

The Mediator Release Test (MRT)

Q. Is MRT accurate?

A. A blinded peer reviewed scientific study showed MRT to have the highest level of accuracy of any food sensitivity blood test (94.5% sensitivity and 91.8% specificity).

Q. What's the difference between MRT and other tests for food sensitivities?

A. There are a few different tests available that are intended to identify sensitive foods. They are IgG (ELISA or RAST), ALCAT, and LRA by Elisa-Act (not to be confused with ELISA IgG). Without understanding some basics, it's impossible to understand how one is superior to the others and how they compare.

The Basics:

Food sensitivities make a person feel sick because the immune system reacts to foods and causes the release of chemicals called mediators (such as histamine, prostaglandins, cytokines, etc.) from white blood cells. It's the mediators that cause the inflammation, pain, and other symptoms associated with food sensitivities. In fact, food sensitivity is a very complex reaction by our immune system. There are many different cells that have different profiles of mediators, many mechanisms that cause mediators to be released, and of course, many different mediators. The thing that makes food sensitivities complicated is that there are various ways the immune system can respond in hypersensitivity. Because there are different ways the immune system can respond, there are different approaches researchers have tried to identify reactive foods and chemicals.

ELISA IgG: This test quantifies how much IgG you are producing to a specific food, with the assumption that high levels of IgG are only a bad thing. There is a specific type of immune reaction called Type 3 Hypersensitivity that can involve IgG or another antibody called IgM. When IgG is involved in triggering mediator release, this testing will be very helpful. Unfortunately, there are three very serious limitations of IgG testing:

1. High levels of IgG can be either good (suppressing of an immune response) or bad (causing an immune response). But you cannot tell which is good IgG or which is bad IgG through this testing. So just because you have a high level, may actually be good not bad.
2. IgG only plays a minor role in IBS, migraine, and fibromyalgia. Instead, research shows that Type 4 Hypersensitivity is the primary type of reaction. Type 4 Hypersensitivity doesn't involve IgG or any other antibodies.
3. IgG testing cannot identify reactions to chemicals like food additives. It's clearly documented that food chemicals play a very important role in provoking symptoms in many conditions. If you cannot identify these reactions, you could very well be missing very important information that can impact your health.

How MRT Compares to IgG: There are a number of advantages of MRT over any form of IgG testing. MRT is an endpoint test, meaning that all the immune based adverse reactions end up causing mediator release. So MRT does this without caring about the mechanism. In fact MRT is able to take into account the actions of all mechanisms, whether they are antibodies or other, because all of them ultimately cause white blood cells to release mediators. MRT is able to account for a much wider array of reactions than the relatively simple IgG testing. In addition, MRT is able to identify reactions to chemicals. Overall, MRT is more accurate and useful clinically.

The ALCAT Test: The ALCAT Test was invented and patented by the same person who invented and patented MRT, Dr. Mark Pasula. The two technologies are similar, yet separately patented, which means there is a unique difference. The main difference between the two tests is in terms of accuracy and reliability. Side by side studies have shown MRT to be more accurate (higher sensitivity and

specificity) and to have higher split sample reproducibility than ALCAT. It is a good, but older method that has been replaced by MRT.

LRA by ELISA-Act: This test is somewhat of a mystery as to what it actually measures and how that correlates with mediator release and with an involvement in IBS, migraine, fibromyalgia, or other food-sensitivity-related conditions. The company that invented it makes claims about its accuracy, reproducibility, and validity, but in fact there are no actual third party studies that confirm any of their claims. Nor have their own studies related to the same been published. In other words, there are no published studies that support their claims. In addition, the actual methodology is not described or validated in any peer reviewed publications, yet they claim that it is. Therefore it's not possible to assess and compare its strengths and weaknesses to MRT.

MRT: The main difference between MRT and ELISA-Act is that of scientific validation. There are studies published on MRT that clearly show the methodology, accuracy, ability to discriminate between healthy and sick populations, etc. They clearly tie the relationship of what MRT is measuring to the physiological basis of adverse food reactions in IBS, migraine, fibromyalgia, and other food-sensitivity-related conditions.

Q. How does MRT work?

A. MRT is an indirect method of accurately measuring mediator release. MRT does this by measuring changes in the liquids to solids ratio of your blood after your blood has been exposed and incubated with the test substance. It accounts for all reactions by your immune cells. This is done as an indicator that your immune cells have released chemical mediators such as histamines and others. Significant reactions are broken into either Reactive (Red), or Moderately Reactive (Yellow) categories and insignificant reactions (Green) are placed in the Low-Reactive category. All measurements are made using the most accurate method of measurement (Ribbon technology) currently available.

Q. How come the test shows I'm reactive to something I have never eaten?

A. There are 4 possible explanations as to why the test would show reactivity to an infrequently or never-consumed food:

1. Genetics. It has been shown that immune-based food reactions can have a genetic component and can be passed on from generation to generation.
2. Cross reactivity. Your immune system identifies and differentiates antigenic substances based upon their molecular structure. Foods from the same food families often share similar protein structures and can sometimes cross-react if tested. Another situation that can contribute to cross reactivity is when a reactive chemical binds with a non-reactive food and causes that food to be identified immunologically as a reactive substance.
3. Hidden source of the food. Many foods can be found as additives under different names. For example, monosodium glutamate (MSG) can be found in an ingredient list as monosodium glutamate, MSG, natural flavoring, or hydrolyzed vegetable protein (HVP). It is common for these items to be hidden in prepared foods. The report sections on Hidden Sources of Test Substances, and Chemicals and Additives can help reveal hidden forms of the items you need to avoid.
4. False positive test result. Even the most accurate laboratory tests can give some false readings. The overall accuracy of MRT as determined in a peer reviewed blinded study is roughly 93% leaving a small margin of potential error in the reading, that can show up as either false negatives (which means a substance is actually reactive, but the test says its non-reactive), or false positives (which means the test says its reactive, but it is really not).

Q. I know that I am allergic to a particular food but MRT said I wasn't. Why?

A. MRT identifies foods and food substances involved in **food sensitivities**, and is the most comprehensive blood test for these types of reactions. If you know that you are allergic to a particular food, it most likely won't show up on MRT because mast cells, the main cells involved in allergic reactions are found in tissue, not in the circulation. MRT measures the circulating cells which tend to be involved in sensitivities.

If your "allergy" is not really an allergy, but rather a food intolerance, that also will probably not show up on your MRT results because the symptoms are not triggered by an immune system reaction. In any case, if you know a particular food does not agree with you, the best thing to do is avoid it.

Q. How can I be reactive to this food; I eat it all the time and it's a healthy food?

A. One of the problems with food sensitivities is that any food or food substance that you consume can potentially be a culprit. Foods that you eat regularly are even more likely to be causing a problem.

Food sensitivities often develop over time in a gradual manner, and this causes you to become accustomed to a certain amount of suffering which you experience as "normal". When you eat reactive substances in this situation, it may not cause a dramatic reaction, relatively speaking. However, if you avoid your reactive foods for a while and then reintroduce them, you may experience a very pronounced reaction. Then you know that food is not good for you, no matter what the other health benefits of the food may be.

Foods such as garlic, fresh vegetables, or fresh fish, provide important nutrients and under normal circumstances promote health. However, any food that triggers your immune system to react against your body is not healthy for you, even if it contains some health benefits for others.

Q. Why are milk, cottage cheese, and yogurt different in reactivity?

A. While milk, cottage cheese, yogurt, and other cheese are all in the same food family (dairy), the antigenic protein structure varies considerably as the milk changes into a new product. That is why some people cannot tolerate milk, but can tolerate yogurt or certain cheeses. However, a good rule of thumb is that if you are reactive to two or more foods from the same food family, you should avoid the entire family.

Food Sensitivities

Q. What is the difference between food allergy, food sensitivity, and food intolerance?

A. Food allergies, food sensitivities, and food intolerance are often used interchangeably and inappropriately. In fact, there is active debate in scientific and medical circles as to how to define and use these three terms. The general consensus is that food allergy can be defined as any adverse reaction to food that involves our immune system. This further breaks down into two kinds of reactions, food allergy, and food sensitivity. Food intolerance does not involve the immune system.

Food Allergy

Perhaps the best-known example of food allergy is also its least common – and most dangerous. Anaphylactic shock is a severe hyper-reaction of the immune system caused by a massive release of histamine and other chemical mediators from certain types of white blood cells called mast cells and basophils. Not everyone with food allergies experiences anaphylaxis though. The immunological triggering mechanism that causes the mast cells (and basophils) to release their chemicals is called IgE and is a very well understood phenomenon. This underlying mechanism is considerably different from the triggering mechanisms found in food sensitivities. The most common foods implicated in food allergy are peanuts, other nuts, shellfish, or foods containing sulfites. People with anaphylaxis can die within minutes if they ingest even one molecule of their allergic food.

Food allergy affects about 1-2% of the population and accounts for only a small percentage of all adverse food reactions. Most immediate reactions are not life threatening but do produce uncomfortable symptoms. People suffering from food allergy can usually identify what foods they are allergic to without the help of a doctor or testing. This is because the reaction occurs every time and shortly after they eat their allergic food.

Food Sensitivity

Food sensitivity (also known as delayed food allergy) is quite another story. Delayed reactions manifest in many different ways as they can affect any organ system in the body and can take from 45 minutes to several days for symptoms to become apparent. The delayed onset of symptoms and complex physiological mechanisms involved in food sensitivities make them an especially difficult puzzle to try to solve either on your own or with most laboratory serum tests. In fact, food sensitivities often go undiagnosed or misdiagnosed. The treatments prescribed usually provide only temporary relief that mask the symptoms instead of addressing the root cause of the problem.

The differences between the two kinds of immune-mediated adverse food reactions are summarized in the table below.

Item Compared	Food Sensitivities	Food Allergies
Body organs involved	Any organ system in the body can be affected	Usually limited to airways, skin, gastrointestinal tract
Symptom onset occurs	From 45 minutes up to 3 days after ingestion	From seconds to 1 hour after ingestion
Are symptoms acute or chronic?	Usually chronic, sometimes acute	Usually acute, rarely chronic
Percentage of population affected	Est. 20 - 30%	1 - 2%
Immunologic mechanisms	White blood cells Antibodies: IgG (and subclasses) IgM C ₃ , C ₄	IgE
Non-immunologic mechanisms	Toxic Pharmacologic	None
How much food is needed to trigger the allergy?	From small amount to large amount; often dosage dependent	1 molecule of allergic food needed to trigger reaction

Food Intolerance

Food intolerance can produce some digestive symptoms that are similar to food sensitivity but it doesn't involve the immune system. Instead, when the food in question is consumed, it is not properly digested and begins to ferment inside the gut. The best example of food intolerance is lactose intolerance. This condition is characterized by bloating, loose stools or diarrhea, and gas. Lactose intolerance is caused by an inability of the body to produce enough of the enzyme lactase, which breaks down lactose, the primary sugar found in milk. Avoiding milk products or supplementing the diet with lactase enzyme is the best way for a person with lactose intolerance to overcome the problem.

Q. Why do I have food sensitivities; how did I get them?

A. Researchers do not have all the answers to this question and there is still much to be learned about how food sensitivities develop. The following are the most widely accepted factors that can help cause food sensitivities.

1. Poor digestion.
2. Unbalanced gut flora
3. Chronic stress/severe trauma
4. Immune system overload
5. Genetics
6. Toxic-induced loss of oral tolerance (overexposure to chemicals)

Q. How do food sensitivities cause symptoms?

A. The symptoms that result when we have food sensitivities are caused by the release of toxic chemicals such as histamine from immune cells. The table below describes the sequence of events involved in developing symptoms from food sensitivities.

Step 1 Identification	Step 2 Call in the Troops	Step 3 Chemical Warfare	Step 4 Symptoms
Immune system identifies foods and food substances as foreign	Immune & non-immune mechanisms (IgG, IgA, IgM, etc.) trigger immune cells to attack	Chemicals such as histamine are released from immune cells to destroy invaders	Tissue inflammation and damage occurs leading to symptoms

Diet & Nutrition

Q. Should I take vitamin supplements while on the program?

A. Supplements can be a convenient and useful way to make sure that you are getting the right amounts of essential vitamins and minerals. Be sure to check your current supplements for reactive ingredients and follow the advice of your healthcare provider. Often we recommend that you avoid any non-essential supplements during the early phases of your plan, then introduce them one at a time as untested items and monitor your response.

Q. What are refined carbohydrates?

A. Refined carbohydrates are processed foods rich in simple sugars. Refined carbohydrates have far less nutritional value than their whole food counterparts and should be eaten sparingly. White sugar, white flour, corn syrup and foods with these ingredients (baked goods, desserts, candy, soda, etc.) are examples of refined carbohydrates. If you consume simple sugars frequently, the amounts not immediately used or stored by the liver will be stored as fat.

Q. I don't eat breakfast, is that all right?

A. It is very important not to skip breakfast. Breakfast is the most important meal of the day because it kick-starts your metabolism, helping with weight control, and provides important energy for your daily activities. It has been said that if you skip breakfast, you will gain a pound a year. Your light meal should be in the evening.

Q. I only eat one meal a day, is that all right?

A. Actually, your body requires a steady stream of calories and nutrients to function optimally and one meal a day won't provide this. It is best to consume three normal sized or five smaller meals per day starting with breakfast.

General Program Questions

Q. If I have a problem with candida, will this program help me?

A. If you are suffering from candida sensitivity (candidiasis), it is important to consult with a physician who is knowledgeable about the treatment. Often, ridding the body of candida overgrowth involves the use of anti-fungal medications or ointments, as well as a more restrictive diet that avoids sources of yeast, and foods that feed the candida, namely carbohydrates and simple sugars. We may recommend the use of probiotics to help re-establish normal intestinal flora.

Q. I have hypoglycemia; will this program take this into consideration?

A. Yes. Hypoglycemia is a condition in which your blood sugar decreases below normal levels. Dizziness and severe lack of energy are the most common symptoms of this condition. Regular eating patterns are the most important dietary therapy to regulate blood sugar. Smaller more frequent meals eaten every two to three hours can ensure a proper supply of blood sugar.

Q. I am a diabetic; can I be on this program?

A. Yes. The LEAP dietary program can be integrated with the diabetic diet very easily and with good results.

Q. Would my diet be good for other family members?

A. It may or may not, depending upon their individual reactivities. Each person responds differently to the foods, chemicals and additives that they are eating. It would be best to have them do the LEAP Test and have an eating plan developed for their particular needs.