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What Can I Eat? Tips on Interpreting EnteroLab Results

As we're all aware, a diagnosis of microscopic colitis (MC) brings with it numerous food sensitivities. Foods that we've safely eaten all our lives, suddenly begin to cause us to react with diarrhea, and usually other symptoms. Although the medical approach to treating MC involves taking an anti-inflammatory medication to mask the symptoms, or taking an immune system suppressant, virtually all of us realize that it's much better for our health, to discover what's causing the symptoms, and eliminate it (or them), rather than to try to treat the symptoms with drugs after they develop.



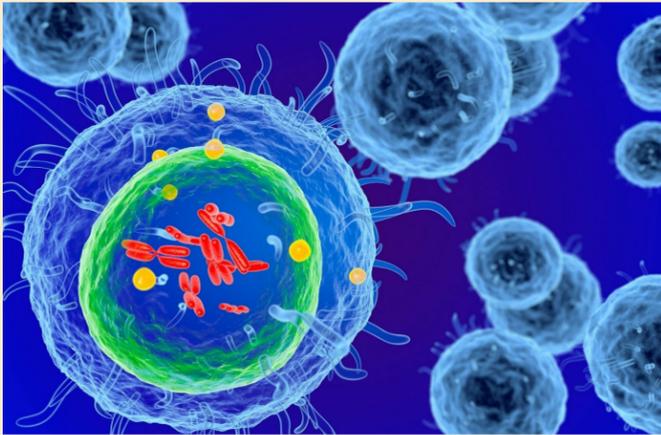
So we decide to change our diet.

As much as we hate to face the prospect of never again being able to eat the foods we love, we reluctantly decide to change our diet. And rather than trying to guess which foods to avoid, many of us choose to order stool tests from EnteroLab, so that we can eliminate most of the guesswork, hoping to reach remission sooner. Most of us choose to order the A1 and C1 panels of tests, because those two test panels cover most of the foods that are known to cause reactions for MC patients.

How do we use all these test results?

After sending in our sample, we eagerly await the results. But alas, after we receive the results, and study them a bit, we may find that we still have a few questions, because we're not exactly sure how to interpret some of the results, even after we review the explanations that come with the test results. The EnteroLab test results are not particularly difficult to understand, but on the other hand, how to incorporate them into our recovery program is not always obvious, either. Because some of the results are relative, rather than absolute, we have to recognize that some of the results take priority over others. This is true, especially, for the C1 panel of test results.

But before we get into those details, we need to understand a little background information about our immune system.



Our immune system is responsible for some very important tasks.

Among other things, the immune system's primary job is to intercept any pathogens that try to enter our body, and prevent them from establishing colonies, and thereby causing infections. It guards the pores of our skin, the

lining of our respiratory system, and the lining of our digestive tract, since these are the most common passageways by which pathogens enter our body. Whenever it detects a pathogen, or a foreign object that it perceives as a pathogen, it produces antibodies unique to that pathogen, so that it can identify that pathogen anywhere in the body, any time it enters the body. These antibodies circulate in the blood, and they are usually produced for years after the last exposure to that particular antigen. An antigen is the specific molecular structure on that particular pathogen, that triggers the production of antibodies by the immune system.

Thereafter, any time the immune system detects that antigen somewhere in the body, an antibody will latch onto a receptor on the antigen, and flag it as a pathogen. After it's flagged, killer cells that are also produced by the immune system, (including white cells such as lymphocytes, macrophages, and others), will target that antigen, and attempt to destroy it. Because the destruction process is inflammatory, this becomes the basis of the chronic inflammatory state associated with MC.

If these antigens were only introduced in a single discrete event, the inflammation would build up for a day or so, and then slowly subside as the antigen population diminished. But when the antigens are in the food we eat, they're regenerated each and every time we eat that food. And since most of us eat those same foods, or food ingredients, almost every day, and often, multiple times each day, the reaction never really has a chance to end, so the inflammation never stops, either.

Defending us against pathogens is a 24 x 7 job, but our immune system has the additional responsibility of healing damaged cells, and replacing cells in organs when they have reached an age where they need to be replaced for proper functioning of the organ. The timing for such replacement varies depending on the organ. For example, because they have such a difficult job to do, the cells in the lining of our intestines are replaced on an average of every 4 to 5 days. By comparison, at the other extreme, cells in the heart and the brain are never replaced. The cells that we are born with in those

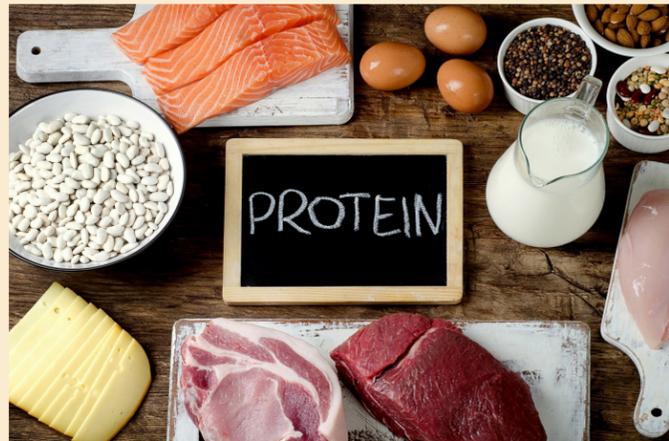
organs will serve us for the rest of our lives. That's just one of many reasons why it behooves us to take especially good care of those organs.

When we consider how the full-time job of replacing older cells in our intestines almost twice per week (and other organs at various intervals), is added to the job of detecting and fighting pathogens or food sensitivities, it becomes easier to understand why the energy consumed by our immune system can be so large that fatigue is such a common symptom of MC.

How are food sensitivities created?

Published research shows that chronic inflammation, such as the type associated with MC, causes increased intestinal permeability, a.k.a. leaky gut. It also compromises the production of digestive enzymes by the small intestine and the pancreas. As a result, the digestive system is unable to completely digest certain foods (because certain enzymes cannot be produced rapidly enough). This is why eating smaller meals when MC is active can be helpful. In the warm, moist environment of the digestive system, any partially digested food quickly begins to decompose, and is usually fermented by opportunistic gut bacteria, producing gas and diarrhea.

Food is composed mostly of proteins, carbohydrates and fats. The food sensitivities associated with microscopic colitis are from the proteins in food, not the carbohydrates or fats. This is how it works. Proteins are composed of long chains of molecules called amino acids. During digestion, the long chains are broken down into smaller chains called peptides, and then ideally broken down further into the individual amino acids. When digestion is interrupted before it's complete, the proteins aren't completely broken down, and many peptides are left undigested.



Nutrients are normally allowed to enter the bloodstream from the contents of the intestines by way of what's known as the tight junctions. The tight junctions are simply the spaces between the elongated cells (known as enterocytes), that serve as the interface between the lining of the intestines (known as the epithelia), and the bloodstream. Normally those tight junctions remain closed, until they're opened just enough to allow the passage of nutrients, and those undigested peptides would never be able to get into the bloodstream. They would just continue on down the digestive tract with the other waste. But with the increased intestinal permeability associated with the inflammation, some of those peptides are able to enter the bloodstream.

When that happens, the immune system immediately detects them, and since it doesn't recognize them as a nutrient, or a normal component of blood, it flags them as pathogens, and begins producing antibodies against them. Thereafter, that peptide is marked as a pathogen, so that whenever the digestion of any food results in the development of that particular peptide, the immune system will initiate a reaction against it.

The medical community classifies this issue as an

autoimmune reaction.

Because these reactions are normally perpetuated, once they begin, (since we eat certain inflammatory foods virtually every day), they appear at first glance to meet the criteria for an autoimmune reaction. But an autoimmune reaction is defined as a reaction against the body. This reaction is obviously not against the body, because all we have to do is stop eating the food or foods that are causing the reaction, and the reaction will stop. So clearly, the reaction is against the food, not the body.

EnteroLab offers various stool tests for detecting food sensitivities.

Any foods that cause us to react are marked by our immune system with the production of specific antibodies. The stool tests offered by EnteroLab utilize enzyme-linked immunosorbent assay (ELISA) tests to detect these antibodies, in order to define specific food sensitivities. Note that with only one exception, all food reactions are directed against proteins. Most foods can be broken down into many different peptides and often, more than one peptide in a single food can cause us to react. Gluten, for example contains over 300 peptides that are known to cause reactions for some people. The primary peptide in gluten however, is gliadin, and all of us react to the most immunodominant gliadin peptide, which is 33 amino acids long. So that's the one that's almost always selected for testing. To offer a test that covered all these peptides would be prohibitively expensive, obviously.

So in order to keep the cost of these tests at a reasonable level, EnteroLab tests for the most common peptide in a food that causes most people to react. Consequently, these test results are very specific to that particular peptide, and they will not detect any reactions to any other peptide. This infers that in a few cases, it's possible that you might react to a food despite a negative EnteroLab test result. When this happens, you are one of the unlucky few who does not react to the most common allergen (peptide) in that food — you happen to react to one of the other allergens, instead.

By the way, that one exception that was mentioned earlier in this section is a sugar, known as alpha gal. Alpha gal is short for Galactose-alpha-1,3-galactose, which is a carbohydrate found in the cells of many mammals that we eat, but is not found in humans or other primates like apes and monkeys. It's also known as mammalian meat allergy. In the US, the allergy is usually caused by a bite from a Lone Star tick. The tick transfers an alpha-gal sugar molecule into the victim's body during a bite. This can trigger an immune system reaction that subsequently produces allergic reactions to red meat.

Understanding the results of the EnteroLab A1 Panel tests is straightforward.

These results are relatively easy to understand, because they mean exactly what they say. Any food that results in a test score of 10 or above, should be totally avoided, because it triggers the production of antibodies. Any food with a score below 10 is safe.

There is no such thing as being “slightly sensitive” to a food. Either you're sensitive, or you're not. These tests cover the four main food sensitivities associated with MC, namely, gluten, casein, soy, and ovalbumin (chicken egg white). In general, the higher the score, the

longer the patient has been reacting to that food.

Interpreting the results of the C1 panel is not as straightforward.

Over the years, after reviewing many of these test results, we've been able to establish a few guidelines that are usually helpful. For example, we recognize that certain parts of the results of the C1 panel are much more important than others. The most important number, by far, is the overall score for those 11 antigenic foods:

Grains: *corn, rice, oats*

Meats: *beef, chicken, pork, tuna*

Nuts: *almonds, cashews, walnuts*

Nightshades: *white potato*

If this number is below 10, then all of the other results are basically irrelevant, because these foods do not appear to be causing the production of antibodies. Therefore, they should all be safe to eat.

If the overall score is only slightly higher (10, 11, or 12, for example), then the foods tested, and ranked, by this panel may be only minor problems. They may not have to be strictly avoided at all times. Even in the worst cases, they can probably be safely eaten on a rotation basis, as long as any particular food is not eaten every day. Except for the foods that are ranked at the top of each category, most of these foods can probably be safely eaten by rotating them on a three- or four-day basis. If you discover that one of them does bother you, then avoid that particular food.

If the overall score is higher, but only moderately so (up to about 18 to 20, for example), then the rankings of these foods become more important. 1+ foods may be only minor problems, but 2+ and 3+ foods are much more likely to be significant problems, and should be avoided in a recovery diet, especially the individual foods that are ranked toward the upper end of each category. After you reach remission, you can test these foods, one at a time, for three days, if you want to try to add them back into your diet. If you don't react within three days, the food is probably safe for you to add to your diet.

If the overall score is significantly higher (in the 20s or 30s, for example), then probably all of the foods ranked as 1+, 2+, and 3+ should be avoided, at least during recovery. Only foods with a zero score should be considered to be safe. When the overall score is this high, or higher, often there will be no foods in the 0+ category.

If you're sensitive to many foods, what can you eat?

If your results happen to show that you react to every food, or almost every food, in the test panels, then you may wonder what you can safely eat. It's tempting to go to the supermarket or online, to search for gluten-free food products. But for most of us, commercially processed foods are a cruel trap when we're designing our recovery diet. Most of them contain so many ingredients, that it's virtually inevitable that one or more of those ingredients, or the combination of those ingredients, will cause us to react, and prevent us from ever reaching remission, despite careful attention to other diet details. It's much safer, by far, to cook everything from scratch, using pure, simple ingredients. Test the commercially-processed foods after you've been in remission for a while, if you still want to try them.

Sugar and fiber are problems for MC patients.

During recovery, and for at least a year or so after we reach remission, it's necessary to avoid artificial sweeteners, especially aspartame, and minimize sugar and fiber. If you're diabetic, and you absolutely have to use an artificial sweetener, Stevia, or one of the other artificial sweeteners based on the *Stevia rebaudiana* plant should be safe to use. All raw fruit, other than bananas, should be avoided. If any cooked fruit is eaten, it should be peeled, and overcooked. The predominant type of sugar in fruit is fructose, and fruit also contains various sugar alcohols, such as sorbitol. Fructose is very difficult to digest, especially when MC is active, because rather than being digested by the digestive system, like other sugars, it must be digested by the liver. We can't digest the sugar alcohols at all, so they are likely to just add to the undigested carbs that are fermented by gut bacteria, resulting in additional gas, cramps, and diarrhea.

Grains, in general, are not healthy foods.

Rice is the safest modern grain.

But grains tend to be poor dietary choices, especially for MC patients, even if you aren't sensitive to them. If you don't feel that you can get by without any grains in your diet, or at least a substitute for grains, there are a few possible substitutes that are



worth trying. Ancient foods such as teff, millet, quinoa, or amaranth are safe choices. Spelt, oats, kamut, farro, barley, rye, einkorn, and emmer are definitely not safe.

Vegetables are the safest source of carbohydrates.

Certain vegetables are much safer to eat, because most of them avoid the fructose and sugar alcohol issues. If they have an outer peel, such as squash, then of course they need to be peeled and then overcooked, to make them more digestible. Most of us are able to tolerate vegetables such as squash, carrots, rutabagas, cauliflower, turnips, parsnips, and green beans. If you're sensitive to soy, then you will probably also be sensitive to most legumes such as peas and beans. That said, green beans appear to be an exception, because despite the fact that they're legumes, most of us can tolerate them safely.

A lot of protein is required to heal the damage in our intestines.

If you look at the list of foods that are tested, you'll notice that they're all common foods that most of us have eaten for most of our lives. So, what does that infer? It tells us that we've become immune to foods with which we're very experienced. Since no exotic foods are among those tested, this suggests that exotic foods might be safe for us to eat. And indeed, that appears to be the case. Less common, or exotic foods are generally safe. For protein sources, turkey, lamb, venison, antelope, rabbit, duck, goose, pheasant, quail, and most other wild -type meats are safe. An exception in the US and Canada is bison, because these days, virtually all bison carry at least a slight amount of domestic cattle DNA due to crossbreeding with domestic cattle at some point in their history.

Is it safe to drink Coffee?



Despite warnings about coffee by the medical community, most of us appear to tolerate coffee quite well. Unless it bothered us before we developed MC, we can usually tolerate it after we develop MC. You might be an exception though, so if it, or any other food, obviously bothers you, then cut it out of your diet. Don't add milk,

obviously, since most of us react to dairy products, and beware the so-called non-dairy creamers manufactured by commercial processors, because they often contain a derivative of casein, and it will cause you to react if you're sensitive to casein. Use a small amount of sugar, or a milk substitute such as almond milk, cashew milk, coconut milk, or rice milk.

Some MC patients have a problem selecting their breakfast foods.

Most mainstream cereals contain gluten that originates from the barley malt that's used as an ingredient in most cereals. Some of the Chex cereals are safe for many of us, but like most commercially processed foods, they contain so many ingredients that they may not be acceptable for all of us. For many of us, our breakfast looks much like any other meal. We eat leftovers from one of the meals eaten the day before. As long as potatoes are not a problem for you, hash browns may be a suitable choice, with your choice of meat, for a source of protein.

Planning ahead will save time and worry.

Because we require such a special diet, it's very helpful if we cook foods in large batches, store them in the freezer in individual, meal size portions in Ziploc bags, and then take a bag out of the freezer and warm it up, or microwave it, when we need it. Some MC patients spend part of their weekend cooking all of their needs for the coming week, or weeks. If you plan to be away from home for a while, while shopping, or visiting, take along whatever you might need, including snacks, and even meals, if you will be away from home during mealtime.

Regarding snacks, though they might be considered junk food by some, Lay's potato chips are usually safe for most of us who are not sensitive to potatoes, because they're cooked in a safe oil, and they contain only potatoes and salt as other ingredients. If you're not sensitive to corn, even Fritos or tortilla chips can be safe snacks. But anytime you're looking at foods that are fried in oil, be sure that the oil is safe. If the ingredient list includes vegetable oil, the blend almost always contains soy oil.

Published research shows that over 50% of meals at restaurants that claim to be gluten-free, are actually contaminated by gluten. Therefore, it's best to avoid fast food restaurants, because even when they insist that their foods are gluten-free, and fried in a dedicated fryer with a safe oil, there's a hitch. They reclean and filter that oil overnight, and that involves blending the oil, which contaminates it.

Learning to control this disease with your diet is a lot like taking a graduate course in healthy eating. Yes, we have to give up many of the foods that we've loved to eat all our lives, and our new diet, and lifestyle in general, will be significantly different from our old life —

but our new diet will definitely be healthier, and it will allow us to enjoy life again and it will almost surely add to our longevity and our quality-of-life, as we grow older.

Recovering from MC takes time, and a lot of work and dedication, but similar to the old fable about the race between the tortoise and the hare, patience and perseverance wins the race.