



ELSEVIER

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## Nutrition

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Editorial - Special Issue

## Nutrition and exercise: Thinking outside the box



Any discussion of the vast topic of nutrition and exercise would be incomplete without consideration of overweight and obesity. At the other end of the spectrum, we cannot fail to consider very specific elite groups such as Olympic athletes. And then there is everything in between.

The first topic of this editorial is an increasing pandemic problem that has been happening worldwide for several decades. When one observes how this issue has been traditionally handled, it appears that health intervention has been failing for at least the last 32 y [1]. As described by The Lancet, no country in the world has found a way to make its population thinner during this period of time. Spontaneous physical activity has been decreasing as the decades go by since the digital revolution. In this context, planned physical exercise such as exercise training at the gym, for example, is not enough to fully replace the energy expenditure economy in daily activities due to technological facilities, what is close to <600 kcal/d [2]. How can we handle that? The traditional 3 F strategy (facts, force, and fear) taught at health schools provides little or no effects on lifestyle changes. The benefits of these lifestyle modifications are available, democratically, on the Internet. People do not need a health professional to understand that. There are almost 10 000 diet books on Amazon, and their power to reverse obesogenic profiles is less than zero. I say less than zero because it is well established that the side effects of those diets can cause an opposite health effect, such as intestinal biota modification to an inflammatory profile, increasing nutrient intolerance and having psychological consequences such as eating disorders [3]. It is clearly not lack of information, but how we, health professionals, can help obese and overweight people change their daily lifestyles and create healthy habits. Counseling and mentoring treatments, traditionally adopted by health professionals, are now making room for a new protocol where the patients (or clients) are the focus, replacing the attention that was once on the disease. Strategies such as coaching processes reinforce the 3 R strategy (relation, repetition, and reframe). The first results are coming in and represent an optimistic view of the future concerning this new model to treat chronic diseases such as overweight and obesity, diabetes, and so on.

On the other hand, there is confusion among physically active people. Conflicting information makes active people think that they have the same needs as Olympic athletes, and this confusion also makes them use the same supplements regardless of their necessity. To clarify, the athletes who competed at the 2016 Rio Olympic Games are precisely 0.00015% of the human population, according to recent data from the United Nations [4].

This means that an Olympic athlete is an outsider and is far from a "normal" human being. On the other hand, science regarding elite

athletes is giving us a huge amount of information. These pieces of information are useful for different sports and for studying many different kinds of disease. This is because Olympic athletes work beyond their physical limits, something that we, "normal people," are not able to do. If we take a close look at the scientific knowledge obtained from athletes and muscle loss, for example, that information naturally will be transferred to sarcopenic and cachectic patients, and they will benefit from the athlete's atrophy and hypertrophy investigations that describe several downstream processes in the muscle cell, something useful for understanding the patient's bedrest situation. Another simple example of how elite athletes can contribute to these issues is the metabolic acidosis tolerance by nutritional supplementation, which may help maintain high-intensity exercise for longer periods of time, which results in a powerful stimulation to preserve or boost the muscle mass. We can look at those data for high-level exercise athletes and how they can be reduced in less than seconds in several kinds of sport, something that could represent a difference between the last position and the gold medal at the Olympic Games. On the other hand, those data will be applied to help different patients with rheumatologic and muscle diseases. The athlete's immune system adds the muscle as an important member of this team. The muscle contraction produces different types of cytokines that play a key role in the inflammatory scenario and muscle contraction cannot be overlooked.

This special issue aims at presenting many different perspectives on how we can get useful information regarding nutrition and exercise that are far from the obvious, as well as how we can better understand this huge human puzzle. Exercise is much more than muscle contraction, and nutrition is much more than food intake. Nutrition and exercise are new scientific areas with an enormous path ahead. And we are far from reaching its end.

## References

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