

2.0 - What are the first steps in gaining a greater range of motion in the foot and ankle?

The next basic function that we must improve on is the range of motion of the big toe. If the 1st Metatarsal Joint of the big toe is frozen or locked, the big toe cannot correctly extend. This lack in range of motion makes it impossible for the joint to properly function. Toes should possess proper range of motion and segmentation. The basic definition of segmentation dictates that the body must possess the ability to move certain body parts, toes for example, independently without influencing movement in another adjoining area. This segmentation comes with both engraining neural firing patterns as well as increasing range of motion and mobility in the joint. If you place your hand flat on the table, you should be able to lift each finger one by one independently without lifting the neighboring fingers. Our fingers are able to move autonomously of each other, this is the concept that a healthy foot should exhibit as well. The brain should be able to independently identify which toe that it wants to use and lift that toe when required.

Just as with our hands reaching out to grab an object, the brain can use our feet and toes to feel the ground. This is the basis for proprioception, the “Toe to Brain Connection”. There has recently been several devices and tools released to increase the body’s proprioceptive abilities via the feet and toes. Keep in mind that each one of these tools provides the brain with a certain stimulus. Acupressure mats are designed to “wake the feet up”. In eastern medicine there are correlations with the foot and internal functioning in the body. For the sake of this manual we are focusing on the brain’s needs for spontaneity to adapt and create a higher functioning Toe to Brain connection. Mats with differing textures as well as patterns are the most beneficial. We have designed and created our own that the athletes use while training. You can find information on these mats in this section’s videos.

Though it is not discussed as frequently as it should be, immobilization of the big toe is the cause of an injury that is far too commonly heard in football as well as many other field sports. The deficiency in function and range of motion are predicating issues to the onset of turf toe. Turf toe eventually leads to bunions and other problems down the chain in the hips, knees and lower back. It is the direct effect of an inhibited joint. A perfect example to help this make more sense is consider when you stub your toe. When you stub your toe, your body knows not to put pressure on the toe due to the injury. The body will also know that if that big toe joint does not extend or flex it must find a way to function based off of our internal instincts of survival. You will either start to rotate around that joint, simply shut down and not use it or develop a faulty and compensated pattern that will only lead to a larger injury risk in the future.

The first step in gaining range of motion in the big toe (*1st Metatarsophalangeal Joint*) is to have the athlete begin in a seated position. From this position, instruct the athlete to manually move their big toe into extension by pushing backwards into a dorsiflexed position. In a perfect world using the ankle (*Talocrural Joint*) as a pivot point the athlete should be able to achieve 90° in range of motion. It is in this extended position that we

can begin to engrain and absorb the ability to push from in a horizontal fashion. This capacity is incredibly advantageous as it leads to the ability to create much greater horizontal push forces when the athlete goes to drive off of the ground. If the athlete is unable to achieve at least 90° they will need to physically work on pulling the toe back.

Video 2.0 provides narrative along with instruction on how to apply the information presented in this section.