Many athletic trainers feel confident in treating acute injuries but not chronic injuries. Because trainers often feel there isn’t enough time to do a thorough treatment or rehabilitation, they use the shotgun approach to treating chronic injuries.

A relatively new technique, the Graston Technique® has proved useful for treating chronic injuries. The Graston Technique incorporates a patented form of instrument-assisted soft-tissue mobilization that enables clinicians to effectively detect and treat scar tissue and restrictions that affect normal function. Basically a form of cross-friction massage, the technique uses an instrument instead of the hands in order to penetrate deeper and hit designated muscle tissue. It is most popular in separating scar tissue problems, which can limit an athlete’s range of motion or cause pain.

Science behind the technique
- Separates and breaks down collagen cross-links.
- Splays and stretches connective tissue and muscle fibers.
- Increases skin temperature.
- Facilitates reflex changes in the chronic muscle holding pattern.
- Alters spinal reflux activity (facilitated segment).
- Increases the rate and amount of blood flow to and from the area.
- Increases cellular activity in the region, including fibroblasts and mast cells.
- Increases histamine response secondary to mast cell activity.

Common questions posed by athletes
Does it hurt?
Depending on the location of the injury, athletes usually experience minor discomfort. The amount and intensity of pain is dependent on how deep the instrument penetrates into the muscle fiber.

What is scar tissue?
When viewed under a microscope, normal tissue can take a couple of different fashions. Tissue either may appear as dense, regular elongated fibers running in the same direction, such as tendons and ligaments. Tissue can also appear as dense, irregular and loose with fibers running in multiple directions. In either instance, when tissue is damaged it will heal in a haphazard pattern, which results in a restricted range of motion and, very often, pain.

(continued on page 2)
Common questions posed by athletic trainers

How exactly do you use the instrument?

Graston Technique instruments are used to enhance the clinician’s ability to detect adhesions, scar tissue or restrictions in the affected areas. Skilled clinicians use the stainless steel instruments to comb over and “catch” on fibrotic tissue, which immediately identifies the areas of restriction. Once the tissue has been identified, the instruments are used to break up the scar tissue so it can be absorbed by the body.

How often should the treatment be used?

Patients usually receive two treatments per week over four to five weeks. Most patients have a positive response by the third or fourth treatment. After treatment, most patients are not disabled and continue to perform regular functions at home or work.

Who uses the technique?

The concept of cross fiber massage is not new. The Graston Technique is grounded in the works of Dr. James Cyriax, an English orthopaedic surgeon. The use of specially designed instruments and protocol is new. The Graston Technique has become standard protocol in universities and hospital-based outpatient facilities. The technique is also being used in industrial settings and by NBA, NHL and MLB athletic trainers.

Does it work?

Historically, the Graston Technique has had positive outcomes in 75-90 percent of all conditions treated. It is equally effective in restoring function to acute and chronic injuries, and in pre- and postsurgical patients.

How do I learn the technique?

This technique is not currently offered by UK Orthopaedic Surgery & Sports Medicine. Only clinicians who have successfully completed the Graston Technique basic training course are qualified to use the instruments on patients.

Visit www.grastontechnique.com to learn more about training options.
Breathing difficulty in a high school athlete

by Rita Patel, MD; Zoran Danov, MD; Lewis I. Bezold III, MD and Walker Terhune, ATC

Background
This case examined recurrent breathing difficulty in an adolescent female athlete. A 16-year-old athlete competing in high school track and volleyball reported tightness in her chest, numbness and tingling in her upper extremities, and throat closure. She could not breathe and collapsed upon reaching the finish line during a track meet. Her symptoms began around the 100-meter mark and progressed through the finish line (400-meter mark).

The patient’s recovery consists of rest and is followed by malaise and a headache. The athlete stated that she experienced the same signs and symptoms during her eighth-grade track season and after intense conditioning during her recent volleyball season. She reported that during volleyball season she was able to recover much faster and without malaise. The student-athlete suffers from numerous seasonal and animal allergies.

Differential diagnosis
Seasonal allergies, exercise-induced asthma, laryngopharyngeal reflux and paradoxical vocal fold motion (PVFM).

Treatment
Inhalers were prescribed beginning in eighth grade (Advair, Singulair and Albuterol) with no effect. The patient has not received treatment for her seasonal allergies. An EKG stress test was normal, as were a lung function test and ultrasound. A nasal endoscopic examination was performed, revealing mild anterior adductor movement of the vocal folds during rest breathing. When shortness of breath was reproduced, complete closure of the true and false vocal folds was observed. Exercises to relieve PVFM resulted in an open airway.

The patient scored 28 using the Reflux Severity Index. Any score over 13 indicates a positive finding for laryngopharyngeal reflux. Using biofeedback of the open airway, the athlete was instructed to achieve an open airway with open throat breathing. The athlete was also instructed in rescue breathing exercises and abdominal breathing exercises. Home exercise was prescribed to be performed daily and during times when she has an elevated heart rate. The athlete was referred back to her family doctor for allergy testing and treatment.

Uniqueness
Unfortunately PVFM is often misdiagnosed as asthma or exercise-induced asthma. One study showed that 10 percent of patients diagnosed with asthma were actually found to have PVFM and an additional 30 percent were found to have PVFM combined with asthma. Yet another study of 164 patients undergoing rhinolaryngoscopy found that 20 percent of the females had PVFM.

Conclusion:
Currently the athlete is symptom-free and continues to perform her breathing exercises with no complaints. PVFM is often misdiagnosed as asthma or exercise-induced asthma, resulting in inappropriate treatment with asthma medication often for long periods of time without symptom relief. PVFM has been shown to occur in a wide range of athletes and is not sport-specific. Certified athletic trainers must be more cognizant of its signs and symptoms to help expedite diagnosis and treatment.
Fellow bios

Aaron Coats, MD
Dr. Coats was born in Fort Wayne, Ind., and attended college and medical school at Indiana University. He completed an orthopaedic residency in Grand Rapids, Mich. Dr. Coats and his wife, Shilpa, are expecting their first child in February.

Brian Wilson, MD
Born in Bowling Green, Ky., Dr. Wilson attended college at the University of Kansas. He earned a medical degree and completed an orthopaedic residency at the University of Missouri in Kansas City. Dr. Wilson and his wife, Anne, have one son, Michael, and are expecting a second child in December.

Thomas Durbin, MD
Dr. Durbin earned his undergraduate degree at Boston College and medical degree at The Ohio State University. He completed an orthopaedic residency at Mt. Carmel Health Systems in Columbus, Ohio. Dr. Durbin and his wife, Megan, have one son, Neil.

Katherine Tolhurst, MD
Dr. Tolhurst attended college at Southern Adventist University in Collegedale, Tenn. She earned a medical degree at Loma Linda University in California and attended a one-year family-medicine residency at Emory University in Atlanta. She comes to UK HealthCare from the University of Tennessee, Chattanooga, where she completed a residency in family medicine. Dr. Tolhurst is married to Jerry Nichols, a faculty member of UK Physical Medicine & Rehabilitation.

Tyler Staley, MD
Dr. Staley attended college at Brigham Young University and obtained his medical degree from St. George’s, Grenada. He completed an internship at the University of Utah and a physical medicine and rehabilitation residency at the University of Louisville.

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