



Understanding and Improving Your Vertical Jump

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The vertical jump for an athlete can mean the difference between a couple million dollars for future NFL athletes or a Division I scholarship for a volleyball player compared to a Division II scholarship. There are a lot of myths and gimmicks in the sports world on how to improve an athlete's vertical jump. The truth is that athletes who are looking to improve their vertical leaping abilities need to incorporate a well-designed sports performance training program.

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A high vertical jump score indicates more than the obvious fact that an athlete can jump high. The jump correlates to overall lower body strength, explosiveness, first step quickness, and overall athleticism. The vertical jump is also used as a baseline test to compare improvements during a strength and conditioning routine.

Understanding and applying the proper mechanics of a vertical jump is an important factor for maximizing athletic abilities. To jump for maximal height athletes quickly (dip) make a downward movement by flexing the ankle, knee and hips followed immediately by extending the ankle, knee, and hips. The vertical jump takes advantage of the stretch shortening cycle, where the muscles pre-stretch before they explosively contract. Teaching athletes the correct jumping mechanics is critical for maximizing lower body power output. Coaching tips I use when teaching the vertical jump are "position the feet under the hips, quick down/quick up, and use your arms/full arm swing."

Strategies for Improving Your Vertical Jump

Functional strength training has shown to increase the vertical jump height in athletes. A well-designed strength-training program will develop stronger hips, quads, hamstrings, and core muscles that will help athletes be more explosive. It is important to incorporate ground based multi-joint movements such as back squats, front squats, single leg squats, overhead squats and lunges. These exercises will have a greater transfer to the vertical jump than leg extensions, leg curls, and the seated calf raise.

Along with heavy resistance training, it is important to incorporate high velocity plyometric exercises into a workout routine. This would include different types of jumping, leaping, bounding, and hopping exercises. These exercises should be performed using both feet as well as on one leg at a time to improve deficiencies in lower body strength. Plyometric drills should be performed quickly and explosively to improve speed-strength.

Olympic weightlifting is another form of resistance training for improving lower body strength and power. There are a variety of Olympic lifts (snatch, clean, jerk, and variations of these exercises) used by strength coaches that emphasize triple extension. Triple extension is a term used to describe the forceful jumping action that takes place at the ankle, knee, and hip that is biomechanically similar to performing a vertical jump. Essentially Olympic lifts are vertical jumps with external resistance performed at a high rate of speed.

Finally, it is important to correct flexibility, mobility, and stability deficiencies within the body to ensure smooth powerful movements. Any energy leaks within the system will result in a suboptimal vertical jump height.