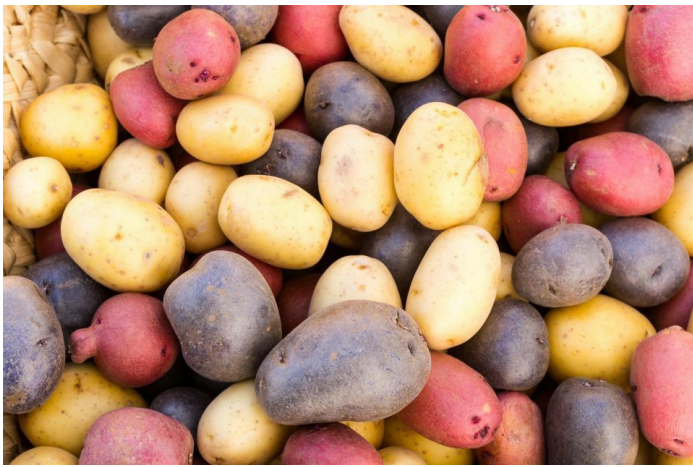


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Microscopic Colitis and Starch Digestion



Ever wonder why you're having so much trouble digesting certain starchy foods now that you have microscopic colitis (MC)? The primary problem is due to a deficiency of digestive enzymes. Digestive enzymes are produced in various parts of the digestive system, from the mouth to the pancreas. But most of the enzymes used to initially begin the

breakdown process for most common foods are produced in the small intestine.

But when the small intestine is inflamed, its ability to produce adequate amounts of those enzymes is compromised. The first enzyme to be lost is lactase, the enzyme used to digest milk sugar, lactose. As the inflammation continues, additional enzymes may be lost, eventually leading to a condition where digestion of any but the smallest portions of carbohydrates becomes difficult.

But there are additional considerations regarding starches. Some starches are much easier to digest than other starches. There are basically two types of starch, amylose and amylopectin, and all starchy foods are made up of a certain percentage of each of those two types of starches. Here's what you need to remember: Amylopectin starch is water-insoluble and it is much easier to digest than amylose starch, which is water-soluble. High amylose content foods are known as high-starch foods. Low-amylose foods are known as low-starch foods, and they contain higher percentages of amylopectin. High amylopectin foods are also referred to as waxy foods. Remember, this is what we want (waxy foods) if we are looking for foods that are easier to digest.

There is another category known as resistant starches, that we cannot digest at all, so they are fermented in the colon. They're often recommended as a diet food, but we definitely don't want anything to do with resistant starches when we're searching for foods that are easy to digest.

For example, russet potatoes are considered to be high-starch potatoes, because they have a high-amylose content. Red potatoes are low-starch, or waxy potatoes, and they are much easier to digest. Other potatoes such as Yukon gold and white potatoes are considered to be medium starch potatoes and their ease of digestibility lies somewhere in between.

But as always, whenever we gain something, we lose something else. Easy digestion will result in relatively rapid digestion, and with carbs, that means a higher glycemic index number. If you are a diabetic, however, that's not what you want because it may cause a spike in blood sugar levels. Amylose is slower to digest, so it reduces the risk of a blood glucose spike. That might be more important to you than selecting foods that are easier and faster to digest.

Rice can be selected by the same criteria. Long grain white rice is a high starch food — that is, it contains the most amylose and the least amount of amylopectin. This helps to make it fluffy and non-sticky. But it's more difficult to digest. Short-grain rice tends to contain a higher percentage of amylopectin. Jasmine rice is long-grain, but it contains more amylopectin



than most other long-grain varieties. Arborio is a short-grain rice variety and it has significantly more amylopectin than most other varieties. But if we're searching for the easiest-to-digest rice, select waxy rice, or glutinous rice, which is grown in Southeast and East Asia. It contains the most amylopectin and the least amount of amylose of any other rice varieties. But remember, if you have diabetes, rice that is high in amylose has a lower glycemic index number.

Even waxy corn exists. Waxy corn contains a much higher percentage of amylopectin than common varieties. But unfortunately it's not commonly available as a food product. It's primarily used for making thickeners and stabilizers for use in certain foods. It's also used to make adhesives.

If you're currently in the process of recovering from a microscopic colitis flare, you're probably having trouble digesting your food. And if you're having trouble absorbing the nutrients in your food for any reason, consider the starch, and select your carbs accordingly. After you are in stable remission, this won't be nearly as important, but early on, the balance of starch types in your food can make a big difference in how well you are able to digest your meals, and absorb the nutrients in your food.

Should I have a Repeat Colonoscopy?



A recurring topic on the MC Forum concerns doctors wanting to repeat a colonoscopy after a prior colonoscopy with a diagnosis of MC. But a colonoscopy is not without risk, even though many doctors act like it is a routine procedure. It is important to weigh the risks and possible benefits before proceeding.

MedPage Today provides some insight into the frequency of complications in a recent article titled "Colonoscopy Complications Occur at a Surprisingly High Rate". Here is a quote from the article.

Most colonoscopy adverse events occur within 7 days, but even more occur beyond the 7-day period. In a mid-2014 handout, the agency said: "Hospital visit rates after outpatient colonoscopy range from 0.8 to 1.0 percent at 7-14 days and it estimated that the range of hospital visits is between "2.4 to 3.8% at 30 days post procedure."

The risk is even higher on a per-person basis, because one must consider that patients who undergo colonoscopies at recommended intervals -- every 10

years, or every 5 years if polyps are found -- would have from three to six colonoscopies before age 76.

Additionally, the measure also only captures the risk for healthier patients; Those with conditions such as diverticulitis or inflammatory bowel disease, and those with serious chronic illnesses are more likely to experience complications from colonoscopy were excluded from this measure's denominator.

This article doesn't even mention other negative factors. The procedure is unpleasant and the clean-out prep can be harsh on an inflamed MC digestive tract resulting in increased symptoms. There can be costs associated with the procedure such as co-pays and deductibles that aren't covered by insurance. It usually involves a least a day off work for the patient and a partial day for the person accompanying the patient, as well as arranging for child care if needed.

Of course, if you are at an increased risk for cancer because of a previous finding of polyps or other abnormality, or if you have new and troubling digestive symptoms, then those are legitimate reasons. But often times doctors have medically dubious reasons for recommending a repeat colonoscopy, and here are some that have been encountered on the MC forum.

1. A patient has a new doctor who wants to repeat the colonoscopy for their records. This is unnecessary, as you can request your previous colonoscopy pathology report and provide it to your new doctor. An MC diagnosis isn't going to change with a new colonoscopy.

2. A patient continues to have symptoms despite treatment with various medications and the doctor thinks that "something else" might be going on. In this case the doctor doesn't understand the disease, and is frustrated because nothing seems to be working. We all know that MC is a complicated disease.

Healing from the inflammation takes time as well as tracking down and eliminating food sensitivities.

3. A related question concerns having an endoscopy to see if a patient has celiac disease along with MC. This is a total waste of time, and simply to satisfy a doctor's curiosity, because the only treatment for celiac disease is a gluten free diet. And if you have MC, you should already be on a gluten free diet.

So don't be rushed into a repeat colonoscopy, and make an informed decision about whether it is truly needed.

Scientists Create a New "Gluten-Free" Variety of Wheat

Researchers at Washington State University, Clemson University, and institutions in Chile, China and France that partnered with them, have created a new wheat variety that they hope can be used to make flour that will be safe for celiacs to use. As a product of GMO technology, the new wheat genotype contains the enzymes that are needed to break down the proteins that cause celiacs to react to all previously-existing wheat varieties. Their work



is published in the January issue of Functional and Integrative Genomics.¹

But this work started many years ago. In 2008, Dr. Diter von Wettstein managed to receive a grant from the National Institutes of Health (NIH) in the amount of \$837,000 to help fund his goal of developing a gluten-free wheat variety. He and his team managed to locate a mutant variety of barley that lacks gluten-type proteins. As an added bonus, they noted that it was rich in lysine, an essential amino that's deficient in current bread wheat varieties. As the research progressed, and additional researchers at other institutions began to contribute their efforts, they've reached the point where they have a new wheat variety that shows promise. By using DNA techniques to add new DNA into wheat seed, they've created a new variety that contains an enzyme from barley that's capable of digesting gluten, and another enzyme from the bacterium *Flavobacterium meningosepticum*. It's hoped that these two enzymes will break down the gluten proteins in the wheat after the wheat enters into the human digestive system, and this will make the wheat safe for celiacs.

But realistically, this is very similar to eating conventional wheat, and then taking an enzyme supplement such as Glutenease, and then hoping that it will help enough with the digestion of the wheat to prevent a reaction. Will it? According to the research data, when the researchers tested extracts from the new grain on simulated human digestive systems, the enzymes were able to actually break down a maximum of about two-thirds of the gluten. This leaves at least a third of the gluten still viable. In reality, that's a tremendous amount. For a disease issue in which as little as a single molecule of gluten is enough to make some people react, it's extremely unlikely that this approach can ever be fine-tuned to the point where such wheat can be safely eaten by celiacs, or anyone else who is sensitive to gluten. It's an interesting approach, but when the dust settles, will it perform as promised? Or will the net result be multitudes of sick and disappointed celiacs?

1. Osorio, C. E., Wen, N., Mejias, J. H., Liu, B., Reinbothe, S., von Wettstein, D. & Rustgi, S. (2019). **Development of wheat genotypes expressing a glutamine-specific endoprotease from barley and a prolyl endopeptidase from *Flavobacterium meningosepticum* or *Pyrococcus furiosus* as a potential remedy to celiac disease.** Functional & Integrative Genomics,19(1), pp123–136. Retrieved from <https://link.springer.com/article/10.1007/s10142-018-0632-x>

