INJURIES IN SKELETALLY IMMATURE ATHLETES
PETER GERBINO, MD, FASCM
Orthopedic Surgeon
Monterey Joint Replacement and Sports Medicine
Monterey, CA
TPC, San Diego 2017
The presenter has no financial relationship to any of the companies or techniques discussed in this presentation.
At the conclusion of this presentation, the participant should be able to

- Differentiate between adult and immature injuries
- Plan treatment based on the science of healing in the young
WHICH INJURIES OCCUR TO YOUNG ATHLETES?

- Concussion
- Neck injuries
- Shoulder injuries
- Back pain
- Hip pain
- Knee pain
- Leg pain
- Heel pain
CRITICAL FACT!!

- Any area of weakness in the body shows up first as a sports injury.
- Cancer, although rare, frequently shows up as a painful area during sports activity.
- Moral: Don’t ignore pain in young athletes.
CONCUSSION

- Brain Injury
- Loss of consciousness not critical
- Actual injury may not have been witnessed
- Will have full lecture
NECK INJURY

- Uncommon
- ALWAYS assume an unconscious athlete has a broken neck
- NEVER turn over an unconscious athlete until the neck is stabilized
- Trauma
  - Dislocations, fractures, A-C separations
- Overuse
  - Swimmers and throwers
    - Impingement, labral tears, growth plate injuries
- All require evaluation by a sports medicine specialist

SHOULDER INJURY
SHOULDER IMPINGEMENT

- Pain with throwing, butterfly stroke
- Rotator cuff damage rare in kids
- Technique must be corrected
THROWING INJURIES

- Too many pitches
- Selective muscle fatigue
- Damage to growth plate, labrum
- Permanent shoulder damage
THROWING INJURIES PREVENTION

- Become an expert
- Count pitches
- Pitcher cannot play shortstop
- Little League rules will not prevent injury

<table>
<thead>
<tr>
<th>League age *</th>
<th>Maximum pitches per game</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-15</td>
<td>95</td>
</tr>
<tr>
<td>11-12 **</td>
<td>85</td>
</tr>
<tr>
<td>9-10</td>
<td>75</td>
</tr>
<tr>
<td>7-8</td>
<td>50</td>
</tr>
</tbody>
</table>
BACK PAIN

- BACK PAIN IN KIDS AND TEENS IS NEVER NORMAL!!!
50% of back pain in teens is from a stress fracture (spondylolysis)
Stress fracture is rarely seen on regular x-rays
Even MRI has a hard time seeing stress fracture of the spine
BACK PAIN

- Simple test
  - Have athlete extend spine
  - If there is pain, it is spondylolysis until proven otherwise
  - Single leg back extension (stork test) can localize unilateral fracture.
BACK PAIN TREATMENT

- Relative rest
- Physical therapy
- Possible bracing
CASE STUDY

- 13 year old female gymnast has back pain with tumbling, back flips, landings.
HIP PAIN

- 3 types of pain around the hip
  - Buttock pain
  - Side of hip pain
  - Groin pain
15 year old female runs track. She develops right groin pain after running 20 minutes. X-rays are normal at family doctor’s office. Menstrual periods are irregular. She drinks no milk, takes no vitamin D. Her diet is “all over the place”. What do you do?
CASE STUDY

- This athlete is at high risk for a hip stress fracture. X-rays and usually MRI are necessary to make the diagnosis. Stress fracture of the hip can lead to broken hip and loss of blood supply. This can be catastrophic to the joint.
KNEE PAIN

Trauma: A swollen knee after injury is filled with blood and almost always requires surgery.
Age-dependant

- 3-5 years old: Growing pains
- 10-12 years old: apophysitis (SLJ)
- 12-14 years old: apophysitis (OSS)
- >14 years old: patella pain
- >16, jumper: patella tendinitis
CASE STUDY

- 14 year old female soccer player has pain in the front of her knees whenever she runs. She also has pain with going up and down stairs. X-rays in the pediatrician’s office are normal. What do you do?
CASE STUDY

- Simple test
- Load the kneecap by pressing down on it
- If it hurts, patella is being overloaded and has become painful
PATELLA OVERLOADING

- Weak quadriceps muscles
- Tight hamstrings
- Weak hip muscles
- Hyperlaxity
- Anatomy causing maltracking
- Overtraining
- Shin splints
- Stress fracture
- Exertional compartment syndrome
- Popliteal artery entrapment syndrome

-- Find someone who can distinguish among these problems and get you to the right treatment
- Injury is common in young athletes
- Pain is never normal in kids
- Pain after sports injury is the most common presentation of cancer in the young
- Seek medical care if pain lasts longer than 4 weeks