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## Backgrounds of Obesity and Weight Management

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### Abstract

The current epidemic of obesity is a problem not only public health, but each individual. The basic tool for successful intervention is to change the lifestyle of intervened individuals. The first step is early diagnostics and then selecting individual approach that respects the health, previous experience physical, physical fitness, time and economic conditions and the relationship with its surroundings to influence obesity of the subject. The study provides an overview of modifiable parameters, which can be used to influence obesity, both the intake and energy expenditure.

**Key words:** Obesity; Intervention; Lifestyle; Energy intake; Energy output

### Introduction

Obesity is one of the basic medical and social problems of today's world. In recent decades, obesity has dramatically increased worldwide (e.g. in the United States more than 35% and in Europe more than 20% of adults are obese) [1-3]. It is a problem in both developing and developed countries.

Deficits in motivation, self-efficacy, self-esteem, sedentary lifestyles, and psychosocial problems complicate treatments for obesity. Thus, a comprehensive management approach needs to address these issues as well. However, conservative weight-reduction programs often fail or patients regain weight initially lost because motivation for weight maintenance decreases [4].

There are two primary causes for the increase in world obesity: lack of an active lifestyle and poor nutritional habits [5-8]. Fortunately, inactivity and poor nutrition are causes of obesity that can be altered through intervention. If no intervention takes place, subjects could suffer many of the physical and emotional side effects of obesity.

Causes of adulthood obesity can be found in an inappropriate lifestyle of contemporary adult population. Lifestyle is undergoing substantial changes. Recent times have seen a continuous decrease in the performance of physical activities, both spontaneous and organized [7,9]. Research has shown that the amount of physical activities performed by adults of both sexes has decreased by approximately 15% in the last two decades, while energy intake during the same period virtually stagnant [6,7,10].

The volume of realized PA is also dependent on the age, and decrease with growing age [7,10]. This stems in unsuitable conditions for the implementation of PA adult and the lack of knowledge about prevention of obesity.

The aim of this study is to summarize the basic treatments for obesity management.

### Methods

Obesity is up to about 5% of cases the problem of education and not medicine. For an effective intervention is necessary in the first place timely identify its initial stages and simultaneously identify the variables that can affect by the external interventions.

To assess the early stages of obesity in population studies, which include a large number of monitored individuals, most commonly use the BMI determination [11]. Because BMI is calculated from the total weight is preferable to identify the early stages of obesity with help of the body composition evaluation - mainly body fat content [12]. To determine obesity state can be used the 95 percentile of the BMI population data and/or percent body fat content [13].

For the identification of variables that can be used for obesity management can we use the so-called energy balance equation that characterizes energy intake and energy expenditure?

$$\Delta E = E_{\text{input}} - E_{\text{output}}$$

$E_{\text{input}}$  may be calculated by a multiple of BMR, where size is determined by the constant current lifestyle, specifically implemented motion mode, gender and body dimensions [13].  $E_{\text{output}}$  is energy demand of actual movement regimen.

From the energy balance equation then clear that modifiable variable to the reduction of obesity are diet and exercise regimen.

Manageable long-term reduction of energy intake during a body mass reduction is around 10%. It follows that decreases energy intake must be gradual, step by step. After reaching of sub-weight it is possible in a further step continue again with 10% reduction in energy intake. The same procedure must be used by the reduction in body mass, in determining the energy intake directly derived from BMR [14].

### Results and Discussion

Physical activity is now admitted as being an integral element of adult obesity treatment, but it is not clear which intervention is the most efficient [5,12,15]. Physical activity is an extremely complex behavior that requires active involvement of the subjects and his nearly environment as well. It is influenced by personal, family and environmental factors and each of these elements can be a potential barrier in preventing active participation of the subject, therefore compromising a successful implementation of a program. These limitations are obvious for moderate-to-vigorous physical activity which is usually recommended for treating obese persons [12,3].

According to our results the full job subjects are able to realize daily number of steps from the 6900 to 9100 steps. Although it was not required in all cases reached 7000 to 10000 steps a day respectively [16-18], it can be concluded that the proposed amounts in the Czech Republic you can handle without major disruption to the existing lifestyle. Still, keep in mind that the great advantage of priority intervention program that uses walking, is the use of movement activities associated with everyday activities [15,16,19].

The weighted evidence suggests that physical activity is associated with a marked reduction in total and abdominal obesity and thus is a useful strategy for the treatment of obesity. The quantity of physical activity required to the obesity reduction across gender and race is not firmly established; however, evidence to date suggests that for most individuals, an increase of daily exercise amount [9,8,20]. An exercise energy expenditure of 6.5-8.5 MJ.week<sup>-1</sup>, corresponding for example to walking 50-70 min.day<sup>-1</sup>, seems to be associated with stable weight after weight reduction [21]. There is a dose response between the amount of completed physical activity and weight-loss maintenance. Decisive is next to the duration of exercise and intensity of the applied load, which must be in the range 75 to 85% of the maximum heart rate [7,14]. This activity must be realized with help of exercise for which is subject adapted. In majority cases the most suitable activity for obesity reduction seems to be walking [12,10]. Walking during weight reduction leads to modest weight loss, abdominal fat loss, and total fat loss. The walking can be split into shorter (10-20 min) periods. There is a dose response between the amount of completed physical activity and weight-loss maintenance. A smaller amount of walking may slow down, although not prevent, weight regain.

## Conclusions

Obesity management is highly creative long-term activity that requires access for all who are involved in these processes. It should be clearly defined partial and final objectives of the intervention. It is also necessary to define where it can be reliably demonstrated the effect of the intervention. It should be noted intervened that achieving success will need his cooperation and that weight reduction will need to expend considerable effort and funds. For the success of the intervention should always respect individual state - the degree of obesity, health status, previous physical and dietary experience, knowledge intervened, the potential of his or her free time, his or her motivation, relationship environment to the obesity and to applied interventions, family anamnesis, financial and material terms and conditions where an intervention is implemented. At the same time the success of intervention is necessary mutual trust and continuously if possible - daily contact with intervening intervened. Only subject to a substantial part of the above can be expected positive effect of implemented interventions.

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