One of the foundations and pillars of athletic performance is the development of the posterior chain, and in particular, activation and strengthening of the glutes. Gymnastics is not an exception.

I THINK GLUTE ACTIVATION NEEDS TO BE VIEWED THROUGH THIS LENS: a skill that needs to be programmed and learned neuromuscularly. Gymnasts that repeatedly load their lower body eccentrically through the quadriceps have a high risk for developing structural imbalances that may result from a weak posterior chain. Over a period of time, if our body becomes unfamiliar with the neuromuscular pathways to activate the glutes their functioning can be unintentionally hindered with these imbalanced movement patterns. The problems this presents are not only related to diminished abilities to reach athletic potential but also present “red flags” for injury risk.

Gymnasts have the ability to be better athletes when they can display explosive hip extension strength. Running and jumping both require that the hips produce power as these are naturally hip extension dependent positions. Certainly the hamstrings play a key role in hip extension as well; however, the position of the glutes relative to the hip show that they have a strategic role in not only displaying strength for hip extension but also controlling the femur from anterior gliding where it attaches to the pelvis. According to Sahrmann, when hamstring muscle activity is dominant during hip extension, the proximal femur creates stress on the anterior joint capsule by anteriorly gliding during hip extension rather than maintaining a constant position in the acetabulum.

When we examine the anatomy of the glutes (inset) we notice that there are three “players.”

When considering the comprehensive approach to glute functioning relative to knee health, we have to look mainly at the two hip abductors (brings the femur laterally) called the gluteus minimus and gluteus medius in addition to the gluteus maximus. These abductors work not only in terms of creating concentric muscle actions in which they contract to abduct the hip but according to Thomas Myers in his book, Anatomy Trains, they also work in terms of preventing excessive hip adduction (“caving in”) and thus enable the hip to display adequate stability. They need to “fire” and be neuromuscularly efficient to do this. Since these muscles have a dynamic and multi-role responsibility in human movement, we must train them in terms of stability in addition to strength movements.
this form of training is neglected, there are often negative consequences for the knee (knee pain, ACL tear risk, etc). Check out this study from the North American Journal of Sports Physical Therapy that examined 19 females between the ages of 18 and 40, experiencing unilateral knee pain. Bilateral gluteus maximus and medius strength were measured with a MicroFET hand-held dynamometer. Their findings indicated that strength of the gluteus medius and maximus muscles were significantly less in the extremities of patients experiencing knee pain than the extremity without knee pain. As you can see, strong glutes promote positive joint health for much of the lower body.

As a leader in lower-back disorders, Dr. Stuart McGill’s work reminds us that weak glutes can increase risk for lower-back related problems. Weak glutes that can’t produce optimal hip extension can sometimes be a reason as to why the lumbar spine is overused and tries to “make up” for a lack of hip strength by entering into an abnormal excessively extended position during dynamic sport movements and a task as simple as lifting a box off the floor. In fact, Schache et al (2000) showed that limited hip extension during running is coupled with increased lumbar lordosis. Our lumbar spine has a natural lordotic curvature but our body doesn’t act favorably to changes that makes the spine hyperlordotic.

In conclusion, check out the video I made back in the winter for USA Gymnastics in regards to glute activation progressions at usagym.org/healthknowledge. This will provide you with a couple simple progressions that are offered as a tool to enhance glute activation and thus your ability to display hip extension power.

ENDNOTES