

# CHAPTER 18

## Athletic/Sports Massage

**COMPLETION:** In the space(s) provided, write the word(s) that correctly complete(s) each statement.

1. The 1972 Olympic gold medalist who was known as “the flying Finn” and who credited daily massage with his success was (Lasse Viren) .
2. The application of massage techniques that combine sound anatomic and physiologic knowledge, an understanding of strength training and conditioning, and specific massage skills to enhance athletic performance is termed (sports massage) or (athletic massage) .
3. The study of body movement is termed (kinesiology) .
4. In sports physiology, the (overload) principle states that to improve either strength or endurance, appropriate stresses must be applied to the system.
5. If the intensity of the athletic training exceeds the body’s ability to recuperate, the result probably will be (injury or breakdown).
6. The rhythmic pumping massage manipulation that is applied to the belly of the muscle is called (compression) .
7. Increasing the amount of blood available in a body area is called (hyperemia) .
8. If pressure on a tender point causes pain to radiate or refer to another area of the body, that point is considered a (trigger point) .

9. The massage technique most often used on trigger points is (deep pressure).
10. The amount of pressure that a therapist uses on a trigger point is determined by the (tolerance of the client/athlete).
11. (Transverse or cross-fiber friction) is applied by rubbing across the fibers of the tendon, muscle, or ligament at a 90-degree angle to the fibers.
12. The British osteopath who popularized cross-fiber friction is (Dr. James Cyriax).

**SHORT ANSWER:** In the spaces provided, write short answers to the following questions.

1. Why does athletic massage enable athletes to participate more often in rigorous physical training and conditioning?

(It accelerates the body's natural restorative processes.)

2. How does athletic massage reduce the chance of injury?

(It identifies and eliminates conditions in the soft tissue that are at potential risk of injury.)

3. List four negative effects of exercise.

a. (increased metabolic waste buildup in the tissues)

b. (strains in the muscle or connective tissue)

c. (inflammation and associated fibrosis)

d. (spasms and pain that restrict movement)

4. How long does it normally take for a muscle that has been stressed to the point of fatigue to recuperate?

(48–72 hours)

5. What are two important effects of compression strokes?

a. (They increase circulation [hyperemia].)

b. (They broaden the muscle and separate fibers.)

6. In what direction is cross-fiber friction given?

(at a 90° angle to the fibers of the target tissue)



7. How long is a cross-fiber stroke?

*(The stroke must be broad enough to cover the area adequately and separate the tissue without bouncing over it.)*

8. What does the acronym PNF stand for?

*(Proprioceptive neuromuscular facilitation)*

**KEY CHOICES:** Choose the massage technique that best fits the description or is most likely to produce the following effects. Write the appropriate key letter for each of the following massage techniques in the space provided.

- |                  |                          |
|------------------|--------------------------|
| A. compression   | C. cross-fiber friction  |
| B. deep pressure | D. active joint movement |

- (C) 1. softens adhesions in fibrous tissue
- (A) 2. causes increased amounts of blood to remain in the muscle over an extended time
- (C) 3. reduces fibrosis
- (D) 4. adopted from proprioceptive neuromuscular facilitation
- (C) 5. rubbing across the fibers of the tendon, muscle, or ligament
- (B) 6. used effectively to treat tender points
- (A) 7. a rhythmic pumping action to the belly of the muscle
- (D) 8. therapist supports the body part in position while the client contracts his muscles
- (A) 9. promotes increased circulation deep in the muscle
- (C) 10. reduces the crystalline roughness that forms between tendons and their sheaths
- (D) 11. helps to counteract muscle spasm, improve flexibility, and restore muscle strength
- (A) 12. creates hyperemia in the muscle tissue
- (B) 13. deactivates trigger points and increases function to the referred area
- (D) 14. based on Sherrington's physiologic principles
- (A) 15. stretches, broadens, and separates muscle fibers
- (C) 16. encourages the formation of strong, pliable scar tissue at the site of healing injuries
- (D) 17. based on reciprocal inhibition and postisometric relaxation

**KEY CHOICES:** Choose the athletic massage application that best fits the description. Write the key letter of the application next to the description in the space provided.

A = Post-event massage

B = Pre-event massage

C = Rehabilitation massage

D = Restorative training massage

- (C) 1. focuses on the restoration of tissue function following injury
- (A) 2. given within the first hour or two after participating in an event
- (D) 3. breaks down transverse adhesions that might have resulted from previous injuries
- (B) 4. warms and loosens the muscles, causing hyperemia in specific muscle areas
- (D) 5. can locate and relieve areas of stress that carry a high risk of injury
- (A) 6. stimulates circulation and at the same time calms the nervous system
- (C) 7. reduces fibrosis caused by muscle injury
- (B) 8. given 15 to 45 minutes before an event
- (D) 9. is considered a regular and valuable part of the athlete's training schedule
- (B) 10. enables the athlete to reach his peak performance earlier in the event and maintain that performance longer
- (D) 11. allows the athlete to train at a higher level of intensity, more consistently, with less chance of injury
- (A) 12. three to four times as effective as rest in recovery from muscle fatigue
- (C) 13. shortens the time that it takes for an injury to heal
- (D) 14. makes more intense and frequent workouts possible, thereby improving overall performance
- (A) 15. prevents delayed onset of muscle soreness and reduces the time it takes for the body to recover from exertion
- (B) 16. is fast paced and invigorating
- (C) 17. accelerates healing so that the athlete's "down time" is cut to a minimum
- (C) 18. helps to form strong, pliable scar tissue
- (A) 19. given after the athlete has had a chance to cool down from the exertion of the competition or exercise



**TRUE OR FALSE:** If the following statements are true, write *true* in the space provided. If they are false, replace the italicized word with one that makes the statement true.

- (*accompanies*) 1. Pre-event massage increases flexibility and circulation and *replaces* the warm-up before an event.
- (*restorative massage*) 2. During *pre-event massage*, adhesions can be eliminated to reduce the chance of injury.
- (*relax, rejuvenate*) 3. Post-event massage is given after competition and helps an athlete *to cool down*.
- (*true*) 4. *Post-event massage* is three to four times as effective as rest in recovery from muscle fatigue.
- (*true*) 5. *Restorative massage* can resemble pre-event or post-event massage.
- (*sprain*) 6. A *strain* involves the stretching or tearing of a ligament.
- (*grade III*) 7. A *grade I* strain is the most severe.
- (*true*) 8. As a muscle fiber contracts, the sarcolemma and the *endomysium* move as a unit.

**SHORT ANSWER:** In the spaces provided, write short answers to the following questions.

1. What is the first step when giving a post-event massage?

(*Conduct a short interview to ascertain the athlete's post-event condition.*)

2. After a long race, what are some conditions that the therapist should watch for?

(*hyperthermia, exhaustion, dehydration, depression*)

3. Which action should the therapist take if strains, sprains, abrasions, or contusions are apparent?

(*Apply proper first aid and seek the assistance of the attending medical personnel.*)

4. When interviewing an athlete for determining a training massage program, what are five important questions to ask?

a. (*In which sport or sports do you participate?*)

b. (*What is the location and extent of any present trouble areas?*)

c. (*What is the location and extent of any previous injuries or surgeries?*)

d. (*What is your workout schedule, and which are your planned events?*)

e. (*To which extent will the athletic massage be incorporated in your training?*)

**COMPLETION:** In the space(s) provided, write the word(s) that correctly complete(s) each statement.

- Athletic injuries that have a sudden and definite onset and are usually of relatively short duration are considered to be (acute) injuries.
- A muscle strain in which there is severe tearing and complete loss of function is called a grade (III) strain.
- The therapist's indicator of how intensely to work on an injury site is (pain).
- Athletic injuries that have a gradual onset, tend to last for a long time, or recur often are considered (chronic) injuries.

**SHORT ANSWER:** In the spaces provided, write short answers to the following questions.

- Give six examples of acute athletic injuries.
 

a. <u>(strains)</u>	b. <u>(sprains)</u>
c. <u>(fractures)</u>	d. <u>(contusions)</u>
e. <u>(lacerations)</u>	f. <u>(dislocations)</u>
- What effect does PRICE have on soft tissue injuries?  
(It reduces pain, swelling, and spasm.)
- When can massage be started on injured tissue?  
(In the subacute stage, when swelling has subsided.)
- What are two goals that the therapist strives to achieve when working on chronic conditions?
  - (relieving the condition)
  - (identifying and eliminating the predisposing cause of the condition)



5. List two positive effects of the swelling that results from tissue damage.

a. (Swelling helps to immobilize the area.)

b. (It supplies an environment rich in leukocytes and fibroblasts.)

6. List six therapeutic modalities used in rehabilitation sport massage.

a. (Swedish techniques)

b. (Neuromuscular techniques)

c. (Lymph massage)

d. (Myofascial techniques)

e. (Hydrotherapy)

7. List three negative effects of the swelling that results from tissue damage.

a. (It causes further [secondary] tissue damage.)

b. (It further separates the ends of the damaged tissue.)

c. (It causes pressure on nerve endings, producing pain.)

**KEY CHOICES:** Identify the following conditions as either chronic or acute. Write the appropriate key letter in the space provided.

C = Chronic

A = Acute

(A) 1. dislocated shoulder

(C) 2. iliotibial band syndrome

(C) 3. shin splints

(A) 4. broken wrist

(C) 5. overuse syndrome

(A) 6. torn ligament

(A) 7. sprained ankle

(C) 8. tennis elbow

(A) 9. bruised hip

(C) 10. tendonitis

**COMPLETION:** In the space(s) provided, write the word(s) that correctly complete(s) each statement.

- The tensile strength of connective tissue is provided by (collagen fibers).
- The layer of connective tissue that closely covers an individual muscle is the (epimysium).
- Connective tissue extends beyond the end of the muscle to become (tendons).
- The perimysium extends inward from the epimysium and separates the muscle into bundles of muscle fibers or (fascicles).
- Each muscle fiber is covered by a delicate connective tissue covering called the (endomysium).
- Soft tissue injuries result in the tearing of (collagen fibers) in the connective tissue.
- Collagen fibers are produced by (fibroblasts).
- Collagen formation that reconnects the injured tissue forms (scar tissue).
- Collagen fibers that connect to structures other than the injured tissue form (adhesions) that restrict mobility.
- Proper (first aid) reduces the degree of secondary trauma following soft tissue injury.

**MULTIPLE CHOICE:** Carefully read each statement. Choose the word or phrase that correctly completes the meaning and write the corresponding letter in the blank provided.

- Kinesiology is the study of
 

a) muscles	c) body movement	<u>(c)</u>
b) cells	d) muscle strength	
- Blood remaining in muscle for an extended period is called
 

a) hyperemia	c) hyperthermia	<u>(a)</u>
b) hypertension	d) ischemia	



3. Compression strokes in athletic massage use the \_\_\_\_\_ (d)  
a) knuckles c) fingertips  
b) forearm d) palm
4. An active trigger point causes pain to \_\_\_\_\_ when palpated. (a)  
a) radiate c) dissipate  
b) evaporate d) increase
5. Shaking and jostling are performed on muscles that are \_\_\_\_\_. (d)  
a) large c) injured  
b) small d) relaxed
6. The therapist-assisted active and resistive patterned movements used in the rehabilitation of disabilities are commonly known as \_\_\_\_\_. (b)  
a) MET c) ROM  
b) PNF d) PHD
7. MET helps to counteract \_\_\_\_\_. (d)  
a) soft tissue injury c) sprains  
b) headache d) muscle spasm
8. Pre-event massage should be given this far in advance of an event: (a)  
a) 30 minutes c) 2 hours  
b) 2 days d) 6 hours
9. The most beneficial form of massage for athletes is \_\_\_\_\_ massage. (c)  
a) pre-event c) restorative  
b) post-event d) rehabilitative
10. A sprain with mild pain and minimal loss of function is classified as \_\_\_\_\_ (a)  
a) Grade I c) Grade III  
b) Grade II d) Grade IV
11. A sprain with some tearing of fibrous tissue is classified as \_\_\_\_\_. (b)  
a) Grade I c) Grade III  
b) Grade II d) Grade IV
12. Injuries that have a gradual onset or recur often are called \_\_\_\_\_. (d)  
a) sprains c) acute  
b) occupational d) chronic





intra-event massage

*(Intra-event massage is given between athletic events that are held on the same day to assist the athlete in recovering from one activity and prepare for the next.)*

PRICE

*(PRICE is an acronym for a first-aid procedure for soft tissue injuries that means Protect, Rest, Ice, Compression, and Elevation.)*

postedemic fibrosis

*(Postedemic fibrosis is the tendency of fascial sheaths to stick together following an injury after the swelling has subsided.)*

postisometric relaxation

*(Postisometric relaxation means that following an isometric contraction, there is a period of relaxation during which muscle impulses are inhibited.)*

pre-event massage

*(Pre-event massage is given 15 to 45 minutes prior to an event and prepares the body for intense activity.)*

proprioceptive neuromuscular facilitation

*(Proprioceptive neuromuscular facilitation is a system of sensory and motor nerve activity that provides information on the position and rate of movement of body parts to the CNS.)*

reciprocal inhibition

*(Reciprocal inhibition occurs when a muscle acting on a joint contracts and the opposing muscle is reflexively inhibited.)*

rehabilitative massage

*(Rehabilitative massage focuses on restoration of tissue function following injury.)*



restorative massage

*(Restorative massage is athletic massage that is considered to be a regular and valuable part of an athlete's training program, allowing the athlete to train at a higher level of intensity, with less chance of injury or fatigue.)*

sports massage

*(Sports massage is a method of massage designed to prepare an athlete for an upcoming event. It is achieved through specialized manipulations that stimulate circulation of the blood and lymph.)*

tender points

*(Tender points are palpable hypersensitive points in muscle tissue that are indications for massage release techniques.)*

transverse friction massage

*(Transverse friction massage, or cross-friction massage, is applied by rubbing across the fibers of the tendon, muscle, or ligament at a 90-degree angle to the fibers.)*