

JOINT & SOFT TISSUE INJURIES AND DISORDERS

2022

14 test Questions

STRAIN VS. SPRAIN

- **S**trains
 - Muscle or **t**endon
- **S**prains
 - **L**igament or joint

TRAUMA

- **Strains**

- Can be muscle and/or tendon
- Results from using muscles beyond their intended or functional ability, stretching of a muscle & its fascia
- One-time or can be cumulative

TRAUMA

- **Sprains**

- Can involve a ligament or joint
- Tearing of the capsule or ligaments surrounding a joint
→ result of twisting injury
- Classified by:
 - number of ligament fibers torn
 - the severity of the tear

TRAUMA

• **Strains & Sprains**

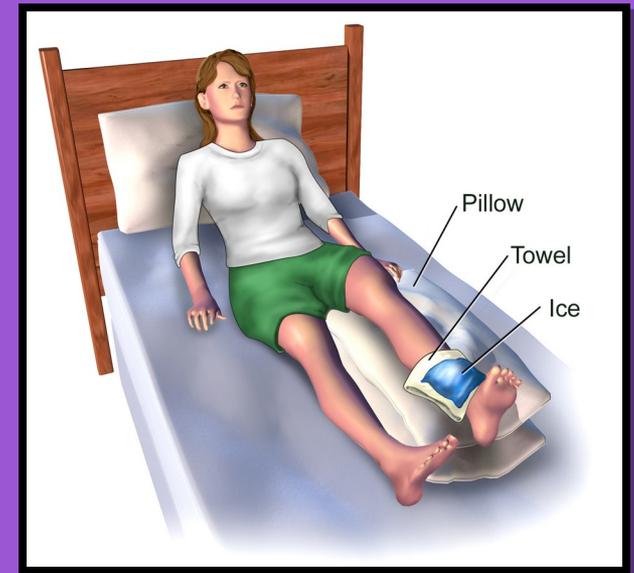
- Signs & Symptoms
 - Pain
 - ↓ ROM
 - Tender
 - Edema
 - Ecchymosis
- Need an X-Ray to rule out a fracture

TRAUMA

• Strains & Sprains

• Treatment: R-E-C-I-P-E ***

- Rest
- Elevation
- Compression
- Ice
- Proper
- Exercise
 - NSAID's



TRAUMA

- **Dislocation & Subluxation**

- **Dislocation**

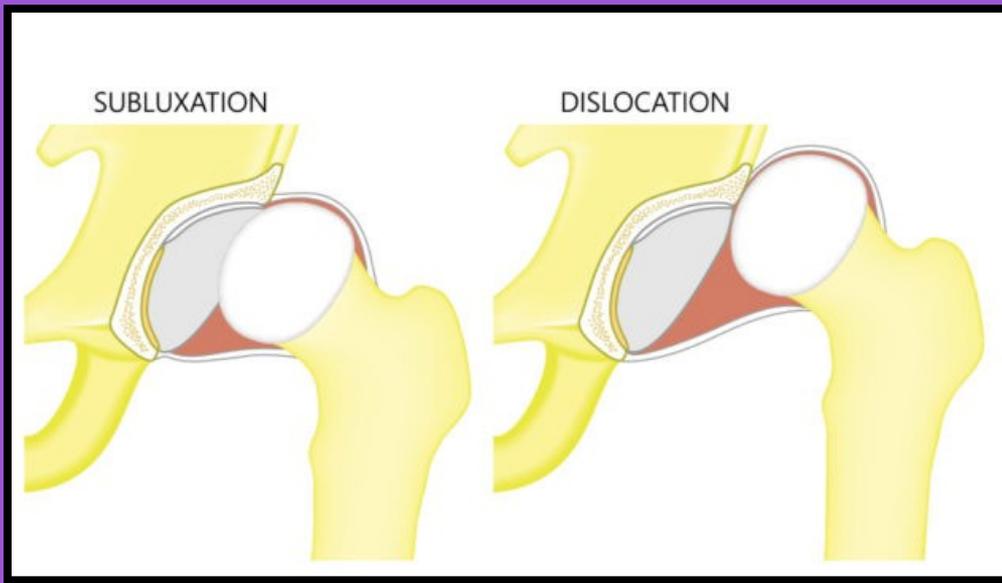
- Displacement of a part, usually above , from its normal anatomic position within a joint

- **Subluxation**

- Partial or incomplete displacement of the joint surface

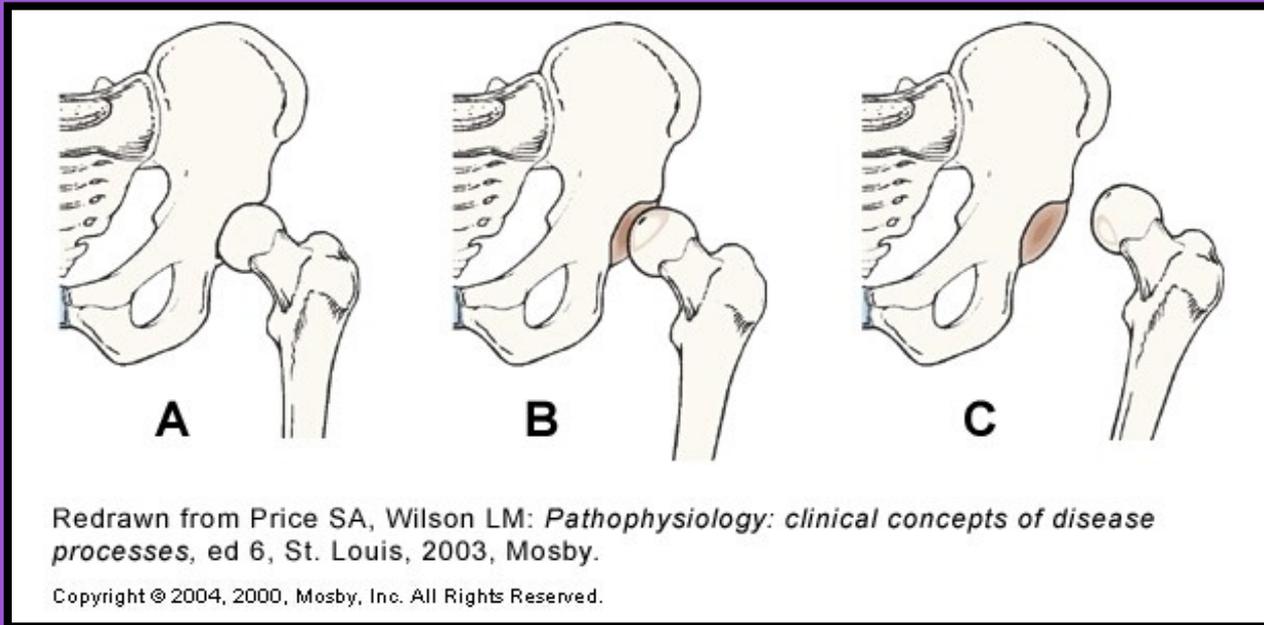
TRAUMA

- **Dislocation & Subluxation**
 - **Subluxation**
 - S/S less severe than dislocation
 - Less healing time required



TRAUMA

- **Dislocation & Subluxation**
 - Excessive stress
 - Joints most frequently dislocated:
 - Fingers, elbow, shoulder
 - hip, knee



Redrawn from Price SA, Wilson LM: *Pathophysiology: clinical concepts of disease processes*, ed 6, St. Louis, 2003, Mosby.

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TRAUMA

• Dislocation & Subluxation

• S/S

- Asymmetry & contour – Shortened leg and externally rotated
- Pain
- ↓ ROM
- Obvious deformity
- Possible NV impairment
- Edema



TRAUMA

- **Dislocation & Subluxation**

- **Treatment**

- Need prompt treatment → likely to develop avascular necrosis
- Reduction – realign to its original anatomic position
- Immobilization for a specified period of time
 - Cast, splint, brace, or immobilizer
- Rehab to prevent contractures – exercises to ↑ ROM

TRAUMA

- **Peripheral Nerve Injury**

- **Mechanism of injury**

- Severed – complete or partial
- Contusion – neuron remains intact structurally but there is undetermined axonal injury
- Stretching – extreme movement or excessive traction
- Compression – from a tumor, herniated disc, cast
 - Nerve entrapment (carpal tunnel)
- Med Injection: sciatic nerve with IM's

TRAUMA

- **Peripheral Nerve Injury**

- **S/S:**

- Degree of deficit depends on type & extent of injury
- Since PN's are lower motor neurons = flaccid paralysis
- Weak or absent deep tendon reflexes
- Atony or hypotonic muscles

TRAUMA

- **Peripheral Nerve Injury**

- S/S:

- Fibrillations

- Transitory muscle contractions caused by spontaneous stimulation of a single muscle fiber

- Quivering of individual muscle fibers

- Fasciculations

- Spontaneous contractions of several muscle fibers innervated by a single motor nerve

- Twitching of muscle fibers

TRAUMA

- **Peripheral Nerve Injury**

- S/S:

- ↓ or complete sensory loss
- Trophic changes to affected area
 - Warm Phase = warm, dry, flushed skin
 - Cold Phase = cold, cyanotic skin, ↓ hair, brittle nails (2-3 weeks later)

TRAUMA

• Peripheral Nerve Injury

- S/S:

- Causalgia = severe burning pain from PN injuries

- ↑ pain with minor stimulus

- More comfortable when left alone with a cool moist cloth wrapped around the limb

- May need a nerve block

TRAUMA

- **Peripheral Nerve Injury**

- Nursing Management

- Assess area for motor & sensory function
- Maintain immobility of involved area
- Check skin for changes!
- Avoid exposure of the de-nerved area to extremes in temperature
- Rehab – ROM & PT

TRAUMA

PERIPHERAL NERVE INJURY

- **Brachial Plexus**

- S- spotty & mixed loss (arm)
- M- mixed weakness arm, forearm, hand

- **Median (wrist)**

- S- carpal tunnel s/s
- M- inability to flex thumb or wrist

- **Radial (axilla)**

- S- anesthesia of hand (dorsal)
- M- wrist drop

- **Ulnar (elbow)**

- S- anesthesia in ulnar side hand/wrist
- M- inability to spread fingers

TRAUMA PERIPHERAL NERVE INJURY

- **Femoral**

- S- anesthesia in medial leg
- M- inability to extend lower leg

- **Peroneal**

- S- anesthesia in dorsum of foot
- M- foot drop

- **Tibial (ankle)**

- S- anesthesia in lateral foot
- M- loss of plantar flexion

TRAUMA

- **Muscle Spasm**

- Overdoing everyday activities
- Cycle
 - Muscle injury → muscle excitation (pain) → spasm
- S/S
 - ↑ pain
 - Palpable muscle mass in spasm
 - ↓ ROM
 - Tender

TRAUMA

- **Muscle Spasm**

- Treatment

- Drugs or Physical Therapy, or both
- PT = heat, exercise, massage, hydrotherapy, ultrasound
- Meds = analgesics, muscle relaxants

TRAUMA

- **Contusion**

- Bruise without a skin break
- S/S
 - Pain, swelling, discoloration
- Hematoma = collection of blood
- Ice & wrap to ↓ swelling

INFLAMMATIONS

- **Bursitis**

- Inflammation of the bursa
- Can be acute or chronic
- Becomes inflamed due to overuse, trauma, or strain

INFLAMMATIONS

• Bursitis

- S/S:
 - Pain
 - Swelling
 - ↓ movement
- Treatment
 - Rest, anti-inflammatory meds, cold therapy, OR



INFLAMMATIONS

• **Tendonitis**

- Inflammation of a tendon, caused by overuse
- Achilles tendon commonly affected
- Epicondylitis = tennis elbow
 - Treatment = rest, splint, cold, NSAID, cortisone injection
 - Instrument Assisted Soft Tissue Mobilization (*IASTM*)

INFLAMMATIONS

- **Tendonitis**

- Tendosynovitis

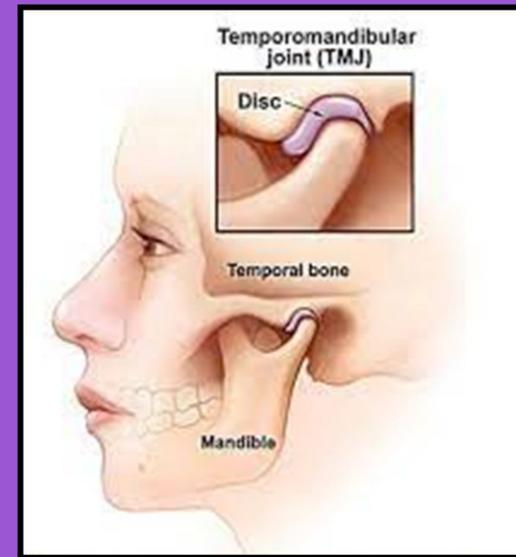
- Inflammation of a tendon sheath & synovial sac
- Same S/S & treatment

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Jaw**

- **TMJ Syndrome**

- Encapsulated, double, synovial joints between the condyles of the mandible & temporal bones of the skull
- Etiology:
 - Many causes



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Jaw**

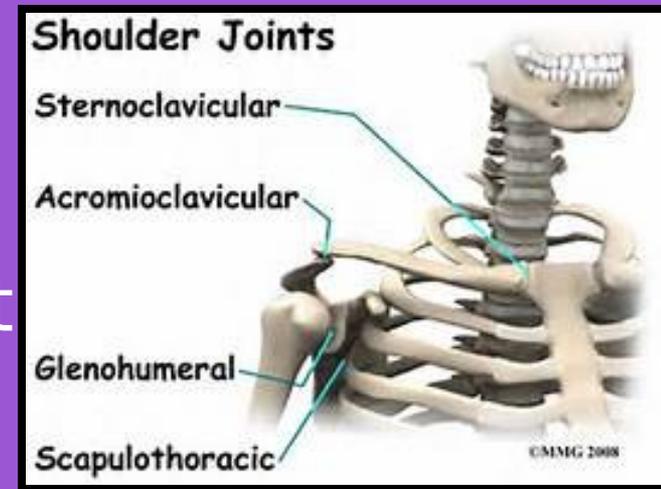
- **TMJ Syndrome**

- Diagnosis – R/O tooth decay, or sinusitis
- S/S = facial pain usually unilateral, limited motion, clicking or crepitus with movement, ↑ pain with movement, earache or headache
- Tx: PT, Meds, Soft diet, ice/heat, massage, exercise

COMMON DISORDERS OF SPECIFIC BODY PARTS

• Shoulder

- 4 shoulder joints:
 - Scapulothoracic joint
 - Glenohumeral joint
 - Acromioclavicular joint
 - Sternoclavicular joint
- Bones Involved:
 - Scapula, clavicle, humerus



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Shoulder**

- Recurrent Dislocation

- Usually anterior
- Once damaged – weak muscles & ligaments contribute to repeated dislocations
- If this fails, can have surgery to strengthen the anterior joint capsule

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Shoulder**

- **Rotator Cuff Tear**

- Glenohumeral joint between scapula & humerus, has a fibrous capsule reinforcing the tendons of 4 muscles = the Rotator Cuff
- S/S = abrupt pain, weakness, “clicking” sensation, cannot abduct

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Shoulder**

- Rotator Cuff Tear

- Diagnosis = US, CT, MRI, Arthogram,

- Conservative Treatment if there is a partial rupture

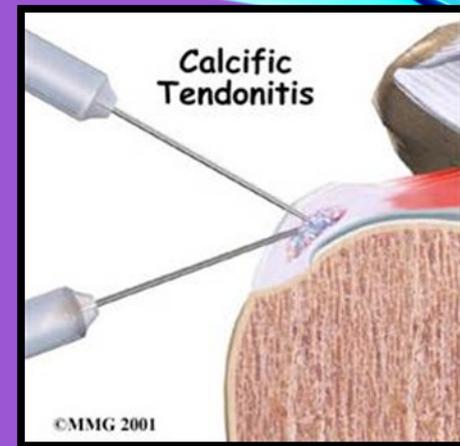
- Rest, immobilization, anti-inflammatory & Corticosteroids meds, increasing PT, infiltration with a local anesthetic to relieve pain

- Surgical repair for a complete rupture

• Shoulder

• Calcified Tendons

- Degenerative changes - often seen with calcified tendonitis or bursitis
- Degeneration of tendon causes fraying, allowing calcium deposits to adhere
- S/S = aching pain which ↑ with movement
- DX = X-ray
- TX: rest, sling, anti-inflammatory meds, moist heat, or inject with anesthetics or steroids
- May need surgery to excise / aspirate the deposit

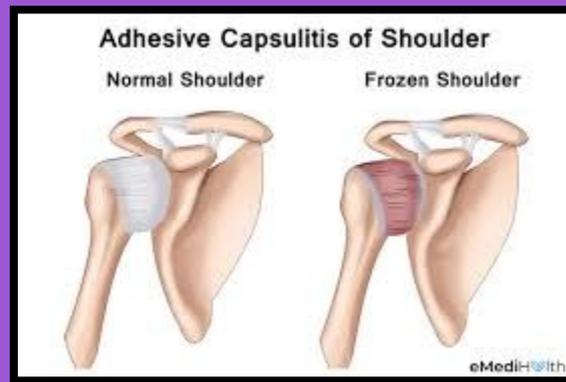


COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Shoulder**

- **Frozen Shoulder**

- Some reasons why a patient may limit shoulder movement
- Angina, post-mastectomy, trauma, immobility
- Capsule adheres to the humeral head
- Capsule thickens & forms adhesions



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Shoulder**

- **Frozen Shoulder**

- Treatment:

- Anti-inflammatory meds
 - Rest
 - Rehab is usually self-limiting
 - Surgery may be needed
 - Prevention is key!

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Shoulder**

- Post-Op care:

- NV assessments
- Ice, ✓ dressing
- Immobilizer – usually 1 month
 - ✓ position of arm – may fall back while lying in bed and cause ↑ pain
 - Do not remove axilla pad unless okay with MD

COMMON DISORDERS OF SPECIFIC BODY PARTS

• Shoulder

• Post-Op care:

- Avoid jarring when OOB and with ADL's
- ROM of other joints
- Pendulum exercises first (days to months)
- Follow restrictions at home → avoid lifting above shoulder level

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Elbow**

- Tennis elbow (epicondylitis)

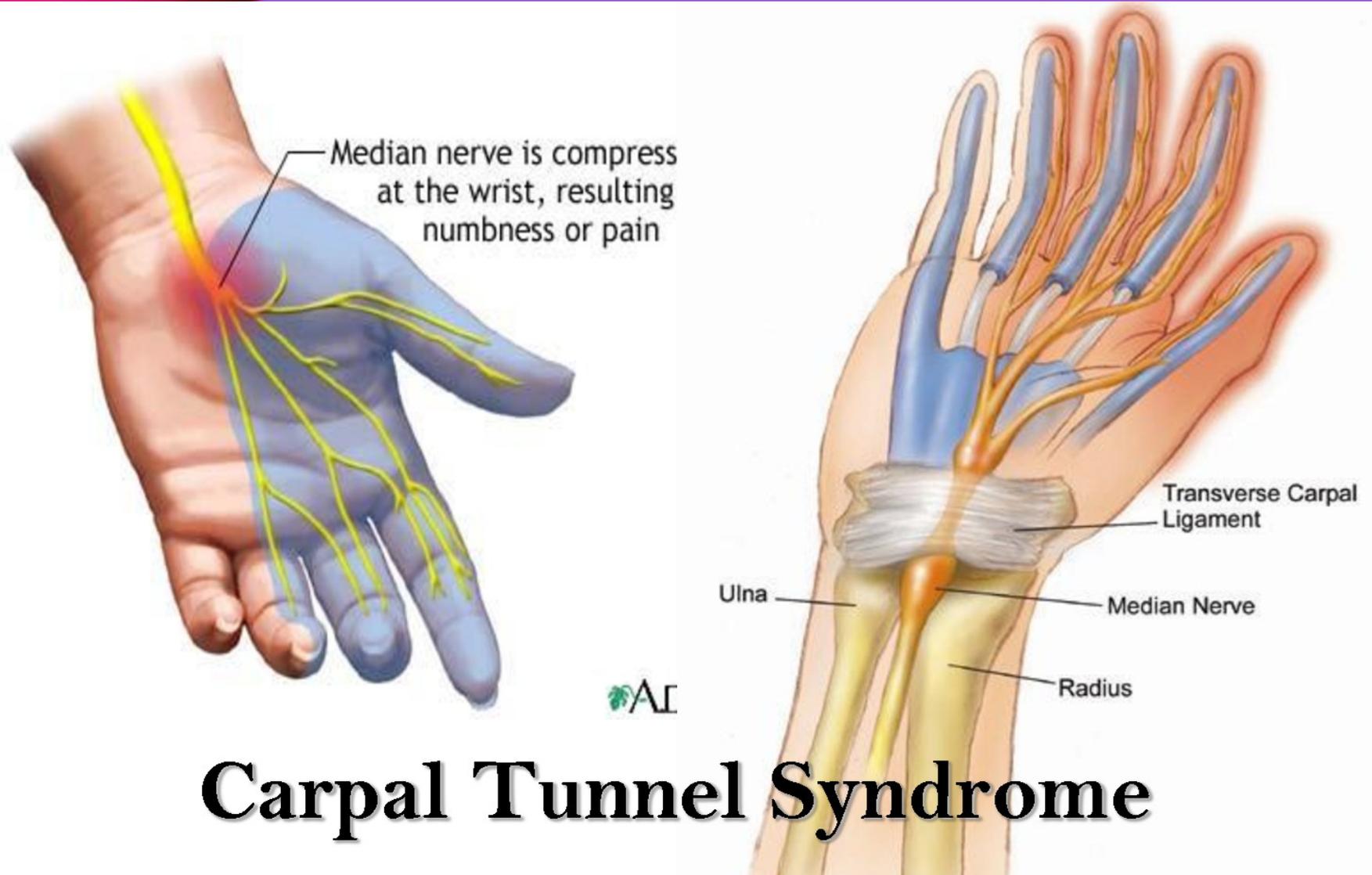
- Pain over lateral epicondyle of humerus radiating to outer side of arm & forearm
- Pain aggravated by dorsiflexion & supination of the wrist
- Usually caused by strain – playing tennis, pitching, golfing

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Elbow**

- **Tennis elbow**

- Treatment = immobilization via splint → rest, heat, analgesics
 - May inject with steroid or anesthetic
 - Exercises after 1 week
 - May need surgery in continuous cases



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- **Carpal Tunnel Syndrome**

- An entrapment syndrome
- Caused by compression of the median nerve within the carpal tunnel of the wrist
- Carpal tunnel – formed by carpal bones & transverse carpal ligament
 - Median nerve, blood vessels , & flexor tendon pass through

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- **Carpal Tunnel Syndrome**

- **Causes:**

- ↑ volume in CT = edema
- Inflammation of tendon or carpal joints, fx, congenital abnormalities, tumors.
- History of strenuous repetitive use of hands
- After a wrist injury
- Systemic diseases (RA)
- Fluid retention - pregnancy

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- Carpal Tunnel Syndrome

- S/S:

- Weakness, pain, burning, N/T in one or both hands, ↓ sensation in thumb, forefinger, middle and 4th fingers
- Unable to clench fist, clumsy, nails may be atrophic, skin dry and shiny
- S/S often worse at night & in the AM
- Pain may spread to forearm & shoulder with relief by shaking, dangling, or massaging the hands

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- **Carpal Tunnel Syndrome**

- Diagnosis:
 - H & P
 - + Tinel's Sign = occurs when S/S reappear by tapping the median nerve at the wrist
 - + Phalen's = flex the wrist for one minute, N/T should occur over the median nerve area
 - Can see S/S when BP cuff is inflated
 - EMG, NCV, x-ray to rule out fx's

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- **Carpal Tunnel Syndrome**

- Treatment:

- REST!
- Splinting the wrist in a neutral position
 - (immobilization)
- NSAIDS, steroids, diuretics
- May need to change jobs
- Surgery - release the transverse carpal ligament, which decompresses the median nerve

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- Carpal Tunnel Syndrome

- Treatment:

- Post -Op

- SDS \approx 45 min to 1^o procedure

- Elevate the arm

- Assess drsg & splints

- NV checks

- Slowly \uparrow activity after 2-3 days post-op

- Hand movements, including heavy lifting may be restricted 4-6 weeks.

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- **Ganglion**

- Cystic structure adjacent to a joint or tendon

- Etiology: unknown

- S/S: Painless, non-inflammatory, may be painful after use

- Carpal Tunnel S/S if the median nerve is compressed

- Treatment: aspirate, but commonly reoccurs



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- Dupuytren's Contracture

- Contracture of palmar fascia causing the ring & little finger to bend into the palm so that they cannot be extended
 - Slowly progressive contracture – flexion deformity
 - Often occurs bilaterally in men past middle age
 - Inherited; associated with gout & arthritis
 - Treatment = enzyme injection, or surgery to remove the palmar fascia

DUPUYTREN'S CONTRACTURE



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Wrist & Hand**

- Dupuytren's Contracture

- Post-Op Care:

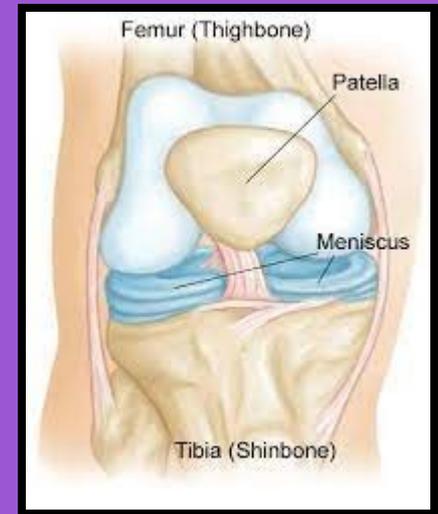
- Elevate
- Ice
- As much ROM as possible
- Check NV status
- Check drsg
- Immobilizing device as ordered
- Teach ADL's

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Knee**

- Meniscus Injuries

- Intra-articular cartilage pads attached on the sides and on top of the tibia
- Act as a shock absorber to facilitate articulation between the tibia & femur
- Can tear with trauma → rotation & twisting movement when the knee is flexed & the foot is firmly planted in the ground



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Knee**

- Meniscus Injuries

- Diagnosis: MRI, arthrogram, and arthroscopy

- Treatment:

- Initially = ice, immobilize, ↓ use, protected wt. bearing
 - Need exercises to strengthen the stability of the knee
 - Long term Complications = quadriceps atrophy & DJD

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Knee**

- Meniscus Injuries

- S/S: Pain, mild effusion, tenderness
 - Pain with abduction or adduction of the leg at the knee
 - Snapping, clicking, or jerking of the knee
 - “Locked knee” – if torn cartilage becomes displaced it may get jammed between the femur & tibia
 - Prevents extension

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Knee**

- Meniscus Injuries

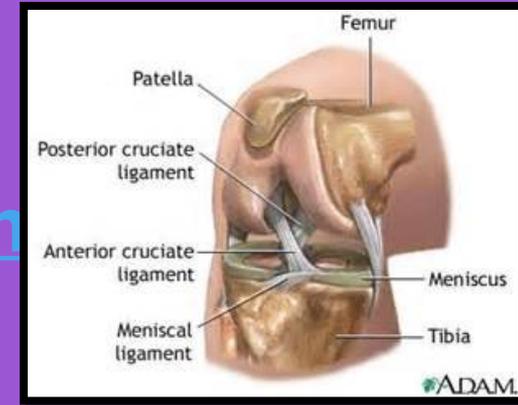
- Surgery:
 - Meniscal repair/suture
 - Meniscectomy via arthroscope → may remove all or part of the meniscus
 - Post-Op = use partial wt. Bearing
 - Elevate & Ice
 - NV assessments, drsg changes, assess pain
 - Knee immobilizer
 - Progressive ROM several days after surgery
 - FWB may be restricted for several weeks

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Knee**

- Anterior Cruciate Ligament Rupture

- Ligament between tibia & femur
- Rotates and bends the knee
- S/S: swelling, knee instability, pain
- Dx: H & P, x-rays, MRI, arthroscope (best)



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Knee**

- Anterior Cruciate Ligament Rupture

- Treatment:

- RECIPE

- Older pt – immobilize via a cast for 6 weeks & then progress to a brace

- Younger pt– surgical repair, may use artificial ligament implant

- Usually done through arthroscope

- Post-Op = Rehab! Limited ROM exercises

- May take 6-9 months to heal

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Knee**

- **Tendon Rupture**

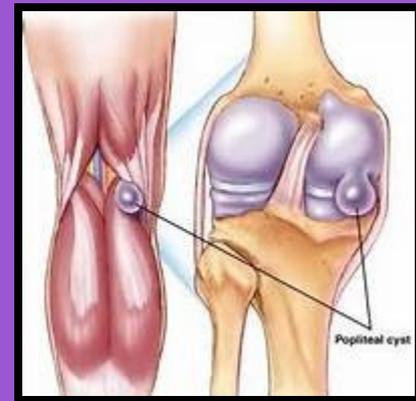
- May occur due to chronic inflammation or trauma
 - Patellar tendon & quadriceps tendon
 - S/S: Unable to extend knee, lump, pain, swelling
 - Treatment: surgical repair then immobilized for 6-18 weeks
 - Rehab and PT

COMMON DISORDERS OF SPECIFIC BODY PARTS

• Knee

• Popliteal Cyst (Baker's Cyst)

- Cyst containing synovial fluid communicating with synovial fluid of a joint
- Distension of the popliteal bursa caused by recurrent effusions or trauma secondary to friction
- S/S: ↓ ROM, pain
- Diagnosis: US, arthrogram
- Treatment: treat what's causing the effusion; may need to excise the cyst



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Ankle**

- **Achilles Tendon Rupture**

- Usually occurs after tendonitis but can also occur with trauma
- S/S: sudden knife-like pain, bulge in calf, gait disturbances unable to plantar flex ankle
- Dx: squeeze the calf, and the foot will move = gastroc/soleus muscle pinch test
- Treatment: Splint, compress, ice, elevate
 - Surgery → cast

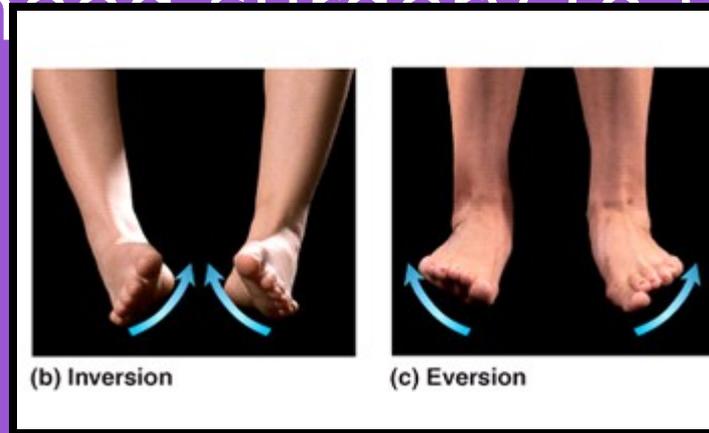


COMMON DISORDERS OF SPECIFIC BODY PARTS

- Ankle

- Chronic Lateral Ligament Instability

- Usually secondary to a series of ankle sprains
- May need surgery to treat



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Feet**

- **-Hammer Toe**

- Usually a deformity of the 2nd toe
 - Proximal Interphalangeal Joint
 - Often associated with a bunion
 - Causes permanent bending
 - Resembling a hammer



COMMON DISORDERS OF SPECIFIC BODY PARTS

- Feet

- Hammer Toe

- Cause: incorrect fitting shoes, or may be congenital

- S/S: burning on bottom of foot, pain & difficulty walking when wearing shoes

- Treatment:

- Conservative = passive stretching of PIP joint & metatarsal arch support
- Surgery = osteotomy via Kirschner wires for straight positioning
- Crutches until FWB in 3-4 wks



COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Feet**

- **Plantar Fasciitis**

- Injury of the plantar fascia – the ligament connecting the heel bone to the toes
- Repeated stress causes tiny tears, leads to pain when foot placed down
 - Often worse in the morning, then better through the day, then worse again at night
- Common in middle-aged adults, military personnel

COMMON DISORDERS OF SPECIFIC BODY PARTS

- Feet

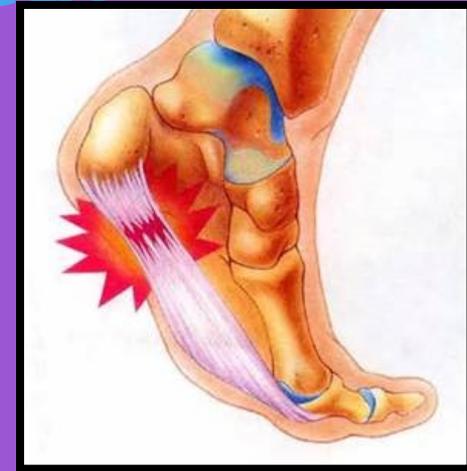
- Plantar fasciitis (continued)

- Other risk factors:

- High arches/flat feet, overweight, long periods standing, running on hard surfaces, ill-fitting shoes

- Treatment

- Conservative measures
 - Surgery usually not indicated, months of treatment first.

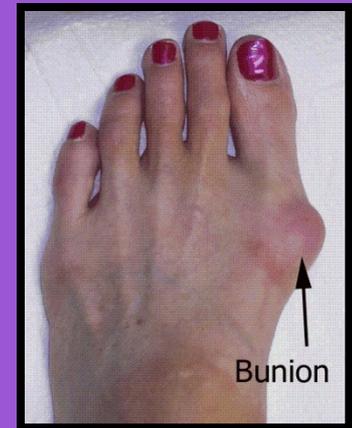


COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Feet**

- Hallux Valgus (Bunion)

- Painful deformity of large, great toe
- Great toe deviates laterally toward 2nd toe
- Bony enlargement of medial aspect of the 1st metatarsal head with a bursa or callus forming over it
- Etiology: heredity, RA, narrow shoes, flat feet



COMMON DISORDERS OF SPECIFIC BODY PARTS

- Feet

- Hallux Valgus (Bunion)

- Treatment:

- Conservative = wear shoes with a wide “forefoot” or “bunion pocket” & use bunion pads to ↓ pressure on the area
- Surgery = if S/S get worse → bunionectomy
 - Assess pain, N/V, elevate/ice
 - Toe flexion & extension exercises
 - Wear shoes that aren't tight (bunions can re-form)

COMMON DISORDERS OF SPECIFIC BODY PARTS

- **Feet**

- Corns

- Localized thickening of the skin caused by continual pressure
- Overgrowth of the epidermis from ↑ pressure
- Usually over bony prominences
- Treatment: soften with water & trim with scalpel or razor

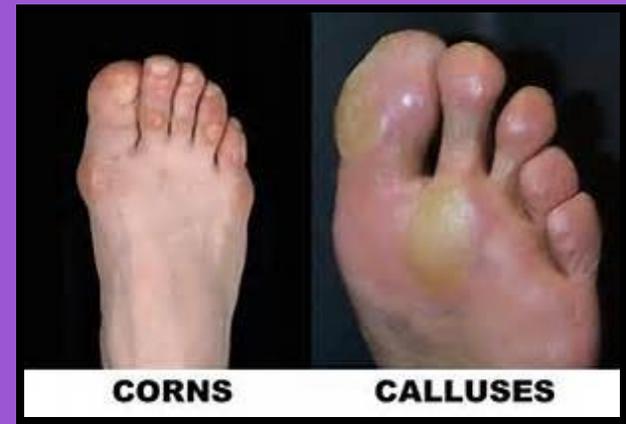


COMMON DISORDERS OF SPECIFIC BODY PARTS

- Feet

- Callus

- Composed of the same material as corns
- Thickening of skin
- Develop on the ball or heel of the foot



COMMON DISORDERS OF SPECIFIC BODY PARTS

- Feet

- Plantar Wart

- Wart occurring on the sole of the foot
- Caused by a strain of HPV virus
- Treatment: excision with electrocoagulation or surgical removal

