

# ABSTRACT

**Title:** Post-Activation Performance Enhancement in Soccer A Systematic Review of the Effects of Resistance and Plyometric Training Methods

**Objectives:** The aim of this systematic review was to analyze the effects of post-activation performance enhancement (PAPE) and priming, induced through resistance or plyometric loading, on acute changes in performance in football. Emphasis was placed on the classification of conditioning activities, types of performance outcomes (explosiveness, change of direction, RSA), and the timing of the effect.

**Methods:** The review included 18 studies that met predefined inclusion criteria. The type of conditioning activity (resistance, plyometric), the performance variable measured, and the time interval between CA and testing were compared. In studies with available data, a quantitative synthesis was conducted using Cohen's effect size ( $d$ ) and a 95% confidence interval, including visualization via a forest plot.

**Results:** Most studies demonstrated a positive effect of CA on acute performance, particularly in time-based tests (e.g., sprint, RSA). Resistance protocols showed an average  $d = -0.72 \pm 1.34$ , indicating performance enhancement (shorter time). Plyometric protocols displayed greater variability ( $d = +0.19$ ; range from  $-2.30$  to  $+3.54$ ). The most pronounced improvements were observed in sprint and RSA performance when tests were conducted 6–12 minutes after CA. The findings suggest that well-designed PAPE protocols can lead to short-term performance enhancement, influenced by the type of activation, time interval, and training level of the athlete. Plyometric protocols are advantageous due to their practicality and low fatigue cost, whereas resistance protocols tend to show a more stable effect with longer time intervals. The study highlights the importance of individualization and proper timing in implementing these methods into football training.

**Keywords:** post-activation performance enhancement; PAPE; soccer; explosive strength; plyometrics; resistance training; acute performance enhancement