THE MASSAGE THERAPIST’S GUIDE
TO
SPORTS MASSAGE
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THE MASSAGE THERAPIST’S GUIDE
TO
SPORTS MASSAGE

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This course was developed to help expand the knowledge and skills of massage therapists with respect to the subject of sports massage. The information in this course has been derived from various professional sources.

It is the responsibility of the massage therapist to determine which principles and theories contained herein are appropriate with respect to his/her personal limitations and scope of practice.

The information in this course has been carefully researched and is generally accepted as factual at the time of publication. The Institute for Advanced Therapeutics, Inc. disclaims responsibility for any contradictory data prior to the publication of the next revision of this course.

NOTE: In this book and test, the use of the words patient and client can be interchanged. In this book and test, the use of the words massage therapist, therapist, and practitioner can be interchanged.

Disclaimer: The recommendations and suggestions outlined in this textbook are not meant as a prescription but are intended for information purposes only. The Institute for Advanced Therapeutics, Inc. recommends seeking professional medical advice by a physician before attempting any course of therapy.

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HOW TO BEST PROCEED WITH THIS COURSE

Each chapter should be approached systematically in a careful and objective manner. The pre-test questions at the end of each chapter will help you determine the mastery of the material. It is important to master each chapter before going on to the next. Relax, take your time, and go at your own pace. Only after you have successfully mastered all the material in the course and completed all the pre-test questions correctly in each chapter should you proceed to the post-test questions.

COMPLETING THE POST-TEST

Before beginning, please clearly write your name, address, zip code, and license number on your post-test answer card. Read each question carefully before answering. Please use a ballpoint pen to fill-in your answers on the answer card by completely shading your choice. Keep in mind that each question has only one correct answer. The post-test consists of 100 questions. For a passing grade, you must correctly answer 80 questions. We encourage your input and would welcome any suggestions to improve our course or test questions. Please feel free to note your suggestions or comments on the evaluation form found at the end of this course.

INFORMATION FOR CERTIFICATION

In order to receive continuing education credit, you must be a registered purchaser of this course. Only one person per purchase of this course is eligible to receive credit. Please notify us of any address or name changes as we keep permanent records for certification and licensure.

MAILING INSTRUCTIONS

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\]

If you have any questions regarding this course, please contact our Customer Service Department at 1-954-441-9553.
COURSE OBJECTIVES

Upon completion of this course, you will be able to:

1. Comprehend factors relative to sports massage.

2. Describe four phases of sports massage.

3. Understand 11 common sports massage strokes and soft tissue techniques.

4. Know how to perform sports massage on specific body areas affected by a variety of common sports-related injuries and medical problems.
CHAPTER 1

INTRODUCTION TO SPORTS MASSAGE
Sports massage has been steadily growing in popularity in recent years and is now a well-recognized and accepted therapy among both professional and recreational athletes. This highly specialized form of massage therapy is an essential strategy for anyone involved in physically demanding sports.

This course will discuss many soft tissue techniques used in sports massage today. As successful sports massage depends on accurate clinical assessment, this course will also help you to identify the signs and symptoms of common sports-related injuries and medical problems in the athlete.

The benefits of sports massage are numerous and may include the ability to:

- Reduce muscle tension
- Improve flexibility
- Increase circulation
- Assist in the warm-up and warm-down routine
- Relieve swelling
- Lessen the chance of injury or recurrence of injury
- Restore mobility
- Enhance performance
- Maintain peak muscle and joint condition
- Reduce the stress of competition
- Speed up recovery time after injury or strenuous exercise
- Soothe overworked muscles
- Relax muscle spasms
- Reduce the long-term effects of injuries
- Lessen excessive muscle tone post-exercise
- Increase muscle range of motion
- Deactivate symptomatic trigger points
- Identify soft tissue problems which could progress to injury
- Reduce scar formation in soft tissue lesions
- Reduce lactic-acid build-up in the tissues
- Decrease adhesions between tendon fibers
FACTORS RELATIVE TO SPORTS MASSAGE

TABLE HEIGHT

The height of the massage table for sports massage is generally lower than that of Swedish massage. As sports massage techniques are generally deeper and more intense than Swedish massage, the lower table height enables the massage therapist to use gravity to assist in applying pressure to the muscles and tissues.

DEPTH OF PRESSURE

In sports massage, the depth at which a massage therapist applies pressure to the layers of muscle and fascia below the skin usually ranges between medium and very deep. As a general rule, following acute injury, the depth of massage should be such as to not produce pain. There should also be no sense of tissue resistance to palpation. The depth of pressure can increase as the injury ages gradually progressing to deep pressure for a chronic injury.

TEMPO

The tempo or speed at which the massage technique is performed in sports massage can vary greatly. It is generally fast if the intent of the massage therapist is to increase circulation and warm the muscles of an athlete prior to an event. It is generally slow if the massage therapist is focusing on deep tissue work isolated to a specific problem area.
LUBRICATION

Lubricants applied to the skin can help aid the massage therapist in palpating the tissues for abnormalities. For deep stroking and compression, a good degree of friction is necessary to be able to work through the skin.

Massage lotions can provide more friction than oils or creams and can help maintain a gentle drag.

No lubricant is required for deep work such as fascial stretching or myofascial release.

For medium depth work, choose a massage cream which can offer easier glide than lotion yet higher friction and less glide than oil.

Massage oils are best suited for light massage work where easier glide and workability are desired.

PHASES OF SPORTS MASSAGE

PRE-EVENT: Twenty to thirty minutes before an athletic event, it is important to warm up and increase blood circulation to the muscles and calm nervous tension in order to achieve peak athletic performance. By warming and stretching the muscles, you increase their flexibility, thereby reducing the risk of injury. To prevent relaxation which can adversely affect performance, keep the tempo brisk and energetic. Contraindications to pre-event massage include deep muscle massage and massage techniques designed to breakup adhesions.

POST-EVENT: Post-event massage should begin as soon as possible following the event and not last for more than 15 minutes. Before proceeding, evaluate the athlete for obvious injuries and refer for medical treatment by a physician if necessary. The goal of post-event massage is to increase oxygen-rich blood flow to the muscles and tissues, reduce cramping and stiffness, and decrease recovery time. During the event, intense physical activity can produce a build-up of lactic acid in the muscles. Lactic acid build-up in the muscles can lead to muscle fatigue and deep muscle soreness following an event. Massage post-event can aid in the removal of lactic acid as well as other waste
products from the muscles. General soft tissue techniques are used to promote relaxation of spasmed muscles.

**TRAINING:** Training massage is used regularly to help athletes recover quicker from workouts. It serves to increase flexibility and range of motion as well as relax and tone the muscles. The goal of training massage is to help prevent future injuries and decrease the healing time of any current injuries. Training massage is often initiated using deep effleurage and quick strokes to aid in increasing blood circulation and to warm up the muscles. Transverse friction should be directed at tissues beneath the skin. This technique can help identify areas needing special attention. Any areas needing special attention can be addressed with deeper local work which can help breakup adhesions and align muscle fibers.

**REHABILITATION:** Rehabilitation massage focuses on gentle soft tissue techniques aimed at relaxing muscle spasms. Passive and active techniques can be utilized to improve range of motion, thereby thwarting the possibility of future injury.
CHAPTER 2
SPORTS MASSAGE STROKES AND SOFT TISSUE TECHNIQUES

COMPRESSION:

Compression technique can be described as a quick pumping motion directed deep into the core of the muscle belly. This can be performed using the thumbs, fingertips, palm, loose fist, ulnar side of the hand, and even the elbow. The aim of compression is to loosen tight muscles.

DIGITAL ISCHEMIC PRESSURE:

Digital ischemic pressure involves using a finger or thumb with enough force to evoke hyperemia (a temporary ischemic reaction) and discomfort. This method can also be used to induce relaxation and deactivate trigger points.

Sustained pressure is applied to a trigger point until the therapist feels the trigger point subsiding or when the trigger point is no longer tender to compression. This process can be performed for up to 60 seconds. Follow with lengthening of the muscle by gentle stretching and ice.
EFFLEURAGE:

Effleurage is a type of massage used more than any other stroke. It employs long, soothing strokes generally performed towards the direction of the heart. The entire hand is used, not just the fingers. Pressure can be firm or gentle but continuous movement is essential. Contact should never be broken during effleurage. The aim of effleurage is to relieve stress and tension, relax the muscles, and increase circulation.

At the start of a massage, effleurage is used to spread oil over the body, evaluate tissue, and induce relaxation. Effleurage is also used as a bridge to transition between different types of strokes used throughout a massage session and to conclude a massage session.

JOSTLING:

Jostling is a brisk technique used to stimulate and warm up tissue. Muscle tissue is picked up and shook rapidly back and forth. This method often accompanies transverse friction and longitudinal stroking. Jostling is used for brief periods to prevent tightening of muscles during a massage session.
LONGITUDINAL STROKING:

Longitudinal stroking involves applying lubricant and stroking in the direction of blood flow to assist in venous and lymphatic drainage and elimination of toxins thus helping to reduce inflammation. It can be very beneficial in muscle strains. It can also be helpful in relaxing tight muscles and spasms.

Contraindications include:

1. Application in the post-acute stage of injury.
2. Application along long tendons or ligaments.
3. Application at the ends of muscles.

MYOFASCIAL RELEASE:

Myofascial release is a “hands-on” elongating muscle technique used to evaluate and address restrictions in muscles and fascia. Sustained longitudinal pressure is applied towards the direction of the restriction causing abnormal cross-linkages in the fibrous bands of connective tissue known as fascia to rupture. Cross-linkages are believed to be formed as a result of inflammation due to acute or overuse injuries.
When injury is sustained, the fibers and fascia surrounding the muscle become short and tight. Myofascial release aims to achieve prolonged lengthening of tissue thereby releasing tightness.

Benefits of myofascial release include:

Restoring flexibility and mobility.
Releasing constrictions in the muscles and fascia.
Lengthening tissues.
Reducing pain.
Improving posture.

Myofascial release can be very effective in addressing the symptoms of the following conditions diagnosed by a medical physician:

Cervical, thoracic, and lumbar pain.
Temporomandibular joint dysfunction.
Myofascial pain syndrome.
Recurring headaches.
Plantar fasciitis.
Carpal tunnel syndrome.
Fibromyalgia.
Trigger points.
Thoracic outlet syndrome.
Sports injuries.

How to perform myofascial release:

1. Palpate the body to find an area of tightness.
2. Apply a light gentle stretch to the area of tightness.
3. While applying the stretch, wait for the tissue to relax, then increase the stretch.
4. Repeat step #3 until the area is completely relaxed.
5. Begin steps 1 through 4 if other areas of tightness are present on the body.
PETRISSAGE:

Petrissage is often described as being similar to gently kneading dough. Muscles and skin are gently squeezed, lifted, and rolled in a continuous action. The aim is to lift superficial connective tissue away from underlying structures. Movement is perpendicular to the tissue and toward venous and lymphatic return. This technique is mostly on the back or fatty areas, petrissage is performed slowly using care not to cause pain or discomfort.

Only a minimal amount of massage oil or lubricant is applied to the skin. Benefits include:

1. Increasing circulation.
2. Releasing toxins.
3. Improving lymphatic drainage.
4. Relaxing muscles.

TRANSVERSE FRICTION:

Transverse friction, also known as cross-fiber friction, is typically utilized following injury or overuse of muscles, tendons, and ligaments to help reduce pain and promote tissue repair. Transverse friction is believed to prevent adhesion formation and help rupture existing adhesions.
The technique involves applying oscillating pressure using the thumbs, fingertips, or knuckles directly over the affected area transverse to the direction of the connective tissue fibers.

Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

Many practitioners recommend transverse friction as an alternative to corticosteroids injections to reduce pain and increase strength and mobility. Repeat corticosteroid injections are known to temporarily weaken the tendinous structure. Because of this, corticosteroid injections are usually limited to two or three.

In addition, although corticosteroid injections can relieve the pain and inflammation of an injury, they also can give the athlete a false sense of cure which could put the athlete at risk for further traumatizing the weakened area during training or an event.

In the initial stages of injury, gentle transverse friction is performed with light pressure for no longer than 1 minute. During the late repair phase, more intense friction must be utilized to the area for approximately 15 to 20 minutes. Care should be used not to apply pressure directly over the bony processes of the spine.

During the therapy period, athletes should be advised to avoid all activities that bring on pain.

Transverse friction can be very effective in addressing symptoms of the following medical conditions diagnosed by a medical physician:

1. Overuse tendonitis.
2. Acutely sprained ligaments.
3. Post-acute muscle and connective tissue injuries.
4. Transverse friction is contraindicated in:
5. Bursitis.
6. Ossification of the soft tissues.
8. Infection of the skin.
9. Disorders of nerve structures.
TRANSVERSE GLIDING:

Transverse gliding is a technique using oscillating pressure perpendicular to the direction of muscle fibers in an effort to reduce areas of muscle thickening ("knots") associated with repetitive muscular contraction. These "knots" can predispose tissue to future injury even though the area may or may not be symptomatic. The method is similar to transverse friction with the exception of greater amplitude and movement between the therapist’s hands and underlying skin.

Lubricant is used to prevent discomfort and irritation due to snagging of body hair. 5 minutes of time should be spent on each muscle.

Transverse gliding should not be performed pre-event or post-event.

TRIGGER POINT THERAPY:

Trigger point therapy involves applying direct pressure to trigger points (hard, painful nodular areas within tight muscles bands) in an effort to reduce spasm and pain. Trigger points can be characterized as painful tender spots that can sometimes radiate pain or other sensations such as tingling, burning, numbness, or itching to other areas of the body. They can be the result of muscle spasm due to trauma or repeated strain and tension. They can be deactivated by applying firm pressure causing hypoxia and then reactive hyperemia of the affected muscle.
There are two types of trigger points:

Active - Trigger points that can produce and refer pain in the absence of manual pressure.

Inactive or latent – Trigger points that only produce pain upon manual pressure.

There are many possible causes of trigger points including but not limited to the following:

Chronic infection (viral or bacterial).
Toxic exposure to heavy metals or organic chemicals.
Hypoglycemia.
Arthritic joints.
Overuse of muscles.
Fatigue.
Chilling in cold weather.
Trauma.
Pelvic imbalances.
Myocardial infarction.
Gallstones.
Ulcers.
Vitamin deficiencies.
Irritable bowel syndrome.
Renal colic.

Trigger points can be worsened by the following factors:
Postural imbalances.
Chronic infection.
Fatigue.
Lack of proper sleep.
Mental, emotional, or physical stress.
Nerve entrapment.
Nerve compression.
Poor nutritional health.

Exercise but only for active trigger points.
Hints for locating trigger points include:
Restricted movement and resistance to gliding strokes.
“Knots” or “strings” in the tissue.
Changes in thickness of the tissue.
Muscle shortening.
Localized increased perspiration.
Increased tone.
Areas of ischemia.
Pain or tenderness to palpation.
Pain that increases with active or passive stretching.
Edema.
Pain with resisted contraction.

How to perform trigger point therapy:

1. Apply pressure to the trigger point for up to 30 seconds until the athlete states the pain is significantly reduced or gone.

2. Note any patterns of pain referral.

3. Apply deep effleurage, pettrisage, or friction massage and passive stretching to the area.

4. Go back to the trigger point and repeat steps 1-3 until the pain from the trigger point is gone.

5. Follow trigger point therapy with the application of ice.

VACUUM CUPPING:

Vacuum cupping is a technique used to stretch the fascia and release cross-linkages. Vacuum cupping can be performed using a cup with a vacuum pump attached or by using a cup and flame. Vacuum pumps contain a one-way valve to release pressure allowing the pump to be removed. Both techniques create negative pressure under the jar which draws skin upward, thereby stretching and lengthening the fascia.
Some sports-related conditions that may benefit from cupping:

Iliotibial band syndrome.
Plantar fasciitis.
Anterior compartment syndrome of the lower limb.
Scar tissue formation.

Seek professional medical attention by a physician for diagnosis and recommendations.

Cautions:

1. The cup should be removed if the area becomes deeper red than one would expect with normal reactive hyperemia.

2. Significant capillary rupture can result with excessive vacuum pressure.

3. The athlete should not perceive a stretch in the tissue during the initial application of cupping.

4. During the initial application, vacuum cupping should be applied for no longer than 15 seconds per area.

5. Subsequent applications of vacuum cupping can be applied for up to 90 seconds per area with the athlete perceiving a slight stretch.

6. Care should be exercised not to use excessive vacuum pressure.

7. Pain or discomfort indicates excessive vacuum pressure is being used.

8. Massage therapists should receive proper training in the modality of vacuum cupping by an instructor well-versed in this technique before performing this technique on patients.
ACHILLES TENDINITIS:

Overview

The Achilles tendon (also known as tendo achillis and tendo calcaneus) is a fibrous cord-like structure at the back of the heel that connects the gastrocnemius/soleus muscle group to the calcaneus. Approximately 6” long, the Achilles tendon is the thickest and strongest tendon in the human body. Achilles tendinitis occurs when there is an underlying degeneration of collagen tissues as a result of overuse causing the Achilles tendon and surrounding tissues to become inflamed.

Common Causes and Risk Factors

1. Overuse or misuse.
2. Excessive pronation (rolling the foot inward) or repetitive motion.
3. Poor biomechanics of the foot and ankle.
4. A recent change in footwear providing inadequate support.
5. A recent increase in activity level.
6. Fatigued calf muscles.
7. Inadequate stretching of the muscles of the lower leg.
8. Running on overly hard or uneven pavement.
9. Misalignment of the ankle joints.
10. Tight calf muscles.
11. Sports at increased risk for developing Achilles tendinitis include hill, distance and speed running, tennis, squash, volleyball and basketball.
Signs and Symptoms

1. A diffuse aching or burning pain from the calf to the heel.
2. Difficulty flexing or extending the foot.
3. Pain aggravated by climbing stairs or uphill running.
4. Pain lessened by wearing high-heeled shoes.
5. Pain when participating in sport.
6. Pain when taking the first steps upon awakening from sleep or prolonged rest.
7. Pain on pinching the Achilles tendon.

Prevention

1. Avoid a sudden increase in activity or training levels.
2. Perform regular stretching exercises to the lower leg and gradually add ankle rotations to the stretch.
3. Wear footwear that will prevent pronation of the ankle.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Apply ice the first three to four days following injury for 20 minutes every 4 hours.
3. Rest.
4. Elevate the affected lower leg to keep swelling down.
5. Use heel lifts to reduce Achilles tendon strain by shortening the tendon and allowing it to rest.
6. Apply gentle stretching to the gastrocnemius/soleus muscle group to stimulate connective tissue repair. Gradually add rotation of the ankle to the stretches as tolerated.
7. Reduce activity level.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Sports massage techniques to the lower leg and calf muscles will help reduce swelling, improve circulation and flexibility, and prevent build-up of adhesions.
3. Apply transverse friction technique to the Achilles tendon for 2 to 5 minutes. The technique involves applying oscillating pressure using the thumbs, fingertips, or knuckles directly over the affected area transverse to the direction of the connective tissue fibers. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

4. Apply pressure in a circular direction using your first two fingers on each side of the Achilles tendon. Pressure should be gentle enough not to cause the athlete pain. Slight discomfort during the procedure is normal. Apply circular motions for approximately 2 to 5 minutes.

5. Ice may be applied post-massage for 10 minutes.

ACHILLES TENDON RUPTURE (TOTAL):

Overview

The Achilles tendon (also known as tendo achillis and tendo calcaneus) is a fibrous cord-like structure at the back of the heel that connects the gastrocnemius/soleus muscle group to the calcaneus. Approximately 6” long, the Achilles tendon is the thickest and strongest tendon in the human body. Total rupture of the Achilles tendon can be acutely painful. It can be the result of sudden trauma or chronic repetitive microtears in the tendon resulting in degeneration and subsequent rupture.

Common Causes and Risk Factors

1. Occurs most commonly in athletes in their 30’s and 40’s following an acute traumatic event.
2. Pushing off hard on the toes.
4. Sports at increased risk for developing total Achilles tendon rupture include tennis, racquetball, and sprinting.
5. Incorrectly performed stretching techniques.
6. Inflammatory arthropathies.
7. Local steroid injections.

Signs and Symptoms

1. A sudden onset of severe pain in the Achilles region.
2. A snapping or cracking sound or may be heard as the Achilles tendon ruptures.
3. A sudden inability to walk on the affected foot.
4. An inability to stand on tip toe.
5. Increasing swelling.

Prevention

1. Regular physical training can help maintain tendon strength.
2. Avoid a sudden increase in activity or training levels.
3. Perform regular stretching exercises correctly.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Surgical repair may be necessary.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy. Obtain physician’s approval before performing massage on patients with total Achilles tendon rupture.
2. Approximately eight weeks after surgery, longitudinal and transverse gliding techniques may be used to speed healing, reduce stiffness and improve range of motion.
3. Transverse friction technique may be applied to the Achilles tendon for 2 to 5 minutes. The technique involves applying oscillating pressure using the thumbs, fingertips, or knuckles directly over the affected area transverse to the direction of the connective tissue fibers. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

4. Apply pressure in a circular direction using your first two fingers on each side of the Achilles tendon. Pressure should be gentle enough not to cause the athlete pain. Slight discomfort during the procedure is normal. Apply circular motions for approximately 2 to 5 minutes.

5. Ice may be applied post-massage for 10 minutes.

ACHILLES TENDON RUPTURE (PARTIAL):

Overview

The Achilles tendon (also known as tendo achillis and tendo calcaneus) is a fibrous cord-like structure at the back of the heel that connects the gastrocnemius/soleus muscle group to the calcaneus. Approximately 6” long, the Achilles tendon is the thickest and strongest tendon in the human body. Partial rupture of the Achilles tendon occurs when the tendon tears but not completely. The athlete may be unaware of the tear at the time of injury. It can be the result of sudden trauma or chronic repetitive microtears in the tendon resulting in degeneration and subsequent rupture.

Common Causes and Risk Factors

1. Occurs most commonly in athletes in their 30’s and 40’s following an acute traumatic event.
2. Pushing off hard on the toes.

4. Sports at increased risk for developing partial Achilles tendon rupture include tennis, racquetball, basketball, volleyball, and sprinting.
5. Incorrectly performed stretching techniques.
6. Inflammatory arthropathies.
7. Local steroid injections.

Signs and Symptoms

1. A sudden onset of sharp pain in the Achilles region. Sometimes pain will not be felt immediately but will come on later.
2. Stiffness in the Achilles tendon upon waking in the morning.
3. A small swelling in the Achilles tendon.

Prevention

1. Regular physical training can help maintain tendon strength.
2. Avoid a sudden increase in activity or training levels.
3. Perform regular stretching exercises correctly.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following partial rupture of the Achilles tendon.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy. Obtain physician’s approval before performing massage on patients with partial Achilles tendon rupture.
2. Approximately eight weeks after surgery, longitudinal and transverse gliding techniques may be used to speed healing, reduce stiffness and improve range of motion.

3. Transverse friction technique may be applied to the Achilles tendon for 2 to 5 minutes. The technique involves applying oscillating pressure using the thumbs, fingertips, or knuckles directly over the affected area transverse to the direction of the connective tissue fibers. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

4. Apply pressure in a circular direction using your first two fingers on each side of the Achilles tendon. Pressure should be gentle enough not to cause the athlete pain. Slight discomfort during the procedure is normal. Apply circular motions for approximately 2 to 5 minutes.

5. Ice may be applied post-massage for 10 minutes.

ANKLE SPRAIN:

Overview

An ankle sprain is an injury as a result of a stretch or tear of one or more ligaments in the ankle. Ligaments are cord-like structures that connect bone to bone. Depending on the amount of ligament damage, sprains are graded I, II, or III with III being the most severe.

Common Causes and Risk Factors

1. Twisting of the ankle.
2. A sharp change in direction of movement.
3. Lack of conditioning of the structures supporting the ankle joint.
4. Inadequate stretching during warm-up.
5. A previous history of ankle injury or sprain.
6. Running on an uneven surface.
7. Inadequate footwear.
8. Sports at increased risk for developing an ankle sprain include, running, jumping, volleyball and basketball.

Signs and Symptoms

1. Pain.
2. Swelling.
4. Joint instability.
5. Discoloration of the skin at the ankle.

Prevention

1. Run or jog on even surfaces.
2. Perform regular stretching exercises.
3. Wear good quality, well-fitting footwear.
4. Avoid sudden changes in movement or direction while engaged in sports-related activities.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following ankle sprain.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Massage may be helpful in athletes with repeated ankle sprains by helping to break-down scar tissue.
3. Following the acute phase, transverse friction technique may be applied to the ligament in the stretched position for 5 to 10 minutes. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.
ANTERIOR IMPINGEMENT OF THE ANKLE (FOOTBALLER’S ANKLE):

Overview

Footballer’s ankle can cause a bony growth or spur to develop at the front of the ankle where the joint capsule attaches. This can cause inflammation in the joint capsule. Impingement occurs when the joint capsule is tight. The condition is usually a result of the ankle being overstretched.

Common Causes and Risk Factors

1. Overstretching of the ankle.
2. Having had repetitive strains or contact injuries.
3. Common in soccer players and those involved in kicking sports.
4. Having had poor rehabilitation following an ankle injury.

Signs and Symptoms

1. Pain at the front of the ankle.
2. Reduced dorsiflexion of the ankle.
3. Tenderness over the anterior talofibular ligament.

Prevention

1. Complete rehabilitation for any ankle injuries.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Surgical repair may be necessary.
3. Physical therapy may be necessary.
Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy. Seek the advice of a physician before performing massage on patients with footballer’s ankle.
2. Following the acute phase or surgery, transverse friction technique may be applied to the ligament in the stretched position for 5 to 10 minutes. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

CALF MUSCLE TIGHTNESS:

Overview

Tight calf muscles (gastrocnemius and soleus) is a common problem in athletes. Microtears in the muscles cause them to spasm or contract making it difficult for blood to circulate in them. This causes the muscles to tighten.

Common Causes and Risk Factors

2. Poor stretching techniques.
3. Excessive exercising.

Signs and Symptoms

1. Limitation of ankle joint movement.
2. Pain in the calf.
Prevention

1. Practice good stretching techniques.
2. Avoid a sudden increase in activity or training levels.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. A stretching program.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy. A potentially fatal condition called deep vein thrombosis, which can cause pain in the calf, should be ruled out by a physician before massage is performed.
2. Tight calf muscles tend to respond to deep massage techniques.
3. Start with effleurage for 5 to 10 minutes to warm up the muscles and prepare them for deeper work. Stroke upwards from the heel to the knee. Stroking towards the heart will prevent damage to the veins. Use slow stroking movements.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.

CARPAL TUNNEL SYNDROME:

Overview

Carpal tunnel syndrome, the most common of the repetitive motion disorders, is a medical condition produced by compression and entrapment of the median nerve in the wrist.
The median nerve is a pencil-sized cord containing thousands of nerve fibers. The flexor tendons which control finger movement and the median nerve are contained within a tunnel-like structure called the carpal tunnel. Each tendon is surrounded by a protective covering called the synovial sheath. Certain medical conditions or highly repetitive use of the hands may cause this sheath to swell. As pressure within the carpal tunnel increases, the median nerve may press up against the transverse carpal ligament producing carpal tunnel syndrome.

This syndrome has been the focus of much debate over recent years due to suggestions that occupations requiring continuous repetitive motions of the hands may be at higher risk. Although there are many reasons for developing this swelling of the tendon, it can result from repetitive and forceful movements of the wrist during work and leisure activities.

Common Causes and Risk Factors

There are many causes of carpal tunnel syndrome. Any condition that reduces the size of the carpal tunnel can cause this syndrome. The following non-occupational factors can predispose one to developing carpal tunnel syndrome. These conditions and situations may increase pressure in the carpal tunnel resulting in compression of the median nerve.

1. Fluid accumulation in the tunnel.
2. Bony or ligamentous changes in the tunnel.
3. Inflammation of the tendon sheaths in the tunnel.
4. Tumors.
5. Diabetes mellitus.
6. Hypothyroidism.
7. Rheumatoid arthritis.
8. Acromegaly.
10. Lupus.
11. Multiple sclerosis.
15. Sarcoidosis.
16. Wrist cysts.
17. Wrist fractures or dislocations.
18. Pregnancy.
19. Use of oral contraceptives.
20. Hormonal changes or menopause.
21. Regularly sleeping with the wrist held in an acutely bent position.
22. Regularly engaging in repetitive and forceful movements of the wrist during leisure activities.
23. Multiple myeloma.
24. Leukemia.

Some of the sports or hobbies that require chronic repetitive hand motions putting one at risk for developing carpal tunnel syndrome include:

1. Knitting.
2. Golf.
3. Fishing.
5. Needlepoint.
6. Tennis.
7. Rowing.
8. Archery.
9. Racquetball.
11. Skiing.
12. Ping-pong.
13. Hockey.
15. Gymnastics.

Carpal tunnel syndrome is a common work-related injury. When related to repetitive maneuvers, carpal tunnel syndrome is also known as a repetitive stress injury. In the workplace, carpal tunnel syndrome can be brought on by rapid, repetitive use of the hand and fingers for many hours at a time, on a daily basis.
Occupations that require repeated flexion/extension of the wrist, strong gripping, awkward hand positions, mechanical stress on the palm, or use of vibrating tools are particularly at risk for developing carpal tunnel syndrome. Research by the National Institute for Occupational Safety and Health (NIOSH) indicates that job tasks involving highly repetitive manual acts, or necessitating wrist bending or other stressful wrist postures, are connected with incidents of carpal tunnel syndrome or related problems. The more risk factors involved, the greater the chance of developing the condition.

Moreover, it is apparent that this hazard is not confined to a single industry or job but occurs in many occupations, especially those in the manufacturing sector. Jobs involving cutting, small parts assembly, finishing, sewing, and cleaning seem predominantly associated with this syndrome. The factor common in these jobs is the repetitive use of small hand tools.

Carpal tunnel syndrome can also be due to trauma from repetitive work such as that of supermarket checkers, assembly line workers, meat packers, typists, accountants, and writers. As such, there is a higher risk of developing carpal tunnel syndrome in the following occupations:

1. Massage therapist.
2. Data entry clerks or those who work at a computer terminal.
3. Assembly-line workers.
4. Dentists and dental hygienists.
5. Letter sorters.
6. Hairdressers.
7. Cashiers or supermarket checkers.
10. Welders.
11. Press operators.
12. Carpenters.
14. Medical transcriptionists.
15. Meat cutters.
17. Farmers.
18. Gardeners.
19. Painters.
20. Locksmiths.
21. Janitors or maids.
22. Typists.
23. Food servers.
25. Accountants.
26. Writers.
27. Sign language interpreters.
28. Construction workers.

Signs and Symptoms

1. Numbness, tingling, or pain in the thumb, index, or ring fingers.
2. Symptoms in the hand or wrist that disrupt sleep.
3. Symptoms initially worse at night and early in the morning.
4. Aching pain extending into the forearm or possibly even up the shoulder.
5. Redness or swelling of the forearm and hand.
6. Weakened hand and finger grip.
7. Trouble grasping or dropping objects more frequently.
8. Pain or burning in the wrist or fingers.
9. Increased or decreased sense of touch.
10. “Clumsiness” or poor coordination of the hands and fingers.
11. Difficulty making a fist.
12. Difficulty fastening buttons or unscrewing bottle tops.
13. Limited range of motion of the wrist.
14. Shrinking in size of the thumb on the affected side.

Prevention

There are many steps you can take to help prevent carpal tunnel syndrome. Knowing the risk factors will help you identify which activities are posing a risk. If you think you are at risk, you can often prevent carpal tunnel syndrome through proper hand positioning and hand exercises.
Some important tips to help prevent carpal tunnel syndrome are:

1. If possible, rotate job tasks on a regular basis to prevent overuse of the same muscles.

2. Reduce the number of motions involved in completing a repetitive task.

3. Reduce the amount of pressure you exert when completing a task.

4. Perform exercises to strengthen your hand and wrist.

5. Choose to utilize tools that reduce or eliminate the need for wrist bending.

6. Avoid the use of vibrating tools or insulate tools to reduce the vibration.

7. Take frequent breaks from using your hands throughout the workday.

8. Use tools that keep your wrist relaxed and in a neutral position.

9. Reduce time spent on hobbies requiring repetitive hand movements such as knitting and needlepoint.

10. To rest your wrists during breaks, use a support pad for your computer keyboard.

11. Avoid the use of too much salt if you have a tendency to retain fluid.

12. Stop any activity that produces pain or numbness in the fingers, hand, or wrist.

13. Consider switching to an ergonomically-designed workstation that reduces awkward wrist positions.

14. Consider implementing a plan of job rotation among workers.

15. Consider redesigning tools used to complete repetitive tasks.

16. Educate workers regarding carpal tunnel syndrome prevention.

17. Position your computer monitor directly in front of you and at eye level.

18. Use a keyboard with a soft-touch and do not pound the keys when typing.
19. Position your keyboard at elbow height or lower and use a keyboard drawer if necessary.

20. Avoid working in a cold environment as cold temperatures have been found to increase the risk of developing carpal tunnel syndrome.

21. When typing, keep your wrists in a straight position and move only your fingers.

22. Use appropriate force and relax your grip when performing tasks.

23. Cross-train and rotate workers across jobs.


25. If obese, take measures to reduce your weight.

26. If much of your time is spent writing by hand, use a thick pen with a soft grip.

27. If using a computer daily for extended periods of time, use a trackball instead of a mouse.

28. Use an ergonomically-designed chair with a height-adjustable seat and backrest, armrests, and wheels.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.

2. Rest.

3. Wrist brace or splint.

4. Yoga.

5. Anti-inflammatory medication.

6. Diuretic medication (water pills).

7. Limited corticosteroid injections.

8. Carpal tunnel release surgery.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Following the acute phase and reduction of swelling, deep friction massage may be performed in an effort to improve circulation and break down adhesions. Massage in the direction of the tendon along the flexor retinaculum. This may help reduce pressure on the median nerve. Avoid direct pressure on the median nerve.

COMPARTMENT SYNDROME:

Overview

Compartment syndrome is believed to occur when impact or injury causes a build up of pressure within a closed anatomic space. This can occur in different areas throughout the body but is more common in the leg, particularly in runners. This syndrome can occur either acutely or chronically.

Common Causes and Risk Factors

1. Increased intracompartmental osmotic pressure due to muscle swelling may be a possible etiology.
2. Repetitive impact or injury.
3. Long bone fractures.

Signs and Symptoms

1. Pain with ambulation usually relieved by rest (in the leg).
2. Swelling and tenderness.
3. Paresthesias.
4. Sensory deficits.
5. Weakness.

Prevention

1. Avoid repetitive impact or injury.
Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Rest.
3. Apply ice to the area if acute.
4. Apply heat to the area if chronic.
5. Surgery in the form of fasciotomy may be indicated.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last anywhere from 48 hours post injury to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage.
   1. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
   2. Apply trigger point therapy to any trigger point areas.
   5. Finish off with petrissage and effleurage.

FOOT STRESS FRACTURE:

Overview

Foot stress fractures occur from the repetitive stress of the foot striking the ground. When foot muscles become fatigued, they are unable to absorb shock and begin to transfer the stress to the bones, thereby creating a tiny fracture.
Common Causes and Risk Factors

1. Overworn or poorly fitting footwear.
2. Athletes that participate in high-impact sports.
3. Female factors such as osteoporosis, eating disorders, or abnormal menstrual cycles.
4. A sudden shift from a sedentary lifestyle to intense physical activity.
5. Changing surfaces on which physical activity is performed.
6. Improper form or exercise technique.
7. Sports at increased risk for developing foot stress fractures include basketball, ballet, running, gymnastics, and tennis.

Signs and Symptoms

1. Pain in the foot.
2. Localized soreness and swelling over a bone in the foot.

Prevention

1. Allow sufficient rest between training sessions.
2. Slowly increase training intensity.
3. Maintain an adequate amount of calcium in the diet.
4. Wear quality running shoes in good condition.
5. Take a break from training if you experience any foot pain.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Take a break from the activity that caused the stress fracture for six to eight weeks to allow for healing.
3. When returning to activity, slowly build up training intensity.
4. Crutches may be advised by your physician.
5. Stretch the muscles of the lower leg just before returning to activity.
Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy. Seek the advice of a physician before performing massage on patients with suspected foot fractures.
2. Apply gentle transverse friction massage in an up and down motion to the bottom of the foot. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.
3. Apply deep friction in a circulation motion to any tight spots on the foot. Avoid applying pressure directly over the stress fracture.
4. Utilize trigger point therapy to any trigger points found on the foot.

GROIN STRAIN:

Overview

A groin strain is a pull injury to the adductor muscles. The adductor muscles help bring the legs together. A groin strain can range from a slight stretching to a more serious rupture of the muscles that attach the pelvis to the femur.

Common Causes and Risk Factors

1. Running.
2. A sharp change in direction of movement.
5. Sudden changes in movement or direction while engaged in sports-related activities.
6. Pressure applied to the groin muscles.
7. Lack of physical conditioning.
8. Inadequate warm-up.
9. Sports at increased risk for developing foot groin strain include football, hockey, running, basketball, tennis, and racquetball.

Signs and Symptoms

1. Localized point tenderness in the groin.
2. Pain with active and resistive motion.
3. Pain with adduction of the hip.
4. A palpable gap in the adductor muscles.
5. Swelling.

Prevention

1. Perform an adequate warm-up routine.
2. Perform regular stretching exercises.
3. Perform strengthening exercises such as machine adductions.
4. Avoid sudden changes in movement or direction while engaged in sports-related activities.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) immediately and for the first three to four days following the onset of a groin strain.
3. Rest.
4. The use of crutches may be recommended by a physician.
5. Surgery may be necessary for a complete tear of the adductor muscles.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last anywhere from 48 hours post injury to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Following the acute phase, apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
5. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
6. Apply trigger point therapy to any trigger point areas.
7. Finish off with petrissage and effleurage.

HAMSTRING CONTUSION:

Overview

A hamstring contusion is a result of the hamstring muscle being crushed against the bone which results in tearing of the muscle. The hamstring muscle group consists of the semitendinosus, semimembranosus, and biceps femoris. Hamstring contusion is common in contact sports such as football and wrestling.

The injury can vary in severity from grade I to III with grade III being the most severe.

Common Causes and Risk Factors

1. Direct trauma to the hamstring area.
2. Sports at increased risk for developing hamstring contusion include football and wrestling.
Signs and Symptoms

1. Pain in the hamstrings.
2. There may or may not be swelling or bruising.
3. Limited range of movement.
4. Inability to walk properly if severe.

Prevention

1. Avoid direct trauma to the hamstring area.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations. Seek medical attention immediately if there is severe pain in the hamstring area.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of a hamstring contusion.
3. Therapeutic ultrasound.
4. Electrical stimulation.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last anywhere from 48 hours post injury to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Following the acute phase, apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
5. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
6. Apply trigger point therapy to any trigger point areas.
7. Finish off with petrissage and effleurage.

HAMSTRING STRAIN:

Overview

A hamstring strain is a result of a tear in one or more of the hamstring muscles (semitendinosus, semimembranosus, and biceps femoris). The injury can range in severity from microtears in the muscles to a complete rupture of the muscles.

Common Causes and Risk Factors

1. An imbalance between the quadriceps and hamstring muscles.
2. Poor conditioning of the hamstring muscles.
3. Fatigued hamstring muscles.
4. Overload.
5. Accelerating too fast.

Signs and Symptoms

1. Pain in the back of the leg.
3. There may or may not be swelling or bruising.
4. The inability to walk properly if severe.
5. May not be able to fully extend the knee.

Prevention

1. Perform hamstring stretching and strengthening exercises.
2. Keep a balance in strength between the hamstring muscles and quadriceps.
Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations. Seek medical attention immediately if there is severe pain in the hamstring area.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of a hamstring strain.
4. The use of crutches may be recommended by a physician.
5. Therapeutic ultrasound.
7. Surgery may be necessary for a complete rupture of the muscle.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last anywhere from 48 hours post injury to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Following the acute phase, apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
5. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
6. Apply trigger point therapy to any trigger point areas.
7. Finish off with petrissage and effleurage.
ILIOTIBIAL BAND SYNDROME (RUNNER’S KNEE):

Overview

Iliotibial band syndrome is a common cause of knee pain in runners. The iliotibial band, also known as iliotibial tract, is a fibrous band of tissue on the lateral surface of the thigh. Knee pain and inflammation are caused by the iliotibial band and lateral femoral epicondyle rubbing together usually as a result of overtraining.

Common Causes and Risk Factors

1. Overtraining.
2. Sports at increased risk for developing iliotibial band syndrome include running and sprinting.
3. Fatigued tensor fasciae latae muscle and iliotibial band.
4. Inadequate footwear.
5. An imbalance between the quadriceps and hamstring muscles.
6. Running on uneven or hard surfaces.

Signs and Symptoms

1. Lateral knee pain.
2. Pain worsened when running uphill or on uneven surfaces.
3. A popping sound in the knee while running may be heard.

Prevention

1. Perform an adequate warm-up routine.
2. Perform regular stretching exercises.
3. Run or jog on even surfaces.
5. Avoid sudden changes in training intensity.
Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of iliotibial band syndrome.
4. Limited corticosteroid injections.
5. Physical therapy.
6. Exercise modification.
7. Anti-inflammatory medication.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last anywhere from 48 hours post injury to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Following the acute phase, apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
5. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
6. Apply trigger point therapy to any trigger point areas.
7. Finish off with petrissage and effleurage.
LATERAL EPICONDYLITIS (TENNIS ELBOW):

Overview

Lateral epicondylitis is a common overload injury associated with inflammatory changes around the wrist extensors of the forearm. Overuse can cause the tendons that attach to the lateral epicondyle to become inflamed. Lateral epicondylitis can also be a result of age-related degeneration of the muscles and tendons around the elbow.

Common Causes and Risk Factors

1. Overuse.
2. Age-related degeneration of the muscles and tendons around the elbow.
3. Inadequate rest between training sessions or play.
4. Using a racquet or golf club that is too heavy.
5. Incorrect swing technique.
6. Incorrect grip on the racquet or golf club.
7. Overly tight racquet strings.
8. Sports at increased risk for developing lateral epicondylitis include tennis, squash, and golf.

Signs and Symptoms

1. Pain in the elbow, upper forearm, or wrist worsened by activity.
2. Pain with resisted wrist extension.
3. Wrist weakness.
4. Pain to palpation around the lateral epicondyle.

Prevention

1. Perform an adequate warm-up routine.
2. Perform adequate stretching and strengthening exercises.
3. Perform correct swing technique.
4. Avoid sudden increases in training intensity or play.
5. Choose a racquet or golf club with a comfortable grip and weight.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first 48 to 72 hours following the onset of lateral epicondylitis.
3. Apply heat to the area.
4. A brace or support may be applied.
5. Anti-inflammatory medication.
6. Modify swing technique and correct biomechanics.
7. Stretching and strengthening exercises for the elbow.
8. Limited corticosteroid injections may be considered.
9. In rare cases, surgery may be indicated.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last anywhere from 48 hours post injury to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Following the acute phase, apply gentle transverse friction massage across the tendon with the wrist in a flexed position to help prevent adhesion formation and help rupture existing adhesions. Avoid massaging directly over the tendon attachment. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.
4. Apply deep friction in a circulation motion to any tight spots on the forearm. Avoid applying pressure directly over the tendon attachment.
5. Utilize trigger point therapy to any trigger points found on the forearm. Follow with gentle stretching.
6. Apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
7. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
8. Ice may be applied post therapy.

LOWER LEG STRESS FRACTURE:

Overview

The bones of the lower leg include the tibia and fibula. The tibia is the bone responsible for load bearing. The fibula is the bone responsible mainly for muscle attachment. It is more common for a stress fracture to occur on the tibia. Stress fractures are tiny cracks in the bone usually as a result of overload.

Common Causes and Risk Factors

1. Overload.
3. An abrupt change in running surface.
4. Repetitive impacts with the pavement.

Signs and Symptoms

1. Pain in the lower leg after running long distances.
2. Localized swelling or tenderness on the leg.

Prevention

1. Do not run when the muscles are fatigued.
2. Avoid changes in running surfaces.
Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Rest.
3. Switch to a different sport of less impact while the fracture heals.
4. Exercise the muscles of the lower leg while healing.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
3. Apply gentle transverse friction massage starting at the lower third of the shin and work upwards towards the heart. Do not apply pressure over the bone itself. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

MEDIAL COLLATERAL LIGAMENT INJURY:

Overview

Medial collateral ligament injuries usually occur as a result of trauma to the medial collateral ligament of the knee during contact sports. The ligament can be stretched, partially torn, or completely torn. Depending on the amount of ligament damage, they are graded I, II, or III with III being the most severe. The medial collateral ligament is the most commonly injured knee ligament.
Common Causes and Risk Factors

1. Trauma to the knee during sports.
2. Overuse.

Signs and Symptoms

1. Localized knee tenderness and possible swelling.
2. Possible ecchymosis (black and blue)
3. Pain on stressing the knee.
4. Possible instability.

Prevention

1. Avoid sudden changes in movement or direction while engaged in sports-related activities.
2. Avoid trauma to the knee area.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of medial collateral ligament injury.
3. Use crutches to remain non-weightbearing until the pain subsides.
4. A knee support may be advised.
5. Stretching and strengthening exercises.
6. Anti-inflammatory medication.
7. In rare cases, surgery may be advised.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last around five days to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Following the acute phase or surgery, transverse friction technique may be applied to the ligament in the stretched position for 5 to 10 minutes. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

MEDIAL EPICONDYLITIS (GOLFER’S ELBOW):

Overview

Golfer’s elbow is one of the three most common conditions affecting the elbows of athletes. Overuse can create microtears in the tendons and muscles of the elbow causing pain, decreased range of motion, and inflammation. These microtears can lead to scar tissue formation and calcium deposits.

Common Causes and Risk Factors

1. Repetitive stress to the muscles of the forearm.
2. Injury to the elbow.
3. Inadequate rest between training sessions.
4. Poor form when swinging a golf club.
5. Poor conditioning.
6. Sports at increased risk for developing foot golfer’s elbow include golf, tennis, racquetball, squash, weightlifting, and baseball.

Signs and Symptoms

1. Decreased range of motion in the elbow.
2. Pain in the inside of the forearm.
3. Wrist weakness.
4. Tingling and numbness in the forearm.
Prevention

1. Perform stretches to warm-up the muscles of the forearms prior to activity.
2. Perform strengthening exercises to maintain condition of the forearms.
3. Switch to lighter weight golf clubs or racquet.
4. Gradually increase physical activity.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of golfer’s elbow.
3. Apply heat following the acute phase.
5. Physical therapy or rehabilitation may be prescribed.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Avoid massage in the acute phase of injury.
3. Apply transverse friction to the tendon in a stretched position to help reduce pain and promote tissue repair. Transverse friction is believed to prevent adhesion formation and help rupture existing adhesions. The technique involves applying oscillating pressure using the thumbs, fingertips, or knuckles directly over the affected area transverse to the direction of the connective tissue fibers. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin. Many practitioners recommend transverse friction to reduce pain and increase strength and mobility. Start gently and gradually increase pressure. If the athlete tightens up with pain, you are using too much pressure.
4. Apply effleurage by stroking upwards in the direction of the shoulder. Gradually increase pressure.
5. Circular friction may be utilized to smooth out any knots.
6. Utilize trigger point therapy to any trigger points.
7. Use effleurage as a bridge between massage techniques.

PATELLAR TENDINOPATHY (JUMPER’S KNEE):

Overview

The patellar tendon connects the patellar to the tibia. When this tendon is stressed, it can result in inflammation or rupture. Depending on the amount of tendon damage, patellar tendinopathy is graded I, II, III or IV with IV being the most severe.

Common Causes and Risk Factors

1. Repetitive overloading.
2. Altered biomechanics of the patellofemoral joint may increase the risk of patellar tendinopathy.
3. Weak gluteal muscles, abdominal muscles, quadriceps, and calf muscles.
4. Tight iliobibial band.
5. Sports at increased risk for developing patellar tendinitis include, running, jumping, weightlifting, volleyball, football, rugby and basketball.

Signs and Symptoms

1. Anterior knee pain worsened with jumping.
2. Tenderness to palpation over the lower patellar region.
3. Pain when contracting the quadriceps muscles.
Prevention

1. Perform hamstring stretching and strengthening exercises.
2. Keep a balance in strength between the hamstring muscles and quadriceps.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Apply ice to the area.
3. Activity modification.
4. Correction of biomechanical abnormalities.
5. Strength training.
6. Anti-inflammatory medication.
7. In rare cases, surgery may be advised.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Following the acute phase or surgery, transverse friction technique may be applied across the patellar tendon for 5 to 10 minutes. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.
3. Apply effleurage to the quadriceps by stroking upwards in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers in the quadriceps. Alternate with effleurage.
5. Apply deep friction in a circulation motion to any tight spots in the quadriceps to loosen any knots.
6. If the quadriceps are tight, apply digital ischemic pressure by sustaining pressure over a trigger point until you feel the trigger point subsiding or when the trigger point is no longer tender to compression. This process can be performed for up to 60 seconds. Follow with lengthening of the muscle by gentle stretching.
7. Finish off with petrissage, effleurage, and apply ice.
PERONEAL TENDON DISLOCATION:

Overview

The peroneal tendons originate on the outside of the calves. While standing, these muscles allow the foot to roll outwards. These tendons can be stretched, torn, or dislocated.

Common Causes and Risk Factors

1. Ankle sprains can increase risk of peroneal dislocation.
2. Ankle instability.
3. Sports at increased risk for developing peroneal dislocation include snow-skiing, gymnastics, soccer, football, rugby and basketball.

Signs and Symptoms

1. Pain or localized tenderness behind the lateral malleolus.
2. Possible swelling or ecchymosis.

Prevention

1. Strengthen the muscles around the ankles.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of peroneal dislocation.
3. Crutches may be advised to remain non-weightbearing.
4. A compression bandage or cast may be applied.
5. Anti-inflammatory medication.
6. In rare cases, surgery may be advised.
Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Following the acute phase, apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.
3. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
4. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
5. Apply trigger point therapy to any trigger point areas.
6. Finish off with petrissage and effleurage.

PIRIFORMIS SYNDROME:

Overview

The piriformis muscles are located deep in the buttocks and assist in rotating the legs outward. The sciatic nerves are located within the region of the piriformis muscles. Piriformis syndrome is a result of the piriformis muscles becoming inflamed and irritating the sciatic nerve. This can cause pain in the buttocks and down the leg of the affected side.

Common Causes and Risk Factors

1. Tight adductor muscles.
2. Tight piriformis muscles.
3. Overuse.
4. Weak abductors.
5. Running uphill or downhill.
6. Running on uneven surfaces.
7. Prolonged sitting.  
8. Stairclimbing.  

Signs and Symptoms  
1. Pain and tenderness in the buttock region.  
2. Tingling or numbness in the buttock region.  
3. Pain down the back of the leg.  

Prevention  
1. Avoid running uphill or downhill.  
2. Avoid running on uneven surfaces.  

Possible Physician Recommendations  
1. Seek professional medical attention by a physician for diagnosis and recommendations.  
2. Apply heat.  
3. Hip range of motion exercises.  
4. Stretching and strengthening of the piriformis muscle.  
5. Anti-inflammatory medication.  

Sports Massage Techniques  
1. Check for contraindications to massage before proceeding with massage therapy.  
2. Following the acute phase, apply effleurage by stroking upwards in the direction of the heart. Gradually increase pressure.  
3. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.  
4. Apply deep friction in a circulation motion to any tight spots to loosen any knots.  
5. Apply trigger point therapy to any trigger point areas.  
6. Finish off with petrissage and effleurage.
PLANTAR FASCIITIS:

Overview

The plantar fascia is a band of fibrous connective tissue that runs along the bottom of the foot from the calcaneus to the base of the toes. It provides support for the bottom of the foot while walking and running. Excessive pressure, trauma, or overstretching of the plantar fascia may cause inflammation of the fascia leading to the condition called plantar fasciitis. Sometimes, the fascia can become detached at the heel and cause a heel spur to develop.

Common Causes and Risk Factors

1. Running on hard surfaces.
2. Running uphill.
3. Obesity.
5. Inadequate footwear.
6. Sports at increased risk for developing plantar fasciitis include running, aerobics, basketball, tennis, volleyball, gymnastics, and ballet.

Signs and Symptoms

1. Pain localized to the undersurface of the foot around the heel.
2. Pain more severe upon arising in the morning.

Prevention

1. Avoid wearing old, worn-out shoes.
3. Avoid any sudden increases in training intensity.
Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Stretching and strengthening exercises for the leg and foot.
3. Rest or reduce activity level.
4. Apply ice to the area.
5. Taping of the foot may be helpful.
6. Anti-inflammatory medication.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Following the acute phase, transverse friction technique may be applied upwards from the heel to the arch of the foot. Apply pressure using the thumbs in a downward motion and repeat the process for approximately 20 minutes. If the athlete tightens up with pain, you are using too much pressure.
3. Apply deep friction in a circulation motion to any tight spots in the arch of the foot.
4. Apply trigger point therapy to any trigger point areas.
5. Avoid applying pressure at the point where the calcaneus meets the fascia as this may cause the area to become inflamed.

PERONEUS BREVIS TENDINITIS:

Overview

The peroneus brevis is a muscle that assists in plantar flexion and eversion of the foot. The muscle and its tendon originate at the lateral surface of the fibula and attach to the base of the fifth metatarsal. Peroneus brevis tendinitis occurs when the tendon of the peroneus brevis muscle becomes inflamed or ruptured.
Common Causes and Risk Factors

1. Running on hard surfaces.
2. Overuse.
3. Poor biomechanics.

Signs and Symptoms

1. Pain in the lateral aspect of the foot towards the heel.

Prevention

1. Wear supportive footwear.
2. Proper warm-up and stretching exercises.
3. Avoid running on hard surfaces.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of peroneus brevis tendinitis.
3. Anti-inflammatory medication.
4. A splint may be applied.
5. Correct biomechanical abnormalities.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Following the acute phase, transverse friction technique may be applied for 10 minutes with the tendon in the stretched position. This may assist in preventing scar tissue formation. Apply pressure using the thumbs in a back and forth motion across the peroneus brevis tendon, not lengthwise down the tendon. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin. If the athlete tightens up with pain, you are using too much pressure.
3. Apply effleurage for 10 minutes by stroking upwards in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
5. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
6. Apply trigger point therapy to any trigger point areas.
7. Finish off with petrissage and effleurage.
8. Apply ice to the area.

QUADRICEPS STRAIN

Overview

The quadriceps are a large group of muscles in the front of the thigh that assist in straightening out the knee. A strain is a partial tear in the muscle fibers of the quadriceps group. There are four muscles that comprise the quadriceps group.

1. Rectus femoris.
2. Vastus lateralis.
3. Vastus intermedius.
4. Vastus medialis.

Athletes involved in violent physical activity and rapid acceleration are most at risk for quadriceps strains. The most common muscle affected of this group is the rectus femoris. Quadriceps strains are graded I, II, or III with III being the most severe. In grade I quadriceps strains, the muscle fibers are only slightly stretched or exhibit microtears. In grade II quadriceps strains, the muscle fibers are partially torn. In grade III quadriceps strains, muscle fibers are torn completely which can result in severe pain and bruising.
Common Causes and Risk Factors

1. Lifting heavy loads.
2. Rapid acceleration.
3. Blunt trauma to the quadriceps.
4. Overuse.
5. Kicking.
7. Training in cold weather.
8. Leg presses during training at the gym.
9. An imbalance between the quadriceps and hamstring muscles.
10. Sports at increased risk for developing quadriceps strain include weightlifting, wrestling, soccer, tennis, football, rugby, squash, and sprinting.

Signs and Symptoms

1. Mild pain and tenderness. (grade I).
2. Moderate pain and tenderness. (grade II)
5. Pain at the front of the thigh.
6. Difficulty walking.
7. Mild swelling. (grade II).
8. Weakness of the quadriceps. (grade II).
9. Ecchymosis (grade II or III).
10. A palpable gap in the muscle (grade III).
12. Moderate to severe swelling. (grade III).
13. An audible “pop” may be heard at the onset of injury. (grade III).

Prevention

1. Perform proper warm-up and stretching exercises.
2. Perform strengthening exercises.
3. Practice proper biomechanics.
4. Increase training intensity gradually.
Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first three to four days following the onset of quadriceps strain.
5. A compressive bandage may be worn to control swelling.
6. Severe tears may require surgical intervention.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last around two days to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Following the acute phase, apply effleurage to the front of the thigh by stroking upwards from just above the knee in the direction of the heart. Gradually increase pressure.
4. Proceed to petrissage to help loosen the muscle fibers. Alternate with effleurage. Continue alternating techniques for 30 minutes.
5. Apply deep friction in a circulation motion to any tight spots to loosen any knots.
6. Apply trigger point therapy to any trigger point areas.
7. Finish off with petrissage and effleurage.
ROTATOR CUFF INJURY:

Overview

The rotator cuff is a group of tendons and their related muscles that assist with raising and rotating the arms. The rotator cuff muscles originate at the scapula and are attached to a group of tendons that fuse together at the shoulder joint. The muscles of the rotator cuff include:

1. Supraspinatus.
2. Infraspinatus.
3. Teres Minor.
4. Subscapularis.

A rotator cuff injury occurs when there is a tear or strain in the muscles or tendons of the rotator cuff. There are varying degrees of rotator cuff injury ranging from minor inflammation of the tendons to severe tears.

Common Causes and Risk Factors

1. Natural degeneration of the shoulder muscles due to aging.
2. Attempting to lift a load that is too heavy.
3. Repetitive overhead movement of the arm.
4. A history of previous shoulder injury may increase the risk of rotator cuff injury.
5. Poor posture.
6. Falling on the shoulder or breaking a fall with the arm.
7. A history of corticosteroid injections into the shoulder may increase the risk of rotator cuff injury.
8. Sports at increased risk for developing rotator cuff injury include baseball (pitching), swimming, weightlifting, and tennis.
Signs and Symptoms

1. Weakness of the shoulder.
2. Pain when attempting to raise the arm above the level of the head.
3. Difficulty moving the arm against resistance.
4. Stiffness of the shoulder joint.
5. Pain worse at night.

Prevention

1. Perform proper warm-up and stretching exercises.
2. Perform strengthening exercises.
3. Do not attempt to lift objects that may be too heavy.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first 48 to 72 hours following the onset of rotator cuff injury.
3. Following the acute phase, heat can be applied to help increase blood flow to the area.
4. Stretching and strengthening exercises.
5. Anti-inflammatory medication.
7. In rare cases, surgery may be advised to correct a rotator cuff tear.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. After about 48 hours post injury, apply direct ischemic pressure to the tendon at its attachment to the shoulder using a finger or thumb with enough force to evoke hyperemia (a temporary ischemic reaction) and discomfort. This method can also be used to induce relaxation and deactivate trigger points. Sustained pressure can be applied to any trigger points until the trigger point is no longer tender to compression. This process can be performed for up to 60 seconds. Follow with lengthening of the muscle by gentle stretching and ice.
3. When pain from the injury begins to subside, transverse friction friction technique may be applied to the tendon in the stretched position for 5 to 10 minutes. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.

4. Apply light effleurage starting from the mid back, up to the neck and then down the shoulders.

### SHIN SPLINTS

#### Overview

Shin splints is a term used to describe tiny tears in the leg muscles at their point of attachment to the tibia. They can occur both anteriorly and posteriorly.

#### Common Causes and Risk Factors

1. Overuse.
2. Poor running technique.
3. Excessive jumping.
4. Running on hard surfaces.
5. Overly tight muscles in the lower leg.
6. A condition known as “flatfeet” may predispose one to shin splints.
7. Over-pronation.

#### Signs and Symptoms

1. Pain in the front part of the leg during running or even walking.
2. Pain in the front part of the leg with extension of the foot.
3. Tenderness to palpation over the front part of the leg.
Prevention

1. Wear good quality, well-fitting footwear.
2. Perform an adequate warm-up routine.
3. Perform an adequate stretching routine.
4. Perform strengthening exercises for the lower leg muscles.
5. Avoid a sudden increase in activity or training levels.
6. Avoid running uphill or on hard surfaces.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Follow R.I.C.E. guidelines (Rest, Ice, Compression, Elevation) for the first 48 to 72 hours following the onset of shin splints.
3. Following the acute phase, apply heat.
5. Anti-inflammatory medication.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Apply effleurage to the anterior lower leg starting at the top of the ankle moving upwards to the knee. Gradually increase pressure.
3. Apply transverse friction massage to both sides of the lower leg working upwards. Do not apply pressure directly over the tibia bone itself. If the athlete tightens up with pain, you are using too much pressure. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin.
4. Finish off with light effleurage to the lower leg area.
TRICEPS TENDINITIS:

Overview

The triceps tendinitis occurs when the triceps muscles are strained leading to inflammation. This can be due to either blunt trauma or overuse of the triceps insertion on the olecranon.

Common Causes and Risk Factors

1. Overuse.
2. Pushing something too heavy.
3. Performing triceps extensions at the gym with too much weight.
4. Falling down and using the hands to break the fall.
5. Sports at increased risk for developing triceps tendinitis include football, rugby, weightlifting, and gymnastics.

Signs and Symptoms

1. Pain at the tip of the elbow with resisted extension.

Prevention

1. Avoid performing triceps extensions at the gym with too much weight.
2. Avoid pushing heavy weight.

Possible Physician Recommendations

1. Seek professional medical attention by a physician for diagnosis and recommendations.
2. Rest.
3. Apply ice for the first 24 to 48 hours.
5. Stretching and strengthening exercises.

Sports Massage Techniques

1. Check for contraindications to massage before proceeding with massage therapy.
2. Do not perform massage in the acute phase of injury which may last around two days to one week post injury. Physician should advise when it is safe to begin massage therapy.
3. Apply transverse friction to the tendon with the elbow bent to help reduce pain and promote tissue repair. Transverse friction is believed to prevent adhesion formation and help rupture existing adhesions. The technique involves applying oscillating pressure using the thumbs, fingertips, or knuckles directly over the affected area transverse to the direction of the connective tissue fibers. Lubricant should not be used as there should be no movement between the therapist’s hands and the underlying skin. Many practitioners recommend transverse friction to reduce pain and increase strength and mobility. Start gently and gradually increase pressure. Avoid massaging directly over the tendon attachment itself. If the athlete tightens up with pain, you are using too much pressure.
4. Apply effleurage by stroking upwards in the direction of the shoulder. Gradually increase pressure.
5. Circular friction may be utilized to smooth out any knots.
6. Utilize trigger point therapy to any trigger points.
7. Use effleurage as a bridge between massage techniques.

END OF COURSE
GLOSSARY OF TERMS

ADHESIONS: An abnormal band of scar tissue that binds normally separate structures in the body.

BURSAE: Fluid-filled sacs that help reduce friction between tissues and joints.

COMPRESSION TECHNIQUE: A quick pumping motion directed deep into the core of the muscle belly.

CONNECTIVE TISSUE: Fibrous tissue that helps bind internal structures.

CORTICOSTEROID: A steroid used clinically in many settings including hormone replacement therapy, antineoplastic, antiallergic, antiinflammatory, and to suppress the immune system.

CROSS-LINKAGES: Abnormal bonds in the fascia formed as a result of inflammation due to acute or overuse injuries.

DIGITAL ISCHEMIC PRESSURE: Using a finger or thumb with enough force to evoke hyperemia (a temporary ischemic reaction) and discomfort.

ECCHYMOSIS: Black and blue discoloration of the skin.

EFFLEURAGE: Using long, soothing strokes generally performed towards the direction of the heart.

FASCIA: Fascia is a thin layer system of tough connective tissue that weaves it way throughout the body surrounding, supporting all muscles, organs and bones of the body.

“FLATFEET”: A condition in which the longitudinal arch of the foot is absent, also known as pes planus.

HYPEREMIA: An area of increased blood flow or engorgement.

ILIOTIBIAL BAND: A thick band of tissue that provides stability to the lateral aspect of the knee.

JOSTLING: A brisk technique used to stimulate and warm up tissue. Muscle tissue is picked up and shaken rapidly back and forth.

LACTIC ACID: A product of glucose metabolism. Its presence causes a burning sensation in the muscles during vigorous athletic activity.

LIGAMENT: A tough, fibrous band of tissue that connects bones or cartilages and serves to support structures of the body in place.

LONGITUDINAL STROKING: Involves applying lubricant and stroking in the direction of blood flow. Used to assist in venous and lymphatic drainage and elimination of toxins thus helping to reduce inflammation.
MUSCLE: Contractile tissue made up of elongated fibers bound together to form bundles.

MYOFASCIAL: Myo – means muscle. – Fascial means fascia.

MYOFASCIAL RELEASE: A type of “hands-on” stretching technique used to evaluate and treat restrictions in muscles and fascia. Sustained longitudinal pressure is applied towards the direction of the restriction causing abnormal cross-linkages in the fibrous bands of connective tissue known as fascia to rupture.

PETRISSAGE: Muscles and skin are gently squeezed, lifted, and rolled in a continuous action. The aim is to lift superficial connective tissue away from underlying structures. Movement is perpendicular to the tissue and toward venous and lymphatic return.

RETINACULUM: A ligament that holds the tendons close to the bone.

R.I.C.E.: A common therapy guideline consisting of Rest, Ice, Compression, and Elevation.

SPUR: An abnormal bony growth.

TENDON: A cord-like structure made of tough white fibers that connect muscle to bone.

TRANSVERSE FRICTION: The technique involves applying oscillating pressure using the thumbs, fingertips, or knuckles directly over the affected area transverse to the direction of the connective tissue fibers.

TRIGGER POINTS: Hard, painful, nodular areas within tight muscle bands.


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