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Extra Virgin Olive Oil Review

Many Extra Virgin Olive Oils Don't Seem to Make the Grade



Medically reviewed and edited by Tod Cooperman, M.D.

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Watch the video

Summary

- **What does extra virgin olive oil do?** In addition to a pleasurable, pungent taste, extra virgin olive oil has potential health benefits including reduced risk of coronary heart disease, reduced risk of breast and colorectal cancers, and improved blood sugar control (see [What It Does](#)). Some of these benefits are associated with higher amounts of polyphenols in extra virgin olive oils, as well as higher concentrations of oleic acid. (Note: [Olive leaf extracts](#) contain even higher concentrations of polyphenols than olive oil.)
- **How much olive oil should I take?** Health benefits with extra virgin olive oil have been associated with intakes of about 2 to 4 tablespoons per day – particularly when this replaces saturated fats (see [What It Does](#)).
- **Which are the best and worst extra virgin olive oils?** Although all 13 of the popular olive oils selected for review by ConsumerLab.com passed *chemical* testing, analysis of flavor and aroma by an expert olive oil taster raised *questions about the quality of nine products* – grading them as *not* extra virgin, and some even as "lampante," meaning unfit for human consumption (see [What CL Found](#) and [How Products Were Evaluated](#)).

Among those considered "extra virgin," CL selected three as its [Top Picks](#) – one that is mild, one with high polyphenols, and one with very high polyphenols. Use the [Results table](#) to compare the test results (including polyphenol levels, which ranged from 149 mg/kg to 654 mg/kg), in addition to taste descriptions, prices, and other features of products.

- **How to buy, use, and store olive oil?** Buy olive oil in a dark-colored glass bottle to protect it from light (and/or store it in a dark cabinet), and don't worry about the color of the oil – it's [not a reliable indicator](#) of quality or flavor. If cooking with olive oil, limit use to later stages of cooking, keeping heating time to a minimum (see [ConsumerTips™](#)).
- **Safety and side effects of olive oil:** Olive oil is generally safe and well-tolerated, but it may interact with certain medications (see [Concerns and Cautions](#)).



Products tested in 2021 and 2023

Updates

Corrections (3/30/21): The results of the sensory analyses for both the *Goya* and *Trader Joe's* products were originally in reversed order based on the IOC and USDA grading systems. These have been corrected. In addition, the sensory result for the *Carapelli* product based on the USDA grading system was originally incorrectly shown and has been corrected. These corrections did not affect the overall quality status of UNCERTAIN for these products.

North American Olive Oil Association (NAOOA) (3/31/21): The Executive Director of NAOOA, Joseph R. Profaci, emailed us (on 3/29 and 3/30/31) expressing displeasure with our use of sensory evaluations from a single expert as opposed to a panel of experts, as required by the IOC and USDA. The evaluation resulted in a quality status of "UNCERTAIN" for products of three members of the NAOOA — *Colavita*, *Goya*, and *Terra Delyssa*.

We are aware that a panel is required for formal IOC and USDA grading and this was noted in our review, as published. This is why we listed the status for these products as UNCERTAIN. Had the sensory grades given by the single expert been those of a panel, the status for these products would have been NOT APPROVED. As we have noted, the chemical analyses for these products did not indicate a problem, but grading depends on both chemical and sensory analyses.

Mr. Profaci also suggested potential bias on the part of the sensory expert employed in our Review, who is based in California. However, the expert was not provided any information about the identities of the tested products. It is possible that one expert may perceive flavors and aromas somewhat differently from another expert. This same expert conducted the sensory analyses for our 2017 review, in which the *Colavita* product was Approved (no sensory defects) as was also the case for products from *Kirkland* and *Trader Joe's*, none of which was Approved this year. In 2017, sensory defects were also noted for products from *Bertolli* and *Pompeian*, which carried NAOOA certification seals and were not tested in the current Review. Mr. Profaci also suggested that ConsumerLab may have had an "improper motive" in its review, but we are not aware of any and have no relationship with any of the olive oil companies.

Mr. Profaci also informed us that "the sample of Goya that you tested was bottled on 10/29/2020 (hence, lot code 30320). Goya had submitted a sample of that lot to Consejo Superior de Investigaciones Científicas (CSIC) of the Spanish Instituto de la Grasa—an IOC certified panel test—on 10/20/2020. CSIC found no defect, and classified the oil as extra virgin." Mr. Profaci noted that the expert used by ConsumerLab " ...gave this same sample a 3.7 fusty score," adding "It is my understanding that tasters who are not familiar with, or otherwise biased against, the characteristics of Spanish picual often incorrectly consider it to be fusty [i.e., made from fermenting olives]. I checked with Goya and they confirmed that the product was a blend of a few varieties, including picual. Of course, this is precisely the type of bias that would be controlled by a qualified taste panel." [It should be noted that the "sample" tested by Goya in Spain was apparently sent by Goya for testing nine days *before* the product purchased by ConsumerLab was even bottled, let alone shipped to the U.S. retailers.]

Each of the NAOOA members noted in Mr. Profaci's correspondence has requested from us data from the analyses performed for our Review and these are being provided at no cost per our protocol.

Terra Delyssa (4/3/21): Wajih Rekik of CHO America, the importer of Terra Delyssa, emailed us (on 4/1/21), stating "You are classifying Terra Delyssa olive oil as a lower grade of olive oil based solely on the opinion of one random person's taste buds, which are obviously biased."

As noted above and in our report below, the sensory analyses in our Review were not done by a "random person," but by an expert in sensory analysis of olive oil and, while such experts may have different opinions, we are not aware of any "obvious bias."

Mr. Rekik also furnished us with copies of certificates from a laboratory and accredited sensory panel in Tunisia indicating that oil supplied by his company with the same production date as on the Terra Delyssa bottles that we purchased passed testing, without defects, and qualified as extra virgin olive oil. He added that this " ...shows you that it is a superior quality premium Extra virgin oil with a 0.2% Free Fatty Acid. You should not guide your readers into believing that this wonderful Terra Delyssa olive oil does not pass the test and is not what it says it is."

Carapelli (4/9/21): The Communications Director of Deleo, which produces *Carapelli*, emailed us today, providing a copy of a certificate of analysis from its own laboratory in Italy of a sample of olive oil from a lot having the same "Best by" date as on the product tested by ConsumerLab.com. The certificate showed a grade of Extra Virgin and showed that the laboratory is recognized by the International Olive Oil Council for its physico-chemical testing (although there was no indication that it was certified for its sensory testing). The certificate included a section showing sensory testing using an "internal method" showing no defects (in contrast to our sensory score of 2.5 for rancidity).

The email also noted errors that had appeared for *Carapelli* in the [Results table](#) of our report when initially published but were corrected on 3/30 (as noted above) and did not affect the product's overall status. The same corrections were made today to the [What CL Found](#) section, namely that the rancidity score was 2.5 (rather than 0.9, as originally reported) and there was no fustiness (originally reported as 1.7).

What It Is:

"Virgin" olive oil is oil that has been removed from the olive only by mechanical (e.g., pressing or crushing) or other physical means (e.g., heating) that do not lead to alterations in the oil. "Extra virgin" olive oil (which we refer to in this report as EVOO) is a virgin olive oil that, according to [USDA standards](#), "has excellent flavor and odor" (i.e., zero defects and some fruitiness), while "virgin" olive oil is permitted some sensory defects as well as a higher level of acidity (free fatty acids). Both must meet similar chemical requirements indicating the olive oil has not been adulterated with other oils, been misprocessed, and is not spoiled (see [Quality Concerns and What CL Tested For](#)).

Olive oil is 98% to 99% monosaturated fats. It also includes a small amount of polyphenols, the majority of which is hydroxytyrosol, which acts as an antioxidant ([Ikonomidis, Eur J Clin Invest 2023](#)). However, the main polyphenols that seem to cause the characteristic pungency and bitter taste of extra virgin olive oils are oleuropein and ligistroside ([Gutierrez-Rosales, J Agric Food Chem 2003](#)). Extra virgin oils generally contain the highest concentrations of polyphenols — about 100 mg/kg (Note: mg/kg = ppm) to as much as 500 mg/kg ([Romero, J. Agric Food Chem 2012](#), [Garcia, Eur Food Res Technol 2003](#)), although oils with levels of about 400 mg/kg or higher may be very bitter ([Agbiolab](#)). (Note: Higher concentrations of polyphenols are found in [olive leaf extract](#) than in olive oil, with the major polyphenol being oleuropein.)

What It Does:

Olive oil is high in monounsaturated "healthy" fats (due to its high concentration of oleic acid) and, depending on the oil, may be rich in antioxidant polyphenols. When used as a replacement for saturated fat, olive oil has been associated with lower blood pressure, lower total and LDL ("bad") cholesterol, and lower risk of cardiovascular disease and cardiovascular death. Olive oil consumption has also been linked with a lower risk of certain types of cancer and cancer-related death, and lower risk of death from neurodegenerative diseases such as Alzheimer's and Parkinson's disease. It may help to improve insulin and blood sugar control in some people and is associated with a lower risk of developing type 2 diabetes. However, be aware that many of these benefits have been shown in observational studies, that, alone, do not prove cause and effect.

Mortality

An analysis of data from two large, long-term studies that followed a total of 92,000 men and women in the U.S. for 28 years found that consuming at least ½ tablespoon (7 grams) of olive oil per day was associated with a 19% lower risk of cardiovascular death, 17% lower risk of death from cancer, 29% lower risk of death from neurodegenerative diseases such as Alzheimer's and Parkinson's disease, and an 18% lower risk of death from respiratory disease, compared to no consumption or rare consumption of olive oil. The researchers estimated that each 10 grams of margarine, butter, mayonnaise or dairy fat that was replaced each day with an equivalent amount of olive oil was associated with a 13% to 20% lower risk of death from any cause — although a similar benefit was seen when replacing these fats with other oils (corn, safflower, soybean and canola) ([Guasch-Ferre, J Am Coll Cardiol 2022](#)).

Cardiovascular Disease

Limited research suggests *replacing* some saturated fat in the diet with olive oil may help lower risk factors for heart disease, such as high blood pressure and high total and LDL ("bad") cholesterol. Consuming olive oil as part of a Mediterranean diet may also help slow the progression of atherosclerosis, according to some research. The FDA allows pure olive oil products to claim:

"Limited and not conclusive scientific evidence suggests that eating about 2 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" ([FDA 2004](#)).

A 3-month study in which extra virgin olive oil (25 mL, or about 5 teaspoonfuls, per day) was substituted for other cooking oils in a typical American diet in obese older adults in Boston found that it **reduced blood pressure** (systolic blood pressure decreased 6 mmHg on average) and tended to **increase HDL "good" cholesterol**. In addition, increased oleic acid levels in the blood were found to be associated with increases in IL-2 production (suggesting improved immune function, although not an anti-inflammatory effect) ([Rozati, Nutr Metab \(Lond\) 2015](#)).

A study in Canada among 14 people with elevated levels of triglycerides and reduced levels of HDL cholesterol (atherogenic dyslipidemia) showed that replacing about 20.5 grams per day of saturated fatty acids with monounsaturated fatty acids from olive oil (the amount in about 6½ teaspoons) for 4 weeks lead to a 7% reduction in LDL ("bad") cholesterol and a similar decrease in a component of LDL called apoB-100, which is important because high levels of apoB more accurately predict increased risk of heart attack than high LDL or total cholesterol — the deposit of apoB into the inner-side of arteries is the fundamental cause of atherosclerosis ([Sniderman, JAMA Cardiol 2022](#); [Marston, JAMA Cardiol 2022](#)). The study showed that when olive oil replaced saturated fats in the diet, there was increased clearance of apoB from the blood ([Desjardins, Am J Clin Nutr 2024](#)).

Be aware that high intake of olive oil may be worse than no olive oil intake. A study in the U.S. among 40 people (average age 64) at risk for atherosclerosis (buildup of plaque in and on the walls of the arteries) showed that *cutting back* on dietary intake of extra virgin olive oil (i.e., limiting daily intake to less than one teaspoon [5 mL] daily) while following a strict whole food, plant-based diet (i.e., no animal products and increased whole fruits, vegetables, legumes, whole grains, and nuts/seeds) improved cholesterol levels *more* than consuming the same diet with 4 tablespoons (about 59 mL) of extra virgin olive oil daily — although both groups benefited from the diet. Compared to high olive oil consumption, low consumption led to greater reductions in total cholesterol (-33.9 vs. -19.0 mg/dL) and LDL cholesterol (-25.5 vs. -16.7 mg/dL), a greater increase in HDL cholesterol (10.5 vs. -5.0 mg/dL), and a tendency toward decreased apolipoprotein B (-14.8 vs. -5.5 mg/dL) — a marker of cardiovascular disease risk. However, it must be noted that dietary fat intake among those consuming less extra virgin olive oil was primarily in the form of plant-based fats such as avocados, nuts, seeds, and olives, which contain dietary fiber and phytochemicals that might have contributed to improvements in heart-related biomarkers ([Krenek, J Am Heart Assoc 2024](#)).

Several observational studies have linked olive oil use with lower risk of cardiovascular disease. Consuming at least ½ tablespoon (7 grams) of olive oil per day has been associated with a 19% lower risk of death from cardiovascular disease ([Guasch-Ferre, J Am Coll Cardiol 2022](#)). Another study found that the risk of **heart attack** in men and women was 82% lower for those who regularly consumed

about 4 tablespoons of olive oil per day, compared to those who consumed less than a half tablespoon per day ([Fernandez-Jarne Int J Epidemiol 2002](#)).

A third observational study, which followed over 2,000 Greek men and women (average age 50) without pre-existing cardiovascular disease for an average of eight years, found that those who reported exclusively using olive oil as the source of fat/oil in their diets at the beginning of the study had a 93% lower risk of having a cardiovascular disease event during the study compared to those who did not consume any olive oil. There was no risk reduction among those using a mixture of olive and other oils ([Kouli, Eur J Nutr 2017](#)).

A large study of men and women at high risk for cardiovascular disease who were intensively counseled on how to follow a **Mediterranean diet** found a 30% lower risk of heart attack, stroke or dying of heart disease after five years among those given extra virgin olive oil (about 4 tablespoons per day) or mixed nuts (about 30 grams per day) compared to a control group similarly counseled to follow a Mediterranean diet but discouraged from consuming more than 2 tablespoons of olive oil per day. It should be noted, however, that those given olive oil or nuts were more likely to stick to the Mediterranean diet and to increase consumption of fish and legumes, and the results may speak more to the benefits of following a Mediterranean diet than supplementing with olive oil or nuts ([Estruch, N Engl J Med 2013](#)). This study was retracted due to a sampling error but when reanalyzed and republished, the main conclusions remained the same ([Estruch, N Engl J Med 2018](#)).

Long-term consumption of a Mediterranean diet that included at least 4 tablespoons of extra virgin olive oil per day decreased the progression of **atherosclerosis** in men and women (average age 60) with coronary heart disease, according to a 7-year study in Spain. Among the participants who consumed a Mediterranean diet, there was a modest, but statistically significant decrease in the *thickness* of plaque build-up in the carotid arteries (a predictor of heart attack and stroke), while those who consumed a traditional low-fat diet (less than 2 tablespoons of oil per day, non-oily fish, complex carbohydrates, and low-fat dairy products) had no decrease in the thickness of plaque build-up. However, neither diet decreased the *number* of carotid plaques. Guidelines for the Mediterranean diet included a daily intake of 35% fat, 22% monounsaturated fatty acids, and <50% carbohydrates, and for the low-fat diet, 28% fat, 12% monounsaturated fatty acids, and >55% carbohydrates ([Jimenez-Torres, Stroke 2021](#)).

A small, 6-month study among men and women with mild to moderate high blood pressure found that those who consumed several tablespoons of olive oil (4 tablespoons for men, 3 tablespoons for women) and slightly reduced their intake of saturated fat were able to reduce their dosage of blood pressure lowering medication by 48% compared to those who instead, consumed safflower oil ([Ferrara, JAMA Int Med 2000](#)).

Research suggests that a moderate amount of olive oil containing *higher amounts of antioxidant polyphenols* may be more effective in improving **cholesterol levels** than olive oil with lower amounts of polyphenols – although the effects are modest. An analysis of 26 clinical trials conducted in Europe, Greece and Jordan found that, compared to consuming olive oil low in polyphenols (0 mg/kg to 132 mg/kg), consuming olive oil with moderate to higher amounts of polyphenols (150 mg/kg to 800 mg/kg) decreased average total cholesterol and "bad" oxidized LDL cholesterol by 4.47 mg/dL and 0.44 mmol/L, respectively, and increased average "good" HDL cholesterol by 2.27 mg/dL. There was no effect on triglycerides or overall LDL cholesterol. In the studies, which lasted three weeks to three months, the most common daily dose of olive oil was 25 mL (a little less than two tablespoons); about half the participants were healthy, while the other half included individuals at increased risk of heart disease ([George, Crit Rev Food Sci Nutr 2018](#)). However, a subsequent study in Australia in which 43 healthy adults added to their diets very large amounts of olive oil (60 mL – about ¼ cup) daily that was either high or low in polyphenols (320 mg/kg or 86 mg/kg) for three weeks, showed that both oils slightly increased HDL cholesterol but not the capacity to clear cholesterol from the blood (HDL cholesterol efflux), and the higher polyphenol oil slightly *increased* LDL cholesterol, which is not considered desirable ([Sarapis, Brit J Nutr 2022](#)). Moreover, in 2025, the European Food Safety Authority (EFSA) concluded that there is insufficient evidence to prove that olive oil polyphenols help to maintain normal HDL cholesterol levels, citing mixed results from studies and lack of a known mechanism. The EFSA also noted that, even if consumed regularly, it's not clear if any beneficial effects of olive oil consumption on HDL levels would be sustained over longer periods of time (> 8 weeks) ([EFSA 2025](#)).

One of the polyphenols in olive oil is **hydroxytyrosol**, which is known to reduce LDL oxidation and may help prevent the progression of atherosclerosis. According to the EFSA, a minimum of 5 mg of hydroxytyrosol daily can protect LDL particles from oxidation, although, as noted above, the agency has not found sufficient evidence to show that this can help maintain normal HDL levels or normal blood pressure ([EFSA Journal 2011](#); [EFSA 2025](#)). A clinical study in Greece in which 30 people (mostly men) with coronary artery disease were given two capsules (Olivomed from Intermed, Greece) providing a total of 5 mg of hydroxytyrosol in 0.825 grams of olive oil twice daily for one month suggested that this may improve aspects of arterial function, although the study *failed to indicate if any changes were statistically significant* compared to placebo capsules containing only olive oil and there was no effect of the treatment on blood pressure. The study was originally planned to run for 3 months, but was inexplicably shortened to one month ([Ikonomidis, Eur J Clin Invest 2023](#)). (ConsumerLab reached out to the lead investigator for an explanation but received no response.)

Weight Loss

Substituting extra virgin olive oil for soybean oil while dieting resulted in greater losses of fat in a study of overweight and obese women in their late 20s in Brazil. The women consumed an energy-restricted (reduced calorie) but normal fat diet that included a milk-based breakfast drink containing either 25 mL (about 2 tablespoons) of soybean oil or extra virgin olive oil. After nine weeks, women in the olive oil group had lost significantly more fat than those in the soybean oil group (5.3 lbs vs. 2.9 lbs). The olive oil group also lost more total weight than the soybean oil group (6.1 lbs vs. 3.7 lbs), but this difference was not statistically significant. Systolic blood pressure decreased by nearly 4 mmHg in both groups but diastolic blood pressure decreased only in the olive oil group (by 5 mmHg). ([Candido, Eur J Nutr 2017](#)).

Consuming olive oil as part of a Mediterranean diet or in place of other oils, such as canola or sunflower oil, has been linked with a modest decrease in body mass index (BMI), but not waist circumference, among people with fatty liver disease ([Tsamos, Nutrients 2024](#)) (see [Fatty Liver Disease](#) below).

Keep in mind that, just like any "healthy" oil, olive oil is a fat and will contribute to total calorie intake. Consequently, it is best to include it in moderation as a *replacement* for less healthy fats, but not *in addition* to normal fat intake or taken as a "supplement." In fact, a study in mice found that a high-fat diet high in oleic acid (a key fatty acid in olive oil) stimulated an increase in cells that produce fat cells (adipocytes), with oleic acid shown to be the molecular "signal" that triggered this increase ([Wing, Cell Rep 2025](#)).

Insulin Control and Blood Sugar

When used to replace saturated fat, consuming modest amounts of extra virgin olive oil – about 1 to 2 tablespoons daily with meals may improve insulin sensitivity and better regulate blood sugar in healthy adults. Olive oil in the diet may also help prevent the development of type 2 diabetes and improve blood sugar control in people with type 1 and type 2 diabetes.

Compared to saturated fats, oleic acid (in which olive oil is rich) seems to **improve insulin sensitivity** and lower blood sugar levels in healthy people and in those with high triglyceride levels ([Bermudez, Food Funct 2014](#)).

A small study suggested that extra virgin olive oil may help regulate blood sugar levels, in part, by influencing hormones that affect insulin secretion and hunger, after eating. The study showed that levels of insulin and glucagon-like peptide-1 (GLP-1, a hormone that helps control blood sugar by enhancing insulin secretion and satiety) were higher at 30 minutes and 15 minutes, respectively, after consuming bread (2 oz) with 1 ¾ tablespoons of extra virgin olive oil rather than with the same amount of regular olive oil or sunflower oil. Extra virgin olive oil also led to lower triglyceride levels, and lower levels of ghrelin (a hormone that stimulates hunger) three hours after eating, compared to the other two oils ([Garcia-Serrano, Mol Nutr Food Res 2021](#)).

Pre-diabetes

A study among 7 people with **pre-diabetes** found that including 10 grams (3/4 tablespoon) of extra virgin olive oil in a meal resulted, two hours later, in blood sugar levels rising less than half as much as when a similar meal was consumed that didn't include olive oil; in addition, insulin levels rose about twice as much and triglycerides remained stable rather than rising. The researchers noted that adding a small amount of extra virgin olive oil to a meal "may represent a simple, cheap, and safe approach to limit the deleterious effects of post-prandial hyperglycemia and hyperlipidemia in patients with impaired fasting glucose" ([Carnevale, Clin Nutr 2017](#)).

A review of 33 observational studies and clinical trials among adults in the U.S, Europe, Australia and Asia found that consuming between 15 to 20 grams (about 1 ½ to 2 tablespoons) daily of olive oil (all types, including extra virgin) reduced the risk of developing **type 2 diabetes** by 13%. Consuming more did not further reduce the risk. In addition, among people who already had type 2 diabetes, consuming olive oil was associated with decreases in fasting blood sugar (average decrease -0.44 mmol/L) and HbA1c when compared to the effects of low-fat diets, although it was no better than consuming fish oil or diets rich in polyunsaturated fats such as safflower, sunflower, or soybean oil ([Schwingshackl, Nutr Diabetes 2017](#)).

As [discussed below](#), a study among obese men and women with pre-diabetes suggests that consuming extra virgin olive oil high in polyphenols – particularly oleocanthal – in place of other fats might promote greater decreases in blood sugar levels than regular olive oil, but differences between groups did not reach statistical significance ([Ruiz-Garcia, Clin Nutr 2023](#)).

Diabetes

Regular consumption of extra virgin olive oil may delay the initiation of the first glucose-lowering medication in people with type 2 diabetes: An analysis of over 3,000 men and women with type 2 diabetes, who, as part of a larger study, consumed either a Mediterranean diet enriched with extra virgin olive oil (4 tablespoons per day) or mixed nuts, or a traditional low-fat diet (i.e., slightly lower in fat and calories, but higher in carbohydrates) found that after about three years, those who were advised to consume the extra virgin olive oil were 22% less likely to have started glucose-lowering medication (oral or injectable), and after five years, were 11% less likely to have started insulin treatment, compared to those who consumed the traditional low-fat diet. The Mediterranean diet enriched with mixed nuts did not significantly delay the initiation of medications compared to the low-fat diet ([Basterra-Gortari, Diabetes Care 2019](#)).

Beneficial effects of olive oil on blood sugar have also been shown in people with **type 1 diabetes**. A study among 13 men and women with type 1 diabetes on insulin pumps found that adding 37 grams (about 2.75 tablespoons) of extra virgin olive oil to a high-glycemic meal (including white rice and white bread) resulted, over the next 3 hours, in blood glucose levels which were just half that which occurred when butter was substituted for the olive oil. Interestingly, reducing the amount of extra virgin olive oil to just 10 grams resulted in a similar blood glucose level as found with the butter – although, over the next few hours, glucose levels returned to pre-meal levels, while they remained elevated in the group which consumed butter. There was no significant benefit with olive oil when the experiment was done with a low-glycemic meal ([Bozzetto, Diabetes Care 2016](#)).

Acid reflux

Consuming a small amount of olive oil *after* meals *might* reduce symptoms of acid reflux in some people, although the evidence for this is limited, with no placebo-controlled studies. It was reported that 7 adults with severe *bile* reflux (in which stomach acid and contents from the upper intestine flow back up through the stomach into the esophagus) after gastrectomy (removal of part or all of the stomach) experienced greatly reduced symptoms (e.g., burning and vomiting) when taking a tablespoon of olive oil *after* meals ([Karamanolis, Eur J Gastroenterol Hepatol 2006](#)). Keep in mind that people with reflux symptoms are generally advised to limit dietary fat intake, as high fat intake has been linked with exacerbation of symptoms, although this appears to mainly be related to intake of *saturated* fat ([Hungin, Eur J Gastroenterol Hepatol 2024](#)).

Fatty liver disease

Consuming olive oil in place of other oils may reduce the risk of developing **metabolic dysfunction-associated steatotic liver disease (MASLD)**, formerly called nonalcoholic fatty liver disease (NAFLD). An analysis of a subset of 100 people from a larger study among men and women with type 2 diabetes ([Basterra-Gortari, Diabetes Care 2019](#) – [discussed above](#)) found that, over three years, those who consumed a Mediterranean diet enriched with extra virgin olive oil-enriched (4 tablespoons per day) had a much lower incidence of fatty liver disease (8.8%) compared to those consumed the Mediterranean diet with mixed nuts or a traditional low-fat diet (33.3% incidence in each group). The researchers suggested the lower incidence of MASLD may be related to improved insulin sensitivity with extra virgin olive oil consumption, as found in the larger study ([Pinto, J Nutr 2019](#)).

In addition, olive oil may help with weight loss in people with MASLD. An analysis of seven randomized controlled trials (lasting from 2 to 5 months) among people with MASLD (with or without diabetes) found that consuming olive oil (up to about 20 grams — or about 1 1/2 tablespoons — per day) as part of a Mediterranean diet or in place of other oils, such as canola or sunflower oil, modestly reduced body mass index by about 0.57 kg/m² compared to control groups. However, consuming olive oil in place of other oils did not reduce waist circumference or a decrease liver enzyme levels alanine transaminase (ALT) or aspartate transaminase (AST) ([Tsamos, Nutrients 2024](#)).

Risk of Bone Fracture

An analysis among older men and women (ages 55 to 80) in Spain with a high risk for cardiovascular disease who, as part of a larger study consumed either a Mediterranean diet enriched with olive oil or mixed nuts, or a traditional low-fat diet found that, during the 5-year study and a 9-year follow-up period, those who consumed the most extra virgin olive oil (about 4 tablespoons per day) had a 51% lower risk of osteoporosis-related fractures compared to those who consumed the least extra virgin olive oil (about 1.5 tablespoons per day) after adjusting for potential confounders ([Garcia-Gavilan, Clin Nutr 2017](#)). No reduction of fracture risk was associated with other types of olive oil (refined or pomace), leading the researchers to suggest the benefit may be related to the higher polyphenol content of extra virgin olive oil.

Pain and Inflammation

Freshly pressed extra virgin olive oil contains a compound called oleocanthal, which has been shown in laboratory experiments to have an anti-inflammatory effect similar to ibuprofen, through the inhibition of Cox-1 and Cox-2 enzymes ([Beauchamp, Nature 2005](#)). However, because the amount of oleocanthal in olive oil is quite small, it would be difficult to consume enough extra virgin olive oil to provide similar pain relief. In fact, it has been calculated that even 3 1/2 tablespoons of extra virgin olive oil might only have 10% of the effect of a normal dose of ibuprofen ([Parkinson, Int J Mol Sci 2014](#)).

A study in Spain among 91 obese men and women (average age 55) with pre-diabetes showed that replacing regularly consumed fats and oils in the diet with a high-polyphenol extra virgin olive oil particularly high in oleocanthal (total polyphenols 508 mg/kg and oleocanthal 328 mg/kg) for one month significantly decreased some (but not all) blood markers of inflammation (IFN- γ and CXCL1) and improved total antioxidant status (as measured by blood levels of glutathione reductase — an enzyme that helps protect against oxidation — and other protective compounds) compared to regular olive oil (a blend of refined olive and virgin olive oil containing a total polyphenols 77 mg/kg and oleocanthal 43 mg/kg), but the study did not evaluate effects on physical symptoms of inflammation, such as joint or muscle pain. Participants who consumed the extra virgin olive oil also had slightly greater decreases in body weight (average decrease 2 lbs. vs 1.4 lbs.) and fasting blood sugar levels (average — 3.69 mg/dL vs — 2.05 mg/dL) than those who consumed regular olive oil, although the difference between groups did not reach statistical significance ([Ruiz-Garcia, Clin Nutr 2023](#)).

Depression

A study among 56 men and women (average age 40) diagnosed with major depression (most of whom were receiving therapy and/or anti-depressant medication) who had a poor-quality diet (low in dietary fiber, lean meats, fruits and vegetables and high intake of sweets) investigated the effects of a Mediterranean diet with olive oil on depression. It found that, compared to a control group who participated in a weekly social support group but maintained their typical poor-quality diet, those who consumed a Mediterranean diet (whole grains, lean meats, eggs, fruits, nuts and vegetables + 3 tablespoons of olive oil per day) for three months had significant decreases in self-reported symptoms of depression. After three months, 32% of those who consumed the Mediterranean diet no longer met the criteria for depression (average 11-point decrease in depression symptoms), while just 8% of those in the control group experienced remission (average 4-point decrease in depression symptoms) ([Jacka, BMC Medicine 2017](#)).

Cancer

Some, but not all, observational studies have found an association between olive oil consumption and lower risk of certain cancers. However, more research is needed to distinguish between the benefits of olive oil, types of olive oils, and those of a Mediterranean diet that incorporates olive oil.

As discussed above, an analysis of data from two large, long-term studies that followed a total of 92,000 men and women in the U.S. for 28 years found that consuming at least ½ tablespoon (7 grams) of olive oil per day was associated with a 17% lower risk of death from cancer ([Guasch-Ferre, J Am Coll Cardiol 2022](#)).

A study of postmenopausal women in Spain found that eating a Mediterranean diet supplemented with olive oil (extra virgin; 1 liter per week for each woman and her family) for about 5 years was associated with a relatively lower risk of **breast cancer** (1.1 cases per thousand women) in comparison to women who only advised to follow a low-fat diet (2.9 cases per thousand). Eating a Mediterranean diet supplemented with mixed nuts (30 grams per day) also showed some risk reduction (1.8 cases per thousand women), but, unlike with olive oil, this was not statistically significant ([Toledo, JAMA Int Med 2015](#)).

However, a review of 10 observational studies among 81,436 women (ages 18 to 85) conducted in European and Middle Eastern countries, including the previous study and two others that specifically looked at risk in postmenopausal women, found *no* significant association between olive oil intake (ranging from no olive oil to about 3 tablespoons per day) and breast cancer risk. The authors suggested that more research is needed to distinguish between the effects of olive oil alone and diets that incorporate olive oil that feature other foods that may influence breast cancer risk (such as higher intakes of fruit and vegetables in the Mediterranean diet) as well as studies that evaluate factors such as the type of olive oil consumed and cooking method ([Sealy, Brit J Nutr 2020](#)).

A study in Spain found that close adherence to a Mediterranean diet consisting of olive oil, fruits, vegetables, fish and legumes (beans) was associated with approximately a one-third lower risk of aggressive **prostate cancer** than poor adherence to such a diet. There was no such risk reduction with close adherence to either a "Prudent" diet high in vegetables, fruits, low-fat dairy products, whole grains, and juices, or a "Western" diet high in red or processed meats, energy dense (high calorie) foods, and sometimes elevated intakes of eggs and refined grains ([Castello, J Urol 2017](#)).

Observational studies have also found an association between higher olive oil intake and a reduced risk of **colorectal cancer**; it has been proposed that olive oil might slow the process of healthy intestinal tissue from becoming cancerous, although this remains only a theory ([Stoneham, J Epidemiol Community Health 2000](#); [Pampaloni, Nutr Cancer 2014](#); [Braga, Cancer 1998](#)).

Testosterone

Laboratory evidence suggests olive oil may increase testosterone levels by influencing enzymes involved in testosterone production ([Hurtado de Catalfo, Lipids 2009](#)). One small study in young men in Morocco found that 25 mL (a little less than 2 tablespoons) of extra virgin olive oil increased blood levels of testosterone by about 17% in healthy young men when consumed daily for three weeks. However, the study lacked a placebo control and, for two weeks prior to being given olive oil, the men had, instead, consumed butter daily ([Derouiche, Nat Prod Commun 2013](#)).

Memory

Although limited benefits of olive oil on memory and brain function in mildly cognitively impaired adults have been suggested by results of some studies, no significant benefit has been shown, let alone proven, and a high phenolic content of the oil does not seem to help.

A study (funded by an olive oil company) in Greece among 50 older people (average age 70) with **mild cognitive impairment (MCI)** found that taking 50 mL (about 3 ½ tablespoons) of extra virgin olive oil with medium phenolic content (271 mg/kg – similar to many products [in this Review](#)) daily while on a Mediterranean diet (which includes olive oil) for 12 months reduced scores on a measure of cognitive impairment by 5 points out of 70 compared to only 0.3 point decrease among those only following a Mediterranean diet. Some of the participants used a higher phenolic oil (975 mg/kg) but experienced a smaller though still significant reduction in their impairment scores (3 points). However, neither group showed a clinically meaningful change in Mini-Mental State Examination (MMSE) score, a test used to assess general cognitive function, compared to baseline or the control group. Interestingly, most of the people in the olive oil groups were carriers of the APOE4 gene, a risk factor for Alzheimer's disease ([Tsolaki, J Alzheimers Dis 2020](#)). Additional analyses (funded by the same olive oil company) of data from the above study showed that those who consumed the olive oil had

significant decreases in blood markers of Alzheimer's disease risk (including amyloid-beta proteins, tau, and p-tau) down to levels approaching those in non-cognitively impaired adults. These reductions were not found among those only on the Mediterranean diet ([Tzekaki, Exp Gerontol 2021](#)).

Interestingly, a study (*not* funded by an olive oil company) conducted in New York among 25 older people (average age 67) with mild cognitive impairment showed that taking 30 mL (about 2 tablespoons) of extra virgin olive oil with high phenolic content (*The Governor Extra Virgin Olive Oil*, standardized to 1,200 mg/kg of total polyphenols including 621 mg/kg of oleocanthal and 344 mg/kg of oleacein) daily as a "drink" or with food for 6 months did *not* significantly improve most measures of cognitive function compared to taking the same dose of refined olive oil containing no polyphenols (*Bertolli Extra Light Olive Oil*), although both groups showed improvements in certain measures of memory and learning compared to baseline. The researchers speculated that any cognitive benefits of olive oil may relate to its monounsaturated fat content, which is present in both extra virgin olive oil and refined olive oil, rather than phenolic compounds found in extra virgin olive oil. Neither group showed significant improvements in blood markers of Alzheimer's disease but, based on brain imaging, the group receiving extra virgin olive oil did show improved blood-brain barrier integrity and functional connectivity (how well regions of the brain interact with each other) compared to those receiving refined olive oil ([Kaddoumi, Nutrients 2022](#)).

Quality Concerns and Tests Performed:

Although the USDA has established [standards](#) for EVOO and maintains a voluntary [Quality Monitoring Program](#) in which manufacturers pay a fee to have their products evaluated, no U.S. government agency is responsible for routinely testing EVOO products, and there have been reports that some products are "fake" or adulterated with other types of oils ([Vietina, Food Chem 2013](#); "[Agromafia](#)", [CBS 60 Minutes 2016](#)). A 2010 study of nineteen extra virgin olive oil brands by researchers at the University of California, Davis (UC Davis) found that 69% of imported samples and 10% of California samples tested failed to meet sensory standards set by the International Olive Council (IOC) and the United States Department of Agriculture (USDA) ([Frankel, UC Davis Olive Center 2010](#)). Sensory defects, such as a rancid taste or musty odor, can sometimes indicate oxidation or poor-quality oils. Among the oil samples with sensory defects, chemical analyses confirmed that 86% had chemical characteristics indicative of poor quality.

Sensory testing can pick up defects not detected with chemical testing. For example, chemical peroxide levels are an indicator of early stages of oxidation but are not a particularly good indicator of rancidity at the time of use, as peroxide levels can increase and then decrease over time, resulting in the generation of other compounds that indicate decomposition (and can affect flavor and aroma) but don't affect peroxide levels. This is one of several reasons the grading of olive oils is based upon both chemical and sensory tests and one set of tests does not trump the other ([Pignitter, J Food Drug Analys 2012](#)).

Although adulteration with cheaper oils such as cottonseed, soybean or sunflower has been a concern, the UC Davis researchers concluded that any adulteration detected was probably due to the addition of cheaper, lower-grade olive oil (which is often heat-treated or processed in ways not compliant with extra virgin olive oil standards).

ConsumerLab.com evaluated EVOO products both chemically and from a sensory perspective.

Chemical testing:

Chemically, products were tested by an independent laboratory blinded to product identity for the following:

- [Free Acidity \(Free Fatty Acid Content\)](#) – This is a measure of the quality of the oil, reflecting the quality of the olives used and the care taken in producing the oil. Free fatty acids should constitute no more than 0.8% of the oil (for "virgin" olive oil, the limit is 2.0%).

- **Purity (Fatty Acid Composition)** – Fatty acids are the molecular components of oil. Basic percentages of fatty acid types are expected within a certain range for olive oil, distinguishing it from seed oils that should not be present.
- **Rancidity (Peroxide Value)** – A rough indicator of the amount of primary oxidation of olive oil expressed as milliequivalents of active oxygen per kilogram of oil. The Peroxide Value must be no more than 20. A high value indicates that the olive fruit or paste was not handled properly. Olive oil with a high peroxide value may not keep well.
- **Absorbency in Ultraviolet (UV)** – Based on the absorption of two wavelengths of light to detect the formation of chemical bonds in the oil, this provides information about the quantity of oxidized oils in the product, indicating the quality of the oil, state of preservation, and changes brought about through processing. The result is expressed as "delta K," which must be no more than 0.01, and absorbency at 270 nm must be no more than 0.22 (for "virgin" olive oil the limit is 0.25).

In addition, although not a USDA requirement, ConsumerLab.com determined the total **polyphenols** in each product due to its possible association with cardiovascular benefits. Polyphenols are a key antioxidant component of olive oil and results are expressed as milligram equivalent of gallic or caffeic acid per kilogram of oil (mg/kg). However, polyphenol content is not typically listed on labels, which is why ConsumerLab.com determined the amount in each product, as listed in the [Results Table](#) below. All products were tested using a common method known as the Folin-Ciocalteu (FC) assay, and products tested in 2023 were additionally tested with an HPLC assay, which can measure specific polyphenols, such as hydroxytyrosol, and typically produces higher total polyphenol values. For ease of comparison of polyphenol levels across products, we focus in this Review on results from the FC method. Extra virgin oils usually contain the highest levels of polyphenols, and generally, the more polyphenols an oil contains, the more bitter and "pungent" it will be ([Garcia, Eur Food Res Technol 2003](#); [Agbiolab website](#)).

The specific flavor attributes of olive oils relate to the types of polyphenols in the oils. For example, astringency (i.e., drying sensation) of olive oil is caused by tannins ([Quintero-Florez, Eur J Lipid Sci Technol 2015](#)); bitterness is due to oleuropeins and ligstrosides ([Gutierrez-Rosales, J Agric Food Chem 2003](#)); and pungency is related to the concentration of oleocanthal, a specific ligstroside ([Peyrot des Gachons, J Neurosci 2011](#)).

If the label lists the variety of olives used, it may be helpful to know that Cornicabra, Coratina, Moraiolo and Koroneiki varieties tend to have a high polyphenol content, while varieties known to have lower polyphenol content include Arbequina, Picudo, Sevillano and Taggiasca – although levels can be affected by agricultural practices, harvest time (polyphenols decrease with ripeness), and storage time ([Agbiolab website](#)).

Pesticide residues on olives used for olive oil production and in samples of olive oils have generally been found to be relatively low ([EFSA 2021](#)). Testing of popular extra virgin olive oil sold in supermarkets in Italy (some of which are sold abroad) and by local producers in 2022 found detectible pesticide residue in only 7 of 35 samples, none of which were considered high enough to pose a health risk ([Schiano, Food Chem 2024](#)). Due to the low risk, ConsumerLab did not test olive oils for pesticides and most olive oil quality certification programs do not test for pesticides (see [ConsumerTips](#)).

Phthalates (plasticizer chemicals) were found in many popular extra virgin olive oils purchased in the U.S. in a study in 2024 by the website [Mamavation](#). However, levels were very low. Among 13 extra virgin olive oils purchased by Mamavation between 2023 and 2024, and an additional 8 olive oils tested in 2023 in a separate [study by Defend Our Health](#) and included in Mamavation's report (noted with an asterisk below), total concentrations of phthalate compounds were only 7.8 mcg to 85.3 mcg per tablespoon. This is well below the European tolerable daily intake of 3,400 mcg for a 150 lb person (which is determined by body weight and based on just four phthalates with established limits – all of which were included in Mamavation's total 14 phthalates measured). There is no established limit on phthalates in food in the U.S. None of the amounts represent a significant health concern. Interestingly, several extra virgin olive oils packaged in glass or tin were among those with the highest concentrations of phthalates, and some research suggests that the presence of phthalates in olive oils may be linked with harvesting and milling practices, and exposure to plastic during processing, rather than the type of bottle in which it's packaged ([Bi, J Agric Food Chem 2013](#)). ConsumerLab did not test olive oils for phthalates as this has not been shown to be a significant health concern in such products.

Sensory testing (flavor and odor/aroma):

In sensory testing by a trained olive oil taster blinded to product identity, products had to meet the following USDA requirements of having "excellent" flavor with no defects and with positive attributes (such as olive, apple, green, sweet, grass, nutty, tomato) and no negative flavor attributes (such as fusty [due to poor storage of olives, promoting bacterial growth], winey-vinegary [due to fermentation of stored olives, producing ethanol, acetic acid, and ethyl acetate], muddy-sediment, and rancid).

For a product to be deemed extra virgin by USDA standards, it must meet all of the chemical requirements noted above (excluding polyphenol content). In addition, it must meet other chemical requirements but, most of these are not particular to extra virgin olive oil (such as having a total sterol content of at least 1,000 mg/kg, which is required of all types of olive oil) and were not included in ConsumerLab.com's analysis. The USDA also requires that the sensory analysis of flavor and aroma be conducted by a panel of testers (at least eight), using the adjusted median scores from the panel. Instead, ConsumerLab.com used just one expert tester. *Consequently, the results of this report cannot represent whether or not a product meets the USDA standard for extra virgin olive oil. However, the results do represent a meaningful chemical analysis of each product and an expert, subjective opinion on the aroma and flavor of each.*

Learn more about the chemical and sensory analyses of products in this Review in the video below.

See [How Products Were Evaluated](#) for more information on testing methods and passing scores.

Finding the Best Extra Virgin Olive Oil



The table below summarizes the minimum standards for extra virgin olive oil using USDA as well as IOC criteria on the attributes evaluated by ConsumerLab.com. The two grading systems have the same requirements for extra virgin olive oil, but, for the lower grades, the USDA standards require lower intensities on defects and the IOC includes a grade of "ordinary virgin" that would be considered "lampante" by the USDA. (Note: The classification of "lampante" refers to olive oil that has poor flavor and odor and high acidity. Such oil must be refined before consumption ([USDA 2010](#)), but this is an issue of palatability and not a health risk. Lampante comes from the Italian word for lamp, as, historically, low quality oil was used to illuminate lamps.)

Minimum Standards for Grading of Virgin (Unrefined) Olive Oils*

IOC	USDA
Extra Virgin: Sensory defects: None Fruitiness: >0 Free acidity: ≤0.8 Peroxide value: ≤20	Extra Virgin Sensory defects: None Fruitiness: >0 Free acidity: ≤0.8 Peroxide value: ≤20

Virgin: Sensory defects: >0 but ≤3.5 Fruitiness: >0 Free acidity: ≤2 Peroxide value: ≤20	Virgin Sensory defects: >0 but ≤2.5 Fruitiness: >0 Free acidity: ≤2 Peroxide value: ≤20
Ordinary Virgin: Sensory defects: >3.5 but ≤6.0 Fruitiness: N/A Free acidity: ≤3.3 Peroxide value: ≤20	
Lampante Virgin: (Not fit for human consumption) Sensory defects: >6 Fruitiness: N/A Free acidity: >3.3 Peroxide value: No limit	Lampante Virgin (Not fit for human consumption) <i>Poor odor and flavor</i> Sensory defects: >2.5 Fruitiness: N/A Free acidity: >2 Peroxide value: No limit

Source: [IOC 2019](#), [USDA 2010](#)

*All grades require oleic acid to be 55% to 83% free fatty acids.

Extra virgin and virgin require delta K of ≤0.01.

What CL Found:

[Note: In March 2023, three olive oils were tested and added to this Review, which was originally posted in 2021. The reason for adding two of the products was their claims of high-polyphenol levels (*Gundry* and *Life Extension*), while *California Olive Ranch's Global Medium Blend* was added because it replaced that brand's *EveryDay Blend Extra Virgin Oil*, which had been our overall *Top Pick*. These three olive oils are noted as "Tested in 2023" in the [Results table](#). To help with product comparisons, we updated price information for all products tested earlier, unless they were discontinued. Bear in mind that, as with any natural product, flavor and quality can vary over time and from lot-to-lot, but these variations should be limited by the quality control measures employed by manufacturers.]

From a *chemical* perspective, all of the products met the standards for extra virgin olive oils (EVOOs) that ConsumerLab.com applied, assuring that each was made from the oil of olives -- and not other seed oils -- and was properly processed. **However, sensory testing by an expert taste tester raised questions about the quality of the olive oil in 9 of 13 products.** Only four products were "Approved" for demonstrating "extra virgin" quality in both chemical and sensory testing — these are labeled as "Approved" in the results table.

Product with Defects in Aroma/Flavor:

Defects were identified with each of the following olive oils in taste testing by a sensory expert, suggesting that they were not of "extra virgin" quality. **ConsumerLab gave each of these an overall rating of "Uncertain" rather than "Not Approved" since, as noted above, none of the chemical tests indicated a problem. A panel of sensory experts would be required for a formal sensory analysis.**

Depending on the extent of the defects and scores on desirable sensory criteria, the products were also assigned grades using the IOC and USDA grading systems ranging from "virgin" (i.e., good but not excellent quality) to "lampante" (i.e., not fit for human consumption). Be aware that "lampante" does not mean that a product is unsafe to use; instead, it suggests that the oil requires refinement to make it palatable. (See columns 2 and 3 of the [Results table](#) for additional details and descriptions, including those of any desirable traits):

- **Carapelli Unfiltered Extra Virgin Olive Oil** — Considered **Virgin**

This was described as "nutty, hay-straw and woody" but "some oxidation was evident on the palate," resulting in a "rancid" score

of 2.5 out of 10. Consequently, the tester considered it "Virgin" but not "Extra Virgin" olive oil on both the USDA and IOC grading scales. From a chemical perspective, the oil was not rancid, as it had a peroxide value of 5.96 – well below the limit of 20. However, this was the highest peroxide value of the products in this review, most of which were around 3 to 4. (Interestingly, for olive oil which has been chemically refined – which is not permitted with virgin olive oils – the official peroxide value limit is just 5.)

- **California Olive Ranch Extra Virgin Olive Oil Global Blend – Medium (2023)** – Considered **Virgin**

The aroma/flavor was described as reflecting mostly ripe olive fruit with the primary descriptor of nutty. Although the product is marketed as having "moderate" robustness, no astringency was noted by the taster, who considered it "mild" and also perceived it as slightly rancid - a score of 1 out of 10. Consequently, the tester did not consider it to be "Extra Virgin" olive oil, but "Virgin" in IOC and USDA grading.

- **Colavita Extra Virgin Olive Oil** – Considered **Virgin or Lampante**

This was described as slightly "fusty," "heated/burnt" (suggesting processing at too high heat) and "rough" (a pasty, thick, greasy mouth feel that can be a precursor of rancidity) and the "aroma reflected defective fruit and oil was unpleasant on the palate." At the same time, it was also positively described as somewhat "fruity," "bitter," and "pungent" with descriptors such as "black olive," "woody," and "floral." Consequently, the tester did not consider it to be "Extra Virgin" olive oil, but "Virgin" in IOC grading or "Lampante" in USDA grading.

- **Goya Extra Virgin Oil** – Considered **Ordinary or Lampante**

Similar to *Colavita*, the aroma/flavor of this oil was described as reflecting "mostly defective fruit" resulting in an even higher "fusty" score of 3.7. Consequently, the tester did not consider it to be "Extra Virgin" olive oil, but "Ordinary" in IOC grading or "Lampante" in USDA grading.

- **Gundry MD Polyphenol Rich Olive Oil (2023)** – Considered **Lampante**

This product is not marketed as extra virgin or even virgin, but just as "olive oil" that is rich in polyphenols – which tend to be higher in extra virgin than other olive oils. However, aroma defects of "fusty" "winey," and "heated/burnt" led the tester to state that "aroma defects overwhelmed any positive fruit (aroma)." The taster could not even rate *Gundry* as ordinary olive oil but as "Lampante," i.e., not fit for human consumption without processing. (Several [reviews on Amazon](#) call *Gundry* the "worst tasting" olive oil). It had, by far, the highest concentration of polyphenols, largely from [hydroxytyrosol](#) derivatives, although, this did not confer any bitterness or pungency as hydroxytyrosol is not a polyphenol that imparts these flavors.

- **Kirkland Signature [Costco] Organic Extra Virgin Olive Oil** – Considered **Virgin or Lampante**

This oil was also described as having an aroma that reflected mostly defective olive fruit, attaining a "fusty" score of 3.5 and fairly low scores on desirable traits. Interestingly, in our tests in 2017, this product was a *Top Pick*, with no defects and relatively high scores on positive attributes like fruitiness, for which it had a score of 4.0, in contrast with the current score of 1.0. Consequently, the tester did not consider it to be "Extra Virgin" olive oil, but "Virgin" in IOC grading or "Lampante" in USDA grading.

- **Spectrum Culinary Organic Extra Virgin Olive Oil** – Considered **Virgin or Lampante**

The aroma/flavor was described as reflecting "mostly oxidized oil" resulting in a "rancid" score of 3.1. Perhaps not surprisingly, chemically, it had the second highest peroxide value, which was 5.67. Consequently, the tester did not consider it to be "Extra Virgin" olive oil, but "Virgin" in IOC grading or "Lampante" in USDA grading.

- **Terra Delyssa Organic Extra Virgin Olive Oil** – Considered **Virgin or Lampante**

This oil received a "rancid" score of 2.6 and a "fusty" score of 0.9 and relatively low scores for desirable traits. Consequently, the tester did not consider it to be "Extra Virgin" olive oil, but "Virgin" in IOC grading or "Lampante" in USDA grading.

- **Trader Joe's Premium Extra Virgin Olive Oil** – Considered **Ordinary or Lampante**

This oil was described as having "no positive olive fruit" aroma or flavor and had the highest (worst) score for "fusty" (4.7)

among the tested products. Consequently, the tester did not consider it to be "Extra Virgin" olive oil, but "Ordinary" in IOC grading or "Lampante" in USDA grading.

While some consideration should be given to the results of the expert taste tester in this Review, *it is important to bear in mind that official standards for judging an olive oil require composite scores from a panel of 8 to 12 testers, not just one tester.* Nevertheless, it is worth noting that tests in 2023 by [Consumer Reports \(CR\)](#), which used a panel of tasters, arrived at similar sensory ratings as ours for brands that overlapped our respective reviews: CR gave its lowest rating of "Not So Hot" to *Terra Delyssa Smooth Extra Virgin Olive Oil* and *Trader Joe's Premium Extra Virgin Olive Oil*, and, due to flavor problems, it considered *Colavita Extra Virgin Olive Oil* and *Goya Extra Virgin Olive Oil* to be good enough only for cooking – not dipping, drizzling, or dressing. CR's highest ratings went to *Lucini Italia Premium Select Extra Virgin Olive Oil* and *California Olive Ranch 100% California Extra Virgin Olive Oil* (also a "CR Smart Buy"), which were among our [Top Picks](#) (although we tested as slightly different Lucini oil).

Although not tested in the current review, products in which we identified sensory defects in our 2017 review were *Bertolli Extra Virgin Olive Oil*, *Newman's Own Organic Extra Virgin Olive Oil*, and *Pompeian Extra Virgin Olive Oil*. Interestingly, all three of these included "Tunisia" as a country of origin of their olive oil. In contrast, only one of the seven products Approved in 2017 listed Tunisia – *Kirkland Signature*, which listed "Italy, Tunisia, Greece, and Spain." Tunisia was the world's second largest olive oil producer (after Spain) in 2014/15 but experienced a drought during the summer of 2016 resulting in failed crops and a 55% decrease in olive oil production ([Olive Oil Times, January 11, 2017](#)). In light of the sensory defects noted in most of the products containing Tunisian olive oil, it is possible that Tunisian weather conditions played a role in our findings. All extra virgin olive oils list their countries of origin and, for some brands, these change over time depending on fluctuations in the supply, quality, and price of oil from competing countries. Among the products tested from 2021 in this Review, none of the Approved products included Tunisia as a geographic source, although three Uncertain products did. The most common source listed by the Uncertain products was Spain (listed on four products), which was not a source of any of the Approved products.

Polyphenols and Oleic Acid in Olive Oils

As shown in the graph below, across the extra virgin olive oils, the levels of polyphenols (blue bars in the graph) – which may contribute to cardiovascular benefits of olive oil – ranged from 149 mg/kg (*Terra Delyssa Organic Extra Virgin Olive Oil*) to as much as 436 mg/kg (*Trader Joe's Premium Extra Virgin Olive Oil*) and 441 mg/kg (*Life Extension California Estate Extra Virgin Olive Oil*). These are all substantial levels for extra virgin olive oil. As noted earlier, generally, the higher the level of polyphenols in an olive oil, the bitterer and more pungent it will be.

The highest level of polyphenols – 654 mg/kg – was found in *Gundry MD Polyphenol-Rich Olive Oil*. As discussed earlier, *Gundry* is not marketed as an extra virgin olive oil and our taste taster detected so many defects (including the oil tasting "winey" or sour) that the product was deemed to be "lampante" and not even ordinary olive oil.

Gundry claims to contain "30 times more polyphenols [hydroxytyrosol](#)" than regular extra virgin olive oil. Although we did find unusually high levels of hydroxytyrosol and its derivatives in *Gundry*, the amounts were only about twice as high as in *Life Extension*, which was also tested for hydroxytyrosol for comparison. Since the total amount of polyphenols in *Gundry* was no more than four times that of any of the extra virgin olive oils tested, and hydroxytyrosol and its derivatives make up the majority of polyphenols in extra virgin olive oil, in it is unlikely that *Gundry* contains 30 times more hydroxytyrosol than regular extra virgin olive oils, as it claims.

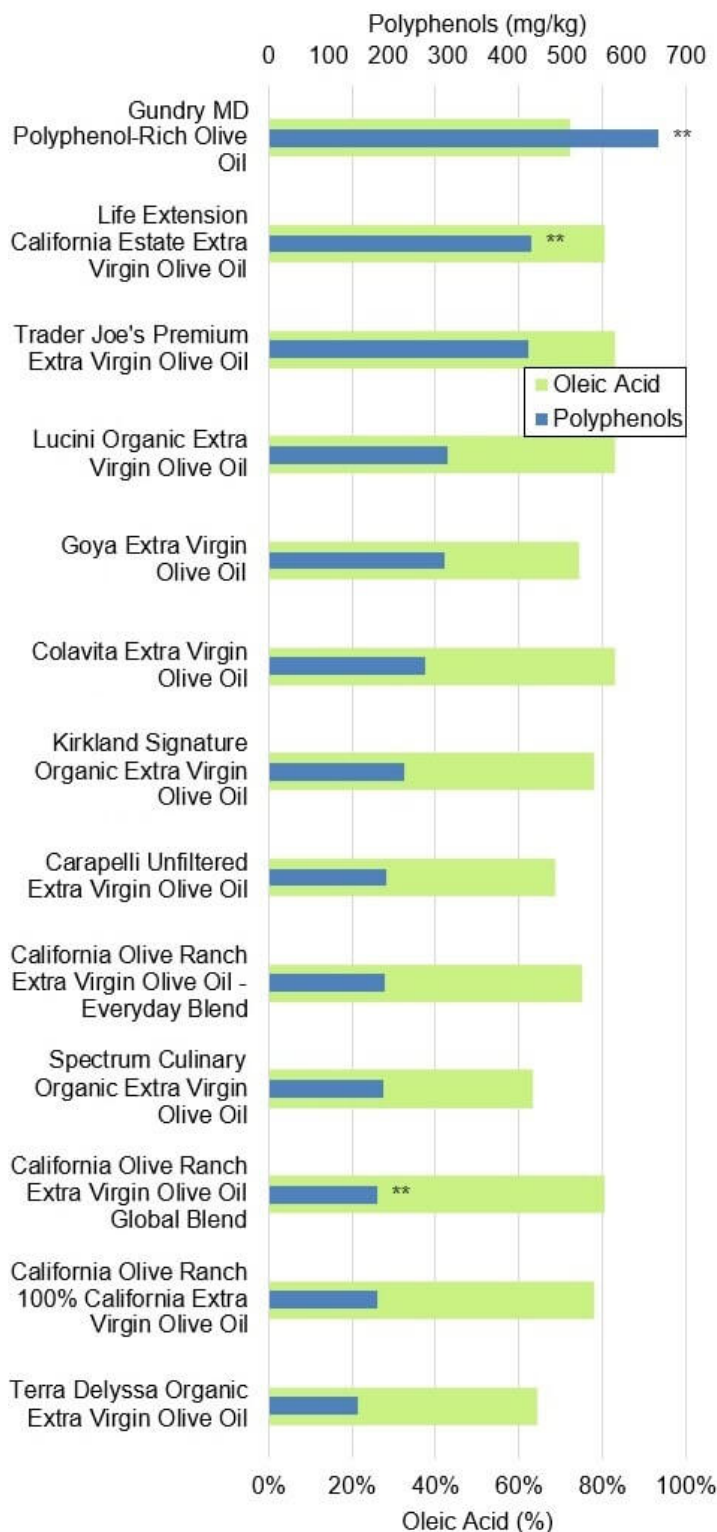
Also shown in the graph is the percentage of total free fatty acids that is **oleic acid** (green bar) in each oil. Oleic acid is the most abundant fatty acid in olive oil and can account for 55% to 83% of its fatty acids. Oleic acid is monounsaturated, which is preferable to saturated.

In 2018, the U.S. FDA announced that edible oils, including olive oil, that are *at least 70% oleic acid* can make a health claim similar to that already permitted more generally for olive oils. The claim is:

"Supportive but not conclusive scientific evidence suggests that daily consumption of about 1½ tablespoons (20 grams) of oils containing high levels of oleic acid, when replaced for fats and oils higher in saturated fat, may reduce the risk of coronary heart disease. To achieve this possible benefit, oleic acid-containing oils should not increase the total number of calories you eat in a day." ([FDA 2018](#))

Interestingly, as shown in the graph (and [Results table](#) further below), not all extra virgin olive oils are at least 70% oleic acid, with concentrations ranging from 63.3% to 83%. Those below 70% were *Spectrum* (63.3%), *Terra Delyssa* (64.4%), and *Carapelli* (68.6%), none of which were Approved. Three products were 83% oleic acid.

Polyphenols* and Oleic Acids in EVOOs



* Polyphenol levels based on Folin-Ciocalteu assay, commonly used on olive oils; however, HPLC assay is known to yield higher amounts.

** Also tested with HPLC assay, finding 1,155.9 mg/kg for Gundry MD, 711.1 mg/kg for Life Extension, and 403.5 mg/kg for California Olive Ranch Global Blend.

Cost

As shown in the graph below (and in the [Results table](#)), the cost per tablespoon of the oils ranged from just 12 cents (*Trader Joe's*) to 81 cents (*Life Extension*) among the extra virgin olive oils and was \$2.94 for the oil from *Gundry MD*. Products that were Approved and considered to be extra virgin in taste testing tended to be among the more expensive (40 cents and up), i.e., *California Olive Ranch*

California (40 cents), *Lucini* (61 cents), and *Life Extension* (81 cents), although *Colavita* and *Gundry MD* were expensive but not Approved. Note that prices are as of March 2023 except for *California Olive Ranch's Everyday Blend* and *Spectrum*, which are from 2021, before they were discontinued.

Cost of Extra Virgin Olive Oil Per Tablespoon*



* Grades of oil are shown in parentheses based on preliminary sensory analyses using IOC and USDA scoring systems, respectively. Prices are from 2023 unless otherwise noted.

** 2021 price shown. Product discontinued.

Top Picks:

As discussed above, only four of the 13 extra virgin olive oils tested were Approved for quality, having passed both chemical and sensory testing. Any of these would be a fine choice for extra virgin olive oil, and each was at least 70% oleic acid, qualifying it as a heart-healthy substitute for other oils according to the FDA. Unfortunately, one of these four has been discontinued – the *EveryDay* product from California Olive Ranch, which had been our overall *Top Pick* when we first published this Review in 2021. *California Olive Ranch* replaced this product with its *Global Blend - Medium* but our sensory testing of that product suggested a grade of only "virgin" rather than extra virgin.

Among the remaining three Approved olive oils, each is a *Top Pick* in its own right:

Top Picks:

- For "mild EVOO": **California Olive Ranch 100% California Extra Virgin Olive Oil**

This "100% California" extra virgin olive oil is one of three products that we tested from the California Olive Ranch brand. It is a mild extra virgin olive oil with a moderate level of polyphenols (182 mg/kg) and has an aroma/flavor of mostly ripe olive fruit with descriptors of "ripe banana" and "nutty with a hint of ripe apple." It costs 40 cents per tablespoon (\$13.49 per 16.9 fl oz bottle). It is sourced entirely from California, in contrast to the brand's Global Blend, which is a less expensive mixture of olive oils from around the world but was only considered "virgin" in our taste testing. **[Update (4/28/25):** In March 2025, *California Olive Ranch 100% California Extra Virgin Olive Oil*, along with the brand's *Extra Virgin Olive Oil Global Blend – Medium* (also tested in this Review) received a silver award in the [NYIOOC World Olive Oil Competition](#), a voluntary competition that ranks olive oils based on sensory testing by a panel of 15 independent industry-recognized experts who analyze a single sample of the product submitted by the producer. California Olive Ranch's *Lucini Italia Premium Select Organic* (which is different from the *Lucini* product tested in this Review) received a gold award. A silver award indicates a "very nice" extra virgin olive oil and gold indicates a "truly exceptional" oil, according to a representative of the competition. A silver award was also given to *Terra Delyssa Organic Extra Virgin Olive Oil* (which we considered only "virgin" based on taste). A full list of over 700 silver and gold award winners is found [here](#).]

- For "high-polyphenols": **Lucini Italia Organic Extra Virgin Olive Oil**

If you want higher polyphenols and (299 mg/kg) with a little more pungency and bitterness and don't mind paying more for it (61 cents per tablespoon, \$20.61 per 16.9 fl oz bottle) this olive oil meets those requirements. It has an aroma/flavor of mostly green olive fruit.

The Lucini product was also the only "organic" olive oil to be Approved – the other five had negative taste characteristics, causing us to rate their quality as "Uncertain." Be aware that pesticides are sometimes used on olives, although a sampling of olive oils sold in Europe (which likely included some organic products) found pesticides to be generally undetectable or at very low levels, with higher levels more common, for example, in grapes, eggplant, and bananas ([EFSA 2021](#)). Large producers of olive oil in California must comply with pesticide residue limits established by the EPA ([State of California 2023-2024 standards](#)). **[Update (1/29/24):** This Lucini product has been relabeled and named "*Lucini Organic Everyday Extra Virgin Olive Oil*," as confirmed by communications with California Olive Ranch, which owns the Lucini brand.]

- For "very high-polyphenols": **Life Extension California Estate Extra Virgin Olive Oil**

Although quite pricey at 81 cents per tablespoon (\$26.63 per 16.9 fl oz bottle), this olive oil provides a very high level of polyphenols (441 mg/kg in common testing and 711.1 mg/kg if measured by HPLC), which gives it moderate intensity of bitterness and pungency, although it has less of a fruity aroma than oils such as *California Olive Ranch 100% California*.

Note: As discussed in the [What It Does](#) section, it is not clear that high levels of polyphenols confer significant health benefits not available from extra virgin olive oils that provide at least 70% oleic acid and at least 150 mg/kg of polyphenols. Paying more for high-polyphenol olive oils may not be worthwhile.

Test Results by Product:

Listed alphabetically below are the test results for 13 olive oils marketed as extra virgin and/or high-polyphenol selected by ConsumerLab.com based on popularity among CL readers.

Shown for each product are the test results (laboratory and sensory), as well as our taste tester's description of flavor and aroma. Products listed as "APPROVED" were judged, chemically and sensorily, to be extra virgin and meet claims regarding polyphenol content. If a product passed chemical testing but failed to be judged extra virgin, it is listed as UNCERTAIN, as is one olive oil that was not labeled as extra virgin but, sensorily, was judged to be lampante. Product prices and the calculated cost to obtain one tablespoon of oil from each are shown in the last two columns along with other notable features, such as quality certifications which appeared on labels.

Results of ConsumerLab.com Testing of Extra Virgin Olive Oil						
(Price Checks are not included in printed reviews)						
Approval Status	Sensory	Description (from	Fatty	Total Polyphenols	Cost Per	Notable Features
Product Name	Analysis	Sensory Analysis)	Acid	(mg/kg)	Tablespoon	
Sourcing			Profile	Rancidity	Price	
			Oleic	Peroxide Value (≤ 20	[Updated	
			Acid	meq/kg)	3/2023 unless	
			(%)	Delta K (< 0.01)	otherwise	
			Free		noted]	
			Acidity			
			($\leq 0.8\%$)			

APPROVED Top Pick for mild EVOO California Olive Ranch® 100% California Extra Virgin Olive Oil - Medium  Origin: California Dist. by California Olive Ranch Inc. Tested 2021	<u>Sensory Grade:</u> IOC: Extra Virgin USDA: Extra Virgin Desirable traits: Fruity - 3.3 Bitter - 1.5 Pungent - 2.2 Defects: None <u>Robustness:</u> Mild	<i>Aroma/flavor reflected mostly ripe olive fruit with the primary descriptor of ripe banana. Additional descriptors included nutty with a hint of ripe apple. Mild astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 77.9% Free Acidity: ✓ 0.21%	Polyphenols: 182 Rancidity: Peroxide Value: ✓ 3.04 Delta K: ✓ -0.003	\$0.40/tbsp \$13.49/16.9 fl oz [500 ml] amber glass bottle (approx. 33 servings)	Non GMO Project Verified seal. Vegan. Paleo. Keto Certified Ketocertified.com seal. Certified Extra Virgin Applied Sensory Panel seal. Kosher. Cold pressed
APPROVED California Olive Ranch® Extra Virgin Olive Oil - Everyday Blend  Origin: Argentina, Chile, Portugal, California Dist. by California Olive Ranch Inc. Tested 2021 (See Update) DISCONTINUED	<u>Sensory Grade:</u> IOC: Extra Virgin USDA: Extra Virgin Desirable traits: Fruity - 4.0 Bitter - 2.0 Pungent - 2.6 Defects: None <u>Robustness:</u> Mild	<i>Aroma/flavor reflected mostly ripe olive fruit with the primary descriptor of nutty. Additional descriptors included hay-straw and toasted with hints of woody and black olives. No astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 75.1% Free Acidity: ✓ 0.29%	Polyphenols: 195 Rancidity: Peroxide Value: ✓ 4.26 Delta K: ✓ -0.002	\$0.24/tbsp \$7.99/16.9 fl oz [500 ml] amber glass bottle (approx. 33 servings) (2021 price. Discontinued.)	Non GMO Project Verified seal. Vegan. Paleo. Keto Certified Ketocertified.com seal. Certified Extra Virgin Applied Sensory Panel seal. Kosher. Cold pressed

UNCERTAIN California Olive Ranch® Extra Virgin Olive Oil Global Blend - Medium  Dist. by California Olive Ranch Inc. Added in 2023	<u>Sensory.</u> <u>Grade:</u> IOC: Virgin USDA: Virgin Desirable traits: Fruity - 3.1 Bitter - 1.0 Pungent - 2.3 Defects: Rancid - 1.1 <u>Robustness:</u> Mild	<i>Aroma/flavor reflected mostly ripe olive fruit with the primary descriptor of nutty. Additional descriptors included hay-straw and walnut shell with hints of green grass and citrus. No astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 80.4% Free Acidity: ✓ 0.27%	Polyphenols: 182 Rancidity: Peroxide Value: ✓ 6.03 Delta K: ✓ -0.002	\$0.25/tbsp \$16.49/33.8 fl oz [1,000 ml] amber glass bottle (approx. 66 servings)	<i>Non GMO Project Verified seal. Certified Extra Virgin seal. Certified Paleo%AE seal. Keto Certified KetoCertified.com seal. Kosher.</i> Cold pressed
UNCERTAIN Carapelli Unfiltered Extra Virgin Olive Oil  Origin: Greece, Italy, Portugal, Tunisia Dist. by Deoleo USA, Inc. Tested 2021	<u>Sensory.</u> <u>Grade:</u> IOC: Virgin USDA: Virgin Desirable traits: Fruity - 2.5 Bitter - 3.2 Pungent - 2.9 Defects: Rancid - 2.5 <u>Robustness:</u> Mild	<i>Positive olive fruit aroma/flavor described as nutty, hay-straw and woody. Oxidation was evident on the palate. No astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 68.6% Free Acidity: ✓ 0.23%	Polyphenols: 196 Rancidity: Peroxide Value: ✓ 5.96 Delta K: ✓ 0.001	\$0.28/tbsp \$13.98/25.36 fl oz [750 ml] amber glass bottle (approx. 33 servings)	<i>USDA Organic seal. Non-GMO Project Verified seal.</i> Unfiltered First cold pressed

UNCERTAIN Colavita® Extra Virgin Olive Oil  Origin: Italy, Greece, Portugal, Spain Dist. by Colavita USA, LLC Tested 2021	Sensory Grade: IOC: Virgin USDA: Lampante Desirable traits: Fruity - 1.7 Bitter - 1.2 Pungent - 0 Defects: Fusty - 2.7 Rough - 1.8 Robustness: Mild	<i>Aroma/flavor reflected mostly defective fruit. Small amount of positive fruit described as ripe olive. No astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 83% Free Acidity: ✓ 0.32%	Polyphenols: 262 Rancidity: Peroxide Value: ✓ 4.15 Delta K: ✓ -0.001	\$0.45/tbsp \$22.99/25.5 fl oz [750 ml] amber glass bottle (approx. 50 servings)	<i>North American Olive Oil Association Certified Quality seal. Cholesterol Free.</i> First cold pressed
UNCERTAIN Goya® Extra Virgin Olive Oil  Origin: Andalucia, Spain Dist. by Goya Tested 2021	<u>Sensory Grade:</u> IOC: Ordinary USDA: Lampante Desirable traits: Fruity - 1.9 Bitter - 2.4 Pungent - 1.3 Defects: Fusty - 3.7 <u>Robustness:</u> Mild	<i>Aroma reflected mostly defective olive fruit. Small amount of positive aroma/flavor described as ripe olive and floral. Mild astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 74.4% Free Acidity: ✓ 0.24%	Polyphenols: 296 Rancidity: Peroxide Value: ✓ 4.09 Delta K: ✓ 0.002	\$0.30/tbsp \$9.98/17 fl oz [500 ml] clear glass bottle (approx. 33 servings)	<i>North American Olive Oil Association Certified Quality seal. 2020 Excellence Chefsbest Award seal. Kosher.</i> First cold pressed

UNCERTAIN Gundry MD™ Polyphenol-Rich Olive Oil  Dist. by Gundry MD™ Added in 2023	<u>Sensory</u> <u>Grade:</u> IOC: Lampante USDA: Lampante Desirable traits: Fruity - 0.7 Bitter - 0 Pungent - 0 Defects: Fusty/Muddy Sediment - 6.5 Winey - 2.9 Other: heated/burnt - 4.9 <u>Robustness:</u> Mild	<i>Aroma of defects overwhelmed any positive fruit. Slight positive aroma described as nutty.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 72.3% Free Acidity: ✓ 0.45%	Polyphenols: 654 Rancidity: Peroxide Value: ✓ 4.71 Delta K: ✓ -0.006	\$2.94/tbsp \$49.95/8.5 fl oz [250 ml] amber glass bottle (approx. 17 servings)	<i>USDA Organic seal. Dr. Gundry's cold pressed extra virgin organic oil contains 30 times more polyphenols hydroxytyrosol per serving than "regular" extra virgin olive oil. (This claim does not appear to be true based on tests in this Review.)</i> First cold pressed
UNCERTAIN Kirkland Signature® [Costco] Organic Extra Virgin Olive Oil  Origin: Portugal, Spain, Tunisia, Italy, Greece Dist. by Costco Wholesale Corporation Tested 2021	<u>Sensory</u> <u>Grade:</u> IOC: Virgin USDA: Lampante Desirable traits: Fruity - 1.0 Bitter - 1.9 Pungent - 0.7 Defects: Fusty - 3.5 <u>Robustness:</u> Mild	<i>Aroma/flavor reflected mostly defective olive fruit. Small amount of positive aroma/flavor described as ripe olive. No astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 77.9% Free Acidity: ✓ 0.25%	Polyphenols: 227 Rancidity: Peroxide Value: ✓ 3.29 Delta K: ✓ -0.003	\$0.14/tbsp \$19.49/67.6 fl oz [2,000 ml] amber plastic bottle (approx. 133 servings)	<i>USDA Organic seal. Kosher.</i> Cold extracted

APPROVED Top Pick for very high-polyphenols Life Extension® California Estate Extra Virgin Olive Oil  Dist. by Quality Supplements and Vitamins, Inc. Added in 2023	<u>Sensory.</u> <u>Grade:</u> IOC: Extra Virgin USDA: Extra Virgin Desirable traits: Fruity - 1.1 Bitter - 3.7 Pungent - 3.0 Defects: None <u>Robustness:</u> Mild	<i>Very little aroma which was described as nutty and hay-straw. Medium astringency was noted. Oil is considered to be out-of-balance because of its low level of fruity aroma accompanied by its moderate intensity of bitterness and astringency.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 80.4% Free Acidity: ✓ 0.35% Delta K: ✓ -0.006	Polyphenols: Product claims 600 mg/kg but does not specify testing method applied. CL found 441 mg/kg using the "folin" method commonly applied to olive oil and used for all products in this Review but 711.1 mg/kg using an HPLC method, which is more sensitive. Rancidity: Peroxide Value: ✓ 7.7	\$0.81/tbsp \$26.63/16.9 fl oz [500 ml] amber glass bottle (approx. 33 servings)	<i>Gluten Free. Non GMO. Handpicked.</i> First cold pressed
APPROVED Lucini® Italia Organic Extra Virgin Olive Oil  Origin: Italy Dist. by Lucini Italia Tested 2021 RENAMED	<u>Sensory.</u> <u>Grade:</u> IOC: Extra Virgin USDA: Extra Virgin Desirable traits: Fruity - 3.9 Bitter - 2.7 Pungent - 3.3 Defects: None <u>Robustness:</u> Medium	<i>Aroma/flavor reflected mostly green olive fruit with the primary descriptor of green banana. Additional descriptors included green almond and woody with hints of hay-straw and ripe banana. Mild astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 83% Free Acidity: ✓ 0.19%	Polyphenols: 299 Rancidity: Peroxide Value: ✓ 4.15 Delta K: ✓ -0.003	\$0.61/tbsp \$20.61/16.9 fl oz [500 ml] amber glass bottle (approx. 33 servings)	<i>USDA Organic seal. CCOF Certified Organic seal. Non-GMO Project Verified seal. Certified Extra Virgin Applied Sensory Panel seal. Kosher. Gluten Free.</i> First cold pressed

UNCERTAIN Spectrum Culinary Organic Extra Virgin Olive Oil  Origin: Spain Dist. by The Hain Celestial Group, Inc. Tested 2021 DISCONTINUED	<u>Sensory.</u> <u>Grade:</u> IOC: Virgin USDA: Lampante Desirable traits: Fruity - 1.5 Bitter - 0 Pungent - 1.3 Defects: Rancid - 3.1 <u>Robustness:</u> Mild	<i>Aroma/flavor reflected mostly oxidized oil. Small amount of positive olive fruit was described as green almond and woody. No astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 63.3% Free Acidity: ✓ 0.25%	Polyphenols: 193 Rancidity: Peroxide Value: ✓ 5.67 Delta K: ✓ 0	\$0.34/tbsp \$8.47/12.7 fl oz [375 ml] amber glass bottle (approx. 25 servings) (2021 price. Discontinued.)	<i>Non GMO Project Verified seal. USDA Organic seal. Kosher. Certified Organic by QAI.</i> First cold pressed
UNCERTAIN Terra Delyssa® Organic Extra Virgin Olive Oil  Origin: Tunisia Dist. by CHO America Tested 2021	<u>Sensory.</u> <u>Grade:</u> IOC: Virgin USDA: Lampante Desirable traits: Fruity - 1.3 Bitter - 0 Pungent - 1.3 Defects: Fusty - 0.9 Rancid - 2.6 <u>Robustness:</u> Mild	<i>Positive olive fruit aroma described as nutty and woody. No astringency was noted.</i>	Fatty Acid Profile: ✓ Oleic Acid: ✓ 64.4% Free Acidity: ✓ 0.24%	Polyphenols: 149 Rancidity: Peroxide Value: ✓ 4.77 Delta K: ✓ 0.002	\$0.28/tbsp \$18.99/34 fl oz [1,000 ml] amber glass bottle (approx. 66 servings)	<i>USDA Organic seal. Non- GMO Project Verified seal. North American Olive Oil Association Certified Quality seal. Kosher. Gluten-Free.</i> First cold pressed

UNCERTAIN Trader Joe's Premium Extra Virgin Olive Oil  Origin: Not listed Dist. by Trader Joe's Tested 2021	<u>Sensory Grade:</u> IOC: Ordinary USDA: Lampante Desirable traits: Fruity - 0 Bitter - 0 Pungent - 1.8 Defects: Fusty - 4.7 <u>Robustness:</u> NA (due to no positive olive fruit aroma/ flavor)	Because no positive olive fruit was detected, this sample is considered to be Lampante.	Fatty Acid Profile: ✓ Oleic Acid: ✓ 83% Free Acidity: ✓ 0.29%	Polyphenols: 436 Rancidity: Peroxide Value: ✓ 3.64 Delta K: ✓ -0.006	\$0.12/tbsp \$7.99/32 fl oz [946 ml] amber glass bottle (approx. 63 servings)	Cold pressed
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Unless otherwise noted, information about the products listed above is based on the samples purchased by ConsumerLab.com (CL) for this Product Review. The samples are from a single lot of the respective product. Be aware that there may lot-to-lot variation in products, particularly natural products. Manufacturers may change ingredients and label information at any time, so be sure to check labels carefully when evaluating the product you use or buy as it may be different from the product we tested. Manufacturers may also change ingredient suppliers, which can affect product quality. Pricing can change over time and vary based on retailer, promotions, and other factors.

The information contained in this report is based on the compilation and review of information from product labeling and analytic testing. CL applies what it believes to be the most appropriate testing methods and standards. The information in this report does not reflect the opinion or recommendation of CL, its officers or employees. CL cannot assure the accuracy of information.

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Products tested in 2021 and 2023

ConsumerTips™:

Unfortunately, it is not possible to judge the quality or purity of extra virgin olive oil just by looking at it, or by tasting it (see more about this and a popular "home test" for oil quality [below](#)). **However, there are other steps you can take to help identify a quality oil:**

Look for a certification seal on the label:

Look for a certification seal from certain organizations on the label, which indicates the oil meets certain basic sensory and chemical standards. Quality seal programs for olive oil quality include the USDA Quality Monitoring Program, the North American Olive Oil Association (NAOOA), the California Olive Oil Council (COOC) and the Extra Virgin Alliance (EVA). While many of the standards are similar, there are some differences. For example, the USDA and NAOOA require more tests that help to rule out adulteration with cheaper oils, and it appears that only the USDA tests for contamination with pesticides and heavy metals – although this testing is "optional," so a product may bear the USDA seal without having undergone contamination testing. On the other hand, COOC and EVA

require tests for diacylglycerols (DAGs) and pyropheophytin (PPP), while the USDA and NAOOA do not. Defects in taste and/or odor have been found to be closely associated with the ratios of DAGs and higher levels of PPP. NAOOA and EVA purchase products on the market (as ConsumerLab.com does), while COOC gets the sample from the producer and the USDA takes random samples from the producer.

Olive Oil Quality Seal Programs

Quality Seal Program	How samples are collected	Tests for adulteration with cheaper, lower-grade olive oil and/or other seed oils	Tests for oxidation/freshness	Tests for pesticides and heavy metal contamination
USDA Quality Monitoring Program	Random samples taken from producer	Yes	Yes	Optional
North American Olive Oil Association (NAOOA)	Purchased from marketplace	Yes	Yes	No
California Olive Oil Council (COOC)	Provided by producer	Yes, DAG and PPP testing; but fewer tests than USDA and NAOOA	Yes	No
Extra Virgin Alliance (EVA)	Purchased from marketplace	Yes, DAG and PPP testing; but fewer tests than USDA and NAOOA	Yes	No

*Information from *The Olive Oil Times* — see [website](#) for more detailed comparison.

Choose an oil that includes a harvest date and is packaged in dark glass

UC Davis researchers also advise consumers buy an oil within 15 months of its *harvest* date (information not provided by all labels — and not to be confused with the "Best By" date, which is an arbitrary date) and choose one with [packaging that protects the oil from oxygen and light](#) (such as a dark glass bottle or a small tin), since exposure to air and light can shorten shelf life.

Store in a dark cabinet that is cool

Levels of *polyphenols* in extra virgin olive oils will generally decrease over time but storing them properly can make a big difference. A one-year study found that total phenols in extra virgin olive oils decreased 52% to 65% when stored in plastic (polyethylene) bottles exposed to light, 43% to 65% in clear glass exposed to light, 26% to 41% in plastic bottles kept in darkness, *but only 10% to 15% in dark glass kept in darkness*. Fruitiness decreased in all settings but least in oils stored in dark glass away from light. Be aware that oxygen can pass through plastic, but not through glass ([Torre-Robles, J Am Oil Chem Soc 2019](#)).

Storage at cool to moderate temperature helps reduce *oxidation* of extra virgin olive oil. A one-year-long study found that storage of unopened extra virgin olive oil at room temperature resulted in only a slight increase in levels of *oxidized* phenols (from 14.5 mg/kg at baseline to 22.3 mg/kg after one year at room temperature (73.4F), while storage at higher temperatures resulted in much greater increases — to 39 mg/kg at 86F and 62.8 mg/kg at 104F ([Caipo, Foods 2021](#)).

Refrigerate?

It is generally not necessary to refrigerate an unopened bottle of olive oil, although it may help a little. Even after being opened, if the oil will be entirely used within one year, refrigeration is still not necessary as long as stored properly. Nevertheless, if you are storing olive oil for more than a year, refrigeration may help to preserve the quality, freshness, and taste of the oil. One study showed that olive oil that was stored in a stainless steel container and refrigerated (39.2°F or 4°C) had significantly less oxidation (i.e., was more "fresh"), was lower in acidity (indicating higher quality), and maintained more "fruitiness" at one to two years than the same oil stored in a

stainless steel container at room temperature (77°F or 25°C)([Lazarou, J Sci Food Agric 2024](#)). However, repeatedly taking olive oil in and out of the refrigerator may stress the oil and not extend shelf life better than proper, unrefrigerated storage, according to the [North American Olive Oil Association](#). Be aware that refrigerating olive oil can cause some congealing (see below), although the oil should liquify within a few minutes at room temperature.

Are there other indicators of quality I can look for? What about color, taste, or the "fridge test"?

Unfortunately, the following are *not* considered reliable ways to detect olive oil quality or adulteration:

- **The "Fridge Test"** – Placing olive oil in the refrigerator has been suggested as a method for detecting olive oil adulteration, since the waxes and long-chain fatty acids that naturally occur in olive oil may solidify when exposed to cold (as opposed to refined oils and some other seed oils which should remain liquid when exposed to cold). However, UC Davis researchers [put the theory to the test](#) by refrigerating a variety of oils and reported that after 2.5 days, none (including the extra virgin olive oil) had solidified. After 7 days, some samples containing at least 50% extra virgin olive oil began congealing, but none had solidified.
- **Color** – Extra virgin olive oil may range in color from pale yellow to green, so color does not reveal much about quality. In fact, when sensory experts test olive oil for taste, [samples are often provided in blue glasses](#) so that the color of the oil is not apparent.
- **Taste** – The taste of olive oil is included in [standards](#) used by the IOC and the USDA (undesirable flavors include rancid, "vinegary" or metallic, while positive flavors include fruity, bitter and pungent), although the association between taste and chemical markers of adulteration or oxidation has not always been strong – chemical analysis is still needed to confirm these. A good list of olive oil tasting terms is found on The Olive Oil Source [website](#).

Cooking

In a review of studies on the effects of various cooking methods on olive oil, researchers noted that temperature, cooking time and cooking method "*undoubtedly modify the olive oil chemical profile*" and that the polyphenols and vitamin E in olive oil become "*almost depleted after a short heating period*." ([Santos, Food Res Int 2013](#)).

A later study in Spain found that temperature, more than cooking time, reduced polyphenols. Sautéing for 30 minutes at moderate (248° F) or high (338° F) temperatures reduced polyphenol levels, respectively, by 40% and 75%. At the moderate temperature, there was little additional total polyphenol loss when cooking for 60 rather than 30 minutes and, at the high temperature, there was little additional loss when cooking for 30 rather than 15 minutes ([Lozano-Castellon, Antioxidants 2020](#)).

In order to minimize the amounts of polyphenols and other components that are lost when olive oil is exposed to heat, what is most important is to **keep the heat as low as possible**. In addition, when possible, add olive oil in the later stages of cooking (particularly after turning down the heat) rather than at the beginning.

Concerns and Cautions:

Consumption of olive oil in the diet is generally considered to be safe and is well-tolerated. Although a "healthy" oil, olive oil is a fat and will contribute calories like any fat and should be used in moderation.

Be aware that olive oil may potentially **enhance the effects of medications** for diabetes, such as insulin and glimepiride (Amaryl), and certain medications for lowering blood pressure, such as diltiazem (Cardizem), Amlodipine (Norvasc) and should be used with caution if you are taking these types of medications.

In 2023 the [European Commission](#) set a maximum allowable level in dietary oils and fats of **PAHs (polycyclic aromatic hydrocarbons)**, chemicals produced from the burning of coal, oil, gas, and other organic matter. Certain PAHs, or mixtures of them, are believed to cause cancer ([EPA, 11/2009](#)). However, studies evaluating concentrations of PAHs in olive oils sourced from China and various European countries have found that nearly all the oils met these European standards ([Liu, Foods 2023](#); [Bertoz, Foods 2021](#)). Similarly, testing of 148 olive oils sampled by the Canadian Food Inspection Agency between April 2019 and March 2020 concluded that, although most olive oils contained PAHs, all would still be considered safe for human consumption ([Canadian Food Inspection Agency, 2023](#)).

[+ 74 sources](#)

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