

Fat overrides effects of vitamin C

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Fats in our stomach may reduce the protective effects of antioxidants such as vitamin C. Scientists at the University of Glasgow found that in the presence of lipid the ability of antioxidants, such as ascorbic acid (the active component of vitamin C), to protect against the generation of potential cancer-forming compounds in the stomach is less than when no lipids are present.

“Our results illustrate how diet can influence gastric biochemistry”, says Emilie Combet, the post-doctoral researcher working on the project, who will be presenting her results at the Society of Experimental Biology’s Annual Main Meeting on Monday 2nd of April.

The incidence of cancer of the proximal stomach has been increasing over the last 20 years for which environmental factors, such as diet, certainly play a part. Nitrite, which is present in our saliva and is derived from nitrate in our diet, is thought to be a pre-carcinogen for gastric cancer. When it is swallowed and enters the acidic environment of the stomach, nitrite spontaneously forms nitrosating species able to convert a range of targets, such as secondary amines and bile acids, into carcinogenic N-nitrosocompounds.

Antioxidants such as ascorbic acid protect against the formation of these nitrosocompounds by converting the nitrosating species back into nitric oxide (NO). However, NO diffuses rapidly to lipids, where it reacts with oxygen to reform nitrosating species. The presence of lipids therefore overrides the protective effect of vitamin C against the formation of harmful compounds.

Source: Society for Experimental Biology

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