Athletic Building Blocks

- **Strength**. There are three types of strength: isometric, concentric, and eccentric.
  - Isometric: The working muscle maintains a set length and joint angle, causing no movement.
  - Concentric: The working muscle is shortened during activity.
  - Eccentric: The working muscle is lengthened during activity.

  Concentric strength affects an athlete's ability to produce force while eccentric strength affects their ability to control it, as well as produce it. All types of strength effect joint stability and mobility.
- **Speed.** This is the time it takes to cover a set distance (typically refers to short distances). Speed is a major component of most sports and positions. Speed training often includes training for: movement mechanics, first step quickness, acceleration, plyometrics, strength, and power.
- **Agility**. The ability to move and change directions quickly with precision and control.
- **Power.** Power = Work / Time. For athletic performance power is displayed with a speed strength continuum. Each sport and position requires specific degrees of speed and/or strength for optimal performance.
- **Stability & Mobility.** Stability functions to resist outside forces to maintain proper joint alignment. Mobility is the internal ability of a joint, allowing it to work through its full or necessary range of motion while still maintaining proper joint alignment. Each joint has a specific function and requires both stability and mobility in varying amounts. Examples: the knee and spine require greater stability, while the ankle and hip require greater mobility.
- **Proprioception**. This is body awareness or knowing where your limbs are at in space without looking at them. This skill comes from the nervous system as it receives input from sensory receptors (nerves inside the body). Proprioception plays a key role in injury prevention, helping to maintain proper joint alignment, prevent vulnerable positions, and is necessary in learning proper movement mechanics.
- **Movement Mechanics**. How we move is determined by a collaboration of strength, flexibility, stability, mobility, and proprioception, to name a few. Each joint is designed to allow the muscle and ligament structure to take it through a certain degree and plane of motion (frontal, sagittal, and transverse). Proper movement mechanics allow for maximal potential in performance with minimal risk of injury. Improper movement mechanics increases the stress to the effected joint and muscle, as they are worked beyond their designed function.
- **Stretch Reflex.** This reflex refers to the muscle contraction that takes place in a muscle upon rapid stretching. Activation of the stretch reflex aids in force production during a concentric muscle contraction, positively effecting power, speed, and agility. During stretching, activating the stretch reflex should be avoided as it will limit motion and prevent the muscle from relaxing.
- **Body Control.** This is ability to slow down or change the direction of the body or body part that's moving. This typically refers to movement that the athlete created them self, such as running or jumping. Inability to control the body increases risk of injury.

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