Goals and Objectives

IDENTIFY COMMON OVERUSE INJURIES IN ADOLESCENT ATHLETE

UTILIZE APPROPRIATE DIAGNOSTIC EVALUATION

IMPLEMENT FUNCTIONAL TREATMENT APPROACH

RECOGNIZE RED FLAGS AND INDICATIONS FOR REFERRAL

Overuse Injuries Adolescent Athlete

- 30 million US children & adolescents participate organized sports
- 1/3 children will sustain sport related injury requiring MD visit
- Dramatic increase female sports participation
- Increased trend overuse injuries
  - Sports no longer seasonal
  - Less play time

Common Overuse Injuries Adolescent Athlete

- Shoulder Instability
- Little League Shoulder & Elbow
- Patella Femoral Syndrome
- Osgood-Schlatter Disease
- Ankle Instability
- Sever's Disease

Case #1

15 yo gymnast 3 mo's of diffuse shoulder pain.

Sx began after 3 day competition with no known mechanism of injury.

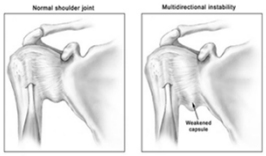
Sx worse with back handspring & overhead activities.

What's likely diagnosis?

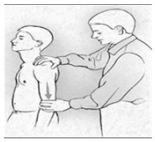
What is the best treatment?

Shoulder Instability

- Most common cause of shoulder under 25
- Traumatic vs. Atraumatic Types
- Trauma: subluxation vs. dislocation
- Atraumatic with secondary impingement



Atraumatic Shoulder Instability



- Hx:
  - Double joint, flexibility, recurrent dislocation
  - Pain overhead or bench pressing
  - Often presents similar to Impingement Syndrome
- PE:
  - (+) Sulcus Sign
- Tests:
  - X-Rays/MRI normal

Atraumatic Shoulder Instability Treatment

- Physical Therapy!!
  - Rotator Cuff Strengthening
  - Proprioceptive Rehab
  - Scapula Stabilizer Rehab
- Takes 2-3 months to rehab effectively
- Activity Modification
- NSAID's
- Surgical outcomes mixed

Traumatic Instability

- Acute onset
- Abduction with external rotation
- Subluxation vs. Dislocation
- PE: Apprehension and Relocation Tests
- X-Rays r/o fracture
- Treatment:
  - Surgery dislocation
  - PT for subluxation

Case #2

14 y.o. baseball pitcher presents with 1 month h/o increasing medial elbow pain with throwing.

No trauma or injury

Sx worse pitching and improve w/rest

What's likely diagnosis?

Should he still pitch?

LITTLE LEAGUE ELBOW

- Overuse traction apophysitis of the medial epicondyle
- Repetitive valgus stress to the UCL/Apophysis
- Acute avulsion can occur
- Average age 8-16 years

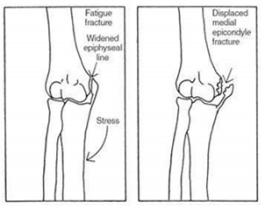


Figure 1

LITTLE LEAGUE ELBOW

- Presents gradual onset medial elbow pain
- Avulsion presents with acute pain, "pop"
- Tenderness over UCL & epicondyle
- Pain valgus stress
- X-Rays r/o avulsion
- MRI for chronic cases

LITTLE LEAGUE ELBOW

- Treatment rest (3-6 wks), PT and throwing program
- Return 4-8 wks
- Red Flags
  - Effusion
  - Locking
  - Instability
  - Avulsion

Little League Shoulder

- Traction injury proximal humeral physis
- Ages 8-18 years
- Growth disturbance
- Diffuse shoulder pain/ache
- X-Rays Internal / External Rotation
- Treat rest and gradual return 4-8 weeks

Prevention Throwing Injuries

- Age Specific Pitch Count*
- Pitch Types*
- Mechanics
- Strength and Conditioning Program

*www.usabaseball.com/med_position_statement.html

Pitch Type and Risk of Injury

- Four hundred and seventy-six young (ages 9 to 14 years) baseball pitchers were followed for one season
  - Curveball was associated with a 52% increased risk of shoulder pain
  - Slider was associated with an 86% increased risk of elbow pain

Pitch Type Recommendations

- 14 years of age as a suitable age for learning to throw curves
- 16 years of age for learning to throw sliders
- Encourage change-up for off-speed pitch prior to skeletal maturity

Pitch Count Risk Factor

- 2002 study of youth pitchers (average 12 years) the 75-to-99 pitches per game level:
  - 35% increased risk of elbow pain
  - 52% increased risk of shoulder pain

USA Baseball Recommendations

- Pitcher who complains of shoulder/elbow pain should be removed from pitching
- Seek medical attention if pain does not resolve within 4 days or pain recurs immediately next time pitching
- Discourage pitching in "showcase games" or for more than one team
- Limit pitching to no more than nine months per year

Case #3

16 yo field hockey player p/w 2-3 month h/o gradual onset anterior knee pain

No h/o trauma/injury

No swelling or locking

Sx worse stairs & prolonged sitting

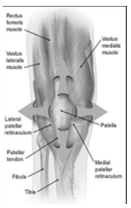
What's likely dx??

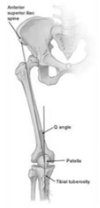
Can she still play?

What's typical recovery?

Patellofemoral Syndrome

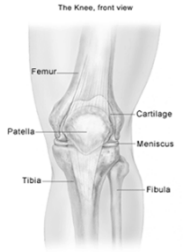
- Most common overuse injury of the knee < 25 y.o.
- Females > Males
- Etiology Unknown
- DDX: DJD PF joint, patella tendonitis, ITB syndrome, Osgood Schlatter's
- Sub-types: instability, tracking, compression





Patellofemoral Syndrome

- Hx:
  - Gradual onset <u>anterior</u> pain
  - +/- Hx blow to anterior knee
  - Sx worse stairs, sitting, bending, kneeling
- PE:
  - (+) Peri-patella tenderness
  - (+) Patella compression test
  - Trace to no effusion
  - No laxity or meniscal findings
- Tests:
  - X-Rays (tilt/deviation)
  - MRI

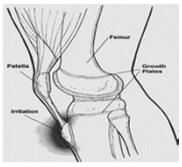


Patellofemoral Syndrome Treatment

- Activity Mod/NSAID's
  - Limit bending, kneeling, stairs, prolonged sitting
- Physical Therapy
  - Instability/Tracking: strengthening & proprioception, Neuro-muscular training
  - Compression: ROM, ITB, Patella Mobilization
- Bracing: Instability
- Surgery: rarely needed

Osgood-Schlatter Disease

- Traction apophysitis of the tibial tubercle
- Most common 10-15 years
- Jumping sports
- Tender tibial tubercle
- Tx:
  - PT
  - Activity Modification
  - NSAID's



Case #4

17 yo basketball player 2 month hx lateral ankle pain.

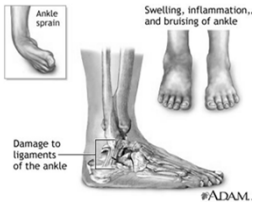
No known mechanism of injury but hx couple "sprains in the past"

What's likely dx

What is the treatment

Ankle Instability

- Common source chronic ankle pain
- h/o Recurrent or old ankle sprain not tx with PT
- May have associated articular cartilage defects
- r/o Salter Harris Fracture



Ankle Instability

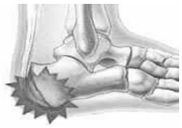
- Hx:
  - Recurrent ankle sprain or old untreated ankle sprain
  - Pain > lateral ankle
  - Sx worse activity
  - Sense weakness or instability
- PE:
  - (+) Tenderness lateral ankle
  - Trace/no effusion
  - Laxity Anterior Drawer Test
  - Decreased proprioception
- Tests:
  - X-Rays r/o OCD, stress views
  - MRI if dx unclear or failure conservative care

Ankle Instability Treatment

- Acutely activity mod. and NSAID's
- PT mainstay treat.
  - Strength and Proprioception rehab
  - Plyometric rehab
- Functional brace
  - Lace-up vs. Stir-up
- Surgery rarely needed

Sever Disease

- Calcaneal apophysitis
- Gradual onset posterior heel pain
- 10-14 y.o.
- soccer, basketball, gymnastics, and baseball
- Tenderness to compression of the medial and lateral sides of the calcaneal apophysis
- X-rays (+) apophysis
- Tx: relative rest, PT, ROM, heel cups



Conclusion

Sports injuries are common in the Adolescent athlete

History and physical are cornerstone of diagnosis

Functional treatment approach key to rehab

Recognize red flags and indications for referral