk of infections.



- Ask your dietitian or doctor about saliva substitutes such as Salivart®, Mouth-Kote® and Biotene®.

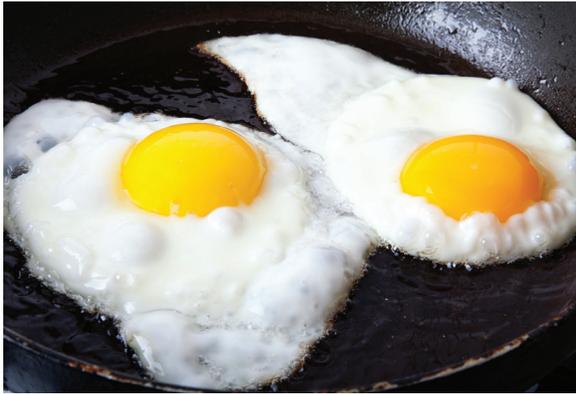
Avoid

- meats without sauces
- bread products
- crackers or dry cake
- very hot foods or beverages
- alcoholic beverages and mouthwashes that contain alcohol

Changes in Taste

Total body irradiation, chemotherapy, pain medications and antibiotics can make foods you normally enjoy taste unpleasant. Try the following:

- Eat foods and drink beverages cold or at room temperature.
- Eat strongly flavored foods such as lasagna or barbecued foods (unless you have mouth or throat sores).
- Eat tart or spicy foods (unless you have mouth sores).
- Select foods that smell appetizing.
- Drink fluids with your meal to rinse away any unpleasant taste.
- Eat protein foods without strong odors, such as poultry and dairy products, rather than those with strong odors such as beef and fish.
- If food tastes metallic, use plastic or bamboo utensils and avoid food and beverages from a metal can.
- Add flavorful sauces to foods.
- Eat meat with something sweet.
- Try new seasoning combinations to enhance the taste.
- Practice good mouth care.



Thick Saliva

Total body irradiation or dehydration (loss of fluids) can cause thick saliva. If thick saliva is making eating difficult for you, try the following:

- Drink club soda or hot tea with lemon.
- Suck sugarless sour lemon drops.
- Eat a lighter breakfast if you have mucous build up in the morning, and larger meals in the afternoon and evening.
- Rinse often and before eating, with a mixture of 1 cup water, ¼ tsp baking soda and 1/8 tsp salt.
- Drink lots of fluids.
- Eat soft, tender foods such as cooked fish and chicken, eggs, noodles and thinned cereals.
- Eat small meals frequently every 3-4 hours.
- Drink diluted juices, broth-based soups and fruit-flavored beverages.
- Eat moist fruits like melons.
- Try a liquid diet if the problem is severe.

Avoid

- meats that require chewing
- bread products
- oily foods
- thick hot cereals
- thick cream soups
- nectars

Nausea and Vomiting

Chemotherapy, total body irradiation, infections, drugs used to control infections, opioid pain medications and mucous drainage from mouth and sinuses can cause nausea and vomiting. If nausea and vomiting make eating difficult, try the following:

- Eat small, frequent meals every three hours.
- Eat dry crackers or toast, especially before movement, such as getting out of bed (unless you have a dry throat or mouth, or thick saliva).
- Eat cold foods, rather than warm foods because they have less odor.
- Eat low-fat foods such as cooked vegetables, canned fruit, baked skinless chicken, sherbet, fruit ice, pretzels or toast.
- Drink clear, cool beverages, and eat flavored gelatin, popsicles and ice cubes made of a favorite liquid.
- Sip liquids slowly through a straw.
- Sip small amounts of liquid frequently.
- Eat while distracted (e.g. watching TV).
- If you're hospitalized, request that food trays be brought to you without covers on the plates to reduce odors.
- Request anti-nausea medications 30 minutes before eating.
- Keep food solely in kitchen area, run vent fans and leave the kitchen if you feel queasy.



Avoid

- spicy, overly sweet, high fat and strong smelling foods
- hot liquids or a lot of liquids with meals
- drinking liquids on an empty stomach
- perfumes and other strong smelling scents

If you are nauseated, don't lie flat on your back after eating. This can make the problem worse. If you need rest, sit or recline with your head elevated.

Lack of Appetite/Weight Loss

Many people experience weight loss and lack of appetite after transplant. Possible causes include total body irradiation, chemotherapy, infection, depression and fatigue. If you have no appetite for food, try the following:

- Eat small, frequent high-calorie meals.
- Drink nutrient-dense liquids like milk instead of low calorie drinks like coffee, tea or diet soda.
- Eat nutrient-dense, high-calorie foods such as pasteurized cheese, whole milk, ice cream, eggs, avocado, olives, Greek yogurt, hummus and peanut butter.
- Use protein supplements such as Promod® or Unjury®, or high-calorie oral nutrition supplements such as Ensure®, Boost®, Carnation Instant Breakfast® or Enu®, if approved by your dietitian.
- Cook with fat and oils.



- Add dry milk powder or cheeses, such as cheddar or cream cheese, to casseroles dishes.
- Create a pleasant, mealtime atmosphere e.g. colorful place settings, varied food colors and textures, soft music, etc.
- Keep trying to eat what you can (unless you are nauseated) but don't overdo it. For now, eating may just be a chore to help you get better, not the pleasure that it was before transplant.
- Address any sadness or depression you may be experiencing with a healthcare professional.
- Ask your doctor about oral medications that may improve your appetite.

Diarrhea

Diarrhea can occur following total body irradiation or chemotherapy. Antibiotics, magnesium salts and metoclopramide (Reglan®), as well as infection or lactose intolerance (inability to digest the lactose in milk products) can also cause diarrhea. Try the following:

- Eat smaller amounts of food at each meal.
- Increase your intake of fluids.
- Drink fluids between rather than with meals.
- Eat hard cheeses, peanut butter and oatmeal.
- Eat foods and drink beverages high in potassium and low in insoluble fiber such as:
 - o ripe bananas
 - o potatoes without the skin
 - o tomato juice, Gatorade® and Pedialyte®
 - o baked fish and chicken, lean ground beef
 - o eggs
 - o well-cooked vegetables (not beans, broccoli, cauliflower and cabbage)
 - o canned fruit or applesauce
 - o white rice
 - o white bread

Avoid

- high-fiber foods such as
 - bran or whole grain cereals and breads
 - raw vegetables
 - fruits with skin and seeds
 - popcorn, nuts and seeds
- foods that can cause gas or cramps such as
 - carbonated beverages
 - beans, broccoli, cauliflower, cabbage
 - chewing gum
 - highly spiced foods
 - foods with rich gravies or sauces
- foods that contain caffeine such as tea, coffee, chocolate, colas and other caffeinated soft drinks
- dairy products, unless they are lactose-free
- over-the-counter medications like Imodium® unless approved by your doctor, since they sometimes make a colon infection worse

Constipation

Chemotherapy, opioid pain medications and some anti-nausea medications cause constipation. If you are constipated, try the following:

- Drink plenty of warm beverages.
- Eat high-fiber foods such as well-washed raw fruits and vegetables, whole wheat bread and cereals and dried fruit. Drink plenty of fluids while eating these foods.



- Drink warmed prune juice or stewed prunes.
- Engage in light exercise, especially after eating.
- Ask your doctor about stool softeners, laxatives or fiber supplements if the problem persists for more than two days.

Preventing Infection

For a period of time after transplant, your doctor may tell you to avoid foods that might increase the risk of infection, such as:

- raw or undercooked meat, such as burgers and steaks that are not well-done, and tofu
- dishes that may contain undercooked meat such as sausages or casseroles
- raw or undercooked eggs, or foods that might contain them
- raw or undercooked seafood such as sushi
- raw nuts or unshelled nuts
- miso and tempeh products
- unpasteurized milk, juices, kombucha and other unpasteurized drinks
- cheeses with mold, such as blue cheese and Gorgonzola, and soft cheeses like brie or feta unless they are pasteurized
- Mexican style soft cheeses, such as queso fresco and queso blanco, which are often made with unpasteurized milk
- deli meats and cheeses unless heated to 165° F
- smoked, uncooked fish, such as nova lox
- pickled seafood
- honey
- sprouts, salad bars and buffets

Some transplant centers recommend that you avoid fresh fruits and vegetables, while others allow them provided they are well washed.

Your transplant team will provide you with guidelines that are appropriate for you, and will let you know when it is safe to begin eating these items again.

Herbs, Botanicals & Supplements

Until your immune system has fully recovered, you should avoid taking any herbal or botanical product without your doctor's approval. Some of these products can:

- reduce the effectiveness of other drugs you are taking
- cause a serious infection
- damage your liver, kidneys or other organs
- make gastrointestinal problems worse

Products to avoid, unless your doctor approves them, include, but are not limited to:

- Alfalfa
- Borage
- Chaparral
- Chinese herbs
- Coltsfoot
- Comfrey
- DHEA
- Dieter's Tea (including senna, aloe, rhubarb root, buckthorn, cascara, castor oil)
- Ephedra or MaHuang
- Groundsel or Life Root
- Heliotrope or Valerian
- Kava Kava
- Laetrile (Apricot Pits)
- Licorice Root
- Lobelia
- L-tryptophan
- Maté Tea
- Pau d'arco
- Pennyroyal
- Sassafras
- Spirulina
- St. John's Wort
- Yohimbe and Yohimbine

If your platelet count is low, avoid garlic pill supplements (cooking with regular garlic is fine), ginkgo biloba, and more than 3 gm of fish oil per day, which can interfere with blood clotting.



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