

Nutrition, the Gut and a Healthy Mind in Recovery

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The connection between the gut and the brain goes back decades, with phrases such as “go with your gut,” “gut instinct,” or “butterflies in my stomach.” Sometimes the gut, which includes the stomach, intestines, and colon, is called the second brain because there are multiple neurons in the gut that use similar cells as the brain and communicate with the brain. Experts say gut bacteria, called “microbes,” also influence how our body absorbs and uses nutrients in the diet.¹ It is estimated that over 1 trillion microbes inhabit a healthy gut.² There are also many connections between the brain and gut that have important implications on recovery and well-being and should be considered for people who are recovering from substance use.

The gut absorbs important nutrients for healing and recovery. The connection between the brain and the gut through the microbiota-gut-brain axis has an impact on anxiety, depression, hunger, satiety and cravings.³ Understanding how substance use affects the gut and how nutrients and food components support good gut health are important considerations in recovery.

The effects of substance use on the gut

The digestive system includes all of the tissues and organs that help the body get nutrients out of the food we eat and drink. This system ranges from the mouth all the way to the large colon, where bodily waste is excreted. Many organs are impacted by substance use, however, the organs within the gut are impacted in a way that can make recovery and physical healing difficult.

Organ/Tissue	Effects From Substance Use (depends on the substance)
Mouth	Increases risk of dental caries (cavities) due to sugary drinks and foods. Increases tooth pain, decay and loss that makes it difficult to bite, chew and swallow foods. Less saliva is produced that can't protect teeth or help breakdown food.
Stomach	Damages the lining, causing ulcers.
Small Intestine	Damages the lining and villi, preventing absorption of nutrients.
Large Intestines	Reduces amount of good gut bacteria in the large intestine, impairing vitamin absorption and nutrient processing.
Liver and Gallbladder	Alters the process of absorption and secretion of bile, damaging other systems in the body. Impairs the ability of the liver to clear toxins from the body. Increases risk of cirrhosis.

Supporting the gut supports the brain

The connection between the gut and brain is not entirely understood. However, experts have determined that eating a variety of nutritious foods can support mental health and that some psychological interventions to support mental health can have benefits on the gut.⁴ In many ways, the gut and the brain are communicating with one another in our body. When steps are taken to repair and restore the gut through nutrition after substance use, there may be benefits that lead to improved mood, emotional regulation and reduced cravings.

Support for a healthy gut in recovery

Experts have a better understanding of steps people can take to restore gut health after extensive damage. Finding ways to add fiber, prebiotics and probiotics to the diet supports a healthy gut in recovery.

Fiber

Fiber is a type of carbohydrate that is not absorbed by the body. Examples include roughage such as the skin of potato, a strawberry seed or the stringy part of an orange. It acts as a “broom” to clean the body out as it moves through the gut. A diet with adequate fiber can help keep blood sugar within an ideal range, lower cholesterol, provide fullness after meals, and prevent constipation and diverticulosis.

There are two types of fiber, insoluble and soluble.

1. Soluble fiber works by decreasing serum cholesterol and stabilizing blood glucose levels. Soluble fiber is easily absorbed by the body and includes citrus pulp, soybean hulls, oat, barley and beans.
2. Insoluble fiber works by decreasing how much time it takes for food to move through the intestines. Insoluble fibers are not absorbed by the body but add bulk to the stool to help the body eliminate food through the gut. Sources of insoluble fiber are brown rice, carrots, celery, onions, garlic, corn hulls and many fruits, such as bananas and berries.

People in recovery often experience diarrhea, bloating, cramps and gas when they stop using substances due in large part to intestinal damage from years of poor food access and limited dietary choices. For people who used opiates, these effects may be more severe. Opioids and opiates directly interfere with normal bowel function by paralyzing the bowel, causing the pushing and elimination process to function irregularly. A high-fiber diet, alongside plenty of water, acts as a natural laxative

and will help restore normal bowel function during recovery from substance use.

Education should focus on recommending dietary patterns that increase fibrous foods, adding them slowly over time and with adequate hydration.⁵ The current recommendation for fiber intake is 25 grams per day for women and 38 grams per day for men. Fiber is directly labeled on a Nutrition Facts Label in grams (g). Foods that have three or more grams of fiber per serving are considered higher fiber choices. Keep in mind that many foods high in fiber most likely won't have a Nutrition Facts Label, such as fresh fruits and vegetables.

Prebiotics and probiotics

The gut microbiome is a collection of all the bacteria or microbes that live naturally in the gut. The microbes in our gut aren't like bacteria that make us sick and need an antibiotic. These microbes are a good and normal thing that can help support our overall health. Within everyday food choices, probiotics and prebiotics support a healthy gut during recovery.

Probiotics are the diversified strains of bacteria in the gut (e.g., soldiers in the army). These helpful bacteria in the gut produce nutrients that are crucial for brain and mental health, including biotin, vitamin B12, niacin (B3), pantothenic acid (B5), folate, vitamin D and vitamin K. Good sources of probiotics include both soluble and insoluble fiber such as yogurt, kefir, and fermented foods such as sauerkraut and sour pickles. For yogurt, check for labels that clearly state they include live and active cultures. Probiotics can also diversify and build a strong immune system typically impaired or destroyed by prolonged substance use.

Prebiotics are parts of food and specific nutrients that feed the good bacteria (e.g., feed and give the soldiers the support they need). Foods with prebiotics give the gut microbes nutrients to create short-chain fatty acids that can boost mood. The main source of prebiotics are high-fiber foods, such as whole grains and fruits and vegetables, including onions, garlic, artichokes, asparagus, bananas, berries, green vegetables and tomatoes.

While prebiotics and probiotics can be found in supplement form, caution should be taken with individuals in recovery for substance use who rely on drugs in pill form. High-fiber foods should be prioritized in efforts to diversify foods in the diet, establish routine eating patterns, and provide the additional nutritional benefits these foods often provide (e.g., [vitamins](#), [minerals](#)).

Other considerations

Gut health is complex and will be different for every person in recovery. Several factors should be considered that may impact someone's ability to restore gut health:

- Substance use can interfere with enzyme production in the gut that helps break down food, causing people to have to change dietary patterns. This can be challenging and may require support from a professional to help navigate. For example,

alcohol can suppress lactase expression, which causes people to present lactose intolerance after being able to consume foods with lactose prior to substance use.

- Trauma, stress and anxiety are all associated with impaired gut function. Layering the physical and emotional stress of substance use on top of preexisting mental health challenges could complicate restoration of gut health in recovery.
- In efforts to reduce [weight gain](#) often experienced in recovery, people, especially women, may resort to laxatives during recovery. Laxatives are associated with undesirable changes in the gut microbiota. In efforts to reduce laxatives and hydration concerns, focus should be placed on high-fiber foods that naturally act like a laxative, moving food through the gut.
- Digestive conditions, such as Inflammatory Bowel Disease, chronic constipation, and Crohn's Disease, affect one in five people who live in the U.S. There is a high likelihood that those in recovery are also experiencing a digestive condition, whether it is diagnosed or not.⁶

Healing and restoring the gut during recovery takes time and patience. It will also change as someone moves through detoxification into long-term recovery. Prioritizing fiber-rich foods that include both prebiotic and probiotic sources will set up an individual with the best habits to ultimately support brain and gut health.

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