Importance of Warm-up, Cool-down and Stretching

By Amy Magladry, MEd, ATC

Physical conditioning prepares athletes for performance as well as reduces the incidence of injury. However, muscle imbalance, inadequate ligament and tendon stretching, poor cardiovascular endurance, and problems with flexibility still contribute to sports injuries.

Historically, athletes had time to recover after a long and intense in-season because there was an off-season. However, this is no longer the case. Sports have become a year-round endeavor. With more and more coaches wanting their athletes to play other sports, weight-train, attend speed camps and work on their skills, young athletes are overwhelmed. The traditional conditioning seasons and periodization programs need to be modified.

Advising your athletes of the proper foundations of conditioning will make certain that injury prevention is your first priority. The processes of warming-up and cooling-down are important components to any athletic performance. The warm-up is used as a preventive measure and is believed to prevent strains of the muscles. It should increase body and deep muscle temperatures which permits greater flexibility. The cool-down is used in just the opposite way. It decreases the body and muscle temperatures and allows circulation to return to pre-exercise levels. An important reason for a cool-down is to reduce the lactic acid levels in the muscles allowing them to recovery more quickly after use, thus allowing for their effective reuse.

A general warm-up should involve performing a few basic activities that require the use of the major muscle groups. Activities such as walking, jogging, cycling, jumping rope or calisthenics will be sufficient in raising muscle temperatures. A specific warm-up involves performing movements that are an actual part of the sport. Examples are a baseball player taking batting practice, a tennis player practicing serves, a quarterback throwing passes and a wrestler practicing moves. Using specific warm-up techniques allow the temperature of the muscles to increase and also allow for the rehearsal of specific skills to be used in the sport.

The warm-up period should last 10-20 minutes depending on the intensity of the activity to follow. Longer warm-up periods are generally needed for more intense activities. The intensity of the warm-up should be gradually increased until it is near the time of the athletic practice or competition. The warm-up for a contest may need to be more intense than the warm-up for practice. A rest period of 5-10 minutes should follow the warm-up prior to competition. The warm-up remains effective in increasing muscle temperature for up to 45 minutes after it has been completed, allowing maximum effective muscle utilization and helping to prevent strains arising from high intensity use.

After physical activity is completed, it is important for the body to be able to cool-down gradually to help prevent soreness (lactic acid build-up) the following day. A light jog, and/or walking followed by stretching are all excellent ways to cool-down.

A stretching routine may often seem to be an unnecessary

and boring activity leading up to the real exercise. In fact, stretching is very important. Muscles tend to shorten during exercise, and stretching reduces the risk of muscle cramps. Each stretch should be held for at least 15 seconds, and three repetitions per muscle group. Athletes should feel slight discomfort in the muscle group but the stretch should not cause pain. Holding a stretch for a longer amount of time (30-45 seconds) will ensure that the athletes are receiving a more complete stretch.

The University of Michigan Health Systems reports that there are several methods that can be used for stretching, but the safest and most popular method involves static stretching. Static stretching is defined as passively stretching a muscle by placing it in a maximal stretch and holding it there. This produces a mild muscle tension and relaxation. There are several precautions that coaches and parents need to follow to guarantee proper care for their athletes.

To stretch safely follow these rules:

- Never force a stretch – it should always be pain-free. (Mild discomfort or a mild pulling sensation is normal.)
- Never stretch when your muscles are cold.
- Stretching should be avoided if you have just injured a muscle or joint and there is noticeable swelling or bruising in the area. (unless under the supervision of a physician or certified athletic trainer)
- Use extra caution if you have osteoporosis.
- Avoid stretching in the area of a recent fracture.
- Never "bounce" into a stretch; make slow, steady movements instead. Jerking into position can cause muscles to tighten, possibly resulting in injury.

**Provided by the University of Michigan Health Systems.*

It takes time and careful preparation to bring an athlete into a ready state for athletic competition. Allowing the body the opportunity to warm-up before and cool-down after an athletic performance will enhance the quality of that performance and aid in the prevention of injuries. If your goal is injury free, quality athletes – STRETCH. **CQ**

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