

The Elimination Diet

An elimination diet is an eating plan that omits a food or group of foods believed to cause an adverse food reaction, often referred to as a “food intolerance.” By removing certain foods for a period of time and then reintroducing them during a “challenge” period, you can learn which foods are causing symptoms or making them worse. We often think of reactions to food as being a rapid allergic reaction, such as when a person has an anaphylactic reaction to eating peanuts and their throat swells up. However, there are other ways our bodies can react to foods that may not be so immediate, and may or may not be tied to an immune system response. Food intolerances may be triggered by various natural compounds found in foods (natural sugars or proteins) or common food additives (such as natural and artificial colors, preservatives, antioxidants, and flavor enhancers) that can cause reactions through various mechanisms in the body. There is currently dispute about the specific mechanisms involved in different reactions to foods, and many tests to identify the suspected culprit(s) can be unreliable. Clinical experience has shown that an elimination diet is one of the best tools for identifying food culprits and is very safe, as long a variety of foods are still eaten supplying all the essential nutrients.

Symptoms

Symptoms of food intolerance can vary widely. They can include stomach and bowel irritation, headaches, hives, itching, and even vague feelings of being unwell, such as flu-like aches and pains, unusual tiredness, or concentration problems. Certain foods and food groups are also known to exacerbate symptoms in people with specific conditions such as autoimmune disorders, migraines, Irritable Bowel Syndrome, gastroesophageal reflux (GERD) and others.²

Symptoms and their severity are unique to the individual. They are influenced by specific compounds in the food, a person’s sensitivity level, and how much of certain foods are eaten. If the same food is eaten repeatedly, or different foods with the same compound are eaten together or often, the body may reach a threshold, or a tipping point where symptoms begin to occur.

Natural Food Substances

Even “healthy” foods contain many different naturally occurring chemicals that can be a problem for some people. Substances common to many different foods, such as salicylates, amines, and glutamate, may cause symptoms for different individuals. It is beyond the scope of this handout to provide detail about the different categories of natural substances that may cause symptoms, but this can be explored with a practitioner who is comfortable working with elimination diets (not all practitioners are).

Individual Variation

Because people are unique genetically, and because we each have different eating patterns, elimination diets have to be based on each unique individual. Eliminating the most offending food or multiple foods and substances all at one time is the most reliable way to find out which foods may be contributing to symptoms. A healthcare practitioner may recommend a specific plan to follow based on symptoms, typical dietary choices, and food cravings.

The Elimination Diet Steps

There are four main steps to an elimination diet:

Step 1 – Planning

Work with your health care practitioner to learn which foods might be causing problems. You may be asked to keep a diet journal for a week, listing the foods you eat and keeping track of the symptoms you have throughout the day. See the last page of this handout for a Food Diary Chart you can use. It is helpful to ask yourself a few key questions:

- What foods do I eat most often?
- What foods do I crave?
- What foods do I eat to “feel better”?
- What foods would I have trouble giving up?

Often, these seem to be the foods that are most important to try not to eat. Also, see **Table 1** for a list of the most common problem foods.

Make a list of potential problem foods.

The elimination diet can vary in intensity depending on how many suspected food culprits are being avoided. Three different “levels” of food elimination can be followed depending on suspected food culprits and likelihood of adhering to the diet. The three levels are described below in the **Elimination Diet Strategies** section on page 6. It is helpful to think about choosing the strategy that is the least restrictive first in order to maximize successful adherence to the restrictions. However, the more restrictive strategies are more effective at identifying cases where there are multiple food culprits.

Are You Ready?

Before starting an elimination diet, it is important to consider whether this is a good time to undertake these potentially large changes in diet. Do you have any upcoming stressful life events or travel? Do you have the resources, willingness, and energy to create new grocery lists and menus to cook new recipes? Do you have support from family and friends for eating at home, at work, or out at restaurants and other events? It will be important to completely eliminate the foods on your list for 2-4 weeks, so if you accidentally eat one of the foods, you will need to start again. It will be quicker and easier if you are successful the first time.

Step 2 – Avoiding

Make a list of foods to avoid based on your planning, and be sure of how to avoid possible “hidden foods” (See **Table 3** Hidden Foods).

Begin the elimination diet and for **two to four weeks**, follow the elimination diet without any exceptions. Don't eat the eliminated foods whole or as ingredients in other foods. For example, if you are avoiding all dairy products, you need to check labels for whey, casein, and lactose so you can avoid them as well. This

step takes a lot of discipline. You must pay close attention to food labels. Be particularly careful if you are eating out, since you have less control over what goes into the food you eat. **If you make a mistake and eat something on the list, you should start over.**

Many people notice that in the first week, especially in the first few days, their symptoms will become worse before they start to improve. If your symptoms become severe or increase for more than a day or two, consult your health care practitioner.

Table 1 Common Culprits for Food Allergy and Intolerance

Common Food and Food Component Culprits	
Foods	Additives and Natural Compounds
Citrus	Antioxidants (butylated hydroxyanisole and hydroxytoluene)
Dairy Products	Aspartame (NutraSweet, an artificial sweetener)
Eggs	Flavor enhancers (monosodium glutamate)
Gluten (barley, oats, rye, and wheat)	Artificial Food Colors (tartrazine and other Food Dye and Coloring Act [FD&C] dyes, which are derived from coal tar)
Soy	Lactose and other disaccharides
Peanuts	Nitrate and nitrites (found in preserved meats)
Shellfish	Preservatives (sulfites, benzoates, and sorbates)
Tree Nuts	Thickeners/stabilizers (tragacanth, agar-agar)
Beef products	Biogenic amines (histamine, tyramine, octopamine, and phenylethylamine)
Corn	Salicylates – naturally occurring compounds found in many fruits, vegetables, some cheeses, herbs, spices, nuts, and medications such as aspirin
	Refined sugars (depends on source of sugar)

Step 3 – Challenging

- If your symptoms have not improved in two weeks, continue for up to four weeks. If your symptoms have not improved by the end of four weeks, stop the diet and explore whether or not to try this process again with a different combination of foods.
- You should be symptom-free for at least 5 days before beginning your food challenges. If your symptoms have improved, start “challenging” your body with the eliminated foods, one food at a time. As you do this, use the Food Diary at the end of this document to keep a written record of your symptoms.
- To challenge your body, add a new food back in every three days. It takes three days to be sure that your symptoms have time to come back if they are going to. It is suggested that you eat a small amount on day 1 of re-introduction, have about twice the amount on day two, and then an even larger portion on day 3. See **Table 2** for a sample calendar. It is important to note that some foods

NOTE: If a food causes you to have an immediate allergic reaction, such as throat swelling, a severe rash, or other severe allergy symptoms, seek medical care and avoid food challenges unless you are directly supervised by a physician.

may be tolerated in small amounts, but not larger amounts. Keeping a careful food diary can be very helpful in identifying these foods.

- It is important to test with the purest form of food available. For example, to test wheat, use a pure wheat cereal that contains only wheat. You may use a non-dairy milk substitute like rice or other milk as long as that milk is not on your “avoid” list. Test milk and cheese on separate occasions. Different cheeses may be differently reactive or not, so best to test on separate occasions. Usually yogurt, cottage cheese, and butter do not need to be tested separately. For eggs, test the whites and yolks separately using hard-boiled eggs.
- Food challenges should be done as systematically as possible. Some components of foods, such as the proteins casein and whey, and the sugar lactose in dairy can be systematically isolated by careful challenge planning. If you suspect a specific component of a food may be a culprit, try to work with a knowledgeable healthcare practitioner who can help you develop your plan. However, if you eliminate an entire food group, it may only be necessary to challenge with one or a few different foods from that group, not every unique food.
- As soon as a symptom returns, remove the food from the diet, make a note in the food diary and place that food on the “allergic” list. If you are unsure if you reacted to a food, remove it from your diet and re-test it in 4-5 days. If a food doesn’t cause symptoms during a challenge, it is unlikely to be a problem food and can eventually be added back into your diet. However, don’t add the food back during this challenge period until you have completed the diet and the food challenges. In other words, go back off that food until you are done with challenges for all the foods you have eliminated.

Step 4 – Creating A New, Long-Term Diet

Based on your results, your health care practitioner can help you plan a way of eating to prevent your symptoms. Some things to keep in mind:

- This is not a perfect test. It can be confusing to tell for certain if a specific food is the cause. A lot of other factors (such as a stressful day at work) could interfere with the results. Try to keep things as constant as possible while you are on the diet.
- Some people have problems with more than one food.
- Be sure that you are getting adequate nutrition during the elimination diet and as you change your diet for the long-term. For example, if you give up dairy, you must supplement your calcium from other sources like green leafy vegetables.
- You may need to try several different elimination diets before you identify the problem foods.
- Most people tolerate this diet well, but if you cycle with the diet several times in an effort to narrow in on the food culprits, your list of allowable foods may become increasingly small. If this happens and you find that you are becoming increasingly intolerant of, or losing enjoyment of eating, please consult a healthcare professional.
- You may be able to have some foods you are reactive to on an infrequent or rotational basis. Work with a knowledgeable healthcare practitioner, if possible, to understand how to plan for this.

Table 2 Example of an Elimination Diet Calendar*

Period	2 Week Elimination	4 Week Elimination	Step
Elimination	1	1	Begin Elimination Diet
	2-7	2-7	You may notice symptoms worse for a day or two
	8-14	8-30	Symptoms should go away if the right foods have been removed
Challenge #1	15	31	Re-introduce one small portion of food #1 (for example, dairy)
	16	32	If no symptoms occur, eat about twice the amount as day 1
	17	33	If no symptoms occur, eat about twice the amount as day 2
			Remove food #1 from diet again. If it did not cause symptoms, only add it back to meal plan once elimination diet is over.
Challenge #2	18	34	Re-introduce one small portion of food #2 (for example, wheat)
	19	35	If no symptoms occur, eat about twice the amount as day 1
	20	36	If no symptoms occur, eat about twice the amount as day 2
			Remove food #2 from diet again. If it did not cause symptoms, only add it back to meal plan once elimination diet is over.
Continue	21	37	Re-introduce food #3 and continue...

***IMPORTANT:** You only eat a new food for one to three days. Do not add it back into your meal plan again until the elimination diet is over. If a food causes a symptom, remove it immediately. **Wait until your symptom completely disappears before challenging with the next food.**

Elimination Diet Strategies

Level 1: Simple (Modified) Elimination Diet (or dairy and gluten-free)

This is the lowest intensity diet. There are two ways to do this. The specific food, group, or additive depends on symptoms and suspected culprits.

1. Either just one food, one group of foods, or one food additive is eliminated See **Table 1** for the most common food culprits. This is the easiest diet to follow, but if there are more than one food or groups of foods that cause symptoms, then this diet may not prove useful. For suspected lactose intolerance, avoidance of just the dairy food group will be successful. Alternatively, lactase is the enzyme that digests the disaccharide lactose and can be obtained as an over-the-counter product. If eliminating lactose make symptoms disappear, dairy may still be enjoyed on occasion with the help of lactase.
2. Alternatively, the 2 most common food group culprits (dairy and wheat) are eliminated. The most common groups of food proteins that can cause intolerance are cow's milk protein and gluteins from wheat.

- Eliminate all dairy products, including milk, cream, cheese, cottage cheese, yogurt, butter, ice cream, and frozen yogurt.
- Eliminate gluten, avoiding any foods that contain wheat, spelt, kamut, oats (certified gluten-free allowed), rye, barley, or malt. This is the most important part of the diet. Substitute with brown rice, millet, buckwheat, quinoa, gluten-free flour products, or potatoes, tapioca and arrowroot products.

Table 3 Simple (or Modified) Elimination Diet

Level 1 – Simple (Modified) Elimination Diet– eliminates dairy, and wheat		
Food Category	Allowed Foods	Eliminated Foods
Animal proteins	Beef, chicken, lamb, pork, turkey	Dairy products
Grains and Starches	Arrowroot, barley, buckwheat, corn, millet, oats (gluten-free), rice, rye, sweet potato, tapioca, white potatoes, yams	Wheat
Oil	Any non-dairy oils	Dairy-based butter and margarines
All fruits, vegetables, salt, spices, sweeteners, and vegetable proteins are allowed		

Level 2: Moderate Intensity Elimination Diet

In a moderate intensity elimination diet, several foods or food groups are eliminated all at once. Ideally, the list of eliminated foods is individually tailored based on symptoms and suspected food culprits. For example, the low FODMaP diet may be a good choice for symptoms related to Irritable Bowel Syndrome (IBS) (see the [FODMaP Diet handout](#)).

A knowledgeable healthcare practitioner can help you identify specific food culprits for your condition or symptoms. Either follow the guidelines detailed below and in **Table 4**, or create a customized list. This version of the elimination diet may be more successful in eliminating symptoms because it will remove more suspected culprits all at once.

The suggested moderate intensity elimination diet, in addition to dairy, and wheat, eliminates eggs, all legumes, nuts, some specific fruits and vegetables, artificial sweeteners, all animal fats, many vegetables fats, chocolate, coffee, tea, soft drinks, and alcohol. This diet may require a longer challenge period to identify the food culprits. Pay attention to the fact that it may be expensive to buy the foods recommended.

- Eliminate all animal protein, but if that is not possible or desirable, fish, poultry, and lamb are considered to be low allergy. Choose organic/free-range sources where available.
- Avoid alcohol and caffeine and all products that may contain these ingredients (including sodas, cold preparations, herbal tinctures).
- Avoid foods containing yeast or foods that promote yeast overgrowth, including processed foods, refined sugars, cheeses, commercially prepared condiments, peanuts, vinegar and alcoholic beverages.
- Avoid simple sugars such as candy, sweets and processed foods.
- Drink at least 2 quarts of water per day.

Table 4 Moderate Intensity Elimination Diet

Level 2 – Moderate Intensity Elimination Diet– Eliminates several foods at once		
Food Category	Allowed Foods	Eliminated Foods
Animal proteins	Eliminate animal proteins entirely or include lamb, fish, or poultry (these animal proteins are considered low-allergenic, but some people can have sensitivities, so use with caution)	All others, including eggs, milk, cheese, and all dairy
Vegetable Proteins	None	Beans, bean sprouts, lentils, peanuts, peas, soy, all other nuts
Grains and Starches	Arrowroot, buckwheat, rice, sweet potato, tapioca, white potato, yams, oats (gluten-free)	Barley, millet, corn, rye, wheat
Vegetables	Most allowed	Peas, tomatoes
Fruits	Most allowed	No citrus or strawberries
Sweeteners	Cane or beet sugar, maple syrup	Any others, including aspartame
Oils	Coconut, olive, safflower, sesame	Animal fats (lard), butter, corn, margarine, shortening, soy, peanut, other vegetable oils
Other	Salt, pepper, a minimal number of spices, vanilla, lemon extract	Chocolate, coffee, tea, colas and other soft drinks, alcohol

Level 3 The Few-Foods Diet

In this very simplified diet, only a selected list of foods may be eaten. This diet should only be followed for a limited duration until the food culprits are discovered, to ensure that nutritional deficiencies do not occur.

- This diet is the strictest version and *only* the foods listed in **Table 5** are eaten.
- Work with your healthcare practitioner, as able, to help you strategize the challenge phase.
- This is not a long-term diet as it is not nutritionally complete. It is important to add back the foods that do not cause symptoms once the elimination diet period is over to ensure adequate nutrition.

Table 5 Few Foods Diet

Level 3 – The Few Foods Diet		
Only the foods in the table can be eaten. <i>All others are avoided.</i>		
Apples (juice OK)	Cranberries	Pineapple
Apricots	Honey	Rice (including rice cakes and cereal)
Asparagus	Lamb	Safflower oil
Beets	Lettuce	Salt
Cane or beet sugar	Olive Oil	Sweet potatoes
Carrots	Peaches	White vinegar
Chicken	Pears	

Some Helpful Tips

A number of foods can be ‘disguised’ when you look at food labels. See Table 6 below.

If you are allergic to latex, you may also react to: apple, apricot, avocado, banana, carrot, celery, cherry, chestnut, coconut, fig, fish, grape, hazelnut, kiwi, mango, melon, nectarine, papaya, passion fruit, peach, pear, pineapple, plum, potato, rye, shellfish, strawberry, tomato, wheat.

Table 6 Hidden Foods

If you are avoiding	Also avoid
Dairy	Caramel candy, carob candies, casein and caseinates, custard, curds, lactalbumin, goats 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,” Simplese.
Peanuts	Egg rolls, “high-protein food,” hydrolyzed plant protein, hydrolyzed vegetable protein, marzipan, nougat, candy, cheesecake crusts, chili, chocolates, pet food, sauces.
Egg	Albumin, apovitellin, avidin, béarnaise sauce, eggnog, egg whites, flavoprotein, globulin, hollandaise sauce, imitation egg products, livetin, lysozyme, mayonnaise, meringe, ovalbuman, ovogycoprotin, ovomucin, ovomucoid, ovomuxoid, Simplese.
Soy	Chee-fan, ketjap, metiauzza, miso, natto, soy flour, soy protein concentrates, soy protein shakes, soy sauce, soybean hydrolysates, soby sprouts, sufu, tao-cho, tao-si, taotjo, tempeh, textured soy protein, 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, vegetable starch.
Wheat	Atta, bal ahar, bread flour, bulgar, 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, multi-grain products, 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, vegetable starch.

Modified from Mahan LK and Escot-Stump S, *Krause’s Food Nutrition and Diet Therapy*, 11th ed. Philadelphia: Saunders. 2004.)

The information in this handout is for general education. It is not meant to be used by a patient alone. Please work with your health care practitioner to use the information in the best way possible to promote your health.

This handout was written by Sara A. Arcscott, PhD, Education and Research Coordinator of the Integrative Health Program, Dept. of Family Medicine and Community Health adapted and revised from the original handout created by created by Adam Rindfleisch MPhil., MD, Asst Prof, Medical Director of UW Integrative Health and David Rakel, MD, former Medical Director of Integrative Health Program, Dept. of Family Medicine, University of Wisconsin-Madison.

Date revised: Nov 2018



NOTES

References

1. Anne Swaine VS, Robert Loblay. RPAH Elimination Diet Handbook with Food & Shopping Guide. In: Allergy Unit RPAH, ed: Royal Prince Alfred Hospital; 2009.
2. Rakel D. Chapter 86, "The Elimination Diet" *Integrative Medicine*. 4th ed: Elsevier, Inc.; 2018.

A ONE WEEK FOOD DIARY CHART

(LOG IN ALL FOODS, SUPPLEMENTS, ALCOHOL USE, AND MEDICATIONS TAKEN AND TIMES. NOTE THE SYMPTOMS YOU HAVE AND WHAT TIMES AS WELL)

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
MORNING FOODS							
MORNING SYMPTOMS							
AFTERNOON FOODS							
AFTERNOON SYMPTOMS							
EVENING FOODS							
EVENING SYMPTOMS							