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Olive Oil Diet Reduces Aging at Cellular Level

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These results, published in the journal Mechanisms in Ageing and Development, show that rats fed with this type of fat live longer than others whose diet is based on sunflower oil

Researchers at the Institute of Nutrition and Food Technology at the University of Granada, together with specialists of the Hospital de Jaén, Institute of Biochemistry University in Ancona, Italy, and University Lleida have revealed the anti-aging beneficial effects of virgin olive oil, compared to other fat sources. These results, published in the journal Mechanisms in Ageing and Development, show that rats fed with this type of fat live longer than others whose diet is based on sunflower oil.

Granada researchers worked to establish the possible molecular mechanisms by which olive oil alone, and supplementation with coenzyme Q, an antioxidant compound, exerts its influence on the

signs of aging, causing changes in the structure and function of cells, reports Andalucía Innova.

Experts studied how fat intake affects the cells, because if there is a negative relationship between the two factors (type of fat cell function), modifying the diet can reduce certain processes. In particular, researchers focused on how olive oil affects the mitochondria, an organelle inside the cell that is responsible for producing energy. They study examined the effects of fat on three levels: oxidative stress, the functionality of the organelle, and its structure. “The diet based on olive oil in old age causes less damage to accumulate at these three levels,” says the head of the investigation, José Luis Quiles.

Oxidative stress refers to the process by which cells generate quantities of compounds called free radicals. These are generated naturally by the body but in excess, are harmful. These are some agents that are created in energy production that occur within cells. In this process of burning fat, free radicals are released and act as torches in relation to body tissues, then burn everything they touch. “Olive oil reduces oxidative stress, i.e. the generation of free radicals and therefore makes the tissues grow older more slowly, “says Quiles.

As for the functionality of mitochondria, studies have shown that oxidative stress impairs the ability of this organelle to produce energy, and alters its appearance. ” As we age, they swell and lose their waterproofing that allows electrochemical balance between inside and outside the cell,” said Quiles.

Different diets

To support these findings, experts have fed rats diets differing in fat source (olive oil, sunflower or fish and / or supplementation with coenzyme Q) throughout his life.

The analysis suggests that if the animal eats a fat throughout its life, the composition of their cell membranes reflects the fat ingested. Thus, virgin olive oil generated health conditions in mitochondria and oxidative stress favoring the later appearance of the phenotype of aging, when compared with individuals who have taken other fats such as sunflower oil. To prove it, researchers have developed the so-called survival curves. In these studies, rodents that eat olive oil only live longer than the rest.

Also, if the diet is supplemented based on sunflower oil with Coenzyme Q, we get the same benefits with olive oil. However, the latter type of supplement oil with coenzyme Q did not improve their beneficial effect, the researchers said. This demonstrates the fragile balance that occur at the cellular level. “The experiments show that it is necessary to supplement the diet of olive oil with Coenzyme Q if you take a varied diet based on virgin olive oil (with other types of oils), because not only do you not increase the effect, but could upset the balance of the cell and may be counterproductive,” warns Quiles.

The experts are exploring what is now called nutrigenomics, i.e. the relationship between diet and gene expression. The next step is to find strategies to link a specific gene to the origin of the death of rats. In this sense, they hope not only to verify that rats fed with virgin olive oil are living longer, but to identify the associated cause of death of the animal (for example, which organs are affected in the aging process, and which tumors are generated) .

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Source: University of Granada

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