Far too often when treating an athletic injury we focus on the symptoms and ignore the kinetic chain of the injury. The simplest of examples to demonstrate the kinetic chain are overhead athletes. Through the work of Barker and Briggs, anatomical connections have been linked from planting lower extremity to the contralateral upper extremity. The anchor for this kinetic chain link is the posterior lumbar fascia.

The posterior lumbar fascia is the thickest of the three layers and is the only layer that extends into the thoracic region. This layer of fascia serves to divide paraspinal musculature from extrinsic musculature of the back. The posterior lumbar fascia serves as an attachment site for extrinsic back muscles and covers the paraspinal musculature. It also acts as an attachment site for muscles of the shoulder girdle and abdominal wall. The posterior lumbar fascia consists of two laminae, the superficial and deep. The superficial lamina extends superiorly with attachments to the latissimus dorsi, the rhomboids and extends as high as the cervical splenii. The superficial lamina attaches inferiorly to the gluteus medius and maximus and has bony attachments to the sacrum and ilium. The deep lamina consists of bands that pass laterally from the spinous process of L2-L5. It becomes continuous inferiorly with the sacrotuberous ligament and the biceps femoris. Superiorly, the deep lamina attaches to the serratus posterior inferior. It blends with the transverses abdominus, internal oblique, and surrounds muscles including the multifidus (1, 2).

A role of the posterior lumbar fascia is within the kinetic chain. The posterior lumbar fascia has the ability to transfer tension and force loads from the lower extremity to the pelvis and lumbar spine into the upper spine and upper extremity because of its anatomical connections (described above). This becomes critical in the assessment and treatment of throwing and overhead athletes. The force distribution in the overhead athlete occurs from the biceps femoris, sacrotuberous ligament, and gluteus maximus across the sacroiliac joint to the contralateral latissimus dorsi (2). During the pitching cycle, force is transferred from the lower extremity during the wind up and cocking phase across the pelvis and spine to the upper extremity in the acceleration and follow-through phase.

With this understanding of the posterior lumbar fascia, it is critical that we examine the entire kinetic chain when assessing and treating the overhead athlete. Our bodies are dynamic and should be treated as dynamic structures. When treating that hamstring or shoulder injury, do not forget their attachments through posterior lumbar fascia, it may be the key to the injury.
