

THE **7**  
WONDERS  
OF OLIVE  
OIL

*Stronger Bones, Cancer Prevention,  
Higher Brain Function, and Other  
Medical Miracles of the Green Nectar*

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## W O N D E R 1

# OLIVE OIL CONTAINS OLEOCANTHAL, A NATURAL ANTI-INFLAMMATORY

*Scientists discovered that extra-virgin olive oil contains oleocanthal, which mimics the activity of ibuprofen. Oleocanthal, like ibuprofen, may also be able to help reduce arthritis. Natural, safe extra-virgin olive oil can easily be incorporated into a daily diet, say researchers who have set up the Oleocanthal International Society.*

**W**hen the American scientist Dr. Gary Beauchamp accepted an invitation to an olive oil symposium of newly pressed olive oil in Sicily, he had no idea it would change his life and the rest of the olive oil world. The sensory chemist was employed at the time at Monell Chemical Senses Center in Philadelphia, working specifically on a project relating to the medication ibuprofen. The anti-inflammatory drug stings as it goes down the throat; his job was to investigate why and to improve the taste.

Along with other scientists, food specialists, and chefs, he followed the precise and somewhat complicated instructions of how to taste olive oil. He cradled the cup, sipped, and slurped as he was told and promptly experienced a déjà vu moment: a burn in his throat, one that he recognized instantly as similar to liquid ibuprofen. The

discovery in Italy was totally unexpected. Here were two unrelated compounds showing the same effects.

Delighted with his accidental scientific find, Dr. Beauchamp traveled back to Philadelphia, taking some of the precious oil with him. There, he and biologist Dr. Paul Breslin began investigating the properties of the pungent oil with their team. They isolated the throat-irritating compound, researched it, and named it “oleocanthal” from the Latin *oleo-*, olive, *canth-*, sting, and *-al*, aldehyde. They confirmed in further studies that although the chemical composition was different, the compound oleocanthal behaved similarly to the anti-inflammatory ibuprofen. (They discovered another miraculous wonder in oleocanthal, but we’ll discuss that in the next chapter!)

Oleocanthal (OC) is a powerful antioxidant which develops when olives are crushed into pulp; this is what causes that sting, the peppery sensation in the back of the throat when you sip it neat. It comes from the purest of olive oil; if the oil stings a little, it contains only a little OC, but if it stings a lot, it contains a good amount of OC.

Interestingly, olive oil is the only vegetable oil that contains OC, that vital component with such pungency that it causes us to cough once or twice when we taste the green nectar. Some of us are more sensitive than others, but that distinct sting and irritation will vary depending on the variety of olives used to make the oil and also the concentration of extra-virgin olive oil.

## Oleocanthal and Arthritis

So how does the ibuprofen-and-olive-oil connection help us?

Do you know anyone with rheumatoid arthritis? The word arthritis comes from the Latin word *itis*, which means “inflammation,” and the Greek word *arthron*, meaning “joint.” It is a chronic disease that can cause a great deal of pain. It starts off attacking the fingers and then the major joints, causing pain and stiffness in the mornings; it comes with fatigue, and, later on, it can cause permanent disability.

Sadly, it gets worse with time unless the inflammation slows down.

Arthritis is quite simply inflammation of the joints caused by two inflammatory enzymes, COX-1 and COX-2. If the inflammation of these two enzymes continues unchecked, it causes damage to the cartilage and, eventually, the bones themselves. And once the deformity sets in, it cannot be reversed.

Doctors recommend anti-inflammatory drugs, in particular ibuprofen, to relieve pain and swelling from rheumatoid arthritis. Classed as a nonsteroidal anti-inflammatory drug (NSAID), ibuprofen helps reduce pain and inflammation, but unfortunately, it does not slow down the disease. Also important to remember is that long-term pain-relieving drugs are harmful to the body; even ibuprofen, taken over long periods, can cause damage to the kidneys as well as bring on intestinal bleeding.

Oleocanthal, like ibuprofen, inhibits production of the two enzymes that cause arthritis, but it does so without causing harm to the body. Scientists say oleocanthal is a natural anti-inflammatory compound, not structurally similar to ibuprofen but with a similar potency and profile. Dr. Paul Breslin (who, you'll remember, helped Dr. Beauchamp with the initial studies) said that by inhibiting the two enzymes, inflammation and an increase in pain sensitivity becomes dampened. Now, the Arthritis Foundation recommends foods that are rich in antioxidants, like the Mediterranean diet, which emphasizes olive oil.

This is good news for sufferers of a disease that affects over two million people in the United States alone, most of them women. There is no cure yet for arthritis; sufferers can only follow treatment to reduce inflammation and pain and to prevent joint damage.

More tests are definitely needed, but wouldn't it be great if daily consumption of olive oil could help provide the same benefits of ibuprofen without the health risks? Dr. Beauchamp said that although we don't have enough evidence to tell us that eating olive oil daily can combat rheumatoid arthritis, eating a Mediterranean diet, with

healthy amounts of olive oil and fats rich in omegas-3 and -6, appears to be beneficial.

Oleocanthal cannot totally replace drugs like ibuprofen, but consider it an herbal food—a natural remedy. And as you are looking for this natural remedy, remember that not all olive oils are the same; they don't all contain the same amount of oleocanthal, and there's nothing on the label to tell you how much or even if it contains any oleocanthal at all. To be sure you're getting the maximum oleocanthal, it's best to buy one from early-harvest olives or, in other words, newly pressed olive oil. When olives are picked green, they tend to have more polyphenols such as oleocanthal and are rich in antioxidants.

The University of California began to study how oleocanthal levels in olive oil varied and its impact on people. At a meeting held in Greece in October 2015, one of their research scientists, Dr. Roberta Holt, gave the results of the first clinical trials in humans using extra-virgin olive oil with a high concentration of oleocanthal and without it. Nine healthy male adults took part in the study where early-harvest Greek extra-virgin olive oil with high levels of oleocanthal and oleacein (another constituent of olive oil) was used.

Dr. Holt reported at the conference that the two compounds had a similar effect on the reactivity of blood platelets to a 400 milligram dose of ibuprofen.

As research continues, scientists are getting closer to understanding oleocanthal's protective role in our health while olive oil producers aim to get the maximum oleocanthal from their oil.

Oleocanthal could well be the most important polyphenol in olive oil; hopefully, it won't be long before the Oleocanthal Society publishes even more conclusive results based on human clinical studies.

## *The Oleocanthal International Society*

The discovery of oleocanthal made such a buzz amongst researchers and health professionals that they formed a society. It started in June 2015 when retired Spanish physician José Antonio Amerigo, saddened to see that nothing had been done from 2005—when the compound was discovered—to 2013, decided to act. He contacted Gary Beauchamp and got the ball rolling.

The Oleocanthal International Society (OIS) was created.

OIS today comprises scientists, nutritionists, physicians, dieticians, chefs, and even communication professionals, all from different countries and different backgrounds. Set up as a nonprofit group, the principal aim of the members is to facilitate and increase research into oleocanthal. Through collaboration and organized special events, members hope to publish their findings so as to promote and raise awareness of oleocanthal. The founding members met for the first time on the island of Zakynthos in Greece in early 2015. Dr. Breslin, also a founding member, said that as a biomedical researcher, he wanted to see research funding come from people who are interested in finding cures, preventions, and treatments for major killers like cancer, Alzheimer's disease, other terminal dementias, and diseases associated with chronic inflammation.

But it's not all research! The OIS also wants to help spread the word of the wonders of olive oil, for nutrition *and* flavor. For Dr. Amerigo and Chef Daniel García Peinado from Malaga in Italy, the interest is a mix of medicine and food. Dr. Amerigo wants to spread awareness of this natural food worldwide, while Daniel, at thirty-six, is a passionate, dynamic, health-conscious chef. Dr. Amerigo said it wasn't easy to find a young chef motivated by food cooked in extra-virgin olive oil but that Daniel was interested right in the beginning, that "rich oleocanthal was Daniel's guiding principle."

Dr. Amerigo added: "Cooking with olive oil for me means using it for grilling, in the oven, and even frying, because it enhances all

dishes and is good for our health. Not so long ago, the University of Granada demonstrated how frying with olive oil increases the transfer of phenols from extra virgin to the vegetables. Soon, there will be other examples with meat, fish, etc.”

These two OIS members now work in tandem, attending conferences, congresses, and cooking exhibitions to demonstrate how cooking with extra-virgin olive oil, rich in oleocanthal, is scientifically proven to be good for one’s health.

Dr. Amerigo thinks we should be adding extra-virgin olive oil to our daily diet, about 40 milliliters (1.5 ounces) of oil, rich in oleocanthal, daily. He said: “65 percent of the Spanish olive groves are rich in oleocanthal.” On a cautious note, though, he added, “We need to involve the producers as well because, although there’s much olive oil being produced, we only get oleocanthal from extra-virgin olive oil.”

In charge of gastronomy, Chef García Peinado is taking his work seriously and was voted second vice president of the group at the second OIS meeting in November 2015. Daniel says his primary role is to transmit and diffuse extra-virgin olive oil in the world of gastronomy, especially since the mix of gastronomy and medicine is a relatively new cooking concept. “Up until now,” he said, “when we speak about healthy cuisine, we refer to diet therapy or calories but not based on anything as functional as EVOO, rich with oleocanthal, with scientifically proven health benefits.”

Because of the OIS’s efforts, we have made more discoveries about olive oil and greater awareness is being spread. Thank goodness that Dr. Beauchamp attended that olive oil symposium and noticed the first sign that olive oil contained a powerful anti-inflammatory element. Now we have several more wonders to discover!