EFFECT OF SQUAT EXERCISE TOWARDS THE VERTICAL JUMP TEST

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INTRODUCTION

Power output has been identified as a key mechanical variable affecting performance in a variety of sports [6]. As such, methods to increase power output have received much attention in the literature, with resistance training methods being shown to be very effective [1]. These findings have led to the investigation of the most appropriate resistance training methods to improve power output in terms of the exercise, repetitions, sets, recovery periods, and the loads used [4,5,13]. The most appropriate load to improve power output has typically been investigated in cross-sectional studies that have assessed the power output achieved in specific exercises performed under a variety of different load conditions, with the load corresponding to the greatest power output representing that which is considered most effective [3,6,12,15].

A vertical jump or vertical leap is the act of raising one’s center of gravity higher in the vertical plane solely with the use of one’s own muscle. It is a measure of how high an individual or athlete can elevate off the ground (jump) from a standstill. The vertical jump is an explosive movement important in many sports [8]. A review by Baker [2] suggests that both general strength training (e.g. squats) and specific strength training (e.g. depth jumps) can play key roles in a programme designed to improve the vertical jump.

In general, it is believed that a training exercise should follow the principle of specificity: the exercise should be similar to the targeted sport movement with regard to the kinetics, kinematics, and contraction type [11]. Further, in order for a training exercise to facilitate an improvement in performance in a sport movement, such as vertical jumping, the exercise must stimulate a trainable feature of the neuromuscular system beyond the level that can be achieved when executing the sport movement. Some authors McBride et al. [10] have reported that the squat depth influences the height reached in the vertical jump, although divergent results are found in literature [7].

In addition, changes are also observed in important jump performance predictors such as strength, power and impulse [9]. According to these authors, strength and power seem to have larger magnitudes in vertical jump when performed at small squat depths. On the other hand, greater impulse is observed in jumps performed from greater squat depths due to increased time of force application [9]. Thus, it is necessary to understand in which situations of body adjustment it is possible to maximize jump height.