



**UltraSports**  
Massage Therapy, Inc.

# Sports Massage Certification Program

## Information Packet

Revised April 2009



# UltraSports Massage Therapy, Inc.

Pete Pfannerstill, PhD, LMT, CKTI

FL Lic.# MA 24089 • NCBTMB Prov. # 386613-00 • FL CE Prov. 50-2081

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## Introduction

Event sports massage is a rapidly growing specialty within the larger field of massage therapy. Massage professionals who work with athletes must have specialized knowledge and skills to address situations at athletic competitions engaged in by their clients and to address issues and injuries in the clinical setting as a result of such athletic activity.

The Sports Massage Certification Program, offered by UltraSports Massage Therapy, Inc., has been developed to be a comprehensive, broad-based program that teaches massage professionals basic event massage techniques and theories. The training also provides advanced clinical instruction on treating sports-related injuries and conditions. The written examination and performance evaluation test the knowledge and skills necessary to apply sports massage safely and effectively to athletes at events and in a clinical setting.

By successfully completing the Sports Massage Certification Program, the Certified Sports Massage Therapist demonstrates that he or she has the necessary knowledge and skills to provide high-level sports massage therapy to the sporting community.

The Program is offered once or twice a year. Limited space is available which will be reserved on a first come, first served basis. Your completed application and payment are the only way to reserve a space.



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## Program Requirements

Successful completion of the Sports Massage Certification Program requires that all participants:

- be currently licensed, certified or registered in their states to practice professional massage therapy;
- complete a minimum of 37 hours training with UltraSports Massage Therapy, Inc.;
- pass a written exam that is designed to evaluate the knowledge of sports massage theory and practice, basic sciences related to sports performance, basic pathology and common injury recognition and management;
- pass a performance evaluation that is designed to evaluate the sports massage skills and the application of knowledge related to working with athletes in event settings;
- participate in a minimum of five on-site massage events;
- provide a minimum of 10 hours of sports massage to each of two athletes in training;
- complete a 2-4 hour Basic Life Support course given by the American Heart Association or other nationally recognized provider, such as the American Red Cross.

It is not necessary to have completed all requirements prior to sitting for the exam and performance evaluation. When all requirements have been completed, the program certification will be mailed to the participant.

Please note that the minimum requirements for taking the UltraSports Massage Therapy, Inc. Sports Massage Certification Program are to verify basic knowledge of sports massage theory and practice, and to require a minimum level of experience working with athletes. Applicants are reminded that having attended this training does not guarantee passing the written exam or the performance evaluation. Additional study, training, practice and experience in a wide range of athletic activities are strongly recommended for successful completion of this program.

Program requirements are subject to change and may be modified as needed. Contact UltraSports Massage Therapy, Inc. for the most updated requirements.

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## Program Content Outline

Sports massage is considered a specialization beyond the entry-level practice of massage therapy. The Sports Massage Certification Program (SMCP) administered by UltraSports Massage Therapy, Inc. teaches basic event massage techniques and theories and provides more advanced clinical instruction on treating sports-related injuries and conditions. The written exam and performance evaluation assess the knowledge and skills that Certified Sports Massage Therapists must have to be able to competently provide sports massage for both amateur and professional athletes, at athletic events and in a clinical setting.

### Training

The training portion of the SMCP consists of three individual courses. The course descriptions are listed below.

#### I. Sports Massage Therapy Workshop - 5 CE hours Course # 20-2527

In this workshop, you will learn the benefits, intent, cautions and timing of sports massage treatments, learn and demonstrate commonly used sports massage techniques, learn a foundation for an event sports massage routine, and learn the steps necessary to set up an on-site sports massage event. You will demonstrate your understanding of the sports massage techniques by performing pre and/or post event routines on your classmates. Additionally, you will learn how to recognize the severity of sports related injuries and will learn how to identify symptoms of hypothermia & hyperthermia. Bring table, linens, cream and you must wear loose-fitting shorts (NO JEANS).

#### II. Sports Massage Therapy Seminar I - 16 CE hours Course #'s 20-2524

You will perform pre and/or post event sports massage routines on competitive athletes at local sporting events. You will be videotaped during the events and will receive constructive review when you return to the classroom. You will learn and demonstrate Active Isolated and PNF stretching routines. You will learn about the injury response cycle, the acute inflammatory response and other physiological aspects of athletic training. Prerequisite: SMT Workshop Course # 2821 or equivalent course or experience. Bring table, linens, cream and you must wear loose-fitting shorts (NO JEANS).

#### III. Clinical Sports Massage Seminar I - 16 CE hours Course # 20-2525

In this Seminar, you will learn and demonstrate myofascial therapy techniques that are used on professional and amateur athletes. You will learn about common physician-diagnosed, sports-related injuries, such as, iliotibial band syndrome, plantar fasciitis, rotator cuff issues, etc., and you will learn and demonstrate specific clinical sports massage routines for treating these injuries.



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## Program Content Outline (cont.)

### Written Examination

The SMCP written exam is designed to evaluate the knowledge of sports massage theory and practice, to evaluate the basic sciences related to sports performance and to evaluate the basic pathology and common injury recognition and management. The exam consists of approximately 200 questions – mainly multiple choice, but also matching, fill-in-the-blank and true-false questions. Seventy-five percent (75%) correct is a passing score. Three hours are given to complete the exam.

The following four content areas of the SMCP written exam are listed below. Consult the Written Exam Study Suggestions, Suggested References, Preparing for the Performance Evaluation, Glossary and the Muscle List in this packet for the necessary information that will be contained on the exam.

#### I. Massage Theory and Related Techniques (40-50% of exam)

A. Explain the physiological rationale, methods of application, physiological and psychological goals, indications and contraindications of:

- Friction
- Tapotement
- Palmar Spreading
- Pre event / Inter-competition / Post event massage
- Stretching/Flexibility (reciprocal inhibition, tense/relax, static, Active Isolated)
- Compression
- Compressive Effleurage
- Cross-fiber Friction
- Circular Friction
- Deep Pressure

B. Know human anatomy, physiology and kinesiology relative to athletic activity.

- Directional terms, anatomical reference planes and axis.
- Muscle origin, insertion, actions of the major muscles listed in the Muscle List.
- Movement patterns, proper stretching techniques to achieve flexibility.
- Muscle physiology, i.e., isometric, isotonic, concentric, eccentric, all or none, muscle recruitment, agonist, antagonist, and synergist.
- Musculoskeletal stresses caused by specific sports and movements.

#### II. Management of Physical Problem Conditions (40-50% of exam)

A. Know and demonstrate skill in recognizing and assessing the signs and symptoms of common injuries/conditions as they pertain to particular sports.

- Definitions of acute, chronic, mild, moderate and severe
- The body's response to injury, inflammation process and tissue repair process.
- Conducting written and verbal interviews.



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## Program Content Outline (cont.)

### Written Examination (cont.)

B. Be able to perform First Aid for the following problem conditions:

- Muscle cramps
- Strains
- Swelling
- Dehydration
- Hyperthermia
- Hypothermia

C. Be able to recognize and understand the cautions and contraindications related to the following conditions, to protect the health and safety of both athlete and therapist:

- Concussion
- Contusions
- Dislocations
- Fever
- Fractures
- Hematoma
- Hyperthermia
- Hypoglycemia
- Hypothermia
- Inflammation
- Muscle cramps
- Muscle tear
- Piriformis syndrome
- Rotator cuff strain
- Sciatica
- Shock
- Sprain
- Strain
- Stress Fracture
- Swelling

D. Know the scope of practice and role of the Sports Massage Therapist in relation to other Allied Health and Medical Professionals.

- Assessing the need for a referral
- Proper referral protocol

### III. Psycho-Social Support (5-10% of exam)

A. Establish appropriate therapist/athlete relationship to support optimal performance.

- Effectively questions athlete to determine psycho-social needs.
- Establishes appropriate emotional and social boundaries.
- Possesses good listening skills.

B. Communicates verbally and in other ways with athletes to facilitate optimal event readiness; to diminish adverse or over-reaction to a perceived problem or circumstance; and to encourage a positive attitude.

### IV. Organization and Administration (5-10% of exam)

A. Choose and assemble supplies necessary for providing sports massage at athletic events according to site and weather conditions.

B. Carry out the role assigned for sports massage personnel at each event and function as a part of the whole Healthcare team. Know legal and professional scope of practice of massage therapists in sports setting.

C. Be able to evaluate, keep records and make reports that describe the outcome of the session, athlete's condition and changes, referrals and the efficiency, effectiveness and completeness of the sports massage operation.



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## Program Content Outline (cont.)

### Written Exam Study Suggestions

Exam material is derived from a variety of sources. The information in this packet and the suggested references provided below are primary sources for study. Courses in anatomy, physiology, biomechanics and kinesiology would greatly enhance your knowledge and preparation for the exam. Terminology and descriptions of specific massage techniques vary somewhat from teacher to teacher and from text to text.

Study the Glossary for the definition of terms that will be used in the training, the exam and the performance evaluation. The following books and resources will be helpful in preparing for the written exam. They are not mandatory, nor are they the only resources that adequately address the topics covered by the exam.

### Suggested References

Benjamin, P. & Lamp, S. (1996) Understanding Sports Massage, Champaign, IL: Human Kinetics

Micheli, Lyle J. MD. (1995) The Sports Medicine Bible, NYC, NY: Harper Collins 1<sup>st</sup> Ed.

Mattes, A.L. (1995 or current) Active Isolated Stretching, Sarasota, FL: by author

Sieg & Adams. (1996 or current) Illustrated Essentials of Musculoskeletal Anatomy, Gainesville, FL: Megabooks, Inc.

Starkey & Ryan. (2002) Evaluation of Orthopedic and Athletic Injuries, Phila, PA. Davis 2<sup>nd</sup> Ed.

Juhan, Deane, (2003) Job's Body – A Handbook for Bodywork, Barrytown NY, Barrytown/Station Hill. 3<sup>rd</sup> Ed.

Flegel, Melissa. (1997) Sport First Aid, Champaign, IL: Human Kinetics

McAtee, Robert E. (1993) Facilitated Stretching, Champaign, IL: Human Kinetics





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## Program Content Outline (cont.)

### Performance Evaluation

The performance evaluation portion of the SMCP is divided into four sections. Each section is designed to evaluate the sports massage skills and/or the application of knowledge related to working with athletes in event settings. A script is used to ensure that the evaluations are graded as uniformly and objectively as possible.

During your evaluation, examiners will rate a number of skills and knowledge on a scale from 0 to 5. A rating of "5" is excellent, "4" is good, "3" is minimal, "2" is insufficient, "1" is poor, and "0" is totally incorrect. An average rating of 3.75 is necessary to pass the performance evaluation. This means that if you score low on some items and high on others, your score will "average out". You must have more than a minimum competence overall, but you do not have to be good at everything. The performance evaluation lasts approximately 20 minutes overall.

### Sports and General Body Areas Emphasized

Baseball pitching – shoulder	Distance running – lower extremities
Cycling – lower extremities	Freestyle swimming – shoulders
Cycling – neck & shoulders	Golfing – total upper body
Soccer – lower extremities	Tennis – upper extremities, shoulder, back

#### I. Specific Muscle Identification

You will be asked to locate 2 muscles, name and palpate the precise origin(s) and insertion(s) and indicate the function(s). See the Muscle List.

#### II. Pre Event Sports Massage

You will be asked to demonstrate a 5 minute pre event sports massage session appropriate for an athlete in a particular sport from the list above. Interview and assess the needs of your athlete based on his/her sport and demonstrate the necessary pre event strokes. You will be evaluated on the outlined techniques, pace and rhythm, sequence, and the body areas worked on to achieve the goals of a pre event sports massage in the sport chosen.

#### III. Post Event Sports Massage

You will be asked to demonstrate a 6-8 minute post event massage session appropriate for an athlete in a particular sport from the list above. The sport for post event will be different than the sport for the pre event part of the evaluation. In your post event demonstration, you must include an interview and assessment of the condition of the athlete after a specific sporting event. You will be evaluated on the skill and appropriateness of the outlined techniques and strokes, pace and rhythm, sequence, and the body areas worked on to achieve the goals of a post event sports massage in the sport chosen.



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## Program Content Outline (cont.)

### Performance Evaluation (cont.)

#### IV. Post Event Muscle Cramp Management

The examiner will role play having a cramp in one of the following muscles: hamstrings, gastrocnemius or quadriceps. You will be asked to respond with the appropriate management. You will be evaluated on the skill and effectiveness of the techniques used. Your demonstration of First Aid for muscle cramps should include direct compression, approximation, reciprocal inhibition, and use of ice. You will be required to demonstrate all of these techniques.

### Preparation for the Performance Evaluation

Become thoroughly familiar with the content of this packet. Study the definitions for terms found in the Glossary.

Practice the four sections of the performance evaluation until you can do them completely in the time allotted and without hesitation. Be sure the techniques you choose for each section are appropriate to the goals intended and specific to the muscle groups emphasized by that sport.

### **Concentrate on rhythm, pacing, pressure and sequence.**

Practice both pre and post event sports massage for each activity listed in the content outline. Have someone observe you and evaluate your own body mechanics. Repeated practice of the hands-on work is essential. If you do not have experience working with participants in a variety of sports or fitness activities, study with a partner who can role play the part of an athlete in different sports. Also, role play muscle cramps in various major muscles.

Participating in as many pre and post event situations for as many different activities as possible will also give you valuable experience. The endurance events such as long distance races may give you more opportunities to experience working with muscle cramping and thermal regulatory dysfunctions. Experience and practice are the keys to doing well on the Performance Evaluation. Do as much hands-on “studying” as you can.



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## General Suggestions and Instructions

### Professionalism

Appropriate attire: This will vary according to sport and environment. For the training courses you will be doing significant bodywork on your classmates, therefore, when we are in the classroom, loose fitting sports shorts (running shorts), a comfortable short sleeve shirt and sports shoes are most appropriate. Women may feel more comfortable in a sports bra or the top of a modest two piece bathing suit. When on-site at an event, knee length shorts with a collared, short sleeved polo shirt and sports shoes are required. For the written exam and performance evaluation, dress for comfort. Also, due to thermal regulation in the classroom, it may be a good idea to bring a sweatshirt or sweater. Clothes that are unacceptable are jeans, short shorts, cut-offs and tank tops.

Personal hygiene: Hands clean, fingernails trimmed, hair arranged to avoid contact with client, inoffensive breath and body odor.

### General information

Arrive at the training sites ahead of time. Because the events may necessitate road closure, it may be necessary to arrive at the venue 30 minutes in advance of race time. For the classroom sessions, we will be starting at the top of the hour, unless other arrangements have been announced.

Bring a photo I.D. and at least two No.2 pencils with erasers. Books, notebooks, reference materials, recording equipment, radios, and other items are not permitted during testing.

You may wish to bring a watch so that you can pace yourself during the written exam and performance evaluation.

Smoking is not allowed in the testing areas at any time.

During the written exam, take time to think through each question. Questions are not designed to "trick" you, but ask you to demonstrate clear knowledge of the field. There is only one best correct answer for each item. You may ask the instructor to clarify a question.

During the performance evaluation, follow the directions of the examiners who are using a script to ensure uniformity in administering the evaluation. Focus on the athlete and the work you are doing. Show confidence in your abilities.

Avoid unnecessary talking to the examiners and do not ask for feedback regarding your performance, e.g., asking "Am I doing it right?" or "Have I done this long enough?" The performance evaluation is not designed to be a learning situation, but an opportunity for you to demonstrate your acquired skills. When you have finished both the written exam and the performance evaluation, you may leave. Examiners may not discuss your performance, score, or any part of the exam with examinees at any time.



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## Examination Results

Results will be mailed to the applicant within 30 days of the exam date.

Once all SMCP requirements have been met by the applicant, including passing both the written exam and the performance evaluations, the applicant will receive a certificate and have his or her designation listed on the UltraSports Massage Therapy, Inc. website. Those who fail either or both the written exam or the performance evaluation and wish to retake it must retake that portion that he or she failed the next time the exam is given. A reapplication must be made and a \$75 fee for the exam only submitted. The courses may also be attended for a reduced fee. Contact UltraSports Massage Therapy, Inc. for the exact fees.

If the program requirements are changed prior to the next exam, documentation to meet the new requirements **MUST** be submitted at the time of registration. Applicants will be informed of the need to fulfill further requirements.

Exam materials and documentation will be kept on file for seven (7) years.

## Appeal Policy

The exam results may be appealed on the basis of:

1. Error in scoring of the written exam or performance evaluations,
2. Failure of the UltraSports Massage Therapy, Inc. to provide a proper environment, or
3. Failure of the examiners to follow the administration performance script.

An appeal must be submitted in writing within 30 days of the exam date. It shall be submitted to:

UltraSports Massage Therapy, Inc.  
3310 Chapel Creek Cir  
Wesley Chapel FL 33544

The appeal will be reviewed and a decision made whether it should be accepted or rejected. The decision shall be communicated to the applicant within 30 days of receipt of the appeal. If the appeal is accepted, the applicant may retake the failed portion at the next offering without paying the exam fee. The only case in which an applicant would NOT be required to retake the failed portion within one year would be if a scoring error is found.



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## Certification Renewal

Sports Massage Therapists certified by UltraSports Massage Therapy, Inc. are required to renew their certification by submitting documentation of continued involvement and education in sports massage. Renewal is required every three years. Notification will be sent to you prior to the expiration of your certification.

To renew your certification, each Sports Massage Therapist must submit the following:

1. A \$50.00 renewal fee, payable to UltraSports Massage Therapy, Inc.
2. A copy of your current state license, registration or certification.
3. A copy of a current Basic Life Support certificate
4. Documentation of one (1) of the following options of continued involvement.
  - A. 24 hours of continuing education in Sports Massage courses accepted by UltraSports Massage Therapy, Inc.
  - B. 12 hours of on-site participation at events, plus 12 hours of continuing education in a Sports Massage course accepted by UltraSports Massage Therapy, Inc..
  - C. Retake the SMCP written exam and performance evaluation.

### Continuing education courses:

Only subjects with specific reference to sports massage, first aid, athletics/athletes, performance, injury assessment and/or management shall be considered related to sports massage. If the course does not have these terms in the title or description, it is the responsibility of the Sports Massage Therapist to submit sufficient documentation of course content for the course to be approved. When possible, this request for approval should be done before the course is used for CEU's.

### Events:

Acceptable events include those sponsored by local Chapter Sports Massage Teams, AMTA sponsored events, intercollegiate, high school, professional sports, or municipal/statewide organizations. Documentation of participation in these events must have the signature of the event director or massage coordinator attesting your involvement. NOTE: Massage given to athletes pre and post "work out" are important for the development of your skills but DO NOT qualify as organized events. The documentation forms are the same forms as those used for the SMCP.

Send completed documentation and renewal fee to

UltraSports Massage Therapy, Inc.  
3310 Chapel Creek Cir  
Wesley Chapel FL 33544



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## Glossary

*SMCP*: Sports Massage Certification Program

### Techniques and Terminology

*Circular friction*: Friction applied in a circular motion with thumb, fingers or heel of the hand. Skin moves with thumb, fingers or heel over underlying tissue. Mainly a clinical stroke, not to be used on-site at events.

*Compression*: Rhythmic pumping action that may vary in pace and depth; can be applied with fist, palm, heel of hand, or fingertips; used to create tissue hyperemia and to spread fibers; always applied toward underlying bone; contraindicated over joints and bony prominences.

*Compressive effleurage*: Deeper effleurage stroke, performed with the intent of “wringing” out the muscle belly of metabolic waste, as in wringing out a dish rag.

*Cross-fiber friction*: Any friction technique that moves superficial tissue over the underlying structures in a direction that is generally considered “across” the fibers. Mainly a clinical stroke, not to be used on-site at events.

*Deep pressure*: Usually applied with the thumb, a braced finger, forearm or elbow. Used to treat tender points or trigger points that might be found in muscle, fascia, tendon, ligaments or joint capsule. Do not go so deep as to elicit a protective tensing response by the athlete. Mainly a clinical stroke, not to be used on-site at events.

*Direct compression*: Sustained pressure on a muscle cramp; commonly applied with full hand, fist, forearm, or elbow.

*Effleurage*: Gliding with smooth, even strokes parallel to muscle fiber over the skin; commonly applied with the palms, the ball of the thumb, finger tip pads, knuckles or forearm.

*Inter/Intra event massage*: Administered between events or races, has elements of both pre and post event.

*Palmar spreading*: Myofascial spreading stroke performed with little or no lubricant. The stroke is performed by carefully spreading apart small sections (1-2 in.) of superficial fascia with the palms; knuckles, fingertips or backs of knuckles.

*Post event massage*: Administered within three hours of end of the event; general purpose is to remove metabolic waste from system and decrease muscle spasms/tension. Increases range of motion and flexibility.

*Pre event massage*: Administered prior to event; general purpose is to invigorate and prepare the muscle for use. Increases range of motion and flexibility.



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## Glossary (cont.)

*Proprioceptive Neuromuscular Facilitation (PNF):* A method of engaging the proprioceptors to enhance normal nerve and muscle functions; for the event sports massage therapist. PNF is used to facilitate muscle relaxation. Increases range of motion and flexibility. See Stretching.

*Range of Motion (ROM):* Passive or active movement of a joint through its full or partial range of motion.

*Rocking / Shaking / Jostling:* Rocking or shaking a muscle (or muscle group or extremity back and forth; rhythmic shaking, trembling, jostling applied to specific muscles or body parts to loosen or relax.

*Stretching:* Movement of the muscle insertion away from its origin to lengthen the muscle to its full extent. Anytime stretching techniques are engaged, they must be pain-free for the athlete. The event sports massage therapist must be able to define and demonstrate proper use of:

Active Isolated: employs the contracting muscles opposite to the muscles that are to be lengthened as the movement force. The lengthening tissues are stretched from 1 to 2 seconds and then the stretch is released.

Reciprocal Inhibition: engaging the antagonist muscle in isometric contraction to improve relaxation of the agonist; the antagonist contraction is followed by a mild stretch of agonist, used as first aid for muscle cramp and to reduce general muscle tension.

Static: the muscle to be stretched (target muscle) is lengthened slowly and held in a comfortable position of tension for 15 to 30 seconds; as the sensation of tension diminishes, the athlete or therapist gently moves into a deeper stretch and holds again.

Contract-Relax: engaging the target muscle in a mild isometric contraction when it is in a lengthened position for 5 to 10 seconds; the athlete then relaxes, and the limb is moved passively into a deeper stretch. A type of PNF stretching.

*Superficial friction:* This stroke is done with the palm or the ulnar surface of the hand rapidly moving over the surface of the skin in a back-and-forth direction. Apply enough pressure to allow the hand to move rapidly over the skin to warm the superficial tissue without producing friction burns or matting of the hair. Used for pre event massage only.

*Tapotement:* Rapid and rhythmic striking of the body with hands or fingers; common forms are hacking (with ulnar side of hand or little finger), tapping (with finger tips), clapping (with open surface of flat palm), cupping (with open surface of cupped palms) when possible should be applied parallel to the muscle fibers. Used for pre event massage only.



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## Glossary (cont.)

### Skills

*Body mechanics:* Practitioner's appropriate use of own body for maximum efficiency with minimum strain; proper use of leverage and strength.

*Draping:* Covering the athlete's body appropriately for their physical and psychological comfort.

*Meets the Goals:* Ability to properly affect tissue for specific goals.

*Pressure:* Appropriate for body part and tissue condition; working gradually from light to deep pressure; monitoring client reaction to pressure.

*Rhythm / Pacing:* Include continuity, flow and variation between techniques; transitions between body areas, appropriate pace for body part and desired effect; ability to judge pace for completion of work in time allotted.

*Sequence:* Relational sequencing of techniques; general to specific and back to general.

*Specificity (areas worked):* Ability to focus in a specific area with respect to appropriate body parts or ability to address specific athlete need within the scope and timing of sports massage therapy.





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## Sports Massage Muscle List

The following are major muscles; know the origins, insertions, and functions for each. The muscles marked by an \* will be used in the Specific Muscle Identification portion of the Performance Evaluation. Sieg & Adams. (1996) Illustrated Essentials of Musculoskeletal Anatomy, will be used as the reference for muscle attachments and functions.

Adductor longus	Subscapularis
Adductor magnus	*Supraspinatus
*Biceps brachii	*Tensor fascia latae
*Biceps femoris	Teres major
Brachioradialis	Teres minor
*Deltoid	*Tibialis anterior
Erector Spinae	*Trapezius
*Gastrocnemius	*Triceps brachii
*Gluteus maximus	Vastus lateralis
*Gluteus medius	Vastus medialis
Gluteus minimus	
Gracilis	
Iliacus	
Infraspinatus	
*Latissimus dorsi	
*Levator scapula	
Oblique, external	
Oblique, internal	
Pectineus	
*Pectoralis major	
*Pectoralis minor	
*Peroneus longus	
*Piriformis	
Psoas	
Quadratus lumborum	
Rectus abdominus	
*Rectus femoris	
Rhomboid	
Sartorius	
Scalenes	
Semimembranosus	
*Semitendinosus	
Serratus anterior	
*Soleus	
*Sternocleidomastoid	



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## 1. Adductor Longus

Origin: Pubic tubercle  
Insertion: Linea aspera of the femur -middle 1/3  
Function: Adduct thigh at hip joint  
Flex thigh at hip joint

## 2. Adductor Magnus

Origin: Inferior ramus of the pubic bone  
Ischial tuberosity  
Inferior ramus  
Insertion: Length of linea aspera of the femur  
Adductor tubercle above the medial femoral condyle  
Function: Adduct thigh at hip joint  
Flex thigh at hip joint  
Extends thigh at hip joint

## 3. Biceps Brachii

Origin: Supraglenoid tubercle of scapula - long head  
Coracoid process of scapula - short head  
Insertion: Radial tuberosity of radius  
Bicipital aponeurosis  
Function: Flex supinated forearm at elbow jt.  
Supinate forearm at radial-ulnar jt.  
Flex arm at shoulder jt.

## 4. Biceps Femoris

Origin: Ischial Tuberosity - long head  
Linea aspera of the femur - short head  
Insertion: Head of fibula  
Lateral condyle of tibia  
Function: Extend thigh at hip jt.  
Lateral (external) rotate leg at knee jt.  
Flex leg at knee jt.

## 5. Brachioradialis

Origin: Lateral epicondyle of the humerus  
Insertion: Styloid process of the radius  
Function: Flex forearm at elbow jt.  
Supinate forearm at radial-ulna jt. when elbow is extended



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## 6. Deltoid

Origin: Spine of scapula  
Acromion process of scapula  
Lateral 1/3 of clavicle  
Insertion: Deltoid tuberosity  
Function: Abduct arm at shoulder jt.  
Flex arm at shoulder jt.  
Extend arm at shoulder jt.

## 7. Erector Spinae

Origin: Posterior iliac crest  
Thoracic and lumbar vertebra and sacrum bone  
Insertion: Mastoid process  
Lumbar, thoracic, and cervical vertebra  
Function: Extend trunk at vertebral jts.  
Abduct and adduct trunk at vertebral jts.  
Rotate trunk at vertebral jts.

## 8. Gastrocnemius

Origin: Lateral epicondyle of the femur  
Medial epicondyle of the femur  
Insertion: Calcaneus via the Achilles tendon  
Function: Plantarflex foot at ankle joint  
Invert foot at lower joint  
Flex leg at knee joint

## 9. Gluteus Maximus

Origin: Posterior iliac crest  
Lateral aspect of the sacrum  
Sacrotuberous ligament of the sacrum  
Insertion: Gluteal tuberosity of the femur  
Lateral condyle of the tibia via the iliotibial band  
Function: Extend thigh at hip jt.  
Lateral (external) rotate thigh at hip jt.  
Extend leg at knee jt. while standing  
Extend trunk at hip jt.

## 10. Gluteus Medius

Origin: 3/4 posterior iliac crest  
Lateral surface of the ilium  
Insertion: Greater trochanter of femur  
Function: Abduct thigh at hip jt.  
Stabilize pelvic bone on femur



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## 11. Gluteus Minimus

Origin: Lateral surface of ilium (inferior to gluteus medius)

Insertion: Anterior aspect of femur

Function: Stabilize pelvic bone on femur

## 12. Gracilis

Origin: Inferior pubic ramus

Inferior pubic symphysis

Insertion: Proximal medial shaft of tibia

Function: Adduct thigh at hip joint

Flex leg at knee joint

Flex thigh at hip joint

## 13. Iliacus

Origin: Iliac fossa of ilium

Insertion: Lesser trochanter of femur

Function: Flex thigh at hip jt.

Flex trunk at hip jt.

## 14. Infraspinatus

Origin: Spine of scapula

Infraspinatus fossa

Insertion: Greater tubercle of humerus

Function: Lateral rotate arm at shoulder jt.

Stabilizes shoulder jt.

## 15. Latissimus Dorsi

Origin: Spinous processes of lower 6 thoracic, all lumbar vertebra and sacrum

Posterior iliac crest of the pelvic

Insertion: Bicipital groove of the humerus

Function: Adduct arm at shoulder jt.

Extend arm at shoulder jt.

Medial rotate arm at shoulder jt.

## 16. Levator Scapula

Origin: C1-C4 vertebra on transverse process

Insertion: Superior angle of the scapula

Superior part of the vertebral border of the scapula

Function: Elevate scapula

Abduct and adduct head at cervical vertebra jts.

Endorotate scapula with rhomboids.



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## 17. Oblique, External

Origin: Lower 8 pair ribs  
Insertion: Iliac crest of the pelvic bone  
Linea alba  
Inguinal ligament  
Function: Compress abdomen  
Flex vertebral column at vertebral jts.  
Rotate vertebral column at vertebral jts.  
Abduct vertebral column at vertebral jts.  
Anterior support of pelvic girdle

## 18. Oblique, Internal

Origin: Iliac crest of the pelvic bone  
Inguinal ligament  
Lumbodorsal fascia  
Insertion: Lower 3 pair ribs  
Pubic bone  
Linea alba  
Function: Compress abdomen  
Flex vertebral column at vertebral jts.  
Rotate vertebral column at vertebral jts.  
Abduct vertebral column at vertebral jts.

## 19. Pectineus

Origin: Superior pubic ramus  
Insertion: Line between lesser trochanter and linea aspera  
Function: Adduct thigh at hip joint  
Flex thigh at hip joint

## 20. Pectoralis Major

Origin: Medial ½ of clavicle  
Manubrium of sternum  
Body of sternum  
1st - 6th pair costal cartilage  
Insertion: Bicipital groove according to all other refs.)  
Function: Adduct arm at shoulder jt.  
Flex arm at shoulder jt.  
Medial rotate arm at shoulder jt.  
Extend arm at shoulder jt.



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## 21. Pectoralis Minor

Origin: Ribs 2-5  
Insertion: Coracoid process of scapula  
Function: Protracts shoulder girdle  
Depress shoulder girdle

## 22. Peroneus Longus

Origin: Lateral tibial condyle  
Fibular head  
Proximal 2/3 fibular shaft  
Insertion: 1st cuneiform from behind lateral malleolus  
1st metatarsal  
Function: Evert foot at lower ankle joint  
Plantar flex foot at ankle joint

## 23. Piriformis

Origin: Anterior sacrum  
Insertion: Greater trochanter  
Function: External rotation of the femur

## 24. Psoas

Origin: Bodies of T12-L5 vertebra  
Insertion: Lesser trochanter  
Function: Flex thigh at hip jt.  
Flex trunk at hip jt.

## 25. Quadratus Lumborum

Origin: Posterior iliac crest  
3rd - 5th lumbar vertebra  
Insertion: 12th pair of ribs  
1st - 4th lumbar vertebra on transverse processes  
Function: Abduct and adduct vertebral column at vertebral jts.  
Extend vertebral column at vertebral jts.  
Depress 12th pair ribs



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## 26. Rectus Abdominus

Origin: Pubic symphysis  
Pubic crest  
Insertion: Costal cartilage of ribs 5 - 7  
Xiphoid process  
Function: Flex trunk at vertebral jts.  
Compress abdomen  
Pull pelvic girdle posterior  
Depress rib cage

## 27. Rectus Femoris

Origin: AIIIS  
Above acetabulum  
Insertion: Tibial tuberosity of tibia via patellar tendon  
Function: Flex thigh at hip jt.  
Extend leg at knee jt.

## 28. Rhomboid

Origin: C6-T5 vertebra on spinous process  
Insertion: Vertebral border of scapula  
Function: Elevate and pull medial scapula  
Endorotate scapula

## 29. Sartorius

Origin: ASIS  
Insertion: Proximal medial shaft of tibia  
Function: Flex thigh at hip joint  
Abduct thigh at hip joint  
Lateral rotate thigh at hip joint  
Flex leg at knee joint

## 30. Scalenus Anterior, Medius, Posterior

Origin: C1 - C vertebra  
Insertion: 1st and 2nd pair ribs  
Function: Elevate 1st and 2nd pair of ribs  
Abduct head at cervical vertebral jts.  
Rotate head at cervical vertebral jts.



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## 31. Semimembranosus

Origin: Ischial tuberosity  
Insertion: Medial condyle of the tibia  
Function: Extend thigh at hip jt.  
Flex leg at knee jt.  
Medial (internal) rotate leg at knee jt.

## 32. Semitendinosus

Origin: Ischial tuberosity  
Insertion: Proximal medial shaft of the tibia  
Function: Extend thigh at hip jt.  
Flex leg at knee jt.  
Medial (internal) rotate leg at knee jt.

## 33. Serratus Anterior

Origin: Upper 8 or 9 pair of ribs  
Insertion: Vertebral border of scapula  
Subscapular fossa of scapula  
Function: Protract shoulder girdle, as in a punch  
Abduct arm by exorotate scapula

## 34. Soleus

Origin: Soleal line of tibia  
Fibular head  
Proximal (& lateral) 1/3 fibular shaft  
Insertion: Calcaneus via Achilles tendon  
Function: Plantar flex foot at ankle joint

## 35. Sternocleidomastoid

Origin: Manubrium of the sternum - upper border  
Medial end of clavicle  
Insertion: Mastoid process  
Function: Abduct head at cervical vertebral jts.  
Rotate head at cervical vertebral jts.  
Flex head at cervical vertebral jts.

## 36. Subscapularis

Origin: Subscapular fossa  
Insertion: Shaft of humerus  
Lesser tubercle of humerus  
Function: Medial (internal) rotate arm at shoulder jt.  
Stabilizes shoulder jt.





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## 37. Supraspinatus

Origin: Supraspinatus fossa of scapula  
Insertion: Greater tubercle of humerus  
Function: Abduct arm at shoulder jt.  
Stabilizes shoulder jt.

## 38. Tensor Fascia Latae

Origin: Anterior iliac crest  
Insertion: Lateral tibial condyle via ITB  
Function: Abduct thigh at hip joint  
Flex thigh at hip joint  
Medial rotate thigh at hip joint  
Extend leg at knee joint while standing

## 39. Teres Major

Origin: Inferior angle of scapula  
Axillary border (inferior part below teres minor)  
Insertion: Lesser tubercle of humerus  
Function: Adduct arm at shoulder jt.  
Medial rotate arm at shoulder jt.  
Extend arm at shoulder jt.

## 40. Teres Minor

Origin: Axillary border of scapula (superior to teres major)  
Insertion: Greater tubercle of humerus  
Function: Lateral (external) rotate arm at shoulder jt.  
Adduct arm at shoulder jt.  
Stabilize shoulder jt.

## 41. Tibialis Anterior

Origin: Lateral tibial condyle  
Proximal (&lateral) ½ tibial shaft  
Interosseus membrane  
Insertion: 1st Cuneiform  
1st metatarsal  
Function: Dorsiflex foot at ankle joint  
Invert foot at ankle joint



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## 42. Trapezius

- Origin: External occipital protuberance  
Ligamentum nuchae C1-C6  
Occipital ridge & C7 - T12 Vertebra
- Insertion: Spine of scapula  
Acromion process of scapula  
Lateral 1/3 of clavicle
- Function: Elevate scapula  
Extend head at cervical jt.  
Pull scapula medial  
Depress scapula

## 43. Triceps Brachii

- Origin: Infraglenoid tubercle of scapula  
Proximal end of humerus
- Insertion: Olecranon process of ulna
- Function: Extend forearm at elbow jt.  
Adduct arm at shoulder jt.  
Extend arm at shoulder jt.

## 44. Vastus Lateralis

- Origin: Greater trochanter of femur  
Lateral linea aspera of femur
- Insertion: Tibial tuberosity via patellar tendon
- Function: Extend leg at knee jt.

## 45. Vastus Medialis

- Origin: Intertrochanteric line of femur  
Medial linea aspera of femur
- Insertion: Tibial tuberosity via patellar tendon
- Function: Extend leg at knee jt.