



OLIVE OIL

Fat composition

Saturated fats	Palmitic acid : 7.5–20.0 %
	Stearic acid : 0.5–5.0 %
	Arachidic acid : <0.8%
	Behenic acid : <0.3%
	Myristic acid : <0.1%
	Lignoceric acid : <1.0%
Unsaturated fats	Yes
Monounsaturated fats	Oleic acid : 55.0–83.0%
	Palmitoleic acid : 0.3–3.5%
Polyunsaturated fats	Linoleic acid : 3.5–21.0 %
	Linolenic acid : <1.5%

Properties

Food energy per 100g	3700 kJ (890 kcal)
Melting point	−6.0 °C (21 °F)
Boiling point	300 °C (570 °F)
Smoke point	190 °C (375 °F) (virgin) 210 °C (410 °F) (refined)
Specific gravity at 20 °C	0.9150–0.9180 (@ 15.5 °C)
Viscosity at 20 °C	84 cP
Refractive index	1.4677–1.4705 (virgin and refined) 1.4680–1.4707 (pomace)
Iodine value	75–94 (virgin and refined) 75–92 (pomace)
Acid value	maximum: 6.6 (refined and pomace) 0.6 (extra-virgin)
Saponification value	184–196 (virgin and refined) 182–193 (pomace)
Peroxide value	20 (virgin) 10 (refined and pomace)

Olive oil is a fruit oil obtained from the olive (*Olea europaea*; family Oleaceae along with lilacs, jasmine and ash trees), a traditional tree crop of the Mediterranean Basin. It is commonly used in cooking, cosmetics, pharmaceuticals, and soaps and as a fuel for traditional oil lamps. Olive oil is healthier than other sources of alimentary fat because of its high content of monounsaturated fat (mainly oleic acid) and polyphenols.

History



Homer called it "liquid gold." In ancient Greece, athletes ritually rubbed it all over their body. Drops of it seeped into the bones of dead saints and martyrs through holes in their tombs. Olive oil has been more than mere food to the peoples of the Mediterranean: it has been medicinal, magical, an endless source of fascination and wonder and the fountain of great wealth and power.

Besides food, olive oil has been used for religious rituals, medicines, as a fuel in oil lamps, soap-making, and skin care application. The importance and antiquity of olive oil can be seen in the fact that the English word *oil* derives from c. 1175, *olive oil*, from Anglo-Fr. and O.N.Fr. *olie*, from O.Fr. *oile* (12c., Mod.Fr. *huile*), from L. *oleum* "oil, olive oil" (cf. It. *olio*), from Gk. *elaion* "olive tree", which may have been borrowed through trade networks from the Semitic Phoenician use of *el'yon* meaning "superior", probably in recognized comparison to other vegetable or animal fats available at the time.

The olive tree is native to the Mediterranean basin; wild olives were collected by Neolithic peoples as early as the 8th millennium BC.

It is not clear when and where olive trees were first domesticated: in Asia Minor in the 6th millennium; along the Levantine coast stretching from the Sinai Peninsula to modern Turkey in the 4th millennium; or somewhere in the Mesopotamian Fertile Crescent in the 3rd millennium.

A widespread view exists that the first cultivation took place on the island of Crete. The earliest surviving olive oil amphorae date to 3500 BC (Early Minoan times), though the production of olive is assumed to have started before 4000 BC. An alternative view retains that olives were turned into oil by 4500 BC by Canaanites in present-day Israel.



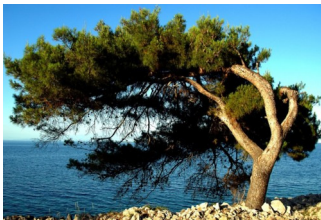
Ancient oil press

Bodrum Museum of Underwater Archaeology, Bodrum, Turkey

Recent genetic studies suggest that species used by modern cultivators descend from multiple wild populations, but a detailed history of domestication is not yet understood.

Many ancient presses still exist in the Eastern Mediterranean region, and some dating to the Roman period are still in use today.

Eastern Mediterranean



Over 5,000 years ago oil was being extracted from olives in the Eastern Mediterranean. In the centuries that followed, olive presses became common, from the Atlantic shore of North Africa to Persia and from the Po Valley to the settlements along the Nile.

Olive trees and oil production in the Eastern Mediterranean can be traced to archives of the ancient city-state Ebla (2600–2240 BC), which were located on the outskirts of the Syrian city Aleppo. Here some dozen documents dated 2400 BC describe lands of the king and the queen. These belonged to a library of clay tablets perfectly preserved by having been baked in the fire that destroyed the palace. A later source is the frequent mentions of oil in Tanakh.

Dynastic Egyptians before 2000 BC imported olive oil from Crete, Syria and Canaan and oil was an important item of commerce and wealth. Remains of olive oil have been found in jugs over 4,000 years old in a tomb on the island of Naxos in the Aegean Sea. Sinuhe, the Egyptian exile who lived in northern Canaan about 1960 BC, wrote of abundant olive trees.

Until 1500 BC, the eastern coastal areas of the Mediterranean were most heavily cultivated. Olive trees were certainly cultivated by the Late Minoan period (1500 BC) in Crete, and perhaps as early as the Early Minoan. The cultivation of olive trees in Crete became particularly intense in the post-palatial period and played an important role in the island's economy. The Minoans used olive oil in religious ceremonies. The oil became a principal product of the Minoan civilization, where it is thought to have represented wealth. The Minoans put the pulp into settling tanks and, when the oil had risen to the top, drained the water from the bottom. Olive tree growing reached Iberia and Etruscan cities well before the 8th century BC through trade with the Phoenicians and Carthage, then spread into Southern Gaul by the Celtic tribes during the 7th century BC.

The first recorded oil extraction is known from the Hebrew Bible and took place during the Exodus from Egypt. During this time, the oil was derived through hand-squeezing the berries and stored in special containers under guard of the priests. A commercial mill for non-sacramental use of oil was in use in the tribal Confederation and later the Kingdom of Israel c. 1000 BC. Over 100 olive presses have been found in Tel Miqne (Ekron), where the Biblical Philistines also produced oil. These presses are estimated to have had output of between 1,000 and 3,000 tons of olive oil per season.

Olive trees were planted in the entire Mediterranean basin during evolution of the Roman republic and empire. According to the historian Pliny, Italy had "excellent olive oil at reasonable prices" by the first century AD, "the best in the Mediterranean", he maintained, a claim probably disputed by many ancient olive growers. Thus olive oil was very common in Hellenic and Latin cuisine. According to legend, the city of Athens obtained its name because Athenians considered olive oil essential, preferring the offering of the goddess Athena (an olive tree) over the offering of Poseidon (a spring of salt water gushing out of a cliff).

The Spartans were the Hellenes who used oil to rub themselves while exercising in the gymnasia. The practice served to eroticise and highlight the beauty of the male body. From its beginnings early in the seventh century BC, the decorative use of olive oil quickly spread to all of Hellenic city states, together with naked appearance of athletes, and lasted close to a thousand years despite its great expense.

8.2 Religious use

In Jewish observance, olive oil is the only fuel allowed to be used in the seven-branched Menorah (not a candelabrum since the use of candles was not allowed) in the Mishkan service during the Exodus of the tribes of Israel from Egypt, and later in the permanent Temple in Jerusalem. It was obtained by using only the first drop from a squeezed olive and was consecrated for use only in the Temple by the priests, which is where the expression *pure olive oil* originates from, stored in special containers. A copy of the Menorah is now used during the holiday of Hanukkah that celebrates the miracle of the last of such containers being found during the re-dedication of the Temple (163 BC), when its contents lasted for far longer than they were expected to, allowing more time for more oil to be made. Although candles can be used to light the Hanukkah, oil containers are preferred, to imitate the original Menorah. Another use of oil in Jewish religion is for anointing the kings of the Kingdom of Israel, originating from King David. Tzidkiyahu was the last anointed King of Israel. One unusual use of olive oil in the Talmud is for bad breath, by creating a water-oil-salt mouthwash.

Olive oil also has religious symbolism for healing and strength and to consecration — God's setting a person or place apart for special work. This may be related to its ancient use as a medicinal agent and for cleansing athletes by slathering them in oil then scraping them. The Catholic and Orthodox Churches use olive oil for the Oil of Catechumens (used to bless and strengthen those preparing for Baptism) and Oil of the Sick (used to confer the Sacrament of Anointing of the Sick). Olive oil mixed with a perfuming agent like balsam is consecrated by bishops as Sacred Chrism, which is used to confer the sacrament of Confirmation (as a symbol of the strengthening of the Holy Spirit), in the rites of Baptism and the ordination of priests and bishops, in the consecration of altars and churches, and, traditionally, in the anointing of monarchs at their coronation. The Church of Jesus Christ of Latter-day Saints (Mormons) and a number of other religions use olive oil when they need to consecrate an oil for anointings.

Eastern Orthodox Christians still use oil lamps in their churches and home prayer corners. A vigil lamp consists of a votive glass containing a half-inch of water and filled the rest with olive oil. The glass has a metal holder that hangs from a bracket on the wall or sits on a table. A cork float with lit a wick floats on the oil. To douse the flame, the float is carefully pressed down into the oil.

In Islam, olive oil is mentioned in the Quranic verse: "God is the light of heavens and earth. An example of His light is like a lantern inside which there is a tounch, the tounch is in a glass bulb, the glass bulb is like a bright planet lit by a blessed olive tree, neither Eastern nor Western, its oil almost glows, even without fire touching it, light upon light." The Qur'an also mentions olives as a sacred plant: "By the fig and the olive, and the Mount of Sinai, and this secure city." Olive oil is also reported to have been recommended by the Prophet Muhammad SAW in the following terms: "Consume olive oil and anoint it upon your bodies since it is of the blessed tree." He also stated that it cures 70 diseases.

1 Market

Over 750 million olive trees are cultivated worldwide, about 95% of those in the Mediterranean region. Most of global production comes from Southern Europe, North Africa and Middle East. Of the European production, 93% comes from Spain, Italy, Turkey, and Greece. Spain alone accounts for more than 30% of world production, which was 2.6 million metric tons in 2002. In 2006 Turkey accounted for over 25% of world production.

In olive oil-producing countries, the local production is generally considered the finest. In North America, Italian olive oil is the best-known, and top-quality extra-virgin oils from Italy, Spain and Greece are sold at high prices, often in "prestige" packaging.

Greece devotes 60% of its cultivated land to olive growing. It is the world's top producer of black olives and boasts more varieties of olives than any other country. Greece holds third place in world olive production with more than 132 million trees, which produce approximately 350,000 tons of olive oil annually, of which 82% is extra-virgin (see below for an explanation of terms). This makes Greece the world's biggest producer of extra-virgin olive oil, topping Italy (where 40–45% of olive oil produced is extra virgin) and Spain (25–30%). About half of the annual Greek olive oil production is exported, but only some 5% of this quantity reflects the origin of the bottled product. Greek exports primarily target European Union (EU) countries, the main recipient being Italy, which receives about three-quarters of total exports. Olives are grown for oil in mainland Greece, with Peloponnese being the source of 65% of Greek production, as well as in Crete, the Aegean Islands and Ionian Islands.

The Italian government regulates the use of different protected designation of origin labels for olive oils in accordance with EU law. Olive oils grown in the following regions are given the *Denominazione di Origine Protetta* (Denomination of Protected Origin) status: Apurino, Pescara, Brisighella, Bruz, Chianti, Colline di Brindisi, Colline Salernitane, Penisola Sorrentina, Riviera Ligure, and Sabina. Olive oil from the Chianti region has the special quality assurance label of *Denominazione di Origine Controllata* (Denomination of Controlled Origin; DOC) as well as the DOP.

Among the many different olive varieties used in Italy are Frantoio, Leccino, Pendolino, and Moraiolo. Demand for Italian olive oil has soared in the United States. In 1994, exports to the US totaled 28.95 million gallons, a 215% increase from 1984. The US is Italy's biggest customer, absorbing 22% of total Italian production of 131.6 million gallons in 1994. Despite shrinkage in production, Italian exports of olive oil rose by 19.2% from 1994 to 1995. A large share of the exports went to the EU, especially Spain.

2 Regulation

The **International Olive Oil Council (IOOC)** is an intergovernmental organization based in Madrid, Spain, with 23 member states. It promotes olive oil around the world by tracking production, defining quality standards, and monitoring authenticity. More than 85% of the world's olives are grown in IOOC member nations. The United States is not a member of the IOOC, and the US Department of Agriculture does not legally recognize its classifications (such as extra-virgin olive oil). The USDA uses a different system, which it defined in 1948 before the IOOC existed. The California Olive Oil Council, a private trade group, is petitioning the USDA to adopt IOOC rules.

The IOOC officially governs 95% of international production and holds great influence over the rest. IOOC terminology is precise, but it can lead to confusion between the words that describe production and the words used on retail labels. Olive oil is classified by how it was produced, by its chemistry, and by its flavor. All production begins by transforming the olive fruit into olive paste. This paste is then malaxed to allow the microscopic oil droplets to concentrate. The oil is extracted by means of pressure (traditional method) or centrifugation (modern method). After extraction the remnant solid substance, called pomace, still contains a small quantity of oil.

According to an article by Tom Mueller in the August 13, 2007 Issue of the *The New Yorker*, regulation is extremely lax and corrupt. Mueller states that major Italian shippers routinely adulterate olive oil and that only about 40% of olive oil sold as "extra virgin" actually meets requirements.

2.1 Industrial grades

The several oils extracted from the olive fruit can be classified as:

- *Virgin* means the oil was produced by the use of physical means and no chemical treatment. The term *virgin oil* referring to production is different from *Virgin Oil* on a retail label (see next section).
- *Refined* means that the oil has been chemically treated to neutralize strong tastes (characterized as defects) and neutralize the acid content (free fatty acids). Refined oil is commonly regarded as lower quality than virgin oil; the retail labels *extra-virgin olive oil* and *virgin olive oil* cannot contain any refined oil.
- *Pomace olive oil* means oil extracted from the pomace using chemical solvents—mostly hexane—and by heat.

Quantitative analysis can determine the oil's acidity, defined as the percent, measured by weight, of free oleic acid it contains. This is a measure of the oil's chemical degradation; as the oil degrades, more fatty acids are freed from the glycerides, increasing the level of free acidity and thereby increasing rancidity. Another measure of the oil's chemical degradation is the organic peroxide level, which measures the degree to which the oil is oxidized, another cause of rancidity.

In order to classify it by taste, olive oil is subjectively judged by a panel of professional tasters in a blind taste test. This is also called its *organoleptic* quality.

2.2 Retail grades in IOOC member nations

As IOOC standards are complex, the labels in stores (except in the U.S.) clearly show an oil's grade:

- **Extra-virgin olive oil** comes from the first pressing of the olives, contains no more than 0.8% acidity, and is judged to have a superior taste. There can be no refined oil in extra-virgin olive oil.
- **Virgin olive oil** has an acidity less than 2%, and judged to have a good taste. There can be no refined oil in virgin olive oil.
- **Pure olive oil.** Oils labeled as *Pure olive oil* or *Olive oil* are usually a blend of refined olive oil and one of the above two categories of virgin olive oil.
- **Olive oil** is a blend of virgin oil and refined oil, containing no more than 1.5% acidity. It commonly lacks a strong flavor.
- **Olive-pomace oil** is a blend of refined pomace olive oil and possibly some virgin oil. It is fit for consumption, but it may not be called *olive oil*. Olive-pomace oil is rarely found in a grocery store; it is often used for certain kinds of cooking in restaurants.
- **Lampante oil** is olive oil not used for consumption; *lampante* comes from olive oil's ancient use as fuel in oil-burning lamps. Lampante oil is mostly used in the industrial market.

There are officially nine grades, but you will also see terms like stone ground, cold pressed, first pressed, raw, unfiltered, organic, premium, and estate or estate blend. I gathered the following information at the International Olive Oil Council and Sonoma County UCCE website (University of California Cooperative Extension).

The International Olive Oil Council lists the olive oil grades under one of two main categories.

They are 1.Olive Oil and 2.Olive-Pomace Oil

The oils must meet certain criteria for each category. They cannot be mixed with any other type of oil, must pass a sensory analysis by a certified panel of tasters, and meet the analytical criteria. The standard indicates all the tests used to determine genuineness and purity as well as the legal requirements for the label.

Olive oil is defined as oil obtained solely from fruit of the olive tree. Virgin oils are extracted only by mechanical means that do not lead to alterations in the oil. The numerical sensory values for each of the first three grades (extra virgin, virgin, and ordinary virgin) come from olive oil ratings by a qualified taste panel that has been officially recognized by the IOOC. The majority of the tasters, usually 5 of 8, must agree statistically on the olive oil ratings indicating the same defect, if any is present and similar intensity for fruitiness, bitterness, and pungency.

1.Olive Oil - These olive oil grades are obtained solely from the fruit of the olive tree and do not include oils extracted using solvents, re-esterification processes or any mixture with oils of other kinds (seed or nut oils). Virgin Olive Oils (first three listed below) are obtained solely by mechanical or physical means under thermal conditions that do not lead to alterations in the oil; using only treatments such as washing, decantation, centrifugation, and filtration.

A: Extra Virgin Olive Oil - This oil has zero defects and greater than zero positive attributes. The majority of the tasters indicated that it is not defective and has some fruitiness. Extra-virgin oil has a free acidity of less than 0.8 % and conforms to all the standards listed in its category. This is the highest quality olive oil grade. Extra virgin olive oil should have clear

flavor characteristics that reflect the fruit from which it was made. In relation to the olive variety, fruit maturity, growing region, and extraction technique, extra virgin olive oils can be very different from one another.

B: Virgin Olive Oil - This is oil with a sensory analysis rating from 0 to less than 2.5, a free acidity of less than 2%, and conforms to all the other standards in its category. These are oils with analytical and sensory indices that reflect slightly lower quality than extra virgin olive oil.

C: Ordinary Virgin Olive Oil - Oil with a lower organoleptic (sensory) rating of 2.5 to less than 6.0, a free acidity of less than 3.3%, and conforms to all other standards within its category. It is inferior oil with notable defects and is not permitted to be bottled under European Union (EU) laws, so it is sent for refining. The EU has eliminated this category and other regulating agencies are likely to follow. It will simply be absorbed into the lampante category.

D: Lampante Oil - Oil with severe defects (greater than 6.0) or free acidity of greater than 3.3%, and meets with the other standards in its category. It is not fit for human consumption and must be refined. These olive oil grades come from bad fruit or from improper handling and processing.

E: Refined Olive Oil - Oil obtained from virgin oils by refining methods that do not alter the initial glyceride structure. It has a free acidity of less than 0.3 % and must conform to the other standards within its category. The origin of refined olive oil must not come from the solvent extraction of pomace. The refining process usually consists of treating bad virgin oil/lampante with sodium hydroxide to neutralize the free acidity, washing, drying, odor removal, color removal, and filtration. In the process, the oil can be heated to as high as 430oF (220oC) under a vacuum to remove all of the volatile components. Refined olive oil is usually odorless, tasteless, and colorless. It is not fit for human consumption in many countries including the EU.

F: Olive Oil - Oils that are a blend of refined and unrefined virgin oils. It must have a free acidity of not more than 1% and conform to the other standards within its category. This grade of oil actually represents the bulk of the oil sold on the world market to the consumer. Blends are made in proportions to create specific styles and prices. Olive oil grades in the US labeled as "Extra Light" would most likely be a blend dominated by refined olive oil. Other blends with more color and flavor would contain more virgin or extra virgin olive oil.

2.Olive-Pomace Oil - Oil obtained by treating olive pomace with solvents. It does not include oils obtained in the re-esterification processes or any mixture with oils of other kinds (seed or nut oils).

A: Crude Olive-Pomace Oil - This is the solvent extracted crude oil product as it comes out of the pomace extractor after distillation to separate and recover most of the solvent. EU law also defines any oil containing 300-350 mg/kg of waxes and aliphatic alcohols above 350 mg/kg to be crude pomace oil. It is not fit for human consumption, but is intended for refining.

B: Refined Olive-Pomace Oil - Oil obtained from crude pomace oil by refining methods that do not alter the initial glyceride structure. It has a free acidity of not more than 0.3% and its other characteristics conform to the category standard. Refining includes the same methods used for "refined olive oil" except that the source of the raw product comes from pomace by means of solvent extraction. It is not fit for human consumption in many countries and under EU laws.

C: Olive-Pomace Oil - A blend of refined olive-pomace oil and virgin olive oil that is fit for human consumption. It has a free acidity of not more than 1% and must conform to the other standards within its category. In no case shall this blend be called "olive oil."



So, those are all of the olive oil grades as set out by the IOOC, but what does that mean to you? Learn more about the characteristics of Extra Virgin, Virgin, Ordinary Virgin, and Refined Olive Oil.

Pomace is the solid remains of olives, grapes, or other fruit after pressing for juice or oil. It is essentially the pulp, peel, seeds and stalks of the fruit after the oil, water, or other liquid has been pressed out. For example, pressing 100 kg of grapes will produce about 25 kg of pomace. 50 percent of grape pomace consists of skins, 25 percent of stalks and the remaining 25 percent of seeds.

Grape pomace has traditionally been used to produce grape seed oil, a practice that continues to this day in small amounts, and grappa. Today, pomace is most commonly used as fodder or fertilizer. Perhaps the most ubiquitous pomace by-product is the natural red dye and food coloring agent oenocyanin. However, some companies are also recovering tartrates (cream of tartar) as well as grape polyphenols.

Apple pomace is often used to produce pectin, or can be used to make Ciderkin, a weak cider. While grape pomace is used to produce pomace wine and pomace brandy, such as grappa (in Italy), marc (in France), zivania (in Cyprus), lozovača or komovica (in Croatia), Raki (in Turkey and Albania), Orujo (in Spain), Tsikoudia (in Crete), Tshipouro in northern Greece or bagaço (in Portugal). There are many other local names and variants. Essentially all wine producing cultures started making some form of pomace brandy once the principles of distillation were understood.

In the Middle Ages, pomace wines with a low alcohol content of three to four percent were widely available. These faux-wines were made by rehydrating and refermenting the pomace after pressing. Generally, medieval wines were not fermented to dryness so the pomace contained a small amount of fermentable sugars.

2.3 Label wording

Olive oil vendors choose the wording on their labels very carefully.

- "100% Pure Olive Oil" is often the lowest quality available in a retail store: better grades would have "virgin" on the label.
- "Made from refined olive oils" suggests that the essence was captured, but in fact means that the taste and acidity were chemically produced.
- "Light olive oil" actually means refined olive oil, not a lower fat content. All olive oil has 120 calories per tablespoon (34 J/ml).
- "From hand-picked olives" may indicate that the oil is of better quality, since producers harvesting olives by mechanical methods are inclined to leave olives to over-ripen in order to increase yield.

- "First cold press" means that the oil in bottles with this label is the first oil that came from the first press of the olives. The word *cold* is important because if heat is used, the olive oil's chemistry is changed.

Nutrients in Olive Oil

Some of the nutrients in olive oil are listed on the bottle label, but there's more.

Comparing olive oil to other oils according to the label only, doesn't paint a full picture of the health benefits provided by the nutrients in olive oil.

The complete chemical make-up of olive oil is pretty technical and we won't get that in-depth here. Let's look at the main nutrients in olive oil as well as other components that make it a healthy choice.

On the label:

Cholesterol - None, that's a good thing, there's enough cholesterol in other fats. If you're looking for a product to help lower your cholesterol, you may want to try Cholesto-Rite - a 100% natural, safe and proven herbal formula especially designed to help the body maintain healthy levels of LDL and HDL cholesterol. Cholesto-Rite also acts as a cardiovascular tonic and promotes the body's natural ability to fight harmful free radicals. Cholesto-Rite - Buy 2, Get 1 FREE

Mono-unsaturated fat - that's a good thing too. Mono-unsaturated fats are healthy fats.

Poly-unsaturated fat - A good fat too. <BR

Saturated fats - Not so good. We need saturated fat, but we get way too much of it.

Trans-fat - None and that's great! In no way are trans-fats beneficial to your health. More info about hydrogenated and trans-fats here.

Sodium - None - Another good thing. Again, sodium is added to so many foods that we usually get more than we need. Did you know that a can of condensed soup has more than half of your recommended daily amount?

Carbohydrates - None, we need them but there just aren't any in olive oil. Protein - None, we need it too, but not from olive oil.

Not on the Label:

Tocopherols (vitamin E), beta-carotene (vitamin A), phytosterols, pigments, terpenic acids, flavonoids (luteolin, quercetin, squalene), and phenolic compounds (oleuropein, tyrosol) are all found in olive oil.

Vitamin E - There are 1.6 mg of vitamin E (a natural anti-oxidant) in 1 tablespoon of olive oil. That represents 10.6% of your recommended daily allowance.

Vitamin K - Found in green leafy vegetables. Vitamin K is associated with chlorophyll and the darker green, the richer in vitamin K. Vegetable and olive oils are also a good source of vitamin K.

Phenols - Extra virgin olive oil is rich in polyphenols which are known to be anti-inflammatory, anti-oxidant and anticoagulant. Antioxidants help to neutralize free radicals and repair damage to cell membranes caused by exposure to things like cigarette smoke, pollution, alcohol and radiation.

Oleocanthal - I found this very interesting. Freshly pressed extra virgin olive oil causes a distinct bitter sort of sting in the throat. Oleocanthal is what causes that sensation. Researchers recognized the sensory affect as familiar and very similar to that of ibuprofen. As it turns out, oleocanthal is a non-steroidal anti-inflammatory and anti oxidant. Again, without getting too technical, it's like ibuprofen or aspirin and may work like small daily doses of aspirin if consumed daily. It's a non-selective inhibitor of cyclooxygenase (COX) that causes relief of inflammation and pain. Oleocanthal may be partly responsible for the lower incidence of heart disease in the Mediterranean population.

Squalene - A natural organic compound used in cosmetics as a moisturizer. It is taken from the liver of sharks, but also found in olive oil - a more environmentally friendly source. Squalene helps to regulate sebum. Sebum is produced by the sebaceous glands in our skin and is secreted through our pores. It forms a coating on the skin that acts as a barrier, inhibits the growth of microorganisms and lubricates our skin and hair.

Chlorophyll - A photosynthetic pigment found in plants and algae. It is an anti-aging substance that promotes the healing of skin conditions and wounds.

Some may argue that other oils such as canola are more healthy, but the way I see it, you have to look at the big picture. Canola oil may be lower in saturated fat, but it is refined using heat and chemicals and doesn't come close to offering the benefits of the nutrients in olive oil.

2.4 Retail grades in the United States

Most of the governments in the world are members of the International Olive Oil Council, which requires member governments to promulgate laws making olive oil labels conform to the IOOC standards.

The United States is the only major oil-producing or oil-consuming country which is not a member of the IOOC, and therefore, the retail grades listed above have no legal meaning in the United States. The U.S. Department of Agriculture (USDA), which controls this aspect of labeling, currently lists four grades of olive oil: "Fancy", "Choice", "Standard", and "Substandard". These were established in 1948. The grades are based on acidity, absence of defects, odor and flavor. While the USDA is considering adopting labeling rules that parallel the international standards, until they do so, terms such as "extra virgin" may be applied to any grade of oil, making the term of dubious usefulness.

3 Global consumption



Greece has by far the heaviest per capita consumption of olive oil worldwide, over 26 liters per year; Spain and Italy, around 14 L; Tunisia, Portugal and Syria, around 8 L. Northern Europe and North America consume far less, around 0.7 L, but the consumption of olive oil outside its home territory has been rising steadily.

Price is an important factor on olive oil consumption in the world commodity market. In 1997, global production rose by 47%, which replenished low stocks, lowered prices, and increased consumption by 27%. Overall, world consumption trends are up by 2.5%. Production trends are also up due to expanded plantings of olives in Europe, Latin America, the USA, and Australia.

3.1 Global market

The main producing countries are:

Country	Production (2005)	Consumption (2005)	Annual Per Capita Consumption (kg)
Spain	36%	20%	13.62
Italy	25%	30%	12.35
Greece	18%	9%	23.7
Turkey	5%	2%	1.2
Syria	4%	3%	6
Tunisia	8%	2%	9.1
Morocco	3%	2%	1.8
Portugal	1%	2%	7.1
United States	0%	8%	0.56
France	0%	4%	1.34

4 Extraction

The most traditional way of making olive oil is by grinding olives. First the olives are ground into an olive paste using large millstones. The olive paste generally stays under the stones for 30–40 minutes. After grinding, the olive paste is spread on fibre disks, which are stacked on top of each other, then placed into the press. Pressure is then applied onto the disk to further separate the oil from the paste.

Olive oil extraction is the process of extracting the oil present in the olive drupes for food use. The oil is produced in the mesocarp cells, and stored in a particular type of vacuole called a lipovacuole, i.e., every cell contains a tiny olive oil droplet. Olive oil extraction is the process of separating the oil from the other fruit contents (vegetation water and solid material). This separation is attained only by physical means, i.e., oil and water don't mix, so they are relatively easy to separate. This contrasts with other oils that are extracted with chemical solvents (generally hexane).

The first operation when extracting olive oil is washing the olives, to reduce the presence of contaminants, especially soil which can create a particular flavour defect called "soil taste".

4.1 Traditional Method – Olive Press



People have used olive presses since Greeks first began pressing olives over 5000 years ago. An olive press works by applying pressure to olive paste to separate the liquid oil and vegetation water from the solid material. The oil and vegetation water are then separated by standard decantation.

This method is still widely used today, and it's still a valid way of producing high quality olive oil if adequate precautions are taken.

First the olives are ground into an olive paste using large millstones. The olive paste generally stays under the stones for 30 – 40 minutes.

This has three objectives:

- to guarantee that the olives are well ground
- to allow enough time for the olive drops to join to form the largest droplets of oil
- allow the fruit enzymes to produce some of the oil aromas and taste

Rarely, olive oil mills use a modern crushing method with a traditional press.

After grinding, the olive paste is spread on fiber disks, which are stacked on top of each other, then placed into the press. Traditionally the disks were made of hemp or coconut fiber, but nowadays they're made of synthetic fibers which are easier to clean and maintain.

These disks are then put on a hydraulic piston, forming a pile. Pressure is applied on the disks, thus compacting the solid phase of the olive paste and percolating the liquid phases (oil and vegetation water). The applied hydraulic pressure can go to 400 atm.

To facilitate separation of the liquid phases, water is run down the sides of the disks to increase the speed of percolation. The liquids are then separated either by a standard process of decantation or by the means of a faster vertical centrifuge. The traditional method is a valid form of producing high quality olive oil, if after each extraction the disks are properly cleaned from the remains of paste; if not the leftover paste will begin to ferment thereby producing inconsistencies of flavours (called defects) that will contaminate the subsequently produced olive oil. A similar problem can affect the grindstones, that in order to assure perfect quality, also require cleaning after each usage.

4.1.1 Advantages and Disadvantages

Proper cleaning will produce higher quality oil. The grindstones, while ancient in design, are a good way to grind the olives because it breaks up the drupe's pulp while only slightly touching the nut and the skin. This reduces the release of the oil oxidation enzymes present in these organs. In addition, in this extraction method, the introduction of water is minimal when compared to the modern one, thus reducing the washing off of the polyphenols. The exhausted paste, called Pomace, has a low content of water making it an easier residue to manage.

Advantages

- Better grinding of the olives, reducing the release of oil oxidation enzymes
- Reduced added water, minimizing the washing of polyphenols
- Pomace with a low content of water easier to manage

Disadvantages

- Difficult cleaning
- Non continuous process with waiting periods thus exposing the olive paste to the action of oxygen and light.
- Requires more manual labour
- Longer time period from harvest to pressing

4.2 Modern Method – Decanter centrifugation

The modern method of olive oil extraction uses an industrial decanter to separate all the phases by centrifugation.

In this method the olives are crushed to a fine paste. This can be done by a hammer crusher, disc crusher, depitting machine or knife crusher.

This paste is then malaxed for 30 to 40 min in order allow the small olive droplets to agglomerate. The aromas are created in these two steps through the action of fruit enzymes.

Afterwards the paste is pumped in to an industrial decanter where the phases will be separated. Water is added to facilitate the extraction process with the paste.

The decanter is a large capacity horizontal centrifuge rotating around 3000 rpm, the high centrifugal force created allows the phases to be readily separated according to their different densities (solids > vegetation water > oil). Inside the decanter's rotating conical drum there is a coil that rotates a few rpm slower, pushing the solid materials out of the system.

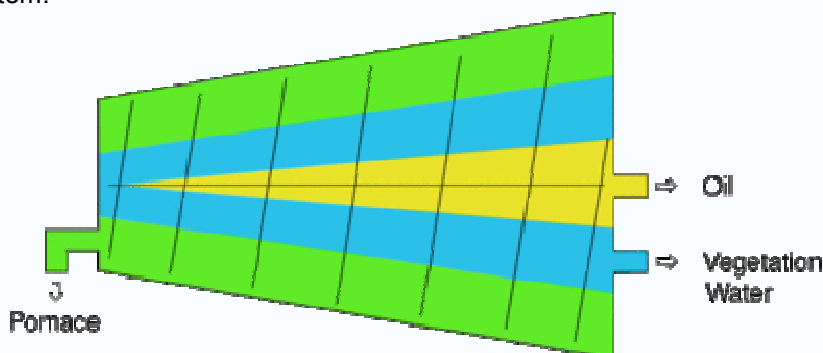


Diagram of a working decanter. The three phases are separated according to their densities

The separated oil and vegetation water are then rerun through a vertical centrifuge, working around 6000 rpm that will separate the small quantity of vegetation water still contained in oil and vice versa.

4.2.1 Three, Two, and Two and a half phases decanters

oil decanter, a portion of the oil polyphenols is washed out due to the higher quantity of added water (when compared to the traditional method), producing a larger quantity of vegetation water that needs to be processed.

The **two phases** oil decanter was created as an attempt to solve these problems. Sacrificing part of its extraction capability, it uses less added water thus reducing the phenol washing. The olive paste is separated into two phases: oil and wet pomace. This type of decanter, instead of having three exits (oil, water and solids), has only two. The water is expelled by the decanter coil together with the pomace, resulting in a wetter pomace that is much harder to process industrially. Many pomace oil extraction facilities refuse to work with these materials because the energy costs of drying the pomace for the hexane oil extraction often make the extraction process sub-economical. In practice, then, the two phases decanter solves the phenol washing problem but increases the residue management problem.

The **two and a half** oil decanter is a compromise between the two previous types of decanters. It separates the olive paste into the standard three phases, but has a smaller need for added water and also a smaller vegetation water output. Therefore the water content of the obtained pomace comes very close to that of the standard three phases decanter, and the vegetation water output is relatively small, minimizing the residue management issues.

4.2.2 Advantages and Disadvantages

Advantages

- Compact machinery - one decanter can take the place of several presses
- Continuous and automated
- Limited labor required
- highest percent of oil extraction
- Vegetable water disposal less of a problem
- Olive oil from two-phase centrifugation systems contains more phenols, tocopherols, trans-2-hexenal and total aroma compounds and is more resistant to oxidation than oil from three-phase ones and from hydraulic presses

Disadvantages

- Expensive
- More technical labor required
- High energy consumption
- Pomace may end up moist
- Greater amount of vegetable water to be disposed of
- Reduced antioxidants due to added water
- Subject to wear from rocks, grit

4.3 Sinolea

This is the most recent method to extract oil from the olives, rows of metal discs or plates are dipped into the paste; the oil preferentially wets and sticks to the metal and is removed with scrapers in a continuous process. It's based on the different surface tension of the vegetation water and the oil, these different physical behaviors allow the olive oil to adhere to a steel plaque while the other two phases stay behind.

Sinolea works by continuously introducing several hundreds of steel plaques in to the paste thus extracting the olive oil. This process is not completely efficient leaving a large quantity of oil still in the paste, so the remaining paste has to be processed by the standard modern method (Industrial Decanter).

4.3.1 Advantages and Disadvantages

Advantages

- Higher polyphenol content of oil
- Low temperature method
- Automated
- Low labor
- Oil/water separation step is not needed
- Low energy requirement

Disadvantages

- Often must be combined with one of the above methods to maximize oil extraction which requires more space, labor, etc.
- Large surface areas can lead to rapid oxidation
- Sale of future machines currently outlawed in European Union due to difficulty with cleaning such large surface areas.

4.4 First Cold Pressed – Cold Extraction

Many oils are marketed as first cold pressed or cold extraction, this is a denomination describing the temperature at which the oil was obtained.

In the EU these designations are regulated by article 5 of Regulation 1019 of 2002. This article states that in order to use these designations the olive oil bottler must prove that the temperature of Malaxation and Extraction was under 27°C (80°F).

For olive oil bottled outside EU countries this regulation does not apply, and therefore the consumer has no assurance that these statements are true.

The temperature of malaxation and extraction is crucial due to its effect on olive oil quality. When high temperatures are applied the more volatile aromas are lost and the rate of oil oxidation is increased, producing therefore lower quality oils. In addition, the chemical content of the polyphenols, antioxidants, and vitamins present in the oil is reduced by higher temperatures. The temperature is adjusted basically by controlling the temperature of the water added during these two steps. High temperatures are used to increase the yield of olive oil obtained from the paste.

4.5 Alternative configurations

Some producers, in order to maximise product quality, choose to combine the traditional grinding method, the stone mill, with a modern decanter. This produces more selective grinding of the olives, reduces the malaxation time olive paste, and avoids the complicated cleaning of the olive press fibre disks. Due to the fact that the use of the stone mill requires a loading and unloading phase, this extraction method is discontinuous, i.e. there times where the all machinery is stopped, therefore it is generally not used on a large commercial scale, being applied only at small scale olive mills producing high quality olive oil.

4.6 Consumer point of view

High quality olive oil can be obtained by all the methods if proper measures are taken. Olive oil quality is equally dependent on the quality of the olives themselves and on the time they have to wait from harvesting to extraction, in addition to the extraction method itself.

The 2 worst “enemies” of olive oil are: Oxygen and light. Once an olive is harvested, it should be pressed within 24 hours. Oxidation begins immediately upon harvesting. In the period between harvest and grinding, the fruits' enzymes are very active and increasingly degrade the endogenous oil, and therefore oil obtained after a longer wait is of lower quality, presenting higher acidity (oleic acid percentage).

In addition, if additional oxygen is allowed to interact with the olive paste during the extraction process, the acidity level will increase further. Sealed extraction methods are best to prevent the continued introduction of oxygen, as well as light to the oil.

Lastly, after extraction of the oil is complete, the oil must be stored in cool stainless steel silos that are pumped free of oxygen. This will ensure the quality of the oil; the integrity and stability of the chemical makeup of the oil.

4.7 Future Prospects

The future of olive extraction points to reducing the negative aspects of the present methods, decreasing the degradation oil produced by the extraction process in itself.

- Reducing the oxidation by performing part of the process of malaxation and the extraction under a controlled nitrogen atmosphere
- Extracting the nut of the olive before grinding, this will reduce the release of oxidative enzymes present in this organ, and yield a pomace that is free from wood residues, making it possible to be used in animal feeding
- Reducing the addition of water to minimize the washing of polyphenols
- Improving the sinolea method, through an increase in the efficiency of the adsorption of the oil to the plates, thus reducing the need for the use of standard methods of extraction

6 Olive Oil Shelf Life and Storage

Olive oil shelf life is affected by several aspects of the production including harvesting and bottling, as well as storage. It has a relatively long shelf life partly due to its high content of mono-unsaturated fat. Light, heat, and oxygen are all natural enemies of olive oil and contribute to its deterioration.



It starts with the olives themselves. Green (unripe) olives have a higher vitamin e and polyphenol content. Vitamin e and polyphenols are anti-oxidants and since oxidization leads to rancidity, more antioxidants mean less susceptibility and a longer olive oil shelf life.

The length of time between harvest and pressing or crushing is also crucial. The olives should be kept cool and processed within 24 hours or they will start to ferment and oxidize.

The extraction process also plays a role in olive oil shelf life. Some techniques subject the crushed olives to more light, heat, and air. Some also add more water to the olive paste during the separation process, which washes away the water-soluble polyphenols.

There are brands that state the production date on the container, but many do not. Choose an olive oil that is no more than a year old or buy it from a store where you know the turn over is quick. Avoid bottles that have dusty tops and reach for the bottles on the lower shelves or at the back where there is less light. Fresh products are usually placed at the back or lower shelves. I follow this same rule when buying bread, milk, and many other items.

I love the idea of an olive oil of the month club. The product arrives in your home much sooner after harvest than it would have otherwise and you have the opportunity to try many different olive oils without searching all over town or the internet. If you don't use

enough to buy every month, you can opt for a seasonal delivery and receive a fresh supply every few months.

Finally, storing olive oil properly once you have it home will minimize deterioration and loss of quality. If you don't use a lot of olive oil, buy it in smaller bottles. I do encourage you though, to use it in place of other fats whenever possible. Don't add more fat to your diet by using olive oil, replace it instead.

Anyway, I buy 1 litre bottles and that lasts me about a month. It would be fine in a cool dark cupboard, but I pour it into smaller air tight bottles. I leave one in the cupboard for everyday use and the extra goes into the refrigerator.

Olive oil turns cloudy and solidifies when it's stored in the fridge, but it doesn't hurt the oil and it returns to normal once warmed up again. We eat salad greens with dinner four to five times a week, so we go through a fair bit of salad dressing. I mix up enough of my favourite simple dressing recipe and store it in a ceramic decanter in the fridge.

To sum up, olive oil shelf life is dependent on several variables. To help insure you're getting the most out of your olive oil, keep the following in mind:

1. Buy fresh extra virgin olive oil.
2. Quality makes a big difference, spend as much as you can afford.
3. Choose opaque or dark coloured containers.
4. Purchase smaller amounts more often.
5. Store it properly once you have it home

7 Constituents

Olive oil is composed mainly of oleic acid and palmitic acid and other fatty acids, along with traces of squalene (up to 0.7%) and sterols (about 0.2% phytosterol and tocosterols).

Olive oil contains a group of related natural products with potent antioxidant properties which give extra-virgin unprocessed olive oil its bitter and pungent taste and which are esters of tyrosol and hydroxytyrosol, including oleocanthal and oleuropein.

8 Human health

Olive oil	
Nutritional value per 100 g (3.5 oz)	
Energy	890 kcal 3700 kJ
Carbohydrates	0 g
Fat	100 g
- saturated	14 g
- monounsaturated	73 g
- polyunsaturated	11 g
- omega-3 fat	<1.5 g
- omega-6 fat	3.5-21g
Protein	0 g
Vitamin E	14 mg 93%
Vitamin K	62 µg 59%
100 g olive oil is 109 ml	
Percentages are relative to US recommendations for adults.	

Evidence from epidemiological studies suggests that a higher proportion of monounsaturated fats in the diet is linked with a reduction in the risk of coronary heart disease. This is significant because olive oil is considerably rich in monounsaturated fats, most notably oleic acid.

In the United States, producers of olive oil may place the following health claim on product labels:

Limited and not conclusive scientific evidence suggests that eating about two tablespoons (23 grams) of olive oil daily may reduce the risk of coronary heart disease due to the monounsaturated fat in olive oil. To achieve this possible benefit, olive oil is to replace a similar amount of saturated fat and not increase the total number of calories you eat in a day. This decision was announced November 1, 2004, by the Food and Drug Administration after application was made to the FDA by producers. Similar labels are permitted for foods rich in omega-3 fatty acids such as walnuts.

There is a large body of clinical data to show that consumption of olive oil can provide heart health benefits such as favourable effects on cholesterol regulation and LDL cholesterol oxidation, and that it exerts antiinflammatory, antithrombotic, antihypertensive as well as vasodilatory effects both in animals and in humans.

But some clinical evidence suggests that it is olive oil's phenolic content, rather than its fatty acid profile, that is responsible for at least some of its cardioprotective benefits. For example, a clinical trial published in 2005 compared the effects of different types of olive oil on arterial elasticity. Test subjects were given a serving of 60 grams of white bread and 40 milliliters of olive oil each morning for two consecutive days. The study was conducted in two stages. During the first stage, the subjects received

polyphenol-rich oil (extra virgin oil contains the highest amount of polyphenol antioxidants). During the second phase, they received oil with only one fifth the phenolic content. The elasticity of the arterial walls of each subject was measured using a pressure sleeve and a Doppler laser. It was discovered that after the subjects had consumed olive oil high in polyphenol antioxidants, they exhibited increased arterial elasticity, while after the consumption of olive oil containing fewer polyphenols, they displayed no significant change in arterial elasticity. It is theorized that, in the long term, increased elasticity of arterial walls reduces vascular stress and consequentially the risk of two common causes of death—heart attacks and stroke. This could, at least in part, explain the lower incidence of both diseases in regions where olive oil and olives are consumed on a daily basis.

In addition to the internal health benefits of olive oil, topical application is quite popular with fans of natural health remedies. Extra Virgin Olive Oil is the preferred grade for moisturizing the skin, especially when used in the Oil Cleansing Method (OCM). OCM is a method of cleansing and moisturizing the face with a mixture of extra virgin olive oil, castor oil (or another suitable carrier oil) and a select blend of essential oils.

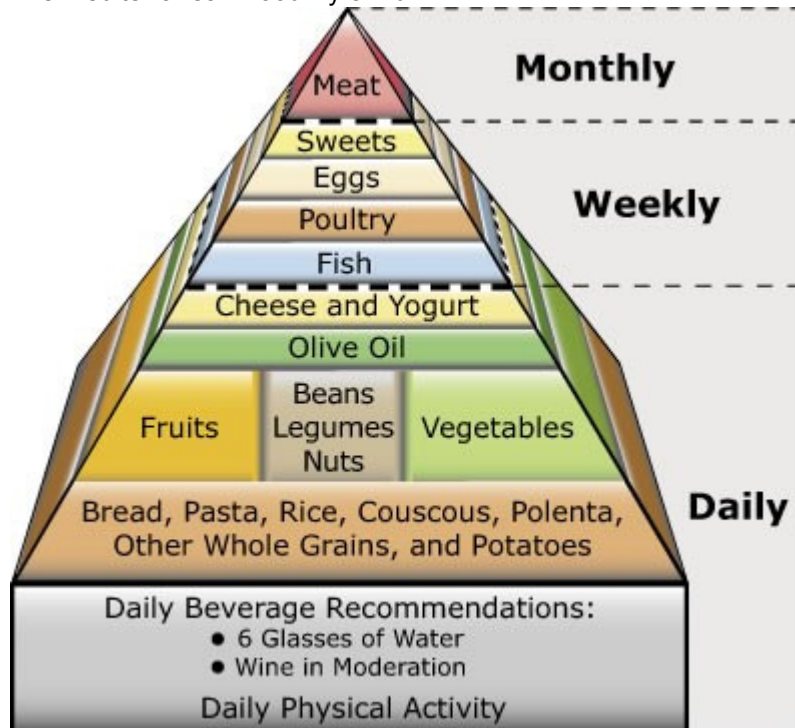
Jeanne Calment, who holds the record for the longest confirmed lifespan, reportedly attributed her longevity and relatively youthful appearance (for her age) to olive oil, which she said she poured on all her food and rubbed into her skin.

Health & Nutrition

The reason olive oil is so good for us is because it's high in mono unsaturated fat, vitamin E, and antioxidants. It contains 120 calories per tablespoon. All edible oils contain about the same amount of calories. Eating a healthy diet that includes olive oil in place of other less healthy fats offers many health benefits.

A few of the benefits it's known for are lowering bad cholesterol and blood pressure, protecting against colon, breast and skin cancers and reducing the incidence of gallstones. Learn more about the nutrients and other specific health benefits. [Dieting with Olive Oil, Nutrients, Benefits](#)

The Mediterranean Food Pyramid



Biological Background: Olive oil is extracted from ground olives (*Olea europaea*).

Nutritional Info: A tablespoon of olive oil contains 14 g of fat (mainly monounsaturated oleic acid), equivalent to 120 calories.

Pharmacological Activity: Olive oil is rich in oleic acid, a monosaturated fatty acid, and phytochemicals oleuropein and hydroxytyrosol, potent anti oxidants. Olive oil can lower blood levels of an undesirable form of cholesterol, LDL, while raising the level of HDL, the desirable kind of cholesterol and help keep LDL cholesterol from being converted to a toxic or oxidized form, thus protecting arteries from the fatty plague. Olive oil can also reduce blood pressure and help regulate blood sugars. Oleuropein and hydroxytyrosol in olive oil help fight cancers, especially breast cancer.

1. It's Natural! - the best of olive oil benefits. Extra virgin olive oil is nothing but fruit juice extracted mechanically from olive fruit. There is no heat or chemicals used in the extraction process. My favourite and the most beneficial is a fresh organic unfiltered extra virgin olive oil. Follow this link for more information about olive oil grades.
2. Flavour - It just tastes good. I guess I would have to say it is an acquired taste and some people just don't like the bitter characteristic of some oils. There are olive varieties known for their mild flavour and olive oil pressed from ripe olives is smooth, mellow and buttery.
substitute olive oil for butter
3. Nutritional Value - vitamins E, K, and A as well as polyphenols, squalene, oleocanthal, triterpenes and hundreds more micronutrients make olive oil a healthy choice. Read more about olive oil nutrients.
4. Oleic Acid - oleic acid (omega 9) makes up 55 - 85 percent of the fatty acids in olive oil. Don't confuse this with the amount of free oleic acid which is the main factor used to determine the grade of the olive oil and the lower the better. It's great for your skin - read about common oils used in soaps and how they can do so much more than just clean your skin at [romancing-the-soap.com](#) Oleic acid aids in keeping our arteries supple and helps prevent cancer.
5. Hydrogenated Oils - olive oil is not hydrogenated oil. Hydrogenation creates dangerous trans-fats found in margarine and many other packaged foods. Please read this page for more information about hydrogenated oil and trans-fats.
6. Heart Health and Cholesterol - extra virgin olive oil is high in polyphenols (a powerful antioxidant) and monounsaturated fat which contributes to lowering bad cholesterol. Read more about this health benefit here.
7. Cancer - researchers at the University of Oxford believe that olive oil may be just as effective in the prevention of colon cancer as fresh fruits and veggies. A diet rich in olive oil has been shown to reduce the incidence of colon., breast and skin cancers.
8. Blood Pressure - Studies now indicate that extra virgin olive oil may help to lower blood pressure. Patients were able to reduce or eliminate the need for medications when olive oil was consumed on a regular basis.
9. Alzheimers - this disease is associated with the clogging of arteries caused by cholesterol and saturated fat. Replacing other fats with olive oil will reduce the risk.
10. Gallstones - Olive oil promotes the secretion of bile and pancreatic hormones naturally and lowers the incidence of gallstones.

There are more olive oil benefits. It's great for skin and hair care, used in natural remedies, and is a more versatile cooking oil than you may think

9 Medicinal use

Olive oil is unlikely to cause allergic reactions, and as such is used in preparations for lipophilic drug ingredients. It does have demulcent properties, and mild laxative properties, acting as a stool softener. It is also used at room temperature as an ear wax softener. Olive Oil is also a potent blocker of intestinal contractions, and can be used to treat excessive Borborygmus.

Oleocanthal from olive oil is a non-selective inhibitor of cyclooxygenase (COX) similar to classical NSAIDs like ibuprofen. It has been suggested that long-term consumption of small quantities of this compound from olive oil may be responsible in part for the low incidence of heart disease associated with a Mediterranean diet.

Olive oil 'acts like painkiller'

Good quality olive oil contains a natural chemical that acts in a similar way to a painkiller, a US study says.

Researchers found 50g of extra-virgin olive oil was equivalent to about a tenth of a dose of ibuprofen.

A Monell Chemical Senses Centre team in Philadelphia said an ingredient in the oil acted as an anti-inflammatory, the Nature journal reported.

The team said while the effect was not strong enough to cure headaches, it may explain the Mediterranean diet benefit. The active ingredient - found in greater concentrations in fresher olives - is called oleocanthal and inhibits the activity of enzymes involved in inflammation in the same way as ibuprofen and other anti-inflammatory drugs.

Inflammation has been linked to a wide range of conditions such as heart disease and cancer.

Report co-author Paul Breslin said: "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 non-steroidal anti-inflammatory drugs, 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."

The team was led to the discovery after one of the researchers noticed that fresh extra-virgin olive oil irritates the back of the throat in a similar way to ibuprofen.

Claire Williamson, a nutrition scientist at the British Nutrition Foundation, said: "Olive oil contains a range of bioactive compounds, but we are not entirely sure what they do.

"We believe it has some antioxidant properties, but to say it mimics a drug is taking it one step further and needs more research."

And she added olive oil was high in fat so should only be taken in moderation.

Personal Care and Other Uses



My search for natural soaps and shampoos is what really sparked my interest in olive oil. I was looking for products that were free of sodium laurel and laureth sulphates, parabens, synthetic thickeners, colours, preservatives and fragrances.

A pinch of rosemary and a drop of essential oil does not make a natural product as the manufacturers would lead you to believe. I was completely unaware that such dangerous chemicals were permitted in the products we use everyday and there just isn't any good reason for it. Sure, there are only small amounts of these synthetic chemicals, but we use those products every day, over and over again and leave them on our skin to be absorbed into our bloodstreams.

There are good quality organic products out there that are no more expensive than department store products. They aren't cheap, but there are simple natural ingredients like olive oil, aloe, shea butter, apple cyder vinegar, etc, that you can use too.

Olive oil is a wonderful addition to many products but I also use it just as it is in my bath, as a deep conditioner and hot oil treatment for my hair and to sooth my dry feet. In these cases, it's not only a healthy choice; it's also less expensive than what you might buy in a salon or drugstore. It's used to kill head lice, soften ear wax and as a personal lubricant. Explore these and other possible uses.

Gifts & Accessories



There are many things you can make with olive oil and give away as gifts. I haven't tried making soap yet, but I plan to and I'll let you know how that goes. I grow my own basil and love pesto. Since most people don't have the time or the inclination, I think it makes a yummy and thoughtful gift. What about infused olive oil in a decorative bottle or a premium extra virgin olive oil instead of a bottle of wine? I have found some absolutely beautiful accessories like hand painted ceramic dispensers, hand blown glass cruets, misters, dipping sets and oil lamps. What Olive Oil enthusiast wouldn't appreciate any one of these items as a gift?

Substitute Olive Oil for Butter

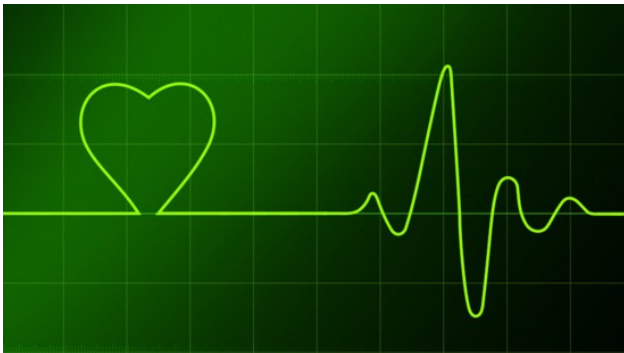


You can substitute olive oil for butter, margarine or other oils in almost any recipe. The basic rule is to use an equal amount of olive oil if the recipe calls for vegetable oil. This chart shows the substitution amounts for butter or margarine in imperial and metric measurements.

Olive oil offers so much more nutrient value with no downside, unlike the alternatives.

Butter	Olive Oil	Butter	Olive Oil
1 teaspoon	$\frac{3}{4}$ teaspoon	5 mls	3 mls
2 teaspoons	1 $\frac{1}{2}$ teaspoons	10 mls	7.5 mls
1 tablespoons	2 $\frac{1}{2}$ teaspoons	15 mls	12.5 mls
2 tablespoons	1 $\frac{1}{2}$ tablespoons	30 mls	22.5 mls
$\frac{1}{4}$ cup	3 tablespoons	60 mls	45 mls
$\frac{1}{3}$ cup	$\frac{1}{4}$ cup	80 mls	60 mls
$\frac{1}{2}$ cup	$\frac{1}{4}$ cup + 2 tablespoons	125 mls	90 mls
$\frac{2}{3}$ cup	$\frac{1}{2}$ cup	160 mls	125 mls
$\frac{3}{4}$ cup	$\frac{1}{2}$ cup + 1 tablespoon	185 mls	140 mls
1 cup	$\frac{3}{4}$ cup	250 mls	175 mls
2 cups	1 $\frac{1}{2}$ cups	500 mls	375 mls

Olive Oil for HDL



What about olive oil for hdl and ldl cholesterol? Olive oil is an excellent choice for cholesterol too. It lowers bad cholesterol (LDL) but doesn't lower good cholesterol (HDL).

Here's how it works. There are two types of cholesterol. The first is HDL (high density lipoprotein) the good cholesterol because it helps clear your arteries. Then there's LDL (low density lipoprotein) the bad cholesterol because it clogs your arteries.

Saturated fats like those found in meat and dairy products increase your bad cholesterol and decrease your good cholesterol. Polyunsaturated fats found in vegetable oils such as corn or soy lower your bad cholesterol, but they also lower your good cholesterol.

Monounsaturated fats found in fish and olive oil don't lower the good cholesterol, but lower the bad cholesterol. Perfect combination! Our bodies need fat, but we can choose healthy fats by eating foods like fish, olive oil, nuts, and avocados.

Finally, I can't call this page finished without addressing hydrogenated oil and trans-fats. Too much saturated fat and cholesterol is not healthy, but at least they're natural and our bodies need them. Hydrogenated oils are full of unnatural trans-fats and in my opinion are the ones that are the most important and tricky to avoid. Please follow this link to my page about hydrogenated oil and trans-fats. You can't afford not to educate yourself about this health hazard.

Dieting with Olive Oil

The idea of dieting with olive oil has gained popularity because of all the media hype in recent years about the Mediterranean diet. As far as fats go, it's an excellent choice because of all the other health benefits it provides. Dieting with olive oil is not the answer to losing weight, but it is a step in the right direction.

Olive oil, like any other edible oil is fat. It has 120 calories per tablespoon just as other oils do. Use virgin olive oil in place of lard, butter and other oils because it has superior flavour, is high in vitamin E, polyphenols, mono-unsaturated fat, and is unrefined.



Olive oil is a big part of it, but the Mediterranean diet consists of twice as much fresh fruit and vegetables, more legumes, nuts, unrefined cereals, and alcohol but less saturated diet page at little-known-food-facts.

Trans-fats - Not even a real fat and the worst fat of all



Hydrogenation is the process of forcing hydrogen gas into the oil at very high temperatures to change the molecular structure and convert safer unsaturated fats into dangerous trans-fats. The new structure is very close to that of plastic. Mmm, sounds yummy. I can't even talk myself into buying products like Cool Whip simply because it says right on the container "An edible oil product" Doesn't sound very inviting to me.

Hydrogenated fats are artificial. They are worse than saturated fat and our bodies don't know what to do with them. They have a double negative effect on cholesterol as they increase LDL (bad cholesterol) and decrease HDL (good

cholesterol). Remember, LDL clogs your arteries while HDL helps to clear them.

Hydrogenated fats are found in many foods. That's why I say it's the most difficult fat to avoid, but it's definitely the most important one to avoid. I used margarine for years and was totally oblivious to the fact that it was harmful to my health.

My motivating factor back then was price and it's so much cheaper than butter. These days, I use olive oil whenever I can, mix it with butter, or just use butter. The thing is, hydrogenated fat (trans-fats or trans-fatty acids) is hidden in a lot of foods and if you're not a label reader, you may be totally unaware of how much you're consuming. If you read through the list of ingredients on a package, you may not see "trans-fat" or "trans-fatty acids" but you may see "hydrogenated" or "partially hydrogenated".

New laws are requiring that the amount of trans-fatty acids be included in the nutrition facts on packaged foods, but be careful here. The USDA allows for a claim of "0 trans fat" if the serving size contains less than .5 grams. Fair enough, but check out the serving size. Some manufacturers will define a very small serving size in order to get away with making that claim. Tricky and underhanded if you ask me, but this is the sort of stuff the consumer is up against.

Trans-fats are found naturally in very small amounts in foods like pomegranates, cabbage, peas, meat, and milk, but these are beneficial to health. The concern is it's use in processed pre-packaged foods including cookies, cakes, crackers, frozen foods, French fries, bread and cooking oils used in restaurants.

Research has linked trans-fats to an increase in coronary heart disease and infertility in women. Other studies show that trans-fats go straight to your middle, another risk factor for heart disease.

Nutritionists at Harvard estimate that replacing partially hydrogenated fats in the American diet with vegetable oils, would prevent at least 30,000 and possibly as many as 100,000 premature coronary deaths a year. That's substantial and enough to make me think twice before I buy a box of snack crackers or use margarine in my favorite cookie recipe.

We lead busy lives, and many of us are just looking for simple, quick, and tasty foods. People trust that regulating authorities won't allow dangerous ingredients or chemicals in consumer products, but they do and it's up to us to be informed and aware so we can make wise and healthy decisions. Stay away from "snack" and "junk" foods and you'll eliminate a lot of trans-fat. Not to mention sodium, preservatives, artificial colors, flavors, etc found in these foods. Is the convenience really worth the long term sacrifice?

Olive Oil Skin Care - Everything You Want and Nothing You Don't

How to use olive oil for skin care...

Each of these uses will become a link to more information as I work my way through them. Check back or subscribe to my blog to keep up to date.

Olive Oil for Dry Skin, body lotion, body wash, moisturizer, body butter, face cream, hand cream, skin cream, bath, beauty and lip balm

olive oil sun protection

olive oil and stretch marks, wrinkles

eczema olive oil

psoriasis olive oil

olive oil facial, facial cleanser,

olive oil spa

ozonized olive oil, ozonated olive oil

olive oil acne treatment

Why use olive oil for skin care?

What you put on your body ends up in your body. That's why I use olive oil for skin care. I've been reading forums and websites to gain a better understanding of what people are looking for in their skin care products and I've made a surprising discovery. The focus is almost always on what is in the product while little attention is given to what isn't in the product.

In my opinion, what isn't on my skin is just as important as what is.

Would you continue using creams, lotions, massage oils, toners, cleansers, masks, etc knowing that some contain chemicals that are known carcinogens? Many contain chemicals that haven't even been tested and are not regulated.

#1 reason I use olive oil skin care is what's not in it. It starts with the extraction process. Olive oil differs from other oils because it is extracted from a fruit, not a grain or seed. That in itself may not seem like such a big deal, but it is. Virgin and extra virgin olive oils are made by mechanical extraction only. Some are filtered to eliminate little bits of olive left, but

the best in my opinion, are not. That's it. Just fruit juice! If you would like to learn more about the different processes used to extract the oil, visit my extraction processes page

Seed and grain oils are more difficult to extract and require the use of heat and chemicals. The oil is then put through a filtering process and by the time it's bottled, well...there really isn't much left of the beneficial nutrients and compounds.

#2 reason I use olive oil skin care because of what is in it. Olive oil is full of nutrients, vitamins, antioxidants, and natural compounds that benefit our bodies inside and out. Some that are especially good for our skin are:

Antioxidants - Olive oil is rich in antioxidants including vitamins A and E, polyphenols, phytosterols and avenasterol. They work to neutralize free radicals and repair cell membranes. A free radical is an unstable molecule created by exposure to things like cigarette smoke, pollution, alcohol and radiation.

Squalene - A natural organic compound used in cosmetics as a moisturizer. It is taken from the liver of sharks, but also found in olive oil - a more environmentally friendly source. Squalene helps to regulate sebum. Sebum is produced by the sebaceous glands in our skin and is secreted through our pores. It forms a coating on the skin that acts as a barrier, inhibits the growth of micro-organisms and lubricates our skin and hair.

Chlorophyll - A photosynthetic pigment found in plants and algae. It is an anti-aging substance that promotes the healing of skin conditions and wounds.

Learn more about the nutrients in olive oil and their benefits on the Olive Oil Nutrients page.

#3 reason I use olive oil skin care - It's cheap! I know, that doesn't sound right. Olive oil is not known as a cheap alternative to other oils for culinary uses, but it is when compared to other skin care products. I don't use gourmet, unfiltered special olive oils at \$35.00 for 500 mls, but I do use a grocery store extra virgin. The amount of money people are willing to part with for beauty products is staggering. Age defying, wrinkle reducing, skin firming, acne fighting, blemish diminishing, along with re-hydrating, moisturizing, exfoliating, cleansing, and the list goes on and on. Most of which are packed full of synthetic chemicals, colours, artificial fragrances etc. etc. I've found that plain old extra virgin olive oil and a few other basic natural ingredients are all I need for my skin care.

Olive Oil for Dry Skin

Olive oil is loaded with skin loving nutrients and is a natural humectant that actually helps attract moisture to your dry skin. Olive oil contains antioxidants, squalene, chlorophyll, vitamin e, vitamin k, phenols, oleocanthal and more. Learn more here. Olive Oil Nutrients Olive Oil Skin Care

My skin is dry. I wouldn't call it severe, although it does get pretty bad sometimes. In the summer I spend a lot of time camping at the lake. We relax on the beach, swim, and do some boating. My skin is exposed to the sun, sand, water, and wind. The shins and calves of my legs are particularly bad because I shave my legs nearly every day during the summer months.

I also suffer from winter itch. About five or six years ago, I began getting these tiny little bumps. First on my upper arms, then on my back below my shoulder blades and the last couple years on my belly. It was terribly itchy especially when I showered and at night. I woke up in the morning sometimes to find I had scratched enough to break the skin and bleed...

My doctor suggested an over the counter cortisone cream. I know using cortisone is not a good thing, you don't want to be using it for an extended period of time, but I was desperate and tried it - no luck! Then the Doc suggested I try Selsun Blue. You know, the shampoo for dandruff. Again, I reluctantly tried it. I was to spread it on the affected area and leave it there! Okay, it smelled very strongly, was blue and full of harmful chemicals. Forget that! I also tried shea butter (I love shea butter, but it didn't work for this)and tea tree oil.

Finally, plain old extra virgin olive oil and guess what? You bet, last year I had hardly an itch - what a relief.

How I use olive oil for dry skin



Every morning after I shower (I use olive oil soap to wash and shave too) but before drying off, I rub olive oil all over my skin. I keep a small container in the shower because the light and heat will diminish its benefits over time. I pour small amounts into the palm of my hand, spread it on my palms and rub it in. It blends with the water left on my skin and spreads more easily and evenly. If I miss a day or two, I really notice a difference. Olive oil has been the best thing for my dry skin.

When I'm camping...there are no showers, but I swim everyday. After my first and last swim of the day, I apply the olive oil just as I would after a shower. I am not using it as a suntan oil or sunscreen. I choose not to use sunscreen for reasons I talk more about on the sun protection page, but I stay in the shade for the most part.

Olive Oil for Frizzy Hair

I found a product that apparently works wonders on frizzy hair. It comes in a 7oz (200g) tube and costs \$26.50 USD. It sounds wonderful, boasts olive oil as an ingredient and must be good stuff for that price. Right? Not likely! I get so angry by manufacturers who divert your attention with a claim like "with pure olive oil" or "with botanical extracts". Give me a break!

Most of these products have all the same regular garbage in them as usual, but since they added a tiny pinch of something that was, at one point, a good thing, they play it up and we (the consumer) fall for it. Have a look at the ingredients in this glossing/de-frizzing product. I don't know about you, but I'm not even going to attempt to pronounce some of them.

Water (Aqua), Dimethicone, Cyclopentasiloxane, Dimethiconol, Propylene Glycol, Polyacrylamide, Olea Europaea (Olive Oil) Fruit Oil, Phenyl Trimethicone, C13-14 Isoparaffin, PEG 8 Methicone, Ricinus Communis (Castor) Seed Oil, Bismuth Oxochloride (CI 77163), Laureth-7, Sodium PCA, Panthenol, Cinnamidopropyltrimethyl Ammonium Chloride, Dimethicone PEG-8, Meadowfoamate, Fragrance/Parfum, Methylisochloroisothiazolinone, Yellow 5 (CI 19140)

The point is, most of the ingredients you see here are synthetic. They make their way into your blood stream and your body doesn't know what to do with them. They build up and may be responsible (at least partly) for cancer and all sorts of health issues. My question is ...why? Why spend the money and expose yourself to this array of chemicals when you could just use olive oil for frizzy hair?

Check out these recipes and methods using all natural, nourishing, and inexpensive olive oil. I don't use it for frizzy hair, my hair is straight and fine, but I do use it to deep condition my hair and control static. Here are a few different methods using olive oil for frizzy hair and all sorts of things.

Control Static and Frizz - Just a few drops of olive oil rubbed into the palms of your hands and then run through your hair. It's that simple and you can apply it when your hair is damp or dry, experiment to find what works best for you.

Condition - I've heard of people using mayonnaise in hair treatments and if you mix egg and olive oil together...you get mayonnaise. The egg provides protein while the olive oil adds a good dose of vitamin E. So here's another way to use olive oil for frizzy hair.

Use a whisk or stick blender to mix 1 egg with 1/2 to 1 cup of olive oil. (depending on how much hair you have) Apply the mayo to your hair, work it in and then cover with an old towel or shower cap and let it sit for 10-30 minutes. Check your e-mail, lay down with some cucumbers or tea bags over your eyes, or pour a cup of tea and read a book. Some of us need a reason like this to force ourselves to relax for a few minutes. If you're one of us, here's your chance - take it. When you're ready, just wash your hair as usual.

Hot Oil Treatment - I give my hair a hot oil treatment once a week or so. Actually, that's wishful thinking - It's more like every two-three weeks. I would like to give my hair a hot oil treatment once a week, but I don't spend my money on packaged treatments. A couple tablespoons of just plain olive oil (extra virgin is all I buy) works fine for me.

All I do is warm two-three tablespoons of olive oil in the microwave for about 15 seconds and then pour it into the palm of my hand and massage it into my hair until it is fairly well saturated. I pay special attention to the ends and rub it into my scalp too. Then, slip on a shower cap to help hold in some heat and let it sit for 30 minutes. I have to wash my hair twice to get the oil out. Even if you don't need to use olive oil for frizzy hair, it makes a good inexpensive deep conditioner.