FITNESS FORTITUDE: Article by Hillarie Z. Scannelli, CPT

Female Athletes and Knee Injuries . . . What's the Connection

At Impact Training we often get new female athlete clients who have just been cleared from physical therapy after a knee injury or knee surgery – and they are referred to us for Personal Training. During their sessions, we work hand-in-hand with the physical therapist who referred them, and we create a plan to help strengthen leg and hip muscles, along with their core to get them ready to get back on the field. We've noticed more and more that female athletes (especially in their teens) are prone to knee injuries – more than boys. So between researching it on our own and networking with local physical therapists, we found there is a definite connection between females and ACL injuries. A great resource (OSR Physical Therapy in Minnesota) brings up a critical point that not only are female ACL muscles smaller than males, but during puberty when leg muscles are growing and lengthening, estrogen can play a role in weakening those muscles. Who knew? And we can all agree that girls' sports have gotten much more aggressive over the years – they play harder and practice more often or they play all year round. This clearly leaves the girls at risk for injury. One last, but VERY IMPORTANT contributing factor is weak neuromuscular control in the hips which greatly affects the knees.

One test that we ALWAYS do with new female athletes is we have them perform a lightly weighted squat – and we also have them jump onto a plyo-box to see (in both instances) if their knees cave towards one another when they dip into the squat or when they land on the plyo-box in a squat. Another test we have them perform is having them jumping "off" the box to look for the same thing (see illustration below of all the muscles working during a box jump). Due to momentum and the force of jumping off the box, it is even more apparent when trying to spot weaknesses. Jumping off requires even more muscle control than jumping on.

So if we see their knees are caving (with any of these tests), we set up specific exercises to not only strengthen the quadriceps (front of the thigh), but also the hips, glutes, core and erector spinae (lower back) – since they ALL need to be strengthened. Lateral band work is a great way to activate muscle recruitment. There is so much more that goes into keeping an athlete healthy, and working with resistance bands is just one. Certainly boys can have weak hips, glutes and quads which leaves them at risk for injury too – so we test them all. If an athlete wants to get stronger and faster, it's important to WAKE UP all the muscles so they do their part. Otherwise, you have some muscles being overworked, while others are not activated. There are also those inner-thigh muscles (adductors) that need to be activated. How many times we've seen an athlete snap or tear those muscles by making a fast or explosive move? It happens, and an athlete can greatly reduce that risk by performing some glute bridges (lying on their back, squeezing their hips and glutes up) – and even better when they add a soft ball between their knees. This way when they bridge "UP", they also squeeze the ball, activating those adductors.

An athlete's body is more complicated than you think, so we have to respect it if we want it to perform. I loved when I saw an NFL player last season on the sidelines doing side-steps with a resistance band around his ankles. He was a lineman and he was firing up his glutes, which makes will make him more explosive -- safely! Remember, training hard and training often is great . . . but at Impact Training, we also do our fair share of joint integrity work. We have to respect the joints. Sometimes an athlete's muscles are well developed and strong, but the connective tissue (ligaments, tendons, etc.) are not ready for a heavy load, an explosive movement or for a split second change of direction. That's when injuries happen. Let us help your athlete work towards improved speed and strength, but let's make sure we are doing it safely and effectively. For more info on our sports-specific personal training, please call Michael (co-owner/IMPACT) 908-403-7605