

Possible advantages of intermittent fasting and high-intensity interval training on selected health measures for obese patients (Mini Review)

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ABSTRACT

Obesity has become more common over the past few decades and is now acknowledged as a global public health concern. Atherogenic dyslipidemia is a unique lipid condition associated with obesity that is defined by alterations in plasma lipoprotein levels in both quantitative and qualitative domains. High levels of triglycerides, low levels of high-density lipoprotein cholesterol, and increased levels of tiny dense, low-density lipoprotein particles are the primary changes in the lipid profile. It is important to remember that managing obesity and dyslipidemia requires strict lifestyle adjustment, such as choosing the right medicine and leading a healthy life. So, we want to determine the effect of intermittent fasting versus high intensity interval training on lipid profile and waist circumference in obese patients.

Key words: *High-intensity interval training, Intermittent fasting, Obesity.*

INTRODUCTION

The Obesity Medicine Association (OMA) defines obesity as a "serious, chronic, progressive, relapsing, and treatable multifactorial, neurobehavioral disease, wherein an increase in adiposity promotes abnormal fat mass physical forces and adipose tissue dysfunction, leading to a negative impact on one's metabolic, biomechanical, and psychosocial health [1]. It has been noted that several lipid/lipoprotein abnormalities, collectively referred to as dyslipidemia, are common in obesity and heart issues. Nevertheless, these dyslipidemias are frequently hyperlipidemias, in which most lipids are shifted toward the upper limits of the normal range or higher than the normal range [2]. Dyslipidemia (hypercholesterolemia, hypertriglyceridemia, increased levels of low-density lipoprotein (LDL-C), and/or decreased levels of high-density lipoprotein (HDL-C)) is known to contribute to atherosclerosis [3]. Dyslipidemia was linked to factors such as gender, education level, smoking, and alcohol consumption daily, central obesity, overweight and obesity, hypertension, and diabetes [4]. In addition to weight loss, therapeutic approaches for obesity also focus on preventing weight gain, improving body composition, treating comorbidities, lowering health risks, and enhancing quality of life [5]. And as obesity, whether central or general, is associated with a higher prevalence of dyslipidemia; potential moderators of this association include age, gender, hypertension, and diabetes, so if we want to lower the prevalence of dyslipidemia, body weight management should receive more focused attention and effective interventions [6]. Making modifications to one's lifestyle is the first step toward preventing cardiovascular disease. This offers suggestions for lowering risk factors including increasing physical activity and maintaining a nutritious, balanced diet [7]. Intermittent fasting (IF) and all of its

variations have been proposed as a non-pharmacological means of extending lifespan and as a potentially effective therapy for age-related issues in recent years [8]. The 3 IF regimens that have been examined the most are the 5:2 diet, time-restricted feeding, and alternate-day fasting. IF promotes brain health, enhances immunological and reproductive function, delays aging, optimizes energy metabolism, and prevents obesity in rodents [9]. There is a direct correlation between physical inactivity and a number of cardio metabolic disorders and early mortality [10]. Recent years have seen the emergence of high intensity interval training (HIIT) therapies as a quick way to improve cardiorespiratory fitness in adults in as little as two weeks [11]. High-Intensity Interval Training (HIIT) is a powerful and effective form of exercise training that alternates between brief bursts of high-intensity activity (lasting six seconds to four minutes) and rest or recovery intervals (lasting ten seconds to five minutes) [12].

DISCUSSION

For dyslipidemic obese patients, intermittent fasting has a positive effect on lipid profile and waist circumference.

A recent study suggested that IF improves the lipid profile and has a good impact on body weight and waist circumference [13]. Another study examined the impact of four distinct intermittent fasting diets (IFD) and daily energy restriction on anthropometric parameters of the Mediterranean Diet (MD), they found that body weights, BMIs, arm and waist circumferences, and waist circumferences considerably decreased in all groups [14]. Furthermore, a study demonstrated that intermittent fasting significantly lowers hypercholesterolemia brought on by the high-fat diet through lowering cholesterol intake and hepatic cholesterol production,

so They proposed that IF may have potential clinical uses and be a useful non-pharmaceutical therapy for the treatment of atherosclerosis [15].

And, adding HIIT to the treatment protocol of obese dyslipidemic patients reveals that there is a positive effect of High-intensity interval training on lipid profile and waist circumference of obese patient.

There is a study showed that a program combining high-intensity interval training with high-intensity resistance training can help overweight and obese men with their body composition, lipid profile, and physical fitness [16]. A recent study showed that high-intensity interval training significantly changes the body weight, lipid level, BMI, and resting heart rate [17]. Another study reported that In overweight female young adults, 4 weeks of high-intensity interval training (HIIT) could effectively reduce body composition outcomes, including Waist circumference and body fat percentage [18].

A recent study compared the body composition and physical performance effects of HIIT or HIIT and IF in active women. They assessed performance, body composition (anthropometry), hand-grip strength, and counter-movement jump height, and they found that for active ladies, intermittent fasting may be an alternative feeding schedule regimen for HIIT to drastically reduce fat mass and improve jumping performance [19].

CONCLUSION

In addition to the traditional treatment of obese patients with dyslipidemia, high-intensity interval training and intermittent fasting regime have a positive effect on:

Weight loss, decreasing body mass index (BMI), and decreasing waist circumference.

Decreasing the risk for cardiovascular disease and improving cardio-metabolic fitness by improving lipid profile.

So, both protocols are important to increase the cardio-metabolic fitness of dyslipidemic obese patients.

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