

<https://doi.org/10.70200/RX202401026C>

EXERCISE-INDUCED SYSTEMIC RESPONSE: THE ROLE OF CIRCULATING EXTRACELLULAR VESICLES

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Regular physical exercise (PE) leads to a systemic adaptation to redox homeostasis perturbation, one of the hallmarks of exercise adaptation. Studies have shown that PE can alter the molecular composition of extracellular vesicles (EVs), impacting their ability to communicate with other cells and modulate physiological processes. EVs circulating in the body and secreted from various cell types, including skeletal muscle cells, contain various regulatory molecules and mediate intercellular communications and tissue cross-talk. Considering that the health-related benefits of a physically active lifestyle are partially driven by various bioactive molecules released into the circulation during exercise, collectively termed “exerkines”, there has been a rapidly growing interest in the role of EVs cargo as “carriers” in the multi-systemic, adaptive response to exercise. Indeed, a potential mechanism by which plasma EVs released during exercise impact ageing and diseases related to redox impairment is increased delivery of redox components, such as redox transcription factors and antioxidants. This presentation will offer a general overview of the biology of exercise-induced EVs and their putative role in health maintenance and disease prevention, with a focus on redox homeostasis control.