

GymCon USA Las Vegas 2013

Common Gymnastics Injuries Summarized and Why
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Tenets of Understanding...

1. You are never out of the gym unless it is the day of surgery, your rest day, or you have something contagious. Otherwise, there is always something to watch, do, strengthen, stretch or visualize
2. Pain needs to be listened to, unless to be worked through from medical advice
3. Ice only tightens things, does not heal them. Good for after practice to prevent buildup. Heat stretches, brings good blood flow to heal.
4. Most things do not go away on their own.
5. The most important thing is open communication with your athlete

Outline

1. Why do we get injured?
2. Theory on body demands
3. Prevention comes from...
4. Top 10 injuries and Why...?

1) Why do we get injured

- Repetitive motion
- End range motion- Muscle
- End range motion- joint
- Velocity
- Force
- Overuse
- Recovery ratio

2) Theory on Body Demands

1. You will get more tired as
 1. the hours go by
 2. the days of the week between practices
 3. Increased hours
 4. Decreased rest days
 5. Decreased recovery
 6. Length of season

(Cont)

2. More is not always better

- Increased reps lead to learning on a sin curve aspect of rise and fall
- Fatigue leads to mistakes

3. Louder and harder not better either...

(cont)

4. Quality over quantity

(EX) Hollow Hold

(EX) Handstand push ups

3. Prevention comes from...

- Preparation
- Skill breakdown match up
- Detail
- Muscle Memory Quality
- Prehab
- Recovery

- Preparation

- Make sure that muscle are not overused trying to “chuck” skills
- Conditioning is so very important. More so, the person watching the conditioning for form and mechanics
- Prep for falls, overrotations, pulling out of skills, short landings, etc.

- Skill Breakdown Matchup

- Shoulder flexibility- is it there? If not, why are you doing a Tkatchev?
- Spine and shoulder strength... are they ready for cast handstands? Putting them in the corner to try 100 within the week will only encourage habits as well as injury
- IS the spine hurt? Then trying 2 ½ back twist when the first 3 were good and the last 3 were more of 2/1 with the lower body and 2 ½ with upper means ACL injury, back strain, etc...

- Detail

- Attention to detail in all that you do will go so far.
- Every time you are in a split position, the leg is turned under, and the body upright
- Every time you do a handstand push up, the spine is locked isometrically

- Muscle memory quality

- Muscle memory does not care if it is right or wrong. It is based on:
 - focus (brain muscle connection)
 - repetitiveness and
 - sequencing

- Prehab

- Take 20% of your time in the gym for stretching, conditioning, endurance building, ankle stability and balance, core, recovery, rolling, etc.
- Ex: just starting flight series of BH Lay on beam? Going to be doing hundreds? Take care of your spine in advance...

- Recovery

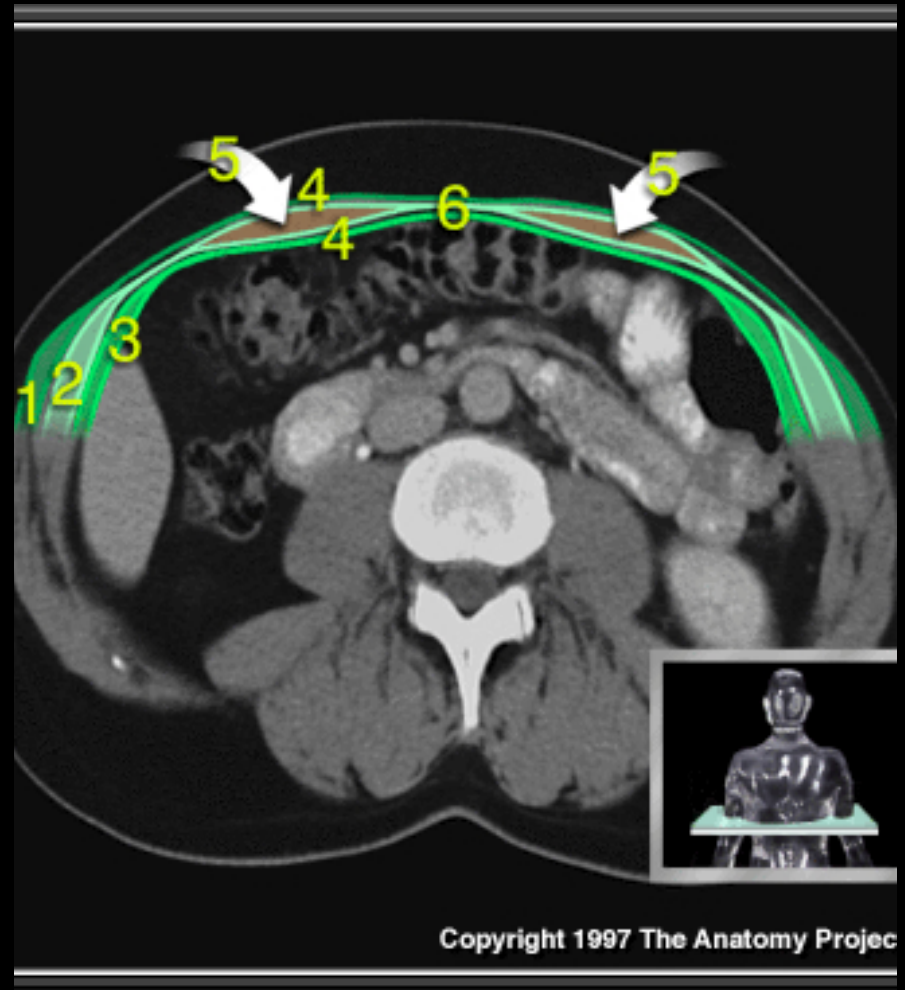
- Recovery happens before you leave the gym.
- Stretching at the end of the day to refocus the muscle from its work and hypertightening
- Sleep
- Water
- Nutrition
 - Antiinflammatory diets, dairy, complex sugars/carbs, etc.
- Roll Roll Roll!!!! (quads, ITB, Hamstring, calves, plantar part of foot, hip flexor with ball, pecs with ball, mid scap with ball....

4. Top 10 Injuries and why

1. Spine Fracture
2. Ankle sprain
3. Foot
4. Wrist
5. Elbow
6. Shoulder
7. Muscle Strain/Tear
8. Growth related (Osgood, Severs)
9. Shins
10. Achilles

1. Spine

- Muscle Strain
- Whiplash
- Fractures/spondy category injuries
- Discs



(cont)

- Advice:
 - Pay attention to pain
 - Focus on motion that causes
 - Write down reps
 - Get films
- Skills
 - Disc = no running or excessive bending
 - Fx = complete rest and watch numbers on return
 - Sprain = no overuse

2. Ankle Sprain

- Rolling of the ankle
- Lateral ligament instability
- Next step.. Muscle tear from hyperstretch or hypertighten to help to prevent the injury ... but gravity and position won



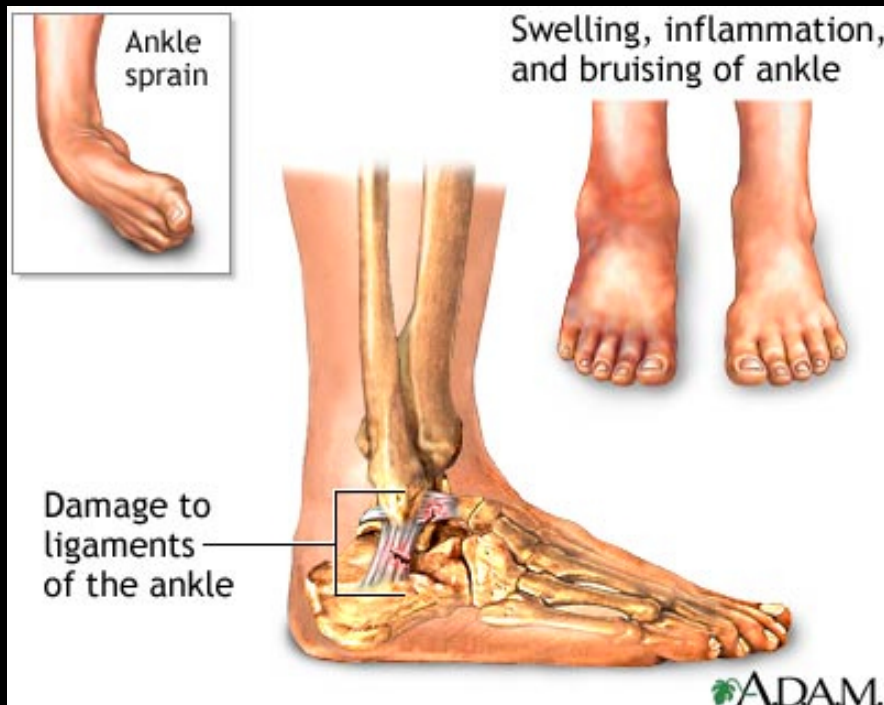
(ankle cont)

- Advice:

- Taping
- Bracing
- proprioception

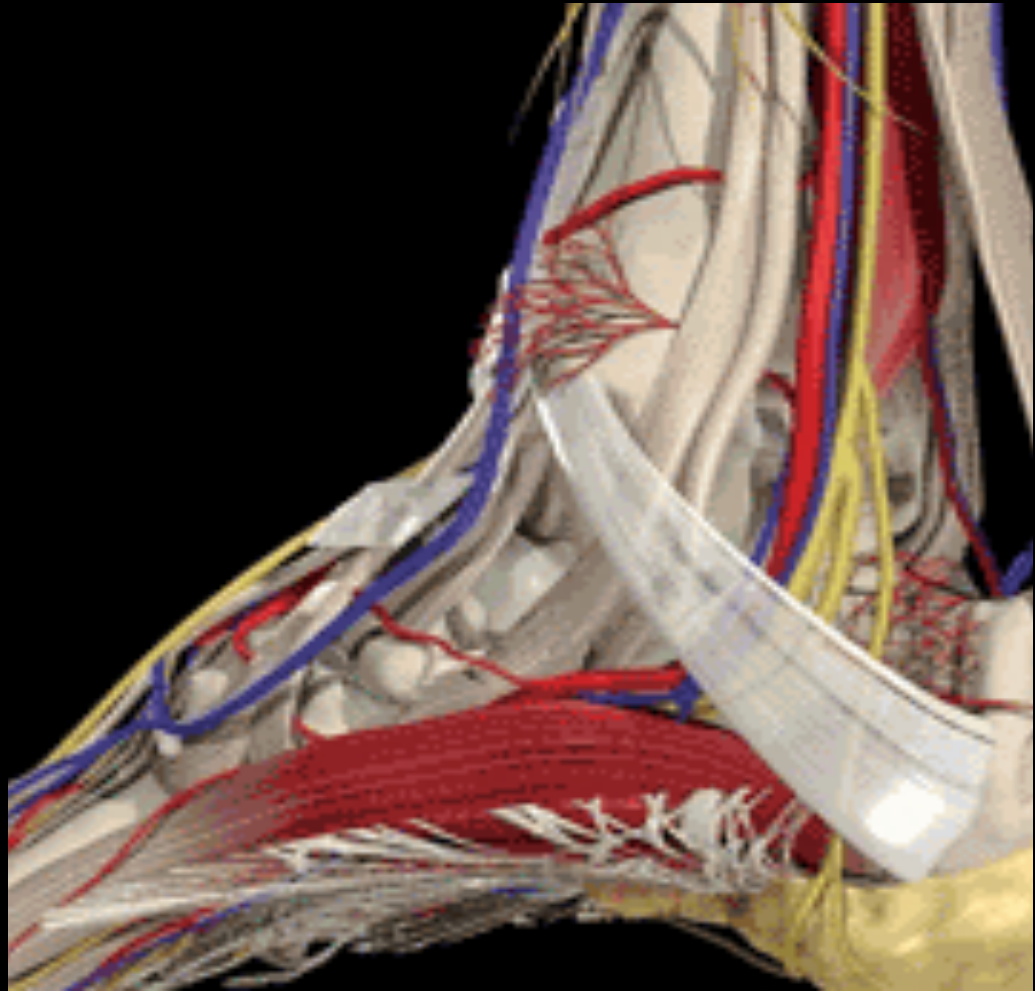
- Skills

- Hard landing before soft
- Ramp up two ways
 - High with brace
 - 1-2 steps back without
 - Confidence
 - Jump test =



3. Foot

- Plantar Fasciitis
- Sesmoid bone irritation
- Stress Fracture of toe/Jones

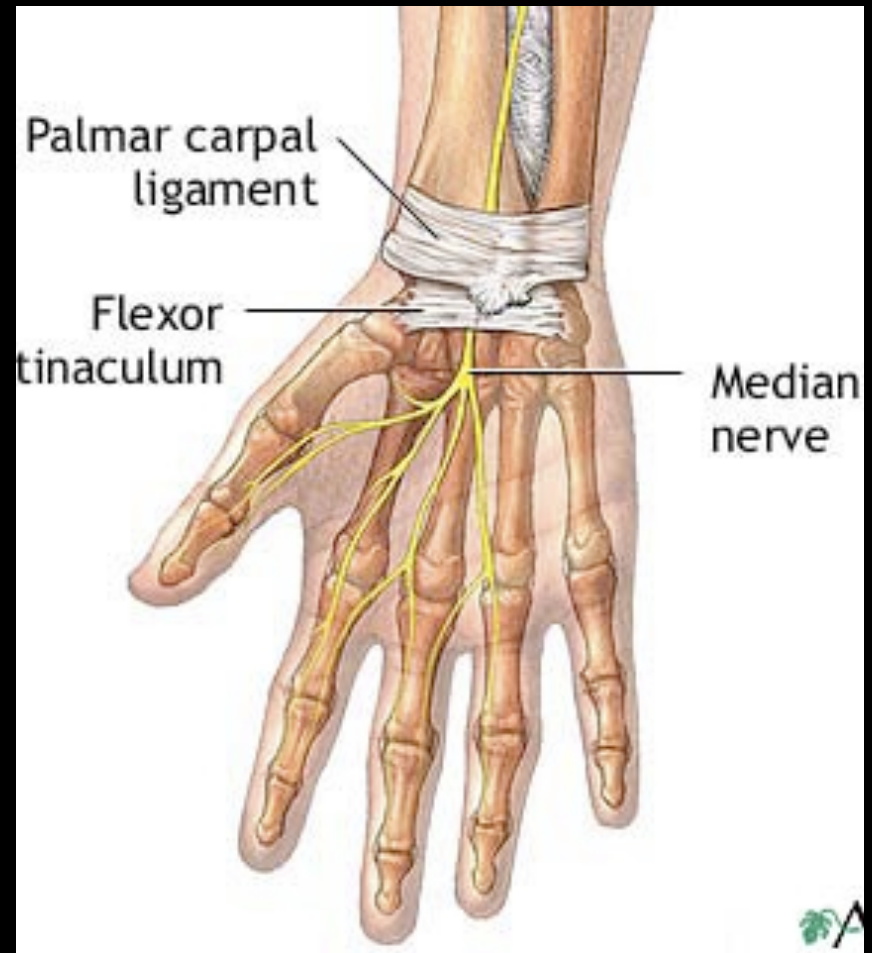


(foot cont)

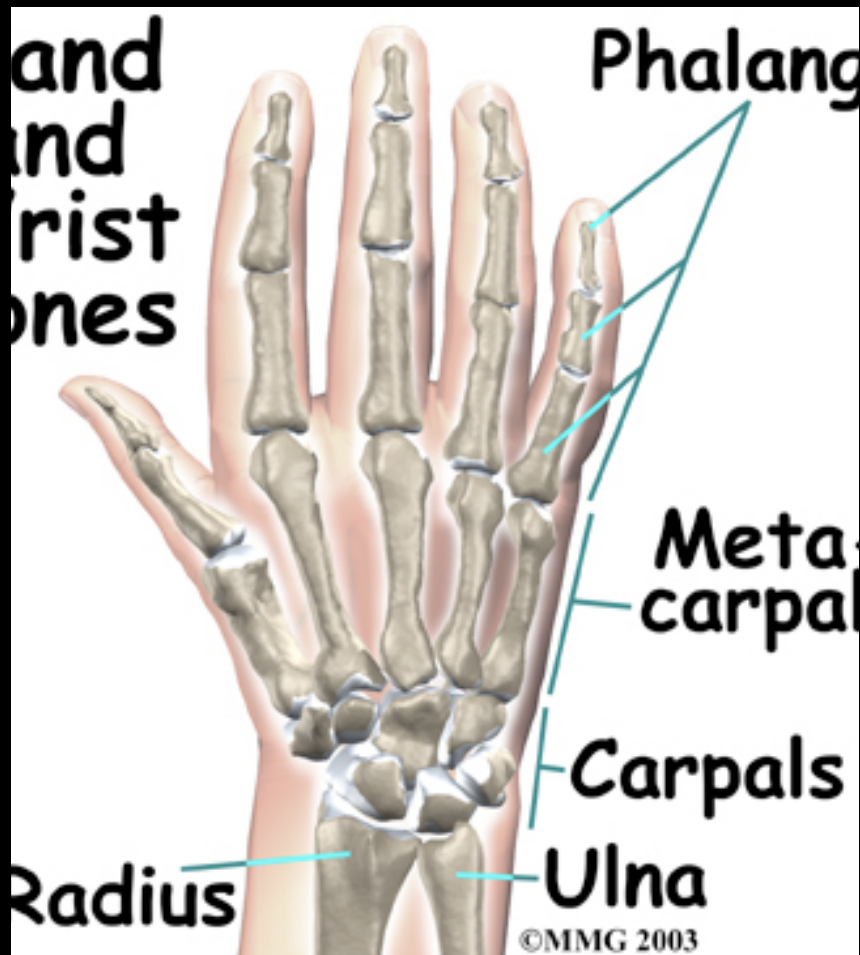
- Advice:
 - Roll the calves
 - Roll the bottom of the foot
- Skills
 - Releve limits
- Other
 - Shoe wear outside of gym

4. Wrist

- Sprain
- TFCC
- Impingement (top of wrist with weight bearing)
- Forearm splints



Wrist Pics



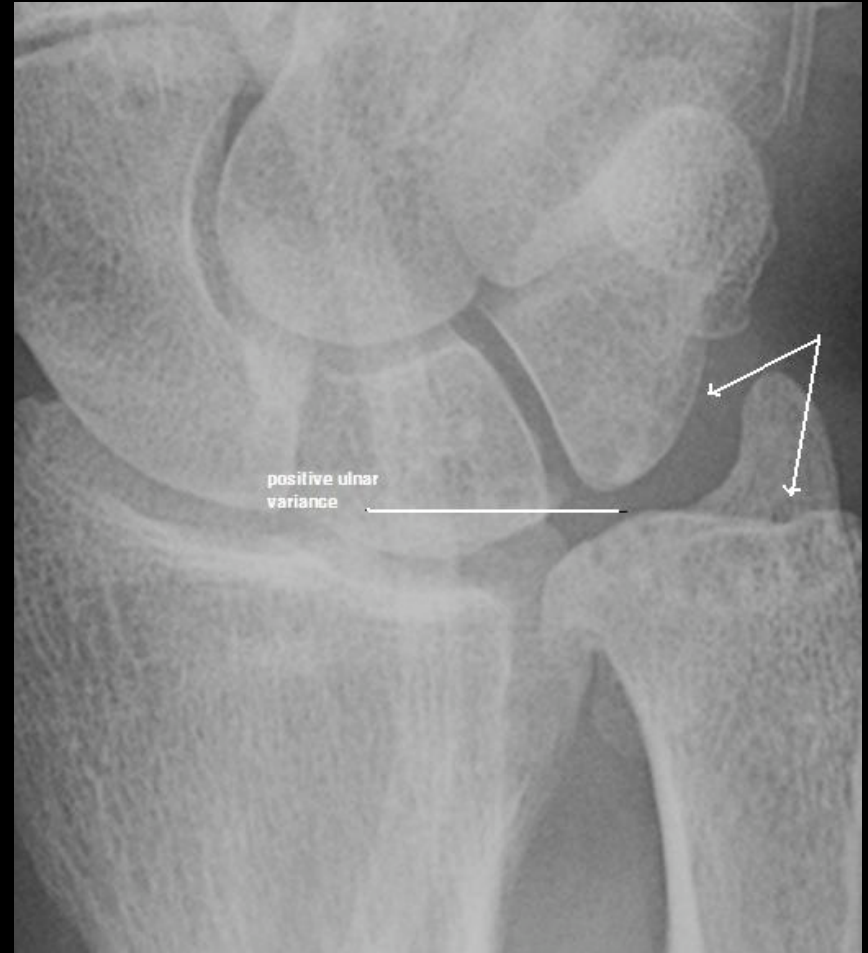
Wrist Stretches



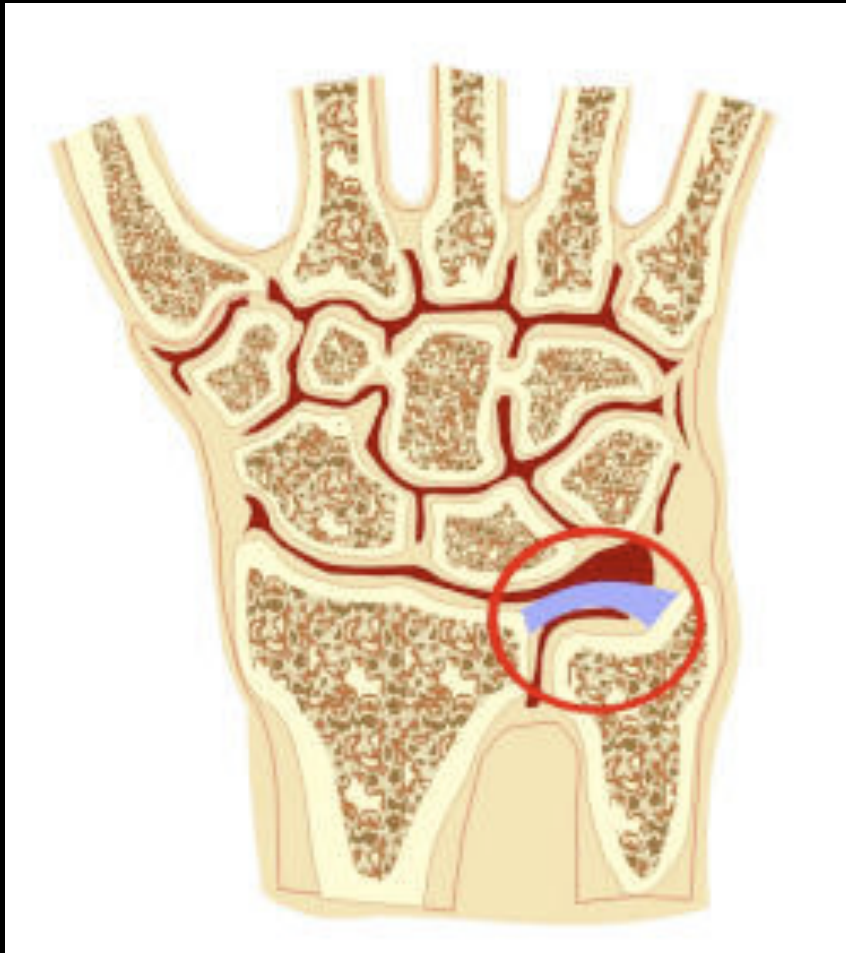
(wrist Cont)

- Advice:
 - Shoulder and elbow eccentric strength will prevent and make recovery easier to absorb force in weight bearing on the wrists
 - Needs hands on PT mobilization for carpal bones and ligaments in wrist that cannot be “Stretched” away
- Skills
 - Rotational pronation and supination such as Germans, blinds, pirouettes, P bar work, Rings, pommels need to be the last to be added
 - Splints: need to watch grip time and intensity

Ulnar Variance/TFCC



UV Cont.



5. Elbow

- OCD
- Pannars
- Tendinitis
- Hyperextension
- Triceps
- Biceps
- Shoulder Protractors

(Elbow Cont.)

- Advice:
 - Shoulder strength and spine position is key to absorbing vertical forces and reaction forces in tumbling, beam and vault
 - Concept of hyperextension and predisposition to injury because of:
 - Position and kinematics
 - Strength of laziness
- Skills
 - High to low transitions need to be watched
 - Rotational skills on bars
 - Handstand hold not in HE

6. Shoulder

- Repetitive Stress/ RCT
- Bicep Tend.
- Impingement/Mechanics

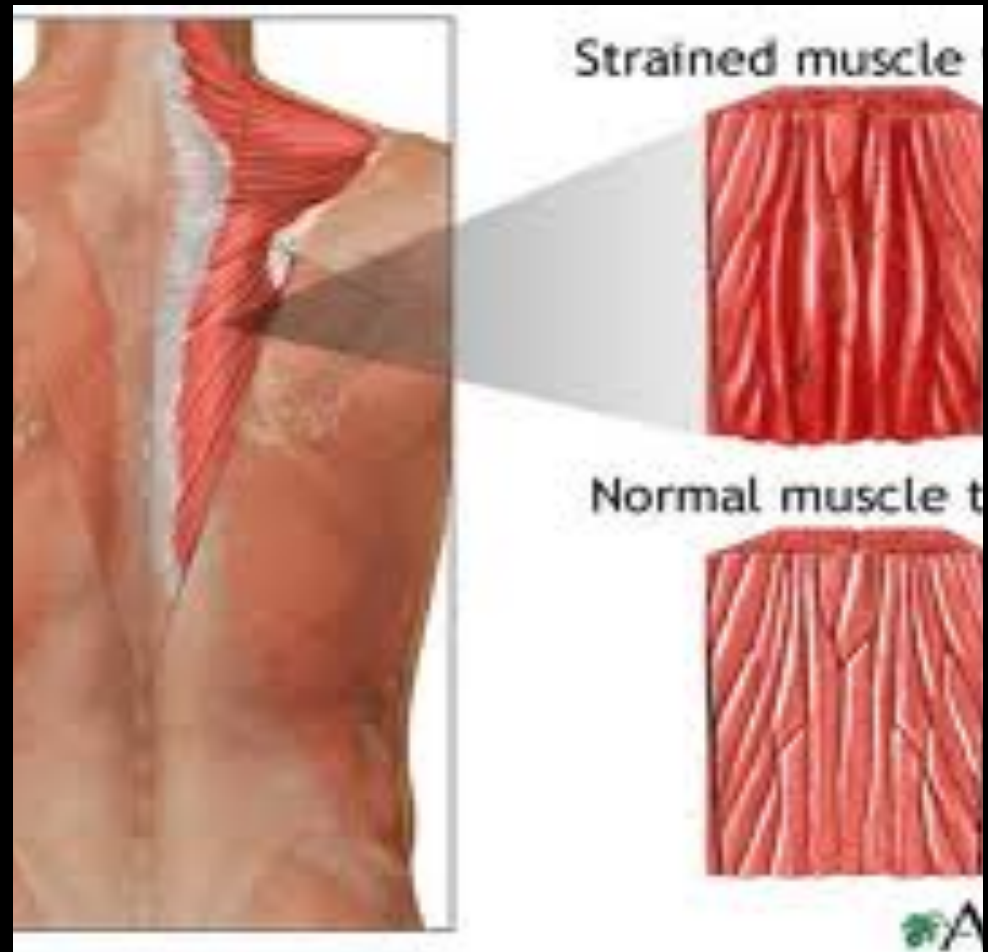


(Shoulder Cont)

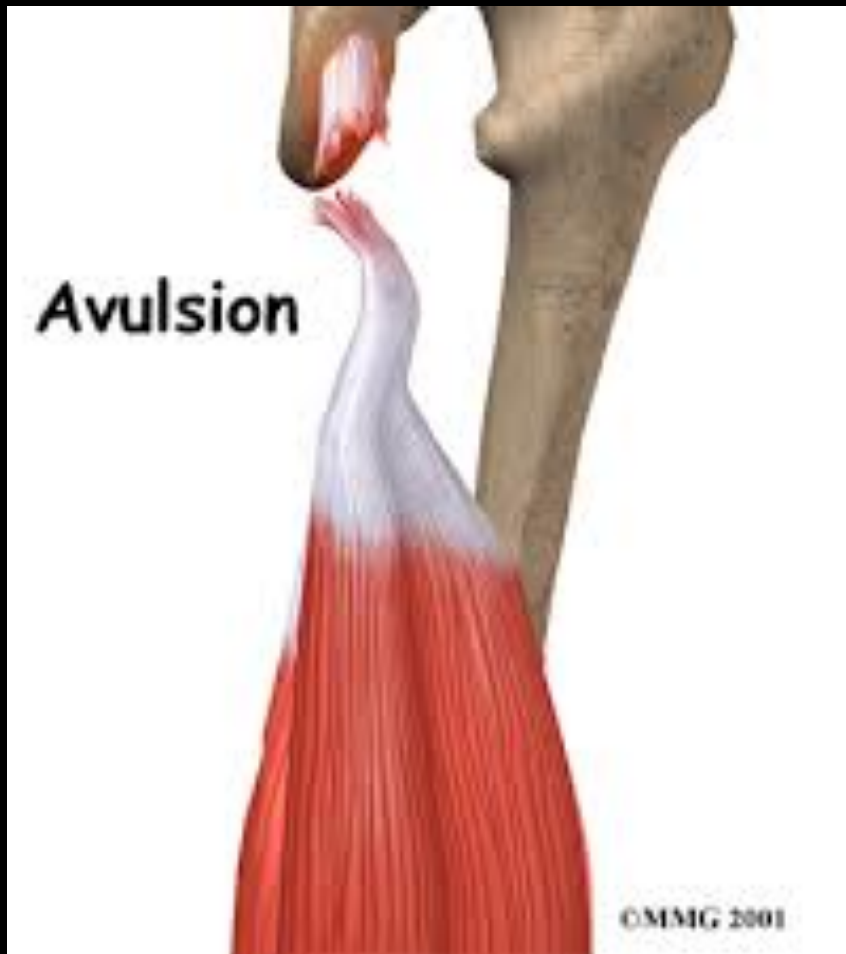
- Advice:
 - Spine flexibility is a huge predisposing factor
 - Kinematics of rib, scapula., collar bone and muscles
- Skills:
 - Hyperflexion
 - Rotation in weight bearing

7. Muscle

- Strain
 - overtightened
- Tear
 - Small fiber or large
 - From hyperlengthening



Muscle Strain and Tear Pics



(Muscle Cont.)

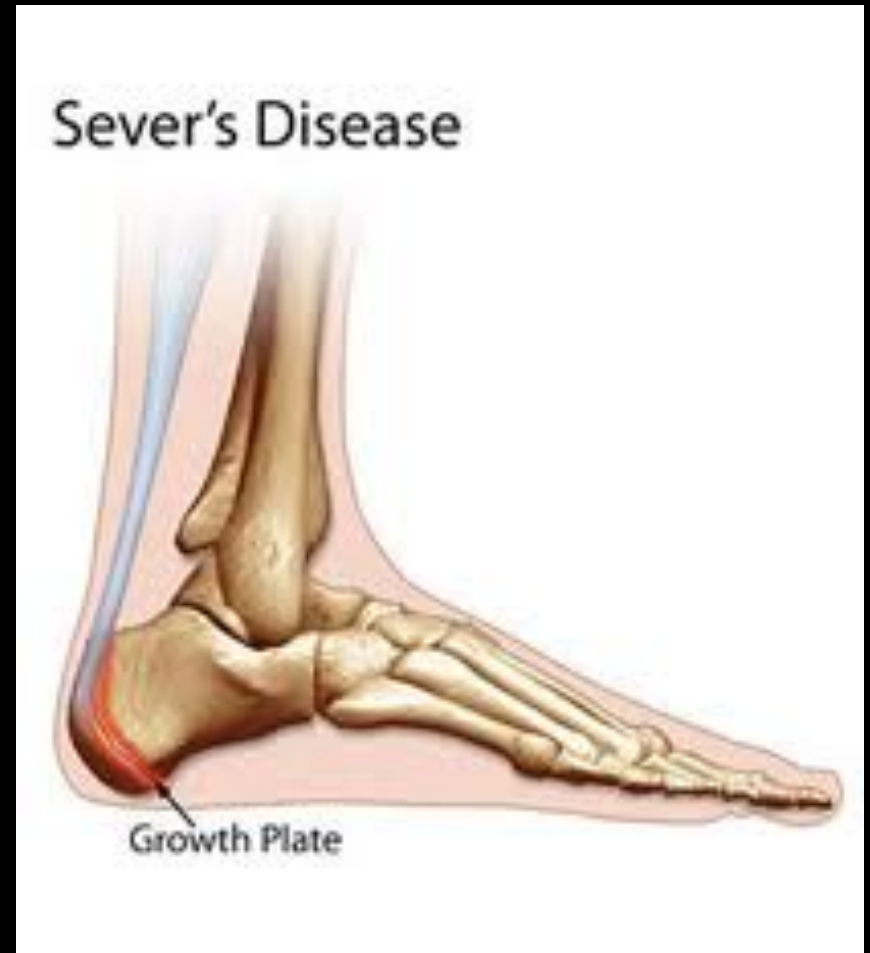
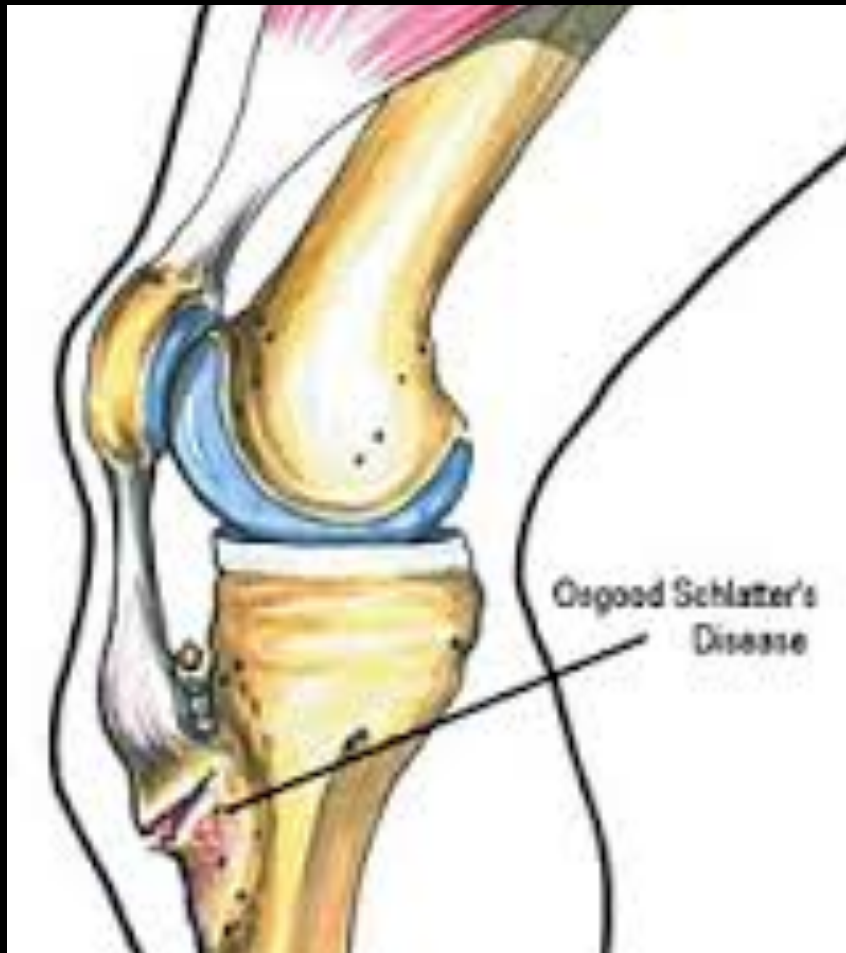
- Advice:
 - Stretching to help only within pain free range
 - If pain, not allowing healing
 - Stretch after heat, muscle work, and rolling, never cold
- Skills:
 - Avoid end range motion that stretches
 - Let pain be guide... there is a reason

8. Growth Related

- Osgoods
 - Knee pain at the tibial tuberosity where tendon pulls off of the bone
- Severs
 - Pain at the attachment of the achilles to the bone
 - Irritation from it pulling off from tension, short landings, or shortened achilles



Pics



(Growth Cont)

- Advice:
 - Roll roll roll!
 - Massage with heat
 - Time off with help to diminish symptoms, but not the issue
 - Traditional PT will not work with stretch (NO!), want to length mm through working the tissue
 - TOUCH COUNT!
- Skills
 - Short landings
 - Back tumbling will hurt more than front
 - Landing soft will hurt more than hard, the heel will drop on Severs
 - Low numbers, low reps, avoid conditioning that does the same

9. Shin

- True “Splints” or fractures
 - Diagnosed by bone scan or MRI
 - Xrays may not show
 - PT tuning fork test
 - Pain on the bone with pressure
- Posterior Tibialis Tendinitis
 - Pain in the muscle that runs along the inside of the shin



Interactive Foot and Ankle 2 © 2001 Primal Pictures Ltd

(Shin Cont)

- Advice:
 - Diminish numbers
 - Proper shoe wear outside of the gym (no Uggs, no flipFlops)
 - Proper supportive arches in shoes and inserts/orthotics
 - Jump Count in practice
 - Compression sometimes helps
 - Gluteal strength to balance calves in landings, absorb force
 - ROLL ROLL ROLL!
- Skills:
 - Avoid plyo conditioning
 - Use of TumbTrak for repetitiveness (still get air sense, muscle memory in air, etc.)

10. Achilles

- Length issues
- Attachment (see Severs)
- Tendinitis



(Achilles Cont)

- Advice:
 - Figure out the pain, when it comes, where (tendon or at the heel)
 - Mark growth charting, tall, and when spurts are and last
- Skills:
 - Soft landings lead to drop in heel
 - Shoe wear outside of the gym

TOYS!!!!

- TP roller- For everything
- Wood Wheel- bottom of foot
- TP ball for hips and glutes and mid scap
- TumblTrak- tumbling, etc.
- Sweet Spot (TT) for decreasing forces through arms and legs and more
- Stall Bar
- Airex Pad- for balancing
- Therabands- with wall with Eye Hooks...

(Toys Cont.)

- Lots of dowel rods...in a bucket!
- Foam Roller- for spine
- Swiss Balls
- Wrist twister
- Hot packs- and microwave or collator
- And.....

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