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## EFFECT OF DIFFERENT WARM-UP INTENSITIES ON SWIMMING STARTS PERFORMANCES

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### INTRODUCTION

The warm-up is used to optimize the swimming performance (1) and coaches/researchers need to be aware of its relevance. As a component part of a swimming event, the start has been reported to be critical for overall performance. Therefore, it is essential to understand the effects of warm-up on swimming start performance, being both determinants in competitive swimming.

### METHODS

Eight male swimmers (17.63±1.3yrs) of national level participated in this study. On separate days, each swimmer performed a swim start to 15m under 50m freestyle, which was preceded by two different warm-ups, in a randomized order. The warm-ups totaled 1200m and included some of the habitual procedures, differing in the main set. The warm-up focused in the velocity stimulation (VWU) comprised 4x50m (divided in 25m maximum and 25m easy swim). The warm-up focused on aerobic power (AWU) comprised 8x50m at 80% of maximal velocity. The kinematical analysis of the start included the block, flight, entry, 5m and 15m phases. One camera (50Hz) videotaped the takeoff, the flight and the entry phases and other camera (50Hz) videotaped the 15m mark zone. Complementarily, the time to 5m and 15m were determined with a chronometer. To compare data obtained in the two trials, Student paired t tests were used.

### RESULTS

There were no differences in swim starts between VWU and AWU, with regard to time to 5m (1.37±0.13s and 1.33±0.08s, p=0.10) and time to 15m (6.59±0.35s and

6.66±0.34s, p=0.32, respectively). Also, no differences were found during the block phase (0.59±0.05s and 0.58±0.04s, p=0.45) and the entry velocity in the water (9.29±1.73m/s and 9.62±1.59m/s, p=0.21, respectively). However, medium effect size values were verified in the entry velocity (ES=0.49), in the time to 5m (ES=0.67) and in the time to 15m (ES=0.41).

### DISCUSSION

The two different stimuli used in this study produced similar dive start performances. The mechanisms behind the different warm-ups protocols could be different; however, both influenced the swimmers in the same way. Similar results in start times were found between a previous post activation potentiation and the usual warm-up (2). Considering the effect size values, in the present study the swimmers entered in the water with higher velocities after AWU, being faster at the 5m and inverting this difference in the 15m. We should be aware that the velocity stimulus could have not been enough to potentiate effectively the performance.

The results provide the basis for further investigation of the effectiveness of different warm-up strategies for enhancing starting actions.

### REFERENCES

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