

'Throw Right' to Stay in the Game

Each spring heralds the return of baseball for young athletes, coaches and parents. Teams look to their pitchers to lead them through a winning season. But young pitchers should look even further ahead to preserve the health of their throwing arm.

"When kids who are not fully grown start pitching, we find that tremendous stress is placed on the shoulder and elbow," says Gary Calabrese, PT, Director of Cleveland Clinic Sports Health and Orthopaedic Rehabilitation. This can lead to a variety of problems.

"Kids usually experience shoulder or elbow pain for one of three reasons," says Calabrese. "Their pitch count is too high, they didn't rest enough between pitching sessions, or their pitching mechanics are inadequate."

Preventing injury

Properly warming up before an outing is critical. Warm-up should begin with a light jog, followed by functional movements such as side shuffles, carioca and a high knee run, in addition to trunk rotation and upper extremity stretches.

To prevent overuse injuries, coaches should monitor pitch volume, and recovery time between outings. "For example, 8- to 10-year-olds shouldn't throw more than 50 pitches in one game or 75 pitches in one week," says Calabrese. Pitch count guidelines are available for every age on our website, sports-health.org.

Watching that windup

Reviewing the young pitcher's throwing mechanics is also important. The *Throw Right* performance program that Calabrese runs at Cleveland Clinic offers customized video analysis of pitching motion, with specific drills that address each athlete's deficiencies, functional training and conditioning. It also offers injury prevention and rehabilitation for young pitchers (both baseball and softball).

Preventing pitching injuries

Common problems experienced by the adolescent athlete are Little League elbow and Little League shoulder. "These injuries to the growth-plate region of the bones in the shoulder and elbow can be prevented with proper adherence to pitching guidelines and review of proper pitch mechanics," says Calabrese.



Other common problems affecting young pitchers include:

- **Growth-plate fractures** – widening of the important growth plate at the ends of bones in the arm.
- **Shoulder instability** – An out-of-place shoulder bone can destabilize the shoulder and increase the risk of a dislocated shoulder.
- **Rotator cuff problems** – Repetitive overhead motion can cause inflammation of the cord-like tendons enclosing the shoulder (tendonitis) or the fluid-filled sacs that lubricate/protect the shoulder (bursitis). The swelling can cause painful shoulder impingement that frays the rotator cuff. A torn rotator cuff is called "pitcher's shoulder."
- **Ulnar collateral ligament injury** – A tear in the ligament on the inside of the elbow.

General soreness is not uncommon in young pitchers. However, "if an athlete experiences more pain than the usual muscle soreness, or if sharp pain occurs while throwing the ball hard, it's time to see the doctor," says Calabrese.

Each injury is unique and should be treated as such by a sports medicine professional, he adds: "The key is addressing each injury individually. No two injuries are the same. That's what we do well – investigate why you got hurt and fix it."

To refer a young pitcher to our *Throw Right* performance program, please call 877.440.TEAM (8326) or visit sports-health.org for information.



Skating Star Wins Silver Medal, Thanks to Gold-Medal Care From Cleveland Clinic Chiropractic Sports Physician



Thomas Torzok, DC
Sports Chiropractor

Two weeks before the U.S. Figure Skating Championships started on Jan. 18, 2009, figure skater Keegan Messing aggravated an old injury that resulted in extreme back pain. The pain prevented him from executing a triple axel, one of the difficult jumps required at his level of competition.

Optimistic that his pain would subside in time to compete, Keegan and his coach, Ralph Burghart, traveled from their home in Anchorage, Alaska, to Cleveland for the competition. Upon arrival, though, it became clear that the pain was a major obstacle, and Keegan considered withdrawing.

Fortunately, Cleveland Clinic Sports Health physicians were at the rink to provide comprehensive coverage for skaters during the event. Coach Burghart brought his star pupil to primary care sports medicine physician Susan Joy, MD.

Compensating for pain causes problems

After her examination revealed that Keegan's problem was biomechanical, she referred him to Thomas Torzok, DC, a certified chiropractic sports physician who is also a member of Cleveland Clinic Sports Health. Dr. Torzok is an expert in identifying abnormal patterns of compensation that cause or contribute to a patient's musculoskeletal complaints.

"Keegan was experiencing spasms of the hip flexors that created pelvic misalignment and a leg-length discrepancy. As a result, the joints in his lower back became irritated – especially when landing jumps," Dr. Torzok explains.

Active release therapy frees adhesions

Dr. Torzok treated the young man with active release therapy (ART), a technique that releases spasms and breaks up fibrous adhesions between the muscles and nerves. Keegan felt some improvement after the first treatment and a great deal of improvement after the second. This enabled him to successfully perform his short program the following day.

He underwent two more sessions with Dr. Torzok, with the fourth and final session on his 17th birthday. Later the same day, an exuberant, pain-free, long program helped Keegan Messing win the Silver Medal. "We couldn't have done it without Dr. Torzok," says Coach Burghart.

"Athletes like Keegan are often surprised and relieved at how simply a problem can be solved without resorting to surgical or pharmacologic intervention," says Dr. Torzok.

A former athlete himself, Dr. Torzok was drawn to a medical field that permitted a nontraditional, conservative approach to treating musculoskeletal injuries. Today, he uses his chiropractic skills to treat a wide range of acute and chronic sport-related injuries, including overuse injuries, shoulder pain and frozen shoulder, and peripheral nerve entrapment syndromes.

A patient to watch

Dr. Torzok typically never sees patients again after successful treatment. But Keegan Messing may be an exception.

Although Anchorage is too far from Cleveland to maintain a doctor-patient relationship, Dr. Torzok plans to keep his eye on the gifted young man. "He will be a 2014 Olympian if he stays healthy," Dr. Torzok predicts.

Triad Spells Trouble for Active Female Athletes

By Tara Harwood, MS, RD, LD

One question every woman athlete should ask herself is, "Have I ever lost my period?" Amenorrhea, or cessation of the menstrual cycle, is common among female athletes today and thought of as "the norm." But loss of a period is not normal. It is one part of the "Female Athlete Triad" of health risk factors: amenorrhea, bone loss/osteoporosis and disordered eating.

Female athletes with one risk factor are more likely to develop, or to already have, the other two.

Risk factor 1: Amenorrhea

Amenorrhea is a sign of exercise-induced anorexia related to energy deprivation from not eating enough, from exercising too much, or from a combination of the two.

The health consequences associated with amenorrhea are serious. The woman's body is in a hypometabolic state (a slowed metabolism), and stops ovulating to conserve energy. She cannot increase her lean body mass because building muscle requires energy. Her muscle may even break down in order to fuel more essential organs. Female athletes in this hypometabolic state are also more susceptible to injury and to delayed exercise recovery.

Risk factor 2: Bone loss/osteoporosis

The second part of the Female Athlete Triad – bone loss/osteoporosis – results from low estrogen levels triggered by amenorrhea.

Estrogen helps keep women's bones strong, and when its levels decrease naturally after menopause, the risk of fracture rises. But bone loss can occur in young women whose inadequate calorie intake and excessive energy expenditures diminish the energy their bodies require for estrogen production.

Risk factor 3: Disordered eating

The third part of the triad – disordered eating – might begin as a female athlete restricts calories in order to lose weight. Some women may restrict eating unintentionally as they balance an excessive training schedule with the demands of work, school and/or family life. Over time, this food restriction may develop into an obsession with or a disordered approach to eating.

Female athletes who are most susceptible to restricting calorie intake are those who are involved in excessive exercise, play sports that require weight checks or are involved in sports that encourage tight/revealing clothing. Teens with controlling parents/coaches are also at risk for disordered eating.



Achieving a healthy balance

For female athletes to train their hardest, they need to eat the right foods to fuel their bodies. This will build muscle and prevent injury. To prevent the serious health consequences associated with the Female Athlete Triad:

- eat three full meals per day.
- balance meals with dairy, fruit, vegetables, protein and fat.
- never omit certain food groups, such as fat; omitting food groups is a sign of disordered eating.
- eat within 30 minutes of finishing all workouts.
- eat post-workout meals high in carbohydrates and moderate in protein (chocolate milk, yogurt with granola, a bowl of cereal with milk are great examples).
- have a minimum of three carbohydrate-rich snacks throughout the day.
- when workouts last more than 90 minutes, eat 15 grams of carbohydrate or drink a sports beverage every 15 to 30 minutes.

Female athletes who have difficulty building a healthy diet or increasing their calories should see a registered dietitian for professional assistance.

Many women are in denial about developing exercise-induced anorexia from disordered eating. But missing a period is a sign that they are not eating enough and need further evaluation.

Tara Harwood, MS, RD, LD, is a Cleveland Clinic Sports Health Registered Dietitian. To schedule a nutrition consultation, call 877.440.TEAM (8326).

Born Athlete Overcomes Physical Challenges to Win 2009 Courage Award



Above: At tryouts, it took a while for Eric Anderson's basketball coach to realize he played with a prosthesis.

Top Right: Eric, who served as captain of his eighth-grade football team, has a collection of sports trophies at home.

Bottom Right: Cleveland Clinic prosthetist Kirsten Richards, CP, helped fit Eric with a newly designed prosthesis that allowed him to play basketball and other sports.



Eric received the Cleveland Clinic Courage Award from Olympic champion skater Scott Hamilton at the star-studded Greater Cleveland Sports Banquet on Jan. 23, 2009.

The son of a University of Florida football player and sprinter, Eric Anderson Jr. always wanted to play sports. The fact that he was born without a fully developed left leg never got in his way. Over the years, he excelled at T-ball, baseball, basketball and football. He served as captain of his 8th-grade baseball team and is now a valued member of Gilmour Academy's freshman basketball and baseball teams.

Eric's determination earned him the admiration of his teammates, parents, coaches and medical team at Cleveland Clinic and led to his receiving the 2009 Cleveland Clinic Courage Award. The award recognizes exceptional student athletes who face difficult medical challenges with courage and determination.

A brave heart

"I had no doubt Eric would do well. Any child who could go through the significant surgical procedures that we put him through without a complaint was going to do well," says Cleveland Clinic pediatric orthopaedic surgeon Alan Gurd, MD.

Dr. Gurd first examined Eric as a baby and told the family he could try to lengthen Eric's shorter leg or amputate the lower portion of the leg and fit him with a prosthesis.

The Andersons opted for leg-lengthening. At age 5, Eric was fitted with an external device that allowed him to lengthen his tibia (shin-bone) with the turn of a screw. Each turn was exquisitely painful.

Over the years, Cleveland Clinic prosthetists fitted Eric with multiple orthotic devices to support and align his foot and leg. However, Eric never gained good use of his foot. When he turned 10, Dr. Gurd recommended amputation.

Decision time

"The hardest decision that any parent can make is to agree with me to have part of the leg removed, because it can never be put back on again," he says.

The Andersons discussed it as a family. "My dad told me, 'Make a pro and con list,'" says Eric. "It just seemed like getting the amputation was so much better."

His mom was surprised by the main motivation: "It was all about sports! 'Am I going to be better?' 'Am I going to be faster?' 'Is this going to give me better mobility?'" she recalls.

Eric's leg was removed below the knee. Two months later, a prosthesis was designed to fit over the end of Eric's leg, the first of several that would be specially fabricated to meet the young athlete's needs. When he outgrew the prosthesis, he was fit with a new design that allowed him to play basketball and accommodated the demands of various other sports. Eric also underwent physical therapy to improve his walking gait and to learn how to run and jump.

No stopping him now

Now nearly 15, Eric returns to Cleveland Clinic from time to time for adjustments to the prosthesis. However, he does not consider himself disabled, and neither does anyone else.

Gilmour basketball coach Kenneth Grant recalls that "when we first had our tryouts, an hour and a half went by before I realized Eric was wearing a prosthetic leg. I was in awe, because he did everything I asked him to do, at a higher level."

Says Mrs. Anderson: "I'm overwhelmed by just his attitude, his courage, his impact on others. People tell us all the time what a role model he is. I guess we take it for granted, but I am so proud."

Going the Distance in Golf

By Timothy Ertle, MPT



One of the primary goals that most golfers have, in addition to lowering their handicap, is to hit the ball farther. Excluding equipment, gaining distance comes down to three factors, in this order:

1. **Swing Mechanics/Skill**
2. **Flexibility**
3. **Strength**

Swing Mechanics/Skill: There is simply no substitute for skill level and talent. All other things being equal, the golfer who swings on the correct plane, strikes the ball optimally, and has exquisite timing will hit the ball farther and straighter.

Flexibility: Improved flexibility increases the golfer's ability to get his or her club in correct position throughout different phases of the swing. This boosts the golfer's chance of using proper swing mechanics.

Increased flexibility, especially in the hips, lumbar/thoracic spine and shoulders, improves a golfer's "X factor." Much talked about in the golf world, the X factor is the differential between the hip turn and the shoulder turn at the top of the backswing. The greater the differential, the more energy that can be coiled into the backswing and released by uncoiling at impact.

More skilled golfers can further increase their X factor at the initiation of a downswing, with their hips rotating toward the target while their shoulders and thoracic spine continue to rotate in the opposite direction, to the top of their backswing. This results in greater separation, or a larger X factor.

One of the biggest complaints senior golfers have is loss of distance. The majority of older golfers who are in good health and play regularly lose distance due to flexibility issues. With time, they gradually become more restricted in key joints and muscles, which translates to a decreased X factor and loss of distance.

Strength: Strength has relevance in golf, but falls behind skill and flexibility when it comes to distance. Some of the farthest drivers of the golf ball on the PGA tour and on community courses actually are quite lean in body structure. Individuals who are more muscle-bound tend to be less flexible, which may affect distance.

When it comes to strength, several muscle groups are important. The rotational strength of key muscles supporting the shoulder, hip and spine are critical, both for generating power and for stabilizing joints to decrease injury.

Leg strength is actually an underrated factor in the golf swing. It provides the golfer with a more stable base on which to rotate the trunk and shoulders during the backswing and helps to avoid swaying, a common swing fault.

Cleveland Clinic Sports Health physical therapist Tim Ertle, MPT, runs the *Golf Smart* performance program and sees patients at our Sports Health and Rehabilitation Center just behind the Mandel JCC in Beachwood. For appointments, please call 877.440.TEAM (8326).

For information about all six Cleveland Clinic Sports Health performance programs, visit sports-health.org.

Competitive Edge

Competitive Edge offers active individuals, athletes, coaches and athletes' parents updates from Cleveland Clinic Sports Health professionals on nutrition, health and injury prevention.

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The information contained in *Competitive Edge* is for educational purposes only and should not be relied upon as medical advice. It has not been designed to replace a physician's medical assessment and medical judgment.

For a tour of the new Cleveland Clinic Sports Health Complex just off I-480 in Garfield Heights, please contact Amy Byram-Bouthilet at byrama@ccf.org.

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Home Gym Hang-Up

Lower body strength is important for activities of daily living. The lunge is a basic exercise that can be performed at home with minimal equipment and space requirements. The many variations on the lunge range from beginner to advanced; below are a few examples. With each lunge, be sure that the knee on your front leg does not go over your toes. Once proper form is established in each variation, you can hold dumbbells to increase resistance.

LUNGE:

Begin by standing with feet hip-distance apart. Stand up tall and step forward with your right foot until both knees are bent at a 90° angle. Return to starting position by pressing up with your right leg. Repeat, alternating legs, for two to three sets of 10 repetitions per leg.

BEGINNER

1

2

3



CHAIR LUNGE:

Place left foot, shoelaces facing down, on a chair behind you. Bend your right knee, lowering your left knee toward the floor. Return to starting position by pressing up with your right leg. Continue on the same leg for two to three sets of 10 repetitions. Repeat for the other leg.

INTERMEDIATE

1

2

3



BALANCE DISC LUNGE:

Place disc on the ground, two to three feet in front of you. With your right leg, step onto the disc, maintaining balance. Be sure to keep your abdominal muscles tight to help stabilize your body. Keeping your back straight, bend both knees to a 90° angle. Return to starting position by pressing up with your right leg. Repeat, alternating legs, for two to three sets of 10 repetitions per leg.

ADVANCED

1

2

3



Brianna Zilch, MEd, ATC, CSCS, Exercise Physiologist/Athletic Trainer

Elizabeth Sprogis, MA, Exercise Physiologist

Balance Disc: The balance disc is a great tool for spicing up your workout. By doing basic exercises on a disc, you increase your exercise intensity. This happens because more muscles are needed to help stabilize your body. Choose from a few varieties of balance discs and wobble boards to increase the intensity of your workout.

Disclaimer: You should always check with your doctor before starting a new exercise routine or increasing intensity. If you experience pain while doing these or other exercises, stop immediately and contact your physician.



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Sports Health Competitive Edge

A newsletter for athletes, coaches, parents and active individuals | Spring 2009



Enjoy Customized Care Under One Roof

The new Cleveland Clinic Sports Health Center offers expert evaluation, medical care, surgery and rehab for athletes and active individuals. In one convenient, centralized location, you'll be able to:

- see a primary care sports physician, sports medicine surgeon or chiropractic sports physician
- get on-site X-rays or MRI imaging with a powerful new large-bore scanner that shows injuries more clearly than ever
- work with a sports physical therapist, athletic trainer or exercise physiologist to recuperate from an injury or surgery, or to improve your performance in our state-of-the-art gym or aquatic therapy pool
- have outpatient surgery in one of six state-of-the-art operating rooms by a surgeon from the Orthopaedic Program ranked No. 3 in the country by *U.S. News & World Report*.

Call for an appointment at our Cleveland Clinic Sports Health Center – conveniently located off I-480 at Transportation Boulevard – or at our many other community locations.

Many Convenient Locations to Serve You

Comprehensive sports health and rehabilitation services are offered at Cleveland Clinic's main campus and at many community locations, including Beachwood, Brunswick, Euclid, Independence, Solon, Strongsville, Westlake, Willoughby Hills and now Mentor. Our new, nearly 8,000-square-foot Mentor facility is located at 7533 Center Street, at the intersection of routes 20 and 615.

877.440.TEAM (8326)
sports-health.org

For expert advice on how to handle your sports injury, or for an appointment at any location, call our toll-free number or visit us on the web.

Same-Day Acute Injury Clinic

If you have an acute sports injury, call 877.440.TEAM (8326) to arrange for a same-day appointment.