

Heating and Reusing Oil for Deep Frying Harmful to Health

Heating and reusing oil that is used for deep frying increases the amounts of harmful trans fatty acids and reduces cis-unsaturated fatty acids that are beneficial for health, claims a study from several institutes of New Delhi including AIIMS, Fortis, IIT-Delhi and Diabetes foundation in their recent study from North Indian oil samples.

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Deep-frying is a popular method of cooking across the world especially in the Indian subcontinent where the food is cooked in hot oil or fat, deep enough to immerse the food in the oil completely. During deep-frying where the oil or fat is heated in the open at high temperature, it undergoes thermal decomposition that causes deterioration of its properties, both sensory and nutritional. To cut down costs, homemakers and commercial food vendors reuse the oil that has been used for deep-frying, multiple times. Deep-frying causes the formation of trans fatty acids that have adverse effects on health that increases the risk for cardiovascular diseases, systemic inflammation, insulin resistance and type2 diabetes. Increase in the temperature or duration of heating oils increases the amount of harmful trans fatty acids, because of which several European countries have already recommended to not heat oil repeatedly and above 180°C.

Researchers from several institutes in New Delhi, India including AIIMS, IIT-Delhi, Fortis, and Diabetes foundation have found that heating and reheating oils for deep frying increase the amounts of harmful trans fatty acids and decrease the amounts of cis-unsaturated fatty acids that are beneficial for health. They conducted a survey that included female correspondents, fast food junctions including roadside vendors and a few restaurants. They found that north Indians consume 6 types of oils- refined soybean, groundnut, olive, rapeseed, vanaspati, and clarified butter or ghee for deep-frying.

The scientists used a large open vessel commonly called *karahito* heat oil at temperatures 180°C and 220°C for 4 cycles of 30 minutes heating and 60 minutes cooling each. The oil samples were tested for the amounts of harmful trans fatty acids and beneficial cis-unsaturated fatty acids. They found that all six types of unheated oils had 60-90% cis-unsaturated fatty acids that are good for health and low to moderate amounts of harmful trans fatty acids. When oils and fats are heated above 150°C for more than 20 minutes and multiple times, the levels of harmful trans fatty acids increase significantly with a concomitant drop in beneficial cis-unsaturated fatty acids. Every cycle of heating, increases the levels of trans fatty acids even more. The scientists claim, "...fats/oils subjected to high temperature heating/re-heating show high levels of TFA (trans fatty acids) and SFA (saturated fatty acids) at the cost of cis-unsaturated fatty acids, which is nutritionally undesirable".

The study advocates that Indian authorities need to set up guidelines to stop the practice of reusing the same oil or fat and maintaining a low temperature during frying in all food establishments.

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