



Cooking with Extra Virgin Olive Oil and Olive Oil

The **smoke points** of cooking oils are related to the Free Fatty Acid (FFA) of the oil, with a lower acidity typically resulting in a higher smoke point.

- The FFA for extra virgin olive oil can range anywhere from very low, about 0.2%, up to the international standard limit of 0.8%. As such, the smoke point of extra virgin olive oils can be quite variable.
- Refined oils like olive oil have very low FFA and thus high smoke points

In deciding which oil to use for cooking, the oil's **stability** is also very important. Olive oils are rich in oleic acid and minor compounds which make them very stable. Extra virgin olive oils contain polyphenols and antioxidants that fight the breakdown of the oil and the formation of free radicals. Because of this, extra virgin olive oil often holds up longer and better than other oils at moderate cooking temperatures.

A recent study published in Food Chemistry compared free radical formation and oxidation (rancidity) when heating peanut oil and extra virgin olive oil. Measuring oxidation, the researchers found more heat was needed to start the oxidation process in the extra virgin olive oil than in the peanut oil. Regarding free radicals, both oils created about the same amount of free radicals at about the same rate over time (and the extra virgin olive oil used was stripped of polyphenols first).

- It is a reasonable assumption that if the extra virgin olive oil had polyphenols intact when looking at free radicals, the polyphenols would fight free radical formation and the extra virgin olive oil would likely perform even better than the peanut oil
- Tomassetti et al. (2013) Biosensors for monitoring the isothermal breakdown kinetics of peanut oil heated at 180 C. Comparison with results obtained for extra virgin olive oil. Food Chemistry, 140, 700-710. <http://dx.doi.org/10.1016/j.foodchem.2012.10.131>

Heating any food will affect its final nutritional value – the hotter and longer the heat is on, the more nutritional value will be lost. This concept is not unique to olive oil use – but, **olive oil can actually hold up better!**

The average stovetop cooking temperature is about 350° F, well within the smoke point range for both extra virgin olive oil and olive oil

- **Extra virgin olive oil smoke point range 320° - 420° F**
- **Olive oil and light-tasting olive oil smoke point range 390° - 470° F**



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