

PHYSIOS

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OF MT ELIZA

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# CHILDRENS INJURIES

**WHEN DO WE WORRY AND HOW CAN WE PREVENT THEM?**

# WHAT TO LOOK FOR

- Pain re occurring at the same site
- Worsening symptoms during and/or after training or games
- Limitations in performance
- Limitations in movement
- Sudden sharp pain in a specific location accompanied with loss of function and swelling and/or bruising
  - Early assessment is critical for this group to optimise healing

# COMMON INJURIES

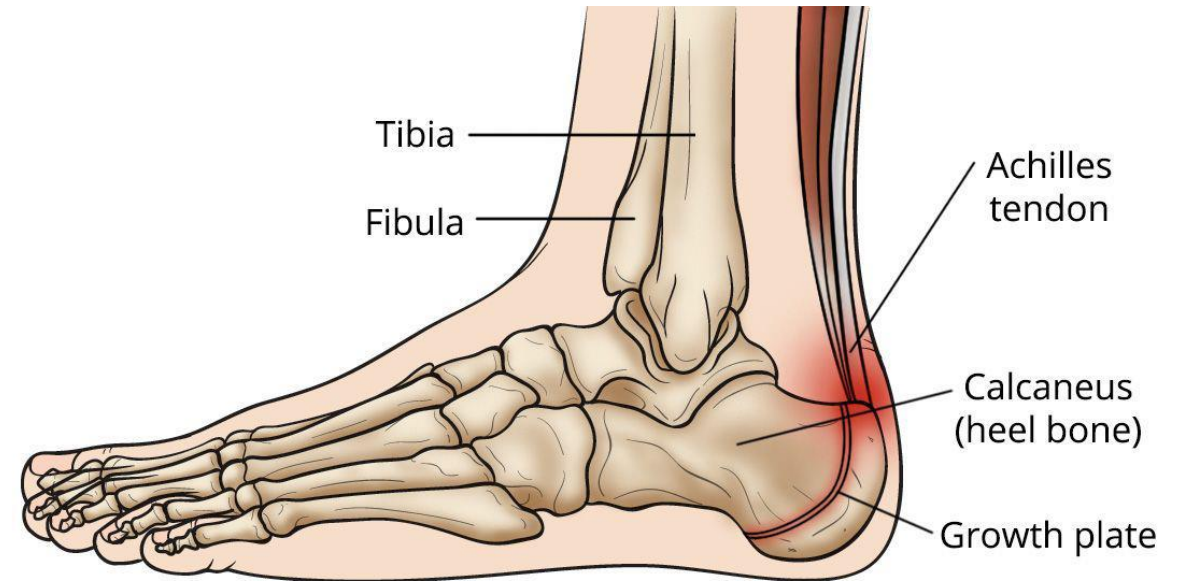
- APOPHYSITIS
- BONY AVULSION
- ANKLE SPRAIN
- SHIN SPLINTS
- FRACTURES
- SLIPPED CAPITAL EPIPHYSIS
- CONCUSSION

# APOPHYSITIS

- Is where a repetitive high traction loads cause irritation and inflammation of the growth plate
- The growth plate lies between the bony anchor of the tendon and the parent bone
- Happens where big powerful muscles attach
- Common around periods of sudden growth and/or increased training loads

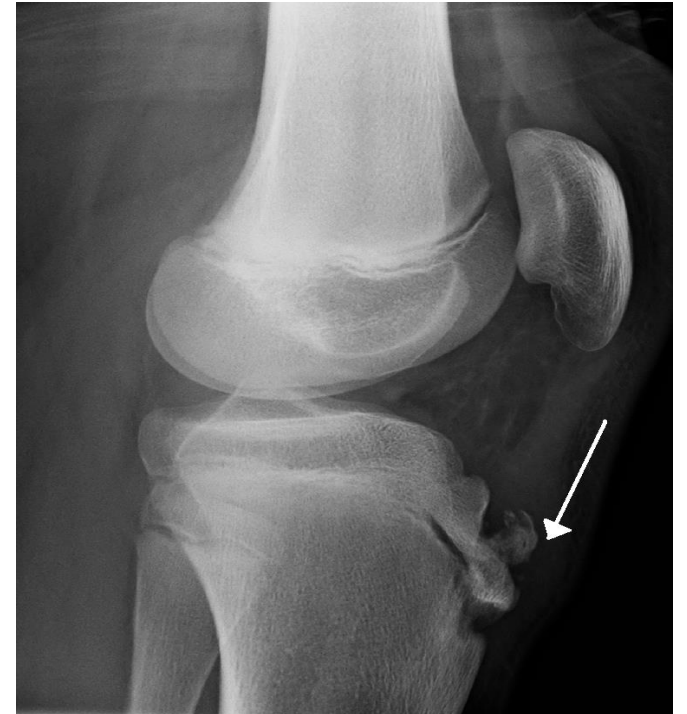
# APOPHYSITIS: Sever's Disease

- Not actually a disease
- Achilles tendon attachment to the heel
- Most common 9-12 yo
- Worse with sprinting, hopping



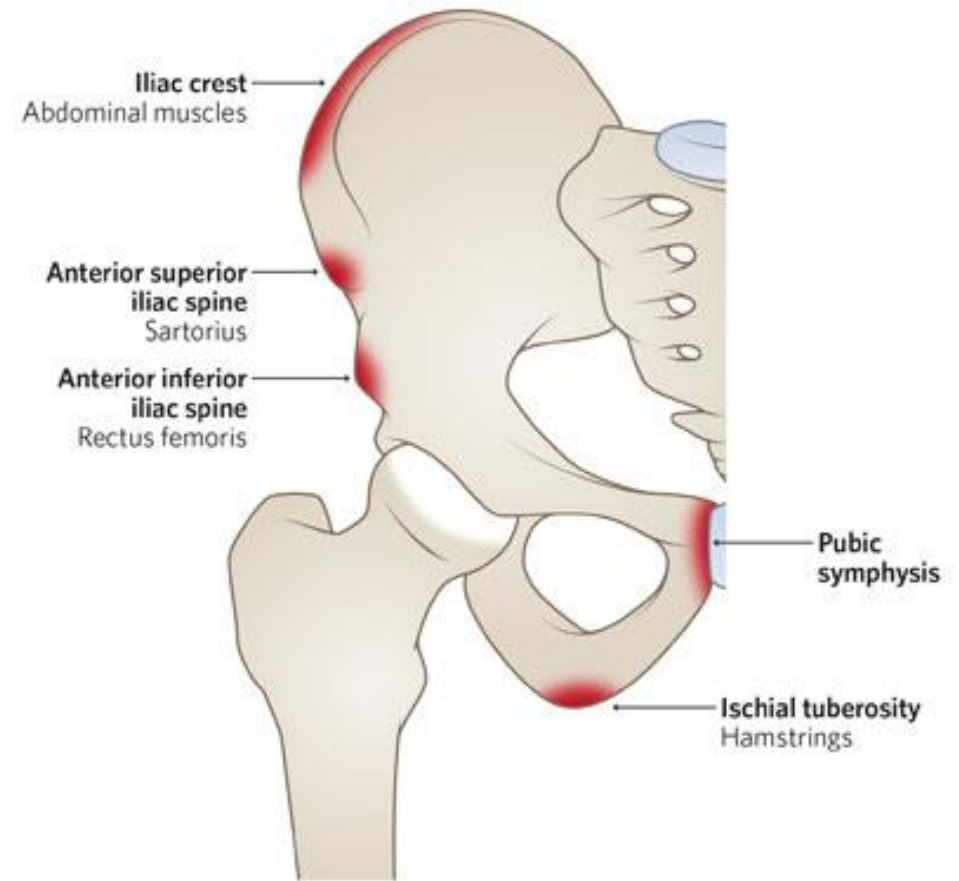
# APOPHYSITIS: Osgood Schlatters

- Occurs at the tibial tuberosity
- Bump of bone of the front of the shin just below the knee
- Most common 12-16 yo
- Worse with jumping, sprinting, kicking



# APOPHYSITIS: Rectus Femoris Origin

- Slightly less common
- Normally on the kicking leg
- Pain at the front of the hip
- Worse with kicking



© The Royal Children's Hospital Melbourne, Australia

# APOPHYSITIS: Physiotherapy

- Do not just write these off as growing pain
- Load modification. Rarely full rest if caught early
- If ignored or returned to sport too soon can become an avulsion fracture
- Severs heel raises helpful
  - Asics boots already have these present
  - Occasionally Orthotics may be recommended
- Strengthening and stretching program

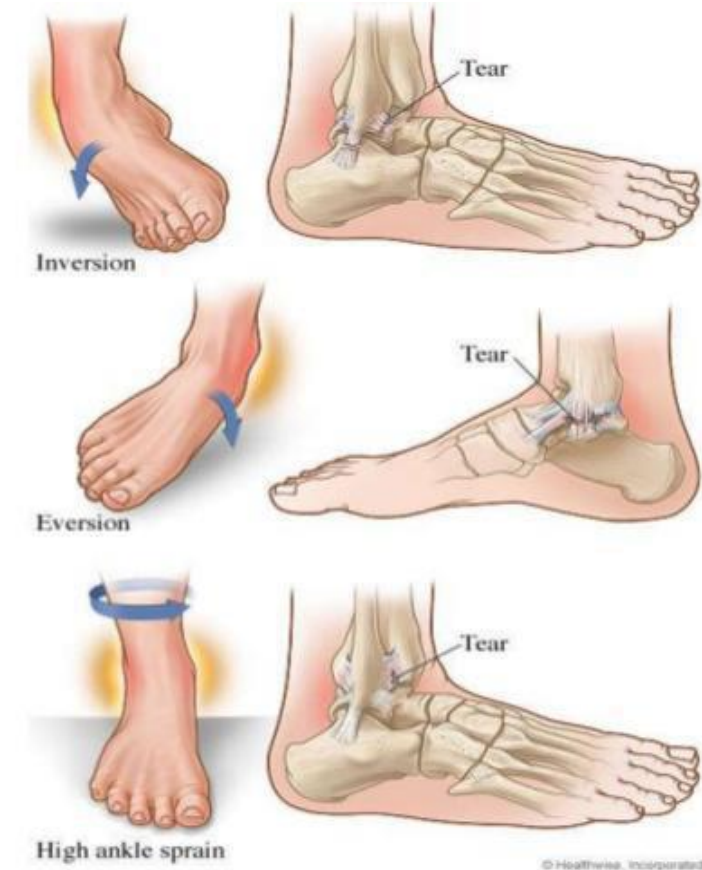


# BONY AVULSION

- Can occur when a high force causes a sudden separation of the bony attachment from the growth plate
- Common sites
  - Ischial tuberosity
  - Rectis femoris origin
- Physiotherapy assessment is particularly important
  - If a large separation is missed long standing issues can be a problem
  - Imaging is often required and for severe cases surgery may be recommended

# ANKLE SPRAIN

- One of the most common childhood injuries
- Also one of the most poorly managed
- Inversion or eversion injury

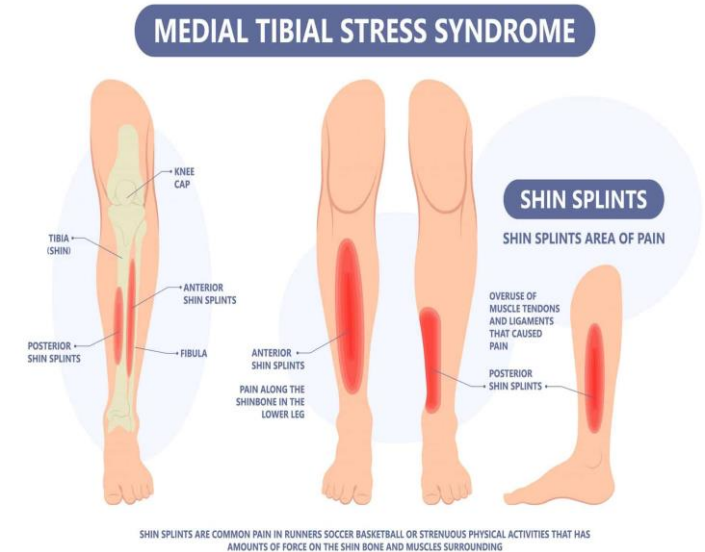


# ANKLE SPRAIN

- Has a very high likelihood of ongoing problems and reoccurrence if not dealt with appropriately
- This is important for any ankle roll whether they are able to continue playing or not
- Rest, wait and see is setting you child up for ongoing ankle and lower limb problems
- Ankle instability or weakness is a precursor for a lot of other lower limb injuries
- **A balance and strengthening program is essential to prevent further injury to your children**

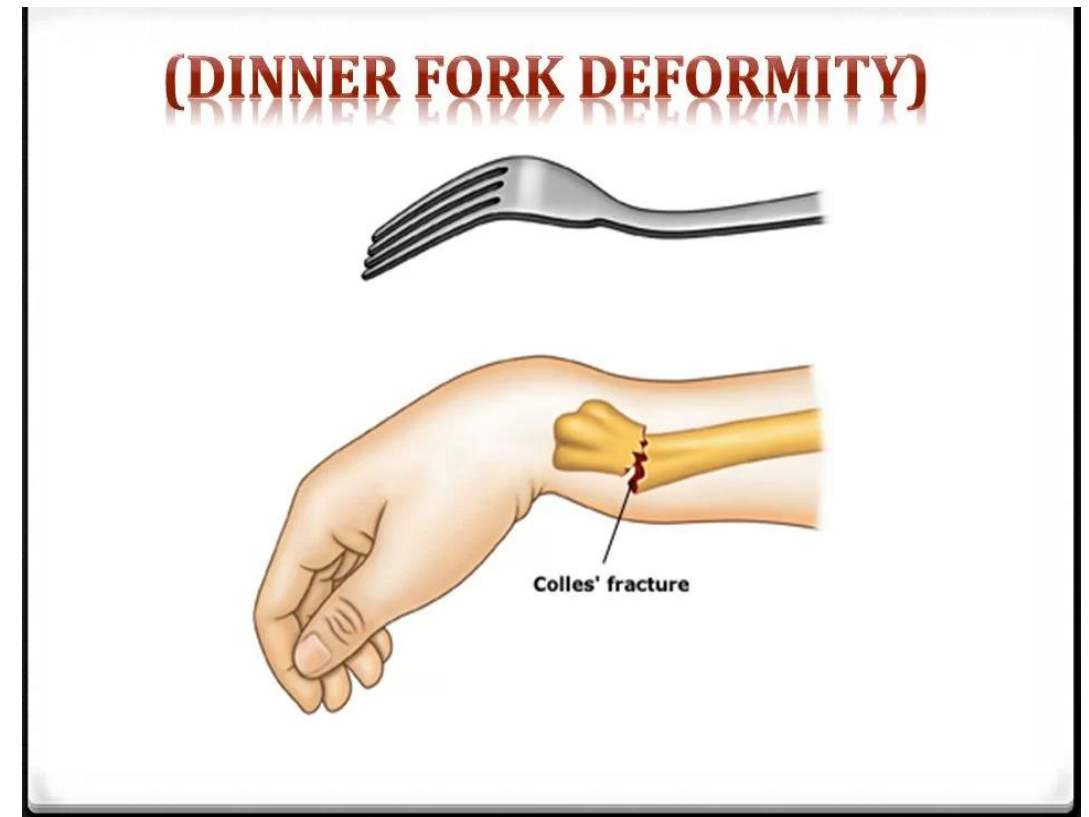
# SHIN SPLINTS

- Also known as Medial Tibial Stress Syndrome
- Can be felt anywhere along the shin bone
- Commonly middle to lower 1/3
- Overuse/overload of tendon and bony lining
- Physiotherapy
  - Training modification
  - Orthotic
  - Strengthening and stretching
  - Soft tissue massage



# FRACTURES

- Traumatic
  - Common wrist and collarbone
  - Goal keeper hands and fingers



# Fractures

- Stress
  - Repetitive force / high or sudden change in training loads
  - Possible bone health issues
    - Especially teenage girls
  - Continuum from stress reaction to fracture
- Physiotherapy
  - Referral to Sports and Exercise Medicine Physician
  - offloading to allow healing
  - After appropriate offloading strengthening will commence
  - Gradual reloading of sports it required

# SLIPPED CAPITAL EPIPHYSIS

- Unusual but very important doesn't get missed
- Disorder with the growth plate just below the ball of the hip joint
- Ages 8-15 generally boys
- Symptoms
  - Limp
  - Pain in the knee/thigh/groin
  - Walking with a turned out foot

# CONCUSSION

- Mild Traumatic Brain injury
- Short disturbance of normal brain function due to an external impact to the head or body
- Symptoms
  - Headache
  - Nausea
  - Fatigue
  - Anxiety / Depression
  - Balance disturbance
  - Difficulty concentrating



# Concussion: Best Practice

1. Do not return to the field if suspected. SAFETY FIRST
2. If deteriorating seek medical attention quickly
3. Rest from mental activity
4. Normally at least 2-3 days off school
5. Sleep. Check every 2-4 hrs first night
6. Only medication if recommended by a medical professional
7. Rest from sports activity for 24-48hrs
8. Slowly rebuild activity after 48hrs but avoid flare ups

# CONCUSSION: PHYSIOTHERAPY

- Not all Physio's are trained in concussion assessment and care
- Sports Physiotherapists generally are
- They can provide:
  - Assessment and diagnosis
  - Appropriate referral if required
  - Treatment for post concussion syndrome
  - Guide appropriate return to sport

# WHO GETS INJURED?

- Amateur vs Pro
- Girls vs boys
- Is it just growing pain?
- Does age matter...
- Are these classic comments true?
  - "They just need to toughen up"
  - "They will just grow out of it"
  - "It's just a niggle"

# Amateur or Pro, who is more at risk?

- No difference in injury distribution
- Sub elite 2 times greater incidence
- Much higher level of injury in recreational athletes. At least double
- Variety of reasons
  - Reduced fitness
  - Reduced conditioning
  - Poor warm up



Ekstrand et al. 2011



Whalan et al. 2019

# Are girls and boys the same?

- WOMEN AND GIRLS ARE NOT SMALL MEN
- Some Fundamental differences in strength and body shape
- Females do not have the same access to
  - Services and level of coaches
  - Opportunities
  - Facilities
- Females have a higher ACL rate but lower muscle strain risk
- This im balance is steadily improving and Football is further progressed than many other sports

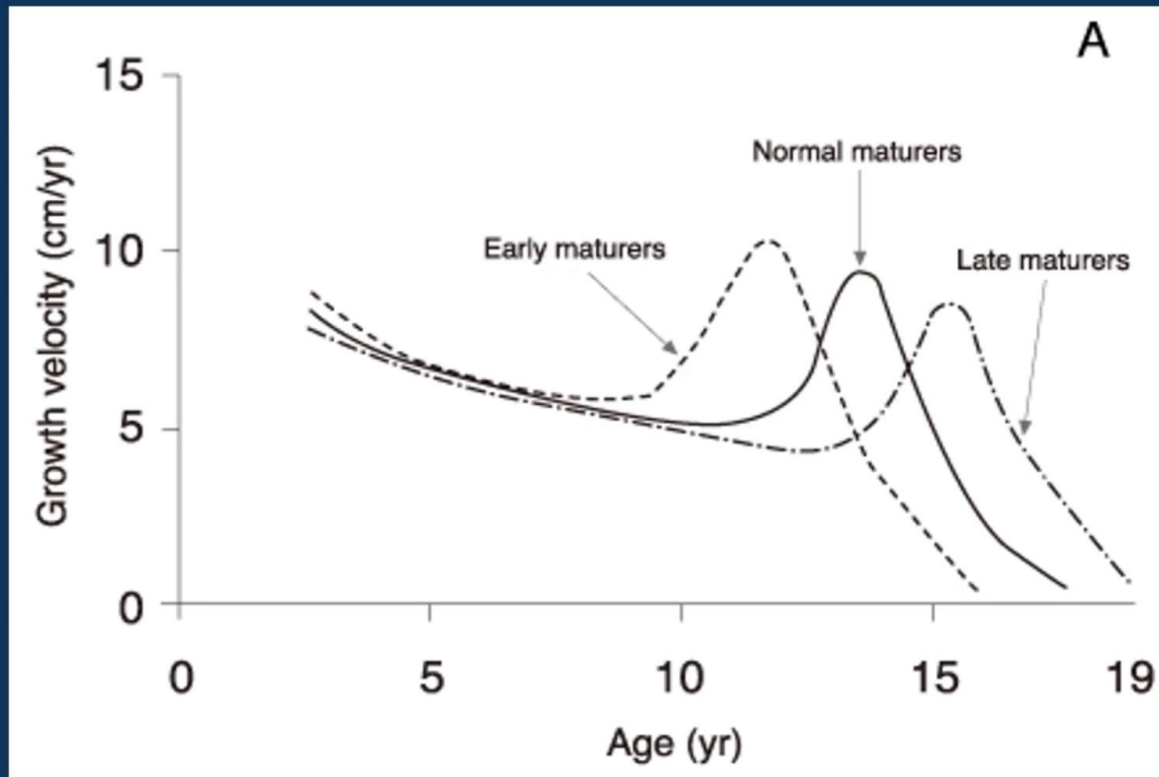
# ACL injuries are a good example

- Male peak incidence 19-25yr
- Female 14-18yr

# Does age matter?

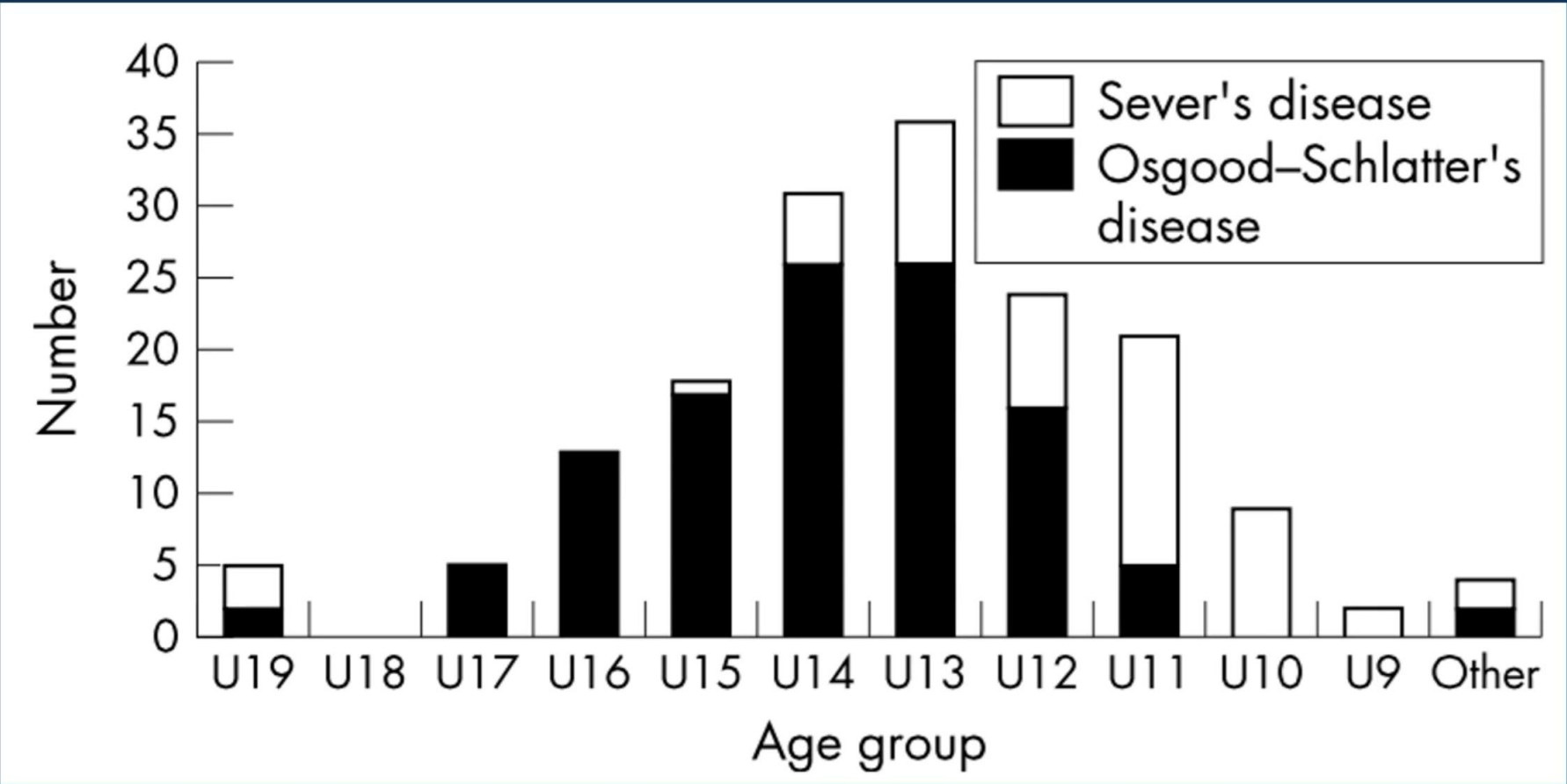
- The short answer is YES IT DOES
- Certain injuries are more prevalent for given age groups
- Skeletal maturity differs greatly within each age group
- Early vs Late matures
  - For instance in U12 boys you may have an athlete with the skeletal maturity of an 10yo and another athlete may be 16yo
- This will significantly impact on the amount of training they can cope with and impact forces they can tolerate





**Biological age can vary  
by up to 4-5 years  
between players in the  
same age-group**

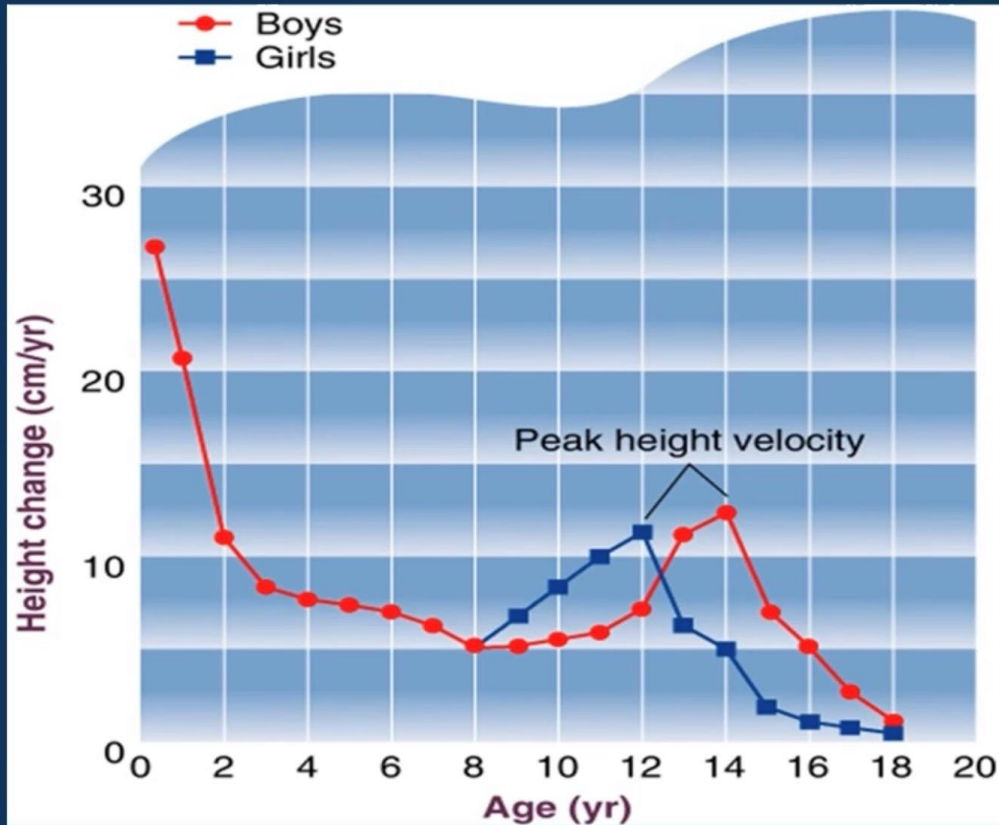
# Growth, Maturation and Injury



Price et al *BJSM* 2004

# "It's just growing pain..."

- Injury rate is higher around peak height velocity
  - Kids that have sudden spurts more at risk than slow and steady
- They will grow out of it.. But do they?



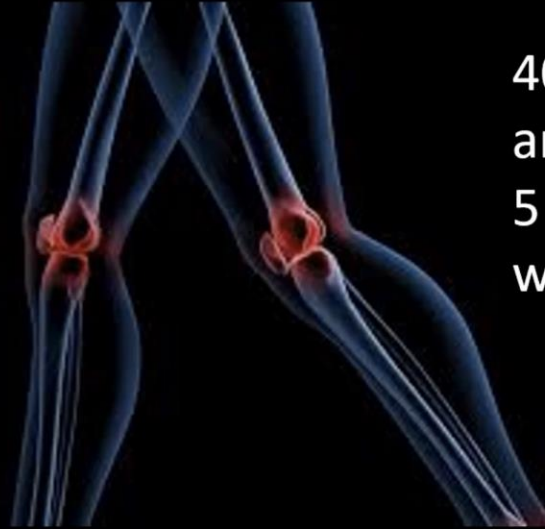
## Peak height velocity (PHV)

Period of time in which a child experiences their fastest upward growth in their stature – i.e. the time when they grow the fastest during their adolescent growth spurt

Lloyd & Oliver *Strength & Conditioning Journal* 2012

60% of patients had  
OSD symptoms 4 years  
later

Guldhammer et al *Ortho J Sports Med* 2019



40% report frequent  
and intense knee pain  
5 years later compared  
with 13% in controls

Rathleff et al *BMJ Open* 2019

Patients with ongoing OSD have reduced sports-  
function and health related quality of life

Rathleff et al *J Orthop Sports Phys Ther* 2019

Guldhammer et al *Ortho J Sports Med* 2019

# It's just growing pain..

- The research suggests for a large portion NO!
- This is especially relevant for heel and knee pain

# It's just a niggle..

- High risk of niggles progressing to a time loss injury
- Especially knee's and hamstrings
- Don't write off a persisting niggle
- Best to deal with it early
- This will require less treatment and reduced the risk of more serious injury and time out

**68%**

of all TL injuries  
preceded by a non-TL  
report

**94%**

of all knee TL injuries  
preceded by a non-TL  
report in the same  
location

**90%**

of all hamstring TL  
injuries preceded by a  
non-TL report in the  
same location

Whalan et al (2020)



# Do I need to see a Physio?

- If it's a niggle that shifts location and comes and goes with relative infrequency..NO.
- A consistent location that is worsening or becoming more frequent .. YES
- Catching injuries in the niggle phase reduces likely hood of more serious time loss injuries
- Good Physiotherapy should provide you with:
  - A diagnosis: this can just be strength imbalance/ tightness/ biomechincal.
  - Exercises: Important!!
  - Goals: short and long term
  - Training program/load modifaction
  - It should not be just manual therapy or machines!

# Sports Specialisation

- This is not recommended prior to 12yo but later may be even better
- Risk of overuse injuries
- Better motor development when exposed to wide range of movement patterns
- Early burnout.. Kids that quit at 16-17yo
- Overdependence

# REDUCING INJURY RISK

- Is it not good to specialise in sport early before 12yo
- Training loads
  - Not all children can deal with the same loads
  - Watch out for persistent niggles
- Age considerations
  - Big difference in skeletal maturity
- Boys vs Girls
  - They are not the same
- Football Australia warm up
  - Extremely effective in reducing severe and moderate injuries

# Football Australia warm up

- Fundamentals
- Program +

# Fundamentals+




- Beginner
- Adapted for 5-13 yrs
- Reduces youth injuries by 50%
- Reduces severe injuries by 74%
- Fundamental movement and coordination exercise
- Aim to complete 2-3 times per week
- Can be completed at home
- Footballaustralia.com.au

**FOOTBALL AUSTRALIA**  
**FUNDAMENTALS**



**GOAL**  
All exercises to be performed 2x/week (at training or home)

**COACHES/PARENTS**  
Include a minimum of 3 exercises per session. Ensure players complete all 7 exercises during the week either at training or home.

	LEVEL 1	LEVEL 2	LEVEL 3
<b>EXERCISE 1</b> <b>Jog &amp; look at the coach</b> 3 x 5 skip commands.	 Watch for the command	 Keep the ball in hands and watch for command	 Juggle the ball and listen to the command
<b>EXERCISE 2</b> <b>Skating Hop</b> 2 x 10 reps (5 hops on each leg)	 Keep the ball in the hands	 Touch ground with the ball	 Balance and stretch forward with the ball
<b>EXERCISE 3</b> <b>One Leg Stance</b> 2 x 10 reps (5 hops on each leg)	 Throw the ball	 Circle around the leg and throw it	 Challenge your balance
<b>EXERCISE 4</b> <b>Push Up</b> 3 x 10-15 seconds	 In a plank position & roll the lower legs on the ball	 Keep position & roll the ball between hands and feet	 Hands on the ball & challenge your position
<b>EXERCISE 5</b> <b>One Leg Hops</b> 3 x 5 skip commands.	 Hop forwards & backwards	 Hop sideways	 Follow the command & hop
<b>EXERCISE 6</b> <b>Spiderman</b> 3 x 10-15 seconds	 Touch the ball with alternating feet	 Crawling	 Crawling with the hands & move the ball with the feet
<b>EXERCISE 7</b> <b>Roll Over</b> 5-7 x per side	 From standing, slowly roll over	 Slow walk & roll over	 Jog & roll over


**FOOTBALL AUSTRALIA**

- Developed by Football Australia as a progression of the existing FIFA 11+
- Targeted at children over 10yo
- More flexibility for coaches
- New content for hip and groin injuries
- Reduces injuries by 40%
- Improves physical performance



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# PHYSIOS

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**Thank you**

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