



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**

Works cited:

Arnheim, D and Prentice, W 1993 Mosby-Year Book Inc. St. Louis Missouri.

Principles of Athletic Training 8th ed

The University of Michigan Health Systems Web site-<http://www.med.umich.edu>

ABOUT THE AUTHOR: Amy Magladry, MEd, ATC is the head athletic trainer at Loch Raven High School in Towson, Maryland (Baltimore County). She is also the head athletic trainer for the Scotland Women’s International Lacrosse Team, and the medical coordinator for the Loch Raven Recreation Council Summer Lacrosse Program. For a copy of Loch Raven High School’s emergency plan, Amy can be reached at amagladry@hotmail.com.

National Federation of State High School Associations



Together We Make Our Mark On Sports Safety and Fairness.



THE NFHS AUTHENTICATING MARK program improves the high school sports experience. The National Federation of State High School Associations works with these companies as they commit to the highest quality and consistency for all balls and pucks used in competition, and as they support services and research that benefit the entire high school community. Take Part. Get Set For Life.™

adidas North America
Admiral USA
Adolph Kiefer & Associates
American Challenge
Enterprises
Anaconda Sports, Inc.
Antioch Sporting Goods
Baden Sports, Inc.
Better Baseball
Bremen Company, Inc.

Brett Bros. Sports
Brine, Inc.
Champion Sports
CHAMPRO
Collegiate Pacific
Cran Barry
Decker Sports
Diadora America
Diamond Sports Co.
Dick Martin Sports

Efinger Sporting Goods
Co., Inc.
Eiger Sportswear, Inc.
Fitzgerald Sports
Georgi-Sports
Glovesmith
Gopher Sports
High 5 Sportswear
InGlasco Corporation
Kodiak Sports

Kwik Goal Ltd.
Longstreth Sporting Goods
M.B. Products/Orono Sports
M^Powered Baseball
Markwort Sporting Goods
Mikasa Sports
Molten U.S.A. Inc.
Nike, Inc.
Penn Monto, Inc.
Proguard

Pronine Sports
Rawlings Sporting Goods
Reebok
Regent Sports Corporation
Riddell All American
S&S Worldwide
Select Sport America
Spalding Sports
Sport Supply Group, Inc.
Sportime

Sterling Athletics
STX, LLC
Tachikara USA
The Big Game
Varsity Soccer
Vizari Sport USA
Wilson Sporting Goods Co.
Xara Soccer