

Growing evidence that probiotics are good for your liver

April 23 2018

Increased awareness of the importance of the microbes that live in our gut has spurred a great deal of research on the microbiome and fueled a booming probiotics industry. A new study suggests probiotics can improve not only the health of our gut but liver health, as well.

"Probiotics have been studied most intensely in the context of the [gastrointestinal tract](#)," said Bejan Saeedi, a doctoral candidate at Emory University who conducted the research. "This study provides evidence that the effects of probiotics extend beyond the gastrointestinal tract. What makes this study unique is that it suggests a discreet molecular mechanism by which these effects are elicited."

Saeedi will present the research at the American Society for Investigative Pathology annual meeting during the 2018 Experimental Biology meeting, held April 21-25 in San Diego.

The vast populations of microbes that reside on and inside of our bodies have been shown to play a role in numerous functions that keep our bodies healthy. Probiotics are bacteria that are consumed or administered in an effort to boost the populations of these beneficial microbes.

Saeedi and his colleagues focused their study on the [probiotic](#) *Lactobacillus rhamnosus* GG (known as LGG), a species common in many over-the-counter probiotic formulations. They gave mice food laced with LGG for two weeks and then examined how they responded

to a high dose of acetaminophen (the active ingredient in Tylenol).

Taking too much acetaminophen can cause serious [liver damage](#) and even death by increasing the abundance of a form of oxygen called free radicals, a process known as oxidative stress. However, the researchers found that mice receiving the probiotic treatment suffered less [liver](#) damage when presented with an overdose of acetaminophen compared with mice that did not receive probiotics.

"Administration of the probiotic LGG to mice improves the antioxidant response of the liver, protecting it from oxidative damage produced by drugs such as acetaminophen," explained Saeedi.

The liver is a hub for removing toxins from the blood and plays an important role in the body's processes for converting food into energy. Since it is "downstream" of the gastrointestinal tract in the digestive process, it makes sense that the composition of bacteria in the gut could affect the functioning of the liver.

Previous research by Saeedi's colleagues has traced the molecular process by which LGG appears to protect against oxidative liver injury. That research points to the role of a protein called Nrf2, which regulates the expression of genes involved in fighting [free radicals](#).

Other studies in [mice](#) have previously shown that LGG can protect against [alcoholic liver disease](#) and non-alcoholic fatty liver disease. Saeedi said studies in human volunteers would be needed to definitively test the potential clinical benefits of LGG in humans.

More information: Bejan Saeedi will present this research on Sunday, April 22, from 2:45-3 p.m. in Room 4, San Diego Convention Center ([abstract](#)) and on Tuesday, April 24, from 5:30-7:30 p.m. in Ballroom 20BC (poster 150.4).

Provided by Experimental Biology 2018

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