Universität Basel

Research Project

Effects of Physical exercise timing On strength and Cardiometabolic Health – a double-blind RCT (EPOCH)

Third-party funded project

Project title Effects of Physical exercise timing On strength and Cardiometabolic Health – a double-blind RCT (EPOCH)
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The skeletal muscle system is mainly associated with physical appearance or athletic performance, although it is in fact a key organ system that is integral to human health. In older adults, peak strength is a strong and independent predictor for all-cause morbidity and mortality, for the prevention of falls, as well as cardiometabolic health in patients with prediabetes and diabetes. Thus, sustaining strength is important to autonomy and cardiovascular and cardiometabolic health. Physical activity and exercise are effective to sustain muscle mass and strength in older adults. The American College of Sports Medicine provides detailed recommendations for frequency, intensity, type, and duration of exercise but not for the time of day the exercises should be performed, hus ignoring the relevance of the circadian system. There is strong evidence for diurnal variations in maximum strength and endurance capacity indicating that in the long-term exercising at different times of the day might lead to different physical adaptations. The goal of this study is to investigate if exercising at one time of the day as compared to another time of the day results in larger improvements in strength, cardiometabolic health and gene expression. Participants will be randomly allocated to a non-exercising control group, a group exercising at one time of the day, or a group exercising at another time of the day for 12-weeks. Chrono Exercise is a new and innovative intervention. The results of this study are expected to have far reaching impact with the potential to revolutionize exercise therapy to combat age-related strength and health decline by prescribing personalized chrono exercise.

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