

## Letter to editor

# Exercise training, myokines and organ cross talk: A therapeutic targets for lifestyle-related diseases

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## Dear Editor-in-Chief

Lifestyle-related diseases are usually caused by mistakes in daily life, such as smoking, unhealthy diet, and inactivity. Some of these diseases are including heart diseases, stroke, diabetes, obesity, metabolic syndrome, lung diseases and some types of cancer. These diseases are usually more prevalent in industrialized countries where sedentary lifestyles have spread. At the international level, these diseases are known as non-communicable and chronic diseases or degenerative diseases. Chronic diseases can lead to loss of independence, years of disability, or death, and impose a significant economic burden.

Regular physical activity helps improve your overall health, fitness and quality of life. Also, regular exercise helps reduce the risk of chronic diseases such as type 2 diabetes, heart disease, many types of cancer, depression, anxiety and dementia. Aerobic exercise can help improve your heart health and endurance. Also, these types of exercise help to lose weight. High-intensity interval training is generally safe and effective for most people. In high-intensity interval training, physical activity is performed alternately with high intensity and with low intensity, and these intensity changes have various effects on the health of the body. Strength training can improve muscle strength and endurance, make daily activities easier, reduce disease-related muscle weakness, and provide joint stability. In all these types of exercises, the skeletal muscle tissue has the most activity, and most of the positive effects of exercise are attributed to this tissue. Recently, it has been stated that muscle tissue as a secretome can secrete substances from itself and affect distant tissues. These substances secreted from muscle tissue are known as myokines.

During exercise muscles can produce and release cytokines, signaling

peptides or myokines. These molecules can exert paracrine and endocrine actions. Not all of them are produced exclusively by skeletal muscle, as they can also be released by other cells such as adipose tissue (adipomyokines). Nevertheless, skeletal muscle is probably the major source of most myokines, as it constitutes more than 30% of human body mass (Piccirillo, 2019). Myokine irisin produced from muscle tissue can control many damages caused by fatty tissue and reduce the inflammatory damage of this tissue in metabolic diseases such as diabetes, fatty liver or even cardiovascular diseases.  $\beta$ -aminoisobutyric acid (BAIBA) is a myokine involved in browning of fat and it can reduce insulin resistance (Gonzalez-Gil & Elizondo-Montemayor, 2020). Myostatin also controls insulin resistance and prevents fat accumulation in the liver (Mikolasevic et al., 2020). Follistatin is also effective in regulating the growth of muscle tissue and reducing fat tissue (Song et al., 2019). FGF21 also promotes insulin sensitivity. Apelin and METRNL also have anti-inflammatory properties (Gholamrezayi et al., 2020). All these myokines can be effective in reducing lifestyle-related diseases with their role. Therefore, exercise should be included in your daily life.

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