

Relationship between Physical Activity and Prevalence of Obesity and Overweight in the Disabled and Veterans

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Abstract

Aims: One of the leading risk factors for various diseases is obesity, a nutritional burden and an independent factor which increases mortality. Due to physical deficiency, the disabled and veterans have low levels of physical activity, which is associated with increased risk of obesity in them. The aim of this study was to assess the relationship between physical activity and prevalence of obesity and overweight in the disabled and veterans.

Methods: 83 disabled and veterans volunteered to take part in this cross-sectional descriptive study. After checking the type and intensity of their disability, the percentage of body fat was measured by calipers, and the participants were divided into 3 groups accordingly: the athlete disabled (n = 19), active disabled (n = 42), and inactive disabled (n = 22).

Results: The comparison of fat mass in 3 groups showed that the athlete disabled had the lowest fat mass compared to other groups ($P \leq 0.05$).

Conclusion: According to the findings, more than half the participants were obese and overweight; however, the inactive disabled and veterans had excessive fat mass in comparison with other groups. The main reason is sedentary life style. As such, paying attention to the important role played by nutritional elements and the health recommendations for veterans is of utmost importance.

Keywords: Physical Activity, Obesity, The disabled, Veteran

Introduction

Physical disabilities have always been present in societies as a social phenomenon. There has never been a consistent relationship between human beings' social and scientific developments and the social conditions of people with disabilities [1]. By the emergence of the disability and the symptoms of physical inability, people's self-dependence becomes shaky and their sense of need for and dependence on others starts to appear and gets stronger little by little. Decline in their self-confidence, developing a negative personality, and feeling inefficient overshadow their remaining abilities and cause a feeling of sadness and depression in them. In addition, the change in their physical appearance, obesity, and the overweight from lack of physical activities deteriorate their conditions.

Overweight or obesity is one of risk factors in most dangerous and chronic diseases and is known as one of the independent factors resulting in higher death rates. Today, obesity is one of the greatest nutritional problems for countries all over the world including Iran [2]. In USA, 400,000 deaths were reported in 2000 because of obesity. Moreover, 7% of all medical care was due to related problems in that year [3]. Obesity is the risk factor in diabetes, hyperlipidaemia, high blood pressure, atopy, allergy symptoms, and the coronary artery diseases [4, 5]. According to the epidemiological studies, more than a billion people are overweight [3]. For instance, 55% of people in USA are suffering from obesity [6]. Manson et al. [7] reported that the relative death risk for BMI > 25, 30, and 35 are 1.1, 1.5, and 2.5 respectively. One study carried out in Tehran showed that 23% of the population are suffering from obesity [8]. Another study reported that 63% of people in Tehran are either overweight or obese [2]. The point is obesity and overweight are affected by factors such as

age, gender, life style, and illness. As such, people with disabilities, due to their inactive or less active life style, are more prone to obesity-related diseases.

In such a situation, exercising is not simply doing sports or even having treatments for the disabled. It is much more important than that and is an important factor in surmounting their physical and mental inabilities [1-9]. As a result, the sport interventions have been focused on increasing disabled's activities in order to postpone their physical inabilities and the related chronic diseases caused by an inactive lifestyle [10]. It is believed that by increasing their physical activities, the accumulation of fat in their bodies decreases, which can not only prevent from obesity-related diseases, but also affect their social life. Though there have been numerous studies on obesity in athletes and other people, there have been very few studies on obesity in people with disabilities especially in Iran. Consequently, the present study was an attempt to examine the relationship between physical activities and obesity in the disabled in Iran.

Methods

The present study was a cross-sectional study with descriptive purposes on the relationship between physical activity and obesity and overweight in people with disabilities in Arak, Iran. There were 83 physically challenged people who volunteered to take part in this study. First, the needed information about participants' height, weight, age, and the amount and type of their disabilities was collected. Then, their fat accumulation percentage was determined using Harpenden caliper and the Jackson-Pollack three-point equation. Based on the completed questionnaires, the participants were assigned to three categories according to the amount of their physical activities: a) the athlete disabled or those who exercised 3 times a week, b) the active disabled or those

who had irregular exercising, and c) the inactive disabled or those who had a very low level of daily physical activity. A One-Way ANOVA was used to check if the three groups were significantly different from each other in their level of accumulated fat. A Sheffe test was also used to locate the possible differences. The alpha level was set at 0.05.

Results

There were 19 participants in the first group (the athlete disabled), 42 in the second group

(the active disabled), and 22 in the third group (the inactive disabled). All three groups had a similar mean age and height, but they were quite different in their mean weight. The highest mean weight belonged to the inactive disabled by 87.35kg, and the lowest mean weight was for the athlete disabled by 80.5kg. In addition, the BMI was clearly different for each group. The BMI difference between groups one and three was much bigger than that of groups one and two. Table 1 summarizes the descriptive statistics for the above indices.

Table 1. Descriptive Statics for Each Group

Variables	Athlete disabled	Active disabled	Inactive disabled
Age (year)	39.56 ± 1.81	38.90 ± 0.79	40.35 ± 1.65
Height (cm)	174.14 ± 2.21	173.63 ± 1.91	173.34 ± 6.56
Weight (km)	80.50 ± 6.56	83.50 ± 5.86	87.35 ± 6.56
BMI	26.54 ± 1.97	27.78 ± 1.9	31.08 ± 1.9
Fat	20.2 ± 2.12	23.62 ± 2.31	29.5 ± 3.21

The analysis of the percentage of fat accumulation showed significant differences among the three groups. The athlete group was significantly different from the other two groups, and the active group was significantly different from the inactive group in the amount of fat accumulation in their body. The results showed that as the physical activities increased, the fat amount decreased because the difference between group one and three (athlete vs. inactive) was significantly bigger than the difference between group two and three (active vs. inactive).

& shows a significant difference with the inactive disabled ($p < .01$)

Λ shows a significant difference with the inactive disabled ($p < .05$)

¥ shows a significant difference with the inactive disabled ($p < .05$)

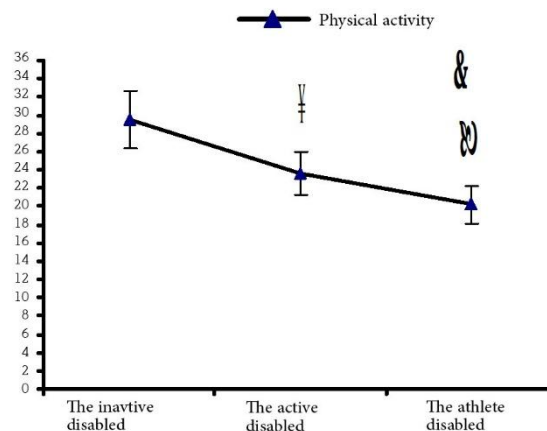


Figure 1. The Relationship between Physical Activity and Obesity in the Three Groups

Discussion

The present study shows a significant negative relationship between physical activity and obesity in people with physical disabilities. The more exercise they do, the less fat they accumulate and the less obese they will be. The athlete disabled group was

observed to be similar to the athletes with no physical disabilities in the percentage of fat. However, since the majority of the studied sample was made of the active (50.6%) and inactive disabled (26.5%), we can conclude that the majority of the people with disabilities are overweight and obese. These figures are bigger than those reported by *Azizi* [11]. Such a difference has also been reported for people suffering from Chronic Obstructive Pulmonary Disease (COPD) in Spain [12, 13]. In a study on the sugar and lipid levels in men of over 20 years of age in Tehran, the relative frequency of normal weight, overweight, and obesity were 43%, 42.6%, and 14.4% respectively [11]. In the present study, these numbers were 22.89%, 50.6%, and 26.51% respectively.

Wang et al., having compared obesity and weight control in veterans using Veterans Affairs Facilities and those not using such facilities in the United States, observed that the Veterans Affairs members were more successful in losing weight because of the programs they were receiving for their weight control, eating diets, fat and calorie control, and exercising [14, 15]. Also, *Peterson* [10] found that the efficacy of the elderly veterans with regular physical activity was higher than that of the non-veteran elderly people. Different variables may cause obesity and overweight in veterans and people with physical disabilities. In addition to some more common factors such as a mechanical and industrial lifestyle and the spread of carbohydrate foods in people's diets [16], low physical activity due to illnesses, sleeping disorders, depression [17, 18], and the used medications can result in obesity or overweight in them. Since the most common cause of death in veterans and physically-challenged people is the diseases they suffer from particularly cardiovascular diseases [19], weight control in these patients can help lower death toll. As such, considering all the problems obesity and lack

of physical activity may cause for this group of people, coming up with weight control strategies in people with disabilities seems necessary. Since less active lifestyle for these people, especially the older ones, is associated with lower health conditions, more attention needs to be paid to regular physical activities in the medical care offered to this group. Our findings showed that even with a low level of physical activity, a considerable percentage of fat could be lost, which can result in longevity and better health conditions.

Conclusion

The present study showed that more than 50% of the participants being studied suffered from overweight and obesity. The inactive veterans had a higher level of fat accumulation in comparison with other veterans. The results indicate that one can increase his or her BMI and lower fat level by increasing his or her intensity and time of physical activity, which will result in higher body efficacy and better health condition. Of course one should not ignore the role of nutritional and sanitary factors.

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