

# Olive Oil & Health



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## Olive Oil & Blood Pressure

Various research studies have reported a close relationship between diet and blood pressure. Certain foods can raise blood pressure besides having an effect on body weight.

### **What is High Blood Pressure?**

High blood pressure, also known as arterial hypertension, occurs when blood pressure readings are constantly over 140/90 mmHg. High blood pressure is one of the chief coronary risk factors in the development of arteriosclerosis. Along with high blood cholesterol, cigarette smoking, obesity, and diabetes, it is one of the main health problems of the developed world.

Like other risk factors, lifestyle can contribute to high blood pressure. One in every four adults is hypertensive. This increases the risk of early death because of damage to the arteries-- especially the arteries that supply blood to the heart, kidneys, brain, and eyes.

### **Olive Oil and Blood Pressure**

It has not yet been clearly established what elements of the Mediterranean diet are responsible for its effects in reducing blood pressure. It has been demonstrated, however, that the addition of olive oil to a diet--without changing anything else--lowers blood pressure, and this benefit seems to be specific to olive oil.

Regular consumption of olive oil decreases both systolic (maximum) and diastolic (minimum) blood pressure. There is recent evidence that when hypertensive people consume olive oil daily, the daily dose of drugs needed to control their blood pressure can be decreased-- possibly because of the reduction in nitric acid caused by polyphenols.

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## Olive Oil & Cancer

Cancer is one of the chief causes of death in developed countries, and it's on the increase. It is generally conceded that there is a relationship between diet and the potential for development of malignant tumors. Cell oxidation is one of the major risks in the formation of cancer-- the more susceptible the cell is to oxygen, the greater the risk of cancer. The types of cancer most closely associated with diet are colon/rectal, prostate, and breast cancers. Recent research has revealed that the type of fat one consumes seems to have more implications regarding cancer incidence than the quantity of fat consumed.

### What is a Tumor?

A tumor is an abnormal swelling or enlargement of a part of body tissue. Tumors may be benign or malignant (cancerous). Benign tumors are tumors whose cells remain at their original site. They form a localized cell mass, which, when it grows, very rarely causes death.

Malignant tumors, on the other hand, invade the tissue where they grow. Often they pass into the bloodstream and the lymphatic system, forming secondary tumors at other sites, known as metastases. The speed of growth and metastasis varies according to the type of tumor. Various environmental factors (physical factors: radiation; chemical factors: certain constituents of foods) and genetic factors are at play in the formation of tumors. In most types of cancer, environmental factors are most important.

### Olive Oil and Cancer

Epidemiological studies suggest that olive oil exerts a protective effect against certain malignant tumors (breast, prostate, endometrium, digestive tract, etc). A number of research studies have documented that olive oil reduces the risk of breast cancer. Following a healthy diet with olive oil as the main source of fat could considerably lower one's likelihood of developing cancer.

Some reports also state that an olive oil rich diet has been associated with reduced risk of bowel cancer. Recent studies have demonstrated that olive oil also provides protection against cancer of the colon.

Lately, researchers have been looking into the metabolic implications of fats-- more specifically the protective role of olive oil in chronic liver disease and in Crohn's disease, a disorder of the intestines. Results point to beneficial effects of olive oil on precancerous lesions. An olive oil-rich diet may reduce the number of cancerous lesions in someone already challenged by cancer; the number of tumors that develop may be significantly lower than in one who is not consuming olive oil; tumors may be less aggressive; and a cancer patient may have a better prognosis overall.

The beneficial effects seen from following an olive oil-rich diet could be related to Oleic Acid, the predominant monounsaturated fatty acid in olive oil. This fatty acid has been shown to lower the production of prostaglandins derived from arachidonic acid, which in turn plays a significant part in the production and development of tumors. Other attributes of olive oil, such as antioxidants, flavonoids, Polyphenols and squalene may also have a positive influence. (Squalene is believed to have a favorable effect on the skin by reducing the incidence of melanomas.)

Olive oil also adds to the taste of vegetables and benefits in cancer prevention have been amply proved. Some very promising, current research is centered on the protection provided by olive oil against child leukemia and various cancers, such as esophageal squamous cell cancer. Much has still to be discovered about how olive oil affects cancer and concrete data are still lacking on the mechanisms behind the beneficial role it plays in the prevention or inhibition of the growth of different types of cancer.

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## Olive Oil & Diabetes

**What is Diabetes?** Diabetes mellitus is one of the leading health problems in developed countries, and the sixth cause of death. It is one of the major metabolic diseases, and it is potentially very serious because it can cause many complications--such as cardiovascular diseases, kidney failure, blindness, peripheral circulation disorders, etc.

There are two types of diabetes mellitus: Type I, or insulin dependent diabetes, found in children and teenagers, and Type II, or non-insulin dependent diabetes, which appears in adulthood, generally from the age of 40 onwards. Insulin is required to control the first type while the second, more frequent type is generally associated with obesity and does not call for insulin treatment.

Nowadays a person is considered to be a diabetic when, two hours after an oral overdose of glucose, he or she has a fasting blood sugar level of more than 126 mg/dl, or of more than 200 mg/dl in non-fasting conditions.

### **Olive Oil and Diabetes**

An olive oil rich diet is not only a good option in the treatment of diabetes, it may also help to prevent or delay the onset of the disease. It does so by preventing insulin resistance by raising HDL cholesterol, lowering triglycerides, ensuring better blood sugar level control, and lowering blood pressure.

A diet that is rich in olive oil, low in saturated fats, moderately rich in carbohydrates and soluble fiber from fruit, vegetables, pulses and grains is the most effective approach for diabetics. Besides lowering the “bad” low density lipoproteins, this type of diet improves blood sugar control and enhances insulin sensitivity. These benefits have been documented in child and adult diabetes.

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## Olive Oil & Obesity

Obesity is a major health issue in the West. Nowadays, especially in cities, people are living with an unprecedented stress load and schedules that allow little time for careful meal planning. As a result, they're making poor choices about what they eat and getting less incidental exercise than previous generations. Over half the population of some industrialized countries is overweight, leading to an increased risk of high blood pressure, diabetes, and high cholesterol and triglycerides-- all factors that increase the risk of cardiovascular diseases.

### What is Obesity?

Obesity, or being overweight, occurs when energy reserves, primarily in the form of fat, are excessive. It occurs when the amount of energy obtained through the diet is greater than the amount of energy expended--when you consume more calories than you work off. It is corrected by ensuring that energy expenditure (physical exercise, basal metabolic rate, etc.) is greater than energy intake.

A good weight reducing diet should:

- \* Provide less energy than is needed to maintain body weight;
- \* Supply adequate amounts of all the nutrients;
- \* Be acceptable, affordable and palatable.

### Olive Oil and Obesity

Olive oil is a nutrient of great biological value. Like all other fats and oils it is high in calories (9 Kcal per gram), which leads some to mistakenly believe that it is likely to contribute to obesity. However, experience shows that there is less obesity amongst the Mediterranean peoples, who consume the most olive oil. In fact, an olive oil rich diet leads to greater and longer lasting weight loss than a low fat diet.



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## Olive Oil & the Digestive System

As soon as we eat olive oil it has a number of effects all the way along the digestive system. As far back as in ancient times it was recommended for assorted digestive disorders, and its beneficial properties are now being corroborated by epidemiological studies and a wealth of scientific data.

### **Olive Oil and the Stomach**

When olive oil reaches the stomach it does not reduce the tonus of the muscular ring or sphincter at the base of the esophagus. Because of this, it reduces the risk of the flow or reflux of food and gastric juice up from the stomach to the esophagus. Olive oil also partially inhibits gastric motility. As a result, the gastric content of the stomach is released more slowly and gradually into the duodenum, giving a greater sensation of “fullness,” and favoring the digestion and absorption of nutrients in the intestine.

### **Olive Oil and the Hepato Biliary System**

One of the effects of olive oil on the hepato biliary system (liver, gall bladder and bile ducts, and how they work together to make bile) is that it is a “cholagogue,” ensuring optimal bile drainage and full emptying of the gall bladder. Another effect is that it stimulates the contraction of the gall bladder, which is extremely helpful in the treatment and prevention of disorders of the bile ducts. Olive oil stimulates the synthesis of bile salts in the liver, and it increases the amount of cholesterol excreted by the liver. Owing to its beneficial effect on the muscle tone and activity of the gall bladder, olive oil stimulates the digestion of lipids, because they are emulsified by bile, and it prevents the onset of gallstones.

### **Olive Oil and the Pancreas**

When consumed, olive oil causes the pancreas to secrete a little bit, making this organ “work” a little-- but efficiently-- and enough to carry out all its digestive functions. Olive oil is recommended in diseases where pancreatic function has to be maintained, such as pancreas failure, chronic pancreatitis, cystic fibrosis, malabsorption syndromes, etc.

### **Olive Oil and the Intestines**

Owing to the sitosterol it contains, olive oil partially prevents cholesterol absorption by the small intestine. It also stimulates the absorption of various nutrients (calcium, iron, magnesium, etc.). Olive oil, therefore, is a fat that is digested and absorbed really well. It also has choice properties and a mild laxative effect that help to combat constipation and bad breath.

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## Olive Oil & During Pregnancy and Childhood

Olive oil plays a key role in fetal development during pregnancy, and a shortage may have pernicious effects on a baby's subsequent development. Postnatal development of babies whose mothers consumed olive oil while pregnant is better in terms of height, weight, behavior, and psychomotor reflexes. The fetus needs vitamin E to grow. The newborn baby also needs a store of vitamin E to fight against the oxidative stress caused by entering an oxygen atmosphere. Vitamin E is one of the many things present in olive oil.

### **Olive Oil and Breast Feeding**

It is essential to maintain the levels of vitamin E during breast feeding. Vitamin E is also recommended for premature and newborn infants with kidney or pancreas failure because of the favorable effect it has on the hepato-biliary system. But olive oil not only provides enough essential fatty acids for the development of the new-born child; its ratio of linoleic acid to linolenic acid (essential fatty acids) is similar to that of breast milk.

The beneficial effect of Oleic Acid lasts beyond pregnancy. Besides its documented effectiveness in preventing hypercholesterolemia and atherosclerosis, which is a process that can begin in childhood, Oleic Acid also appears to exert a positive influence on growth and bone mineralization and development during infancy.

### **Dietary Requirements**

During pregnancy and breast feeding it is advisable to consume more fat, primarily monounsaturated fat, while reducing saturated fat and cholesterol as far as possible. General dietary guidelines should be followed, and calorie intake should be controlled to avoid excessive weight gain. Children under three years of age have different dietary requirements than older children. Forty percent of the energy infants and toddlers consume comes from fat, whether it is in breast milk or any other kind of milk. It is recommended to maintain this dietary pattern and to ensure that energy and nutritional intake cover the developmental requirements of the child, and olive oil can be a key helper in this!

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## Olive Oil & Aging

Olive oil is rich in various antioxidants that play a positive, biological role in eliminating free radicals, the molecules involved in some chronic diseases and aging. The antioxidants in olive oil have also been linked to extending life expectancy, which has been demonstrated in several epidemiological studies. Many age-related diseases and challenges are influenced by diet-- in particular osteoporosis and deteriorated cognitive function.

### What is Osteoporosis?

Osteoporosis is a reduction in bone tissue mass that increases the risk of fractures. There are two types. Type I occurs in middle-aged, post-menopausal women, and type II occurs in the elderly.

### Olive Oil and Osteoporosis

Olive oil appears to have a favorable effect on bone calcification, and bone mineralization is better the more olive oil is consumed. Olive oil helps calcium absorption, thereby playing an important part during the period of growth and in the prevention of osteoporosis.

### Olive Oil and Cognitive Function

Olive oil-rich diets may prevent memory loss in healthy elderly people. A decreased likelihood of suffering age-related cognitive decline has been observed in a study conducted on elderly people who were administered diets containing a large amount of monounsaturated fats-- the fats particularly associated with olive oil.

Exactly how large quantities of these fats prevent cognitive decline is still unknown. However, this effect is believed to occur because the monounsaturated fatty acids may help to maintain the structure of the brain cell membranes since the demand for these acids appears to grow during aging.

The same study observed that the quantity of olive oil consumed was inversely proportional to age-related cognitive decline and memory loss, dementia and Alzheimer's disease.

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## Olive Oil Contains a Natural Anti-Inflammatory Agent

### **That throaty sting provides new clues to health benefits of Mediterranean diet**

A naturally occurring chemical found in extra-virgin olive oils is a non-steroidal anti-inflammatory agent, report scientists from the Monell Chemical Senses Center and collaborators at the University of Pennsylvania, The University of the Sciences in Philadelphia, and Firmenich, Inc.

Named oleocanthal by the researchers, the compound inhibits activity of cyclooxygenase (COX) enzymes, a pharmacological action shared by ibuprofen.

The finding is significant because inflammation increasingly is believed to play a key role in a variety of chronic diseases. "Some of the health-related effects of the Mediterranean diet may be due to the natural anti-COX activity of oleocanthal from premium olive oils," observes Monell biologist Gary Beauchamp, PhD.

The findings are described in the September 1 issue of the journal Nature.

Taking their lead from the cues provided by olive oil's throaty bite, the scientists systematically evaluated the sensory properties of an unnamed chemical compound thought to be responsible for the throat irritating property of premium olive oils. When results confirmed that the irritating intensity of a given extra-virgin olive oil was directly related to how much of the chemical it contained, the researchers named the compound oleocanthal (oleo=olive; canth=sting; al=aldehyde).

The sensory similarities between oleocanthal and ibuprofen led scientists at Monell and the University of the Sciences to investigate potential common pharmacological properties. Studies revealed that, like ibuprofen, oleocanthal inhibits activity of COX-1 and COX-2 enzymes.

Because inhibition of COX activity underlies the anti-inflammatory actions of ibuprofen and other non-steroidal anti-inflammatory drugs (NSAIDs), the new findings suggest oleocanthal is a natural anti-inflammatory agent.

Monell sensory scientist Paul Breslin, PhD, who directed the research together with Beauchamp remarks: "The Mediterranean diet, of which olive oil is a central component, has long been associated with numerous health benefits, including decreased risk of stroke, heart disease, breast cancer, lung cancer, and some dementias. Similar benefits are associated with certain NSAIDs, such as aspirin and ibuprofen. Now that we know of oleocanthal's anti-inflammatory properties, it seems plausible that oleocanthal plays a causal role in the health benefits associated with diets where olive oil is the principal source of fat."

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## Disclosure and More Information

For more comprehensive olive oil research studies related to any of the health related topics, visit: <http://www.internationaloliveoil.org/estaticos/view/87-mediterranean-diet-pyramid>

\*The information presented on this Web site was compiled by Olive Oil & Beyond. For sources or further information, please contact us through the e-mail form provided on this site or visit [www.internationaloliveoil.org](http://www.internationaloliveoil.org)

