

# Obesity, the “other” pandemic

## *Obesidad, la “otra” pandemia*

**Alfonso Salguero del Valle**

*Facultad de Ciencias de la Actividad Física y del Deporte e Instituto de Biomedicina de la Universidad de León (IBIOMED).*

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Obesity is considered to be a chronic metabolic disease with a multifactorial etiology, characterised by an accumulation of excess body fat or adipose tissue.

According to recent studies, the prevalence of overweight and obesity in developed countries is around 50% and has tripled over the last 35 years. The report on the *Prevalence of overweight and obesity in Spain* conducted by the Spanish Agency for Food Safety and Nutrition (AECOSAN) and the Ministry of Health puts the figure at around 54% (overweight + obesity) with a greater prevalence in men. This highlights how concerning this situation is and so much so that it is no exaggeration to say that obesity is the “other” pandemic of the 21st century.

Traditionally, five types of measures have been employed to treat obesity: pharmacological, surgical, psychological, dietary and physical exercise. These treatments can be used either independently or in combination. This latter strategy has been shown to be the most effective, to such an extent that today, for example, a diet to lose weight is considered to be inseparable from a physical exercise program. Diet without exercise tends to promote the loss of metabolically active muscle tissue and, therefore, leads to a reduction in the basal metabolic rate, which can even be as much as 60% of the total daily energy expenditure. Neither will exercise alone have the desired effect given that, with no dietary control, it will be extremely complicated to achieve a correct balance between intake and caloric output.

In this regard, as strategies to address the treatment of obesity, the World Health Organisation (WHO) recommends limiting the intake of fat and sugars, increasing the consumption of fruit, vegetables and pulses, whole grains and dried fruits, and regularly undertaking physical activity, with specific considerations for different age groups and taking a range of special circumstances into account.

The primary objective of a programme of physical exercise for overweight or obese individuals must be to reduce the percentage of body fat while seeking to increase the lean body mass at the same

time. It must therefore be understood that this may not necessarily be synonymous with a total loss of weight, something which the person involved in the programme may not find easy to accept. As is the case with other diseases, the exercise programme must also give priority to seeking to improve the aerobic capacity of its participants, given that this will promote the reduction of other potential risk factors that are frequently associated with excess weight (diabetes or insulin resistance, hypertension, dyslipidemia, etc.).

The beneficial effects that physical activity and exercise can have on our body are all too well known, at a physical level and also at a psychological and social level. We would also like to emphasise the fact that, when conducting a physical exercise program for health purposes, there is a need to observe the different general training principles, such as personalisation. Given that it is evident that not everyone will respond in the same way to a particular stimulus, when analysing the options for the treatment of obesity, one of the basic mistakes that is often made is to start from the principle of equality. In other words, to accept that obese and non-obese individuals necessarily have the same response capacity to the training stimulus. Furthermore, there is a need to be aware of the frequent limitations associated with these patients. Such limitations could have an effect on the cardiocirculatory or locomotor systems, thermo-regulatory control, and other circumstances of a psychosocial nature, such as self-confidence levels and depression, thereby conditioning the practice of physical activity.

Taking all these considerations into account, the question is *What is the most suitable type of physical exercise for overweight or obese individuals?*

For many years it was thought that long-duration aerobic exercise with a low-moderate intensity was the best and only way to reduce the body fat percentage in overweight and obese individuals. However, today, it is known that there are disorders in the adipose and muscle

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**Correspondence:** Alfonso Salguero del Valle  
E-mail: alfonso.salguero@unileon.es

tissue in these individuals that either prevent or make it difficult to use the fat as an energy source through this type of exercise. This may be due to modifications to the neuroendocrine system, specifically to those hormones related to muscle hypertrophy and to the use of fats (insulin, leptin, GH, testosterone, cortisol, catecholamines, etc.). On the other hand, account should also be taken of the fact that these individuals have an extremely limited capacity to use fatty acids, due to their lipoprotein metabolism. Weight loss with exercises of this type is generally the result of muscle mass loss (sarcopenia), which is in no way desirable.

The last few decades have seen a proliferation of studies that highlight the virtues of strength training for overweight or obese individuals and, as indicated above, these are necessarily combined with an adequate diet. It has been observed that exercises of this type, when performed with suitable loads, generate a stimulus that promotes a hormonal environment that is far more favourable to burning fat, contrary to the case above (long-duration low-intensity aerobic training). On the other hand, the hypertrophy generated by strength training will promote an increase in the energy expenditure due to the effort required during the training sessions (as there is more muscle mass, more energy will be required to move the body) and also to the increase in the basal metabolic rate.

Recent investigations directed at answering the same question addressed here, reveal that overweight and obese individuals will benefit the most from those interventions that combine high-intensity interval training (HIIT) with strength training. Their conclusions are based on the reductions found in subcutaneous fat and abdominal adiposity (reduction in waist circumference), increased lean body mass (modification of body composition), improved structural protein synthesis, increased consumption of intramolecular triglycerides, increased insulin sensitivity, at an acute and chronic level alike, and the post-exercise basic metabolic rate, as well as an improvement in the cardiorespiratory capacity, making it possible to mitigate the negative effects of obesity on the health of these individuals.

On the basis of the above, we would recommend collaboration between physicians and physical and sports educators, to ensure that the former take account of these findings when prescribing physical exercise, following a diagnosis and assessment of the patient in question. Only in this way can the physical and sports educator design effective supervised exercise programmes that will achieve the proposed goals. Likewise, the treatment of this disease will greatly benefit from a multidisciplinary approach, with the collaboration of other professionals in the health area, such as dieticians, psychologists and/or physiotherapists (multidisciplinary work teams).

In conclusion, we would point out that the loss of fat is a complex process that requires metabolic modifications to the body composition. Therefore, diet, exercise and behaviour modification still remain the pillars of treatment of what we have termed the “other” pandemic of the 21st century.

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