

MTS and the Holy Grail of Athletic Performance

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Movement Training Systems is performance training based on movement mechanics and functional strength development.

We have to remember that physical development is not necessarily a point in time, it is a continuum. One physical skill develops another. The body is a system of muscles, tendons and ligaments that serve as connectors, stabilizers and prime movers causing action around the joint complexes. In order to move, certain muscles must create action, while others create reactive responses to allow motion. Being able to move parts of the body in the same plane, allows balance to occur as it moves.

This requires training in first muscle response and reactive synchronized muscle action thereafter. Muscle stability and effective movement action is based on a series of rotations that occur around a joint, propelling direction of action.

Our program design uses this basic understanding of the muscle/joint connection to develop functional strength and movement. It seemed that most programs focused on isolated muscle action; therefore, complete function was missing, and performance was compromised. We sought to use the most basic of movement mechanics to develop the flow of muscle reaction that must occur from the foot through the entire body, creating efficient motion.

Beginning this process means starting with basic gait mechanics. The first component to consider in gait is postural effects. If postural carriage of the body is compromised, so is the quality of the movement. So it is necessary to train the upper body, hips and foot to be aligned. This requires development of the muscles of the feet to direct motion that begins with the muscles of the lower leg, upper leg, and hips responding, based on rotational requirements, in a smooth, balanced and synchronized way.

In order for explosive, perfectly balanced action to occur, we noted the scientific theory of relativity - each action has an equal and opposite reaction. The body had to be taught to produce a directed action, and allow a muscle reaction that was an equal but opposite response. In this way, the body is able to produce fluid, explosive, balanced movement in any direction. Timing is critical to this process. The muscle system must be able to contract, stabilize and create the necessary rotations to produce motion all in one action that maintains proper body position, readying the body for each successive action.

Creating proprioceptive activity to the necessary muscles to initiate motion is a primary component to the timing of muscle reaction. If the foot does not function correctly, neither will movement. It all begins in the foot. Based on this premise, it became evident that training the muscular use of the foot is critical. Using thermographic photos of functional reaction on the soles of the feet during gait, we established

drills that train a functional muscle response in the feet. Due to years of compensation, many athletes fall inside on the feet, walk on the outsides of the feet, or lean back or forward due to a lack of stability on the mid foot. We use the drills to teach the correct mechanical function and strengthen the muscles of the foot, to begin training movement. It became apparent, in our observation of the athletes we worked with, that very few of them produced motion from their feet, but, rather, leaned forward and basically "fell" into a direction of movement. This, we noted, created an off-balance position, and resulted in a slower than desired rate of movement (first step speed). Looking at this, we decided that motion must be produced by a "push" - use of the foot musculature (and corresponding opposite reaction) instead of the prevailing "step" - which separates the upper and lower body, uses more time to accomplish, and creates off-balance position.

The pushing concept is novel to every athlete we came across from collegiate athletes to high school athletes, marathon runners to professional sprinters. As an athlete applies the push rather than a step and pull approach, the most powerful function of the hamstring and hip can be applied which is the extension of the muscle. When powerful extension is combined with a balanced body position, and perfectly timed reaction on the other side of the body occurs, speed is initiated.

MTS teaches methods that train this response, build strength and enhance control. We have discovered that when this protocol is observed in speed training, hamstring injuries are minimized dramatically because the more vulnerable use of the hamstring (the pull) is used as a stabilizer rather than the primary function (as is the case with the step and pull) and the more powerful application (the push-extension) is the prime use.

Based on these basics of movement, our strength training program is designed to create the functional strength necessary to produce the powerful, balanced speed and quickness necessary for performance. Just being able to move a lot of weight in the gym will not necessarily transfer to use of that strength on the field or court.

We have established that rotational components are critical to efficient movement. They are the body's mechanism to produce motion. The strength an athlete attains must be that which produces rotational stability along with prime muscle strength and speed of contraction. The same body positions required for perfect motion must be maintained in all strength work so that the transfer to performance is automatic. Otherwise, the rotations will be shut down, the stabilizers de-activated, and performance compromised. In addition, total muscle action will not be developed, and compensation creating over work of certain muscles, out of position, will cause injury.

Upper body development must ensure the correct positioning required of the upper body during movement as it works in conjunction with the hips to maintain balance and function in the correct plane. Therefore, chest, shoulder and upper back exercises must be performed in such a way that they maintain the stabilizers and develop the use of muscle order that will be used athletically. Otherwise, the strength attained will impede performance and leads to potential injury. In order to ensure that compensations are not

taking over during strength training, we use the MTS video analysis feedback system that allows the athlete to see the lift as it is performed and grades the components that are essential to success.

Each athlete has his/her own account, online, through the website. His/her performance of each lift, run, drill, etc. are accessible on their account. They are able to draw lines, by way of direction, to show body position throughout and allow interactive learning of correct positioning.

We use the feedback system as an educational tool for both the athlete and the coaches/parents. The coaches or teacher (when applied to a classroom) have access to all video, grading, and progress of each participant, so that it becomes documentation, tracking tool for them as well. It also carries the ability for a coach to communicate with the athlete through his account, posting comments on performance, and for the athlete to submit understanding of his video analysis to the coach.

Through drill work on movement mechanics and functional strength development, the system develops each component that contributes to athleticism. Each piece provides the basis for speed. As running mechanics becomes more proficient, and functional strength improves, speed increases.

Speed is the holy grail of athletic performance. When the system is followed correctly, speed is always the end product.