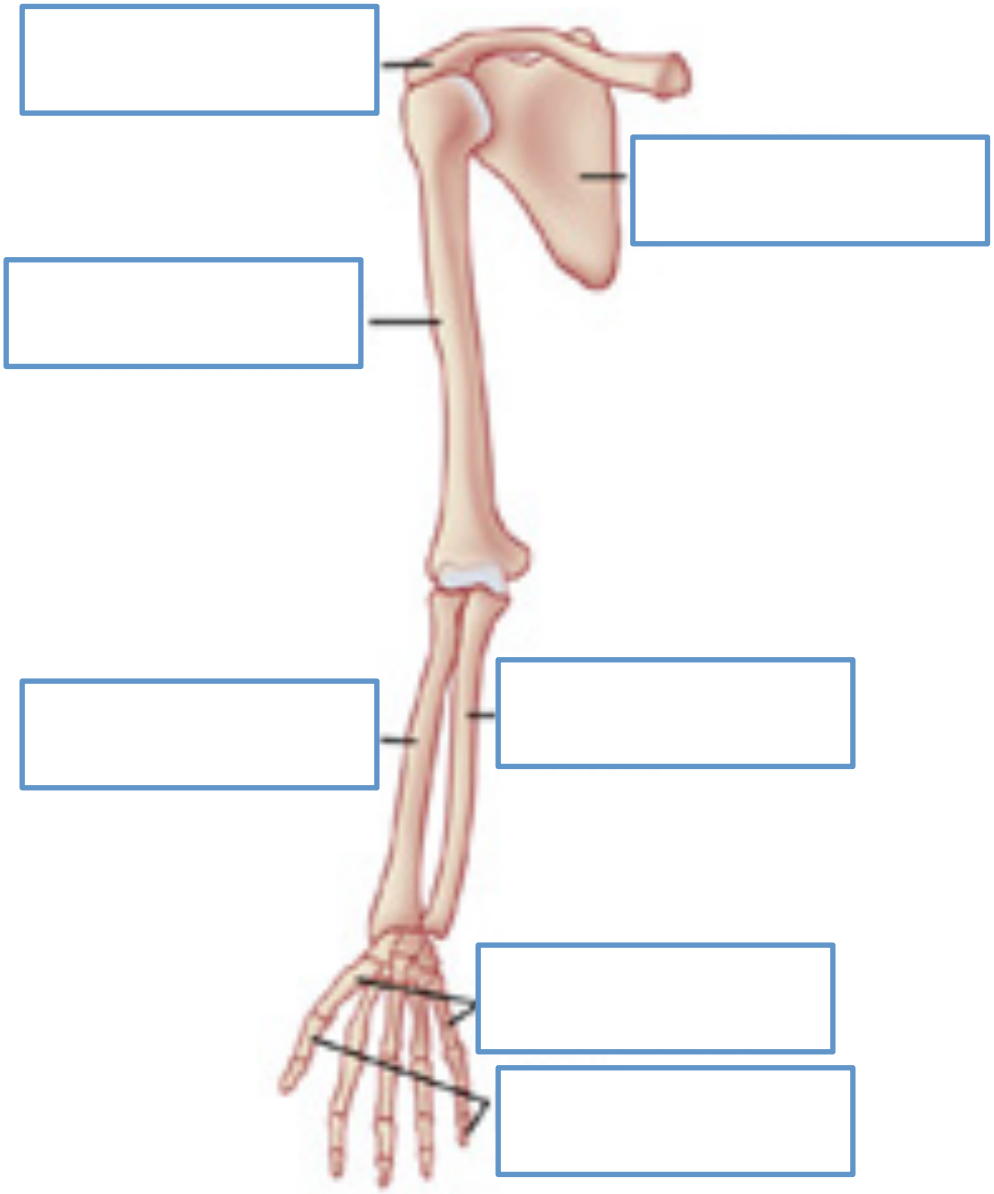
6.3 Joints: Elbow and Shoulder

Bones



Joints

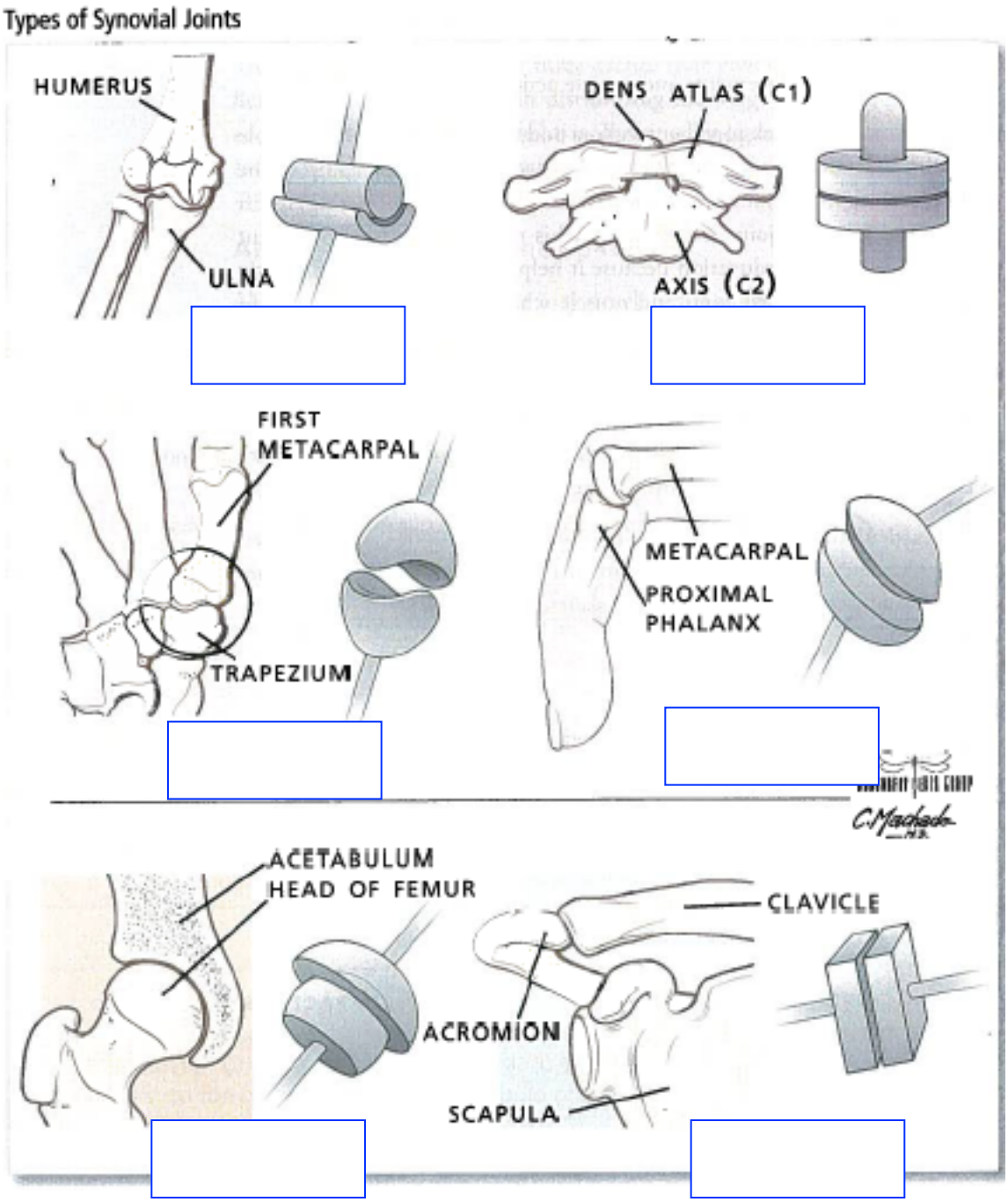
Structure	Function	Characteristics
1)		Held together by fibrous connective tissue. They do not have a joint cavity (e.g. sutures of the skull lock together the irregular-shaped bones of the skull)
2)		The ends of the bones are held together by cartilage and do not have a joint cavity for example, inter vertebral joints of the spine (slightly movable), and cartilage which joins the ribs to the sternum (immovable)
3)		Synovial joints are joints in which the articulating bones (usually long bones) are separated by a cavity filled with synovial fluid (eg knee joint)

Synovial Joint Classification and Characteristics

Type	Movement	Example Locations
1)	Gliding or slipping movements only	Intercarpal joints (between the small bones of the wrist or carpal bones)
2)	Permits flexion and extension movements only	The elbow during flexion and extension movements such as the biceps curl
3)	The rotation of a bone around its long axis is the only movement possible	The atlas and axis (1C and 2C) during rotation of the head
4)	Permits flexion/extension, abduction/adduction, and circumduction. These are called angular movements	The wrist joint where the radius articulates with the carpal bones
5)	Permit greater mobility in angular movements but does not allow rotation	The base of the thumb where the metacarpals articulate with the carpals (e.g. twiddling your thumbs)
6)	Permits all types of movements including flexion or extension, abduction or adduction, and rotation	The shoulder and hip joint are great examples of the high mobility characterized by the ball and socket

Inflammatory and Degenerative Conditions of the Joints

Condition	Description


Types of Synovial Joints
HUMERUS
ULNA
DENS
ATLAS (C1)
AXIS (C2)
FIRST
METACARPAL
TRAPEZIUM
METACARPAL
PROXIMAL
PHALANX
ACETABULUM
HEAD OF FEMUR
ACROMION
CLAVICLE
SCAPULA

Parts of a Joint

1) _____
Articular cartilage (hyaline) covers the ends of the articulating bones.

2) _____
The two bones forming the joint are enclosed by a capsule which has a tough outer fibrous connective tissue layer that holds the bones together and an inner synovial membrane that secretes synovial fluid.

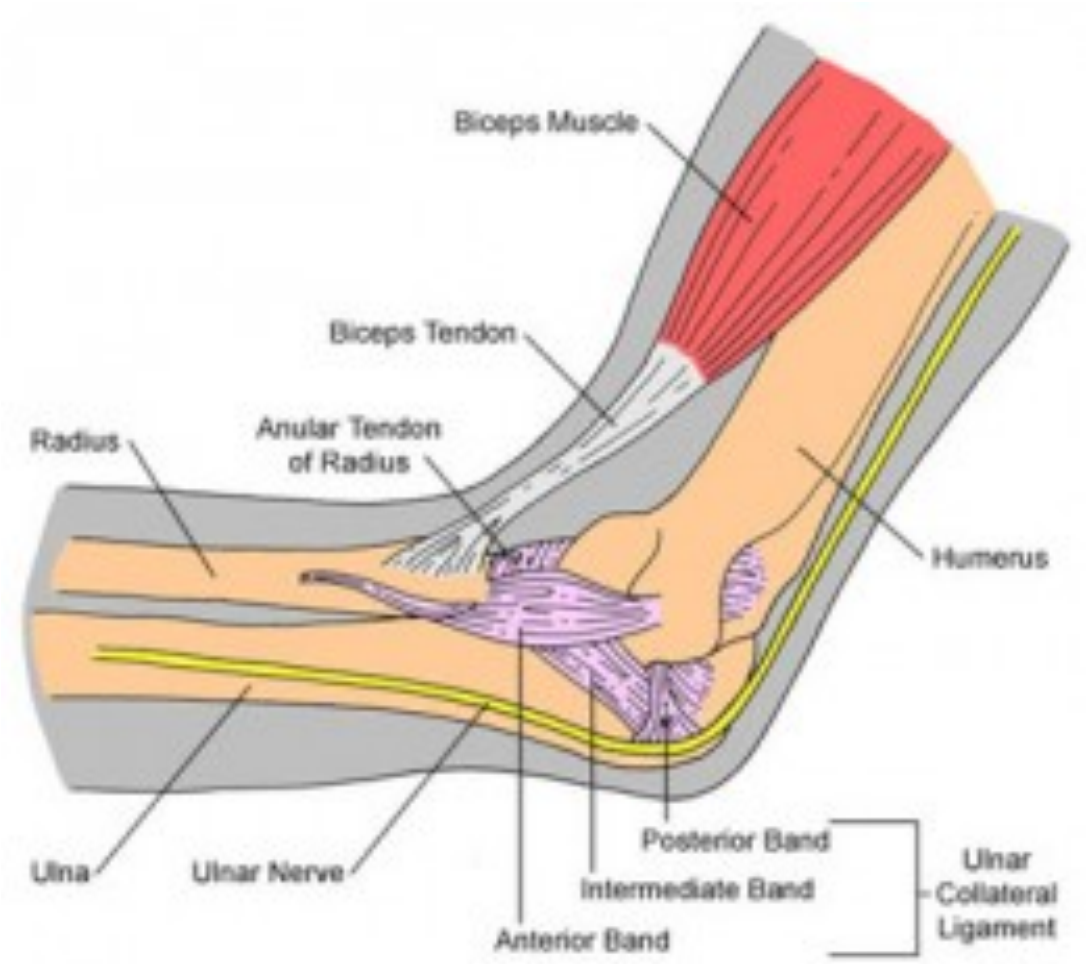
3) _____
The synovial or joint cavity is the space between the articulating bones within the articular capsule.

4) _____
Synovial fluid fills the joint cavity and assists in lubrication, shock absorption and supply of nourishment. The synovial membrane secretes the fluid.

5) _____
The ligaments join bone to bone and reinforce the inside and outside of the articular capsule.

6) _____
Bursae and tendon sheaths are not specifically part of synovial joints, but are commonly associated with them. A bursa is a bag filled with synovial fluid that lubricates, reduces friction, and cushions. Bursae are found wherever tendons, ligaments, muscles or bones rub together or come in close proximity to each other. A tendon sheath is essentially a tunnel-shaped bursa that circles around a tendon to lubricate and protect the tendon from excessive friction or pressure.

Elbow


Bicep Muscle
Bicep Tendon
Radius
Anular Tendon of Radius
Humerus
Ulna
Ulnar Nerve
Posterior Band
Intermediate Band
Anterior Band
Ulnar Collateral Ligament

Repetitive Strain Injuries

Tennis Elbow

Tennis elbow is soreness or pain on the outer part of the elbow. It happens when you damage the _____ that connect the muscles of your forearm to your elbow. The pain may spread down your arm to your wrist. If you don't treat the injury, it may hurt to do simple things like turn a key or open a door.

What causes tennis elbow?

Most of the time tennis elbow is caused by overuse. You probably got it from doing activities where you twist your arm over and over. This can stress the tendon, causing tiny tears that in time lead to pain. A direct blow to the outer elbow can also cause tendon damage. Tennis elbow is common in tennis players, but most people get it from other activities that work the same muscles, such as gardening, painting, or using a screwdriver. It is often the result of using equipment that is the wrong size or using it the wrong way.

How is it treated?

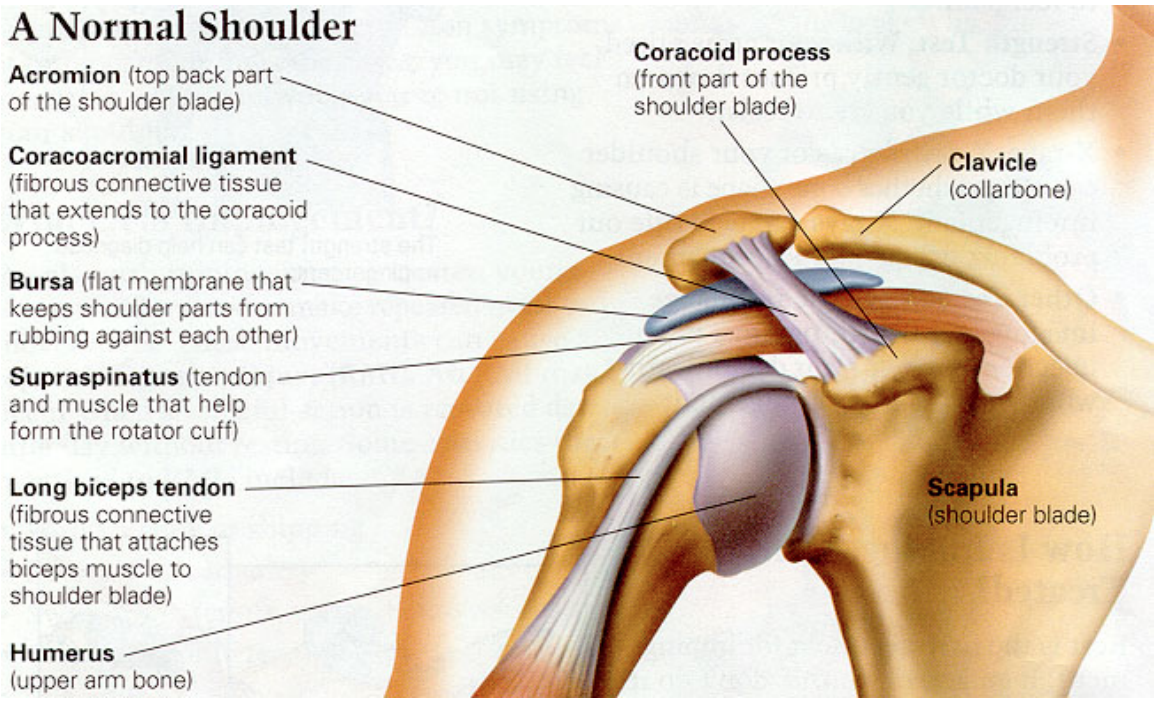
You can start treating tennis elbow at home right away.

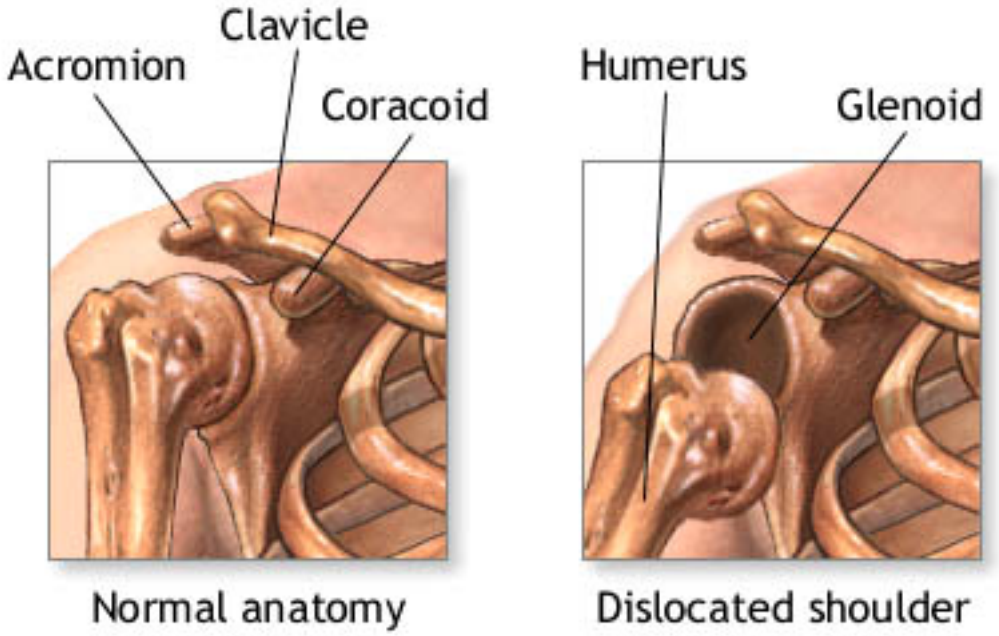
- _____ your arm, and avoid any activity that makes the pain worse.
- As soon as you notice pain, use ice or cold packs for 10 to 15 minutes at a time, several times a day. Always put a thin cloth between the ice and your skin. Keep using ice a long as it relieves pain. Or use a warm, moist cloth or take hot baths if they feel good. Do what works for you.
- Wear a _____ when you need to grasp or twist something. This is a strap around your forearm placed about _____ _____ It eases the pressure on the tendon and spreads force throughout your arm.
- Always take time to warm up before and stretch after you exercise.
- After the activity, apply ice to prevent pain and swelling.

Injury Examples

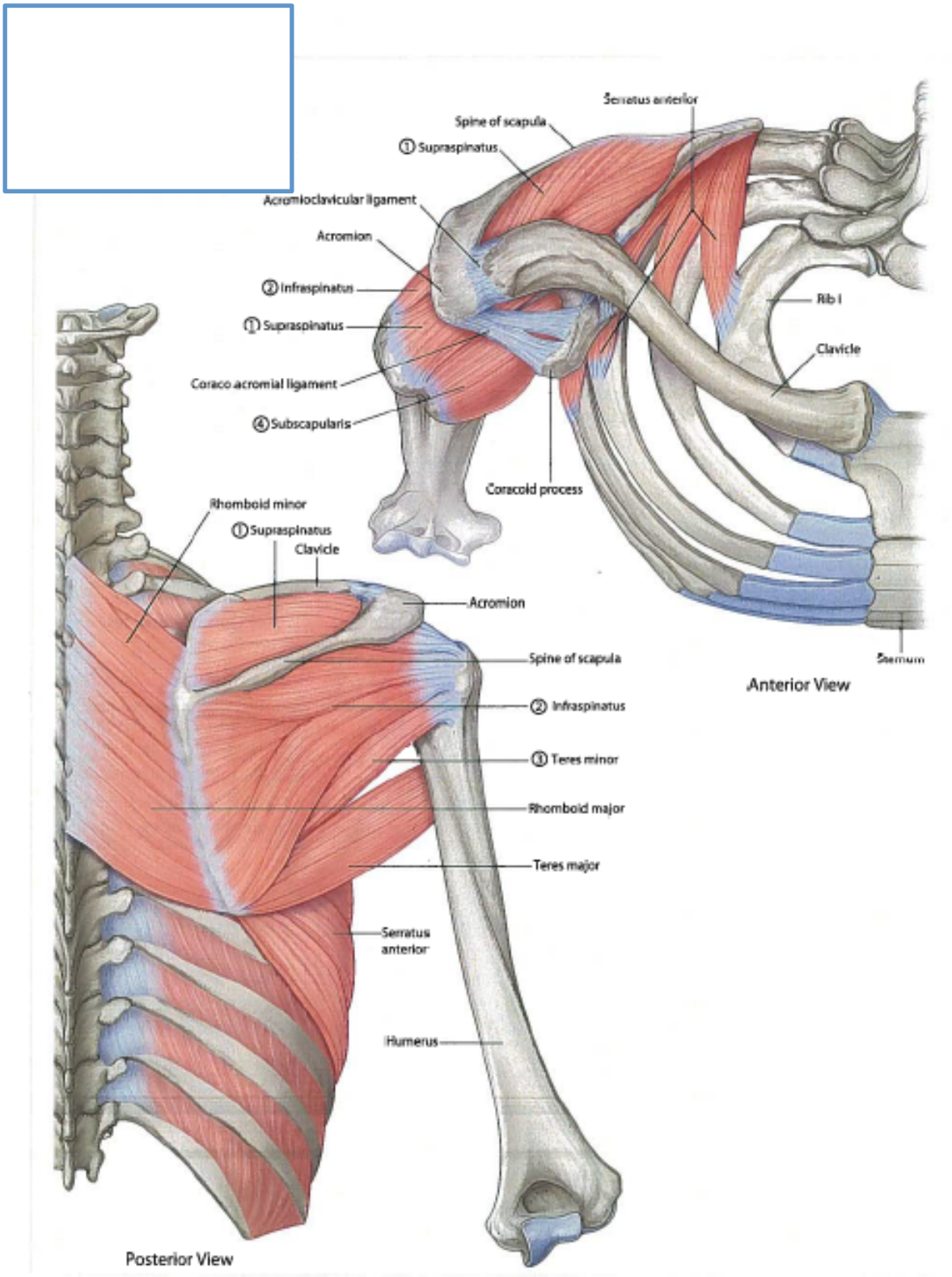
Tennis Elbow	Strapping
Elbow Hyperextension	Elastic Taping
Elbow Instability	Taping
Broken Elbow	Splint

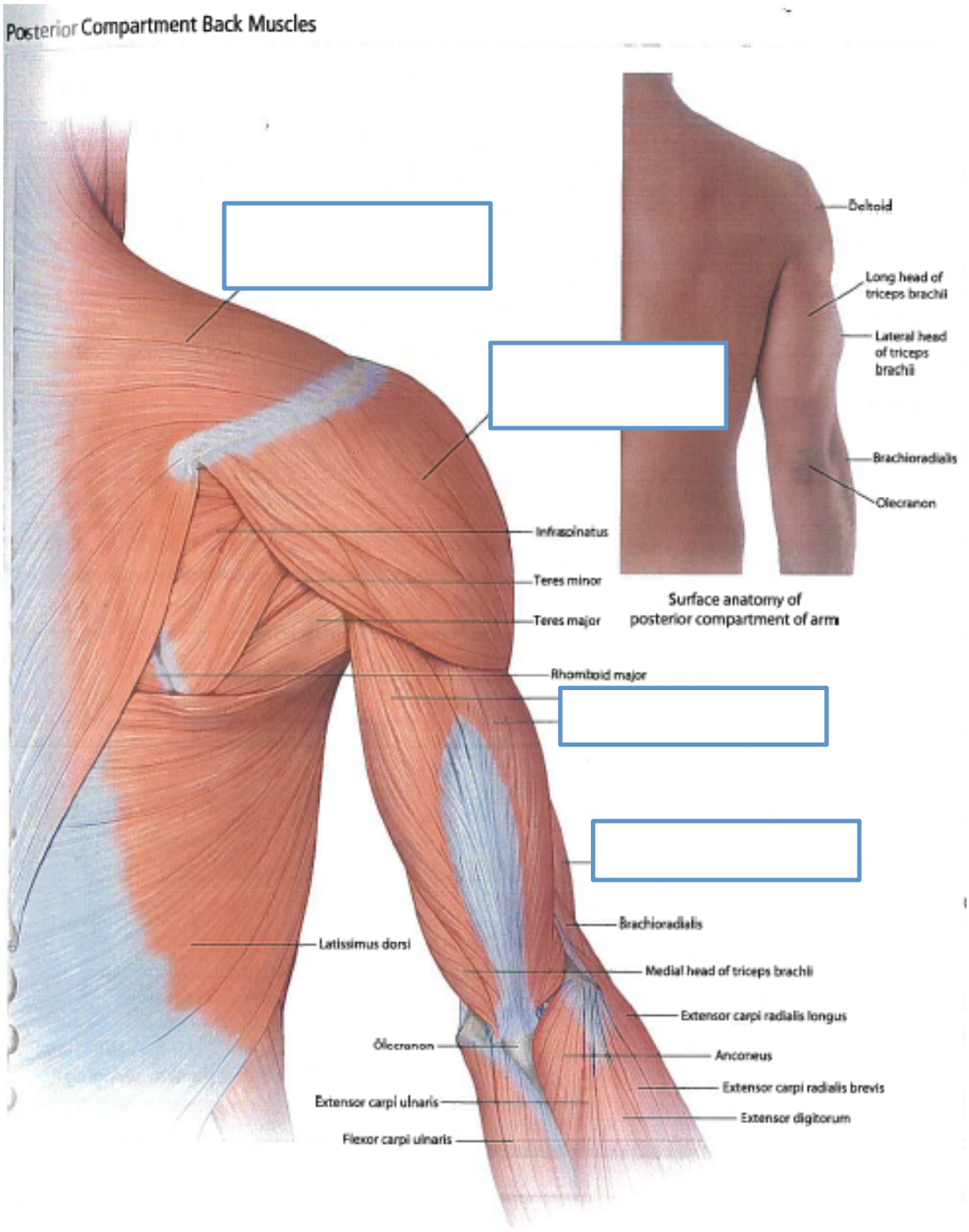
Shoulder

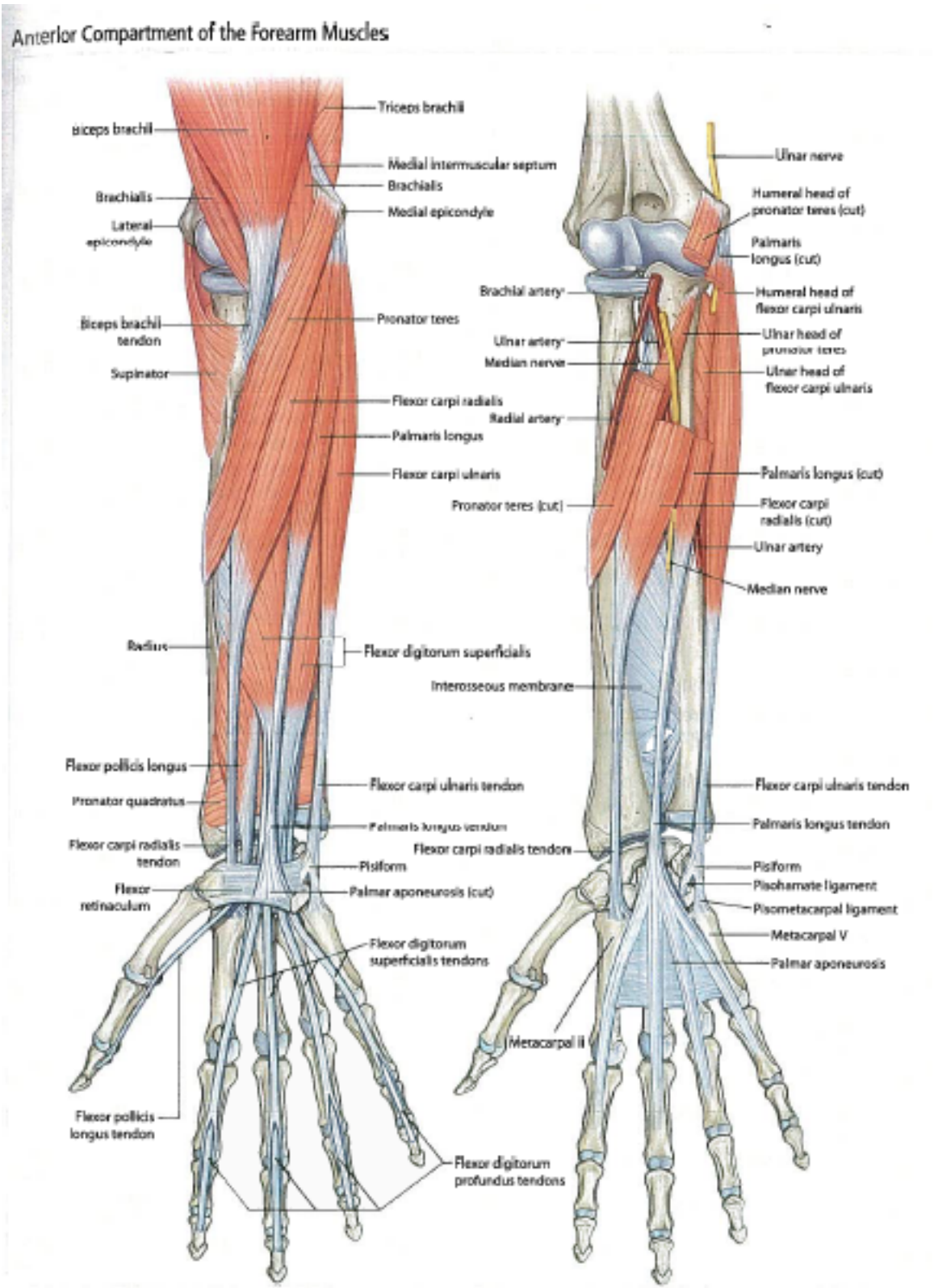

A Normal Shoulder
Acromion (top back part of the shoulder blade)
Coracoacromial ligament (fibrous connective tissue that extends to the coracoid process)
Bursa (flat membrane that keeps shoulder parts from rubbing against each other)
Supraspinatus (tendon and muscle that help form the rotator cuff)
Long biceps tendon (fibrous connective tissue that attaches biceps muscle to shoulder blade)
Humerus (upper arm bone)
Coracoid process (front part of the shoulder blade)
Clavicle (collarbone)
Scapula (shoulder blade)

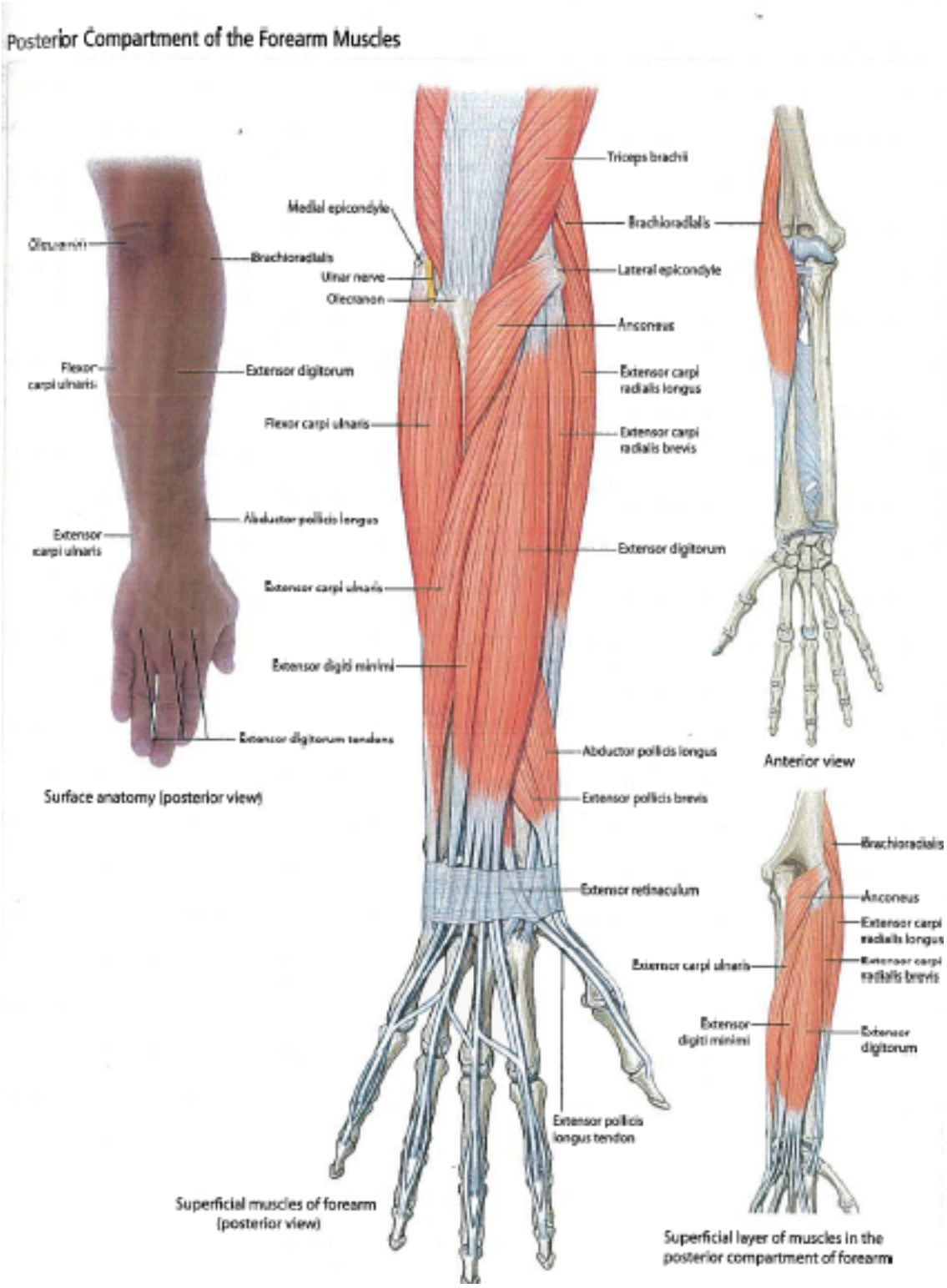

Acromion
Clavicle
Coracoid
Normal anatomy
Humerus
Glenoid
Dislocated shoulder

Muscles

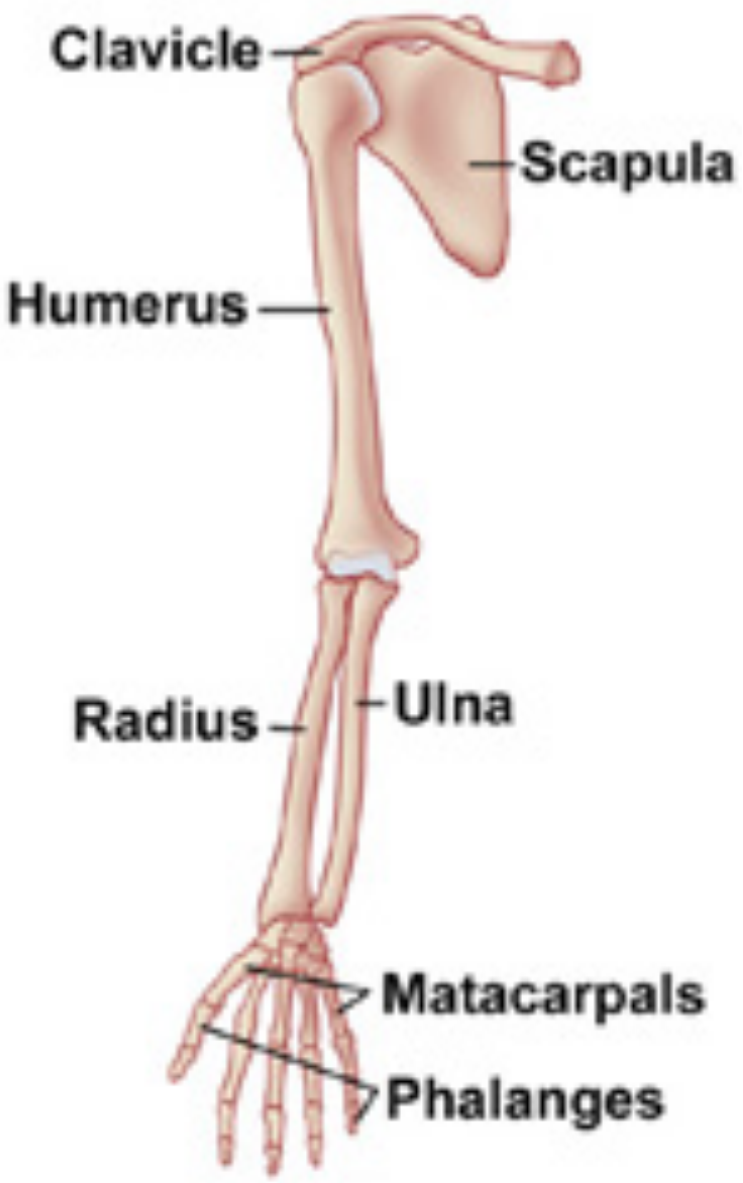

Serratus anterior
Spine of scapula
① Supraspinatus
Acromioclavicular ligament
Acromion
② Infraspinatus
① Supraspinatus
Coraco acromial ligament
④ Subscapularis
Rib I
Clavicle
Coracoid process
Sternum
Anterior View
Rhomboid minor
① Supraspinatus
Clavicle
Acromion
Spine of scapula
② Infraspinatus
① Teres minor
Rhomboid major
Teres major
Serratus anterior
Humerus
Posterior View


Posterior Compartment Back Muscles
Deltoid
Long head of triceps brachii
Lateral head of triceps brachii
Brachioradialis
Olecranon
Surface anatomy of posterior compartment of arm
Infraspinatus
Teres minor
Teres major
Rhomboid major
Latissimus dorsi
Brachioradialis
Medial head of triceps brachii
Extensor carpi radialis longus
Olecranon
Anconeus
Extensor carpi radialis brevis
Extensor carpi ulnaris
Extensor digitorum
Flexor carpi ulnaris


Anterior Compartment of the Forearm Muscles
Triceps brachii
Biceps brachii
Medial intermuscular septum
Brachialis
Brachialis
Medial epicondyle
Lateral epicondyle
Biceps brachii tendon
Pronator teres
Supinator
Flexor carpi radialis
Palmaris longus
Flexor carpi ulnaris
Radius
Flexor digitorum superficialis
Flexor pollicis longus
Pronator quadratus
Flexor carpi ulnaris tendon
Flexor carpi radialis tendon
Pisiform
Flexor retinaculum
Palmar aponeurosis (cut)
Flexor digitorum superficialis tendons
Flexor pollicis longus tendon
Flexor digitorum profundus tendons
Ulnar nerve
Humeral head of pronator teres (cut)
Palmaris longus (cut)
Brachial artery
Humeral head of flexor carpi ulnaris
Ulnar artery
Median nerve
Ulnar head of flexor carpi ulnaris
Radial artery
Palmaris longus (cut)
Pronator teres (cut)
Flexor carpi radialis (cut)
Ulnar artery
Median nerve
Interosseous membrane
Flexor carpi ulnaris tendon
Palmaris longus tendon
Pisiform
Pisohamate ligament
Pisometacarpal ligament
Metacarpal V
Palmar aponeurosis
Metacarpal II


Posterior Compartment of the Forearm Muscles
Olecranon
Brachioradialis
Flexor carpi ulnaris
Extensor digitorum
Extensor carpi ulnaris
Surface anatomy (posterior view)
Triceps brachii
Medial epicondyle
Ulnar nerve
Olecranon
Brachioradialis
Lateral epicondyle
Anconeus
Extensor carpi radialis longus
Flexor carpi ulnaris
Extensor carpi radialis brevis
Abductor pollicis longus
Extensor digitorum
Extensor carpi ulnaris
Extensor digiti minimi
Extensor digitorum tendons
Abductor pollicis longus
Extensor pollicis brevis
Extensor retinaculum
Extensor pollicis longus tendon
Superficial muscles of forearm (posterior view)
Anterior view
Brachioradialis
Anconeus
Extensor carpi radialis longus
Extensor carpi ulnaris
Extensor carpi radialis brevis
Extensor digiti minimi
Extensor digitorum
Superficial layer of muscles in the posterior compartment of forearm

Bones


Clavicle
Scapula
Humerus
Radius
Ulna
Matacarpals
Phalanges

Tennis Elbow

Tennis elbow is soreness or pain on the outer part of the elbow. It happens when you damage the **tendon** that connect the muscles of your forearm to your elbow. The pain may spread down your arm to your wrist. If you don't treat the injury, it may hurt to do simple things like turn a key or open a door.

What causes tennis elbow?

Most of the time tennis elbow is caused by overuse. You probably got it from doing activities where you twist your arm over and over. This can stress the tendon, causing tiny tears that in time lead to pain. A direct blow to the outer elbow can also cause tendon damage. Tennis elbow is common in tennis players, but most people get it from other activities that work the same muscles, such as gardening, painting, or using a screwdriver. It is often the result of using equipment that is the wrong size or using it the wrong way.

How is it treated?

You can start treating tennis elbow at home right away.

- **Rest** your arm, and avoid any activity that makes the pain worse.
- As soon as you notice pain, use ice or cold packs for 10 to 15 minutes at a time, several times a day. Always put a thin cloth between the ice and your skin. Keep using ice a long as it relieves pain. Or use a warm, moist cloth or take hot baths if they feel good. Do what works for you.
- Wear a **brace** when you need to grasp or twist something. This is a strap around your forearm placed about **one inch below elbow**. It eases the pressure on the tendon and spreads force throughout your arm.
- Always take time to warm up before and stretch after you exercise.
- After the activity, apply ice to prevent pain and swelling.

Joints

Structure	Function	Characteristics
Fibrous	Typically immovable or slightly moveable depending on the location	Held together by fibrous connective tissue. They do not have a joint cavity (e.g. sutures of the skull lock together the irregular-shaped bones of the skull)
Cartilagenous	Slightly movable or immovable depending on the location	The ends of the bones are held together by cartilage and do not have a joint cavity for example, inter vertebral joints of the spine (slightly movable), and cartilage which joins the ribs to the sternum (immovable)
Synovial	Typically freely movable, but the movement pattern is limited by the structure of the joint	Synovial joints are joints in which the articulating bones (usually long bones) are separated by a cavity filled with synovial fluid (eg knee joint)

Synovial Joint Classification and Characteristics

Type	Movement	Example Locations
Gliding: The articular surfaces are flat	Gliding or slipping movements only	Intercarpal joints (between the small bones of the wrist or carpal bones)
Hinge: A rounded portion of one bone fits into the depression of another bone to give the appearance of a hinge	Permits flexion and extension movements only	The elbow during flexion and extension movements such as the biceps curl
Pivot: The rounded end of one bone extends into the 'sleeve' formed by another bone or a ligament	The rotation of a bone around its long axis is the only movement possible	The atlas and axis (1C and 2C) during rotation of the head
Condyloid (ellipsoid): The oval surface of one bone fits into the hollow or depression of another bone. Both surfaces are oval	Permits flexion/extension, abduction/adduction, and circumduction. These are called angular movements	The wrist joint where the radius articulates with the carpal bones
Saddle: Each of the articulating bones have both elevated and depressed aspects (con cave and convex) that give the appearance of a saddle	Permit greater mobility in angular movements but does not allow rotation	The base of the thumb where the metacarpals articulate with the carpals (e.g. twiddling your thumbs)

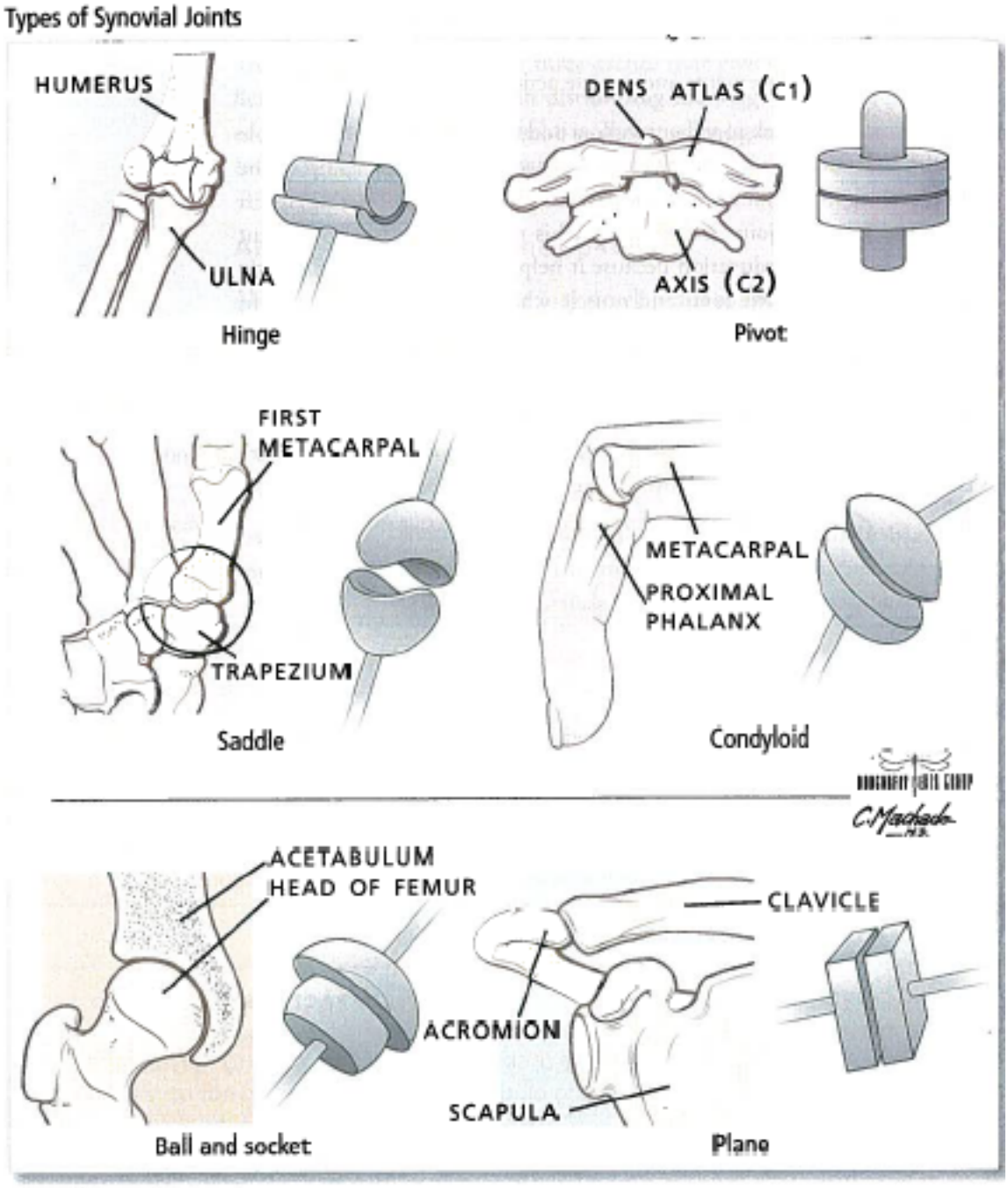
Ball and Socket (spher oid): The round head of one bone fits into the 'cup-like' depression of the other bone	Permits all types of movements including flexion or extension, abduction or adduction, and rotation	The shoulder and hip joint are great examples of the high mobility characterized by the ball and socketintj

Inflammatory and Degenerative Conditions of the Joints
Joint problems can be the result of many factors including physical trauma and inflammation. Although more information will be considered in later chapters, a brief summary of joint problems is warranted.

Bursitis: The inflammation of the bursa or the synovial membrane which
secretes the fluid in the bursa. This condition is usually caused by physical
trauma or friction.
Tendonitis: The inflammation of the tendon sheath, typically the result of overuse and repetitive activities.
Sprain: A stretched or torn ligament or tendon surrounding and support ingajoint.
Cartilage Injuries: Tears or overuse of cartilage at the ends of the articu lating bones can lead to cartilage dysfunction.
Arthritis: An inflammatory or

degenerative disease that affects joints.
Osteoarthritis is a degenerative condition that commonly affects the elderly and athlete who has used/abused their joints. Rheumatoid arthri
tis is a chronic inflammatory condition that initially affects the synovial
membrane of joints and then progresses over time to affect the entire joint
structure.
Dislocation: Occurs when bones are displaced from their normal align ment and position.

The Spine


Types of Synovial Joints
HUMERUS
ULNA
Hinge
DENS
ATLAS (C1)
AXIS (C2)
Pivot
FIRST METACARPAL
TRAPEZIUM
Saddle
METACARPAL
PROXIMAL PHALANX
Condyloid
ACETABULUM
HEAD OF FEMUR
Ball and socket
CLAVICLE
ACROMION
SCAPULA
Plane

There are three main types of connective tissue that are important for joint function:

Tendons: A fibrous connective tissue which connects muscle to bone and muscle to muscle.

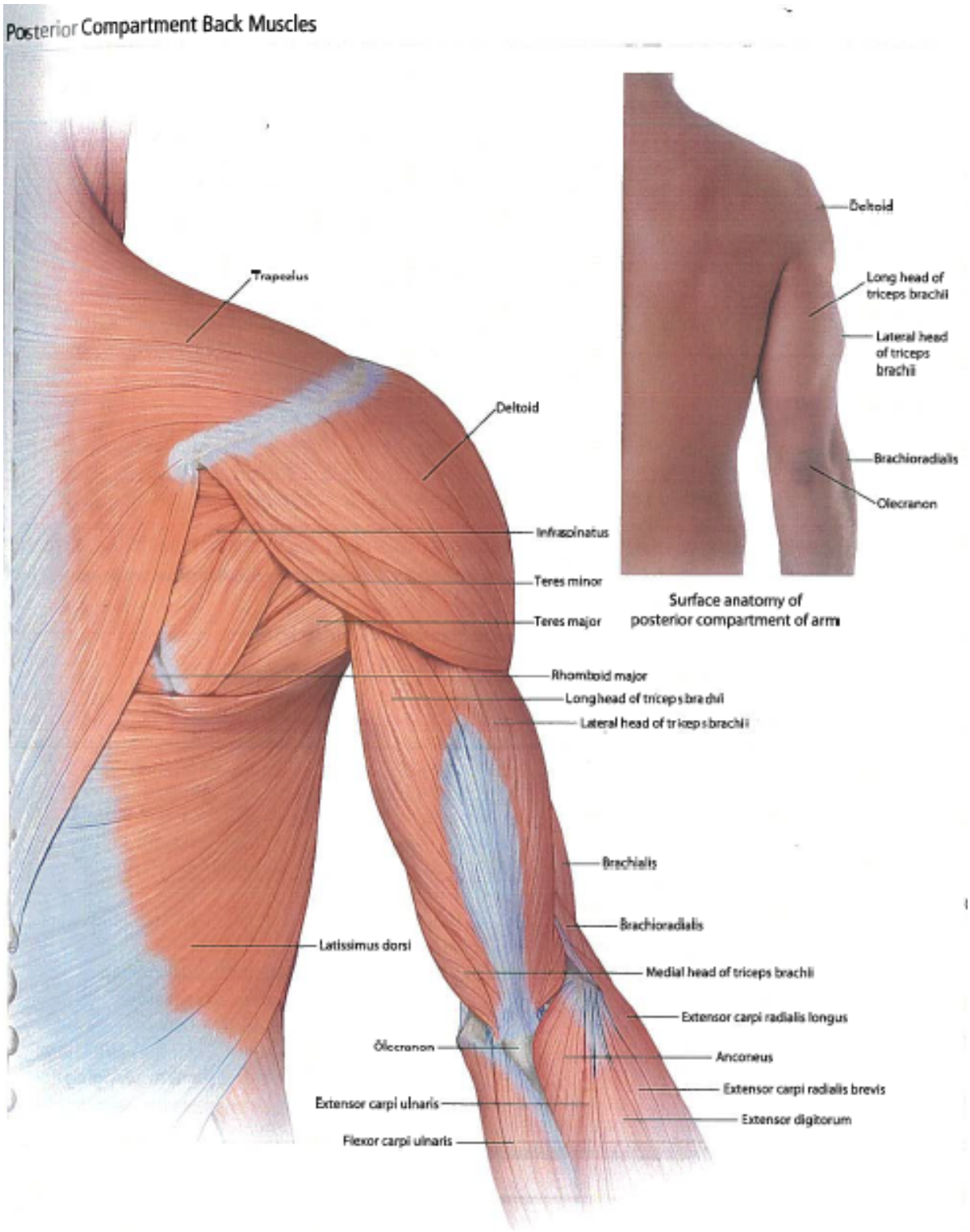
Cartilage: A dense-looking connective tissue which has poor blood supply and lacks nerves

Cartilage falls into three categories:
• Fibrocartilage (between bones as shock absorbers)
• Costal cartilage (connects ribs to the sternum)
Articular cartilage (at the end of articulating bones to reduce friction during movement)
Ligaments: A band of strong fibrous connective tissue that stabilizes the bones of a joint and connects bone to bone

Parts of a Joint
Articular Cartilage
Articular cartilage (hyaline) covers the ends of the articulating bones.
Articular Capsule
The two bones forming the joint are enclosed by a capsule which has a tough outer fibrous connective tissue layer that holds the bones together and an inner synovial membrane that secretes synovial fluid.
Synovial Cavity
The synovial or joint cavity is the space between the articulating bones within the articular capsule.
Synovial Fluid
Synovial fluid fills the joint cavity and assists in lubrication, shock absorption and supply of nourishment. The synovial membrane secretes the fluid.
Reinforcing Ligaments
The ligaments join bone to bone and reinforce the inside and outside of the articular capsule.

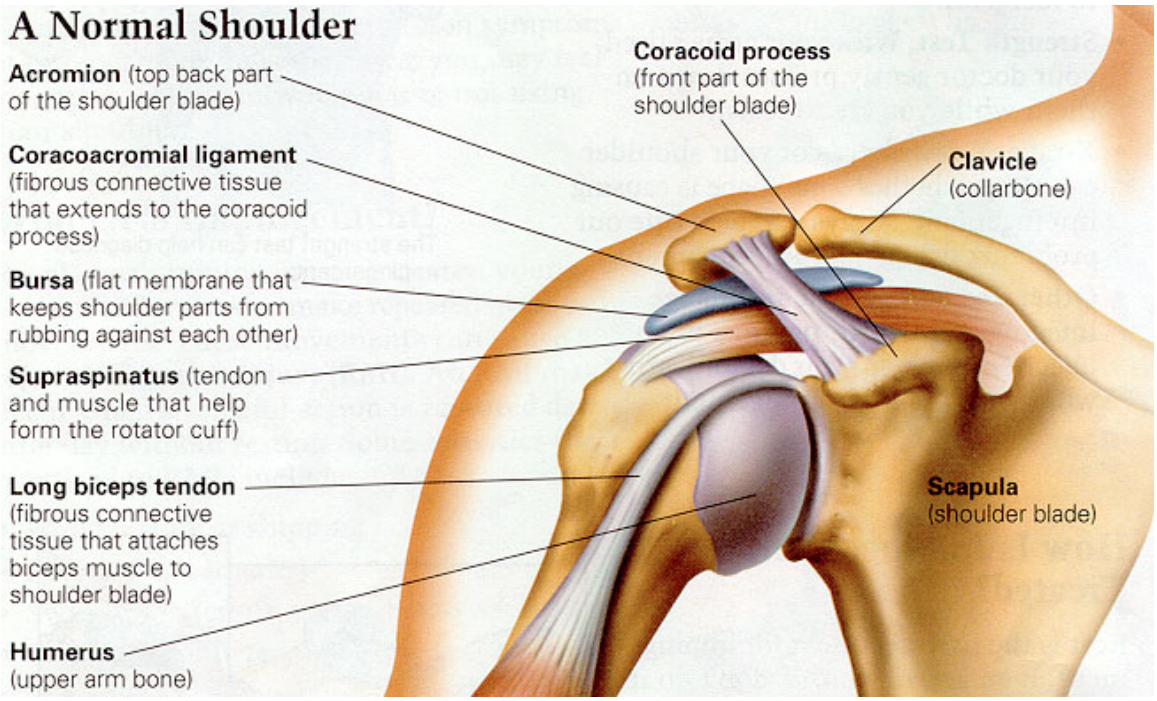
Bursae and Tendon Sheaths

Bursae and tendon sheaths are not specifically part of synovial joints, but are commonly associated with them. A bursa is a bag filled with synovial fluid that lubricates, reduces friction, and cushions. Bursae are found wherever tendons, ligaments, muscles or bones rub together or come in close proximity to each other. A tendon sheath is essentially a tunnel-shaped bursa that circles around a tendon to lubricate and protect the tendon from excessive friction or pressure.

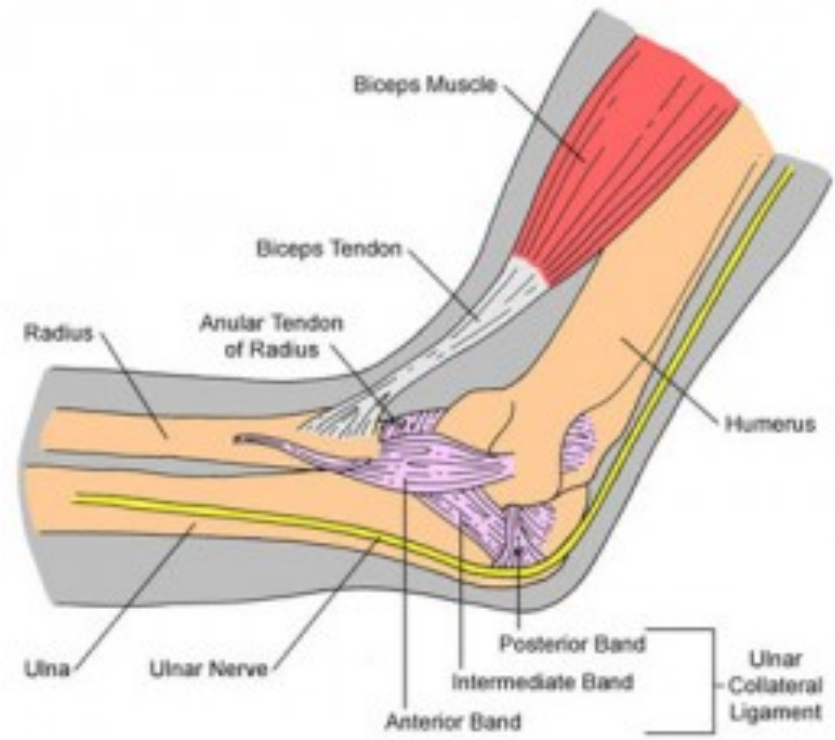

Posterior Compartment Back Muscles
Trapezius
Deltoid
Infraspinatus
Teres minor
Teres major
Rhomboid major
Long head of triceps brachii
Lateral head of triceps brachii
Brachialis
Brachioradialis
Latissimus dorsi
Medial head of triceps brachii
Extensor carpi radialis longus
Olecranon
Anconeus
Extensor carpi radialis brevis
Extensor carpi ulnaris
Extensor digitorum
Flexor carpi ulnaris
Deltoid
Long head of triceps brachii
Lateral head of triceps brachii
Brachioradialis
Olecranon
Surface anatomy of posterior compartment of arm

Joints

1) Shoulder



2) Elbow



Repetitive Strain Injuries

Bursitis/Tendinopathy

Are different conditions that have similar symptoms and similar treatments:
Caused by:

- Overuse and _____ movements. These can include daily activities such as using tools, gardening, cooking, cleaning, and typing at a keyboard.
- Long periods of _____ on an area. For example, carpet layers, roofers, or gardeners who work on their knees all day can develop bursitis over the kneecap.
- Aging, which can cause the bursa to break down over time.
- Sudden injury, such as a blow to the elbow.

What are the symptoms?

Bursitis or Tendinopathy usually causes a dull pain, tenderness, and stiffness near the affected area. You many notice a crunchy sound on movement
Bursitis or Tendinopathy is most common in the shoulder, elbow, hip, and knee.

How is it treated?

In most cases, you can treat bursitis or a tendon injury at home. To get the best results, start these steps right away:

- _____ the painful area, and avoid any activity that makes the pain worse.
- Apply _____ for 10 to 15 minutes at a time, as often as 2 times an hour, for the first 3 days.
- Do gentle _____ exercises and stretching to prevent stiffness.

How can you prevent bursitis/tendinopathy?

You may be able to prevent bursitis from happening or coming back.

- Rest the area, and avoid any activity or direct pressure that may cause pain.
- Apply ice or cold packs as soon as you notice pain and tenderness.
- Take pain relievers you can buy without a prescription such as ASA, ibuprofen, or naproxen.
- Change the way you do activities with repeated movements that may strain your muscles or joints.
- Protect your joints from pressure. Cushion knees or elbows on hard surfaces, and wear shoes that fit you well and have good support.

Carpal Tunnel Syndrome

Carpal tunnel syndrome is pain, tingling, and other problems in your hand because of pressure on the _____ in your wrist. Things that can lead to carpal tunnel syndrome include:

- Making the same hand movements over and over, especially if the wrist is bent down (your hands lower than your wrists), or making the same wrist movements over and over.
- Wrist injuries and bone spurs.
- Smoking, because it can reduce blood flow to the median nerve.

How is it treated?

Mild symptoms usually can be treated with home care. The sooner you start treatment, the better your chances of stopping symptoms and preventing long-term damage to the nerve.

You can do a few things at home to help your hand and wrist feel better:

- _____ activities that cause numbness and pain. Rest your wrist longer between activities.
- _____ your wrist for 10 to 15 minutes 1 or 2 times an hour.
- Wear a wrist _____ at night to keep your wrist in a neutral position. This takes pressure off your median nerve. Your wrist is in a neutral position when it is straight or only slightly bent. Holding a glass of water is an example of your wrist in a neutral position.

How can you keep carpal tunnel syndrome from coming back?

To keep carpal tunnel syndrome from coming back, take care of your basic health. Stay at a healthy weight. Don't smoke. Exercise to stay strong and flexible. If you have a long-term health problem, such as arthritis or diabetes, follow your doctor's advice for keeping your condition under control.

You can also try to take good care of your wrists and hands:

- Try to keep your wrist in a neutral position.
- Use your whole hand—not just your fingers—to hold objects.
- When you type, keep your _____ with your hands a little higher than your wrists. Relax your shoulders when your arms are at your sides.
- If you can, switch hands often when you repeat movements.

Tennis Elbow

Tennis elbow is soreness or pain on the outer part of the elbow. It happens when you damage the _____ that connect the muscles of your forearm to your elbow. The pain may spread down your arm to your wrist. If you don't treat the injury, it may hurt to do simple things like turn a key or open a door.

What causes tennis elbow?

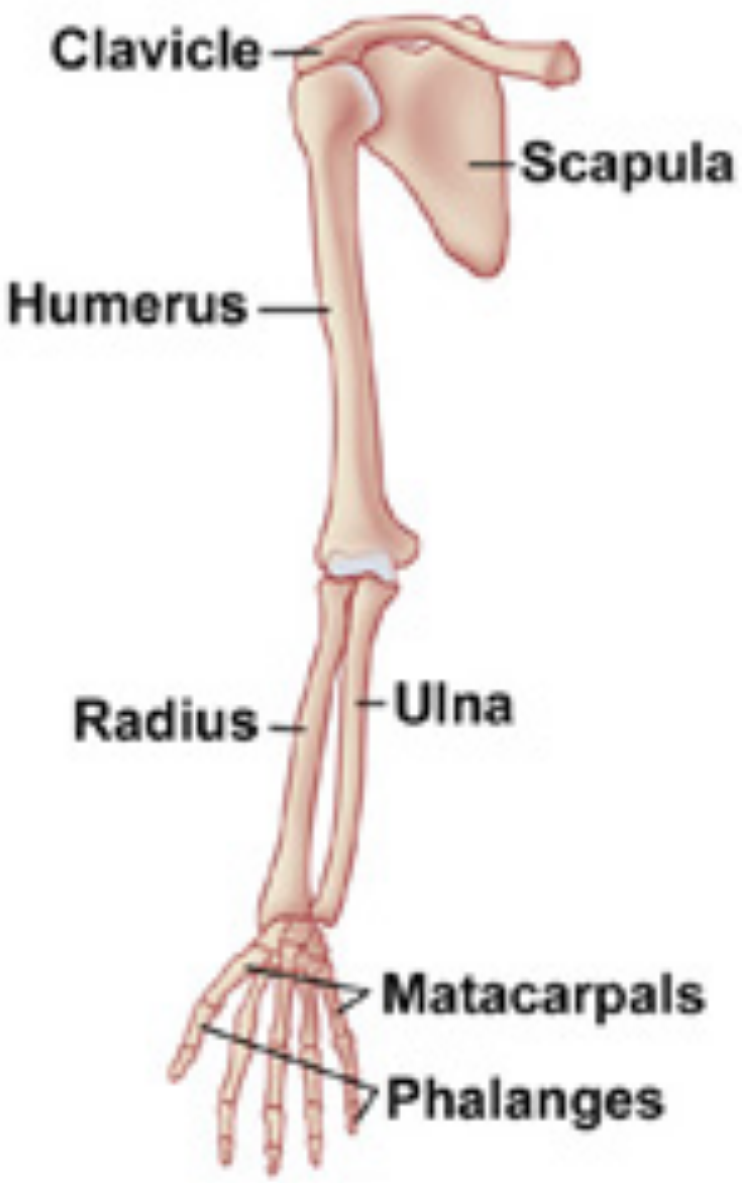
Most of the time tennis elbow is caused by overuse. You probably got it from doing activities where you twist your arm over and over. This can stress the tendon, causing tiny tears that in time lead to pain. A direct blow to the outer elbow can also cause tendon damage. Tennis elbow is common in tennis players, but most people get it from other activities that work the same muscles, such as gardening, painting, or using a screwdriver. It is often the result of using equipment that is the wrong size or using it the wrong way.

How is it treated?

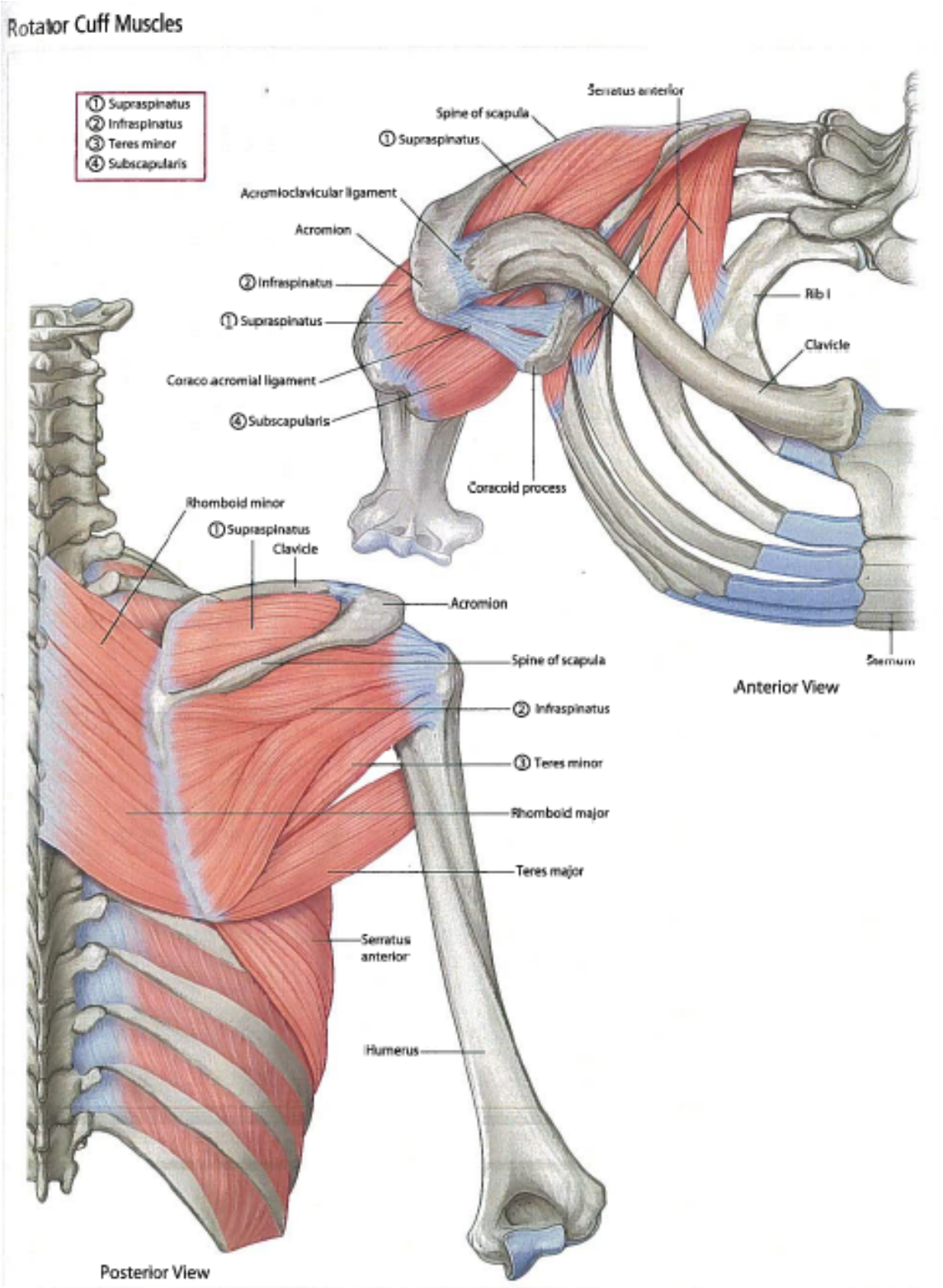
You can start treating tennis elbow at home right away.

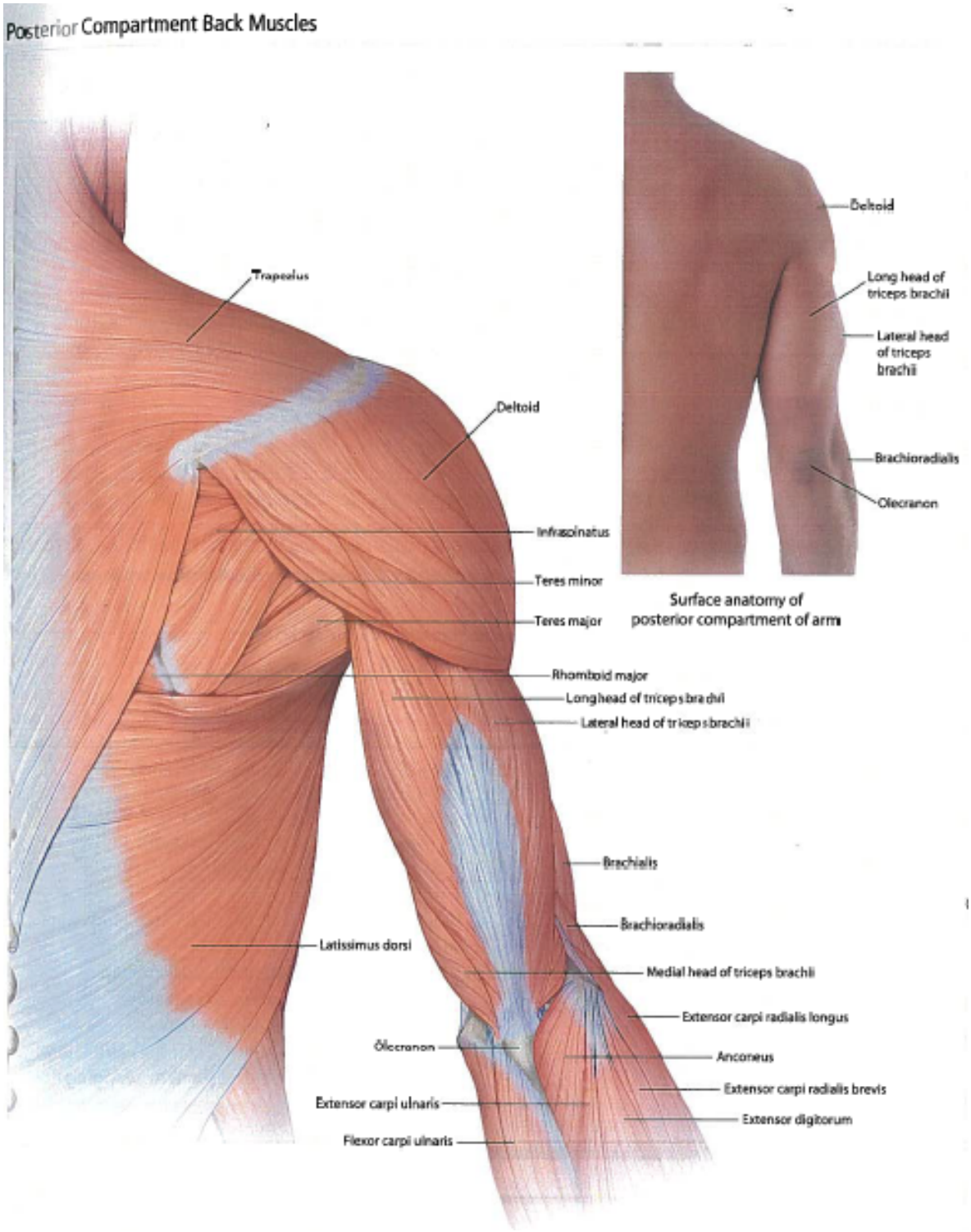
- _____ your arm, and avoid any activity that makes the pain worse.
- As soon as you notice pain, use ice or cold packs for 10 to 15 minutes at a time, several times a day. Always put a thin cloth between the ice and your skin. Keep using ice a long as it relieves pain. Or use a warm, moist cloth or take hot baths if they feel good. Do what works for you.
- Wear a _____ when you need to grasp or twist something. This is a strap around your forearm placed about _____ _____ It eases the pressure on the tendon and spreads force throughout your arm.
- Always take time to warm up before and stretch after you exercise.
- After the activity, apply ice to prevent pain and swelling.

Bones


Clavicle
Scapula
Humerus
Radius
Ulna
Matacarpals
Phalanges

Muscles


Rotator Cuff Muscles
① Supraspinatus
② Infraspinatus
③ Teres minor
④ Subscapularis
Serratus anterior
Spine of scapula
① Supraspinatus
Acromioclavicular ligament
Acromion
② Infraspinatus
① Supraspinatus
Coraco acromial ligament
④ Subscapularis
Rib I
Clavicle
Coracoid process
Sternum
Anterior View
Rhomboid minor
① Supraspinatus
Clavicle
Acromion
Spine of scapula
② Infraspinatus
③ Teres minor
Rhomboid major
Teres major
Serratus anterior
Humerus
Posterior View


Posterior Compartment Back Muscles
Trapezius
Deltoid
Infraspinatus
Teres minor
Teres major
Rhomboid major
Longhead of triceps brachii
Lateral head of triceps brachii
Brachialis
Brachioradialis
Latissimus dorsi
Medial head of triceps brachii
Extensor carpi radialis longus
Olecranon
Anconeus
Extensor carpi radialis brevis
Extensor carpi ulnaris
Extensor digitorum
Flexor carpi ulnaris
Deltoid
Long head of triceps brachii
Lateral head of triceps brachii
Brachioradialis
Olecranon
Surface anatomy of posterior compartment of arm

Repetitive Strain Injuries

Bursitis/Tendinopathy

Are different conditions that have similar symptoms and similar treatments:
Caused by:

- Overuse and **repetitive** movements. These can include daily activities such as using tools, gardening, cooking, cleaning, and typing at a keyboard.
- Long periods of **pressure** on an area. For example, carpet layers, roofers, or gardeners who work on their knees all day can develop bursitis over the kneecap.
- Aging, which can cause the bursa to break down over time.
- Sudden injury, such as a blow to the elbow.

What are the symptoms?

Bursitis or Tendinopathy usually causes a dull pain, tenderness, and stiffness near the affected area. You many notice a crunchy sound on movement
Bursitis or Tendinopathy is most common in the shoulder, elbow, hip, and knee.

How is it treated?

In most cases, you can treat bursitis or a tendon injury at home. To get the best results, start these steps right away:

- **Rest** the painful area, and avoid any activity that makes the pain worse.
- Apply **ice** for 10 to 15 minutes at a time, as often as 2 times an hour, for the first 3 days.
- Do gentle **range of motion** exercises and stretching to prevent stiffness.

How can you prevent bursitis/tendinopathy?

You may be able to prevent bursitis from happening or coming back.

- Rest the area, and avoid any activity or direct pressure that may cause pain.
- Apply ice or cold packs as soon as you notice pain and tenderness.
- Take pain relievers you can buy without a prescription such as ASA, ibuprofen, or naproxen.
- Change the way you do activities with repeated movements that may strain your muscles or joints.
- Protect your joints from pressure. Cushion knees or elbows on hard surfaces, and wear shoes that fit you well and have good support.

Carpal Tunnel Syndrome

Carpal tunnel syndrome is pain, tingling, and other problems in your hand because of pressure on the **medial nerve** in your wrist. Things that can lead to carpal tunnel syndrome include:

- Making the same hand movements over and over, especially if the wrist is bent down (your hands lower than your wrists), or making the same wrist movements over and over.
- Wrist injuries and bone spurs.
- Smoking, because it can reduce blood flow to the median nerve.

How is it treated?

Mild symptoms usually can be treated with home care. The sooner you start treatment, the better your chances of stopping symptoms and preventing long-term damage to the nerve.

You can do a few things at home to help your hand and wrist feel better:

- **Stop** activities that cause numbness and pain. Rest your wrist longer between activities.
- **Ice** your wrist for 10 to 15 minutes 1 or 2 times an hour.
- Wear a wrist **splint** at night to keep your wrist in a neutral position. This takes pressure off your median nerve. Your wrist is in a neutral position when it is straight or only slightly bent. Holding a glass of water is an example of your wrist in a neutral position.

How can you keep carpal tunnel syndrome from coming back?

To keep carpal tunnel syndrome from coming back, take care of your basic health. Stay at a healthy weight. Don't smoke. Exercise to stay strong and flexible. If you have a long-term health problem, such as arthritis or diabetes, follow your doctor's advice for keeping your condition under control.

You can also try to take good care of your wrists and hands:

- Try to keep your wrist in a neutral position.
- Use your whole hand—not just your fingers—to hold objects.
- When you type, keep your **wrists up** with your hands a little higher than your wrists. Relax your shoulders when your arms are at your sides.
- If you can, switch hands often when you repeat movements.

Tennis Elbow

Tennis elbow is soreness or pain on the outer part of the elbow. It happens when you damage the **tendon** that connect the muscles of your forearm to your elbow. The pain may spread down your arm to your wrist. If you don't treat the injury, it may hurt to do simple things like turn a key or open a door.

What causes tennis elbow?

Most of the time tennis elbow is caused by overuse. You probably got it from doing activities where you twist your arm over and over. This can stress the tendon, causing tiny tears that in time lead to pain. A direct blow to the outer elbow can also cause tendon damage. Tennis elbow is common in tennis players, but most people get it from other activities that work the same muscles, such as gardening, painting, or using a screwdriver. It is often the result of using equipment that is the wrong size or using it the wrong way.

How is it treated?

You can start treating tennis elbow at home right away.

- **Rest** your arm, and avoid any activity that makes the pain worse.
- As soon as you notice pain, use ice or cold packs for 10 to 15 minutes at a time, several times a day. Always put a thin cloth between the ice and your skin. Keep using ice a long as it relieves pain. Or use a warm, moist cloth or take hot baths if they feel good. Do what works for you.
- Wear a **brace** when you need to grasp or twist something. This is a strap around your forearm placed about **one inch below elbow**. It eases the pressure on the tendon and spreads force throughout your arm.
- Always take time to warm up before and stretch after you exercise.
- After the activity, apply ice to prevent pain and swelling.