Hand and Wrist Injuries in the Athlete

Diagnosis, Treatment, and Return to Play Guidelines

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Financial Disclosures

- No relevant financial disclosures.
- No off-label use will be discussed.

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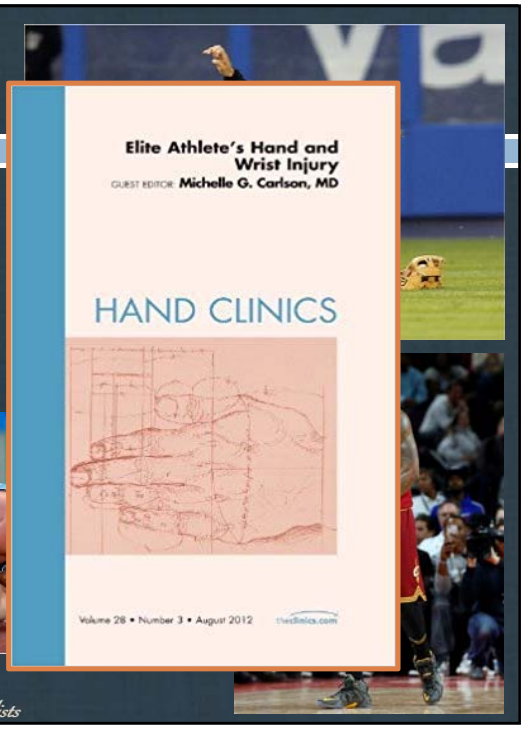
Outline

- General considerations
- Unique injuries
  - Mallet and Jersey finger
  - PIP joint dislocations and sprains
  - Thumb UCL rupture
  - Scaphoid fracture
  - ECU tendon subluxation



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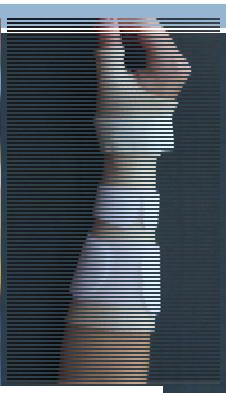
Hand and Wrist Injuries in the Competitive Athlete

- Commonly encountered
- Important
- Multiple considerations, highly individualized
  - Age and skill of athlete
  - Timing within season
  - Position and demands of specific sport
  - Type and severity of injury
- Ultimately, must consider long term consequences of potential outcomes
- Play in cast or brace
  - "Waterproof" cast vs. custom splint or cast-brace



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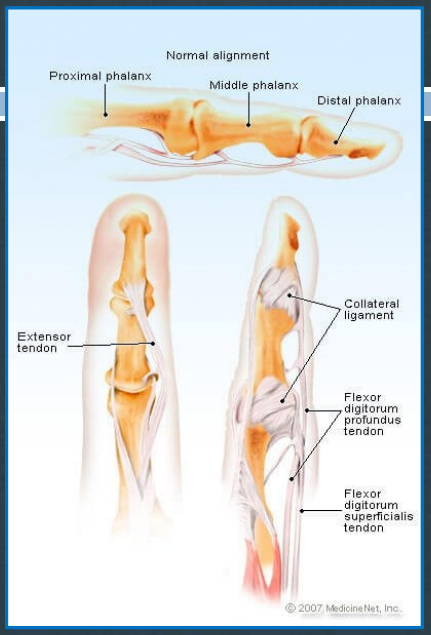
Mallet and Jersey finger

- Disruption of the terminal flexor/extensor tendon
- Diagnosis based on clinical exam
  - X-rays to evaluate bony component
- Mallet finger = "Baseball finger"
  - Generally better tolerated, rarely requires surgery
- Jersey finger
  - Significant morbidity, usually requires surgery



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Mallet finger

- Bony injury vs. soft tissue only
- Mechanism often benign
- Inability to initiate/maintain DIP extension
- Begin splinting immediately
  - Can be effective if delayed several weeks
- Full time extension splinting x6 weeks
- Expect residual extension lag
- Usually permits full performance

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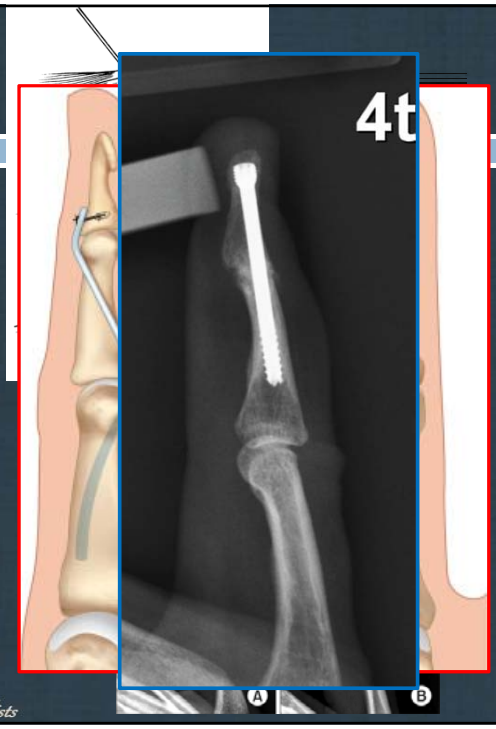
Surgical repair

- Reserved for refractory symptomatic cases
- Large fragments with joint subluxation
  - CRPP, blocking pin technique
  - Dorsal hook plate fixation
- Concern for infection, hardware fracture
- Pins out 6 weeks, begin therapy

- Ligament reconstruction for chronic, symptomatic
- DIP arthrodesis with chronic pain, failure of other techniques



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Jersey finger

- Avulsion of the FDP at its insertion on the distal phalanx
- Usually soft tissue, can have bony component
- Rapid/forced extension of a clenched finger
- Pain and inability to flex at the DIPJ
- US vs. MRI to aid in diagnosis
- Protect all fingers to prevent retraction
- Classification determines urgency of repair

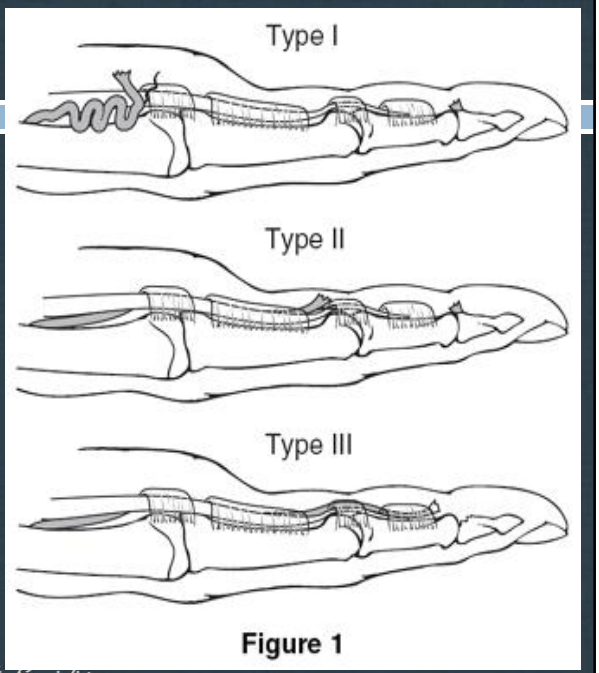

Figure 1

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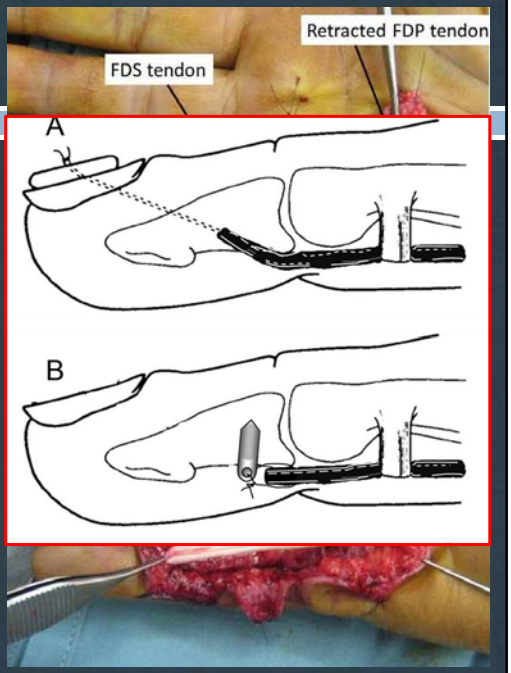
Jersey finger

- Requires surgical repair to adequately restore DIP flexion
- Type I – surgery within 1 week
- Type II – 3-4 weeks
- Type III – 6 weeks (or longer?)
- Dorsal blocking splint full time x6 weeks
  - Passive flexion/active extension vs. early active flexion protocol
- Strengthening delayed; likely return to play 12 weeks
- Failure leads to loss of grip strength, requires staged reconstruction



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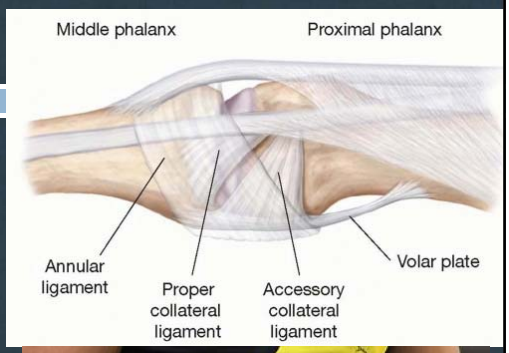
Finger PIP sprains/dislocations

- Wide spectrum of injury
- Usually stable, rarely result in recurrent dislocation
- Stiffness is ubiquitous
  - Early vs. late flexion contracture
- Present as a "jammed finger"
  - Sometimes several days later
- Check x-ray to r/o fracture
- Tendon and ligament exam



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PIP sprain/dislocation

- Stable injuries begin immediate static extension splinting and OT
  - Splinting 24/7 x 4weeks, remove for hygiene and ROM protocol
  - Overnight splinting x4 additional weeks to prevent late contracture
- Return to play dictated by pain, swelling, strength
  - Protected play within first 4 weeks, with splint/wrap/buddy taping
- Lots of counseling!

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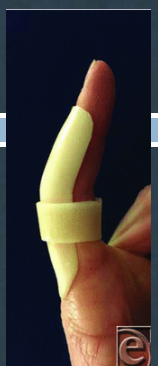
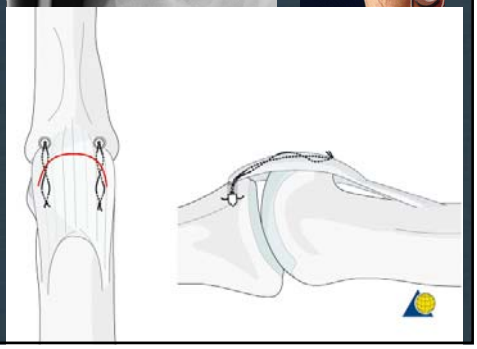
PIP sprain/dislocation

- Unstable dislocations splinted in reduced position and extension block splint
  - AROM allowed within stable ROM
  - Extension block gradually reduced under instruction of hand therapy
- Surgery reserved for open/ irreducible/ recurrent dislocations or chronic instability
  - Usually hyperextension deformity – volar plate repair
  - Collateral ligament repair/reconstruction





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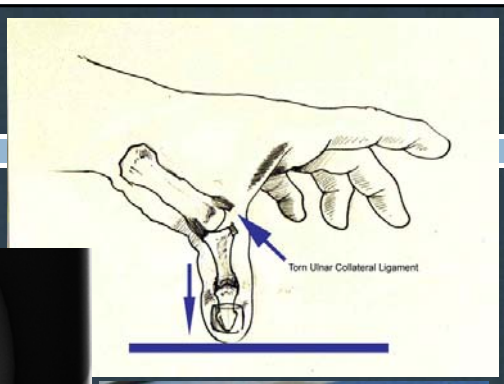
Thumb UCL injury

- Forceful abduction of the thumb
  - "Skiers thumb"
- Soft tissue vs. bony injury
- Stability of greater concern vs. PIP injury
- Missed injury can lead to loss of grip/pinch, joint subluxation, early arthrosis
- Examine for stability
  - 0 and 30degrees of flexion, compare to opposite side
- Palpate for tendon retraction
  - "Stener lesion"



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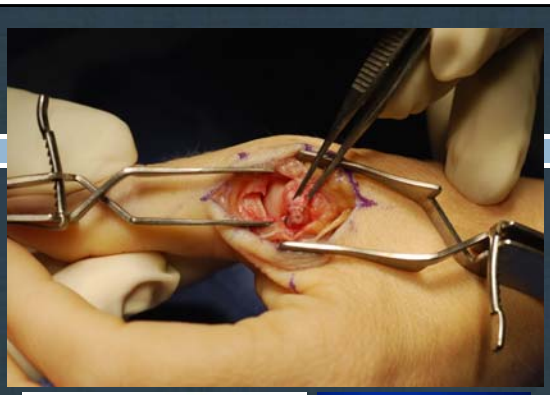
Thumb UCL injury

- X-rays and MRI to aid in diagnosis
- Incomplete tear/sprain can treat similarly to PIP
  - Protected early return to play
- Complete tears require surgery
  - Timing somewhat flexible
- If position/sport allows, could return to play in cast/custom splint in 2 weeks
- Protected play x6 weeks
- Can expect some stiffness but return to previous level of function



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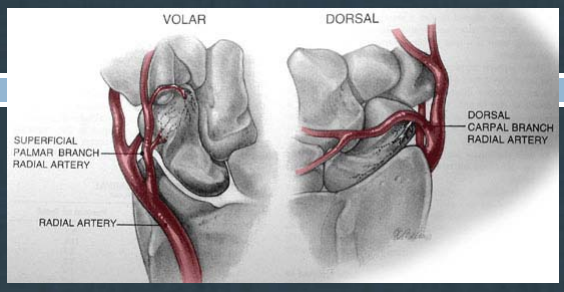
Scaphoid Fracture

- Most common carpal fracture
- Linkage between carpal rows and distal radius
- Blood supply becomes tenuous from waist - proximal
- Typical mechanism = FOOSH
- Easily missed, disregarded
- High rate of nonunion, eventual arthrosis
- Elevated index of suspicion



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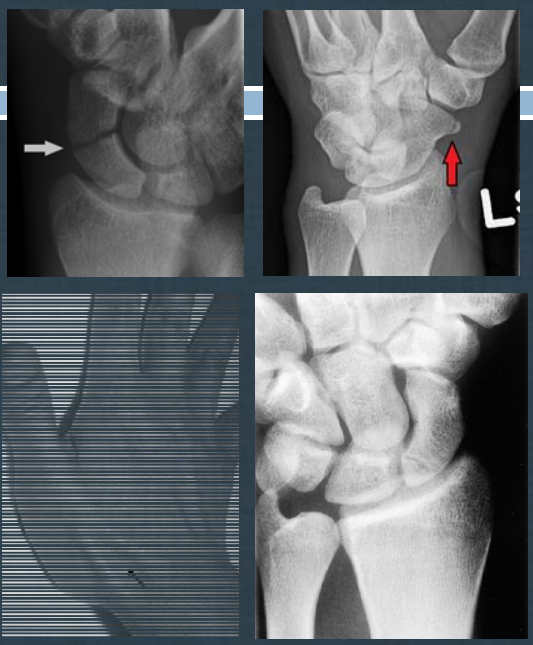
Scaphoid Fracture

- Classically present with wrist pain/swelling/tenderness
- X-rays even with minor suspicion
  - Splint w/neg x-rays if suggested by exam
- Repeat x-rays if initially negative
- MRI to r/o occult fracture
- Evaluate for associated injuries
  - Distal radius fracture, SL tear, perilunate dislocation



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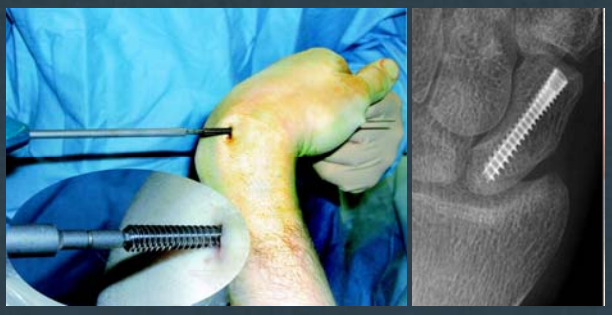
Scaphoid Fracture

- Distal pole/tubercle fracture
  - Immobilize x6 weeks
- Screw fixation for all waist/proximal fractures
  - Open vs. percutaneous techniques
  - Arthroscopic assistance
- May resume protected practice/play in 1-2 weeks
  - Begin ROM out of cast or splint
- Strengthening a 6 weeks if CT shows at least 50% healing
  - monitor radiographs until complete healing
- Reasonable to expect return to previous level of play with some stiffness



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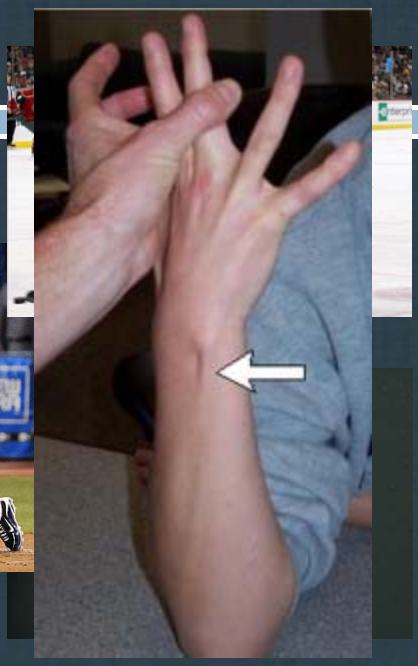
ECU Tendinopathy/instability

- Often encountered in "stick and ball" sports
- Compromised when flexed, ulnarly deviated, supinated
- Acute vs. chronic injury
- Pain over dorsal/ulnar wrist
  - With or without mechanical snap
- ECU synergy test
- Examine for tendon stability
- MRI vs. US



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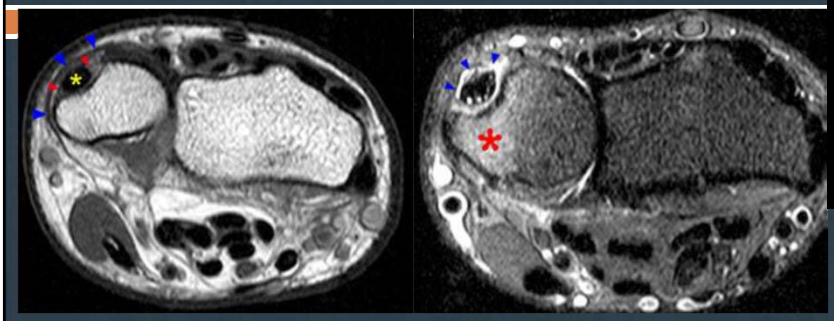
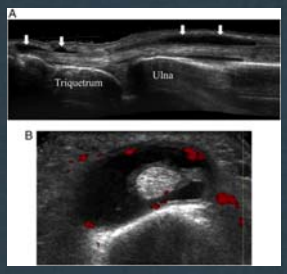
ECU Tendinopathy/instability





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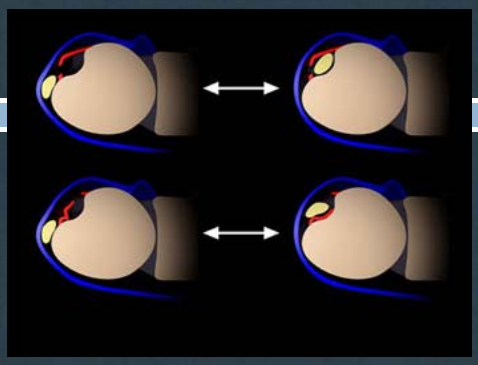
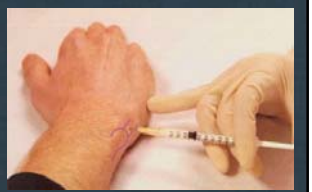
ECU tendinopathy/instability



- Tendinosis without subluxation
  - Conservative management mainstay
  - Brief immobilization, NSAID's, modalities
  - Injection
  - Debridement/release/reconstruction of the ECU subsheath only in severe/recalcitrant cases
- With ECU tendon instability
  - Reduce tendon along with associated DRUJ dislocation if present
  - Immobilization (above elbow? Wrist position?)
  - Depending on severity, immobilize 1-2 weeks followed by 1-2 more weeks of motion recovery
  - Therapy with taping/bracing
  - Return to strength/swinging approx. 6 weeks



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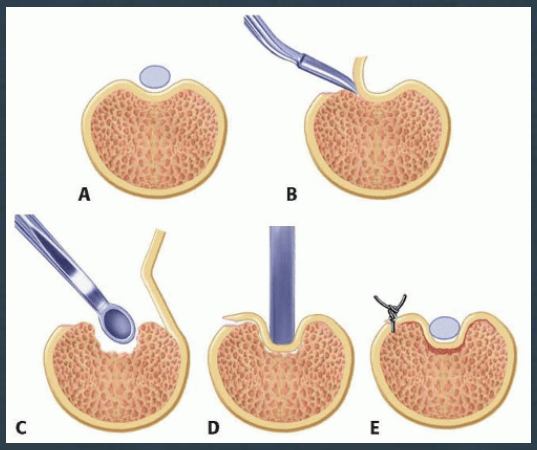
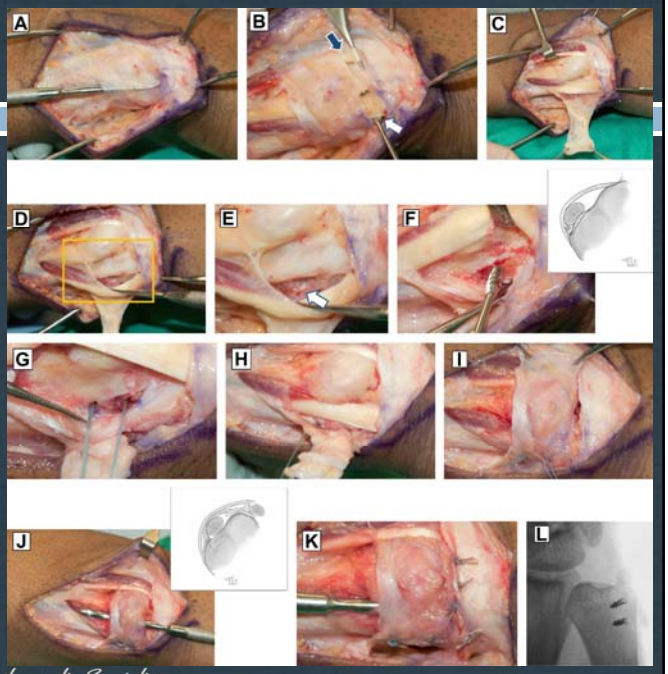
ECU stabilization





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Other considerations

- Does the patient fully understand the nature of the injury?
  - The consequences of treatment failure?
- Are we burning any bridges?
  - Is there a backup plan?
- Focus on the objective component vs. the emotional component
- Expect the best, plan for the worst
- Be honest and forthright
- Ask for help, phone a friend
- Be an advocate for the child athlete

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Thank You!

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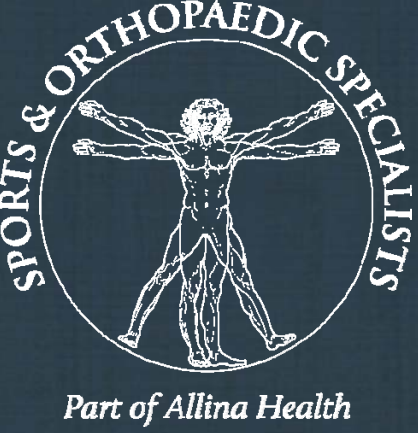

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