

Genetic basis for health benefits of the 'Mediterranean diet'

April 19 2010

Eating a diet rich in the phenolic components of virgin olive oil represses several pro-inflammatory genes. Researchers writing in the open access journal *BMC Genomics* suggest that this partly explains the reduced risk of cardiovascular disease seen in people who eat a 'Mediterranean diet'.

Francisco Perez-Jimenez from the University of Cordoba, Spain, led a team of researchers who studied the effects of eating a breakfast rich in phenol compounds on [gene expression](#) in 20 patients with [metabolic syndrome](#), a common condition associated with increased risk of cardiovascular disease and [type 2 diabetes](#).

The study participants ate controlled breakfasts, and for six weeks before the study they had to avoid all drugs, vitamin tablets and other supplements. Perez-Jimenez said, "We identified 98 differentially expressed genes when comparing the intake of phenol-rich olive oil with low-phenol olive oil. Several of the repressed genes are known to be involved in pro-inflammatory processes, suggesting that the diet can switch the activity of [immune system](#) cells to a less deleterious inflammatory profile, as seen in metabolic syndrome."

Phenols are micronutrients of olive oil; the extra-virgin varieties have a particularly large phenol fraction. According to Perez-Jimenez, "These findings strengthen the relationship between inflammation, obesity and diet and provide evidence at the most basic level of healthy effects derived from virgin olive oil consumption in humans. It will be interesting to evaluate whether particular phenolic compounds carry

these effects, or if they are the consequence of a synergic effect of the total phenolic fraction".

More information: Gene expression changes in mononuclear cells from patients with metabolic syndrome after acute intake of phenol-rich virgin olive oil, Antonio Camargo, Juan Ruano, Juan M Fernandez, Laurence D Parnell, Anabel Jimenez, Monica Santos-Gonzalez, Carmen Marin, Pablo Perez-Martinez, Marino Uceda, Jose Lopez-Miranda and Francisco Perez-Jimenez, BMC Genomics (in press), www.biomedcentral.com/bmcgenomics/

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