

2 Making the Grade

Complete the following table on strains and sprains.

Symptoms	Sprain or strain?	1st, 2nd, or 3rd degree?	Surgery required?
Several muscle fibres have been torn. There is decreased range of motion and moderate loss of function.	<i>Strain</i>	<i>2nd</i>	<i>No</i>
Ligament is torn. There is no pain during isometric and passive movements.	<i>Sprain</i>	<i>3rd</i>	<i>Yes</i>
A few muscle fibres have been stretched or torn. There is minor weakness and swelling.	<i>Strain</i>	<i>1st</i>	<i>No</i>
Ligament is moderately stretched. There is decreased range of motion and a moderate loss of function.	<i>Sprain</i>	<i>2nd</i>	<i>No</i>

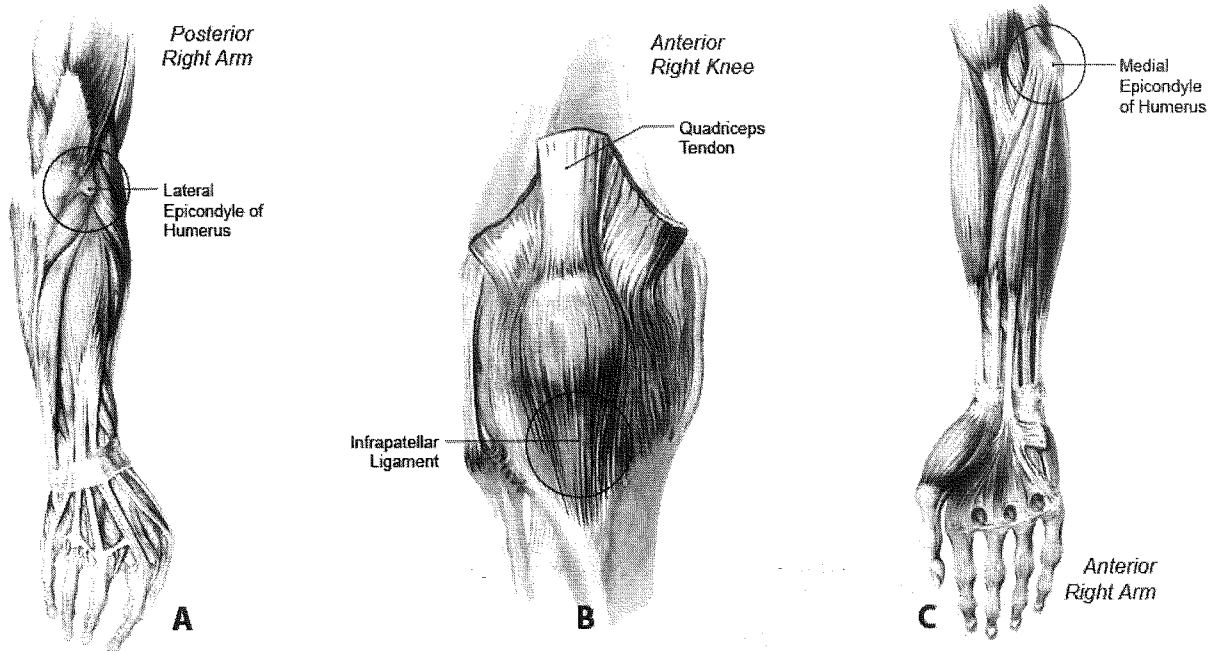
3 Identify the Injury

For the diagrams on the next page, indicate what injury is being illustrated based on the site of the injury. Then give another name that is used to describe the same injury.

A. *Lateral epicondylitis* *Tennis elbow*

B. *Patellar tendonitis* *Jumper's knee*

C. *Medial epicondylitis* *Golfer's elbow*



4 Mechanism Match

Match each sport injury listed below on the left with the mechanism of injury that best describes it on the right.

Sport Injury	Answer	Mechanism of Injury
Shoulder separation	C	A) Repetitive pitching motion
Concussion	D	B) Sudden cutting movements
Medial epicondylitis	A	C) Fall on an outstretched arm
Lateral epicondylitis	E	D) Being hit from behind headfirst into the boards
Shoulder impingement	F	E) Improper backhand form in tennis
ACL tear	B	F) Repetitive overhead activities
Contusion	G	G) Knee-on-thigh contact



5

CHECK YOUR UNDERSTANDING


 **Multiple Choice**

- Which of the following statements about the load-deformation curve is **false**:
 - The A-B segment of the curve represents the elastic region of the tissue structure.
 - The B-C segment of the curve represents the strength of the material in terms of stored energy.
 - Loads occurring in the elastic region do not cause permanent damage.
 - Permanent deformation will occur if the load exceeds a certain point.
 - None of the above.

Answer: B

- Which of the following statements about the fibroblastic repair phase is **true**:
 - It is the third phase of healing.
 - It may last as long as three weeks.
 - It begins around 24 hours after injury.
 - It leads to scar formation.
 - Both B and D.

Answer: D

- Abnormal bone formation resulting from a severe contusion to a soft tissue is called:
 - a charleyhorse
 - jumper's knee
 - myositis ossificans
 - a subluxation
 - a bone spur

Answer: C

- Which of the following statements about dislocation of the shoulder is **true**:
 - It most commonly occurs when the head of the humerus slips posteriorly.
 - A common mechanism of injury is falling backwards and landing on a flexed arm.
 - It can result in injury to the brachial plexus.
 - It is an example of an overuse injury.
 - None of the above.

Answer: C

- Which of the following is **not** an overuse injury:
 - shoulder impingement
 - tendonitis
 - stress fracture

- bursitis
- none of the above

Answer: E

 **Fill in the Blanks**

Fill in the blanks for the following statements using words from the **word bank** below. Place the corresponding letter from the word bank in the blank spaces provided.

- In the elastic region of the load-deformation curve, a tissue returns to its original shape after a load is removed.
- When a compression force crushes tissue, a contusion results.
- When a ligament or the joint capsule is stretched or torn, the injury is called a sprain.
- Avulsion fractures occur when a tendon or ligament pulls a small chip of bone away from the rest of the bone.
- Tiny fluid-filled sacs that lubricate and cushion pressure points between your bones and tendons are called bursae.

Word Bank

- | | | |
|--------------|----------------|------------|
| a. avulsion | e. contusion | i. plastic |
| b. bursae | f. dislocation | j. sprain |
| c. cartilage | g. elastic | k. strain |
| d. compound | h. fracture | l. stress |

 **True or False**

Indicate whether each statement is **true (T)** or **false (F)**. If the statement is false, provide the correct answer.

- When training loads are at or near a tissue's ultimate yield point, cells may divide to make new cells or to make proteins.

Answer: false (Correct: yield-level point)

2. Regular use of certain medications to decrease pain and inflammation may be helpful and appropriate.

Answer: false (Correct: Temporary)

3. Another common term for a complete dislocation is subluxation.

Answer: false (Correct: partial)


4. Neurosurgeons and other brain experts state that minor concussions sometimes occur.

Answer: false (Correct: never)

5. Not cooling down after a workout can lead to muscle atrophy.

Answer: false (Correct: stiffness or tightness)

Think and Link

 1. Explain what PRICE is and how you would use it in the treatment of any soft tissue injury presented in this chapter. *Protect the injury from further damage, rest the injury (i.e., stop exercising), apply ice to the injury, compress the injury with a bandage, and elevate the injury site above the heart. Specific treatments will depend on the specific injury.*

2. Distinguish between four different types of fractures, and provide an example of an action or activity that may result in each type of fracture.

Simple fracture: bone stays within the surrounding soft tissue (acute injury)

Example: Landing on someone's foot after jumping for a rebound in basketball.

Compound fracture: bone protrudes from the skin (acute injury)

Example: Fracture of arm or leg in a serious car accident.

Stress fracture: results from repeated low-magnitude training loads and results in disruption of the outer layers of cortical bone (overuse/chronic injury)

Example: Running through pain over an extended period of time.

Avulsion fracture: involves a tendon or ligament pulling a small chip of bone away from the rest of the bone (acute injury)

Example: Typically occurs in children and involves explosive throwing or jumping movements.