# FIBER: Why do we need fiber and where do you get it?

Fiber is traditionally not a macronutrient but could be considered one because of its fundamental role in our health and metabolism. It is far more important than we've recognized thus far. That's why it is one of the four macronutrients that you should follow in your diet. How much and from which sources? Let's dig deeper into that.

But first - what is fiber? Fiber is a carbohydrate that the human gastrointestinal system cannot absorb. Then what's the point? During millions of years, our intestine has developed a symbiosis with microbes that can and do use this fiber as energy. When fiber reaches the end of the intestinal tract called the colon, the bacteria start to break it down and use it as energy. In that same process, bacteria will excrete the short-chain fatty acid called butyrate, an essential energy source for intestinal tract cells. Those cells have developed a need for this butyrate to stay healthy. They can't function without it. In the case of too little fiber and thus too little butyrate for intestinal membrane cells, the colon wall starts to "leak" through toxic elements like lipopolysaccharides. It further causes inflammation throughout the whole body. As for butyrate - all of which the intestinal wall cells don't use as energy - it is absorbed into the bloodstream and has many amazing effects on our metabolism and overall health.

The second important thing fiber does is that it causes a gel-like mass of the food that goes through our intestinal system. That means that it slows down the absorption of nutrients. For example, the carbohydrates that would naturally absorb in 30 minutes will be stretched out to 2-3 hours inside the fiber gel mass. That has at least two significant benefits: we won't get blood sugar and insulin spike and the hunger stays at bay a lot longer. Try it - eat some fast absorbing sugar like candy with, let's say, 300 kcal. On the next day, eat 150 kcal of the same sweet and 150 kcal of vegetables. I predict that you felt hungry and weak after 20-30 min on the first day and it took 2-3 hours on the second day.

The third, maybe the most crucial factor, is the hormonal effect. Did you know that our intestine secretes over 30 different hormones, which are extremely important for our functioning metabolism, keeping hunger at bay and overall health and well-being up? For example, one of the most important ones is the GLP-1 hormone, which levels decline in metabolic syndrome and causes increased weight gain, hunger, and a role in developing type 2 diabetes. The kind of fiber that doesn't produce a gel mass is called insoluble fiber and it is the type of fiber that affects the intestine's hormonal function.

So, now we’ve gotten the *why* out of the way, let’s focus on the *how*. Getting enough high-quality fiber from different sources isn't nearly as hard as you might think. The minimum you should aim for is 25 grams per day. The good thing is that when you follow my instructions on the carbohydrate video, this amount comes automatically. For example, let's say you'll eat 600 grams of mixed vegetables, one oatmeal porridge, and two loaves of oat bread; you'll get 23 grams of fiber with just 52 grams of overall carbohydrates. That's the reason we started with carbohydrates and I recommended that you eat mostly fiber-rich carb sources.

So, are there any particular fiber sources you should consider? Yes - seeds, nuts, fruits, and berries. Of course, they aren't as high in fiber content, but they'll make an excellent addition.

Maybe the most important thing to remember is to get your fibers from different sources. If you only get your fiber from one source - for example, oats - the health and metabolic benefit will be much lower. Remember that different fibers have different duties in our intestines and as food for bacteria. Don't overthink this part; try to eat a wide range of veggies, whole grains, seeds, and berries.

So, this is why and how you should eat fiber-rich foods. If you have eaten very little fiber before and raise those amounts in one day, your stomach may get upset. It is common. Bloating, diarrhea, and lower stomach pain are quite common symptoms. In those cases, it usually goes away over time or the second option is to lower the fiber content and raise it over time; for example, 15-20 grams per day over a month. Then your intestine and its bacteria have time to catch on.