

Minnetonka Strength & Conditioning Newsletter:

Fall 2006



Fall Strength & Conditioning Program

All Minnetonka students and athletes not participating in a fall sport are encouraged to participate in our fall strength and conditioning program. The program takes place every Monday, Wednesday, and Friday from Sept. 11 – Nov. 17. We will meet in the Pagel Center at 3:00 and do our speed/agility workout from 3:00-3:30 and then strength train from 3:30 to 4:45. All students/athletes are expected to participate in the speed/agility portion of the workout unless they are injured. There is no cost for the fall strength and conditioning program.

In-Season Strength Training

The most important time for any athlete to strength train is in-season. Traditionally, athletes have worked out hard in the off-season and then discontinued strength training once the season started. Though intense practice schedules may make fitting in workouts difficult, the idea of discontinuing strength training once the season starts simply does not make sense. Keep in mind that the most important objective of strength training is injury prevention. In-season is the most important time to prevent injuries and stay strong for competition. Strength training hard from June – August and then discontinuing during the season when the most important competition might be in late October or November would be like studying hard for a test from June-August, not studying for a few months, and then taking that test in late October. We certainly wouldn't do that with our students! Practice schedules are intense and we certainly don't want to over-train our athletes. The great news is that fantastic benefits can be achieved from even one 30 minute workout per week. Strength training in-season can even help prevent overuse injuries. Taking all of this into consideration, all teams are strongly encouraged to participate in in-season strength training at least one day per week.

Myths and Misconceptions

Numerous myths and misconceptions exist in the field of strength and conditioning. These myths and misconceptions are especially apparent at the high school level, where most coaches (through no fault of their own) are inadequately educated about proper strength and conditioning. These coaches are often quick to jump on the latest exercise fad and many copy the strength program of whichever team in their sport has recently experienced success. While this may sound logical, some of the most successful sport teams succeed not because of their strength training program, but in spite of it. When designing a strength and conditioning program, many coaches mistakenly adhere to the testimonials of coaches and athletes over scientific research. With everyone claiming to have the magic formula, it can be difficult for an individual to separate fact from fiction. This section will help separate fact from fiction.

Myth #1: A high school athlete must strength train explosively and at maximal velocity to fully develop the fast twitch fibers necessary to perform explosively in their specific sport.

Reality: The notion that training explosively activates more fast twitch fibers violates Henneman's "Size Principle of Muscle Fiber Recruitment" (Henneman 1957).

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The “Size Principle of Muscle Fiber Recruitment” states that motor neurons are recruited in a sequential pattern starting with the smaller slow-twitch fibers and progressing to the larger fast-twitch fibers.

Moving a weight quickly will not bypass the slow twitch fibers; attempting to selectively recruit only fast-twitch fibers is a physiological impossibility (Palmieri 1983, Bell and Wenger 1992). It also has been shown that in terms of power development, it is not the act of training explosively, but rather the neurological intent to move the resistance explosively that determines the training response (Behm and Sale 1993). Fast twitch fibers can be trained with slow movements provided that the force requirements are high enough.

Not only is explosive training not well supported by research, it is also an inefficient method of improving strength. Overloading the muscle by placing it under tension improves muscular strength. This is best accomplished by slow-velocity movements where the muscle is forced to perform the necessary work. Most importantly, any strength training movement done in an explosive manner involves a significantly increased risk of injury. The high risk of injury incurred during explosive strength training has been noted by the American Academy of Pediatrics and many other researchers and authors. As Michigan State strength and conditioning coach Ken Mannie states, “Using potentially dangerous techniques in the weight room to prepare for potentially dangerous activities is like banging your head against the wall to prepare for a concussion.”

Myth #2: Each high school athlete should be on a sport-specific strength training program.

Reality: All athletes are human; and therefore, the physiological requirements for improving strength – progressively overloading the muscle – are the same for all athletes whether it be a 90 pound gymnast or a 250 pound football player. Total body training must be emphasized for all athletes. The goal of the strength and conditioning program should be to mold the raw materials and make the entire body as strong and as resistant to injury as possible. It is then up to the individual and their sport coach to develop the sport-specific skills necessary to excel in that sport. The only difference in exercise routines for specific sports would be to place a slightly greater emphasis on areas of the body most susceptible to injury for that sport. Examples would be cross country athletes performing exercises for the anterior tibialis in an effort to prevent shin splints and baseball players performing exercises for the posterior deltoids which are vital in decelerating the arm during the throwing motion.

Myth #3: Athletes should perform as many exercises as possible on a physio ball to improve core strength.

Reality: An athlete wishing to improve core strength need not perform exercises on a physio ball. Performing exercises such as a shoulder press on a physio ball decreases the benefit to the shoulders and does little to improve the musculature of the abdominals and lower back. To maximally improve core strength both the abdominals and lower back should be trained through a full range of motion to momentary muscle failure individually; this can be done using a variety of exercises such as the MedX Ab Isolator, Nautilus Abdominal, MedX Torso Rotation, Nautilus Low Back Extension, and MedX Exercise Lumbar.

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