

Understanding Fats and Oils

Have you ever wondered which fats and oils are best for pan frying, light sautéing, baking or just simply using as a salad dressing? As with everything these days, you have many options. Unfortunately, it's not just a matter of choosing fats and oils that are healthy, but also whether they stay healthy after having been processed, stored, and cooked with. There are quite a few misunderstandings when it comes to choosing healthy fats and oils.

Dietary fats are divided into three main categories or types of fat: saturated fats, monounsaturated fats, and polyunsaturated fats. Both saturated and unsaturated fats are naturally occurring healthy fats that the body needs. One important thing to understand is that all fats are basically a combination of saturated, monounsaturated, and polyunsaturated fatty acids in different proportions. Whichever fatty acid has the highest percentage determines the type of fat we refer to it by and what application it is best used for. For example, the fatty acid composition of the average olive oil is 73% monounsaturated fat, 16% saturated, and 11% polyunsaturated and therefore referred to as a monounsaturated fat.

"In fats and oils terminology, "unsaturated" equals "double bonds" and "saturated" equals "no double bonds" (Enig, 23). Saturated fats contain carbon atoms that are fully saturated with hydrogen. Since the atoms are fully saturated, this type of fat is very stable and suitable for cooking and also what makes it solid at room temperature. Unsaturated fats contain one (mono) or many (poly) double bonds and thus capable of undergoing additional reactions. These double bonds are what make unsaturated fats liquid at room temperature. When there are many double bonds, as is the case with polyunsaturated fats, this makes these fats chemically unstable. Due to their unstable chemical structure, polyunsaturated fatty acids are more susceptible to rancidity than saturated and monounsaturated fatty acids, especially after prolonged contact with oxygen or light. Contact with heat can also make certain polyunsaturated oils rancid. This means oils that contain substantial amounts of polyunsaturated fats should not be used for cooking. It is commonly thought that the smoke point is the only indicator of how safe a fat or oil is for cooking however, it is the number of double bonds a fat has that is more important. Knowing the point where oil smokes (smoke point) is still important however as this signals that the fat or oil has been damaged and needs to be discarded.

Polyunsaturated fats are further broken down into two categories: Omega 6 and Omega 3. These types of fats are both "essential" in that the body cannot make them and we must obtain them from food. How much Omega 6 we should eat depends in large part on how much Omega 3's we are consuming. It is the balance of Omega 6 to Omega 3 that is vitally important. For optimal health, the ratio of omega 6 to omega 3's should be about 2:1. The Standard American Diet tends to be much higher in Omega 6 than Omega 3. If you are eating the Standard American Diet your ratio would be about 10:1 (which is 10x as much omega 6). This is why we have to be very purposeful about including foods high in Omega 3's. As Dr. Sears says, "Give yourself an oil change!"

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Definition of Terms

- **Chemically unstable:** vulnerable to oxidation and free radicals.
- **Extracted:**
 - **Cold pressed:** chemical free process of extracting oil from seeds. Cold pressed means the extraction is done under controlled, cooler temperatures.
 - **Expeller pressed:** chemical free process of extracting oil from seeds. During the process, friction is generated when the nut or seed is compressed to force the oil out mechanically.
 - **Solvents:** chemical solvents (i.e. hexane) are generally used in the commercial extraction of most seed oils used for food. If you don't see "expeller" or "cold-pressed" on a label, assume that its solvent extracted. This involves a harsh chemical solvent like hexane and heat up to 500 degrees.
- **Extra virgin:** means it is of higher quality, a superior taste, and no defined sensory defects. Technically this term refers to olive oil only and is defined by the International Olive Oil Council (IOOC) but the United States is not a member of this organization and does not legally recognize the IOOC's classification system. Meaning the term "extra virgin" can be listed on any label of oil even if they aren't truly extra virgin. See the website source below, truthinoliveoil.com for a list of top supermarket picks when it comes to choosing a quality extra virgin olive oil.
- **High oleic oil:** these oils have the monounsaturated fatty acid called oleic added to increase the percentage of monounsaturated fat.
- **Rancid:** having a rank, unpleasant, stale smell or taste. Oxidized.
- **Refined:** oils that have gone through a refining process to remove impurities. However, the refining process can also remove nutrients and flavor. Removing the delicate nutrient profile results in oil that can reach a higher temperature and has a more neutral flavor. When oil has been refined typically it is listed on the label. Just as having a choice with the extraction method, you have a choice with refined oils. Most manufacturers use industrial-level refinement processes like bleaching, filtering, and high-temperature heating. If you do choose refined oil, look for naturally refined oils in which no chemicals were used. Coconut oil is an example of good naturally refined oil.
- **Smoke point:** the point where oil smokes. When an oil smokes it signals that the oil has been damaged and potentially cancer-causing properties have formed. If oil smokes in the pan, discard it. Clean the pan and start over at a lower temperature.
- **Unrefined:** unrefined oils are filtered only lightly to remove large particles. Unrefined oils are more nutritious and have a shorter storage life than refined.
- **Virgin:** means the oil was produced by the use of mechanical means only, with no chemical treatment.

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Recommended*:

| Name | Uses | Storage | Type of Fat** (Primary) | Smoke Point** |
|--------------------------|--|--|--|--------------------------|
| Avocado Oil | Suitable for medium-high heat: Perfect for stir-frying, frying, sautéing, baking, dipping, blending into a dressing/sauce, or drizzling on a finished dish | Store in a cool, dry place | Monounsaturated (68%) | 520°F |
| Butter | Suitable for medium-high heat | Store in a cool dry place or in the refrigerator | Saturated (51%) | 350°F |
| Coconut Oil | Suitable for medium-high heat | Store in a cool dry place | Saturated (86%) | 350°F |
| Flax seed oil | Not suitable for cooking. Use in dressings or drizzling on a finished dish | Store in the refrigerator | Polyunsaturated Omega 3 ALA (50 – 60%) | Not suitable for cooking |
| Macadamia Nut Oil | Suitable for very low heat and/or cold use. Perfect for light sautéing, dipping, blending into a dressing/sauce, or drizzling on a finished dish | Store in a cool dry place | Monounsaturated (80%) | 250°F |
| Olive Oil (Extra Virgin) | Suitable for very low heat and/or cold use. Perfect for light sautéing, dipping, blending into a dressing/sauce, or drizzling on a finished dish | Store in a cool, dry place | Monounsaturated (73%) | 325°F |

*Choose organic, cold or expeller pressed when possible.

**All numbers are approximate.

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Use in Moderation*:

| Name | Uses | Storage | Type of Fat** (Primary) | Smoke Point** |
|--------------------------|--|----------------------------|------------------------------------|----------------------|
| Grapeseed Oil | Not recommended for cooking. Best as finishing oil; drizzle on salad, vegetables, seafood or meat | Store in a cool, dry place | Polyunsaturated Omega 6 (72%) | 420°F |
| Peanut Oil | Suitable for light cooking/sautéing | Store in a cool, dry place | Monounsaturated (46%) | 425°F |
| Safflower Oil high-oleic | Suitable for medium-high heat: Perfect for stir-frying, frying, sautéing, baking, dipping, blending into a dressing/sauce, or drizzling on a finished dish | Store in a cool, dry place | Monounsaturated (75%) | 318°F |
| Sesame Oil | Do not use for cooking. Best as finishing oil; drizzle on salad, vegetables, seafood or meat | Store in a cool, dry place | Polyunsaturated Omega 6 (41%) | 350°F |
| Sunflower Oil high-oleic | Suitable for medium-high heat: Perfect for stir-frying, frying, sautéing, baking, dipping, blending into a dressing/sauce, or drizzling on a finished dish | Store in a cool, dry place | Monounsaturated (83%) | 440°F |
| Walnut Oil | Do not use for cooking. Best as finishing oil; drizzle on salad, vegetables, seafood or meat | Store in a cool, dry place | Polyunsaturated Omega 6 (58%) | 320°F |

*Choose organic, cold or expeller pressed when possible.

**All numbers are approximate.

Note: Despite what a label may claim on Grapeseed Oil, it should not be used for cooking due to its very high polyunsaturated fatty acid profile. When polyunsaturated oils are exposed to heat, light, and air they are easily oxidized which causes damage to cells and tissues when consumed and will lead to inflammation.

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Not Recommended:

These oils are too high in polyunsaturated Omega 6, genetically modified, highly refined and/or chemically processed.

- **Canola Oil:** A good rule of thumb when it comes to “seed” oils is to stay away from seeds that you would not normally eat. Canola oil was developed through hybridization of rape seed which is part of the mustard family. Ever had a rape seed before? The name Canola oil was given in place of rapeseed oil because most of the new rapeseed at that time was grown in Canada and well, rape seed does not sound too appetizing! According to fat experts Sally Fallon and Mary Enig, Ph.D.: “Like all modern vegetable oils, Canola oil goes through the process of refining, bleaching and degumming — all of which involve high temperatures or chemicals of questionable safety. And because Canola oil is high in Omega 3 fatty acids, which easily become rancid and foul-smelling when subjected to oxygen and high temperatures, it must be deodorized. The standard deodorization process removes a large portion of the Omega 3 fatty acids by turning them into trans fatty acids. Although the Canadian government lists the trans content of Canola at a minimal 0.2 percent, research at the University of Florida at Gainesville, found trans levels as high as 4.6 percent in commercial liquid oil. The consumer has no clue about the presence of trans fatty acids in Canola oil because they are not listed on the label.”
- **Corn Oil:** High in polyunsaturated fat (54% Omega 6) and genetically modified (approx. 88% of U.S. crop)
- **Cottonseed Oil:** High in polyunsaturated fat (52% Omega 6) and genetically modified (approx. 90% of U.S. crop).
- **Soybean Oil:** High in polyunsaturated fat (50% Omega 6) and genetically modified (approximately 94% of the U.S. crop).
- **Vegetable Oil:** Typically a combination of Canola, Corn, Cotton, Safflower (if it is not high-oleic it is too high in polyunsaturated Omega 6), Sunflower (if it is not high-oleic it is too high in polyunsaturated Omega 6) and/or Soy and should be avoided.

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Note: The oils listed in each of the above categories are not an exhaustive list of all the oils that are available in today's market place.

Sources:

Enig, M. (2000). Know Your Fats: The complete primer for understanding the nutrition of fats, oils and cholesterol. Bethesda Press, Silver Spring, MD.

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Supermarket Shopping for Olive Oil:

<http://truthinliveoil.com/2012/09/toms-supermarket-picks-quality-oils-good-prices>