

## Assessing the Health Impacts of Repeatedly Heated Cooking Oil Consumption Using AI Technology

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This study evaluates the health consequences of consuming repeatedly heated coconut oil, which is widely utilized in Southern Asia. Coconut oil, which is commonly used in street food markets and restaurant chains, undergoes chemical transformations when heated repeatedly, causing major health hazards. The researchers employed AI-based machine learning algorithms to examine the chemical changes and harmful byproducts that occur in oil with repeated use. Specifically, data from 1,000 oil samples of 200 different food items fried in coconut oil that were evaluated for pH levels and the hazardous chemical 24-decadienal were used. The findings revealed that the usage of repeatedly heated coconut oil increased acidity and harmful chemical levels, which have been connected to oxidative stress and inflammation, where both the factors are considered as risk factors towards our health such as chronic diseases namely, cancer, diabetes and heart diseases. The study presents actual data which demonstrates the health concerns associated with the repetitive heating of frying oil. A comprehensive analysis is provided by utilizing machine learning algorithms. The study provides the significance of establishing clear and comprehensive guidelines for using cooking oil, while raising public awareness. Prospective researches could investigate into the health impacts of other types of oil which are utilized for cooking purposes and their methods of utilization in order to broaden the views in the culinary world.

**Keywords:** *coconut oil, repeated heating, health risks, machine learning, Chemical composition*