6.3 – Loading the Ankle While Squatting

What is one of the key places in which the greatest energy leaks in the body occur?

The ankle!

The fact is, even rotational aspects that happen throughout the hip and ankle can create a power leak which increases contact time during sprinting. If you are ready to begin to get the foot and ankle involved in the larger hip movements, you can start by having the athlete raise their heel off of the ground on their front foot edge in split squat positions. Initially, you will find that the athletes' loaded weight will drop significantly because their ankle and foot cannot handle this degree of pressure. It is important to highlight the fact that this is a much closer step towards truly prepping the body for the same pressure that your body has to accommodate when accelerating. We have found that in a short amount of time the body will adapt and learn to house the extra weight by properly incorporating the ankle and foot joint. As the ankle and foot becomes stronger the athlete will quickly get back to their previous loaded weights. Additionally, you will see an increase in power output in a horizontal plane and substantial decreases in acceleration times.

To advance the entire foot spring model one step further, truly driving home the concept of the big toe, you can start doing these exercises with the athlete standing on the corner of the block emphasizing that the big toe *(1st metatarsophalangeal joint)* or ball of the big toe remains the only part of the elevated foot that remains on the mat. Also, to take the plantar flexion progression one step further, when the athlete becomes strong enough, they can begin to do big toe walks. This exercise will focus on the athlete's plantar flexion abilities by attempting to get as flat of an angle as possible through the ankle then bouncing up on the TJ joint. When the athlete gets that down proficiently, they can then walk in that position. Once athletes have gotten better at holding their own body weight you can load the joints with external weight.

We personally prefer safety squat bar. This is a great way to prep the body for the ground reaction forces that are created during high velocity movements. The forces created, in multiple vectors, during these movement can exceed over five times an athlete bodyweight at less than a hundredth of a second. The supramaximal safety bar split squat is a great approach to inducing remodeling and adaptive responses as well as many other qualities in the body that are necessary for athletic performance.

As you begin using external weight you can start working on the finish position of the sprint. The athlete should be plantar flexed up on their big toe joint and the swing leg knee will be pushed high forward. The drive leg hip (leg of the working foot on the ground) should pushing forward. This will help to strengthen the finish position of a sprint by tying the lateral chain support of the plant leg and hip co-contraction of the girdle. Keep in mind that initially you will see a large amount of deviation and movement in the ankle and foot.

You may be hesitant to load the athlete due to these deviations, but keep in mind that the athlete will adapt to the load. Try to avoid overcoaching and simply instruct the athlete to drive their big toe arch into the floor. We have witnessed a large amount of self-correcting instincts in the foot and ankle when loaded in this position. As the big toe becomes stronger the rest of the chain will follow suit and adapt to the load.

Be sure to check out the video we have provided discussing the safety bar split squat that we use with our athletes. In the video you will find information on ankle position, how to load the exercise, and why we use it.