A little wine boosts omega-3 in the body: Researchers find a novel mechanism for a healthier heart

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Moderate alcohol intake is associated with higher levels of omega-3 fatty acids in plasma and red blood cells. This is the major finding of the European study IMMIDIET that will be published in the January issue of the *American Journal of Clinical Nutriti*on, an official publication of the American Society for Nutrition and is already available on line (www.ajcn.org). The study suggests that wine does better than other alcoholic drinks. This effect could be ascribed to compounds other than alcohol itself, representing a key to understand the mechanism lying behind the heart protection observed in moderate wine drinkers.

The IMMIDIET study examined 1,604 citizens from three geographical areas: south-west London in England, Limburg in Belgium and Abruzzo in Italy. Thanks to a close cooperation with General Practitioners of these areas, all participants underwent a comprehensive medical examination, including a one year recall food frequency questionnaire to assess their dietary intake, alcohol consumption included.

Omega-3 fatty acids, mainly derived from fish, are considered as protective against coronary heart disease and sudden cardiac death, thus their high blood concentration is definitely good for our health.

Now European researchers found that moderate alcohol drinking acts like a 'trigger', boosting the amount of omega-3 fatty acids in our body.

"Several studies have shown that moderate alcohol consumption, including wine, is associated with protection against coronary heart disease and ischemic stroke - says Romina di Giuseppe, lead author of the study, from the Research Laboratories at Catholic University of Campobasso - Although the mechanisms are not completely defined, there was some evidence that alcohol intake might influence the metabolism of essential polyunsaturated fatty acids, as omega-3. That is exactly what we found in our population study. People drinking moderate amounts of alcohol, one drink a day for women and two for men, had higher concentration of omega-3 fatty acids in plasma and red blood cells independently of their fish intake".

However important these results appear to be, the best is yet to come. Researchers from Catholic University of Campobasso, in Italy, and from University of Grenoble, in France, turned their attention on the variety of alcoholic beverages consumed in order to see whether the high levels of omega-3 fatty acids detected might be ascribed to alcohol itself or to other substances.

"From our previous studies we know that association between wine drinking and increased concentration of omega-3 fatty acids have been observed – says Michel de Lorgeril, from the University of Grenoble, partner of the IMMIDIET project and co-leader of the study - Nevertheless, it was not possible to separate the effects of wine from those of beer or spirits. Our study of 3 populations with different dietary habits and different consumption of alcoholic beverages types allowed us to explore this aspect.".

"Analysis carried out on different alcoholic beverages –argues Licia Iacoviello coordinator of the IMMIDIET study at Catholic University of Campobasso - showed that the association between alcohol and omega-3 fatty acids was present in both wine drinkers and beer or spirits drinkers. However, the association was stronger between wine drinking and

omega-3 fatty acids levels. This suggests that components of wine other than alcohol is associated with omega-3 fatty acids concentration. We may guess this effect can be ascribed to polyphenols".

Polyphenols are naturally occurring compounds contained in a different variety of food and beverages, such as wine. Due to their strong antioxidant activity, they are able to reduce oxidation processes caused by free radicals.

"We consider these data to be a major finding - de Lorgeril concludes - opening a new window in the field of cardiovascular prevention. Beyond the alcohol issue, our results raise crucial questions regarding the effects of polyphenols on lipids (both in blood and cell membranes) and possibly of lipids on polyphenols".

The IMMIDIET study

Funded by the European Union under Key Action 1: Food, Nutrition and Health QLK1-CT-2000-00100, IMMIDIET aims to acquire fundamental knowledge in the field of cardiovascular disease, especially regarding the interaction between genetics and lifestyle.

At the core of the study there is an important episode of Italian migration: Belgium, a country that became the new home for thousands of Italians, mostly from the Abruzzo region, who came to work in the mines. Many of those emigrants didn't come back to Italy but remained in their new country. Some of them married a Belgian partner. Their genes remained the same, of course, but how much "Italy" is still there in their diet? And how much did they transmit it to their spouses? Moreover, how many Italian emigrants assimilate dietary habits of the country in which they were guests? In this framework, the role of genetic factors and lifestyle can be assessed to explore new ways in prevention of cardiovascular diseases.

To carry on the research, married couples have been recruited in three European areas: South-East London in England, Limburg in Belgium and Abruzzo in Italy. In the first phase of the study the couples involved were formed by people from the same area, Italians married with Italians (in the Abruzzo region), Belgians married with Belgians (in the Limburg area) and English married with English (in the South-East part of London)".

Source: Catholic University