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Polyphenols, fundamental to regulating genes involved in heart disease

Barcelona, 2 March 2010. A study carried out by researchers at the Municipal Institute of Medical Research (IMIM-Hospital del Mar) has shown for the first time that the beneficial effects of virgin olive oil, a rich source of polyphenols in the Mediterranean diet, can cause **changes in the manifestation of certain genes involved in atherosclerosis.**

The results of this study show that the **polyphenols** present in olive oil cause changes in gene expression. According to Dr **Maribel Covas, coordinator of the research group on cardiovascular risk and nutrition at IMIM-Hospital del Mar and researcher of the Biomedical Research Centre Network Physiopathology of Obesity and Nutrition (CIBEROBN)** 'Polyphenols can reduce the expression of genes involved in the formation of atheromatous plaques, which would explain the cardioprotective property observed among people who have a traditional Mediterranean diet'.

Atherosclerosis is characterised by the build-up of fat deposits (atheromatous plaques) along the inner walls of the arteries, causing a thickening and a progressive hardening of the affected vessels. Until now, it was known that the concentration of fats in the blood was significantly lower in people who have a Mediterranean diet and consume virgin olive oil regularly. However, the reasons for this remained unknown.

In order to carry out the study, researchers had the participation of a group of **90 healthy people**, of between **20 and 50 years of age**. Each of the participants was randomly assigned to one of the three study groups over a three-month period: Mediterranean diet with virgin olive oil; Mediterranean diet with olive oil that had a low polyphenol content and lastly, a third group that acted as the control group and didn't follow any specific diet. Despite the sample being small, this study has enabled us to observe, **for the first time, a cause-effect relationship between the type of diet followed throughout the study period and the expression of inflammatory genes in blood cells, a process causing the production of atherosclerosis.**

Researchers conclude that the cardioprotective property of olive oil polyphenols provides new evidence on the beneficial effect of the Mediterranean diet that, combined with virgin olive oil, is a good measure to prevent coronary disease, one of the main causes of death in developed countries. It also opens up new research lines and areas of future treatments in nutritional therapy for preventing atherosclerosis.

Reference article:

In vivo nutrigenomic effects of virgin olive oil polyphenols within the frame of the Mediterranean diet: a randomized controlled trial . FASEB J. first published on February 23, 2010 as doi: 10.1096/fj.09-148452.

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