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ORIGINAL ARTICLE

Impact of Physical Activity on Weight Loss during Intermittent Fasting in Adults

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ABSTRACT

Background: Obesity is increasing rapidly in our country leading to many chronic diseases and health related issues. Intermittent fasting proves to be beneficial in treating obesity in other countries but have not been much researched in Pakistan. If proves valuable IF can prevent adults from falling prey to crash diets and unhealthy diet practices which promotes bad health.
Aims: To evaluate the impact of IF on weight loss in adults, to evaluate impact of physical activity on weight loss during IF and to check weather calorie restriction is necessary or not for weight loss.
Methods: We did an experimental study on a sample of 30 adults, which followed IF for 1 month. They were provided with online counseling and guidelines to follow. Moreover, they were divided into two groups A and B one with physical activity of 20 min walk and one without it to see the impact of physical activity on IF. Plus an online survey was created after 1 month to know how much weight they lose and how they feel about this regimen. SPSS V21 was the tool used to analyze the data
Results: IF is a beneficial practice to treat obesity. However Physical activity increases the impact of weight loss however people also reduced weight without any activity. There were no major side effects. People find it unique and easy to follow. They were prone to follow it in future too for weight loss purposes.
Practical implication: By the help of this study we will get to evaluate the impact of IF on health parameters in Adults. IF will be easy to follow and will show long term effects without showing any rebound effects. Moreover, we need more data in this particular field for appropriate use and application of this regimen in Asian households and cultural aspects. It can promote public health in Pakistan.
Conclusion: The research concludes that intermittent fasting is helpful in reducing weight but it is more effective in males as compared to females. Two groups were made A group was doing IF with exercise while the B group only do Intermittent fasting, more weight loss has been seen in A group as compared to group B.
Keywords: Intermittent fasting (IF), physical activity, weight loss, adults.

INTRODUCTION:

The basic science behind different dietary approaches for obesity has been calories restriction intermittent fasting is an exception to all these methodologies. In IF diet you divide 24 hour cycle per day into two halves; one eating window and one fasting window. Other forms of IF are 14:10, 5:2 2 days a week, Alternate day Fasting (ADF) and One meal a day (OMAD)[1]. During fasting you can have liquids with zero calories such as water, green tea, apple cider vinegar and black coffee to sustain a longer fast and to prevent dehydration. IF basically works on the principal of ketosis by shifting the body fuel system from glycogen storage to fat storage in adipose tissues.. Body starts using ketones as a source of energy leading to many benefits such as fat loss, muscle gain, insulin resistance, autophagy, detoxification and many more[2]. Obesity can also be defined by BMI according to the recommendations of World Health Organization which define obesity between BMI & gt; 25 and BMI & gt; 30[3]. BMI is general a predictor of obesity; however, fat in much amount in the abdomen is a good indicator of metabolic diseases by calculating the waist size as compared to BMI. Obesity (BMI) and obesity based obesity are the classified terms by WHO excluding the people of Asia who badly experienced with high level of obesity related diseases[4].

In developed countries intermittent fasting is considered more as a lifestyle instead of a diet plan. People do intermittent fasting in their daily lives for maintaining a healthy and active life also to shed pounds and to sustain healthy body weight. In recent times, IF has become a style and is now included in “FAD diets”. There is still so much to explore about IF but it has numerous effects on human health. It has already been used for treating Chronic Obesity, Insulin Resistance and Diabetes Mellitus[5]. Although researches in human population have been limited still there are many animal based researches which can prove beneficial health effects. Reports suggest further randomized trials, long-term studies and examination to determine its eligibility to be opted as a lifestyle rather than a diet plan for selected members of a society[6].

Intermittent fasting is considered a diet sequence that is repeated in a cycle of different periods of fasting in which food is taken in no or less amount for the sake of calorie reduction. This kind of fasting helps to change the body composition by changing the lipid profile for the management of weight and it promotes to health markers that are linked with body cholesterol and blood pressure. Intermittent fasting belongs to the traditional fasting that is associated with spiritual or health benefits[7]. Fasting is termed as complete or selective abstinence of food and beverages for the period of 12 to 24 hours. Food and beverages are taken in reduced amount to manage the weight of body. Physiological changes can be caused by prolonged less calorie diet that is regulated to change the body composition and weight loss[8].

According to the survey, about 1.46 billion adults were suffering from obesity around the globe in 2008. Total 502 million people were overweight. Globally, 170 million children were also in the figure of obesity and overweight. So the percentage of obese people was in significant ratio in the World[9].

Obesity may cause high risk associated chronic diseases like cardiovascular diseases, cancer and diabetes with the increasing prevalence[10]. Caloric restriction regimens for the weight loss depends on the food intake in limited amount. While intermittent fasting and restricted food intake is bounded with the duration or timing of food accessibility. Diet induced weight management is a common challenge to maintain because it requires difficult steps to control the weight[11]. Negative energy balance and reduced weight may be affected by physical activity and metabolic rate[12]. Weight loss is leaded by more energy expenditure because energy expenditure effects the body mass

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proportionally[13]. Adaptive thermogenesis is termed by the occurrence of metabolic adaption which is characterized by decrease in energy expenditure below the expected body weight[14]. One study on the eight young men suffering from obesity for the time period of two weeks of intermittent fasting for 20 hours a day from 22.00 to 18.00 of the next day that resulted in weight loss or power loss. After the two normal days of feeding euglycemic hyperinsulinemia bond was used to test the resistance of resistance for adipose tissue as well as improvement in insulin secretion. Results predicted that rapid 20 hour cycle is in correlation of high adiponectin concentrations[15].

By the help of this study we will get to evaluate the impact of IF on health parameters in Adults. This could be path breaking in field of nutrition and dietetics because obesity is the most reported and discussed health issue and intermittent fasting is proving to be a great asset for its treatment. By doing a more detailed research we can prevent adults from falling prey to crash diets and unhealthy diet practices. IF will be easy to follow and will show long term effects without showing any rebound effects. Moreover we need more data in this particular field for appropriate use and application of this regimen in Asian households and cultural aspects. It can promote public health in Pakistan.

MATERIALS AND METHODS

This random study was conducted for one month. The purpose of study is lifestyle modification changes. Consumption of food minimize the chances of disease and weight loss. The use of different methods and awareness to people about calorie management might be the first step towards better life or we can say healthy life. This study is conducted to make a comparison between people having busy lifestyle having no exercise and people who can manage sometime to do exercise and also to check role of intermediate fasting on weight loss. The main goal was to check the relationship between participants who did not do any exercise with intermediate fasting with those who did exercise with intermediate fasting. In this research, 20 min walk was kept as a constant factor for physical activity for all participants of group B.

Research Protocol

Sample size: There were 30 participants, 15 of which are willing to do exercise with intermediate fasting and 15 of them are agree to do intermediate fasting with no exercise.

Age group: Age limit of participants are between18-30

Total period of study: 30 days. In this study, for first 15 days participants are undergone through14 hours fasting in first scenario and in second scenario they are undergone through 16 hours of fasting with and without exercise in both cases.

Participant's profession: Students and Office staff

Data collection techniques and assessment measures: Collected the data through questionnaires from google forms. Deductive research method and 24 hour recall was taken and cheat day once a week was allowed.

Statistical procedures/ analysis techniques: SPSS V21 was the tool used to analyze the data. MEAN, MEDIAN, SD, IQR, according to distribution of data were used to represent quantitative variables according to distribution of data. FREQUENCY AND PERCENTAGE are the parameters used to represent qualitative data. For categorical data we used pie and bar charts as well as HISTOGRAM was also constructed for continuous data.

Ethical considerations: Participants know about the research design. Data is only used to run deductive research method and consent was taken

RESULTS

Our complete sample of 30 people was divided into two further groups of 15 members each. **Group A** 50% was doing intermittent fasting with physical activity and **Group B** 50% was doing Intermittent Fasting without any physical activity. In our complete sample of 30 participants 7.4% were underweight 44.5% healthy 40.7% over weight and 7.4% obese. Out of which 6.3% were male and 93.7% were females. For testing the further relation between weight loss, physical activity and intermittent fasting we performed one-sample t-test on two parameters the amount of weight loss and physical activity (20min Walk) keeping the factor of intermittent fasting constant for complete sample size. In our sample people lost weight with a mean value of 2.6Kg (ranging from 6Kg to 1Kg as shown in table no.1&2) out of which 50% were doing activity and 50% were not doing any activity comparing them with their respective BMI as shown in tables (3 & 4). As the value of p is < than 0.05 as shown in table no.5 we will reject the Null hypothesis. Which means IF contributes towards average weight loss in people with or without physical activity. However with physical activity it speeds up the process.

Table 1: Group A (With Physical Activity)

Weight loss (Kg)	Frequency	%age
1.00	1	6.7
2.00	5	33.3
3.00	3	20.0
4.00	2	13.3
4.50	2	13.3
6.00	2	13.3
Total	15	100

Table 2: Group B (Without Physical Activity)

Weight loss (kg)	Frequency	%age
1.00	3	20.0
1.50	2	13.3
2.00	5	33.3
2.50	2	13.3
2.70	1	6.7
3.00	2	13.3
Total	15	100.0

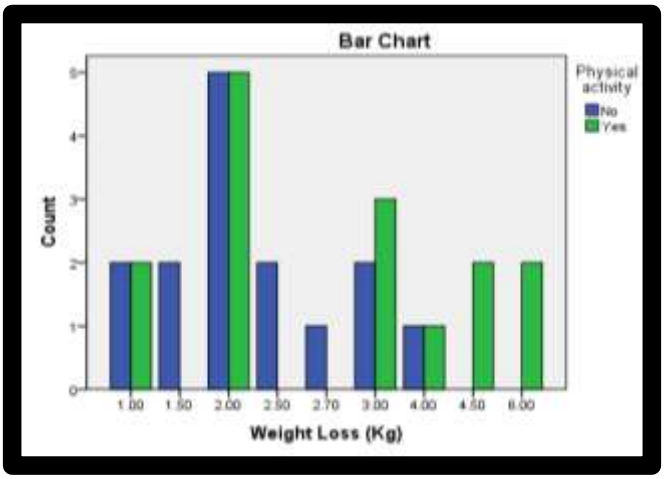

Table 3: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	BMI Group-A & Weight Loss Group-A	15	.150	.593
Pair 2	BMI Group-B & Weight Loss-Group-B	15	.019	.947

Table 4 Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	BMI Group-A- Weight Loss **Group-A**	21.93333	4.03054	1.04068	19.7010	24.137	21.076	14	.000
Pair 2	BMI Group-B - Weight Loss- **Group-B**	20.74667	3.51870	.90852	18.7988	22.626	22.836	14	.000

DISCUSSION

This study shows that intermittent fasting is an effective and easy way to lose body weight and fats. The most effective method of intermittent fasting is used in this study i-e 16/18 method. This method involves 16 hours of everyday fasting and 8 hours of daily eating window. This method is short, easy to follow, safe and inexpensive to lose weight.

Intermittent fasting has received a lot of attention in the past few years. Most of the studies have been done to study the effects of intermittent fasting on people who are overweight, obese and dislipidemic[12]. In comparison to this study not much research have been done in this field in Pakistan according to our study so we cannot say how much benefits IF will provide in Asian cultures. However in our study weight loss in overweight and obese people is evident without showing any major side effects.

In the recent study it is found that when intermittent fasting i.e., 16/8 method is combined with resistance training, it helped in decreasing the fat mass as well as it maintains muscle mass in male participants[16]. This study supports our main research objective that physical activity enhances the impact of Intermittent fasting and give better results however the physical activity factor involved in our study was more of cardio in nature than resistance training.

Seimon et al found in his research that intermittent fasting diet is as effective as daily restriction of calories for short and long term interventions[8].

Our participants didn't follow any calorie restriction but still lose weight even if they were not doing any exercise. Although without exercise weight loss was average still it support our objective to check IF impact without any calorie restriction.

In this study it is showed that more the participants were physically active the more they were prone to lose weight while fasting. Another research found that Intermittent fasting with or without high physical activity resulted in significantly less weight gain in male mice despite concurrently consuming a high fat and sugar diet. The reduced weight gain was mostly within the sort of lower fat mass accumulation, with no loss in lean mass. Studies using combined calorie restriction with exercise have also reported reduced weight gain as compared to control animals (no diet and exercise)[17].

This study was done on male mice hence cannot be considered much significant for human but support the main point of our study that IF and physical activity combined can provide better results and even better with a controlled diet. This study also show better weight loss results in males as compared to females for this short sample.

People did not know much about intermittent fasting before. But when they follow this diet plan they found it very easy to follow. After 1 month follow up when they were asked about this and they said that they will follow this plan in future too for weight loss because it is very easy to follow and less complex as compared to other diet plans and it has no major side effects.

CONCLUSION

The research concludes that intermittent fasting is helpful in reducing weight but it is more effective in people who are more active than in less active people. People find it unique and easy to follow and it has less side effects. They were prone to follow it in future too for weight loss purposes. As it is the initial approach towards weight loss, so if a person wants to lose weight and is a beginner he/she should start their journey of weight loss by joining this program of IF.

Conflict of interest: Nil

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