INTER-LIMB COORDINATION, STRENGTH, AND POWER PERFORMANCES FOLLOWING A SOCCER MATCH IN OLDER INDIVIDUALS

Cortis Cristina1, Tessitore Antonio2, Lupo Corrado3, D’Artibale Emanuele4, Pesce Caterina5, Capranica Laura4

(Department of Human Movement and Sport Sciences, IUSM of Rome. Department of Health Sciences, University of Molise1, Department of Human Movement and Sport Sciences, IUSM of Rome. Department of Human Physiology and Sports Medicine, Vrije University of Brussels, Belgium2. Department of Human Movement and Sport Sciences, IUSM of Rome3. Department of Human Movement and Sport Sciences, IUSM of Rome. Department of Education in Sport and Human Motion, IUSM of Rome4, Italy)

Introduction

Older soccer players tend to decrease their performance toward the end of the match, despite their good aerobic and anaerobic fitness level (Tessitore et al., 2005). Baldissera et al. (1994) claimed that inter-limb incoordination (i.e., the inability to maintain rhythmic hand and foot flexion-extensions synchronizations) could disclose muscle weaknesses unlikely to be detected in routine clinical examination. Thus, the aim of this study was to verify differences in in-phase (IF) and anti-phase (AF) inter-limb coordination, force, and power performances following a soccer match in older individuals.

Methods

Before and after a friendly soccer match, 9 old soccer players (age: 52±10 yrs, range 42-74 yrs) were administered handgrip, sprint (10m and 10m leading the ball-10LB), jump (counter movement jump – CMJ, and bouncing jump – BJ), and inter-limb coordination (IF and AF flexions and extensions of hand and foot at 80, 120, and 180 bpm velocities, for 60 s maximum) tests. In addition, heart rate (HR), rate of perceived exertion (RPE) and muscle pain (RMP) were used to evaluate the intensity of their match. An analysis of variance (p<0.05) was applied to evaluate pre-post match performances.

Results

During the match, HR<85% and >85% of HRmax were 51±28% and 49±28%, respectively. Only for RPE, significantly (p<0.01) higher post-match values were found (pre: 7.5±1.5; post: 12.9±2.2) while low RMP was always reported (pre: 1.5±2.1; post: 2.6±2.0). Post-match handgrip and jump performances showed non-significant increases (Grip: pre=476±141N, post=485±122N; CMJ: pre=21.7±3.7cm, post=23.6±4.9cm; BJ: pre=17.3±3.9cm, post=19.3±4.8cm) while sprint performances remained stable (10m: pre=2.0±0.2s, post=2.1±0.2s; 10mLB: pre=3.0±0.3s, post=3.1±0.3s).

Only IF coordination showed a significant interaction between pre-post sessions and velocity of movement (80bpm: pre=60±0.5s, post=60±0.5s; 120bpm: pre=55±12s, post=60±0s; 180bpm: 30±15s, post=49±23s) even though at the end of the match better performances were found also for AF (80bpm: pre=35±31s, post=46±25s; 120bpm: pre=30±30s, post=29±27s; 180bpm: 7±8s, post=11±14s).

Conclusions

Although soccer matches place an intense load on senior athletes (Tessitore et al., 2005), older players seem to maintain their anaerobic performances like younger players (Perroni et al., 2006). Furthermore, the positive effect of intense exercise on motor coordination may reflect, at least in part, the exercise-induced facilitation of late motor processes involved in response execution (Davranche et al., 2007), especially evident during the execution of the easier in-phase condition.

References

Perroni et al., 2006. 11th ECSS, Lausanne, 5-8 July.

Keywords: Ageing, Soccer, Coordination

12th Annual Congress of the ECSS, 11–14 July 2007, Jyväskylä, Finland