

Olive Oil is good for the brain, especially during aging

Identified the *in vivo* neural anti-aging role of a component of extra virgin olive oil, hydroxytyrosol, which is also present in abundance in processing waste. There were beneficial effects especially in the aging brain. The results published in *Faseb Journal* were demonstrated by a team of researchers from National Research Council of Italy (IBBC-CNR) and the University of Tuscia, Italy.

New neurons are produced in the brain throughout life in two specialized regions, the neurogenic niches; one of these is the dentate gyrus of the hippocampus, whose production of new neurons gives a key contribution to the formation of new memories and to the ability to correlate them with old memories (associative memory). The generation of new neurons in the dentate gyrus decreases with age, with a corresponding decrease of the memory capacity. Environment as well as various factors, such as the diet, can improve the generation of new hippocampal neurons and cognition. In this study we tested *in vivo*, in mouse models, the effect of a diet component present in the olive oil, hydroxytyrosol (HTyr), which has a neuroprotective and anti-inflammatory activity.

We found that the addition of HTyr to the drinking water increases considerably the production of new neurons in aged and adult mice, and also in a genetic model of accelerated aging. The new neurons of mice treated with HTyr survive in greater number, as their death rate is reduced. Moreover, these new neurons are recruited to memory circuits, as revealed by the activation of a gene, *c-fos*, occurring in neurons engaged in memory processes. In aged mice HTyr is also able to induce the proliferation of stem and progenitor cells from which the new neurons originate.

Furthermore, HTyr treatment also reduces two markers of aging, lipofuscin and Iba1. Overall, our findings indicate that HTyr treatment counteracts the decreased production of neurons occurring during aging.

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