Foot/Ankle/Leg Issues? Is it time to update your Core workout?

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DEFINING THE CORE

There is a growing body of evidence to support the importance of core stability in the prevention, treatment, and rehabilitation of lower extremity injuries. Active patients often tell me they either don't do any core exercises or the only exercises they do are crunches. The core involves a whole lot more than what people picture as six-pack abs. If you want a strong core, crunches should not be the only exercise. Some argue you shouldn't be doing them at all and should replace them with much more beneficial exercises.

The core, defined as the lumbo-pelvic-hip complex, is the whole area between your diaphragm and your upper thighs. It involves the muscles of the abs such as the rectus abdominis, but also the sides (obliques and transverse abdominus); the back (rectus abdominis and multifidus); the pelvis (the gluteal muscles); and the hips (including the hip flexors, abductors, and adductors).

To truly work the core, you need to put together a program of exercises that address all the major muscle groups. Instead of doing 100 crunches, which are primarily working one muscle group, split it up and do 25 of each: planks, side planks, side lying leg raises, and bridges.

Other beneficial targeted core exercises include: Bird-Dog's, Superman's (trunk extensions), clamshells, and marches or leg extensions on a swiss ball. Most of these exercises, if done properly with a stabilized lumbar spine position, can be much safer and more protective to the spine than simple crunches.

There are a lot of complicated core exercises out there, remember to start with the basics, like a basic plank or a bridge to work multiple muscle groups so you are getting a lot more bang for your buck.

WHY THE CORE IS IMPORTANT FOR LOWER EXTREMITY INJURIES

Just like in the children's song, all the bones in the body are connected. Having a strong core (Hips/Abs/Back) is one important way to stabilize the entire limb to both prevent and treat injury. In order to prevent "overuse" injuries, you have to evaluate the entire kinetic chain. In kinetic chain theory, motion or translation in any segment of the limb affects the entire limb. It is important that we as podiatrists not just look at the pathomechanics from the bottom up, but also from the top down:

- If there is excess tilt, rotation, or weakness at the level of the hip and pelvis then this can lead to uncontrolled joint displacements or unwanted accessory movements down the entire limb to the feet.
- Having weakness in the core not only can contribute to overuse injuries but can also increase your susceptibility to acute injuries such as sprains and strains.
- Picture this: if you are playing soccer and are cutting and changing direction, all your weight is on one leg. If your hips and glutes are weak and there is excess wobble at the hips, that motion is going to translate down to excess motion in your leg, which can lead to an increased risk of knee ligament injuries and ankle sprains.
- Research shows us that there is coupled motion between the core and the lower extremity muscles. The muscles of the hip and pelvis have been shown to be activated before the initiation of lower extremity muscles can occur. If muscles aren't being activated properly and there is excess motion being passed down the limb, then the individual is more prone to knee, leg, ankle, and foot injuries.

One of the most common appreciable weaknesses I see in my practice, especially when evaluating novice and recreational runners/walkers, is gluteus medius or hip abductor weakness. This can be seen on evaluation either

with simply looking for the Trendelenburg sign; while observing increased hip displacement/wobble/dip during gait while viewing posteriorly; or with increased crossover with gait (foot crosses over the midline during strike). This abnormal leg motion can lead to stress on the lateral leg muscles and structures such as the IT Band, leading to lateral knee pain; over activation of the peroneal tendons leading to tendonitis around the foot and ankle; and can contribute to many overuse and acute injuries of the lower extremity.

DECREASE INJURY RISK BY UPDATING CORE EXCERCISES

From a podiatrist's standpoint, the best examples in the medical research for the importance of core stability with injuries are ankle sprains, chronic ankle instability, and medial tibial stress syndrome (more commonly referred to as shin splints). In order to help decrease injury risk, core (and especially hip abduction) strengthening/stability exercises should be included in your weekly fitness routine. Also, as practitioners, it is important to make sure that when our patients are doing physical therapy (either at home or with a therapist) that they are including core stability exercises as an important part of their rehabilitation both to treat their injury and to prevent reoccurrence.

In conclusion, if you are not addressing it, or if you are only doing crunches, IT IS TIME TO UPDATE YOUR CORE PROGRAM!

- Make sure your core exercises address the whole "lumbo-pelvic-hip" complex and not just the 6-Pack Abs.
- In order to help prevent lower extremity injuries and overuse conditions, you need to make sure your patients are addressing any core, and especially the hip, weakness.
- In patients who have sustained acute ankle sprains, make sure that core/hip exercises are included in their rehabilitation program.

In the world of sports medicine, core stability is becoming a very important factor for the overall health of the athlete as it is all about the kinetic chain. The importance of core stability is really just adding truth to the children's song, "The foot bone's connected to the leg bone, the leg bone's connected to the thigh bone …" and so on!