

Low-Iodine Diet: Preparing to Receive Radioactive Iodine



Note: This information is only for patients taking part in clinical research at the NIH Clinical Center. It may not apply to patients elsewhere. If you have questions about this information, ask a member of your healthcare team.

INTRODUCTION

Why do I need to follow a low-iodine diet?

If you're going to get radioactive iodine for a test or as a treatment (either a tracer or a therapy dose), sticking to a low-iodine diet will help. You'll need to follow a low-iodine diet for about 2 weeks before your treatment or test.

How does the diet help?

By cutting down on iodine in your diet before your scan or treatment, your body levels of iodine will be low. Your thyroid gland will then be “hungry” for iodine. So when you get the dose of radioactive iodine, your thyroid will take in more—right where you need it. This will help make the treatment work better or the test be more accurate.

What is iodine?

Iodine is a key mineral your body needs to make thyroid hormones. It's also common in many of the foods you eat.

How much iodine should I get on the low iodine diet?

On the low-iodine diet, you should get less than 50 micrograms of iodine per day. You can do this by cutting down on foods that are high in iodine.

How much iodine do Americans normally get from food?

The Recommended Daily Allowance, or the amount of iodine that most adults need for normal health, is 150 micrograms per day. Most people in the United States get about 150-550 micrograms. So to follow the low-iodine diet you'll likely need to make some changes to what you eat.

How will I know which foods have the most iodine?

Unfortunately, the amount of iodine in a food isn't on a food label. It's not in books or on many web sites that list nutrients either. So you can't easily track iodine like some people track calories or grams of fat. Instead, you need to know which foods and ingredients to avoid.

Which foods can't I eat?

The foods highest in iodine are:



Dairy (milk and milk-based products)



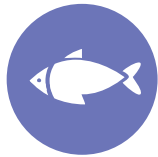
Seaweed



Egg Yolks



Chocolate



Fish



Certain grains made with added iodine. See table for a list of safe grains.



Shellfish

Aside from these foods, most Americans get iodine from iodized salt—which is salt with added iodine—and from food additives.

Use the following guide to help you make safe food choices. It will help you understand which

- **Foods you can't eat at all**
- **Foods you can eat, but only in small amounts**
- **Foods you can eat without limits**

READING INGREDIENT LABELS FOR IODINE

You can't find iodine on a food label. But you can look for certain ingredients that contain iodine.

Not-Allowed Ingredients

While you're on the low-iodine diet, you can't eat these ingredients at all. Look for them on food labels.

1 Bread conditioners

Companies and bakeries may add high-iodine bread conditioners to baked goods. Avoid any product with:

- **calcium iodate**
- **potassium iodate**

Home-made bread/baked goods without these conditioners are allowed.

2 Red Dye #3

This food coloring—called erythrosine or E127 in Europe—is rare now. But always check labels on foods dyed red or orange.

3 Seaweed and seaweed-based ingredients

These are used to thicken jellies, soup, ice cream, salad dressings, and toothpaste. Seaweed is also in sushi. Avoid ingredients like:

- **Alginate**
- **Algin**
- **Agar-agar**
- **Carrageenan**
- **Nori**
- **Algae**
- **Kelp**
- **Seaweed**

4 Egg Yolk

All the iodine in an egg is in the yolk, not the egg white.

Limited Ingredients

While you need to avoid foods that are high in iodine, you can eat some in small amounts as ingredients.

Foods that you can eat in small amounts as ingredients are



Cream or milk



Chocolate



Whole Egg



Cheese

How small is a small amount? There's no easy answer. Less is better. Think in terms of teaspoons, not measuring cups.

Keep in mind that ingredients are listed on the label from largest to smallest amounts by weight. So if a high-iodine food is at the end of a long list of ingredients, it's probably only a small amount.

MORE ABOUT EATING LOW-IODINE

- **Processed foods**—like many canned, packaged or frozen foods—have added salt. Labels don't usually say if the salt has iodine or not. However, most large manufacturers use non-iodized salt. (See **Appendix A** for specific brand names). Always check for not-allowed ingredients.
- **Small manufacturers** may use iodized salt. You may want to avoid their products during the short time you're on the diet.
- **Non-iodized table salt** is OK to use while on a low-iodine diet.

- **Restaurant foods:** Eating out on the low-iodine diet can be hard in two ways. First, you can't usually tell what type of salt a restaurant is using and most restaurants prepare foods with lots of added salt. Second, restaurants may make marinades, spice mixes, dressings, and sauces from scratch with iodized salt.

Therefore, if you're eating food from any restaurant

- choose plainly prepared foods that are allowed on the diet
 - make a special request that your food be prepared without added salt, marinades, or sauces
 - use simple oil and vinegar instead of salad dressing, or bring your own
 - ask for spices and herbs without salt to flavor your food
- **Home preparation:** Similar to eating in restaurants.

OTHER IODINE-CONTAINING PRODUCTS TO AVOID

- **Red Dye:** Avoid Red Dye #3 (erythrosine or E127 in Europe). Red Dye #40 is OK. With this in mind, check any pills or capsules that are artificially dyed red, orange, or brown.
- **Supplements:** Some supplements can be high in iodine. While you're on the diet, don't use:
 - **Calcium supplements** made from oyster-shells
 - **Fish oil**-except for Omacor brand, which is OK to use
 - **Multi-vitamins**
 - **Selenium supplements**
 - **Any supplement with Red Dye #3** (erythrosine or E127 in Europe)
- **Toothpaste:** Some brands have alginates (made from seaweed), which are high in iodine.
- **Medications:** Some thyroid medications—like levothyroxine and triiodothyronine—and other drugs have iodine. Check with your doctor to see if you should stop taking any medicines because of iodine. Never stop using a medicine your doctor prescribed unless he/she says it's OK.
- **Antiseptics for Cleaning Cuts:** Some products for killing germs on a wound—like Betadine—have iodine. Don't use them when you're on the low-iodine diet. Try hydrogen peroxide for cleaning a cut and an antibiotic cream if you need it.
- **Creams and Lotions:** Avoid lotions made from seaweed (including kelp and spirulina) while on the low-iodine diet.
- **Water Purification:** Don't use iodine tablets for purifying water (making it clean to drink) when you're on the diet.

GUIDE TO THE LOW-IODINE DIET

* See also the list of **Not-Allowed Ingredients**

| TYPE OF FOOD | FOODS ALLOWED | FOODS NOT ALLOWED |
|---|---|---|
| <p>Grains, Starchy Vegetables, & Cereals</p> | <p>Grains</p> <ul style="list-style-type: none"> • Pasta (white and wheat) • Bulgar • Wheat • Rice • Couscous • Oats • Quinoa • Polenta • Cornmeal • Most other grains <p>Starchy vegetables</p> <ul style="list-style-type: none"> • Sweet Potatoes • Potatoes • Peas • Lentils • Beans • Corn <p>Cold and hot cereals (without milk)</p> <ul style="list-style-type: none"> • Oatmeal • Grits • Cream of Wheat • Corn Flakes • Wheat Flakes • Shredded Wheat | <p>Any foods prepared with or that contain not allowed ingredients</p> |
| <p>Fruits</p> | <ul style="list-style-type: none"> • All fresh or frozen fruits and fruit juices • Most canned fruits, preferably in juice • Dried fruits | <p>Maraschino cherries with Red Dye #3 or erythrosine</p> |

| TYPE OF FOOD | FOODS ALLOWED | FOODS NOT ALLOWED |
|-------------------------------|---|---|
| <p>Vegetables</p> | <ul style="list-style-type: none"> • Most fresh, frozen and canned vegetables (except for foods in the next column) • Beans, including canned and refried • Olives | <ul style="list-style-type: none"> • Nori (like the black paper in sushi rolls) • Seaweed and seaweed salad • Sea vegetables, like kelp and algae |
| <p>Nuts</p> | <ul style="list-style-type: none"> • Unsalted and unprocessed nuts • Salted or roasted nuts produced by big companies which use salt without iodine - see Appendix A • Peanut butter in small amounts (less than 2 tablespoons a day) | <ul style="list-style-type: none"> • Roasted or salted nuts from small producers—like ones sold at local markets—which are more likely to have salt with iodine • Trail mixes with chocolate pieces, M&M's, yogurt-covered pieces, or white chocolate |
| <p>Animal Proteins</p> | <p>All fresh red meats, like</p> <ul style="list-style-type: none"> • Beef • Pork • Lamb • Veal <p>All fresh poultry, like</p> <ul style="list-style-type: none"> • Chicken • Turkey <p>Wild or game meats, like</p> <ul style="list-style-type: none"> • Buffalo • Venison <p>Luncheon meats, like</p> <ul style="list-style-type: none"> • Chicken • Ham • Turkey <p>Other foods, like</p> <ul style="list-style-type: none"> • Frankfurters & sausages • Bacon | <p>Cured meats including</p> <ul style="list-style-type: none"> • Pepperoni • Salami • Bologna |

| TYPE OF FOOD | FOODS ALLOWED | FOODS NOT ALLOWED |
|---|---|---|
| <p>Dairy: milk, yogurt, cheese</p> | <p>Instead of milk or cream, safe options include</p> <ul style="list-style-type: none"> • Almond milk • Hemp milk • Rice milk • Coconut milk • Non-dairy cream substitutes | <ul style="list-style-type: none"> • Milk (all kinds, including whole, low-fat, and skim) • Buttermilk • Powdered milk • Coffee drinks with milk, like lattes, cappuccinos, and frappes • Milk-based drinks, like egg-nog, kefir, and yogurt drinks • Cream (whipped and half & half) • Cream based soups or sauces • Yogurt • Cheese • Cottage cheese • Ice cream and milk shakes <p>Comment: You can have milk, cream and cheese in very small amounts as an ingredient (see Limited Ingredients).</p> |
| <p>Eggs</p> | <ul style="list-style-type: none"> • Egg whites • Egg substitute made from egg whites | <ul style="list-style-type: none"> • Whole eggs • Egg yolk |
| <p>Breads</p> | <ul style="list-style-type: none"> • Breads that do not have an iodate conditioner as an ingredient • Homemade breads made with allowed ingredients | <ul style="list-style-type: none"> • Any breads with “calcium iodate” or “potassium iodate” on the label <p>Comment: Avoid fresh-baked breads from local bakeries unless the bakery can guarantee that they do not use iodate conditioners.</p> |

| TYPE OF FOOD | FOODS ALLOWED | FOODS NOT ALLOWED |
|---------------------------|---|--|
| <p>Baked Goods</p> | <ul style="list-style-type: none"> Homemade cakes, cookies and fruit desserts made with allowed ingredients <p>Comment: Any baked goods must be made with egg whites only and dairy-free.</p> | <p>Avoid any foods made with not allowed ingredients including</p> <ul style="list-style-type: none"> Muffins Cornbread Quick breads (like banana or zucchini) Pastries Pancakes Cakes Cookies Donuts |
| <p>Snack Foods</p> | <p>Chips and Crackers</p> <ul style="list-style-type: none"> Crackers Pretzels Graham Crackers Potato chips Corn tortilla chips Popcorn <p>Sweets</p> <ul style="list-style-type: none"> Sugary candies Fruit ice Popsicles Jell-O® <p>Nuts and Seeds</p> <ul style="list-style-type: none"> Nuts Seeds Coconut | <p>Sweets</p> <ul style="list-style-type: none"> Chocolate Products with chocolate Puddings and custards Sherbet Ice cream and other dairy products Cocoa or hot chocolate (even if you mix it with water) Diet or meal-replacement shakes (most have dairy or soy milk ingredients) |
| <p>Seafood</p> | <p>None</p> | <ul style="list-style-type: none"> All fish including canned tuna and sardines All shellfish including lobster, crab, shrimp and oysters Sushi, nori, seaweed or other sea vegetables Fish pastes and sauces Imitation crab meat |

| TYPE OF FOOD | FOODS ALLOWED | FOODS NOT ALLOWED |
|---|---|--|
| <p>Vegan Proteins and Soy</p> | <ul style="list-style-type: none"> • Beans • Protein powders and meal-replacement bars made from wheat or nuts • Tofu* • Edamame (soy beans)* | <ul style="list-style-type: none"> • Soy milk* • Soy yogurt* • Protein powders and meal replacement bars made from soy or whey • Veggie burgers, sausages, and other vegetarian imitation meat products* |
| <p>Mixed dishes, soups and stews</p> | <ul style="list-style-type: none"> • Canned, non-cream soups • Homemade broth-based soups • Chili, stews and other one-pot meals that have allowed ingredients • Hamburgers, meatloaf, meatballs, and other foods made with egg whites and other allowed ingredients | <ul style="list-style-type: none"> • Lasagna, burritos, mac and cheese, and other dishes made with cheese • Hamburgers, meatloaf, meatballs, and other foods made from ground beef (assume that they contain egg yolk unless you made them yourself) |
| <p>Condiments</p> <p>Comment: You can eat mayonnaise, butter and soy sauce in very limited amounts (a total of two tablespoons from all three per day).</p> | <p>Savory</p> <ul style="list-style-type: none"> • Catsup • Mustard • Gravy made without milk or butter • Margarine <p>Sweet</p> <ul style="list-style-type: none"> • Honey • Pancake syrup • Jellies <p>Dressings, marinades, and herbs</p> <ul style="list-style-type: none"> • Oil • Vinegar • Non-creamy salad dressings • Marinades • Herbs and spices—fresh or dried | <p>Crean sauces and toppings</p> <ul style="list-style-type: none"> • Cream • Sour cream • Creamy salad dressings • White or cream sauces <p>Sweet</p> <ul style="list-style-type: none"> • Blackstrap molasses <p>Other sauces, pastas, and herbs</p> <ul style="list-style-type: none"> • Fish sauce, anchovy paste • Spice mixtures and seasoning packets with iodized salt (see Appendix A for details) |

| TYPE OF FOOD | FOODS ALLOWED | FOODS NOT ALLOWED |
|------------------|---|---|
| Beverages | <ul style="list-style-type: none"> • Water • Coffee • Tea • Carbonated beverages • Fruit juice • Beer, wine and alcohol if your doctor says it's OK | <ul style="list-style-type: none"> • Milk or cream • Any beverage that has not allowed ingredients |

*U.S data on iodine content of these foods is lacking. Therefore guidelines are based on food composition data from other countries. However, it may be safest to avoid all soy and tofu foods unless you follow a vegetarian or vegan diet with limited protein sources.

Companies that Use Salt without Iodine

Remember that you can only use salt without iodine while on your diet. In 2012, these companies and brands stated that they use only salt without iodine in the products they sell in the U.S.

This is not a complete list of food companies or their brands. By including a company on this list, NIH is in no way endorsing them.

Campbell's® US

www.campbellsoupcompany.com

- Pace®
- Pepperidge Farm®
- Prego®
- Swanson®
- V8®

Conagra Foods®

www.conagrafoods.com

- Banquet®
- Chef Boyardee®
- Egg Beaters®
- Fleischmann's®
- Healthy Choice®
- Hebrew National®
- Hunt's®
- La Choy®
- Marie Callender's®
- Orville Redenbacher's®
- PAM®
- Peter Pan®
- Slim Jim®

FritoLay®

www.fritolay.com

- Cheetos®
- Cracker Jacks®
- Doritos®
- Funyuns®
- Grandma's®
- Lays®
- Nut Harvest®
- Rold Gold®
- Ruffles®
- Sabra®

- Sabritones®
- Simply Natural®
- Stacy's®
- Sun Chips®

General Mills®

www.generalmills.com

- Betty Crocker®
- Big G cereals®
- Bisquick®
- Cascadian Farm®
- Cheerios®
- Chex®
- Fiber One®
- Green Giant®
- Haagen-Dazs®
- Hamburger Helper®
- Nature Valley®
- Old El Paso®
- Pillsbury®
- Progresso®
- Total®

Heinz®

www.heinz.com/our-food/products.aspx

- Bagel Bites®
- Classico®
- Jack Daniels Sauces®
- Ore-Ida®
- Smart Ones®
- T.G.I.Friday's®

Hormel Foods®

www.hormelfoods.com/brands/default.aspx

- Chi-chi's®
- Dinty Moore®
- Farmer John®
- HerbOx®
- Jennie-O®
- Spam®
- Stagg Chili®
- World Food®

Kashi®

www.kashi.com/products

- GOLEAN®
- Heart to Heart®

Kraft Foods®

www.kraftrecipes.com/Products/

- A1®
- Boca®
- Breakstone's®
- Capri Sun®
- Chips Ahoy®
- Cool Whip®
- Cracker Barrel®
- Crystal Light®
- Honey Maid®
- Jell-O®
- Kool-Aid®
- Maxwell House®
- Miracle Whip®
- Nabisco®
- Nilla®
- Oreo®
- Oscar Mayer®
- Planters®
- Ritz®
- Snackwell's®
- Stove Top®
- Triscuit®
- Wheat Thins®

PepsiCo®

www.pepsico.com/Brands.html

- (owns FritoLay® and Quaker®, previously listed)
- Aquafina®
- Brisk®
- Dole®
- Frappuccino®
- Gatorade®
- IZZE®
- Lipton®
- Mountain Dew®
- No Fear®
- Ocean Spray®
- Pepsi®
- Propel®
- Sierra Mist®
- Sobe®
- Tropicana®

Quaker®

www.quakeroats.com

- Aunt Jemima®
- Chewy®
- Cap'n Crunch®
- Life®
- Mother's®
- Near East®
- Pasta Roni®
- Rice-A-Roni®

What if the brand of the food I want to eat is not on this list?

This list doesn't show all the companies that use salt without iodine. If there is a brand you want to use that is not on the list, use your best judgment or talk to your doctor.

In general, large manufacturers and companies use non-iodized salt in their products. Smaller companies are more likely to make foods with iodized salt.

References Available upon Request

This guide is based on the latest food composition studies, the best scientific data available regarding the iodine content of food at the time of publication (January 2014).

Disclaimer

This information is prepared specifically for patients taking part in clinical research at the National Institutes of Health Clinical Center and does not necessarily apply to individuals who are patients elsewhere. If you have questions about the information presented here, talk to a member of your health care team.

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