

Study Confirms Omega-3 Reduces Oxidative Stress

The heart health benefits of omega-3 fatty acids EPA and DHA may be related to their ability to reduce oxidative stress, suggests new research.

Oxygen-breathing organisms naturally produce reactive oxygen species (ROS), which play an important role in a range of functions, including cell signalling. However, over production of these ROS from smoking, pollution, sunlight, high intensity exercise, or simply ageing, may overwhelm the body's antioxidant defences and lead to oxidative stress.

Oxidative stress has been linked to an increased risk of various diseases including cancer, Alzheimer's, and cardiovascular disease.

Previous reports had suggested that omega-3 fatty acids may actually increase levels of oxidative stress due to their susceptibility to oxidation. New findings in Free Radical Research indicate that omega-3 fatty acids may actually reduce oxidative stress by reducing levels of a compound called F2-isoprostanes.

Scientists from the University of Western Australia and the University of Montpellier (France) report that daily supplements of four grams of either EPA or DHA for six weeks were associated with reductions of about 20 per cent.

"The data, therefore, suggest omega-3 fatty acids reduce oxidative stress, which is likely related, at least in part, to their anti-inflammatory actions and the expected reduction in leukocyte activity," wrote the authors, led by Dr Emilie Mas. "These findings give further support for supplementation of the diet with 3 fatty acids for cardiovascular risk reduction."

Dr Mas and her co-workers recruited two sets of people to participate in their study. One group was composed of 59 overweight men with abnormal blood lipid levels, and the other group was composed of type-2 diabetics being treated for high blood pressure. The participants were randomly assigned to receive daily doses of 4 grams of EPA, DHA or olive oil (placebo) for six weeks.

At the end of the study, the researchers noted that EPA reduce urine levels of F2-isoprostanes by 24 per cent in the overweight men and by 19 per cent in the diabetics, while DHA was associated with a 14 and 23 per cent reduction in these groups, respectively, compared with the olive oil groups.

Furthermore, plasma levels of arachidonic acid (AA) were reduced following both EPA and DHA supplementation, said the researchers.

Dr Mas and her co-workers note that a previous study in healthy subjects also found benefits, which, combined with their findings, show that omega-3 supplementation may decrease F2- isoprostanes in both healthy and diseased populations.

"Furthermore, the lack of association with changes in fatty acids is noteworthy, in view of the fact that F2-isoprostanes are derived from free radical oxidation of AA, which is significantly reduced following omega-3 fatty acids," stated the researchers. "Therefore, the changes in F2-isoprostanes most likely reflect a true reduction in oxidative stress, rather than resulting from a reduction in the supply of substrate."

“These results show that in humans, EPA and DHA reduce in vivo oxidant stress as measured in human plasma and urine,” concluded the researchers.

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“The omega-3 fatty acids EPA and DHA decrease plasma F(2)-isoprostanes: Results from two placebo-controlled interventions”

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Lung Cancer Risk Cut by B Vitamin (Reprint from the BBC)



Lung cancer is the second most common cancer in the UK after breast

People with plenty of a B-vitamin in their blood appear to be at a reduced risk of lung cancer, even if they smoke, a European study suggests.

High levels of Vitamin B6 and the amino acid methionine cut the risk by half, a study of 400,000 people suggested.

These occur naturally in nuts, fish and meat or can be taken as supplements.

But experts told the Journal of the American Medical Association that stopping smoking remained the best way of reducing lung cancer risk.

And, as yet, it is too early to say that taking vitamins would provide any extra protection, they say.

Higher vitamin levels could simply reflect healthier lifestyles.

More studies are needed before scientists can be confident that increasing levels of B-vitamins in the diet can reduce the risk of lung cancer, and also to understand why this might be, says the World Cancer Research Fund (WCRF) which was involved in the research.

Healthy diet

Dr Panagiota Mitrou, of the WCRF, said: "These findings are really exciting as they are important for understanding the process of lung cancer and could have implications for prevention.

"But while this is an important study, it is vital that we get the message across to smokers that increasing intake of B-vitamins is not - and never will be - a substitute for stopping smoking."

Vitamin B levels might be higher in people who eat a healthy diet, and this in itself can help reduce the risk of cancer.

However, it could mean that ex-smokers and people who have never smoked can do something positive to reduce their risk of lung cancer, she said.

The study looked at nearly 400,000 people from 10 European countries over eight years.

They included people who had never smoked, current smokers and ex-smokers.

Regardless of their smoking status, the people with higher circulating levels of both Vitamin B6 and methionine in their blood appeared to be protected against lung cancer.

Far fewer of them developed lung tumours over the course of the study compared with those with the lowest levels of the essential nutrients - 129 people versus 408 respectively, out of a total of 899 cancer cases overall.

Dr Paul Brennan, lead researcher of the study from the International Agency for Research on Cancer, said: "If further research does confirm our findings then the next step would be to identify the optimum B-vitamin levels for reducing future cancer risk."

Dr Joanna Owens, of Cancer Research UK, said: "Although this study suggests a link between vitamin B levels in the blood and reduced risk of lung cancer, this doesn't prove that vitamin B can directly protect against the disease.

"Vitamin B levels might be higher in people who eat a healthy diet, and this in itself can help reduce the risk of cancer.

"The most important way to prevent lung cancer is to stop smoking. No amount of vitamins can counteract the risks posed by smoking."

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