

Obesity and physical activity

What is Obesity?

Obesity is an excess of accumulated body fat, which occurs over time when too many calories are taken in. Its prevalence has increased from 15% in 1997 to 23.5% in 2014 in the Grand-Duchy of Luxembourg [1]. Obesity can be measured using body mass index (BMI), which is the person's mass divided by the square of his or her height (in kg/m²). "Overweight" is defined as being within 25.0 and 29.9 kg/m², whereas "obesity" is above 30.0 kg/m². It may be influenced by genetics, eating behaviour and physical inactivity. The accumulation of visceral body fat is associated with a chronic inflammation process that leads to diabetes, arteriosclerosis (heart diseases, stroke), hypertension, and some cancers [2, 3]. Obesity may be also related to decreased self-esteem, sleep disorders, incontinence and arthritis. Having a high level of physical activity is known to be a preventive factor against obesity [4].

What are the effects of physical activity on obesity?

The most important effect of physical activity in obesity is not the weight reduction, but its positive benefits to overall health such as improvement of cardiorespiratory fitness. The second positive effect is the prevention of weight gain after weight reduction. Regular moderate physical activity will help to keep weight under control and prevent weight gain. Finally, physical activity aids with body weight reduction. Weight loss is effective with extremely high exercise volume, especially if combined with caloric restriction (up to 13 kg). Aerobic training decreases the amount of subcutaneous adipose tissue, while increasing the mobilisation of total adipose tissue, muscle lipolysis, metabolic rate and fat oxidation. It changes visceral fat, oral glucose tolerance and glucose disposal. Resistance training increases or maintains muscular strength and bone mineral density but also has positive metabolic impacts [4-8]. In addition, the weight loss decreases the joint loading of the lower limbs [9].

What are the risks?

Overweight and obese patients often suffer from pain in their back, hips, knees and ankle joints, which may be lessened by exercise [7]. Physical activity should be therefore adapted and exercises with reduced load on these joints are recommended (e.g. water gymnastics, Nordic walking). Caution should be paid to the effects on the heart after a long period of sedentary living.

Recommendations

Physical activity is strongly recommended in overweight and obese people. The obstacles (lack of time, age, fear of injury, too fat, loneliness, fear of sweating, fear to wear swimsuits, etc.) limiting participation in physical activity should be addressed. Supervision of the exercises and group participation may help. The current recommendation concerning aerobic physical activity is 150-250 minutes per week (≈ 1200 to 2000 kcal per week) of moderate intensity activity to prevent weight gain, and 225-420 minutes per week for weight loss [4, 5]. Physical activity should be combined with caloric restriction to achieve a significant weight loss. Physical activity should put minimal stress on the joints (e.g. walking, swimming, water-based exercises, cycling). Strength exercises could also be recommended to strengthen muscles and bones.

References

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- Full references are available on www.sport-sante.lu

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