

ELIMINATION DIET

In an elimination diet, a food or group of foods is removed from a person's diet for a set period of time. This helps to determine whether specific foods or ingredients in foods contribute to symptoms. Diets are individualized based on each patient's history, eating patterns, and overall symptom picture. Elimination diets are, in essence, controlled experiments that focus on changing a single dietary variable at a time.

The process of outlining and then following an elimination diet can take effort and time both for practitioners to explain and for patients to conduct. However, successfully discovering food allergies or intolerances can potentially alter the courses of several diseases and lead to profound symptom improvements.

Serum tests are available to help diagnose adverse food reactions, and these remain controversial given their low accuracy (save maybe for irritable bowel syndrome). Many of these are offered by private laboratories and focus on IgG levels. Food allergies that are IgE-mediated, however, can be accurately assessed through widely available tests. However, the "gold standard" for food allergies and food intolerances remain placebo-controlled food challenges.

Four key steps are involved in the process.

STEP 1: THE PLANNING PHASE

FIGURING OUT WHICH FOOD(S) TO ELIMINATE

Begin by ensuring that an elimination diet is clinically appropriate and something that a patient is both willing and motivated to try. A thorough dietary history, which may include a food journal, can help assure clinicians that food restrictions will not contribute to nutrient deficiencies or inappropriate weight loss.

INFORMATION TO GATHER IF FOOD INTOLERANCE IS SUSPECTED[1]

The following lists key points to keep in mind when taking a history from people who may have food intolerances.

- **History of present illness**
 - Relation of symptoms to exercise
 - Substance use (caffeine, smoking, alcohol, illicit drugs)
 - Life stressors
- **Past medical history**
 - Respiratory allergies
 - Chronic respiratory congestion
 - Asthma
 - Atopic dermatitis

- Infant colic
- Irritable bowels
- Eating disorders
- Food allergies
- **Family history**
 - Food intolerance
 - Irritable bowels
 - Headache
 - Mouth ulcers
- **Lab testing**
 - Previous allergy tests

Some potential risks to consider:

- Elimination diets may exacerbate an existing or activate a latent eating disorder such as anorexia or bulimia nervosa.
- Do not reintroduce foods known to provoke anaphylactic reactions.
- Be wary if one is already malnourished or is at high risk for nutritional deficiencies. This may include the elderly, autistic (given they often already restrict their diets), and those with very limited food resources.
- Given that foods also heal, be cautious of instilling a fear of food.

Consider having one keep a *food-symptom diary* for a few weeks as a way to better understand what foods may be leading to bothersome symptoms (Reference [sample food diary](#)). Here are some questions that often illicit problematic foods:

- What foods do you eat most often?
- What foods do you crave?
- What foods do you eat to help you feel better?
- What foods do you think you might have trouble giving up?

Why might these foods be problematic? One hypothesis is that problematic foods can both trigger an inflammatory process in the gut as well as cause endorphin release in the brain. Endorphins reduce pain, and because they lead to a sense of well-being, their release may cause continued regular consumption of triggering foods.

Once a list of potential problematic foods is generated, decide which foods to eliminate. An *individualized* elimination diet should be based on one's intuition (what is my "gut feeling"?), the answers to the above questions, and common provoking foods based on one's disease. The following table lists foods that one might consider avoiding based on specific diagnoses.

TABLE 1. FOODS THAT OFTEN INFLUENCE SPECIFIC HEALTH PROBLEMS[1]

Condition	Foods to consider avoiding
Attention deficit hyperactivity disorder (ADHD)	Apples, artificial colors, aspartame (NutraSweet), butylated hydroxyanisole, butylated hydroxytoluene (in packed cereals), benzoates (chewing gum, margarine, pickles, prunes, tea, raspberries, cinnamon, anise, nutmeg), caffeine, corn, dairy products, nitrate and nitrites (preserved meats, like bacon, frankfurters, pepperoni), oranges, propyl gallate, sulfites (dried fruits, mushrooms, potatoes, baked goods, canned fish, pickles, relishes), peanuts, tomatoes
Atopic dermatitis	Children: dairy, eggs, soy, wheat Adults: pollen-related foods (fruit, nuts, vegetables) Other considerations: artificial colors, benzoates, berries, citrus, currants, fish, legumes, sulfites, tomatoes, beef, chicken, pork
Autism spectrum disorders	Gluten and casein (gluten-free, casein-free diet), food additives, artificial colors
Irritable bowel syndrome	Dairy, eggs, wheat Specific carbohydrate diet (Refer to Inflammatory Bowel Disease).
Migraine	Caffeine, monosodium glutamate (MSG), processed meats and fish, dairy, nuts, alcohol, vinegar, certain fruits and vegetables (citrus, onions), yeast-risen baked goods, aspartame (NutraSweet)
Rheumatoid arthritis	Level 3: The Few-Foods Diet Corn, dairy, nightshade vegetables (bell peppers, eggplant, potatoes, tomatoes)
Gastroesophageal reflux disease (GERD)	Alcohol, chocolate, coffee, cow’s milk, saturated fat, orange juice, spicy foods, tea, tomato juice, peppermint/spearmint
Inflammatory bowel disease	Dairy, gluten, yeast, some carbohydrates
Serous otitis media	Dairy

STEP 2: THE AVOIDANCE PHASE

ELIMINATING FOODS: THREE LEVELS[1]

The intensity of the diet depends primarily on how many foods are eliminated at a time.

LOW: THE SIMPLE DIET ELIMINATES MILK, EGGS, AND WHEAT

Elimination of one or a few key foods. Often, these may include milk products and gluten.

- Pros: Better for people at risk of undernutrition or who might have difficulty with adherence.
- The less good: This diet plan will not help to determine if one is intolerant a broader group of foods or food combinations.

Animal proteins

Allowed: Beef, chicken, lamb, pork, turkey

Eliminated: Dairy products, chicken eggs

Grains and starches

Allowed: Arrowroot, barley, buckwheat, corn, millet, oats, rice, rye, sweet potatoes, tapioca, white potatoes, yams

Eliminated: Dairy-based butter and margarines

All fruits, vegetables, salt, spices, sweeteners, and vegetable proteins are allowed.

MODERATE: A STRICTER DIET THAT ELIMINATES SEVERAL FOOD GROUPS

- Pros: High rates of success in determining all kinds of food intolerances without significant nutritional risks.
- Cons: Requires significant planning, recording, and time.

Animal proteins

Allowed: Lamb

Eliminated: All others, including eggs and milk

Vegetable proteins

Allowed: None

Eliminated: Beans, bean sprouts, lentils, peanuts, peas, soy, all other nuts

Grains and starches

Allowed: Arrowroot, buckwheat, corn, rice, sweet potatoes, tapioca, white potatoes, yams

Eliminated: Barley, millet, oats, rye, wheat

Vegetables

Allowed: Most

Eliminated: Peas, tomatoes

Fruits

Allowed: Most

Eliminated: No citrus or strawberries

Sweeteners

Allowed: Cane or beet sugar, maple syrup, corn syrup

Eliminated: Any others, including aspartame

Oils

Allowed: Coconut, olive, safflower, sesame

Eliminated: Animal fats (lard), butter, corn, margarine, shortening, soy, peanut, other vegetable oils

Other

Allowed: Salt, pepper, a minimal number of spices, vanilla, lemon extract

Eliminated: Chocolate, coffee, tea, colas and other soft drinks, alcohol

HIGH: A FEW-FOODS DIETS ELIMINATES OF ALL BUT A FEW FOODS

This might be used if one has a long list of potential intolerances and wants to “wipe the slate clean.”

- Pros: Highest chance for symptom improvement.
- Cons: Greatest potential risks for malnutrition or orthorexia (a “fear of food”). Requires significant time for the reintroduction process (Reference “Step 3: The Challenging Phase,” below).

Only the foods listed below are allowed.

Apples (juice okay), Apricots, Asparagus, Beets, Cane or beet sugar, Carrots, Chicken, Cranberries, Honey, Lamb, Lettuce, Olive oil, Peaches, Pears, Pineapple, Rice (including rice cakes and cereal), Safflower oil, Salt, Sweet potatoes, White vinegar.

TABLE 2. ANOTHER CHALLENGE: HOW TO KNOW WHICH FOODS TO AVOID[1]

If You Are Avoiding	Also Avoid
Dairy	Caramel candy, carob candies, casein and caseinates, custard, curds, lactalbumin, goat’s milk, milk chocolate, nougat, protein hydrolysate, semisweet chocolate, yogurt, pudding, whey. Also beware of brown sugar flavoring, butter flavoring, caramel flavoring, coconut cream flavoring, “natural flavoring,” and Simplese.
Peanut	Egg rolls, “high-protein food,” hydrolyzed plant protein, hydrolyzed vegetable protein, marzipan, nougat, candy, cheesecake crust, chili, chocolates, pet feed, sauces.
Eggs	Albumin, apovitellin, avidin, béarnaise sauce, eggnog, egg white, flavoprotein, globulin, hollandaise sauce, imitation egg products, livetin, lysozyme, mayonnaise, meringue, ovalbumin, ovoglycoprotein, ovomucin, ovomucoid, ovomuxoid, Simplese.
Soy	Chee-fan, ketjab, metiauzza, miso, natto, soy flour, soy protein concentrates, soy protein shakes, soy sauce, soybean hydrolysates, soby sprouts, textured vegetable, protein, tofu, whey-soy drink. Also beware of hydrolyzed plant protein, hydrolyzed soy protein, hydrolyzed vegetable protein, natural flavoring, vegetable broth, vegetable gum, and vegetable starch.
Wheat	Atta, bal ahar, bread flour, bulgur, cake flour, cereal extract, couscous, cracked wheat, durum flour, farina, gluten, graham, flour, high-gluten flour, high-protein flour, kamut flour, laubina, leche alim, malted cereals, Minchin, multigrain produces, puffed wheat, red wheat flakes, rolled wheat, semolina, shredded wheat soft wheat flour, spelt, superamine, triticale, vital gluten, vitalia macaroni, wheat protein powder, wheat starch, wheat tempeh, white flour, whole-wheat berries. Also beware of gelatinized starch, hydrolyzed vegetable protein, modified food starch, starch vegetable, gum, and vegetable starch.

STEP 3: THE CHALLENGING PHASE

REINTRODUCING THE ELIMINATED FOODS

Rule of 3s:

- 3 weeks of elimination,
- then challenge during all 3 meals of 1 day,
- then wait 3 days before another rechallenge.

Symptoms will often worsen for a few days before they improve.

Given the subtleties of how food intolerances manifest, eliminating a food is not enough to determine if it might be a problem. Reintroducing the food will provide yet another way to assess an association between foods and symptoms, given the waxing and waning course of most diseases. On the single day of a food or food group's reintroduction, one should eat increasing quantities with each meal. Starting low is important, in case a serious adverse reaction occurs with an exposure to even a small amount of food. Because it can take several days for symptoms to reappear, a 3-day waiting period after reintroduction is recommended. Regardless of what occurs, that food should then be eliminated again. A new food is reintroduced, and the cycle starts again. The section below summarizes the timing for a typical elimination diet process.

ELIMINATION DIET TIMING

Begin Elimination Diet...

- **Week 1:** Symptoms may worsen
- **Week 2 and 3:** Symptoms may improve
- **Reintroduction Day (Food #1):** Reintroduce one eliminated food, in increasing amounts, at all three meals for just 1 day
- **Watching and waiting for 3 days:** Symptoms may worsen or not; then continue to eliminate selected food after 1-day reintroduction
- **Reintroduction Day (Food #2):** Reintroduce a different eliminated food, in increasing amounts, at all three meals for just 1 day
- **Watching and waiting for 3 days:** Symptoms may worsen or not; then continue to eliminate selected food after 1-day reintroduction
- **Reintroduction Day (Food #3):** Reintroduce a different eliminated food, in increasing amounts, at all three meals for just 1 day

...and the cycle continues until all foods have been evaluated

STEP 4: THE MAINTENANCE PHASE

THE BEGINNING OF A NEW DIET (AND A BETTER LIFE!)

After the elimination diet has been completed, a new diet should emerge that removes specific foods or food groups long term. If it is not found to be beneficial, another elimination diet could be instituted at a later time.

If one is avoiding specific food groups that are associated with higher levels of specific vitamins or nutrients, other foods that are tolerated might need to be eaten in higher amounts to make up for these deficits (e.g. increasing leafy green intake if one is avoiding dairy foods). Dietitians can be valuable team members for assisting with these issues.

Foods that cause an IgE-mediated food allergy should NOT be reintroduced

Given that the removal of problematic foods or food groups can allow the body to heal, one may be able to reintroduce eliminated foods (using the every-3-days process described above) in 3-12 months. In this way, elimination diets not only may *alleviate symptoms* but also may *treat disease*. Ideally, the clinician will work with the patient to improve the ecosystem of the GI tract, reduce intestinal permeability, and enhance tolerance so that formerly problematic foods can eventually be reintroduced.

AUTHOR(S)

“Elimination Diet” was written by [David Lessens](#), MD, MPH (2014). Sections were adapted from “Food Intolerance and Elimination Diet” by [J. Adam Rindfleisch](#), MPhil, MD. (Integrative Medicine, 3rd Edition)

This Whole Health tool was made possible through a collaborative effort between the University of Wisconsin Integrative Health Program, VA Office of Patient Centered Care and Cultural Transformation, and Pacific Institute for Research and Evaluation.

REFERENCES

1. Rakes D. *Integrative Medicine*. 3rd ed. Philadelphia: Elsevier Saunders; 2012.