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The effect of Ramadan fasting on serum lipid profile in obese and non-obese humans

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The practice of fasting involves avoiding food and liquids for predetermined amounts of time in order to enhance essential bodily processes. While there are other forms of fasting, Islamic fasting and intermittent fasting are the most well-known.

First, Islamic fasting: According to the lunar Islamic calendar, Ramadan, the ninth month, lasts roughly 29 to 30 days. All adults who practice Islam are required to fast throughout the holy month of Ramadan. Healthy Muslims abstain from all food and liquids during this time, and they also abstain from smoking tobacco every day from before sunrise till dark (21). There haven't been many studies on this topic recently, but primary care doctors can learn a lot from it about the physiological changes that occur in diverse groups with distinct Muslim rites. An eating habit that alternates between times of eating and fasting is known as intermittent fasting. It is distinguished by the fact that it mostly depends on mealtimes and places little limitations on the kinds of food that can be consumed or avoided. As a result, intermittent fasting usually refers to meal times rather than a plan.

Lipid profile: A pattern of lipids in the blood, A lipid profile usually includes the levels of total cholesterol, high-density lipoprotein (HDL) cholesterol, triglycerides, and using these values, a



laboratory may also calculate: Very low-density lipoprotein and Cholesterol: IDL ratio Triglycerides it Ordered to determine the risk of heart disease.

Literature review: The potential advantages of intermittent fasting (IF) in enhancing lipid profiles and encouraging weight loss are drawing both scientific and public interest. This review investigated the physiological mechanisms underlying these effects by looking at studies that compared lipid profiles before and after IF. By reducing total cholesterol, LDL, and triglycerides and raising HDL, normocaloric and hypocaloric IF may help improve lipid profiles in healthy, obese, and dyslipidemic people.

The study looked at how the profiles of healthy Muslim lipid people were affected by the Ramadan fast. According to the findings, high-density lipoprotein cholesterol (HDL-C) greatly increased while total cholesterol (TC) and triglycerides (TG) significantly decreased. The results of a study that collected blood samples from 100 individuals both before and during the final week of Ramadan show that fasting reduced cholesterol.

The study looked at the effects of Ramadan fasting on cholesterol levels among Muslims in good health. The findings showed that total cholesterol rose and triglycerides dramatically dropped, whereas LDL and HDL exhibited minor variations with stable values.

Our study will focus on complete fasting, which is the Islamic fast. Its importance lies in improving overall body fat levels. This will be confirmed through experiments on healthy and unhealthy individuals. Studies on Islamic fasting are scarce, whereas those on intermittent fasting are numerous. Nonetheless, this will be the first research of its kind in the Hebron region.

Research Question and Study Main Objectives:

Does fasting in Ramadan ameliorate lipid profile?

The aim of this study is to assess the effect of Islamic fasting during Ramadan on lipid profiles.

Methods:

- 1- Concept stage: During this stage, the project idea is built and designed in a systematic manner, where the participating categories are determined according to specific criteria, including gender, height, weight, and age.



- 2- Tool selection stage: At this stage, the basic tools necessary to carry out the study with scientific accuracy and efficiency are selected, including: needles, syringes, a centrifuge, an Eppendorf tube, alcohol, a plain tube, and a clinical device.
- 3- Sample collection stage: During this stage, samples are collected from the study participants in three specific time periods with the aim of analyzing the changes that occur during a specific time period. The stages are:
 - Stage 1: Collecting samples before the start of the fasting month of Ramadan.
 - Stage 2: Collecting samples during the month of Ramadan.
 - Stage 3: Collecting samples after the end of the month of Ramadan.
- 4-Sample separation stage: At this stage, the different components of the samples are separated using a centrifuge, where the serum is extracted from the sample. The serum is then stored in the freezer at a temperature of -20 degrees Celsius to ensure its stability and proper preservation until it is used.
- 5- Sample work stage: At this stage, serum components are analyzed using a specialized clinical device, where the concentration of total cholesterol, triglycerides, high-density cholesterol (HDL), and low-density cholesterol (LDL) will be measured in the samples in order to evaluate the lipid levels in the blood.
- 6- Results appearance and interpretation stage: At this stage, the results extracted from the study will be analyzed and interpreted, and compared with the theoretical framework and previously defined objectives.

Results: Triglycerides and VLDL levels were statistically significantly reduced during the month of Ramadan ($p = 0.002$). This suggests that fasting has a beneficial metabolic impact on these lipid components.

Both LDL and cholesterol:

There was no discernible change ($p > 0.05$), indicating that fasting had no discernible impact on your sample's LDL or total cholesterol levels.

HDL cholesterol:

- With $t(19) = 0.295$ and $p = .772$, this difference was not statistically significant.



- HDL levels before and after showed a substantial association ($r = 0.807$, $p < .001$).

Conclusions:

After comparing the results from before and throughout Ramadan, the study revealed a notable drop in triglyceride levels. If the study participants have fat-related health issues, this could be a justification for bettering their treatment. One of the benefits of fasting that we saw was this. HDL and LDL levels did, however, slightly and negligibly decline. The variance between high and low readings can be attributed to eating choices and physical activity. Additionally, because VLDL and triglyceride levels are correlated, there was a notable drop in VLDL levels. We advise either intermittent or voluntary fasting in light of these values. There is a third draw, which we were unable to hold owing to time constraints, therefore these results are not final. Based on the third draw and its analysis, we think the conclusion will shift.