

Positive Impact of Intermittent Fasting on Cardioprotection

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COLUMN ARTICLE

Intermittent fasting has emerged as a new cost effective approach for a healthy life. It's a type of restricted eating that can lead to weight loss, reduction of inflammation and has many potential health benefits. Intermittent fasting has shown positive impact in a variety of diseases such as diabetes mellitus type 2, hypertension, cardiovascular disease, cancer, neurodegenerative disorders and metabolic disease. This article focus on the protective role of intermittent fasting in cardiovascular disease.

Increase rate of mortality due to cardiovascular ailments is an alarming concern. World Health Organization data shows that nearly 17.9 million people die every year due to cardiovascular diseases, which is about one third of all deaths [1]. Treatment of cardiovascular diseases is based on available therapies and lifestyle modifications. Prevention from the risk factors can result in reduced rate of mortality and complications, in particular in patients with unrecognized cardiovascular disease [2]. Lifestyle modification like dietary changes, maintaining body weight, exercise can greatly reduce the risk of cardiovascular disease [3]. Obesity commonness has been increasing

[4] and obesity has been a key factor in many other comorbidities particularly cardiovascular diseases [5]. Many dietary programs have been introduced for reducing body weight and to maintain healthy status [6]. Among all of them concept of intermittent fasting is emerging rapidly in scientific community and public as well. There are various studies, publications, articles, books and blogs focusing on the benefits of intermittent fasting [7].

Intermittent fasting includes a wide range of interventions that alternate periods of eating and fasting. In animal models, Intermittent fasting has been found to improve cardiac health, decrease cancer incidence, slow tumor growth, enhance stem cell production, and increase lifespan [8]. Intermittent fasting adjusts the blood pressure and heart rate inconsistency and reduce insulin levels in rat model and provides protection against coronary heart disease [9]. Animal models have shown that intermittent fasting protects the heart from ischemic injury and attenuates post-MI cardiac remodeling [10]. In humans, data on intermittent fasting is limited but it has been evaluated that it decreases body weight, insulin levels, blood pressure, inflammation and improves the lipid profile [11]. Studies on obese individuals have revealed that patient compliance was better for intermittent fasting than other traditional calorie re-

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striction method [12]. Intermittent fasting reduces the risk of coronary heart diseases. It improves pointers of coronary heart disease in obese men and women including reduction in body weight, waist circumference, fat mass, low-density lipoprotein cholesterol (LDL-C) and triacylglycerol [13]. IF with high-protein and low calorie diet reduces body weight, BMI, blood lipids and enhances arterial compliance in obese men and women [14]. Intermittent fasting elevates serum HDL and plasma homocysteine level [15]. Intermittent fasting is considered as an energy deficit protocol that leads to lipid profile improve by energy deficit and/or body weight reduction. Comparing the pre and post IF period, HDL levels can increase between 1 and 14 mg/dL, LDL levels decrease between 1 and 47 mg/dL, total cholesterol levels decrease between 5 and 88 mg/dL and triglycerides levels decrease between 3 and 64 mg/dL [16]. Observational studies are the base of intermittent fasting research, there are randomized clinical trials showing enhanced lipid profile association with weight loss by intermittent fasting program. Intermittent fasting increase production of the Apo AI and a decrease level of the apo B, reflecting the HDL increase and LDL reduction [17,18].

Scientific studies suggest that intermittent fasting exerts a positive impact on the metabolic derangements commonly associated with cardiovascular diseases, and that it may be a viable and accessible intervention for most individuals. Therefore, further clinical studies are essential to test the effectiveness of in preventing and controlling metabolic and cardiovascular diseases.

BIBLIOGRAPHY

- World Health Organization. "Cardiovascular diseases" (2019).
- Malinowski B., et al. "Intermittent Fasting in Cardiovascular Disorders-An Overview". *Nutrients* 11.3 (2019): 673.
- Yusuf S., et al. "Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study". *Lancet* 364.9438 (2004): 937-952.
- Hales CM., et al. "Trends in Obesity and Severe Obesity Prevalence in US Youth and Adults by Sex and Age, 2007-2008 to 2015-2016 Trends in Obesity Prevalence in US Youth and Adults, 2007-2008 to 2015-2016 Letters". *Journal of the American Medical Association* 319.16 (2018): 1723-1725.
- Upadhyay J., et al. "Obesity as a Disease". *Medical Clinics of North America* 102.1 (2018): 13-33.
- Tinsley GM and PM La Bounty. "Effects of intermittent fasting on body composition and clinical health markers in humans". *Nutrition Reviews* 73.10 (2015): 661-674.
- Patterson RE and DD Sears. "Metabolic Effects of Intermittent Fasting". *Annual Review of Nutrition* 37 (2017): 371-393.
- Mattson MP., et al. "Impact of intermittent fasting on health and disease processes". *Ageing Research Reviews* 39 (2017): 46-58.
- Mager DE., et al. "Caloric restriction and intermittent fasting alter spectral measures of heart rate and blood pressure variability in rats". *FASEB Journal* 20.6 (2006): 631-637.
- Ahmet I., et al. "Cardioprotection by intermittent fasting in rats". *Circulation* 112.20 (2005): 3115-3121.
- Jamshed H., et al. "Early Time-Restricted Feeding Improves 24-Hour Glucose Levels and Affects Markers of the Circadian Clock, Aging, and Autophagy in Humans". *Nutrients* 11.6 (2019): E1234.
- Azevedo FR., et al. "Effects of intermittent fasting on metabolism in men". *Revista da Associação Médica Brasileira* (1992) 59.2 (2013): 167-173.
- Bhutani S., et al. "Improvements in coronary heart disease risk indicators by alternate-day fasting involve adipose tissue modulations". *Obesity (Silver Spring)* 18.11 (2010): 2152-2159.
- Zuo L., et al. "Comparison of High-Protein, Intermittent Fasting Low-Calorie Diet and Heart Healthy Diet for Vascular Health of the Obese". *Frontiers in Physiology* 7 (2016): 350.
- Aksungar FB., et al. "Effects of intermittent fasting on serum lipid levels, coagulation status and plasma homocysteine levels". *Annals of Nutrition and Metabolism* 49.2 (2005): 77-82.

16. Santos HO and RCO Macedo. "Impact of intermittent fasting on the lipid profile: Assessment associated with diet and weight loss". *Clinical Nutrition ESPEN* 24 (2018): 14-21.
17. Adlouni A., *et al.* "Beneficial effect on serum apo AI, apo B and Lp AI levels of Ramadan fasting". *Clinica Chimica Acta* 271.2 (1998): 179-189.
18. Hammouda O., *et al.* "Concomitant effects of Ramadan fasting and time-of-day on apolipoprotein AI, B, Lp-a and homocysteine responses during aerobic exercise in Tunisian soccer players". *PLoS One* 8.11 (2013): e79873.

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