



Special Issue on **Role of Exercise in Oxidative Stress, Antioxidant Capacity, Muscle Mitochondrial Function, and Mitochondrial Quality**

CALL FOR PAPERS

Mitochondria are well-defined cytoplasmic organelles of the cell, which take part in a variety of cellular metabolic functions. Several diseases and age-related declines in physiological function have been attributed to mitochondria dysfunction, in consequence compromising the cellular capacity to adapt to different physiological stimuli leading to frailty and disability. In the last few decades it has been shown that skeletal muscle is quite plastic in its ability to increase oxidative metabolism in response to exercise. Therefore, exercise could be a potential intervention to improve mitochondria function and mitochondrial quality or, which is the same, mitochondria fitness.

This special issue aims at creating a multidisciplinary forum of discussion on recent advances of exercise contribution to muscle mitochondrial function, mitochondrial quality, antioxidant capacity, and oxidative stress.

We invite authors to contribute original research articles as well as review articles that will illustrate and stimulate the continuing effort to understand the positive and negative aspects of exercise on muscle mitochondrial fitness, with special emphasis in oxidative stress and antioxidant capacity.

Potential topics include, but are not limited to:

- ▶ Role of exercise in the activation of mTOR pathway during age related sarcopenia, cachexia, and other skeletal muscle wasting disorders
- ▶ Changes in mitochondrial respiratory capacity of blood cells with exercise
- ▶ Exercise and mitophagy in skeletal muscle. Role of PGC1 alpha in the mitophagy pathway with exercise
- ▶ Can exercise training induce gut microbiota changes and improve metabolic and inflammatory diseases?
- ▶ Exercise training to activate Nrf2 pathway to increase mitochondrial antioxidant activity in skeletal muscle
- ▶ Mitohormesis and exercise training
- ▶ Is exercise a caloric restriction mimetic?
- ▶ Can exercise improve AMPK/FOXO3 signaling and mitochondrial dysfunction during skeletal muscle atrophy?
- ▶ Effects of exercise on age related mitochondrial dysfunction and oxidative stress in skeletal muscle and brain
- ▶ Mitochondrial proteostasis and exercise
- ▶ Fat oxidation capacity as marker of mitochondrial quality
- ▶ Role of exercise in the activation of sirtuin pathway and NAD⁺ levels
- ▶ Effects of exercise training on DNA methylation and metabolism in skeletal muscle

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