AN INTRODUCTION TO
SPORTS MASSAGE THERAPY
BY STEVE JURCH
One of the appealing aspects of the massage therapy profession is that there are so many different avenues and directions a practitioner can go that the possibilities seem almost endless. Numerous specializations exist in the profession, and one of the more popular areas is the field of sports massage therapy.
SO WHAT IS A SPORTS MASSAGE THERAPIST?
When we start to define sports massage, we see that it is targeted to support fitness, help reduce the demands of sport on the body, increase performance and shorten recovery time. In many cases, specializations are defined by the techniques that are utilized. But, when we dig a bit deeper and look at the techniques used in sports massage, there are no magic bullets. The same techniques that are utilized in other types of massage are used in sports massage, but are applied to a specific population.

The real challenge for massage therapists who focus on athletes is applying critical thinking skills and learning when to use those techniques to achieve the best results. The ultimate goal is to contribute to the health and well-being of the athlete, so you need to consider things such as timing, setting, common stress areas, training schedule, and any other therapy the athlete is receiving when making treatment decisions.

If we wanted to look at a more formal definition, sports massage entails applying massage and adjunct techniques to a particular client population. That population can range from the active individual to the professional athlete. To be effective, massage therapists must have an advanced understanding of anatomy and physiology and injury pathology, and be proficient at palpation and assessment, including history, range of motion, manual muscle testing and orthopedic tests. Gathering information and being able to think critically are crucial, too, as is having a better-than-average understanding of the sport your clients are competing in.

HISTORY OF SPORTS MASSAGE
It probably comes as no surprise that the culture responsible for the Olympic Games is credited with first utilizing massage to help their athletes. The Greeks began to popularize massage on athletes throughout Europe, but the modern history of sports massage started in 1924 at the Olympic Games in Paris.

A Finnish runner named Paavo Nurmi, nicknamed the “flying Finn,” brought a personal massage therapist with him to the games. Paavo went on to win five gold medals in running events, and then claimed his success was in part due to his training program that included this specialized type of treatment.

In the United States, however, the introduction of sports massage took a different route. A former professional baseball pitcher named Jack Meagher suffered from a chronic shoulder injury and was unable to throw accurately, which eventually led to his leaving the sport. Later, he was drafted into the military and served as a medic in a German POW camp. While in the military, he was playing in a camp softball game when one of the POWs noticed he was having trouble with his shoulder. The POW was a massage therapist prior to the war, and was able to restore motion through soft tissue work.

Meagher was so amazed that he was determined to learn this new method so that he would be able to help other athletes. He had already graduated from a school of Swedish massage, but once he finished his time in the service, he sought out training from a German instructor familiar with the techniques. He then knew what direction he wanted to take his work. He later published the book “Sports Massage” in 1980 and it quickly became a staple in the sports massage industry.

WHAT’S IT LIKE?
We all want to look at the glamorous side of sports massage and be those people standing on the sidelines, traveling around the globe, or sharing in the celebration of a world championship. While those things are a great perk of the field, massage therapists need to consider all aspects of sports massage when deciding if the practice fits their personal and professional goals.

Physical fitness. First of all, sports massage is tough work. Depending on what type of athlete you work with, there may be a considerable size difference between you and them. The necessary physicality of the work requires you to be in good shape yourself and always be conscious of working smarter to prevent injury. Proper body mechanics and techniques take on a new meaning when working in sports, and burnout due to the workload is common. So doing everything in your control to increase your longevity is important.

The hours, too, can be quite long. Schedules can change at the last minute, which can be very frustrating, so you must be able to be flexible with your day. These unexpected changes often limit the number of athletes you can see in a day, or may affect your ability to schedule your non-athlete clients. If you are working in a traditional setting with a sport such as tennis, you are normally on-site until the last match finishes, and because there is no reliable way to predict how long matches will go, you may find you are there for 12 to 14 hours a day sometimes. That doesn’t mean you’d be doing massage all of that time, of course, but the length of the day itself can take its toll.

Compensation. With any profession, the financial aspect will come
into play. There are many ways to structure compensation, but getting rich and famous is not a reason to go into sports massage. Typically, the medical support teams don’t spend any time in the spotlight, work behind the scenes, and get very little public recognition for what they do. They give a tremendous effort often for nothing more than the personal satisfaction of contributing to an athlete’s success. You have to be motivated by a passion for what you do and a desire to help others succeed.

That doesn’t mean you can’t have a thriving practice, but you need to be realistic, too. Over my years in the profession, I have encountered numerous sports therapists who have thriving careers, but success did not come easy. Let’s look at some numbers: elite athletes across all sports looks like a pretty substantial number, but when you take out those who can’t make a living through their sport alone, the number drops dramatically. Many minor league or lower profile athletes, for example, have other jobs to supplement their incomes.

Then, if you go one step further and look at the athletes who reach professional levels and make a good income, you are dealing with a very small percentage. Gaining access to that small population is extremely difficult, and you’ll be in competition with a variety of other health professions.

**Your client’s career longevity.** Another challenge of working in sports is that the careers of many athletes can only last for a few years. In order to capitalize on every opportunity, they will try anything and everything to increase their chances of extending an already short career, which can mean that some athletes are going to be looking for results that are quick and proven—or they

**THE SAME TECHNIQUES** that are utilized in other types of massage are used in sports massage, but are applied to a specific population.
move on to another product or service. Massage therapists need to be able to educate their athlete clients about how massage therapy works and when they should realistically start seeing and feeling results.

WHERE DO THEY WORK?
Sports massage therapists practice in a variety of settings, but two common ones are as part of a health care team working primarily or exclusively with athletes and a private setting where the therapist treats an athletic client population.

Sports organizations. Massage therapists may work within a sports organization as part of a defined medical team, which is where we can greatly increase our presence. In this setting, there is a hierarchy of roles and responsibilities, and you need to understand how each person functions within the team.

The person at the top of the hierarchy is typically the team physician or medical director. All the medical decisions are both their responsibility and liability. They are responsible for the final medical decisions and may set up the medical program with the help of other members of the team.

Massage therapists will usually work most closely with the athletic trainer or physical therapist. The athletic trainer and/or physical therapist is responsible for the day-to-day care of the athletes and directs the on-site team. They will typically evaluate any medical needs and then refer to the team physician if necessary.

They are also in charge of setting up the training room, setting the schedule for treatment, practice or games, and staff responsibilities. The massage therapist supports the athletic trainer/physical therapist by focusing on the soft-tissue aspect of a treatment protocol. They may carry this out in the form of co-treatments with the athletic trainer or individual massage sessions.

IN THIS SETTING, the massage therapist will typically have duties outside the treatment room, too, ranging from performing administrative duties to assisting with first aid and critical care situations.

Communication in the sports massage setting is quite different than in other medical settings. In the traditional medical model, the physician has the primary contact with the patient and then makes subsequent referrals to other health care staff. In the sports medicine model, the athlete’s point of contact might be any one of the medical staff members, from the physician down to the massage therapist and any person in between. In this setting, the athlete often will present to the practitioner with whom they have the best relationship or are most accustomed to seeing. Because of this, it’s imperative that all members of the team understand their strengths and limitations and are educated about what the other team members can offer to get the best results for the athlete. All members of the team should communicate regularly about the overall care plan so that every member’s expertise can be used to provide the athlete with the best results.

When working inside a sports organization, you’ll also have less control over your environment. Privacy, facilities, temperature control, transporting supplies and other work-related routines are often affected when working in sports. If you only work in the team facility, then equipment may not be an issue. But if travelling with a team or athlete is a part of your responsibility, things like utilizing other people’s equipment may become a factor. Considerations for transporting your table, luggage, jet lag, language barriers and unfamiliar settings all come into play when traveling is part of the job.

Private practice. In a private practice, the massage therapist may or may not be part of a defined health care team. Massage therapists who
work with a specific team or organization from their own private practice often are not consulted or informed regarding the medical status of the players, however, so be sure you establish lines of communication with the sports medicine staff so you can provide the best treatment possible.

Just because a therapist does not formally work as part of an organization does not mean that they cannot contribute to the success of an athlete. Caution needs to be exercised, though, especially surrounding scope of practice. Amateur or recreational athletes who might not have a formal health care team might start relying on their massage therapists for guidance on issues that would be outside their scope of practice, such as nutrition, strength training, injury and rehabilitation, for example.

You need to be very careful about the information you give your athletic clients, as you might contradict the advice and recommendations made by other health care professionals without knowing. A better approach is to always contact any other health care providers the athlete may be seeing and have a discussion about what you are finding and how you can collaborate.

When in private practice and working with athletes, you’re also going to want to have an extensive referral network to not only send your clients to but to collaborate with and learn from. Working with this population, no matter what the level, is a huge responsibility and should be treated as such. In general, the athletic population will ask more questions and take what you say to heart.

**THE NUTS AND BOLTS**

**What do I need to know?** You are going to need advanced understanding in a few areas in order to be effective in sports massage. Go back and review what you already learned and know: Become an expert in bony anatomy, joint structures and characteristics, muscle anatomy and function, and surface anatomy. You also need knowledge of what type of forces act upon the tissues, what types of injuries tissues can incur and how they heal, what type of contractions there are and what are the properties of various tissues. A clear understanding of the phases of healing and how to modify your treatments within each phase is critical, too.

While expanding our knowledge base is important, information is only useful if you understand how to apply what you know. The decisions involved in developing a proper treatment plan involve something you might come to know as the clinical process. The clinical process is important so you can apply treatment techniques appropriately to get the best result. All too often, therapists memorize techniques and then blindly apply them hoping something will work. Memorization is helpful, but only when the techniques are used in the proper context.

**Deciding to Treat.** One major benefit of having a systematic way to gather information is to determine whether massage therapy will truly benefit the athlete. The process of treating specific musculoskeletal disorders begins first with knowing what not to treat. As health care practitioners, massage therapists have a duty to provide proper care, even when that means referring athletes to other health care providers.

We must be able to recognize situations that are outside our scope of practice; when to modify treatments; or when the use of modalities other than massage may be more beneficial. In order to accomplish this goal, there must be a foundation of knowledge from which to build.

**THE CLINICAL PROCESS**

**Reasoning.** Clinical reasoning is an important part of the process because it provides a safeguard against the risk of having the popular theory and clinical techniques of the day adopted without question.

The process of clinical reasoning always begins with gathering initial information. This information will generally cause a wide range of impressions and interpretations, leading to the formulation of an initial general hypothesis. Most massage therapists, however, have an established assessment routine developed through experience, although it will vary between practitioners. Despite having a general routine in place, therapists should view each athlete as a unique client whose symptoms require a tailored assessment.

The more experience a massage therapist has with these techniques, the better they will recognize common patterns associated with specific conditions. Although no situation is exactly the same, similarities do exist. This process of recognizing patterns without the need for hypothesis testing is called “forward reasoning.” While this ability is linked to experience and typically employed by experts, therapists at any skill level faced with an unfamiliar situation employs what is known as “backward reasoning.” This is the process of formulating and testing a hypothesis to obtain information.

No matter how many times a massage therapist has seen a particular condition or worked with athletes, a treatment must be specific to work. Formulating a treatment plan is an ongoing process for each athlete and involves a constant se-
sequence of assessing, treating, reassessing, and either continuing with the same treatments or trying something different. This requires therapists to continually use all of their resources to provide the most effective therapy possible.

**Focused Approach vs. Global Approach.** As massage therapists, we are trained to focus on the fact that the body is an integrated organism and that in order to treat a person effectively we must look at the whole picture. This includes not only the physical symptoms but also the way other factors—such as lifestyle, diet and activity level—relate back to the changes we are seeing in the body.

When deciding how to treat an athlete, therapists must focus on restoring balance to the system. All of the body systems are interdependent on each other, and when something happens to one system, all of the other systems are affected as well. By gathering as much information as possible, we can see how the body has changed its functioning and then work to correct the system.

The human body is an amazing organism capable of adapting to just about any situation in order to accomplish any task. While compensation makes sense in the short term, the long-term effects of improper mechanics can be as damaging as the original injury.

Think of it this way: A stone thrown into a still pond causes ripples to radiate from the center. The size of the ripples and the distance they travel is determined by two factors. The first factor is the size of the stone, which relates to the impact on the pond. The larger the stone (or, in this case, the athlete’s complaint), the bigger the impact and the farther the ripples travel.

The other factor is the length of time from when the stone was thrown to when the ripples were measured. The longer the window of time, the farther the ripples radiate. In other words, there is a link between how much time has elapsed between the complaint and start of treatment. The length of time that has passed since the onset of the complaint will determine how far out the massage therapist must go to address all of the related areas.

Massage therapists must follow the kinetic chain from the area of complaint to the related areas of the body. As the regional issues are resolved, the therapist can return to the initial area and complete any work there. This stone-in-the-pond concept relates to how the body compensates for dysfunction. The larger the initial trauma to the body, the greater the compensation and the more structures will likely be affected. Understanding the process of compensation will help massage therapists view the body as a whole entity and address all of the areas involved.

**Knowledge of Anatomy.** Another important component of the clinical process is an advanced understanding of anatomy and physiology. In order to know how to heal, the massage therapist must first understand the types of tissue involved, the ways injuries can occur, and the injury process itself. Because their composition varies, different types of tissues are damaged differently, heal differently and respond to treatment differently.

One of the first steps in treating an injury is to understand the different ways that force can act on the body. In addition to understanding force, knowing the structural properties of the different tissues and how they respond to force is valuable in developing a treatment plan.

All tissues have an elastic region and a plastic region. As long as the force remains within the elastic region, the tissue will return to its original shape once the force is removed. Tissue that moves beyond the elastic region into the plastic region no longer has the ability to return to its original shape. The deformation of the structure will remain even after the force is removed. Further, a force that causes the tissue to exceed the ultimate failure will result in the tissue being ruptured.

The physical properties of the tissues factor into the effects of force because many tissues are anisotropic. In other words, the structure resists force better from some directions than others. One example of this occurs in ankle injuries. The lateral ligaments are damaged much easier than the medial ones because
the laterals do not have as much support and are not as strong.

**TYPES OF FORCE**

Force is generally described based on the direction in which it is applied. An important factor, regardless of direction, is the magnitude of the stress applied. Another factor is the surface area: The larger the surface area on which the force is applied, the more the force is dispersed, allowing the tissue to handle a greater load. The opposite is also true: The smaller the surface area on which the force is applied, the less it is dispersed, decreasing the amount of load the tissue can handle. There are five categories of force that can act on the body:

- **Compression**: Force that is directed along the long axis of a structure and squeezes the structure together.

- **Tension**: A pulling force that is directed along the long axis and stretches the structure.

- **Shear**: Force that acts parallel to a plane and causes the tissues to slide past each other in opposite directions.

- **Bending**: The result of the combination of compression and tension that is applied perpendicular to the long axis. The side of the structure where the force is applied is compressed, while the opposite side is loaded under tension.

- **Torsion**: The application of torque about the long axis of a structure, which creates a shear stress throughout the structure.

**TISSUE PROPERTIES**

**MUSCLE**

The structure and function of skeletal muscle classifies it as viscoelastic tissue. This means it has elastic properties that enable the muscle to return to its original length and extensibility, or affect its ability to stretch. When working with muscle injuries, there are several factors to consider when determining the severity of damage and the type of treatment needed.

- **First factor** is the role that the muscle was playing when it was injured. A muscle can assume one of four roles: Agonist, Antagonist, Stabilizer and Neutralizer. The second factor is determining the type of contraction that occurred during the activity. There are three main types of contractions: Concentric, Eccentric and Isometric. The third factor is the shape of the muscle. The strength and direction of a muscle's pull is determined partly by the orientation of the fibers. Some muscles are more easily injured than others, so this becomes relevant during the assessment.

**MUSCLE INJURIES**

One type of muscle injury is a strain. A strain, or “pulled muscle,” typically occurs due to an excessive tensile force. Muscle strains can result from force that causes the muscle to stretch past its elastic region or, more commonly, from an excessive eccentric load. When a muscle strain occurs, it is graded into one of three degrees, depending on its severity and the extent of damage:

- **First degree**: A first-degree strain is the mildest type, characterized by only a few torn muscle fibers. Symptoms include mild weakness and spasm, resulting in some loss of function. There is mild swelling but no palpable defect in the muscle. There is pain on both contraction and stretching, and a decreased range of motion.

- **Second degree**: A second-degree strain is a moderate injury with nearly half of the muscle fibers torn, resulting in bruising or ecchymosis. Significant weakness occurs due to a reflexive inhibition in the area caused by pain. Spasm, swelling and loss of function are moderate to severe, but there is still no palpable defect. Pain is worse with contraction and stretching, and there is decreased range of motion.

- **Third degree**: A third-degree strain is the most severe and results from the total rupture of the muscle. Swelling, weakness and spasm are
severe, and some bruising may occur. There is a significant loss of function and a palpable defect in the muscle. Despite being the most severe type of strain, the pain level is mild to nonexistent due to the rupture of the nerves in the area.

TENDON
Tendons are also classified as a contractile tissue even though they contain no contractile fibers. Their purpose is to transmit the force of the muscular contraction to the bones in order to perform their functions.

TENDON INJURIES
The mechanisms of tendon injuries are different to those of muscle tissue. Instead of an excessive tensile force, there is either a sudden maximum loading of the tendon or a repeated sub-maximal loading. Three of the most common injuries to the tendon occur due to chronic repetitive micro-traumas to the area.

Tendonitis is the inflammation of the tendon. Its symptoms include a history of chronic onset, repetitive mechanism, pain throughout the tendon, swelling and pain during active motion.

Tenosynovitis involves the sheath around certain tendons. Symptoms are similar to those of tendonitis, except for a few key differences. Tenosynovitis only occurs in tendons that have a sheath, and there is a distinct crepitus sound with movement. If the condition becomes chronic, then a nodule may develop within the sheath that can further restrict the motion of the tendon.

Tendonosis is a degeneration of the collagen matrix within the tendon that causes an overall breakdown of the tissue. It can arise from a single incident, but is more likely caused by repeated insults to the tendon.

LIGAMENTS
Ligaments are included in a category known as non-contractile or inert tissues. Their job is to connect adjacent bones to one another. Ligaments are made up of the same fibrous connective tissue that tendons are, with a few exceptions. Ligaments contain a higher percentage of elastin fibers, and some of these fibers are oriented in other than longitudinal planes. This gives the ligament more flexibility and strength to resist force that originates from different directions. While tendons only need to resist force in one direction, ligaments act around joints, and most joints are exposed to force from multiple directions.

LIGAMENT INJURIES
Ligaments are most often damaged from excessive tensile force on the fibers. Depending on the magnitude of the force, the ligament may or may not be able to return to its original length. If the force is large enough to cause the ligament fibers to fail, then the resulting injury, known as a sprain, is classified into three degrees:

First degree. A few of the fibers are torn with no recognizable joint instability; a firm end-feel is present. Symptoms include mild weakness and loss of function, as well as mild swelling and decreased range of motion.

Second degree. In this more severe sprain, almost half of the fibers tear. There is some joint laxity and a definite end-point with mild to moderate weakness. Symptoms include loss of function, swelling and decreased range of motion.

Third degree. This degree is the most severe and results in the total rupture of the ligament. There is gross joint instability, which results in an absent end-point with moderate weakness. Due to the instability, symptoms include severe loss of function and marked swelling. Range of motion may increase due to instability or decrease due to swelling. Typically, because of the magnitude of the force, other structures will be involved.

CARTILAGE
There are two types of cartilage: hyaline and fibrous. Both have poor blood supply and are slow or unable to heal if damaged. Hyaline cartilage covers the ends of the bones and provides a smooth articular surface. Fibrocartilage is located between the bones in certain joints and acts to provide extra cushioning against compressive force. The intervertebral disks and the meniscus in the knees are examples of fibrocartilage.

CARTILAGE INJURIES
Compressive force is the most common cause of cartilage injury. In-
Juries to the hyaline cartilage are generally irreversible without surgical intervention, and may result in chronic joint pain and dysfunction. Compressive force can cause ruptures in the disks or splitting and cracking in the menisci.

When compressive force is coupled with other force, such as shear and torsion, the chance of injury greatly increases. A massage therapist’s role in treating such injuries is more supportive in nature.

**Nerves**

Nerves carry information via electrical and chemical means. They are the lifeblood of the body and control every activity. Any type of nerve injury can be detrimental to the proper functioning of the body. The two types of force to which nerves are susceptible are tension and compression. Tensile injuries usually result from a high-speed accident, and are graded on three levels:

**Grade I:** This is referred to as neurapraxia and is the mildest lesion. The nerve, epineurium and myelin sheath are stretched but still intact. There is a localized conduction block, which causes a temporary loss of sensation and motor function. This usually lasts a few days to a few weeks.

**Grade II:** This is more severe and is known as an axonotmetic injury. This type of injury disrupts the axon and myelin sheath but leaves the connective tissue covering, the epineurium, intact. Sensory and motor deficits last for at least two weeks, and full function is usually restored.

**Grade III:** This is the most severe lesion and is known as a neurotmesis injury. The entire nerve is disrupted and may never recover. Surgical intervention is usually necessary to aid in the recovery process, which can last up to a year.

Along with tension injuries, compression force can lead to dysfunction in the nerves, as well. This type of injury is much more complicated than tension injuries and depends on several factors, such as the size of the force, the length the force was applied, and whether the pressure of the force was direct or indirect. Regardless of the cause, some of the symptoms of nerve damage range from severe pain to loss of sensation.

Changes in sensation can be placed in one of three categories: 

- **Hypoaesthesia:** A reduction in sensation
- **Hyperaesthesia:** An increase in sensation
- **Paresthesia:** A sense of numbness, prickling, or tingling

**Phases of Injury**

When gathering information to create a treatment plan, the first thing a massage therapist needs to do is determine the phase of the injury.

- **Phase I: Inflammatory phase.** This first phase of the healing process can last up to six days and has familiar signs and symptoms, including heat, redness, swelling, pain and loss of function. Depending on the cause of the injury, inflammation can be acute or chronic. Acute inflammation is usually brief in duration and generates swelling called exudate, which comprises plasma, protein and white blood cells. Chronic inflammation is prolonged in duration and characterized by the presence of white blood cells and scar tissue.

Once the vasoconstriction phase is over and the blood loss is under control, a period of vasodilation occurs. This process brings white blood cells to the area for infection control, as well as to rid the injury site of dead and damaged tissue through phagocytosis. Along with vasodilation, there is an increase in the permeability of the vessels, which contributes to the formation of exudate.

The change in permeability can last a few minutes or longer depending on the severity of the injury. In
some cases, if the trauma is extensive, the change in permeability will not occur for some time after the injury. The exudate that is created is important to the overall healing process, providing the cells necessary to remove damaged tissue and enable reconstruction. These two factors cause swelling in the area and, in conjunction with the damaged and necrotic tissue, form what is known as the zone of primary injury.

While this swelling process is beneficial to the overall healing process, it also can be detrimental to the area. If excess fluids, damaged tissues, chemical mediators and white blood cells remain in the area for too long, the environment may become hypoxic. The inability of the surrounding tissues to access oxygen and nutrients will result in the expanded death of those tissues and create a zone of secondary injury. This area will continue to expand through this process until the initial inflammation is under control and the tissue returns to its normal metabolism.

**Phase II: Proliferative phase.** The next phase in the healing process is called the proliferative phase. This phase can overlap the latter part of the inflammatory phase and last up to 21 days. Sometimes referred to as the repair and regeneration phase, the development of new blood vessels, fibrous tissues and epithelial tissues also occurs. The process of new tissue formation begins when the hematoma created by the inflammation reduces in size enough to allow new growth.

The accumulated fluid, containing a high level of protein and cellular materials, will form the foundation for the fibroblasts that will generate the collagen. The formation of connective tissue and blood vessels is an interdependent process. The fibroblasts are fueled by nutrients brought in by the blood vessels, and the vessels are supported and protected by the connective tissue matrix. This highly vascularized mass is transformed into the necessary structures in the third and final phase of healing.

**Phase III: Maturation phase.** The maturation phase is the final phase of healing and is sometimes known as the remodeling phase. It involves the maturation of the newly formed mass from the repair phase into scar tissue. It can last over a year depending on the severity of the initial injury and whether any interventions occur. The maturation process includes decreased fibroblast activity, increased organization in the matrix, reduced vascularity and a return to normal histochemical activity.

While the tissue has been regenerated by this time, its tensile strength is only 25 percent of normal. This is thought to occur because of the orientation of the collagen fibers, which are more vertical than they are in normal tissue, where orientation is horizontal. This deficit can last for several months depending on what is done to support the process.

Scar tissue is less elastic, more fibrous and less vascular than the original tissue. This creates weakness within the tissue and decreases flexibility in the area, leaving it vulnerable for re-injury. As the scar matures, the fibers align themselves along the lines of tension. This process of creating a more “functional” scar can be enhanced through soft tissue work, flexibility training and strength training.

**ASSESSMENT PROTOCOL**

Another aspect of the clinical process is gathering information. Massage therapists can gather a lot of the necessary information through a history, a series of observations, and various functional assessments, include range of motion, manual muscle testing and specific orthopedic assessments. Depending on your setting, you may have access to this information without having to perform any tests yourself, though you will still need to have an understanding of the assessments in order to interpret the results.

Performing assessments is nothing more than searching for dysfunctional anatomy, physiology or biomechanics. This involves identifying signs, which are objective measurable physical findings, and symptoms, which is information provided by the athlete. The purpose of identifying signs and symptoms is to gather as much information as possible about the condition from both the perspectives of the athlete and massage therapist. Having a systematic and sequential method of gathering information is an important element of assessment. This ensures that nothing is overlooked and that information is obtained properly.

One method of gathering information during an assessment is the HOPS method, which stands for: H—History; O—Observation; P—Palpation; S—Special Tests.

A vital step in the assessment process is taking care to test the uninvolved side or limb first. This provides an immediate reference to the affected side, as well as a means for the athlete to demonstrate the mechanism of injury. The uninvolved side plays a role in all aspects of the assessment, including:

- **History:** Helps determine the mechanism of injury and whether the uninvolved side has a preexisting injury.
- **Observation:** Provides a reference
Other relevant information to gather during the history includes:

**The primary complaint.** This provides information in the athlete’s own words about the reason for the visit.

**The mechanism of injury.** The most important piece of information that comes from the history is the mechanism of injury, wherein the athlete describes what happened to cause the injury. Additional questions that can help expand on this information include:

- Was there any trauma?
- If it was a fall, in what position did you land?
- Did the problem arise suddenly or occur over time?
- What was the position of your body when you first noticed the pain?
- Did you feel or hear anything?
- Have you performed any new activities or movements?
- Have you changed any of your exercise equipment?

If there is no discernible mechanism or memorable incident when the complaint was noticed, then peripheral information, including signs and symptoms, areas of pain and dysfunction patterns can be useful to come to a reasonable conclusion.

**Symptoms.** Acquiring information about the athlete’s symptoms requires investigating the primary complaint. For the most part, the location and the characteristics of the pain indicates which tissues are involved, though massage therapists shouldn’t rule out referred pain. The massage therapist must be knowledgeable in common referral areas to ensure an accurate assessment.

There are certain questions that can help obtain information about the pain:

- Where was the pain originally and has it moved?
- What situations make the pain worse or better?
- How long has the problem lasted?
- When do the symptoms occur?
- Are there any unusual sensations?
- Does the pain stay in one spot or radiate into other areas?
- Does it prevent you from sleeping?
- Does a joint lock, give way or feel unstable?
- Has this problem occurred before?
- Is the pain constant or occasional?
- What type of pain is it? (Nerve pain is sharp and burning, and tends to follow patterns; bone pain is very deep and localized; and muscle pain, which is harder to localize, is dull and aching, and can be referred.)

When questioning about pain, have the athlete put the information in measurable terms by using a pain scale that rates the athlete’s pain from 1 to 10, with 1 being minimal and 10 being unbearable, and provides an objective baseline to use later. Keep in mind that each athlete will have a different interpretation of the pain scale.

### EXAMPLE OF QUESTIONS FOR THE ATHLETE:

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<thead>
<tr>
<th>OPEN-ENDED</th>
<th>CLOSE-ENDED</th>
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<tbody>
<tr>
<td>1. Why are you here?</td>
<td>1. Can you lie on your back?</td>
</tr>
<tr>
<td>2. Where is it bothering you the most?</td>
<td>2. Is it pain or numbness?</td>
</tr>
<tr>
<td>3. What caused your problem?</td>
<td>3. Do you have x-rays?</td>
</tr>
</tbody>
</table>
OBSERVATION

This process begins the moment the athlete walks in the door and includes a visual analysis of the athlete’s overall appearance, posture, dynamic movement and symmetry of the body. In addition to observing the athlete, inspect the injury site for factors such as redness, bruising, swelling, deformities and other marks in the area. While observing the athlete from different views, there are specific questions to consider:

• Is there any obvious deformity?
• Do they possess normal balance?
• Are there any scars or other signs that indicate recent injury?
• Is the color of the skin normal?

Once the general scan is complete, assess the athlete in static and dynamic phases.

Posture. When assessing posture, you need to use a straight line as a reference for testing. When assessing from the front or back, have the athlete stand with feet equidistant from the line. When the athlete is standing sideways, line up the plumb just in front of the lateral malleolus. Deviations are described as slight, moderate or marked.

Anterior. Use the following guidelines when assessing posture from the anterior side:

• The head should sit squarely on the shoulders. Check for tilts or rotations, and try to establish their causes.
• The tip of the nose should be in alignment with the manubrium, xiphoid process and umbilicus. This is known as the anterior line of reference.
• The contour of the trapezius should appear equal bilaterally. Check for unusually prominent bony areas.
• The shoulders, clavicles, and acromioclavicular joints should appear to be equal. Deviations may indicate joint pathology.
• The tops of the iliac crests should appear level. Deviations may indicate the presence of scoliosis.
• The pubic bones should appear level.
• The patella should face forward. An outward-facing patella is known as “frog eyes.” A patella facing inward is called a “squinting” patella.
• The knees should appear straight.
• The malleoli should appear to be equal.
• Check the arches on both sides of the feet, noting any pes planus or cavus.

Lateral. Use the following guidelines when assessing posture from the lateral side:

• Check the lateral line of assessment, which is the line from the earlobe to the tip of the shoulder. It continues through the highest point on the iliac crest, slightly anterior to the axis of the knee joint, and slightly anterior to the lateral malleolus.
• Determine if the back has excessive curvature. Look at each spinal segment in relation to the sacrum.
• The musculatures of the back, abdominal and chest regions should have good tone with no obvious deformity.
• The pelvis should appear level.
• Look for visible trunk rotation.

Examine the position of the knees. Determine whether they are flexed, straight, or in recurvatum (hyper extended).

Posterior. Use the following guidelines when assessing posture from the posterior side:

• The head and neck should sit squarely on the shoulders, matching the anterior view.
• The scapulae should be positioned similarly on both sides. Note the rotation and tilt, levels of the superior and inferior angles, and whether they sit flat on the rib cage.
• Look for lateral curves on the spine.
• Look for atrophy of the posterior musculature.
• Look for equal space between the elbows and trunk.
• Determine whether the ribs are symmetrical.
• The posterior superior iliac spine (PSIS) should appear level bilaterally.
• The tops of the iliac crests and gluteal folds should appear equal.
• The backs of the knees should appear level.
• The Achilles should run vertical on both sides.

Determine whether the heels are straight. Check for valgus or varus positioning.

PALPATION

Just as the entire assessment process is systematic, so is palpation. Start at a point away from the injury site and move toward the point of greatest pain last. Pressure should be light at first and increase as the deeper structures are felt.

As the areas are palpated, gather information about the physical findings, including:

Tissue temperature. Determine tissue temperature using a larger surface of the hand or fingertips; this can provide information about the phase of the injury. Warmth in the area can mean an increase in circulation.
Obvious deformity. Take care to identify obvious changes in the structures or the presence of abnormal structures.

Swelling. Depending on where swelling is located, the tissue will feel different. Edema is excess fluid in the interstitial spaces and can leave indentations when pressure is applied (pitting edema). Acute swelling is softer and more mobile, whereas fluid that has been in an area for a period of time has a thicker feel and is more gel-like.

Tissue tone. Note muscle tone and whether the muscle is in spasm or flaccid. Assess the presence of tight bands within the muscle and tension in other structures, such as the ligaments, tendons and fascia.

Point Tenderness. Note the area with the highest level of pain, which is graded on four levels:

Grade 1: The athlete complains of pain.
Grade 2: The athlete complains and winces.
Grade 3: The athlete winces and withdraws the limb.
Grade 4: The athlete will not allow the area to be palpated.

Crepitus. A creaking or cracking sensation during palpation indicates damage to the bony or soft-tissue structures.

Abnormal sensation. Changes in sensation such as dysesthesia (decreased), hyperesthesia (increased), or anesthesia (absence) may indicate nerve damage.

Pulses. Check for changes in the major pulses in the area of palpation.

FUNCTIONAL TESTING

This next component of assessment consists of several steps and tests muscle, nerve and other non-contractile tissues. There are several rules of thumb when performing functional testing:

- Always test the uninvolved side first unless bilateral movement is required. This lets the athlete know what to expect and establishes what is normal for the individual.
- Perform active motion before passive motion. This will prevent moving the limb past the athlete’s ability and also help determine the structures, contractile or inert, that are involved.
- Perform painful movements last. This prevents pain from affecting future tests during the assessment.
- Apply overpressure gently to determine end-feel of the tissues.
- Hold or repeat movement to obtain accurate information. Athletes will present with conditions that are aggravated by repetitive movements, so re-creating the conditions will provide a truer picture of the problem.
- Perform resisted muscle tests with the joint in a resting position to cancel out force on inert tissues and allow for the isolation of contractile tissues.
- After completing the testing, instruct the athlete to recreate those movements, while observing:
  - The athlete’s reaction to the pain
  - The movement pattern
  - The quality of the movement
  - The location of the restrictions and when they occur
  - The location of the pain and when it occurs
  - Any compensatory movements

PASSIVE RANGE OF MOTION

Passive range of motion is motion performed on the athlete by the therapist while the athlete remains totally relaxed. To perform a passive range of motion test, place the area in a position wherein the joint is in a relaxed state. The movement should be as complete as possible, and in the same direction as those that were tested actively. During testing, note:

- The location of pain and when it occurs.
- Whether the movement changes the pain.
- Any patterns of restriction.
- The end-feel.
- Any compensatory movement.

Determining end-feel during passive motion is accomplished when the therapist gently applies overpressure to the athlete. The end-feel can help determine what structures are responsible for the dysfunction.

There are four types of end-feel:

Soft: This occurs as a result of soft-tissue approximation, such as when the calf touches the thigh during knee flexion, for example.

Firm: This feels as though there is a rising sense of tension, and creates a feeling of springy or elastic resistance. It can occur as a result of muscle tightness, or capsular or ligamentous stretching.
**Hard:** This occurs from two bones coming in contact with one another, such as the ulna and humerus in elbow extension.

**Empty:** This occurs when there is no end-feel because the full range is never reached due to pain; it only occurs if dysfunction is present.

**RESISTED ISOMETRIC MOTION**

This type of movement gauges the strength of the contractile tissues and their ability to facilitate movement, stability and support. It’s important to create an isometric contraction through the application of an eccentric load so that only the contractile tissues are tested, which will help you determine if they are at fault. If the joint moves, the insert tissues will also move and subsequently skew the results. There are several basic principles related to performing the tests:

- Place the athlete in a position that offers the most stability. If necessary, stabilize parts of the athlete to prevent compensation.
- Stabilize the body part proximal to the one being tested.
- Apply pressure directly opposite of the line of pull to the muscle being tested using as long a lever as possible.
- Tell the athlete to prevent you from moving them. Apply pressure gradually and maintain it for at least five seconds. Repeat throughout the joint’s range of motion.

There are five numerical grades for gauging an athlete’s strength, several which have a plus and minus system. The scale (right) is based on the pull of gravity, with 3 representing a fair score.

Damage to the muscle tendon unit is not the only cause of muscle weakness. Pain, injury to the nerve root or peripheral nerve, pathology

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### RESISTED ISOMETRIC MOTION SCALE

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5: <strong>Normal</strong></td>
<td>The muscle can move through the full range of motion against gravity and hold the maximum pressure a therapist applies for what might be the “full strength” of the muscle.</td>
</tr>
<tr>
<td>4+: <strong>Good [+]</strong></td>
<td>The muscle moves through the complete range of motion against gravity and resist moderate to strong pressure.</td>
</tr>
<tr>
<td>4: <strong>Good</strong></td>
<td>The muscle can move through the complete range of motion against gravity and resists moderate pressure.</td>
</tr>
<tr>
<td>4–: <strong>Good [–]</strong></td>
<td>The muscle can move through the complete range of motion against gravity and resist slight to moderate pressure.</td>
</tr>
<tr>
<td>3+: <strong>Fair [+]</strong></td>
<td>The muscle can move through the complete range of motion and resist minimal pressure.</td>
</tr>
<tr>
<td>3: <strong>Fair</strong></td>
<td>This is the middle ground. The muscle has the ability to move through the entire range of motion against gravity but with no pressure.</td>
</tr>
<tr>
<td>3–: <strong>Fair [–]</strong></td>
<td>The muscle can move through some of the range of motion against gravity.</td>
</tr>
<tr>
<td>2+: <strong>Poor [+]</strong></td>
<td>The muscle can start the movement through the range but cannot continue it.</td>
</tr>
<tr>
<td>2: <strong>Poor</strong></td>
<td>The muscle can move through the range with some gravity-eliminating assistance.</td>
</tr>
<tr>
<td>2–: <strong>Poor [–]</strong></td>
<td>The muscle will initiate movement if gravity is eliminated.</td>
</tr>
<tr>
<td>1: <strong>Trace</strong></td>
<td>A contraction is felt in the muscle, but no motion occurs.</td>
</tr>
<tr>
<td>0: <strong>Zero</strong></td>
<td>There is no evidence of contraction.</td>
</tr>
</tbody>
</table>
to the tendon, fractures, and psychological reasons can also produce weakness.

**ORTHOPEDIC TESTS**
Assessing the non-contractile structures of the body is just as important as testing the contractile tissues of the body. These tests are specific to each region of the body and are designed to expose pathology in the area. As with the other tests, these tests should be performed bilaterally to obtain baseline results.

**NEUROLOGICAL TESTS**
The functioning of the nerves in the area is an important component to assess when dealing with injuries. The portion of the nerve that originates from the spinal cord is referred to as the nerve root. The motor component of a segmental nerve is assessed using a myotome, while the sensory component is tested using a dermatome.

Most roots form a plexus as they exit the spinal cord and become peripheral nerves. Because of this, injuries to a segment will often affect more than one peripheral nerve and will demonstrate a different neurologic presentation than if just one nerve was affected. These tests are used to determine the integrity of the central nervous system.

**Dermatomes.** A dermatome is the area of skin innervated by a single nerve root. Slight differences will occur between individuals, and there is a great deal of overlap between dermatomes. The sensitivity of these nerves is usually tested using light touch discrimination using items such as a paper clip, cotton ball, fingernails or the pads of the fingers.

The areas innervated by the nerves are touched lightly bilaterally and the athlete is asked if the sensations were equal. It is important to stay in the middle of the dermatome to avoid any overlap into adjacent dermatomes. Variations between the sides can indicate pathology.

**Myotomes.** Myotomes are defined as adjacent muscles that receive their innervation from one or two nerve roots. Testing the motion of certain muscles using resistive tests can assess the condition of the nerve root. These resisted tests should be held for at least five seconds. Deviations between sides may indicate pathology in the nerve root.

**ASSEMBLING THE PIECES**
Using sports massage to treat a condition is similar to using a recipe to cook a meal: The ingredients are combined in a specific order and following the steps of the recipe exactly as they are written will produce a favorable result. Remember, however, that not everyone will enjoy the meal to the same extent because individual tastes vary. One person may like more spices, while another may prefer fewer. A good chef discusses individual tastes with their patrons and adjusts the ingredients as necessary.

Sports massage takes the same approach. The recipe directs the order of the treatment components—connective tissue, trigger points, muscle inconsistencies and range of motion restrictions. The ingredients encompass the massage therapist’s knowledge and skills. Massage therapists learn how to adjust the recipe to the needs of the athlete through clinical reasoning.

Remember, you might have the biggest bag of tricks in the profession, but picking through them one by one is a shotgun approach to treatment. Clinical reasoning involves taking the separate details of the subject and organizing them into useable patterns. The therapist dialogues with the athlete to gather information and then draws on their experience to determine the best way and in what proportion to apply the treatment that will produce the most benefit.

For example, one person may require additional connective-tissue work, while another may need more flexibility training. There are many protocols that give step-by-step instructions on what stroke to use and in what direction. While these may generally produce positive results, every person is unique and treatment must be customized to the individual.

**PRACTICAL APPLICATION**
Athletes get injured, and massage therapists need to understand how to recognize various pathologies. You should also know the background and general information on some of the common conditions you might see, such as how they present, and signs and symptoms. Start with the major joints in the body and the most common pathologies. You’ll also find that as you continue to work within different sports, you’ll begin to learn the injuries that are common among its athletes.

**Application strategies.** There is a common wisdom that certain techniques should not be applied and that the pressure and pace should be adjusted depending on what training phase the athlete is in and how soon their next competition is. On a larger scale, these general principles make sense.

Some principles, however, should be adjusted depending on the setting. The more traditional guidelines regarding the timing of massage therapy and the techniques
used needs to be balanced against where the individual athlete is in their training cycle, what they are used to and the purpose of a massage therapy session.

There are four main areas of training and timing that the sports massage therapist will work in:

**Event preparation.** This type of massage is utilized as part of the overall warm-up, but should never be a substitute for a more comprehensive warm-up routine, and is ideally performed within 90 minutes of play. Quicker, lighter and more general massage should not last more than 10 to 15 minutes. Benefits for the athlete include:
- Warms the muscles for activity.
- Excites the nervous system for a sense of readiness.
- Increases blood flow to an area.
- Helps delay the feeling of exertion.
- Can help reduce injury.

Following is a general pre-event massage sequence:
- Light compression to pertinent areas, working deeper as the tissue releases.
- Quick, light effleurage to pertinent areas.
- Compression broadening to pertinent areas.
- Light “modified” petrissage to pertinent areas.
- Strokes with passive movement to pertinent areas.
- Tapotement to pertinent areas.
- Jostling and rocking to body.

**Prevention and maintenance.** This type of work is best done when there is not an upcoming competition, preferably on a day off so the athlete can recover from any soreness. Here, massage therapists will work a bit deeper to remove any restrictions in the tissues and make the corrections to the body to help improve performance and reduce injury.

The techniques used are varied but always therapeutic in nature. Nothing is done to disrupt the training cycle of the athlete. Goals of these sessions include:
- Normalize tissue to improve function.
- Improve tissue healing.
- Improve Range of Motion.
- Reduce muscle stiffness.
- Remove trigger points in the muscles.
- Improve scar mobility.

Depending on the sport, athletes might want prevention and maintenance work prior to the start of an event or on a day off during competition. Or, they may prefer waiting until competition is complete.

**Injury treatment.** This phase can be while the athlete is still in competition. Or, if the injury is bad enough, they will be out of competition and may be training as well. Techniques can range from lymphatic drainage to scar massage.

Depending on the situation, the athlete may be in rehabilitation, so massage therapists must communicate with the other members of the team. This work is often incorporated into the other phases so massage therapists can accomplish more than one goal. If the athlete is still training or competing, then injury treatment can coincide with recovery work. When they are forced out of competition, then combining injury treatment with maintenance work is very beneficial. Some of the benefits include:
- Prepares soft tissue to enhance manual therapies.
- Improves tissue healing.
- Normalizes tissue to improve movement.
- Removes trigger points in the muscles.
- Improves scar mobility.

**Recovery.** Massage therapy is extremely important during recovery. There are a lot of studies showing its benefit at helping the muscles to recover. This phase can include the traditional post-event massage and the more thorough recovery massage.

This work is ideally done one to three hours after competition and is designed to help muscles recover. Although this work will be deeper, massage should not be painful. The benefits include:
- Great for post exercise soreness (DOMS).
- Improves the feeling of recovery.
- Can help with muscle endurance and power output when playing multiple matches.
- Can reduce muscle fatigue when there are repeated bouts.
- Increased neutrophil count.
- Decrease in substances that cause pain in the muscle.

**ATHLETES GET INJURED,** and massage therapists need to understand how to recognize various pathologies.
Increased the pain threshold after exercise.
Improves blood flow in massaged body part.
Calms the nervous system and helps relaxation.

Following is a general post-event massage sequence:
- Slower deeper effleurage to pertinent areas with compression mixed in.
- Compression broadening to pertinent areas.
- Petrissage to pertinent areas.
- Strokes with passive movement to pertinent areas.
- Tapotement (beating) to pertinent areas.
- Rocking to body.

**ADVANCED STROKES**

Because there are no magic bullets when it comes to sports massage, we must look to modify the common techniques to fit the situation. All of these strokes can be adapted to any situation and applied to any region on the body. As with any technique, massage therapists should always take care to use proper body mechanics to reduce chances of injury.

**Deep parallel stripping.** Deep parallel stripping is a modification of effleurage, the most widely used stroke in Swedish massage. It provides the same benefits as regular effleurage with the addition of specificity. It requires an advanced level of skill to know how to palpate the tissue and apply the correct amount of pressure. Deep parallel stripping can be used to strip out entire individual muscles from one end to the other, or to treat specific taut bands when deactivating trigger points.

As with effleurage, use a broad surface, such as the palm or forearm, or a small surface such as a thumb, finger or pressure tool to apply the stroke. Perform the stroke along the fiber direction at a pressure level close to the client’s discomfort threshold. Generally, a broader application is used first to prepare the tissue for any specific work to follow.

**Compression.** Compression has different names depending on its application. Trigger-point therapy, acupressure, neuromuscular therapy and shiatsu all use variations of compression. It can be applied using a large surface area such as the palm of the hand, fist, or forearm, or a small surface area such as a thumb, a fingertip, or the tip of the elbow. The rate of application varies depending on the desired results.

A rapid succession of compression strokes may be used to stimulate the area and increase local circulation by creating a pumping action. When applied slowly in a static fashion, compression may be used to treat a trigger point or an area of hypertonicity. The direction of pressure can be changed to affect the intent of the stroke. Various positional holds can be performed using compression in this manner, too. Pressure can also be applied using a variety of tools for either a broad or a specific application.

To perform compression, determine the intent and method of application based on the situation and apply pressure to the client’s tolerance using proper body mechanics. The duration of the pressure varies with the intent.

**Perpendicular compressive effleurage.** Muscle activity consists of a broadening phase and lengthening phase. When the sarcomeres of a muscle fiber shorten during a contraction, they broaden and increase in size. To function properly, a muscle must be able to shorten completely.

Injury or inactivity can cause the actin and myosin fibers to stick together, inhibiting their ability to slide past each other when contracting. Applying perpendicular compressive effleurage can break up unwanted bonds between the filaments and help restore normal function.
by separating the muscle fibers and breaking up adhesions within the muscle. Since there is a compression component to the stroke, local circulation to the area will also increase.

Perpendicular compressive effleurage is performed by applying heavy pressure, to the client’s tolerance level, with palms or fists for a large area or fingers or thumbs for a small area. While maintaining constant pressure, slowly slide your hands perpendicular to the fiber direction of the muscle or area on which you are working.

To rapidly bring blood to the area, lift the tissue up off the bone during the return stroke to encourage a change in circulation. This is sometimes referred to as lifting and broadening. It is a variation of the stroke with a quicker pace and lighter pressure, which does not cause the client discomfort.

**Cross-fiber fanning.** Cross-fiber fanning is a cross between effleurage and compression broadening, and is used to increase circulation, reduce muscle tension and separate adhered muscle fibers. Cross-fiber fanning is usually applied to a small, specific area using the thumb.

Place the length of your thumb on the area parallel to the fibers. Adjust pressure to fit the situation, and move your thumb perpendicular to the tissue. It is important to keep the thumb stationary and perform the movement from the shoulder to prevent an overuse injury.

**INCORPORATING MOVEMENT**

The pain associated with musculoskeletal disorders is a challenging problem for any health care provider. Musculoskeletal dysfunction can occur for a variety of reasons and is identified by the following characteristics:

- As pain increases, motor-unit discharges decrease.
- Endurance levels decrease. As muscles fatigue, the load is shifted to unaffected muscles, increasing their burden.
- EMG activity decreases.
- Blood vessels can be compressed.
- Proprioceptive functioning decreases.
- Adaptive shortening causes stretch weakness.
Muscle imbalances lead to changed motor programming in the CNS.

The pain-spasm-pain cycle perpetuates.

So how does movement help remedy these characteristics of musculoskeletal dysfunction? The main principle deals with movement re-education. Incorporating passive and active movement with massage strokes reconnects the broken link of communication between the nervous system and the muscle.

The Law of Facilitation states that when an impulse passes through a specific set of neurons to the exclusion of others, it generally takes the same course on a future occasion; each time the impulse traverses this path, resistance is less.

There are additional benefits to incorporating movement, as well:

- Shortening a muscle during a stroke can help desensitize a trigger point or reduce the restriction that is created by the added tension when it is lengthened.
- Passively lengthening a muscle under the pressure of a stroke will mobilize connective tissue and effectively “pull the muscle” under the stroke.

Employing active movement during strokes works in several ways:

- Deep fascia is mobilized better and more quickly because heat is generated internally and externally, and this helps the matrix change to a fluid state faster.
- The pressure is intensified for the athlete due to the contraction of the muscle.
- Connective tissue restrictions are broken up more effectively.
- The athlete is able to control the stroke better and maintain the threshold level to increase the effectiveness.

These are some massage techniques that incorporate both passive and active movement.

Passive movement with compression. Perform the stroke by compressing an area of the muscle with a broad or specific contact surface, and move the limb passively. There

This mtj article serves as the basis for the AMTA Online Course of the same name. To register for the course and receive continuing education hours, please visit amtamassage.org/learn.
are a few variations:
- Apply static compression to the area and passively shorten the limb. Remove the pressure, return the body part to the starting position, reapply pressure, and repeat. This is effective for trigger points and muscle spasms.
- Shorten the limb, and then apply static pressure and lengthen the tissue. Repeat this shortening, compressing, and lengthening cycle. Move pressure around the body part being treated.
- Shorten the limb and perform deep parallel stripping along the muscle as the limb is passively lengthened. This can be repeated in strips over the entire area.

**Active movement with compression.**
This stroke uses the athlete’s active movement while the therapist applies pressure or strokes to effect change. There are several variations:
- Apply static compression to the hypertonic area or trigger point. Direct the athlete to perform an isotonic contraction of the muscle and return it to the original starting position. Repeat this several times until a change is noticed. This is effective for treating trigger points and adhesions.
- Place the treatment area in a lengthened position. Perform a perpendicular compressive effleurage stroke while the athlete concentrically contracts the muscle. The stroke should begin when the athlete starts to move and should end when the muscle is fully contracted. This technique requires communication and timing between the therapist and athlete.
- Place the area in a shortened position. Begin deep parallel stripping at the distal end of the muscle as the athlete actively lengthens the muscle. You will travel a short distance, and the athlete will shorten the muscle and begin to lengthen it again. Move along the muscle during the lengthening phase, and repeat this process until the entire muscle is covered. This technique is typically the most intense and is used primarily during the late stages of healing and for chronic conditions.

These techniques can be intensified through the use of manual resistance or resistance with weights, exercise bands and the like. The greater the resistance, the more motor units that are recruited, thereby increasing the pressure and number of fibers affected.

**WHAT DOES THE RESEARCH SAY?**
Research in massage therapy, especially in sports massage therapy, is still relatively new but is growing quickly. There is a huge lack of quality research in our profession, as most of the studies have design flaws and should be looked at carefully before drawing any conclusions. Despite the lack of supportive research, the demand for massage therapy in the sports setting continues to rise due to its anecdotal effectiveness. As its demand increases, the opportunities for research funding and interest in studies will improve and lead to the validation of its use.

One of the areas that the research has found to be positive is in recovery massage. The best time to do this type of work seems to be within three hours of completion of the activity. While that may not be practical in all situations, it is the ideal time frame. This brings up the age old question of why it works. It was once, and sometimes still is, widely thought that recovery massage helps the athlete by removing the lactic acid accumulation in the muscles. Studies have shown that massage therapy does not really change lactic acid levels drastically in the muscle. That is accomplished more effective through active recovery methods.

The reason recovery massage helps reduce muscle soreness appears to be through helping reduce delayed onset muscle soreness (DOMS). DOMS is caused by the release of chemical mediators, the increase in extracellular fluid levels and a sensitization of the nerve endings in the area due to the tissue damage associated with activity. Massage helps remove excess fluid from the area and brings in substances to help with tissue repair. They also found that compression strokes seemed to have the most effect on those fluid levels.

There is a wide variety of opportunities for massage therapists, particularly as we start to learn more about the real, proven benefits massage therapy can offer a wide variety of clients. Sports massage is one area of specialization where massage therapists can make a difference by helping athletes stay in peak condition.

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Steve Jurch has 20 years of experience in a clinical or sports environment and has extensive teaching experience as a massage therapy program director, national and international lecturer, and author. Steve served as the Director of Massage Therapy for the Women’s Tennis Association and is currently the Director of Allied Health Training at the Community College of Baltimore County. Steve can be reached at stevejurch@gmail.com.
BREAKING IN TO SPORTS MASSAGE

OVER MY MANY YEARS IN THE PROFESSION, ONE OF THE BIGGEST OBSTACLES IN GETTING INTO THE FIELD IS THE LACK OF UNDERSTANDING BY OTHER HEALTH CARE PRACTITIONERS ABOUT WHAT WE DO AND HOW WE CAN HELP.

This results in therapists having to take on the role of educator as well as clinician. The health care professionals that work in sports are used to dealing with practitioners that have a very clear set of skills that are recognizable across the profession. We must be extremely diligent in projecting a competent, credible and professional image when meeting with a member of a sports medicine team.

Initial contact. When meeting with a sports medicine staff member, timing is critical. You want to schedule your meeting during the off season, as this is when many departmental decisions are made. Also, the most likely person to contact in the organization is the head trainer.

Even though you may ultimately be directed to one of the assistants, you need to make the initial contact with the person in charge.

If you send a letter of introduction or to follow up on your initial contact, make sure you address the information to a person instead of writing “To Whom It May Concern” or “Dear Head Trainer.” In the letter, you should briefly discuss what your intentions are and ask permission to send them a packet of information on you and your services. Propose, if they would like to pursue it, a face-to-face meeting as the next step. You can also ask if they would like to set up a trial massage on themselves, an athlete, or other staff member in order to evaluate your skills.
Resume. One tool that we can use is a resume or curriculum vitae (CV). Traditionally, we are taught that a resume should be brief and not much longer than one page. That style will not work in this environment. Because of the lack of understanding on what we do, we should use our resume as an education tool. It must be much more detailed than you might think. Here are some tips:

Education. List in order of ranking (highest level first). When describing your massage education, be sure to:
- Detail the program you graduated from, including how many hours and length of program
- Write what you learned in each course, including course descriptions where appropriate
- Any practical experience while in school, including events and student clinics
- Emphasize course work relevant to sports

Job experience. Include non-massage related jobs if appropriate, like management, instruction or any role that require a great deal of responsibility. For massage-specific work, make sure you detail all the specific responsibilities you had, including the massage techniques you used and any massage protocols you regularly performed.

Other experience. Here, think of any experience you have that would highlight your ability to work well as part of a larger team, including volunteer work and event coverage, for example. This experience should be mostly massage specific.

Continuing education. List course details, including what you learned, who the instructor was, any relevant information about instructor, why course is important and length of course. Here, too, is where you’re going to want to mention any you have in specific modalities that might be beneficial, such as fascial therapy, for example.

References. Try to be varied and well-rounded in your references. Give the name of a friend who’s known you a long time, as well as a professional and client reference. These letters should be as focused and specific as possible. You might think of talking with potential references about the position you are hoping to secure and let them know some information that might be helpful to share if they’re called.

EXPERIENCE

Having experience with athletes is going to be a huge positive when breaking into the field. Remember, too, that although working one-day events such as road races, triathlons and cycling races are great, you need to have a variety of experience to really make an impression. Seek out a variety of work in a variety of settings:
- Look for experiences that are unique and with reputable organizations.
- Pick things that are going to give you long-term experience, such as working with different teams and long-season sports.
- Try to work with a variety of different sports.
- Seek out experiences that will have you working with a variety of injuries and conditions.
- Shadow or volunteer at a physical therapy clinic or in an athletic training room.
- Try to work with athletes over an entire training cycle or season. Good settings for this include running, cycling, triathlete teams, individual athletes, minor league teams or college sports teams.
- Consider sponsoring an athlete or team.

WHAT NOT TO DO!

While we can contribute a tremendous amount to a sports medicine team and we may have been told that we are the greatest thing since sliced bread, we need to recognize our role when wanting to work with sports. You want to stay away from making claims that are not backed up through evidence. While anecdotal results are important, sports medicine professionals have six to eight years of higher education in their fields and work very much from an evidence-based model. Making a claim such as “post-event massage gets rid of the lactic acid” is an example of a statement that will let them know you are not current in your understanding of your own profession, so be sure you’re understanding of research is up-to-date.

Additionally, part of being professional is portraying a professional appearance. When meeting with anyone, be sure to dress appropriately. Finally, a little humility goes a long way. Conveying that you are valuable to the athletes, that you are there because you enjoy working with that population, that you will work hard, that you want to be part of a sports medicine team and that you are a true professional will greatly improve your chances of success in this amazing area of specialization.