

5.0 – Progressing into Isometric Strength Patterns

Once the athlete has properly developed basic foot function, they can begin progressing onto our isometric strength patterns. We will start all of these positions with bodyweight only. To quickly develop the necessary strength the athlete can complete these exercises multiple times throughout the day or week, being sure to monitor the point of fatigue. It is crucial that the athlete is able to hold their body weight on one limb for one minute before considering to progress onto overloading the system. Additionally, we want to ensure that we are performing the exercises in a variety of joint angles with different mechanical demands. We do this so that we can accommodate for the 15° range of motion in either direction of the given joint angle. Make sure that the athlete is exhibiting a high degree of structural efficiency and is strong in every position. Keep in mind that by varying the joint angles we are addressing joint integrity well beyond the specific target joint. Variation in joint angle training with all five positioning ensures that the strength adaptations are occurring not only in the ankle complex but further up the chain. Meaning that we want to see adaptations and increases in strength in the ankle, knee, lateral sling and even the torso.

The predicating reason in which we start with isometrics in a single leg position is because we need to ensure that the body has the baseline ability to efficiently absorb the amount of force that is being applied to the ground with their own bodyweight. It is far too common that when runners accelerate and go to push on the ground in a horizontal direction, they do not possess the necessary isometric strength to hold the ankle joint in place. What ensues is a large drop in the heel, forcing the shin to become more vertical. This translates into the force factor being more vertical in nature rather than horizontal which is optimal. In an essence if you truly want to improve someone's acceleration or sprint for that matter, we need to make sure that the ankle joint can support the body weight of the athlete.

The issue is, what you will find is that most athletes simply cannot hold their body weight for any quality period of time. The problem that this creates is that we can build all the force and power that we want in the legs, hips and torso but when the athlete transitions to apply this power via pushing in the ground the body simply is not going to allow this high-level of generated force to be applied. This is because the body instinctively knows the ankle and rest of the chain cannot handle this demand. In turn, what happens is that the body will decrease or downregulate the amount of force being signaled into the limb. By not properly prepping the ankle, we are basically putting the body in a position to place an internal governor on the entire system reducing our max horse power.

The question that now arises is, **“Why waste all this valuable time in the weight room producing great squat numbers when the chain will not allow the athlete to utilize this power during a sprint because the foot and ankle are problematic and collapse under force?”**

This dilemma makes much of the work that the athlete puts in, in the weight room nontransferable when it comes to sprinting and performing in their given sport. Regardless of anthropometric differences in athletes. When it comes down to it, the fastest athletes in the world have one singular characteristic in common. Highly efficient abilities to transmit and transfer force.

It's simple, the more force an athlete can withstand after driving their foot into the ground, the faster they will be. The body intuitively knows what the foot and ankle can support, thus self-regulating and producing the appropriate force that is just enough to ensure it does not hurt itself. The basic isometric pattern will always have the weight behind the big toe and second toe. If you see an athlete who, when in a raised position, displays a shift in the pinky toes so that they begin to crawl under the foot instruct them to try and pull their pinky toes into a dorsiflexed position. This cue will help to strengthen the outside arch of the foot. When they get to a point in which they can hold the pinky toe, they can begin to focus exclusively on applying pressure directly through the big toe.

A great way to start this exercise with an athlete that exhibits poor structural abilities in the foot is to guide them up into position with two feet. Once the position is locked in and perfect have them slowly lift the opposing (non-training side) foot, focusing on maintaining proper positioning with the foot under tension. To perform the Spring Ankle Series the athlete will complete isometric contractions in a series of positions that include three separate thigh positions and two different ankle positions. We will discuss each position in the following sections as well as providing both photos and video to help with coaching techniques.