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Probiotics may boost immune health markers for smokers: Study

By Stephen Daniells , 12-Dec-2011
Last updated on 14-Dec-2011 at 11:02 GMTRelated tags: [Probiotic](#), [Immune health](#), [Yakult](#)Related topics: [Research](#), [Probiotics & prebiotics](#), [Immune support](#)

Daily supplements of the probiotic *Lactobacillus casei* Shirota strain may boost activity of key immune cells in smokers, says a new study.

While quitting smoking is obviously the best option to improve health, researchers from Italy and Japan report that smokers may benefit from a daily probiotic to boost the activity of natural killer (NK) cells, a key component of the immune system.

According to a paper published in the *British Journal of Nutrition*, increased activity of these NK cells is associated with healthy body and mind, and therefore boosting NK activity using dietary approaches if "most desirable".

"Smoking habit and alcohol consumption are the two most important preventable causes of disease and premature death," wrote researchers from the University 'G. d'Annunzio' in Italy, and the Nippon Medical School and Osaka University Graduate School of Medicine in Japan.

"Despite increasing knowledge of their hazard, prevalence is declining very slowly and their decrease appears to be limited to the higher socio-economic class among populations.

"Smoking threats are not limited to the immunosuppressive effect, but have a major health impact. Thus, despite the LcS increase of NK activity, a concerted effort to quit smoking is the only way to real prevention of cancer and [cardiovascular disease (CVD)]."

Probiotics

According the FAO/WHO, probiotics are defined as "live microorganisms which when administered in adequate amounts confer a health benefit on the host".

The new study used Yakult's strain and the Japanese company provided the powder preparations used in this study.

The company recently reported that consumption of its probiotic drink has increased amongst US consumers to 122,000, up from 108,000 a day in the same period in 2010 and 86,000 in the same period in 2009.

Study details

For the new study, the researchers recruited 72 Italian male smokers and randomly assigned them to receive either a daily probiotic (40 billion lyophilized viable cells of *Lactobacillus casei* Shirota strain) or placebo for three weeks.

Participants of the double-blind, placebo-controlled, randomized study had an average age of 50, and they were described as healthy.



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Results showed that men receiving the probiotic experienced increases in the activity of their NK cells of 17 to 26%, compared with 8.4 to 10.5% in the placebo group.

“Furthermore, Lactobacillus casei Shirota strain treatment appeared to reduce the perception of nausea and stomach-ache symptoms, reflecting an improvement of gastrointestinal functions possibly result in from a restored microbiota balance,” wrote the researchers.

“Although it is well established that ingested Lactobacillus casei Shirota strain transits alive through the stomach and survives in the intestine, it is still unclear as to how Lactobacillus casei Shirota strain may improve the upper gastrointestinal tract symptoms, such as nausea or stomach-ache.

“Direct interaction of LcS with the stomach or indirect action through hormonal or nervous regulation may be assumed and may represent future research subjects.”

Take home

“Since smokers exhibit higher susceptibility to infections and inflammatory diseases and NK cells play an important role in controlling infections and eliminating aberrant cells, dietary supplementation with Lactobacillus casei Shirota strain could contribute to increased NK cytotoxic activity with significant health advantages for individuals with smoking habits.

“However, these results should not be interpreted as an attempt to overcome smoke-related damages, but on the contrary they strengthen the notion of tobacco interference with the immune system,” they concluded.

Pro- and prebiotics

The wider benefits of pre- and probiotics for health will be discussed in the upcoming free-to-attend virtual event Pre -& Probiotics. Topics to be discussed by world-leading experts in this field include benefits beyond the gut, new prebiotic forms, and the influence of health claims on the market. For more information and to register, [please click here](#) .

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“Daily intake of Lactobacillus casei Shirota increases natural killer cell activity in smokers”

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