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Date: 2 July, 2014

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Omega-3 Fats May Reduce Risk of Gastrointestinal Diseases

Researchers Confirm “Gut Instinct” of Anti-Inflammatory Effects of EPA and DHA

STOCKHOLM – New research shows that dietary fats impact gut bacteria – some for the better ([omega-3 polyunsaturated fatty acids](http://www.fatsoflife.com/fats-and-health/omega-3s/) or PUFAs) and some for the worse ([omega-6 PUFAs](http://www.fatsoflife.com/fats-and-health/omega-6s/)). The omega-3s [EPA](http://en.wikipedia.org/wiki/Eicosapentaenoic_acid) and [DHA](http://en.wikipedia.org/wiki/Docosahexaenoic_acid) found in seafood and marine oils may reduce inflammation and increase beneficial microorganisms to protect against gastrointestinal (GI) diseases. These findings were presented at the [11th Congress of the International Society for the Study of Fatty Acids and Lipids](http://www.issfal.org/conferences/2014-stockholm) (ISSFAL) in Stockholm 1 July, 2014.

Research shows that dietary choices and certain microorganisms in the GI tract can contribute to the prevention or development of inflammatory bowel disease, colitis (inflammation of the colon) and Crohn’s disease. PUFAs in particular affect microbes living in the intestine known as “gut microbiota.”

[Deanna Gibson, Ph.D.,](https://gibsonlab.wordpress.com/dr-deanna-gibson/) assistant professor at the University of British Columbia, Canada, and colleagues examined the effects of omega-3 and -6 PUFAs in mice infected with GI bacteria that causes colitis. Those fed omega-6 PUFA (corn oil) diets had higher intestinal damage, immune cell damage and production of harmful bacteria. In contrast, diets high in [EPA](http://en.wikipedia.org/wiki/Eicosapentaenoic_acid) and [DHA](http://en.wikipedia.org/wiki/Docosahexaenoic_acid) increased anti-inflammatory microbes, which reduced immune cell damage and inflammation as well as protected against the damage of colitis. However, the mice taking these omega-3 fats suffered sepsis (whole body inflammation due to severe infection) because their immune responses needed to survive infection were impaired.

“While too much inflammation isn’t good in the context of autoimmune disease, we also need inflammation to survive against infections,” notes Gibson. “These observations suggest that excess omega-6 PUFA intakes may be harmful to gut health. Conversely, while omega-3 PUFA supplementation promotes beneficial microbes in the gut, thereby decreasing inflammation, this advantage under normal conditions may be problematic in the presence of harmful bacteria.

“Curiously, when a saturated fat-rich diet was supplemented with fish oil, the mice did not suffer from sepsis,” adds Gibson. “These intriguing findings suggest that omega-3 PUFA supplementation with a diet high in saturated fat may be more protective to the GI tract than a diet rich in omega-6 PUFAs.”

[Jing X. Kang, M.D., Ph.D.,](http://www.llmt.org/aboutus.htm) professor at Harvard Medical School and Massachusetts General Hospital, USA, reported a mouse study showing a lower ratio of omega-6 to omega-3 PUFAs alters gut microbiota and reduces the production of harmful bacteria while increasing colonies of beneficial bacteria. These changes led to less inflammation.

“Chronic low-grade inflammation contributes to the development of many chronic diseases and can be induced by harmful gut microbiota,” Kang says. “Therefore, dietary strategies that lower the omega-6/omega-3 PUFA ratio to optimize gut microbiota – such as reducing intake of vegetable oils high in omega-6 fat, processed foods and grain-raised livestock and increasing intake of fish and green vegetables – could prove effective for managing such diseases. For management of certain health conditions, a high quality, concentrated omega-3 supplement is also practical.”

For more information, go to [www.issfal.org](http://www.issfal.org) and see ISSFAL on [Facebook](https://www.facebook.com/pages/International-Society-for-the-Study-of-Fatty-Acids-and-Lipids/461696330643293?ref=hl) and [Twitter](https://twitter.com/ISSFAL2014) (@ISSFAL2014).

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