Test level 1 (Yo-Yo test) periods. In the half-time period, participants either rested on the chair (Control) or RWR for 15 min. The RWR protocol consisted of repeating 2.15 min of a passive recovery, followed by 2.15 min of running at 70% of HRmax for 13 min. The re-warm up started 1 min after the start of the half-time period and ended 1 min before the start of the Yo-Yo test period. Yo-Yo test performance, plasma glucose, serum fatty acids (FFA), serum triglyceride (TG), blood lactate (BLa), plasma CK, the rating of perceived exertion (RPE), mean heart rate (HR) and maximal heart rate (HRmax) were analysed. Results For the distance covered during the Yo-Yo test, the RWR trial was higher than the control trial (3094.6 ± 102.9 vs 2904.4 ± 133.1 m, $p < 0.05$). Circulating concentrations of glucose, FFA, TG, BLa and CK did not differ between the RWR and control trials. RPE during the half-time period, but not after Yo-Yo test period, was higher than the control trial. Mean HR and HRmax during Yo-Yo test did not differ between the RWR and control trials. Discussion The present findings indicate that RWR improves subsequent intermittent exercise performance and do not affect blood metabolites response (i.e., circulating concentrations of glucose, FFA, TG and BLa). These findings suggested that energy substrates may not be a factor to improve subsequent intermittent exercise performance at least in our study. Moreover, the present study showed that RWR do not affect concentrations of CK. References Yiannis M. (2014). Intl j Sport Std 4: 1317-1321.

EFFECT OF HIGH INTENSITY TRAINING AND ISOINERTIAL TRAINING ON MUSCLE FUNCTIONS IN OLDER ADULTS

BRUSEGHINI, P.1, TAM, E.1, CALABRIA, E.1, POGLIAGHI, S.1, CAPELLI, C.1,2

1: University of Verona (Verona, Italy); 2: NCSS (Oslo, Norway)

Introduction Maximal muscle strength is a strong predictor of functional skills and ability to maintain independent living in elderly. Muscle contraction properties has been shown to decline to a greater extent than muscle strength with aging and it has been considered the main responsible of the observed decline in functional status (Izquierdo et al., 1999). Endurance high intensity interval training (HIT), by involving large muscle groups, and eccentric strength exercise (IRT), by producing high mechanical loads, could be used in elderly to improve muscle function and quality of life (Milanović et al., 2015). Therefore, the aim of this study was to examine the changes in muscle properties in elderly after 8 wk of HIT and IRT. Methods 12 moderately active older adults (age: 69.4±4.3 yy; BMI: 22.9±2.7 kg/m2; V'O2max: 29.5±4.1 mL/kg/min) have completed 8 wk of: i) HIT, 7 two-minute cycling repetitions at 90% of V'O2max, 3 times/wk, and, after 4 months, ii) IRT performed with an isoinertial leg press (YoYo TechnologyAB) comprised 4×7 maximal concentric-eccentric knee extensions, 3 times/wk. Maximum voluntary contraction (MVC) was measured using a cell load in a custom-made setup (90° knee flexion). Electrically evoked muscle single twitch was superimposed onto MVC: neuromuscular activation (NA) was calculated as the ratio between the amplitudes of the superimposed and resting twitches. Muscle volume of the quadriceps (Qvol) was obtained by MRI scans. Results MVC at 90° knee flexion, increase significantly only after IRT ($P < 0.01$). Both training modalities affected significantly NA ($P < 0.05$): +12.4% after HIT and +14.2 after IRT. Similarly, Qvol increase by 5.1% ($P < 0.05$) after HIT intervention and by 4.9% ($P < 0.05$) after IRT. Discussion Our results confirm the feasibility and effectiveness of HIT and IRT to improve muscle qualities: 8 wk of specific training are able to modify muscle mass, MVC and neuromuscular activation in elderly subjects. This stresses the importance of using effective approaches such as exercise treatment with high loads and high intensities in the prevention of disuse in elderly individuals who are concurrently exposed to the deleterious effects of aging on muscle contractile function and mass (Behrens et al., 2016). We can therefore speculate that the two proposed training modalities may be helpful in improving functional status and prevent frailty in elderly subjects. References Izquierdo M, Aguado X, Gonzalez R, Lopez JL, Hakkinen K. (1999). Eur J Appl Physiol Occup Physiol, 79, 260-7. Milanović Z, Sporiš G, Weston M. (2015). Sports Med, 45(10), 1469-81. Behrens M, Brown N, Bollinger R, Bubeck D, Mau-Moeller A, Weippert M, Zschorlich V, Bruhn S, Alt W. (2016). Appl Physiol Nutr Metab, 41(1), 110-3.

EFFECTS OF DIFFERENT RECOVERYS IN HIGH-INTENSITY INTERVAL TRAINING: METABOLIC AND PERFORMANCE RESPONSES.

LOPES, C., GERMANO, M.D., AOKI, M.S.

Universidade Metodista de Piracicaba e Faculdade Adventista de Hortolândia

Abstract The aim of this study was to investigate the acute responses of high-intensity interval training (HIT) with different times and types of recoverys in metabolic and performance parameters. Eight physically active subjects (28.0 ± 3.7 years, 75.0 ± 10.5 kg, 174.1 cm ± 3.7, 49.5 ± 5.9 ml/kg-1min-1) underwent four protocols in randomized HIT vVO2máx separated by short passive recovery (PC-2min); long passive recovery (PL-8min); short active recovery (AC-2min) and long passive recovery (AL-8min). Were evaluated for each pause: performance of maximum effort, time limit (Tlim); and the removal of lactate during and after of exercise. ANOVA (1-way) with repeated measures correction factor was applied to compare the metabolic and performance parameters. Significant changes were found in performance between the two active PL and pauses ($P<0.01$), and between the PC x AL ($P<0.05$). Significant changes were found between PC Tlim x AC ($P<0.05$), AL x PC ($P<0.05$), PL x AC ($P<0.01$) and PL x AL ($P<0.01$), respectively. No significant changes were found in blood lactate during exercise in comparing any recovery's ($P>0.05$). We conclude that the use of recovery PL promotes advantage over active, it allows improvement or maintenance of performance over the maximal efforts, greater Tlim and distance travelled. Contact Email: charles_ricardo@hotmail.com

EFFECTS OF HIGH INTENSITY INTERVAL TRAINING ON BALANCE ABILITY AND RECOVERY TIME IN YOUNG ATHLETES

GULER, O., ERSOZ, G., SAHIN, F.N., KARABIYIK, H., AKGÜL, M.

Ankara University

Introduction Specifically, high intensive interval training (HIIT) may induce fatigue, which is a natural physiological response. Fatigue decreases dynamic balance ability and subsequently may negatively affect technical performance such as passing, shooting and dribling. These technical abilities are an important component of soccer players. Therefore the aim of this study was to investigate the effects of HIIT on single leg balance ability(SLBA) and alart time for return to the orign value in young athletes. Methods Twenty one soccer players (12 males, 9 females, age = 21.76 ± 3.09 years; wt = 64.5 ± 9.8 kg; ht = 169.4 ± 7.18 cm) with no history of lower extremity injury participated in this study. The Biodex SD balance system was used to determined to non-dominant athletic single-leg stability(ASLS). Monark cycle ergometer was used for high intensity anaerobic exercies. Each subject performed four maximal effort cycling on a electronically braked cycle ergometer against a resistance equivalent to 0.075kg/kg body mass for 30 seconds with a three-minute rest intervals. Subjects were verbally encouraged to continue pedalling as fast as possible throughout the each test. After four maximal cycling, subsequently subjects performed ASLS test and then repeated same test with a five-minute passive rest period for 4 times. Results The result of this study has indicated that, HIIT negatively effects SLBA. Furthermore SLBA turn to the baseline status after 5 minutes passive recovery