Creating Health & Nutrition

Oils: What's Cooking?

Nutrition Information

A growing number of cooking oils are available, but which oils are the best for cooking and provide the most healthful benefits? Let's explore a variety of cooking oils and how to evaluate them for use in the kitchen. To assess the nutritional and cooking qualities of different oils we will look at smoke point, ratio of fatty acids, and refined versus unrefined oils. Let's define these terms to help understand how they can impact the nutrition and cooking uses of oils.

Smoke Point
This refers to when the temperature of the oil exceeds safety, causing the release of free radicals that react with oxygen-forming compounds that can harm your body. It is also the temperature at which the oil will burn.

Ratio of Fatty Acids
Fatty acids are the building blocks of fat. Cooking oils have different amounts of omega-3, omega-6, and omega-9 fatty acids. These fatty acids impact the physical and nutritional qualities of cooking oils. Omega-3 and omega-6 fatty acids are both essential fatty acids for humans, meaning they must be obtained through the diet.

Omega-3
Alpha-linolenic acid is a type of omega-3 fatty acid found in plants, such as walnuts, flax seed, and leafy greens. Common cooking oils that are good sources are canola and soybean oil. In omega-3, the first double bond from the end of the fatty acid is at carbon atom 3.

Omega-6
Linoleic acid is a polyunsaturated essential fatty acid found mostly in plant oils. Common cooking oils that are highest in omega-6 are sunflower, corn, soybean, and cottonseed. In omega-6, the first double bond from the end of the fatty acid is at carbon atom 6.

Omega-9
Oleic acid is a main component of olive oil and other monounsaturated fats. Canola and safflower oils are also very high in omega-9. In omega-9, the first double bond from the end of the fatty acid is at carbon atom 9.

Unrefined Oils
These oils occur exactly as they do in plants. The oils have a full, rich flavor and are higher in nutrients such as antioxidants and polyphenols.

Refined Oils
Oils are extracted from the plant using a solvent. These types of oils have a higher yield and are easily preserved because of a lower risk of rancidity. Refined oils also contain fewer polyphenols due to the manufacturing process. Polyphenols help protect cells from oxidative damage.

Tip:
Read the label of the oil you are using to cook with to help you make healthier choices. Choose an oil that is low in saturated fat and high in poly- and monounsaturated fatty acids.
Now let’s compare the origin, production, fatty acid composition (Table 1), and smoke point of different cooking oils (Table 2).

### Table 1. Common Cooking Oils Origin and Production Information

<table>
<thead>
<tr>
<th>Oil Type</th>
<th>Origin and Production Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canola Oil</td>
<td>The oil is pressed from the seeds from the flower of the plant. Canola oil is one of the most common cooking oils in America. The canola plant belongs to the same family as mustard, broccoli, Brussels sprouts, and cauliflower.</td>
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<tr>
<td>Olive Oil</td>
<td>There are specific standards of production and purification that olive oil producers must meet before selling their olive oil.</td>
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<tr>
<td></td>
<td>Extra virgin olive oil (EVOO) is oil made from cold-pressed olives. EVOO is the highest-quality oil from first pressing using no heat or chemicals.</td>
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<td></td>
<td>“Lite olive oil” means the oil is refined, not that it is low in fat; color may be lighter, lacking the flavor of olives—use when flavor is not needed.</td>
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<tr>
<td></td>
<td>The fat and calories are the same in all grades of olive oil.</td>
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<tr>
<td></td>
<td>Olive oil does not get better with age. Look for the furthest out “best by date” when purchasing.</td>
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<tr>
<td></td>
<td>Store olive oil tightly covered in a cool, dark place; under these conditions, it should remain fresh for about 18 to 24 months. An open bottle of olive oil can also be refrigerated to extend its shelf-life; this is especially recommended in hot, humid environments.</td>
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<tr>
<td></td>
<td>Refrigerating olive oil may cause the oil to become cloudy and even solidify; this will not affect the flavor or quality. At room temperature, the oil will return to its normal consistency and color. When stored properly, olive oil will be safe to consume after the “best date.”</td>
</tr>
<tr>
<td></td>
<td>Oil should be discarded if an off odor, flavor, or appearance is detected.</td>
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<tr>
<td></td>
<td>Olive oil is very high in monounsaturated fats and contains a modest amount of vitamins E and K. True extra virgin olive oil is loaded with antioxidants, some of which have powerful health benefits.</td>
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<tr>
<td>Peanut Oil</td>
<td>Peanut oil production is traditionally hot pressed but can also be cold pressed. The hot-pressing process can denature or alter the chemical components found naturally in the oil.</td>
</tr>
<tr>
<td>Coconut Oil</td>
<td>Coconut oil is produced from the milk or meat of the coconut. The oil is higher in saturated fat and therefore resistant to oxidation and rancidity.</td>
</tr>
<tr>
<td>Avocado Oil</td>
<td>Avocado oil is made by mashing the flesh and undergoing heat processing to remove the oils. After processing, the oil appears bright green because of a higher chlorophyll content.</td>
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<tr>
<td>Sesame Oil</td>
<td>Sesame oil is pressed from a fully ripe sesame seed. The oil has high sesamol content, a phenol antioxidant that prevents the oil from turning rancid.</td>
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<tr>
<td>Palm Oil</td>
<td>Palm oil is a vegetable oil from the palm fruit or mesocarp (red pulp) of an palm oil tree. Palm oil is highly saturated and therefore semi-solid at room temperature. This low-cost oil is used largely for frying applications due to its oxidative stability.</td>
</tr>
</tbody>
</table>
Omega-3 and omega-6 fatty acids are polyunsaturated fatty acids. These fatty acids can form hormonelike compounds called eicosanoids in the body that can have possible health benefits by helping to regulate bodily functions.

The omega-3 eicosanoids tend to reduce inflammation and protect against heart attacks, strokes, and inflammatory diseases such as arthritis, lupus, and asthma.

The omega-6 AA forms eicosanoids that increase the inflammatory response to injury, stress, infection, and disease. These increase clotting, restrict blood vessel size, and help contain an infection or reduce bleeding.

Common vegetable oils that are high in polyunsaturated fats include canola, peanut, sesame, sunflower, corn, and soy. Saturated fats, unlike polyunsaturated fatty acids, don’t contain any double bonds. Saturated fats are most often solid at room temperature. These fats are considered unhealthy fats. Foods like butter, palm and coconut oils, cheese, and red meat have high amounts of saturated fat.

**Tuscan-Style Roasted Asparagus (with Fennel)**

**INGREDIENTS**
- 1½ pounds fresh asparagus, trimmed (add some strips of fresh fennel)
- 1½ cups grape tomatoes, halved
- 3 Tbsp pine nuts
- 3 Tbsp olive oil, divided
- 2 garlic cloves, minced
- 1 tsp kosher salt
- ½ tsp pepper
- 1 Tbsp lemon juice
- ½ cup grated Parmesan cheese
- 1 tsp grated lemon peel

**DIRECTIONS**
Preheat the oven to 400°F. Place pre-rinsed asparagus, tomatoes, and pine nuts on a foil-lined 15-inch x 10-inch x 1-inch baking pan. Mix 2 tablespoons oil, garlic, salt, and pepper; add to asparagus and toss to coat. Bake 15–20 minutes and reaches a minimum temperature of 135°F. Drizzle with remaining oil and lemon juice; sprinkle with cheese and lemon peel. Toss to combine.

**Nutrient Information**
Serving size: ½ cup (128 grams), servings per container: 8
Per serving: calories 100, total fat 8 g, saturated fat 1.5 g, sodium 300 mg, carbohydrate 6 g, fiber 2 g, protein 4 g.

Recipe source: Taste of Home
Shopping Tips
Look at the label to see whether the oil is “unrefined,” “cold pressed,” or “virgin.” This oil will have higher nutrition because the compounds have not been altered with heat processing.

Use oils with a higher smoke point (see Table 2) for frying or other high-heat cooking. Use oils with lower smoke points for cold items, such as salad dressings and pasta salads, or seasoning already cooked items.

Tips Impacting Different Age Groups
As we age, our arteries stiffen. Choosing unrefined cooking oils with less saturated fat and that contain polyphenols can help protect your heart and arteries.

Examine Your Choices

<table>
<thead>
<tr>
<th>Food</th>
<th>Source</th>
<th>What I Buy</th>
<th>What I Plan to Buy/Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: Oil</td>
<td>Omega-3 canola oil</td>
<td>Margarine</td>
<td>Canola oil or butter/canola or olive oil blends</td>
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</table>

My goal: ___________________________________________________________________________

Sources


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