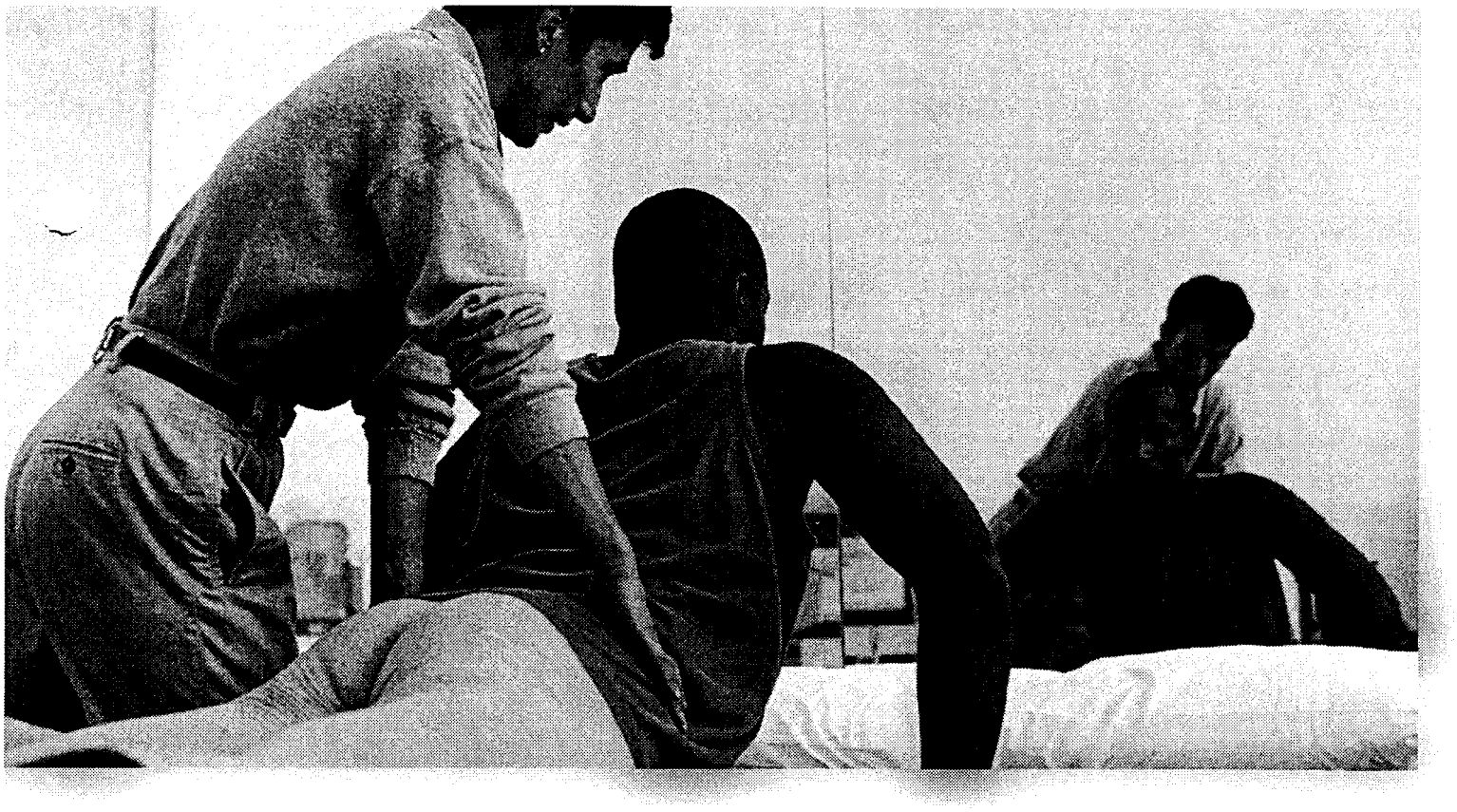

Repetitive Stress Injuries:

Fighting Back with the Graston Technique

BY MARYANN FALVEY

Mark Pfeil, head trainer for the Milwaukee Bucks has had "gobs of success with it." The Minnesota Timberwolves' head athletic trainer, Chris Palmer, "uses it for everything." Mike Schimensky, head trainer for the Utah Jazz, "kicks himself for not getting it five years ago."

What's the "it" that these professional sports trainers have in common, besides employment by the National Basketball Association? The Graston technique, a simple, low-tech method of physical therapy used to identify and treat repetitive stress injuries (RSI).

RSIs, the famous, or infamous, catch-all term for approximately 100 different conditions — from low-back sprain/strains to carpal tunnel syndrome, and everything above, below and in between — are reportedly responsible for 25 percent of all lost-time injuries. RSIs cost businesses an estimated $100 billion dollars each year.

Much is claimed, but little agreed to, between the ergonomic science and medical communities as to the origins of RSI. What are the predictors of injury, and how can we eliminate them? Certainly the disciples of ergonomics and the Occupational Safety and Health Administration both believe — and to some extent, have demonstrated — that much can be done to identify and remove the external forces in the workplace that increase the potential for injury.

However, there is also a therapeutic side to the argument. Almost all RSIs have a component of fibrosis, or scar tissue, as part of the body's natural response to trauma. The Graston Technique — also known as Graston Instrument-Assisted Soft Tissue Mobilization (GISTM) — identifies and treats this scar tissue using a form of specialized massage to break down this scar tissue and promote healing.

According to the growing percentage of the medical community that has used it, the Graston technique may challenge the way physicians treat injuries, what they allow to become chronic and what they believe to be permanent.

The process

The GISTM technique, itself, is deceptively simple. Six concave/convex stainless steel instruments are used to

FIGURE 1

Chronic Conditions Effectively Treated by GISTM

• Carpal tunnel syndrome	(wrist pain)	Scars
• Plantar fasciitis	(foot and arch pain)	Adhesions
• Cervical sprain/strain	(neck pain)	Restrictions
• Lumbar sprain/strain	(low-back pain)	Muscle spasms
• Achilles tendinitis	(ankle pain)	Muscle pulls
• Rotator cuff tendinitis	(shoulder pain)	Trigger points
• Patellofemoral disorders	(knee pain)	Tendinitis
• Lateral epicondylitis	(tennis elbow)	Muscle strains/sprains
• Medial epicondylitis	(golfer's elbow)	Shin splints

comb over and catch on injured fibrotic tissue. Using a cross-friction massage, which involves brushing or rubbing against the grain of the scar tissue, the therapist reintroduces controlled amounts of "microtrauma" to the affected area.

"We know that under a microscope, scar tissue is laid down in an irregular haphazard pattern, [while] new or undamaged collagen is in a longitudinal pattern," said M. Terry Carey, a certified physical therapist and assistant clinical professor at Indiana University's School of Allied Health Sciences. "The shedding and remolding process begins with the inflammatory response."

The small amount of inflammation of the scar induced by the Graston tools helps to rearrange the structure of the tissue itself. The objective is to return all stages of injury back to an acute, or inflammatory, state in order to remove fibrosis, realign the collagen and help restore function, Carey said.

"Graston instruments comb over and catch on the granular or fibrotic tissue in the injured area," Carey said. "The rigidity of high-gauge stainless steel both resonates and affords the practitioner optimal leverage, maximal pressure and minimal effort. Various strokes, such as brushing, strumming and fanning are then used to initiate an inflammatory response."

The inflammation phase is the first step in what is known as "the healing cascade," Carey said. During this early stage of healing, scar tissue is removed and reabsorbed by the body. In the second, or fibroplastic, stage, the tissue is replaced by new collagen. In the final, or maturation, stage, the new collagen is then formatted through stretching and exercise.

According to Carey, the Graston method "treats the kinetic chain in its entirety. The instruments act as an extension of the provider's hands to locate, separate and treat fibrotic tissue, thus rendering it to a malleable state where scarring and dysfunction is replaced by healing and movement."

The typical GISTM treatment regimen consists of eight to 10 sessions, two days apart, over four to five weeks, with marked improvements expected between the fourth and sixth visits. During treatment, patients can stay at work and function in the normal activities of daily living. Graston is never used alone, but as a critical component of a sports medicine approach, which includes a cardiovascular warm-up, plus stretching and strengthening exercises.

Soft tissue mobilization is nothing new. A multitude of practitioners such as physical therapists, chiropractors, physiatrists and osteopaths have been doing it for years, but with tremendous wear and tear on the their bodies, and not a lot of accuracy. The Graston technique, however, is a far more low-impact type of therapy.

GISTM has been proven successful in treating 70 to 87 percent of RSI, according to clinical trials. Success, in these cases, equals a good to complete response. The technique is equally effective on acute and chronic conditions, and pre- and post-surgical injuries (see Figure 1).

A technique born of necessity

The Graston process was created almost by accident. The idea for the treatment came soon after André Hall, a two-sport football and track star at Indiana University, met David Graston, a former jet aircraft mechanic turned precision tool and die maker, at a gym in 1989. Both had sustained life-altering knee injuries, causing them to give up the athletics they so loved.

"Graston was using some form of a metal instrument which resembled the big pencils with wide erasers we used to get in the second grade to rub his knee scar," Hall said. "It was the only thing that brought him relief from the restrictive

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surgical scar, which limited the motion of his knee. I tried it and got great results, too."

The duo talked and showed their technique to anyone and everyone they could. Chance and fate led them to Indianapolis businessman Michael Arnolt. From these initial meetings, TherapyCare Resources was born.

"We were gym rats and lab rats perfecting the technique on ourselves and anyone who would let us," Hall said. Ultimately the technique found its way to Ball Memorial Hospital in Muncie, Ind., where efficacy and validation through controlled studies were demonstrated. Today, there are several published studies supporting the clinical impact of the technique on RSI, and further research is ongoing.

Among GISTM's satisfied clients is an A-list of professional trainers, sports teams, universities and hospitals that have long used the technique with astounding results. Participants include: Indiana University, Yale University, and the University of Michigan; professional basketball teams, such as the Utah Jazz, Seattle SuperSonics, Miami Heat, Minnesota Timberwolves, Philadelphia 76ers and New York Knicks; Scripps Memorial Hospital; the Shiley Sports Center in La Jolla, Calif.; Bloomington Hospital in Bloomington, Ind.; and sports stars Michael Jordan, Kevin McHale, Trace Armstrong, Ray Donaldson and Chris Huffins.

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— Paul J. Kern, MD

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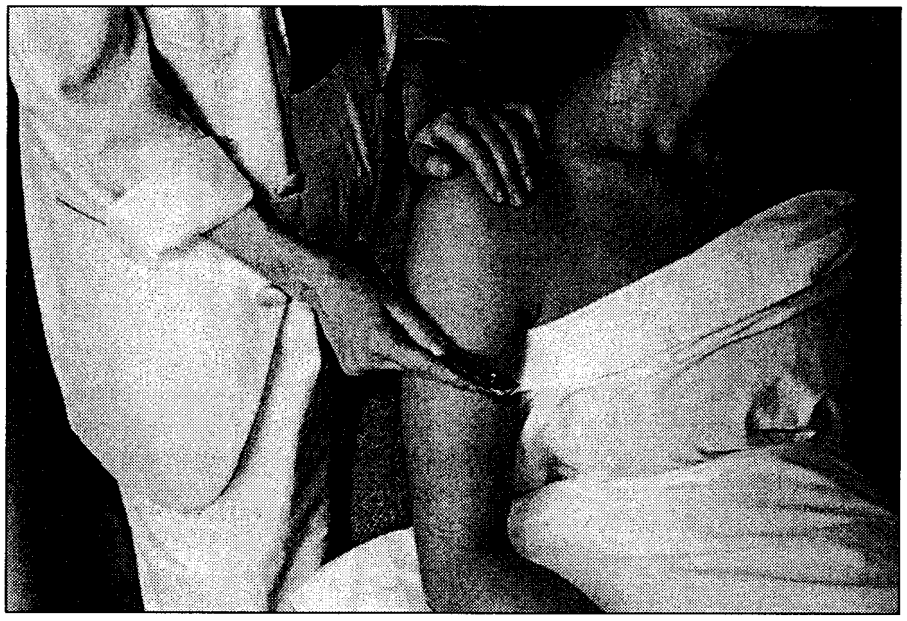
John Schrader, HSD, ATC, of the Indiana University Department of Sports Medicine and member of the Hall of Fame for Professional Sports Trainers, has been using the technique for three years. "I was a major skeptic and was resistant to using it for several months," Schrader said. "One patient — a total knee replacement — was sent to me because he was not progressing after six weeks of physical therapy. I told him about the Graston technique and that there were no guarantees, and he agreed to try it. After the first treatment, he called to see about a second. After the fourth he told me he felt great, and by the eighth treatment, [he] had good range of motion and pain reduction. I use the technique as an adjunct to a sports medicine approach. The results are almost immediate and the stainless steel instruments make it much easier on me."

Arnolt, TherapyCare Resources' president, said that, after six years of marketing in central Indiana and in collegiate and professional athletics, the technique has been validated and is now ready to be taken to a broader platform — the general public. The technique, he said, is a therapy that will change people's lives, insurers' risk and market demographics.

Paul J. Kern, MD, an Indianapolis



physiatrist specializing in physical medicine, agreed. "I use Graston to help restore the function and control that many of my patients lose when a simple injury becomes a chronic condition," he said. "It's drug-free, non-invasive and produces an almost immediate response. Most importantly, it equalizes the frustration felt by many of my patients who have already failed to respond to conventional treatments."

Controlling the 'X factor'

Beyond the glowing testimonials from many in the sports medicine industry, GISTM has a much more daunting task to face: the specter of the recurring injury.

Frustration surrounding the treatment of RSI is common and experienced equally among payors, providers and patients. Industry, medicine, ergonomics, insurers and employers, as a collective group, are well-informed and enlightened as to the mechanisms that control (or at least affect) risk. Casualty adjusters speak with expertise about reasonable and customary charges, ration the average number of visits per condition, negotiate the usual and customary charges and speak of pain and function. We weed out the psycho-social behavior, identify the costly "green poultice" treatments, litigate the frauds and settle the "damning with grace" (if not ease) cases that are not to our advantage.

So why, then, as an enlightened group, do we have so many failures? Part of the answer is what is sometimes referred to as the "X factor" — that unseen, unpredictable mechanism that science and medicine cannot decipher, making one person susceptible to injury and the other immune. The X factor often separates a successful recovery from a failed one. Control plays a large role is this mysterious equation. There are only so many things we can control, and the body's response usually isn't one of them.

Or is it? With the Graston technique, physicians are attempting to gain more control of the body's response to injury and reduce the severity of the X factor.

Consider carpal tunnel syndrome (CTS) — an RSI second only to low-back pain in frequency and debilitation. CTS promises to haunt the workers of this century in the same way low-back pain has stricken the last. Despite the condition's prevalence and severity, statistics suggest that 85 percent of those diagnosed with CTS don't require surgery. CTS can be caused by repetitive trauma to the wrist, forearm or hand through overuse, hormonal changes, blunt trauma, double-crush syndrome and various sources of nerve entrapment along the kinetic chain from the neck to the wrist.

Traditionally, CTS injuries are surgicized, medicated, injected, surgicized and remodeled with success – more or less. One national, self-insured packaging transport company (on condition of anonymity) shared its statistical analysis and frustrations when it found three out of five employees diagnosed with CTS had carpal tunnel surgery. Three to five years later, three in five employees required a second surgery or job retraining because of symptom recurrence. Although this can be frustrating, let alone damning to one's risk log, it's not all that uncommon.

There is a logical, albeit not acceptable, explanation. It has to do with current treatment regimen. Joe Kleinkort, PT, Ph.D., a Dallas-area rehabilitation specialist and an author of "WorkSTEPS" pre-employment functional exams, explains it this way: "Often a patient may get a return pain because, although you have alleviated the carpal tunnel pain, you haven't solved the problem."

CTS occurs when the sheaths that cover the median nerve and nine tendons together in the wrist become irritated "by squeezing, flexing and holding the hand in strange positions for long periods of

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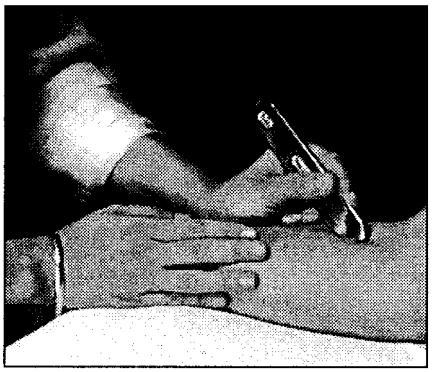
time," Kleinkort said. "These tendons connect to the muscles in the flexor aspect of the arm and to other muscle sets in the upper arm and into the neck – the kinetic chain."

When the tendon sheaths start to swell and get inflamed, they ultimately become fibrotic, or scarred. "The swelling creates pressure on the median nerve," he said. "The pressure on the median nerve is akin to the pain you feel when you hit your funny bone [the ulna nerve] — a chronic, aching, low-grade numbness — like your hand has a glove on it.



"Many times," Kleinkort added, "the therapist doesn't realize that if a patient has carpal tunnel syndrome they almost always have fibromyositis, or inflammation of the muscles. These muscles become fibrotic, causing areas of dysfunction throughout all of the muscular attachments to the upper arm and into the neck, and are often responsible for the resurgence of symptoms."

Businesses take notice

Some businesses are beginning to break with traditional treatment of their workers' RSI injuries and are turning to GISTM therapy to reduce the number of employee absences due to workers' comp claims.

For example, Mark Siwiec, risk manager for Subaru-Isuzu in Lafayette, Ind., first found out about Graston when he was injured playing basketball. An avid runner and compliant patient, Mark became frustrated when he couldn't run because of unrelenting hip pain. "I tried everything and I was a failed case," he said. "The thought of not running again was very depressing. André Hall explained the dynamics of injury and used the technique on me. After a few sessions I was pain-free; after several more I was back running. Once a year I go back and get a little tune up and I'm good to go."

The Graston technique is now Subaru's first and last line of defense. Because of the technique, they have prevented carpal tunnel surgeries and returned a worker with permanent restrictions in both hands to work full duty. As of this writing, only two of the 3,500 workers employed by Subaru-Isuzu were on leave for workers' comp, the company said.

In addition, on-site physical therapists at Subaru use the technique for myriad conditions from low back pain to plantar fasciitis. "It's not a panacea for everything, but it works on injures with a sprain/strain mechanism," Siwiec said. "We swear by it."

Subaru regularly invites members of the local medical community who treat their workers in for demonstrations of the Graston process. "We want them to know that the technique can and does make a difference," Siwiec said.

Insurance companies are also taking notice of the reduced figures. "I have been at Subaru-Isuzu since Graston was added," said Beth Calloway, Liberty Mutual Insurance's on-site case manager for Subaru-Isuzu. "It has allowed us to eliminate permanent restrictions for employees and return them to work. Using Graston, we have prevented surgery and in the event of surgery, Graston has helped speed recovery and lessen the restrictions."

An old doctor friend of this author's once coined this appropriate but often misused phrase: "Outcomes are to healthcare what location is to real estate – everything."

As an industry, we measure and mean very different things when use the phrase "outcomes measures." To the Minnesota Timberwolves, an outcome may be surgical avoidance and the continued function of a veteran team. To Subaru- Isuzu, it may be the ability to turn permanent total restrictions into permanent full-time employment. To the injured, it may be the option of non-surgical intervention or resolution of an acute or chronic injury. To a managed care organization, it may be the ability to shift costs to a least-invasive, most-appropriate model.

The challenge, then, as a collective industry, must be to measure outcomes through pain and function, and to intervene in harm's way — and, while we're at it, maybe just alter the dynamics of recovery for those suffering with RSI. ▲

Editor's Note: The Graston technique will be demonstrated in May 2000 at the RIMS Conference in San Francisco.

Maryann Falvey is an independent health care consultant and principal in Alternate Perspectives, based in Walpole, Mass. Falvey is also a licensed casualty adjuster, with 11 years of experience in risk management and benefit design, specializing in musculoskeletal injuries and the identification of new market trends.