FPMA 2021 Summer Conference

The 2021 Summer Conference

ORTHOPAEDIC ASSOCIATES
The Strength of Experience

" PEDIATRIC SPORTS INJURIES"

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SafeSport


Powerstep

Different Types of Pediatric Sports Injuries

- Bone Fracture
- Concussion
- Growth Plate Injuries

- Muscle Strain
- Sprains/Strains ** Most Common
- Stress Fractures

•Youth Sports Injury Statistics (Reference; Pediatric Sports Injuries, Knuth MD, Pediatrics in Review Symposium,2019,American Academy of Orthopaedic Surgeons)

- High School Athletes – 2 million injuries
  - 500k Dr. Visits
  - 30k Hospitalizations
- 3.5 million kids under age 14 receive medical treatment for sports injuries each year

- Ages 5-14 – 40 % of all sports related injuries treated in hospitals
- Overuse Injuries nearly 50 % of all injuries to middle/high school students *****
- 20 % age 8-12 and 45 % age 13-14 "ARM PAIN" in a single youth baseball season - ****
- 21 % TBI of children in the USA of athletes in sports and recreational activities - ****

6 Most Common Children Sports With Injuries -

- Basketball - 19.5 %
- Football - 17.1 %
- Baseball/Softball - 14.9 %
- Soccer - 14.2 %
- In-line/Rollerblade Skating - 5.7 %
- Hockey - 4.6 %

CDC- more than half of all sports injuries in children "PREVENTABLE "

By age 13 - 70% of kids drop out of youth sports !

Injured Kids In Respective Sports

Ages 5-14 - 28 % Football players

25 % Baseball players

15 % Basketball players

12 % Softball players

•Since 2000 - 5 Fold Increase in serious shoulder and elbow injuries among youth softball/baseball players!

**** OVERUSE INJURIES

-Muscle Over Load / Repetitive MicroTrauma

-strains Musculotendinous unit

-unable to withstand additional loading

-further stress, collagen cross-links break and shear forces cause collagen fibril to slide

- Stress Fracture –in ability of the skeleton to withstand repetitive bouts of mechanical loading, structural fatigue develops, then localized pain and tenderness ensues

Risk Factors –

-sports specialization/year round one-sport training and playing (2-3 months of consecutive rest needed !)

- 5-6 days a week participation
- Spending more hours a week than age in years
- "playing through pain " encouraged
- More than one team /one sport per season
- Prior injury can predict future overuse injury
- More likely to occur during adolescent growth spurt
- "Amenorrhea" – significant stress fracture risk in adolescent girls
- Poor fitting equipment/overscheduling

Doctor's Role –

- identify high risk overuse injuries
- treat acute/chronic injury appropriately
  - mediating between parent and athlete - ****

*** - EDUCATING

Physicians/Therapists/Trainers/Coaches/Parents/Athletes on prevention techniques?

"MORE IS NOT BETTER!"

Training Level-Appropriate, Overreaching or Overtraining

More is not better!

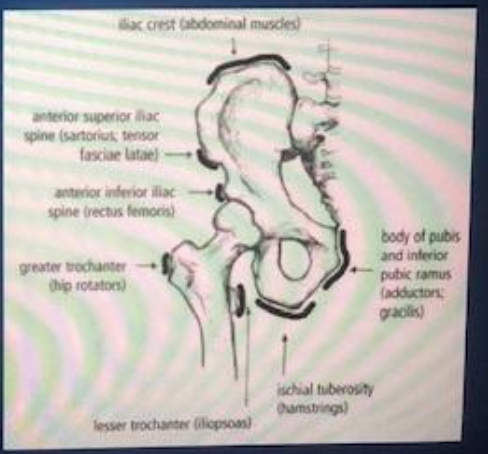
Specific Lower Extremity Pediatric Sports Injuries

- Spine
- Hip and Pelvis
- Knee
- Lower Leg
- Foot and Ankle

Hip/Pelvis	Femoral neck stress fracture	Pelvic apophysitis
Lumbar spine	Pars stress fracture-spondylolysis	Mechanical low back pain
Lower Leg	Tibia stress fracture	Shin splints, Exertional compartment syndrome
Ankle	OCD-talar dome	Distal fibula stress fracture, Achilles tendinitis
Foot	Navicular stress fracture, Fifth metatarsal proximal diaphyseal stress fracture	Lesser metatarsal stress fracture
Knee	OCD- femoral condyle or patella	Tibial tubercle apophysitis Inferior patellar pole apophysitis
Shoulder-arm		Proximal humeral epiphysitis
Elbow	OCD-capitellum	Medial epicondyle apophysitis
Wrist	Distal radial physeal of stress injury	

Hip and Pelvis

- Chronic- Pelvic apophysitis
- Femoral neck stress fracture
- Snapping hip



Remember !!!

- Chronic- Groin pull- SCFE

Pediatric and young adolescents do not get groin pulls

Get an X-ray

Hip and Pelvis

- Acute- Apophyseal avulsion

ASIS,AIIS, ischial tuberosity

Rest followed by protected weight bearing

Light isometric stretching and full weight bearing

RTP with full strength and pain free ROM

Knee

- Chronic- Adolescent Anterior Knee Pain (AAKP)

Factors include:

-Imbalance of thigh muscles (quadriceps and hamstrings)
-Poor flexibility
-Problems with alignment of the legs
-Using improper sports training techniques or equipment
-Overdoing sports activities

Symptoms reported include:

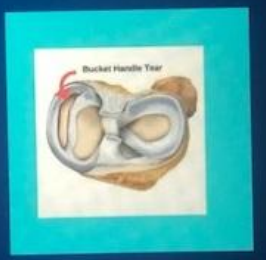
-Popping or crackling sounds in the knee when you climb stairs or stand up and walk after prolonged sitting.
-Pain during activities that repeatedly bend the knee (i.e., jumping, squatting, running).
-AAKP is not usually associated with symptoms like clicking, locking, snapping, or giving way of the knee.

Treatment:

-RICE, bracing, stretching/ strengthening (PT/HEP)

Knee

- Acute injury with associated effusion warrants X-ray +/- MRI evaluation



Knee

Acute- Distal Femur, Tibial Spine, Tibial Tubercle Fracture

Knee

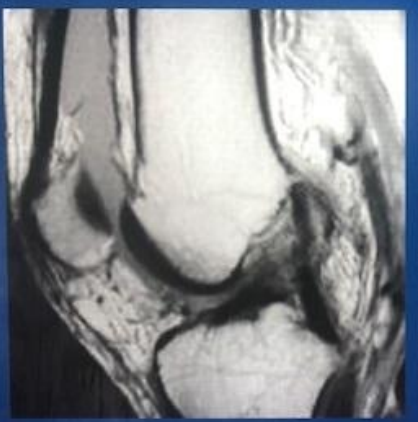
- Acute- Patella Femoral Dislocation

Reduction, immobilization

Bracing/ PT vs. scope/ reconstruction

Knee

- Acute- ACL tear



The ACL can be injured in by changing direction rapidly, stopping suddenly, deceleration, landing from a jump incorrectly or direct contact or collision.

Some report hearing a "pop" with resultant giving away

Other typical symptoms include:
Pain with swelling.
Loss of full range of motion
Tenderness along the joint line
Discomfort while walking

Most are reconstructed with attention to pt maturity and growth remaining

Knee

- Chronic- Apophisitis (O-S, SLJ)

2 Factors

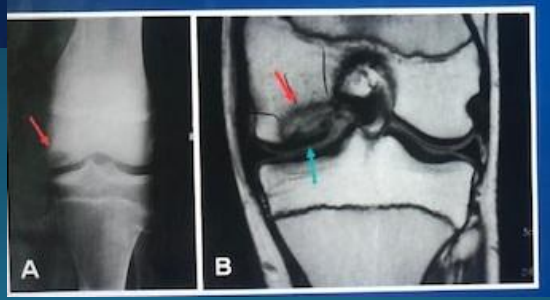
Growth
- Stretching

Activity
- Rest
- Damage vs. Discomfort

Before- Ibuprofen
During- knee strap
After- icing

Knee

- Chronic- Osteochondritis Dissecans



Lesion size, location, and grade determine management

Early stable lesions managed with rest

Surgery should be considered for unstable lesions

Lower Leg

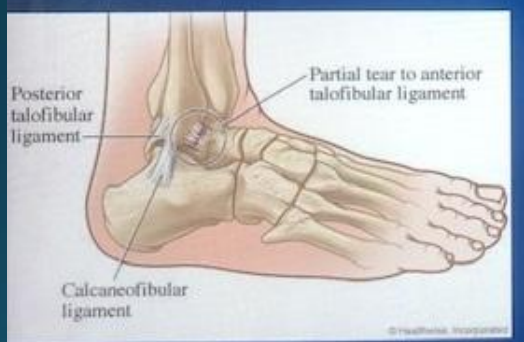
- Chronic- Tibial stress fracture
- Exertional compartment syndrome
- Shin Splints

Foot and Ankle

- Acute- Fractures

Foot and Ankle

- Acute- Sprains



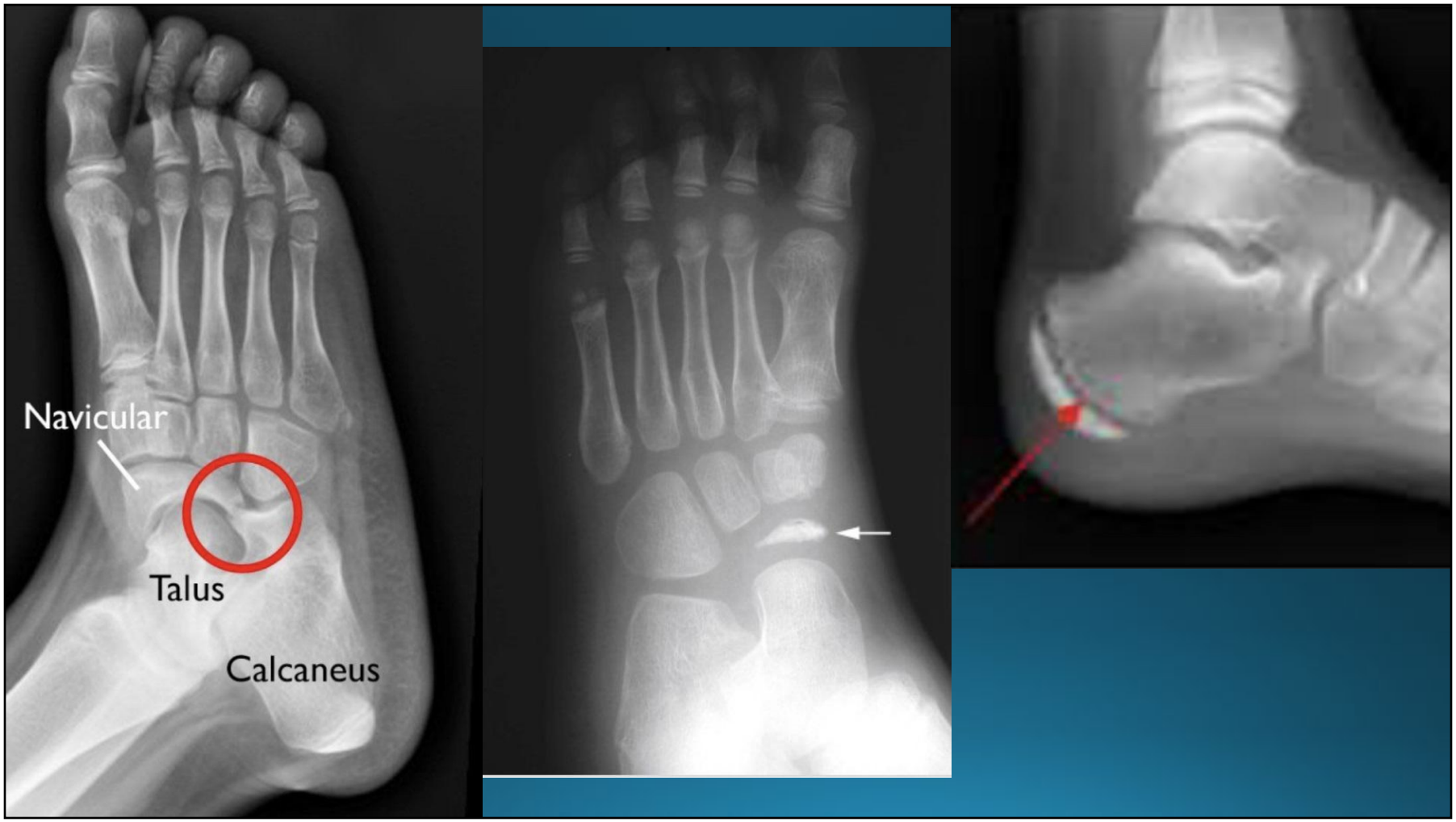
P- protection, physical therapy, prevention

R-rest, regain motion/strength, return to play

I- ice, ibuprofen

C- compression, crutches

E- elevation


Navicular
Talus
Calcaneus

Overuse Injury Prevention

- General fitness essential for sports participation
- Multiple sports activity rather than early focus on a single sport*
- Self-regulation to avoid the danger zone of injury
- Avoidance of strict, intense schedules, which may lead to overuse injuries
- Modification of standard rules for specific age groups to ensure safety
- Shorter periods of activity
- Adjustment of court or field size to accommodate players of different aptitudes and ages
- Monitoring of opponent matching to provide safe, level fields of engagement
- Shift focus away from winner-takes-all attitude
- Warm-up and cool-down sessions, with stretching exercises
- Pre-participation physical examination
- Avoidance of maximum weight with exercise training
- Proper hydration
- Adequate adult supervision and officiating

Overuse Injury Prevention

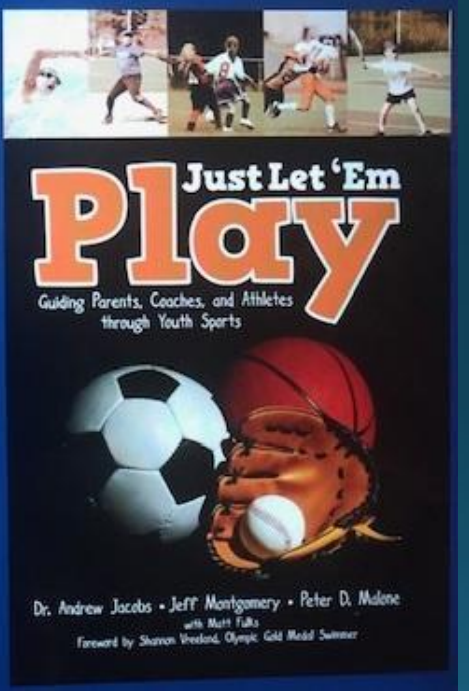
- Encourage athletes to strive to have at least 1 to 2 days off per week from competitive athletics, sport-specific training, and competitive practice (scrimmage) to allow them to recover both physically and psychologically.
- Advise athletes that the weekly training time, number of repetitions, or total distance should not increase by more than 10% each week (eg, increase total running mileage by 2 miles if currently running a total of 20 miles per week).
- Encourage athlete to limit total participation to less than 12- 16 hours per week.
- Encourage the athlete to take at least 2 to 3 months away from a specific sport during the year.
- Emphasize that the focus of sports participation should be on fun, skill acquisition, safety, and sportsmanship.
- Encourage the athlete to participate on only 1 team during a season. If the athlete is also a member of a traveling or select team, then that participation time should be incorporated into the aforementioned guidelines.

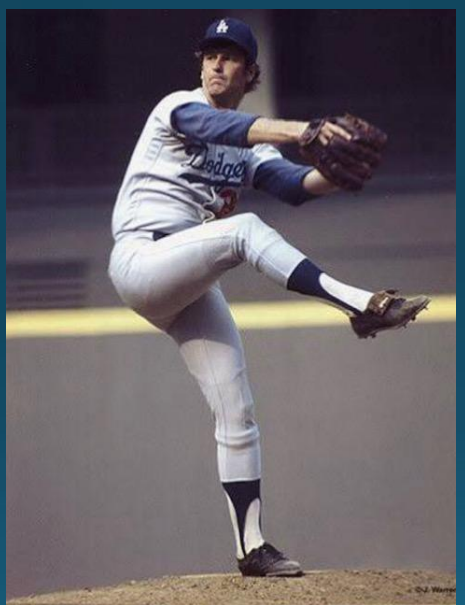
Return To Play

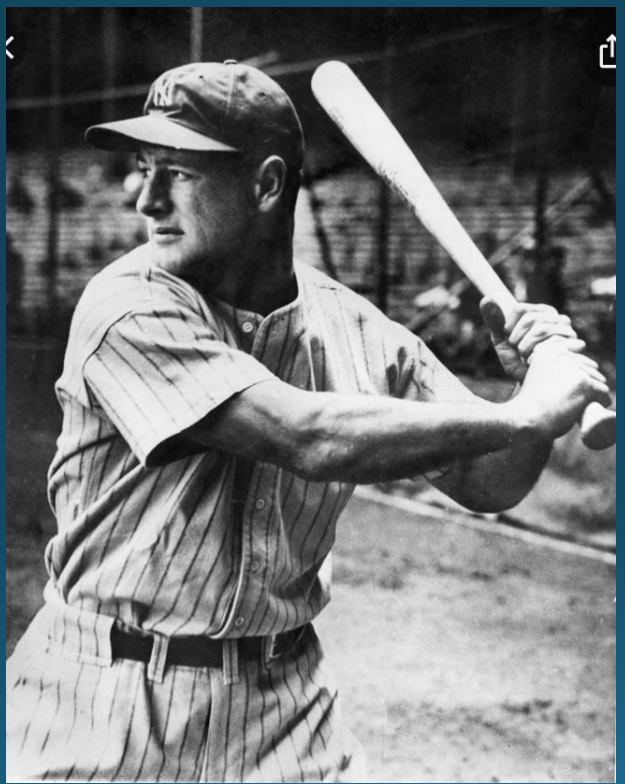
- Ability to return to play at the pre-injury level
- "feeling good does not equal healed good"
  - Swelling and pain usually resolve in days –weeks and is the first step to returning
  - Probably only 70-75% recovered inviting reinjury
- Progression should be:
  - Pain free full range of motion and strength
  - Functional drills, endurance and agility
  - Sports specific skills

Additional information

- AAOS.org
- POSNA.org
- STOPSportsinjuries.org




Dodgers




AIRPLANE PICTURES
CREATIVE AVIATION PHOTOGRAPHY

? QUESTIONS LATER ?

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