



EFFECT OF INTERMITTENT FASTING ON LIPID PROFILE

Dr. Pallav Thakre¹, Dr. Nirmesh Sudhikumar Kothari²

¹Assistant Professor Dept. of Medicine Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences Sawangi (Meghe) Wardha

²Assistant Professor Dept. of Medicine Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences Sawangi (Meghe) Wardha

Conflicts of Interest: Nil

Corresponding author: Dr. Nirmesh Sudhikumar Kothari

ABSTRACT

Introduction: Intermittent fasting, whose claimed advantages include improved lipid profiles and weight reduction, has received a lot of scientific and public attention. However, most studies that look at the effects of intermittent fasting on lipid profiles and body weight reduction are observational and focused on Ramadan fasting, which lacks a large sample size and precise food information. To assess the effects of IF, randomised clinical studies with a higher sample size are required, especially in patients with dyslipidemia.

Aim: Effect of Intermittent Fasting on Lipid Profile

Material and Method: This study included total 40 fatty or obese males as per given instructions 12-15 hours fasting compulsory in night time evening 8 pm -morning 11 am do not eating breakfast or drinking tea or coffee not allowed if in case he feel hungry this periods only he can consume water, green tea and lemon tea allowed as per protocol study this study periods 04 weeks. Included subjects were comes from OPD.

Result: Table 1 shows that to the comparison between before intermittent fast and after intermittent fast subjects followings lipid profile values are serum total cholesterol, serum Triglyceride, serum HDL, and Serum LDL are significantly decreased after 4 weeks of intermittent fasting to comparison before intermittent fast subjects the values are shows significant. $P < 0.001$

Conclusion: Fasting on a regular basis for four weeks, restricting food consumption from 7 pm to 10 am for 12-15 hours/day results in weight loss and an improvement in lipid profile, notably cholesterol, triglycerides, HDL, and LDL, which can lower the risk of cardiovascular disease.

Keywords: Intermittent fasting, caloric restriction, weight loss, Ramadan fasting, lipolysis, ketogenesis.

Introduction

Intermittent fasting (IF) can be used to improve one's health and maintain a impartial lipid profile. But is a form of energy-restricted feed strategy that has been used in religious and cultural settings for a long time. Animal models have been used to study IF extensively. According to these research, IF improves lipid profile. Intermittent fasting, whose claimed advantages include improved lipid profiles and weight reduction, has received a lot of scientific and public attention. This re-evaluate intended to supply a complete indication of research that looked at the lipid profile in people earlier than and later than an alternating fasting time, as

well as to suggest a physiological method based on the food and bulk load reduction. Intermittent fasting, both normal and low calorie, has been shown to enhance lipid profiles in fit, overweight, and dyslipidemia man and female by lowering total cholesterol, LDL, triglycerides, and raising HDL levels. However, most studies that look at the effects of alternating fast on lipid profiles and bulk mass reduction are observational and focused on Ramadan fast, which lacks a big example size and precise food in order. To assess the effects of IF, randomised clinical studies with a higher sample size are required, especially in patients with dyslipidemia.¹

Fasting is done in humans by consuming no or very little food and caloric drinks for intervals ranging from 12 hours to three weeks. Several spiritual organisations, as well as Muslims, who express starting sunrise to dark throughout the month of Ramadan, and Christians, Jews, Buddhists, and Hindus, who historically fast on specific living of the week or schedule day, include fasting times in their rituals. In various clinic, patients are at present supervised by doctors though fasting for weight loss or illness prevention and treatment for up to a week on water alone or extremely little calorie (less than 200 kcal/day) fasting. Fasting differs starting calorie control (CR), which involve reducing every day caloric intake by 20%–40% over time while maintaining meal frequency. Instead, starvation refers to a long-term nutritional deficiency that is frequently second-hand as a synonym for fasting, especially in lesser eukaryotes, except May too refer to severe types of fasting that can lead to deterioration and loss. We at present recognize so as to fasting causes ketogenesis, promotes powerful change in metabolic pathway and cellular process like pressure struggle, lipolysis, and autophagy, and know how to contain health check application to, in a number of belongings, be as successful because permitted drugs, such as falling seizures and seizure-related brain injure, and alleviating rheumatoid arthritis.²

Alternating fast with energy-restricted diet has been shown to lower total cholesterol, LDL cholesterol, and triacylglycerol levels in the blood. Intermittent fasting and energy-restricted diets, on the other hand, had no discernible impact on high-density lipoprotein cholesterol levels.³

The health consequences of Ramadan fasting have been varied in research. Some studies show a decrease in body mass, even as others show no change. Inconsistencies in the lipid profile and blood glucose level have also been noted. Difficult variables such as fast length, medicines, eating lifestyle, enlightening standards, and bodily movement might be one cause. Methodological variations, seasonal fluctuations, geographic location, sunshine exposures, and other factors may all have a role.^{4,5}

Dyslipidemia, which is defined as a elevated absorption of blood total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), and triglycerides (TG) combined with a low amount of high-density lipoprotein cholesterol (HDL-C), is well-known to be related to cardiovascular disease (CVD). Low HDL-C levels with normal LDL-C and triglyceride levels have been found in certain studies to be just as hazardous for cardiovascular health as high LDL-C levels. HDL-C reverses cholesterol carry and lowers the risk of atherosclerosis. HDL-C is also anti-inflammatory, anti-oxidant, anti-thrombotic, anti-apoptotic, and vasodilator. Lifestyle changes, frequent exercise, and moderate alcohol intake are some of the other options for controlling dyslipidemia.⁶

AIM

Effect Of Inter Mittent Fasting On Lipid Profile

Material and Method

This study included total 40 fatty or obese males as per given instructions 12-15 hours fasting compulsory in night time evening 8 pm - morning 11 am do not eating breakfast or drinking tea or coffee not allowed if in case he feel hungry this periods only he can consume water, green tea and lemon tea allowed as per protocol study this study periods 04 weeks. Included subjects were comes from OPD. Subjects under Observe Short-course focus in the Dept. of General Medicine, Datta Meghe Medical College and Shalinitai Meghe Hospital and Research Center, Nagpur in collaboration with JNMC & ABVRH (Datta Meghe Institute of Medical Sciences Deemed To Be University), Sawangi, Wardha, Maharashtra.

Sample Collection

5ml of blood sample were taken from each subjects and divided into Plain Vial. Sample were used for the estimation of the plain sample were used to estimate the level of lipid profile.

Biochemical Analysis

The sample was used to estimate the levels of lipid profile were estimated on AU480 Analyser.

Result:

Table 1: to comparison between Before IM subjects and After IM subjects groups.

Parameters	Before IM (n-20)	After IM (n-20)	p-value
Total Cholesterol (mg/dl)	218.5±34.8	181.3±20.1	P<0.001
Triglyceride (mg/dl)	187.3±22.3	152.7±18.6	P<0.001
HDL (mg/dl)	34.4±3.51	42.1±4.21	P<0.001
LDL (mg/dl)	152.9±18.7	110.6±20.4	P<0.001
VLDL (mg/dl)	37.46±10.3	30.54±6.11	

Table 1 shows that to the comparison between before intermittent fast and after intermittent fast subjects followings lipid profile valves are serum total cholesterol, serum Triglyceride ,serum HDL ,and Serum LDL are significantly decreased after 4 weeks of intermittent fasting to comparison before intermittent fast subjects the valves are shows significant. P<0.001

Table 1 shows that to the comparison between before intermittent fast and after intermittent fast subjects followings lipid profile valves are serum VLDL significantly decreased after 4 weeks of intermittent fasting to comparison before intermittent fast subjects the valves are shows not-significant. P>0.0137

Discussion

Our study shows that intermittent fasting is a reduced the lipid profile and weight loss to 12-15 hrs fasting in per day 4 weeks.

base going on the available data starting living thing and human being research, we believe to incorporating IF or PF into adult lifestyles has a lot of promise for promoting most favourable fitness and lowering the hazard of numerous unrelieved illnesses, especially for individuals who are overweight and inactive. Fasting has been shown in animal experiments to improve insulin sensitivity and lower blood weight, body fat, IGF-I, insulin, glucose, atherogenic lipids, and swelling. Fast regimen has been shown to enhance disease processes and functional outcomes in animal models of cancer, myocardial infarction, diabetes, stroke, Alzheimer's disease, and Parkinson's disease. Fasting induces adaptive cellular anxiety response, which result in a greater capacity to cope with increasingly strict pressure and fight disease process. Fasting may also slow or prevent the genesis and progression of malignancies by shielding cells from DNA

harm, reducing unit proliferation, and increasing apoptosis of injured cell.⁷

As a stand-alone or adjuvant therapy, fasting regimens might be customised for certain illnesses. Initial human trials of intermittent fasting (IF) (fasting two being for every week or each last date) show to around is a key changeover stage of 3–6 weeks throughout which the mind and body adjust to the recent ingestion example and humour improves.⁸

Though speculation, it is probable that brain neurochemistry changes during the latter transition phase, overcoming the "addiction" to usual meal ingestion during the daytime. particularly, except collective with high-nourishment diet like the reasonable calorie eating with mainly plant-based Mediterranean or Okinawa low-protein diets (0.8 g protein/kg of body weight), the a variety of fast approach are possible to include restricted value, mostly on ageing and situation last than fatness, mainly on ageing and condition former than obesity.⁹

Santos et al.¹⁰ analysed data from several studies and found that altered kinds of IF can raise HDL by 1–14 mg/dl, lower LDL by 1–47 mg/dl, down TC by 5–88 mg/dl, and lower TG by 3–64 mg/dl. In comparison to last forms of IF, our technique looks to be safe, effective, and practical, with no added financial or physical costs. Individuals may easily adopt IF into their daily routines without having to make any additional hard work to set up low-fat meal. The 12-hour fast may be maintained by eating a light breakfast and dinner at a reasonable hour, which mechanism for both weekdays and weekends. People who work late evenings or have a lively communal living with regular dining not at home habits may find it challenging. This was also noticed in the current study, when five participants withdrew out owing to their hectic and busy schedules, and

were unable to sustain a three-day/week fasting period. Alternating fasting of 12–36 hours causes a metabolic transition in the liver, resulting in the breakdown of triglycerides into fatty acids and glycerol and the modification of fatty acids to ketone bodies, according to previous studies. Fatty acids and ketone bodies give power to cell and tissues during fasting.¹¹

The current study is the longest and largest alternate-day fasting trial to date, to our knowledge. Weight reduction of 3% to 7% following 2 to 3 months of alternate-day fasting has been observed in previous studies.¹²

In terms of adherence, weight reduction, weight stability, or improvement in risk markers for cardiovascular disease, the alternate-day fasting diet be no improved than the daily calorie restriction diet.¹³

Conclusion

Fasting on a regular basis for 4 weeks, restricting food consumption from 07 pm to 10 am for 12-15 hours/day results in weight loss and an improvement in lipid profile, notably cholesterol, triglycerides, HDL, and LDL, which can lower the risk of cardiovascular disease.

References

1. Martin B, Mattson MP, Maudsley S. Caloric restriction and intermittent fasting: two potential diets for successful brain aging. *Ageing Res Rev.* (2006) 5:332–53. doi: 10.1016/j.arr.2006.04.002
2. Bruce-Keller A.J, Umberger G, McFall R, Mattson M.P. Food restriction reduces brain damage and improves behavioral outcome following excitotoxic and metabolic insults. *Ann. Neurol.* 1999; 45: 8-15.
3. Haiyan Meng, Lei Zhu, Hamed Kord-Varkaneh, et al. Effects of intermittent fasting and energy-restricted diets on lipid profile: A systematic review and meta-analysis, *Nutrition*, Volume 77, 2020, 110801,
4. Sadeghirad B, Motaghipisheh S, Kolahdooz F, Zahedi MJ, Haghdoost AA. Islamic fasting and weight loss: a systematic review and meta-analysis. *Pub Health Nutr.* (2014) 17:396–406.
5. Trepanowski JF, Bloomer RJ. The impact of religious fasting on human health. *Nutrit J.* (2010) 9:57.
6. Andersson C, Lyass A, Vasan RS, Massaro JM, D'Agostino RB Sr., et al. Long-term risk of cardiovascular events across a spectrum of adverse major plasma lipid combinations in the Framingham heart study. *Am Heart J.* (2014) 168:878–83.e1. doi: 10.1016/j.ahj.2014.08.007.
7. Valter D, Longo Mark P, Mattson Fasting: Molecular Mechanisms and Clinical Applications. VOL 19, ISSUE 2, P181-192, FEBRUARY 04, 2014
8. Harvie M.N, Pegington M, Mattson M.P, et al. The effects of intermittent or continuous energy restriction on weight loss and metabolic disease risk markers: a randomized trial in young overweight women. *Int. J. Obes. (Lond).* 2011; 35: 714-727.
9. Johnson J.B, Summer W, Cutler R.G, et al. Alternate day calorie restriction improves clinical findings and reduces markers of oxidative stress and inflammation in overweight adults with moderate asthma. *Free Radic. Biol. Med.* 2007; 42: 665-674
10. Impact of intermittent fasting on the lipid profile: Assessment associated with diet and weight loss. Santos HO, Macedo RCO. *Clin Nutr ESPEN.* 2018 Apr; 24():14-21.
11. Flipping the Metabolic Switch: Understanding and Applying the Health Benefits of Fasting. Anton SD, Moehl K, Donahoo WT, Marosi K, Lee SA, Mainous AG 3rd, Leeuwenburgh C, Mattson MP. *Obesity (Silver Spring).* 2018 Feb; 26(2):254-268.
12. Bhutani S, Klempel MC, Kroeger CM, Trepanowski JF, Varady KA. Alternate day fasting and endurance exercise combine to reduce body weight and favorably alter plasma lipids in obese humans. *Obesity (Silver Spring).* 2013;21(7):1370-1379.

13. Trepanowski JF, Kroeger CM, Barnosky A, et al. Effect of Alternate-Day Fasting on Weight Loss, Weight Maintenance, and Cardioprotection Among Metabolically Healthy Obese Adults: A Randomized Clinical Trial. *JAMA Intern Med.* 2017;177(7):930–938.