Common injuries in youth football

Who are we?

- Active Body Physiotherapy & Rehabilitation
  - 9a, 6 Victoria Avenue, Castle Hill NSW 2154
  - (02) 9899 8242
- Physiotherapy & Exercise Physiology
  - Shannon Codd: Owner, Exercise Physiologist, Strength & Conditioning
  - Rebecca Gonzalez: Physiotherapist
  - Jack Dickinson: Physiotherapist
  - Mitchel Pennell: Physiotherapist
- The clinic has a long history of sports coverage across many sports
  - Football
  - Rugby Union
  - Netball
  - Triathlon
  - Swimming
  - AFL

Who am I?

Rebecca Gonzalez: NPL NWS Spirit Mens First Grade Team Physio

- Physiotherapist
  - Bachelor of Exercise Science, Graduate Diploma in Education (High School PDHPE), Masters of Physiotherapy
- 13+ years clinical practice
- 13+ years sports coverage experience
  - NPL Men's – 7 years across 2 clubs
  - NPL Women's
  - NSW Premier League Netball - GWS Fury

Apophysitis “Growing Pains”

Apophysitis / “Growing Pains”

- Conditions/injuries specific to children/adolescents
- Pain/inflammation occurs where a tendon attaches onto the bone around a growth plate
- Common “growing pain” sites in youth footballers
  - Knee
    - Osgood Schlatters
    - Sinding-Larsen-Johansson
  - Heel
    - Severs
- These conditions can occur in ***both*** boys ***and*** girls
- Generally, around the time of rapid growth/growth spurts
- This differs from child to child but generally; Girls 10-12, Boys 12-14

Why?

- The skeletal system of a child is unique and makes them more susceptible than adults to certain types of injuries.
- Children have *apophyses (growth plates)* on certain bones which remain “open” until growth ceases
- A diagnosis of an *apophysitis* means your child has an irritation of this growth plate and surrounding area where a tendon attaches onto bone, over a growth plate.
- They typically occur in athletes/highly active kids as a consequence of repetitive use.
- This causes repetitive pulling of the muscle/tendon where it inserts into the bone- where there is a growth plate.
- **BUT** not all active kids develop growing pains or any of the growth-related conditions

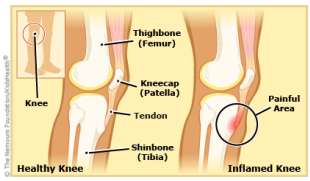
Apophysitis treatment

- Non-steroidal anti-inflammatory (NSAIDs), or other medications to control pain and reduce inflammation
- Ice, or Ice massage, to help control pain
- Braces or taping techniques that may help to alleviate pain
- Rehabilitation with a Physiotherapist that will include stretching, strengthening and treatments to reduce pain, build strength and prevent future injury
- In most severe cases, may require a period of immobilization and/or non-weight bearing using a walking boot and/or crutches
- Generally, no real long-term prognosis/injury/damage

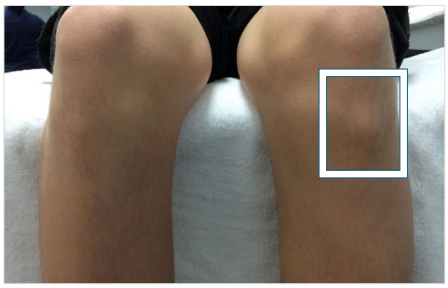
You ***cannot*** predict who will get growing pains, and who will not, based on ***any*** "screening process"

Osgood Schlatters Disease

- Knee
- Not a disease – now often referred to as Osgood Schlatters Disorder
- Pain at the bottom of the knee/top of the shin where the patella tendon attaches to shin bone
- Can develop tell tale sign of lump just below the knee



Osgood Schlatters



Osgood Schlatters Disease

- Generally, pain can be managed well with ice, NSAIDs, treatment, exercises
  - ***IF it is caught/diagnosed and treated early***
- May or may not require a period off sport – determined by symptom severity
- Taping techniques and/or braces can be helpful for symptom management while allowing kids to remain active

Sinding-Larson-Johansson Syndrome

- Knee
- Pain where the patella tendon originates/starts on the patella/kneecap
- Generally, like Osgood Schlatters, can be well managed with ice, NSAIDs, treatment, exercises
  - ***IF it is caught/diagnosed and treated early***

Sinding-Larson-Johansson Syndrome

Severs Disease

- Heel pain
- Also not a disease and is now also often referred to as Severs Disorder, Severs Syndrome or just Severs
- Pain at the back of the heel, sometimes the sides of the heel as well
- Where the Achilles tendon attaches onto the heel bone (calcaneum)

Severs Disease

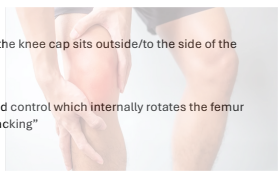
- Generally, well managed with ice, NSAIDs, treatment, exercises
  - ***IF caught/diagnosed and treated early***
- Typically, will develop first on non-dominant foot
- May require equipment modification
  - Heel lift in shoe
  - Running shoe/football boot with supportive heel and higher heel gradient
    - Takes pressure of the Achilles tendon
  - DOESN'T NECESSARILY NEED ORTHOTICS

Other injuries/conditions common in youth football

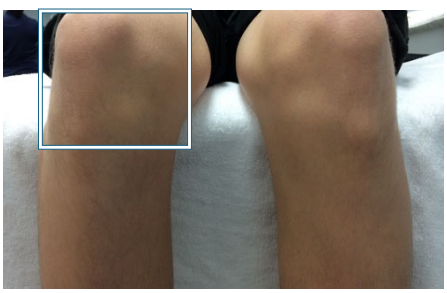
- Patellofemoral pain
- Osteitis Pubis
- Hamstring Injury
  - Strain
  - Avulsion
- Ankle Injuries
  - Sprains
  - Avulsions
- Lumbar Stress Fractures
- ACL Ruptures

Patellofemoral Pain Syndrome

- "Runners Knee"
- ***NOT*** specific to children/adolescents, ***NOT*** related to growth plates
- General term given to pain in the joint of the thigh bone (femur) and the knee cap (patella)
- Pain around the front of the knee, pain around the knee cap
- Normally no specific spot of pain
- Traditionally thought of as "maltracking" where the knee cap sits outside/to the side of the knee joint
  - "Tight ITB"
- Newer research links it to poor glute strength and control which internally rotates the femur and as a result the patella appears to be "maltracking"

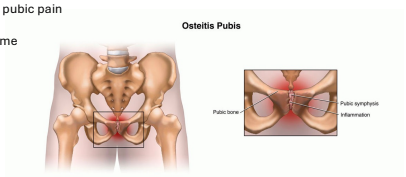


PFPS



Osteitis Pubis

- Pelvis
- Overuse injury, not specific to kids, common in football
- Inflammation where the two pubic bones join at the front "Pubis Symphysis"
- Often presents as groin pain
- Can also be abdominal or pubic pain
- Develops gradually over time
- One or both sides



Osteitis Pubis

- Several muscles attach near the pubic symphysis
  - Adductors
  - Abdominals
- These muscles contract and apply a pulling force on the pubic symphysis
  - Running
  - Kicking
  - Change of direction activities
- Excessive forces due to too much repetition or high force can result in inflammation of the pubic symphysis

Hamstring Strain

- Strain = tear
- Grade determines severity – Grade I = least severe; Grade III = most severe
- Most common among sports that require a high degree of speed, power and agility
- Hamstrings – muscle group consisting of three separate muscles:
  - Biceps Femoris
  - Semimembranosus
  - Semitendinosus
- Start on the bottom of the pelvis and attach below the knee
- Knee flexor & hip extender
- Major cause of hamstring injury occurs from an imbalance of HS:Quads strength ratio
- Best way to prevent high speed hamstring injuries is regular and adequate exposure to high speed running

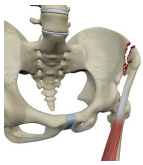
Hamstring Strains

Risk factors:

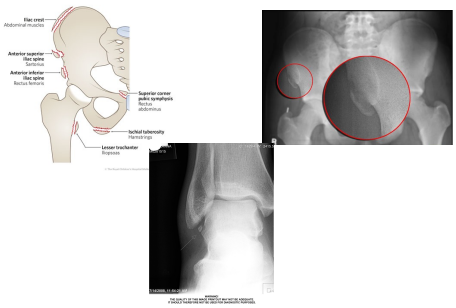
- Previous hamstring injury
- Increasing age of player
- Sudden change in direction (acceleration or deceleration)
- Poor flexibility
- Poor strength
- Muscle fatigue
- Muscle strength imbalance between the quadriceps and hamstrings
- Inappropriate, inadequate warm up/preparation/training

Avulsion Fractures

- A tendon or ligament pulls some bone off from its attachment
- "Pulled off the bone"
- The ligament/tendon typically doesn't tear
- Generally speaking, prognosis is usually better as a result as you maintain integrity of ligament/tendon
- Common avulsion fracture sites:
  - Hip/Pelvis (Quadriceps)
  - Hamstring
  - Ankle
- May require a period of relative rest and immobilisation
  - Crutches – Hip/Pelvis/Hamstring
  - CAMboot – Ankle



Avulsion Fractures



Avulsion Fractures

- Avulsion Fracture of the hip/pelvis
  - Diagnosed by x-ray
  - Majority of these heal completely without the need for any surgical intervention
  - <30 mm displacement, 1-2 weeks on crutches, RTP 8-12 weeks
  - >30mm = surgical review
- Avulsion of the ankle- treated like a higher grade ankle sprain.
  - Immobilised in a CAMboot 2-4 weeks if needed (symptom based)
  - RTP 8-12 weeks.

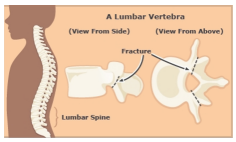
Ankle Sprains

"It's just a sprain"

- Sprain = tear in a ligament
- Grades determine severity – Grade I = least severe; Grade III = most severe
- Most common ligaments sprained in the ankle are in the lateral ankle
  - ATFL
  - CFL
  - Deltoid ligament (often a contusion/crush injury)
- Following a structured ankle rehab program, programmed by an experienced Physiotherapist for 10+ weeks has been shown to reduce the recurrence rate in ankle sprains by over 50%

Lumbar Stress Fractures

- Low back pain
  - Central – can be unilateral or bilateral
  - Night pain
  - Pain on extension and extension plus rotation
  - Will usually present 6-8 weeks into training or an increase/change in training
  - Repetitive strain injury
  - Stress response vs stress fracture
  - Stress fracture = significant time out of sport
- Consistent low back pain on extension = lumbar stress fracture until proven otherwise
- Confirmed diagnosis requires review with Sports Physician to assist in over-seeing return to play/train



Lumbar Stress Fractures

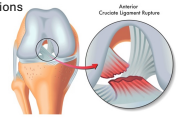
- In footballers: running, change of direction at speed and striking of the ball, causing cumulative stress on the lower spine.
- Stress fractures are most prevalent in adolescents
- Sports that involve repeated lumbar spine rotation and/or extension are most vulnerable to stress fractures.
- The most common sports are cricket, more specifically fast bowlers, runners, footballers (soccer), gymnasts and dancers.
- Very rarely require surgery - best treated with conservative management involving a combination of rest from aggravating activities and a progressive strengthening program with focus on functional strength and stability overseen by a physiotherapist and your Sports Doctor to identify areas of weakness and develop a program to gradually increase your load and return to your sport.
- Recovery from a stress fracture is different for everyone however it takes at least 8-12 weeks to return to sport ***once pain-free***.

ACL:

The most feared acronym in sport

ACL

- Anterior Cruciate Ligament
- A ligament that runs through the centre of the knee connecting the femur and tibia
- Most commonly injured in change of direction sports such as Football, Netball, AFL, Skiing
- Commonly injured when planting the foot and changing directions
- Can also occur with a hyperextension mechanism
- More common in females – 2-3x more likely
  up to 6-9x more likely in sport
  - Why?
    - Hormones/menstrual cycle link
    - Anatomy – Q angle (hips to knees), ligament size, femoral notch
    - Training history/resources (historically less access to structured training/S&C)
    - Lack of specific equipment designed for the female anatomy



ACL

- Injury Prevention Programs
  - FIFA 11+
  - FIFA 11+ Kids
  - Netball Knee Program
- Shown to reduce injuries by >50% if followed twice weekly for 10+ weeks
- Football Australia
  - Football Australia Perform+ (FIFA 11+)
  - Football Australia Fundamentals+ (FIFA 11+ Kids)

My child has a niggle/injury. What do we do now?

What do you do?

- **Get the injury/pain assessed, diagnosed and treated by a Physiotherapist – ideally a Physiotherapist experienced in sport – as soon as the niggle/injury starts, try not to wait it out.**
- **Most growth-related injuries/pains can be well managed with ice, NSAIDs, taping techniques and specific exercises prescribed by a Physiotherapist who understands the demands of the sport when diagnosed and treated early.**
- Sometimes load management may be necessary to allow the pain/inflammation to settle but the sooner you get onto this; the less likely time of sport is needed.
- Load management/time out of sport is the determined by the irritability of the injury
- Movement retraining, with a physiotherapist or exercise physiologist, during growth spurts - as control of the body limbs may be poor due to the changes in the body and limb length – "baby giraffe"
- Studies have shown a decrease in the incidence of apophysitis "growing pains" by up to 64% with neuromuscular (proprioceptive) training through Physiotherapy.

Imaging

- Most injuries will not require imaging/scans – a thorough assessment by a qualified and experienced Physiotherapist will usually be enough to diagnose most injuries diagnose
- MRI: gold standard scan for most things
  - Shows everything - soft tissue as well as skeletal
  - No radiation (XR, CT)
  - Cost $$$
- Some conditions/body parts – MRI bulk billed by Medicare if referred by GP

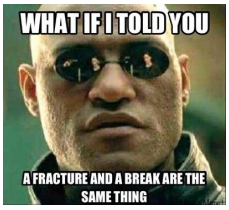
MRI – bulk billed

Under 16 years (need to have an x-ray first)
- Knee (internal joint derangement/ACL)
- Hip (SCFE, Perthes, Septic Arthritis)
- Wrist (scaphoid fractures)
- Elbow (fracture, avulsion)
- Spine (lumbar stress fractures)
- Head (unexplained seizures/headaches, paranasal sinus pathology)

Over 16 years
- Knee (ACL or meniscus injury) (16-50 years)
- Cervical Spine (cervical radiculopathy)
- Cervical Spine (cervical spine trauma)
- Head (unexplained seizures/chronic headache)

Final Word...

Fracture = break



Thank you!

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Shannon Codd – Exercise Physiologist, Head of Performance Perth Glory Women's A League

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