

*Abstract*

# Acute Effect of Two Different Post-Activation Potentiation Running Protocols on Sprint Performance of Preadolescent Boys <sup>†</sup>

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**Abstract:** **AIM:** Forward and backward sprint are two types of locomotion commonly used in sports. The purpose of the present study was to examine the acute effect of two post-activation potentiation sprint protocols, including the aforementioned types of locomotion, in subsequent 20-m sprint performance (SP) and the possible fatigue caused by them in preadolescent boys. **MATERIAL & METHOD:** Fourteen recreationally active preadolescent boys (aged  $12.49 \pm 0.52$  years) volunteered to participate in the study. Boys' SP was evaluated randomly on three non-consecutive days. SP was evaluated 4 min after (a) a typical warm-up (3 min jogging and dynamic stretching), (b) the typical warm-up followed by  $3 \times 10$  m forward sprint and (c) the typical warm-up followed by  $3 \times 10$  m backward sprint. The Microgate Witty Wireless Training Timer was used for the evaluation of SP and the 10-degree OMNI scale for the evaluation of the rate of perceived exertion. **RESULTS:** ANOVA with repeated measures indicated no statistically significant effect of protocol on the 0–5, 0–10 and 0–20 m SP ( $p > 0.05$ ). On the contrary, it was found that the protocols in which  $3 \times 10$  m forward or backward sprint was incorporated caused statistically significant greater fatigue than the control protocol ( $p < 0.001$ ), without any differences between them. **CONCLUSIONS:** The implementation of three 10-m sprints, either forward or backward, to a standard warm-up does not cause acute improvement in 20-m sprint performance in preadolescent boys, as both protocols cause greater fatigue than a typical warm-up. Therefore, their addition to warm-up of preadolescent boys is not recommended.

**Keywords:** preadolescence; post-activation potentiation; sprint performance; fatigue



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