

## What You Eat Affects Your Immune System

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I wrote last month about ways to strengthen your immune system, one significant factor being your digestive system. Because of the complexity of this topic, I have separated that content to this month's article.

I have found a lot of information available in journals and online articles. As always, one needs to be watchful of the source of the written material, and it is helpful if the content is verified by more than one source.

For the sake of space, I will substitute the term "gut" to include the digestive system, which constitutes everything from oral ingestion to elimination through the bowel. I will review the importance of gut integrity, and the relationship between gut and food products, and give some general recommendations about diet choices.

**Your gut's part in immunity.** Your gut is your body's largest immunity system component: 200 times the surface area of your skin, which is your first line of defense. The gut acts as the "gatekeeper" against ingested toxins, food additives, microbes, harmful drug effects...whatever your mouth sends down. Its function is very complex, ultimately leading to digestion and absorption of the intake, which primarily is your diet.

Unfortunately, the Standard American Diet (SAD) has high contents of sugar, processed foods and additives which can promote the growth of harmful bacteria and yeast. This can lead to variations in absorption by disrupting the barriers in the gut lining, allowing these toxins to enter your bloodstream. This can promote a localized or general inflammatory response. As toxins enter your blood stream, your body's immune response sets up antibodies to fight them, which can promote a localized or general inflammatory response. This syndrome is commonly referred to as "leaky gut" and recognized as a source of gut symptoms and many other disease entities including cardiovascular, neurological, and musculoskeletal pathology.

**How your diet influences the Inflammatory tendency.** As you know, the food industry works to make their products the combination of tastes that are likely to 1) appeal to us, i.e., sweet, salty, fatty, and 2) lead to habitual consumption, which is an addictive response. This also includes the restaurant industry.

Studies suggest that a diet with appropriate calories that is low in refined carbohydrates, high in soluble fiber, high in mono-unsaturated fatty acids, and a relatively high omega-3 ratio has anti-inflammatory effects on the body. This tells us that we can influence our health dramatically by substituting foods that boost our immune system. Some regional diets, like the Mediterranean diet pattern, include olive oil, fatty fish, modest lean meat consumption,

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and abundant fruits, vegetables, legumes, and whole grains. This diet pattern is also high in nutrients such as vitamin C, zinc, and other antioxidants which have been shown to reduce the inflammatory response.

**Foods High in Fiber.** Mayo Clinic “Health Lifestyle” page recommends that women should try to eat at least 21 to 25 grams of fiber a day, while men should aim for 30 to 38 grams a day. Examples are: apple with skin—4.5 gm; orange 3.0 gm; 1 cup boiled broccoli—9.0 gm; potato with skin—4 gm; 1 slice whole wheat bread—2 gm; 1 cup baked beans—10gm. You can see that we need several servings of these types of foods daily to meet the recommended goals.

**Sugar in processed foods.** Sugar is unfortunately a significant source of energy in the American diet. Refined sugars such as sucrose, glucose, fructose and high-fructose corn syrup (HFCS) are often added to soft drinks, fruit juices, breakfast cereals, yoghurts and many products we might otherwise consider healthy choices.

Researchers have recently found HFCS promotes considerably more weight gain than table sugar. It has been suggested HFCS could be one of the major contributors to our obesity epidemic.

Though it is marketed as a healthier alternative to sugar because the body breaks it down more slowly and it doesn't promote the same sharp elevations in blood sugar and insulin levels, excessive quantities of fructose, especially in HFCS, are unknowingly consumed by the general public due to its presence in so many processed foods. Read the labels of packaged foods to see the contents, and limit those products with refined sugars.

**Foods that are high in monounsaturated fats (“good fats”).** These include some oils that are liquid at room temperature, including olive oil, perilla and rice bran oil. Omega 3 fatty acids have shown consistently positive health effects. Other fatty acids sometimes have pro-inflammatory properties.

EXAMPLES (not intended to be inclusive) of foods that are a source of omega 3 acids:

- Fish: herring, salmon, mackerel, trout, halibut and many shellfish.
- Nuts: cashews, pecans, almonds.
- Cheeses: generally good source
- Vegetables: brussels sprouts, avocados
- Other: dark chocolate, black and green olives

**Substitutions to consider.** There are many health benefits to changing one's diet to incorporate more monounsaturated fat. A healthy diet should contain approximately 30% fat. I have included here some suggestions for substitutions you may be able to live with. Some examples of substitutions are:

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- Instead of butter - try refrigerated olive oil or avocado as a spread.
- Instead of cooking with generic vegetable oil or shortening - try olive oil or safflower oil.
- Instead of snacking on chips or crackers - try seeds or nuts.
- Instead of high fat proteins for breakfast, such as eggs with cheese or breakfast meats - try ready-made granola.
- Instead of chips and cream based dips - try vegetables with hummus which contains heart healthy tahini.
- Instead of high fat ice cream - try a few pieces of dark chocolate for dessert.

**Summary.** As you can see, there is much we can learn and change in our diet to maximize our body's natural immune response to diseases. Sometimes changes need to be made gradually. The goal is to face the world with an immune system that will work its best to protect you. If you have any questions or suggestions for me, I would like to hear from you. You can email me at [juliemcargill@gmail.com](mailto:juliemcargill@gmail.com).

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