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CREATIVELAB

Oral Presentations

Team Sports

P82. The use of minimal equipment to elicit post-activation potentiation over a warm-up routine in competitive swimming

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INTRODUCTION

Warming-up is paramount to deliver good performances in sports (Neiva et al., 2014). Recently there has been an increased interest in determining whether post-activation potentiation (PAP) included in a warm-up routine can improve performances. The aim of the study was to investigate if the use of minimal, light and portable equipment, such as resistance bands, would induce PAP and result in a performance enhancement in an all-out bout in swimming. The hypothesis under testing was that this equipment would induce PAP and result in better performance.

METHODS

Eleven swimmers enrolled in a national high-performance programme and racing on regular basis at national and international competitions (including regional games medallists) were recruited. Participants performed an all-out 50-m front-crawl swim 8min after two warm-up routine (random crossover): (i) a warm-up featuring a set of upper-body PAP conditioning (UPAP) which was performed by doing resistance band pulls and; (ii) a warm-up with no PAP conditioning (SWU). The time trials were clocked by an official timing system (Wylas Timing System, Colorado Timing Systems, US) synchronised with touch pads (OCP5, Omega, Switzerland). Split times (15m, 25m, 35m, 45m and 50m) and stroke mechanics per splits (stroke rate, stroke length) were recorded (f=50Hz; Photonfocus, 2048 GigE, Switzerland) and then measured on a video analysis software (Dartfish Analysis, TeamPro Data v.9, Switzerland). The anaerobic alactic power (ATP-PCr) was also estimated over each trial (Figueiredo et al., 2011). Paired T-test ($p<0.05$) and Cohen's d were selected to compare mean differences.

RESULTS

Seven out of 11 participants had a faster UPAP time trial, one had the same time and, four had slower trials. The start showed trivial-moderate changes ($0.17<d<0.22$) being the flight time significantly faster in the UPAP ($p=0.02$). The split times in the first half of the trial were significantly better in the UPAP condition, yielding moderate effect sizes ($0.001<p<0.03$; $0.26<d<0.35$). Over the second half, the changes were trivial ($0.13<p<0.43$; $0.11<d<0.17$). The SR was moderately slower ($p=0.14$; $d=0.51$) and SL strongly longer ($p=0.09$; $d=0.60$) in the UPAP; conversely, in the 35-45m split SR was faster ($p=0.29$; $d=0.34$) and SL shorter ($p=0.34$; $d=0.18$) in the UPAP. The ATP-PCr power was significant and moderate larger in the first 25m in UPAP ($0.001<p<0.03$; $0.25<d<0.35$).

CONCLUSIONS

The UPAP effect fades out over the 50m trial. UPAP changed the SR-SL combination and enhanced the ATP-PCr power in the first half of the trial. Altogether, the UPAP elicited by minimal, light and portable equipment is likely beneficial.

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