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EFFECTS OF 6 WEEKS FAST SQUAT ON VERTICAL JUMP PERFORMANCE

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Introduction

Athletic performance is advancing by the day. Athletes are continuously searching for new training methods that will enhance their performance and give them an edge in the competition. In many sports like basketball, volleyball, and handball, most of the time athletes have to jump high in order to make it easier to score a goal during matches. To improve jump height, athletes often use weight training to prepare for such sports [6].

Weight training refers to any type of training that involves the body moving in some direction against a force that resists that movement and which is supplied by some type of weight including free weights and weight machines [9]. Essentially, high-resistance exercise leads to increases in power (through increases in force production), but maximal gains are inhibited without training specific to movement velocity [3].

Squat is an exercise that trains primarily the muscles of the thighs, hips and buttocks, as well as strengthening the bones, ligaments and insertion of the tendons throughout the lower body. Squats are considered a vital exercise for increasing the strength and size of the legs and buttocks. Based on the principles of specificity, training is most effective when resistance exercises are similar to the sport activity [4]. The simplest and most straightforward way to implement the principle of specificity is to select exercises similar to the target activity with regard to the joints about which movements occur and the directions of movement. The movement of squat imitates the most of the movement performed in jumping action.

The movement of squat begins from a standing position with the feet roughly shoulder-width apart and toes pointed outward. Weights are often used, either in the hand or as a bar braced across the trapezius muscle in the upper back [1]. The movement involves bending the knees and hips to lower the torso and accompanying weight, then returning to the upright position. The torso leans forward to maintain balance, and the lower back is kept straight. As the body descends, the hips and knees undergo flexion, the ankle dorsiflexes and muscles around the joint contract eccentrically, reaching maximal contraction at the bottom of the movement while slowing and reversing descent. The muscles around the ankle work to provide stability. Returning to vertical contracts the muscles concentrically, and the hips and knees undergo extension while the ankle plantarflexes [1].

Fast squat exercise is the squat performed in a high velocity. For the best training effects, the speed of execution must be fast and explosive for some types of work [12]. The fast-twitch muscle fibers are trained and recruited for the action only when the application of force is fast and vigorous. Training with low resistance (30-50% of 1RM) at high velocity results in an increase in the rate of force development, and the gains in strength compared with the speed of sport performance which results in more powerful, explosive movements [11]. Therefore, fast squat is beneficial in improving the jumping height of athletes as it implements high velocity in the movements.