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Specificity of Squat Variations: A Theoretical Framework for Adaptations and Performance Outcomes

CONFERENCE ABSTRACT

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Abstract

The barbell back squat is a bilateral, multi-joint, closed-kinetic-chain movement that has become a staple in exercise programming for strength training, athletic conditioning, and rehabilitation. The modern back squat originated in the early 20th century and has become one of the most popular exercises for developing lower-body strength, power, and hypertrophy. In the strength and conditioning field, training specificity is critical if athletes wish to optimise the transfer of physiological and biomechanical adaptations in the weight room to athletic performance in competition. Therefore, the purpose of this narrative review is to evaluate how different variations of the modern barbell back squat can facilitate different biomechanical and physiological adaptations. This review will collect relevant literature that explores joint angles, muscle activation, and physiological adaptations, and compare the findings to sporting examples across a variety of athletic disciplines. This article will contribute to the field of strength and conditioning by educating and informing strength coaches on how different squat variations can be programmed with specificity in mind. Moreover, this review

hopes to identify which variations of the barbell back squat should be implemented for specific sporting examples.

Keywords: squat, exercise, programming, human performance