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Effect of Ramadan Fasting on Obese, Overweight & Normal Weight Persons with or Without Suhur (Parshew)

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ABSTRACT

Background: *Ramadan is a holy month for Muslims around the world, during which healthy adult Muslims abstain from eating, drinking and smoking from dawn(sunrise) to sunset (Iftar). In this study, we aimed to evaluate the effect of Ramadan intermittent fasting on the body weight.*

Subjects and Methods: *This cross-sectional study was conducted during Ramadan from May-27th – May 2018. Three hundred and twenty-five volunteers from both genders were randomly selected, most of them were medical staff of our hospital. The volunteers were divided into normal body weight (BMI= 18.5-24.9), overweight (BMI =25-29.9) and obese (BMI= ≥ 30). weight and body mass index measured by the same scale on the last day of Ramadan. Were recorded Apart from weight other data collected from our participants like age, Gender, using medication or not, those who did Fasting with or without Suhur (Parshew) & those who did regular physical exercise or not during Ramadan.*

Results: *Most patient who were over-weight and obese were in the middle age group and those patients had more significant weight loss during Ramadan proportional to the number of days they fasted specially those had no Suhur meals.*

Conclusion: *Ramadan intermittent Fasting led to a statistically significant decrease in body weight and body mass index in the majority of the participants.*

Keywords

Ramadan intermittent fasting, Body Mass Index, Weight loss.

Introduction

Religious fasting has been used for purification and transcendence, among other reasons. The three major Western religions — Christianity, Islam, and Judaism — all encourage some form of fasting as a part of their rituals [1,2]. Ramadan is a period during which healthy adult Muslims are expected to refrain from eating, drinking, smoking, sexual activity from dawn to dusk [3] and also abstain from taking oral medicine, intravenous fluid from dawn to sunset [4,5]. Fating exceptions include children, menstruating, pregnant, lactating women, sick (for whom fasting would be detrimental), and those who are traveling [6,7]. Normally every individual fast for 29 or 30 days from 13 to 18 hours per day depending on seasonal conditions or geographical location, Hence, the effect of Ramadan fasting may differ between countries [9,10]. Islamic fasting is an intermittent fasting (Ramadan intermittent

fasting), but differs from other inter-mittent fasting models [11,12]. Studies suggest that intermittent fasting (IF) has beneficial effects on health [13,14]. Two meals are consumed daily: one before dawn, known as "sahour" followed by a long fast and one just after sunset, called "iftar" [9]. It has been established that a given nutrient ingested at an unusual time can induce different metabolic effects [15].

Overweight and obesity are major contributors to global disease burden [16] and are associated with increased risk of hypertension, coronary heart disease, type 2 diabetes, metabolic syndrome, elevate plasma lipid and inflammatory mediators' levels, stroke, gallbladder disease, many cancers, osteoarthritis, sleep apnea, and many others, all can be improved through weight loss or, at a minimum, no further weight gain [17-19]. The prevalence of obesity is increasing in developed and developing countries [20,21] and is a growing concern for policymakers. Obesity is caused by a chronic imbalance between energy intake and utilization and it is affected by a number of factors [22]. Among these factors, which include reduced physical activity and intake of energy-dense foods, the number of meals per day may play a fundamental role in influencing the sense of satiety and overall caloric intake [23,24]. Genetic and constitutional susceptibility to obesity are heavily influenced by the environment. The aim of the study was to show the effect of Ramadan fasting on weight in obese persons and non-obese persons whether eating a Suhur or not.

Patients and Methods

The study was approved by local scientific and ethical committees and consent have taken verbally from all patients. This cross-sectional study was conducted during Ramadan from May-27th – May 2018. Three hundred and twenty-five volunteers from both genders were randomly selected, most of them were medical staff of our hospital. Body weight were measured by using Beurer BF700 diagnostic bathroom scale, by using body mass index (Quetelet's index). The volunteers were divided into normal body weight (BMI= 18.5-24.9), overweight (BMI =25-29.9) and obese (BMI= ≥ 30). Weight and body mass index measured by the same scale on the last day of Ramadan, were recorded apart from weight other data collected from our participants like age, Gender, using medication or not, those who did Fasting with or without Suhur (Parshew) & those who did regular physical exercise or not during Ramadan Their shoes and overcoats were taken off during weight measurement. Apparently healthy people & those who fasted through the whole month (29 days) were selected, some persons fasted less than 29 days also included.

Results

Age groups (year)	Decreased body weight		Total	P-value
	Yes	No		
9 to 19	9	11	20	0.022 (-0.157)
20 to 29	57	30	87	
30 to 39	51	27	78	
40 to 49	60	24	84	
50 to 59	28	6	34	
60 to 69	17	2	19	
70 to 72	1	2	3	
Total	223	102	325	

Table 1: Shows statistically negative significant relationship between age groups and decreased body weight.

Age groups (year)	BMI groups after Ramazan					Total	P-value
	Under weight (<18.5)	Normal BMI (18.5 - 24.99)	Over weight (25 - 29.99)	Obese (30 - 40)	Morbid obesity (> 40)		
9 to 19	9	10	1	0	0	20	<0.001 (0.331)
20 to 29	10	55	17	2	3	87	
30 to 39	1	44	21	12	0	78	
40 to 49	5	28	33	17	1	84	
50 to 59	1	8	16	9	0	34	
60 to 69	0	8	8	3	0	19	
70 to 72	0	2	1	0	0	3	
Total	26	155	97	43	4	325	

Table 2: Shows statistically positive significant relationship between age groups and BMI groups after Ramazan.

Age groups (year)	Days of fasting																									Total	P-value (Pearson R Correlation)
	3	5	7	8	10	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	39		
9 to 19	0	3	0	0	0	0	0	0	0	1	0	1	0	0	1	1	3	2	4	0	0	0	2	2	0	20	0.002 (0.346)
20 to 29	0	0	1	0	0	0	0	1	1	0	2	0	1	8	5	7	8	7	14	3	2	4	13	10	0	87	
30 to 39	0	0	0	1	1	0	1	0	1	0	0	2	0	2	3	4	7	7	3	3	0	2	25	15	1	78	
40 to 49	1	0	0	0	0	1	0	2	2	0	0	0	1	3	4	1	3	8	7	3	1	2	22	23	0	84	
50 to 59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	17	13	0	34	
60 to 69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	9	0	19	
70 to 72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	3	
Total	1	3	1	1	1	1	1	3	4	1	2	3	2	13	13	13	22	24	29	9	5	10	90	72	1	325	

Table 3: Shows statistically positive significant relationship between age groups and days of fasting.

Days of fasting	Decreased body weight		Total	P-value (Pearson R Correlation)
	Yes	No		
3	0	1	1	0.008 (-0.207)
5	0	3	3	
7	1	0	1	
8	0	1	1	
10	0	1	1	
12	0	1	1	
13	0	1	1	
14	2	1	3	
15	1	3	4	
16	1	0	1	
17	2	0	2	
18	3	0	3	
19	1	1	2	
20	9	4	13	
21	8	5	13	
22	10	3	13	
23	11	11	22	
24	12	12	24	
25	22	7	29	
26	7	2	9	
27	2	3	5	
28	6	4	10	
29	69	21	90	
30	56	16	72	
39	0	1	1	
Total	223	102	325	

Table 4: Shows statistically negative significant relationship between days of fasting and decreased body weight.

BMI after Ramazan	Days of fasting																									Total	P-value (Pearson R Correlation)
	3	5	7	8	10	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	39		
Under weight (<18.50)	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	3	3	1	2	0	0	0	2	11	0	26	0.165 (0.035)
Normal BMI (18.50 - 24.99)	0	1	1	0	0	0	1	0	0	1	1	2	0	10	8	7	10	10	18	4	3	3	40	34	1	155	
Over weight (25.00 - 29.99)	0	0	0	0	1	1	0	3	4	0	1	0	1	3	2	2	6	7	7	4	1	4	31	19	0	97	
Obese (30.00 - 40.00)	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3	1	2	5	1	1	1	3	17	7	0	43	
Morbid obesity (> 40)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	4	
Total	1	3	1	1	1	1	1	3	4	1	2	3	2	13	13	13	22	24	29	9	5	10	90	72	1	325	

Table 5: Shows statistically significant relationship between BMI after Ramadan & days of fasting.

BMI groups before Ramazan	Age groups (year)							Total	P-value (Pearson's R Correlation)
	9 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79		
Under weight (<18.5)	8	7	0	3	1	0	0	19	<0.001 (0.362)
Normal BMI (18.5 - 24.9)	11	53	37	25	4	7	2	139	
Over weight (25 - 29.9)	1	22	29	34	19	8	0	113	
Obese (30 - 40)	0	2	12	20	10	4	1	49	
Morbid obesity (> 40)	0	3	0	2	0	0	0	5	
Total	20	87	78	84	34	19	3	325	

BMI groups after Ramazan									
Under weight (<18.5)	9	10	1	5	1	0	0	26	
Normal BMI (18.5 - 24.9)	10	55	44	28	8	8	2	155	
Over weight (25 - 29.9)	1	17	21	33	16	8	1	97	<0.001 (0.331)
Obese (30 - 40)	0	2	12	17	9	3	0	43	
Morbid obesity (> 40)	0	3	0	1	0	0	0	4	
Total	20	87	78	84	34	19	3	325	

Table 6: Shows statistically positive significant relationship between age groups and BMI groups before and after Ramazan.

Discussion

Table 1 shows that most age group had significant weight loss during Ramadan fasting with the exception of very young and elderly. Studies had showed that Ramadan fasting leads to weight loss and fat-free mass reductions and body and obesity composition changes vary depending on age and sex [24].

Table 2 shows that over- weight and obesity were significantly more common among the age groups between 30 and 60 years. A study shows the same finding like this study [25].

Table 3 shows that persons in the middle age range fasted more days than young and elderly and since this group were more over-eight and obese as indicated above, this may be the driving factor to make them to fast more days to benefit more from the weight-losing effect of fasting, besides that young and elderly persons may be less tolerant to prolonged fasting.

Table 4 shows significant association between days of fasting and weight loss of Ramadan. Other studies showed the same findings by showing that participants who fasted throughout Ramadan lost significantly more weight [26].

Table 5 and 6 shows significant associated between BMI before and after Ramadan and the number of days fasted during Ramadan. This is well explainable that the more days fasting causes more weight loss and hence more decrease in BMI. This fact is proved by other studies too.

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