Fascial Fitness, a New Way to Train Muscles part 1of 3

by Sol Petersen

When I studied anatomy and physiology at university, I was taught the standard kinesiological model of the time. The skeleton was seen as a bony frame that was moved by the muscles that pulled with equal force from origin to insertion. It was considered that forces exerted by the muscles on the bones could be calculated according to simple mechanical laws of levers and angles. Muscles are covered by a smooth tissue, the fascia. Fascia is a kind of glad-wrap-like connective tissue membrane that surrounds each muscle fiber, bundle and group of muscle bundles, much like different colored plastic coatings cover 3 copper electrical wires and then these wires are contained in another colored plastic tube. Forty years ago fascia was seen as a kind of inert packing material – the stuff that you had to dissect away in order to get to the really important muscles, nerves and organs.

Recent Understanding of Muscles and Fascia Comes Into the Spotlight

Over the last 20 years speculation on the role of the fascia prompted research and has led to a new understanding of fascia and muscle function. Fascia is now seen as a vital whole body interconnecting network - the major contributor to the tensional integrity that keeps us upright. Research revealed that fascia is actually a sensory organ, rich in nerve receptors for movement, heat, pressure, inner sensing [interoception] and proprioception [awareness of our sense of self moving in space]. Robert Schleip, a prominent fascia researcher says that the fascial receptors with their role in interoception and proprioception are a kind of sixth sense, the seat of our embodiment.

The classical assumption of muscle function had been that muscle fibers shorten and lengthen while the tendinous or fascial elements in the muscle unit stayed the same length. Surprisingly, we now know that muscle fibers contract almost isometrically, while the fascial elements work like an elastic spring. And we are still just beginning to understand the global way our body suit functions. Schleip says muscles rather than moving bones are steering fascial membranes, much like we steer a kite. It appears that most muscles transmit a significant portion of their contractile force into broad fascial sheets and their tension influences joint dynamics far beyond the origin and insertion.

The complexity of measuring the length or assessing individual muscles is illustrated by recent findings in a straight leg raise of a person lying on their back, the standard way to test the length of the hamstring muscles. When the other local muscle and fascial areas were monitored, it showed that when the hamstring muscles were strained to 100%, that the iliotibial tract was being test strained at 240%, the lumbar fascia on the same side at 145%, and on the opposite side at 45%, the lateral calf and Achilles tendon at 100%. Someone once said that there is no such thing as a single functional muscle.

Wallabees, the Catapult Effect and the Elastic Storage Function of Fascial Tissues

Researchers were puzzled to explain how wallabees could jump 6 meters – they simply didn't have enough muscles to do so. Eventually it was discovered that high elastic storage capacity was held not in muscles but in the tendons and fascial tissues of the wallabees, gazelles and horses. Soon it was realized that the fascia of humans, the endurance running animal also had a similar high storage capacity for locomotion. Fascia research is now beginning to inform our approaches to running and fitness. Google barefoot running and read part in this series for tips on Fascial Fitness.