

EVOO Improves Brain Protection in Cases of Mild Cognitive Impairment

By: Paolo DeAndreis, Olive Oil Times



Extra virgin olive oil might positively impact brain health and improve the blood-brain barrier (BBB) functionality in patients with mild cognitive impairment.

According to a pilot study published by *Nutrients*, consuming extra virgin olive oil over six months improves BBB function and enhances brain connectivity.

Besides the EVOO effect on BBB permeability, the researchers have also shown how consuming refined olive oil might benefit clinical dementia and Alzheimer's disease biomarkers.

“Considering the small number of participants and the short-term study, this must be considered preliminary research which hints at several relevant benefits for olive oil consumption. More extensive studies will be needed to additionally assess and confirm the impact of olive oil on brain functionality,” Amal Kaddoumi, professor at the Harrison College of Pharmacy of Auburn University in Alabama, told *Olive Oil Times*.

While the researchers' previous studies have shown the beneficial effects of extra virgin olive oil consumption in mice, and other research has shown EVOO's positive impact on humans' cognitive health, “our study is the first to investigate what happens to the brain directly,” Kaddoumi explained.

The scientists noted that BBB-reduced functionality is a common characteristic of mild cognitive impairment and early Alzheimer's disease. This tends to lead to abnormal BBB permeability, which might contribute to the development of dementia.

“As shown by research, as we age, the BBB functionality is reduced and tends to become leaky. It is a highly relevant guard that keeps blood-derived content out of the brain and clears brain waste products into the blood. When some diseases are involved, such as Alzheimer’s, BBB ability might be seriously compromised. That means that the brain can be exposed to neurotoxic substances, and the waste disposal ability is reduced to the point that neurotoxins start accumulating in the brain,” Kaddoumi explained, hinting at how such conditions could lead to several neurodegenerative diseases.

The study’s authors focused on 25 individuals affected by mild cognitive impairment.

They assessed the effect of daily consumption of EVOO and refined olive oil for six months on BBB permeability and brain function. Additionally, they looked for cognitive function changes and Alzheimer’s disease blood biomarkers.

“EVOO significantly improved clinical dementia rating and behavioral scores. EVOO also reduced BBB permeability and enhanced brain functional connectivity,” the researchers wrote.

“While refined olive oil consumption did not alter BBB permeability or brain connectivity, it improved clinical dementia rating scores and increased functional brain activation to a memory task in cortical regions involved in perception and cognition,” they added.

EVOO impacts had been suggested by previous research, but the current study also showed a potential beneficial role played by refined olive oil. Interestingly, both extra virgin and refined olive oils produced a significant reduction in A β 42/A β 40 and p-tau/t-tau ratios, suggesting that both types of olive oil altered the processing and clearance of amyloid (A β). This result hints at the ability of both olive oil types to curtail Alzheimer’s disease onset.

The results for refined olive oil consumption surprised the researchers, who had initially considered the participants consuming refined olive oil as the control group.

“We did not expect such effects from refined olive oil consumption. We do need larger studies to make definitive conclusions. However, we should not underestimate the potentially beneficial health effects of the olive oil’s oleic acid content, which is found in both, EVOO and refined olive oil,” Kaddoumi noted.

Given the results, Kaddoumi discussed the need for future studies to explore how the different grades of olive oil impact various ethnic groups over a much extended period.

Besides that, Kaddoumi noted that researchers also need to explore the effects of EVOO and refined olive oil on patients with advanced cognitive impairment and other co-existing conditions.

The researchers underlined how their previous studies in mice might suggest that olive oil consumption could be beneficial for advanced stages of brain diseases. “But that is not what we explored in our pilot study, so we cannot say anything about it. That is an area of research we hope to investigate in the future,” Kaddoumi noted.

On the other hand, EVOO consumption might also have a protective effect on cognitively normal individuals and those with mild cognitive impairment.

“Those who do not have a cognitive condition might well consider including extra virgin olive oil in their diet as a substitute for other fats they might be using because it can prevent and protect their brains or at least delay the onset of cognitive conditions,” the Auburn University professor explained.

“In conclusion, EVOO and refined olive oil improved clinical dementia rating and behavioral scores; only EVOO enhanced brain connectivity and reduced BBB permeability, suggesting EVOO bio-phenols contributed to such an effect. This proof-of-concept study justifies further clinical trials to assess olive oil’s protective effects against Alzheimer’s disease and its potential role in preventing mild cognitive impairment conversion to Alzheimer’s and related dementias,” the researchers wrote.

“We must also sincerely thank those who collaborated and contributed to the research and even more those who accepted to participate in this study. They were very excited about participating. Many had a family history and found a great interest in the study, which was so important for them,” Kaddoumi concluded.