Children in Sport

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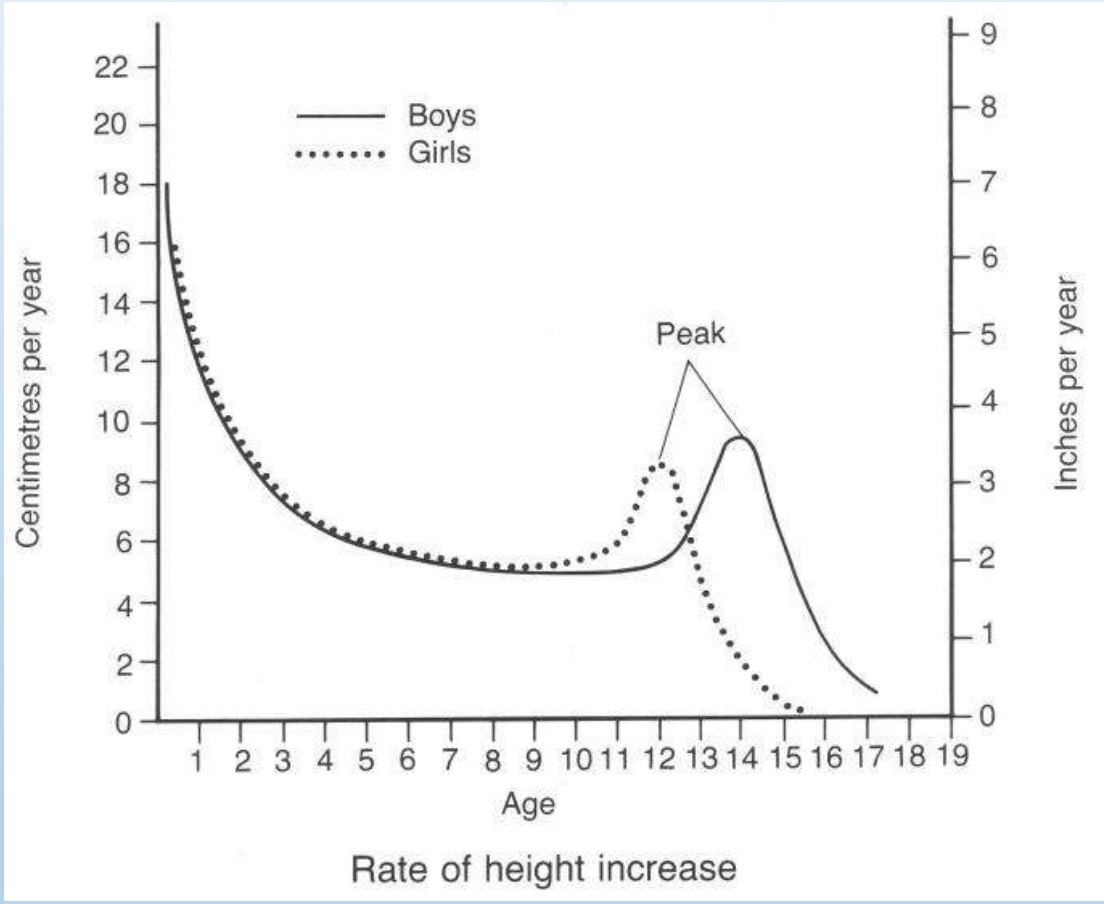
A quick look at:

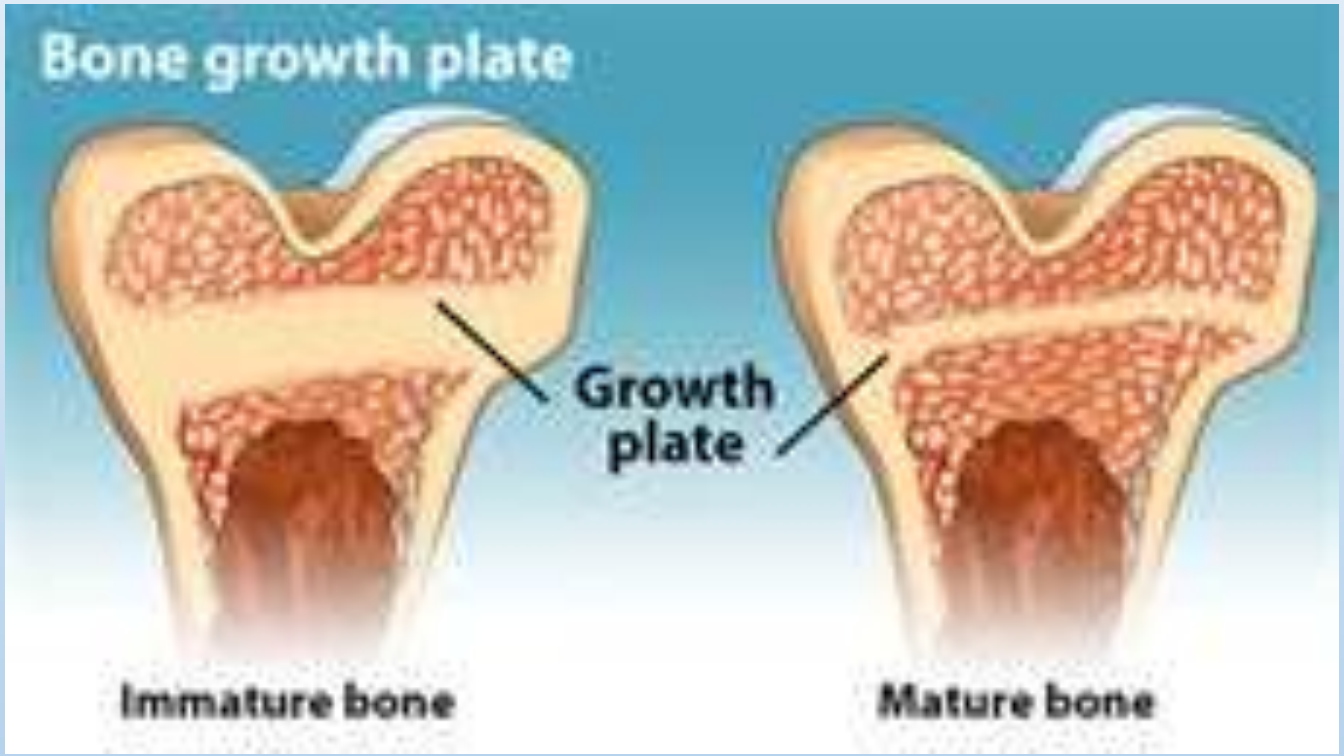
1. Basic facts regarding the **immature** skeleton
2. Three most common clinical complaints
3. General pointers about some drugs I deal with

Why do children have different sport injury patterns to adults?

- Growth spurts
- Growthplates
- Strong tendons relative to bones
- Overuse of immature structures
- Parents and coaches (and other hasbeens and wannabe's)



Growth Spurts –pivotal moments



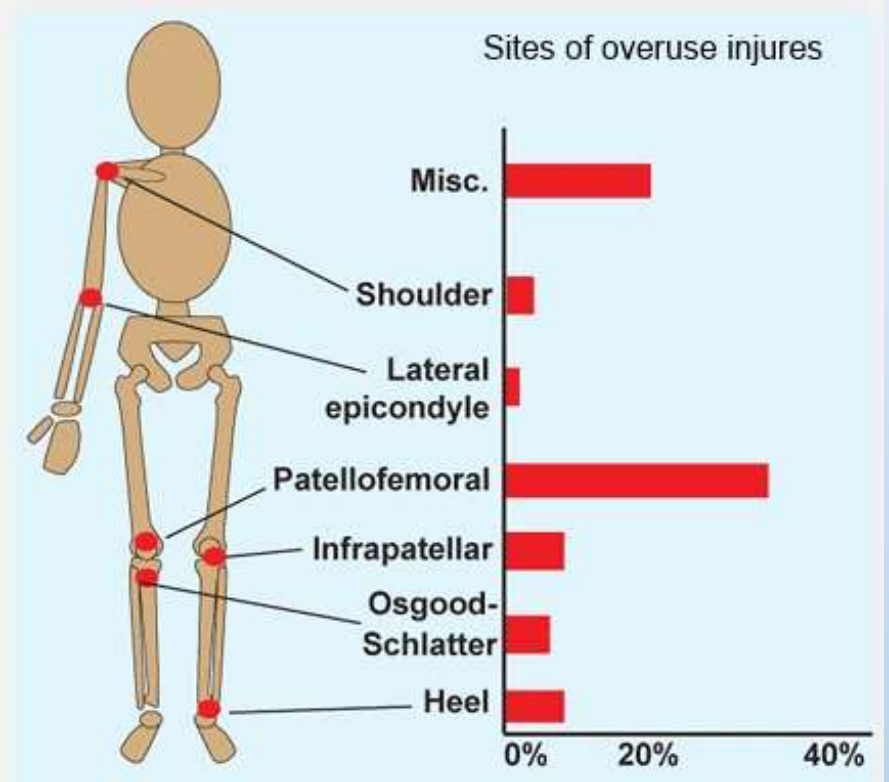
Overuse of immature structures

- No long-term repetitive conditioning
- Seasonal sport and multiple disciplines

Parents pushing too hard (perspective)

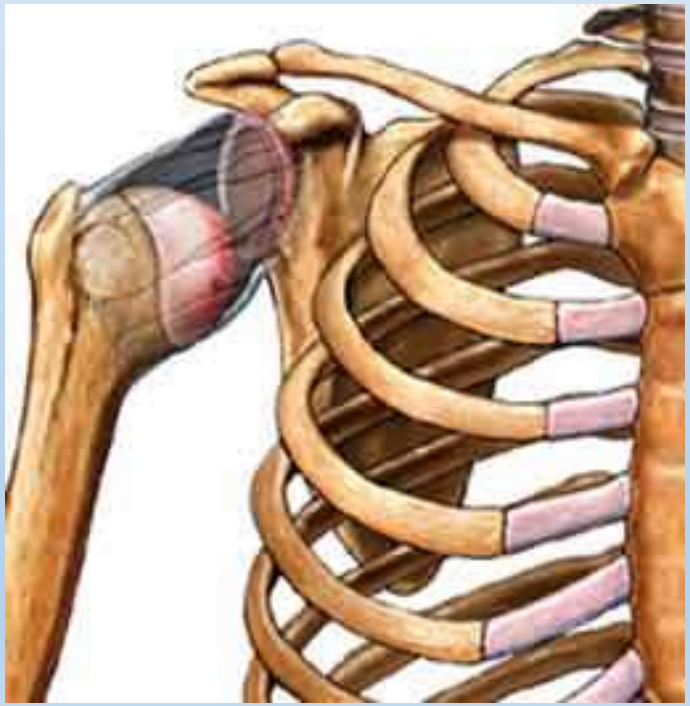
Three most common complaints:

- Knee pain
  - Oshgood-Schlatter
- Heel Pain
  - Sever's
- Shoulder Pain
  - Instability

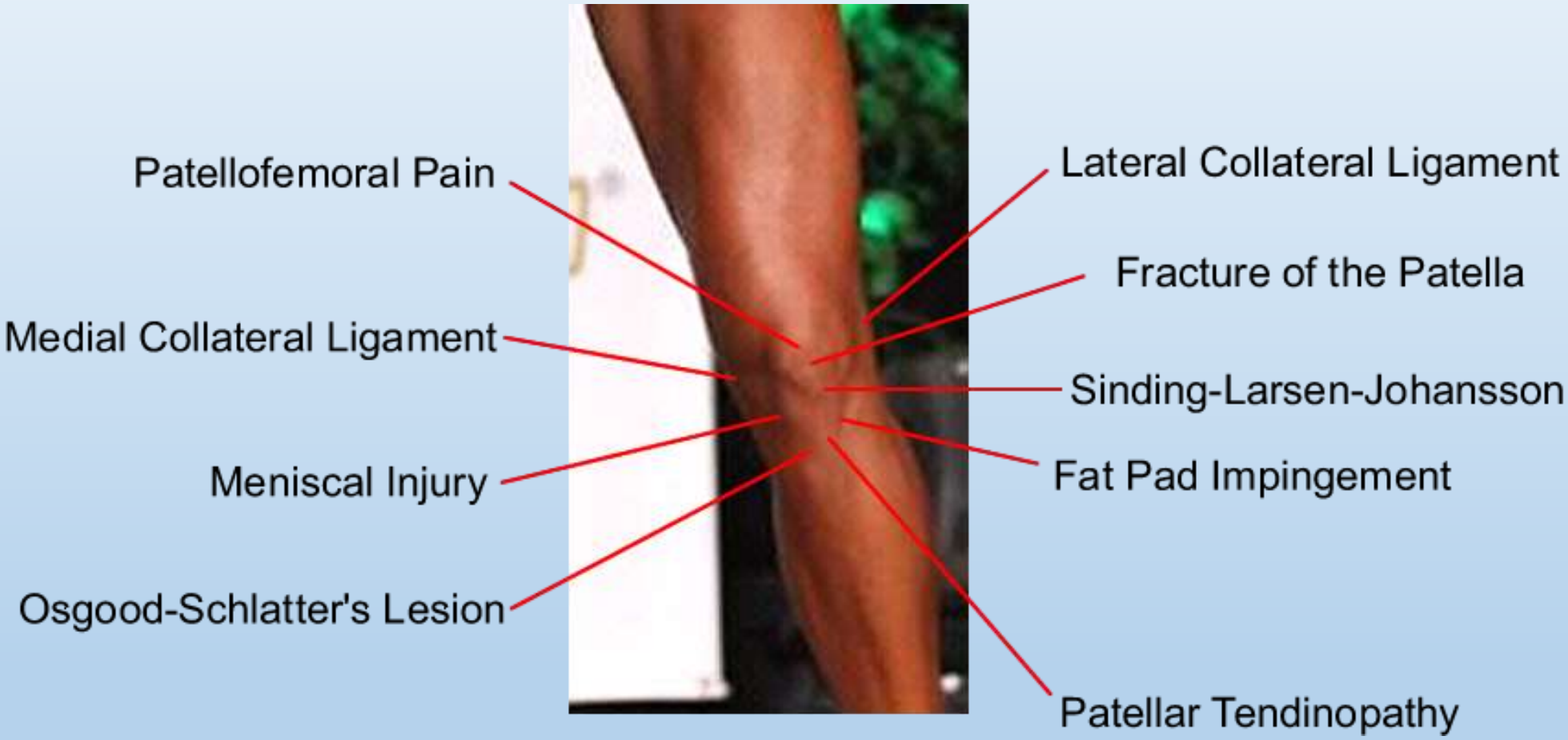


Shoulder Pain

- Swimmers, throwing athletes and overhead sport
- Radiographs rarely reveal significant pathologic findings unless a traumatic injury occurred
- The most common diagnosis is **instability**
- Treatment is **physical therapy**



The Knee: Make it as hard as you like…

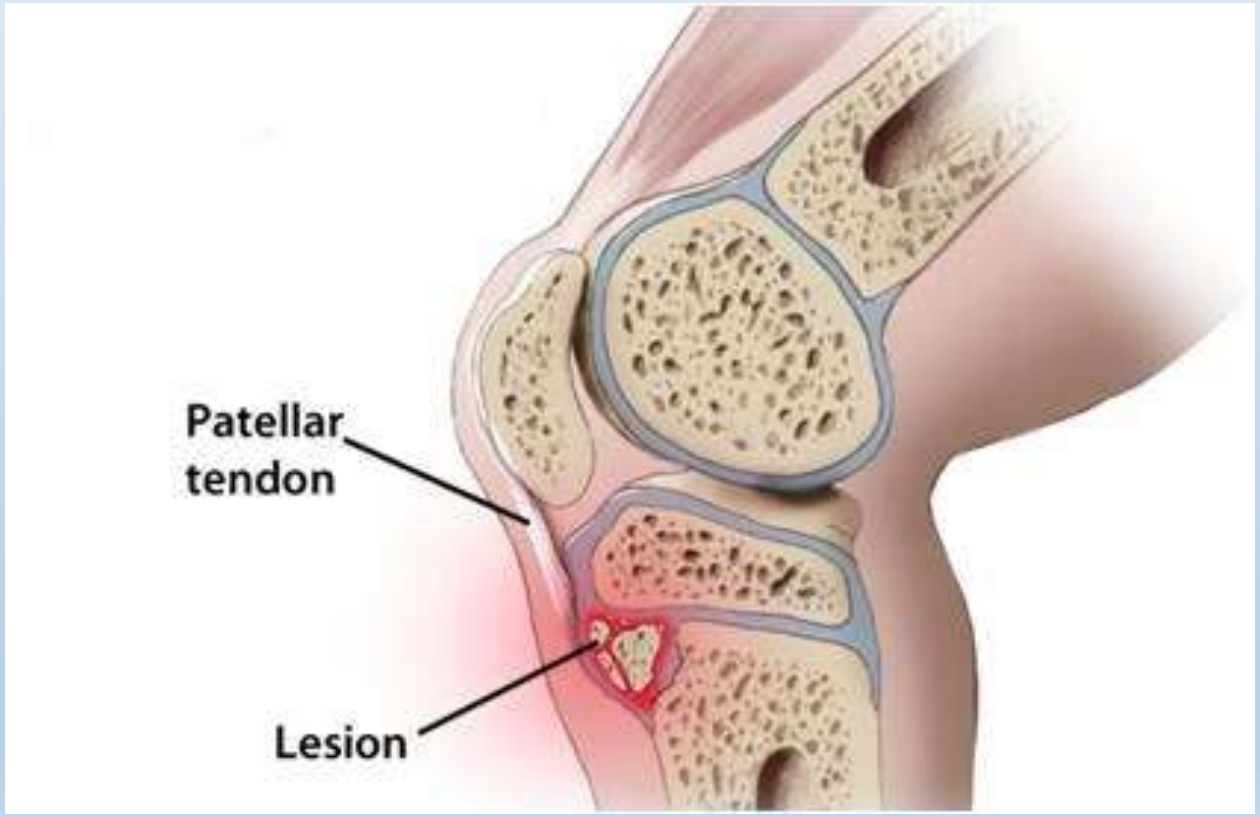


The Knee 101


Quadriceps Muscle
Patellar Tendon
Tibial Tubercle
Tibia (Shinbone)

Osgood –Schlatter Disease (OSD)

- Traction apophysitis of the tibial tubercle



Sinding-Larsen-Johansson Syndrome

- Sinding-Larsen-Johansson is a similar syndrome that occurs at the distal pole of the patella

Treatment of Osgood –Schlatter

(The American Academy of Orthopaedic Surgeons)

- Activity limitation
- Anti-inflammatories
- Protective padding
- Quadriceps/hamstring strengthening
- **Time**
- **ICE, ICE, ICE**

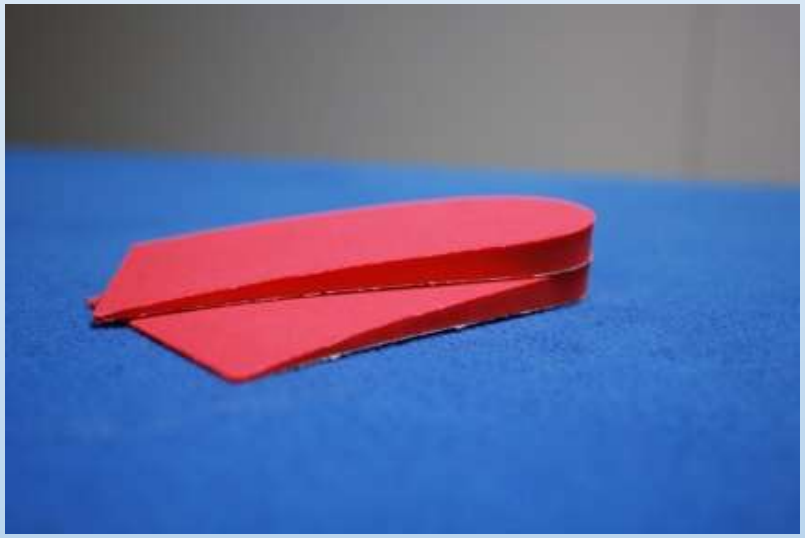
Sever’s Disease

This is the season for heel pain

- Sever's disease is more common in boys between the ages of 10 and 15. In girls, it usually happens between 8 and 13.
- Tenderness in the back of the heel when the area is squeezed.
- Typically after running or jumping, and feels better after rest. The pain may be especially bad at the beginning of a sports season.
- Walking or running with a limp or on tip toes.

Treatment of Sever's

- I always write a letter to school to permit sneakers (shock absorbing shoes) at all times **even during sport**
- Heel raise in both shoes
- Stretching
- **Time**
- **ICE, ICE, ICE**
- NEVER inject Cortisone!!!!

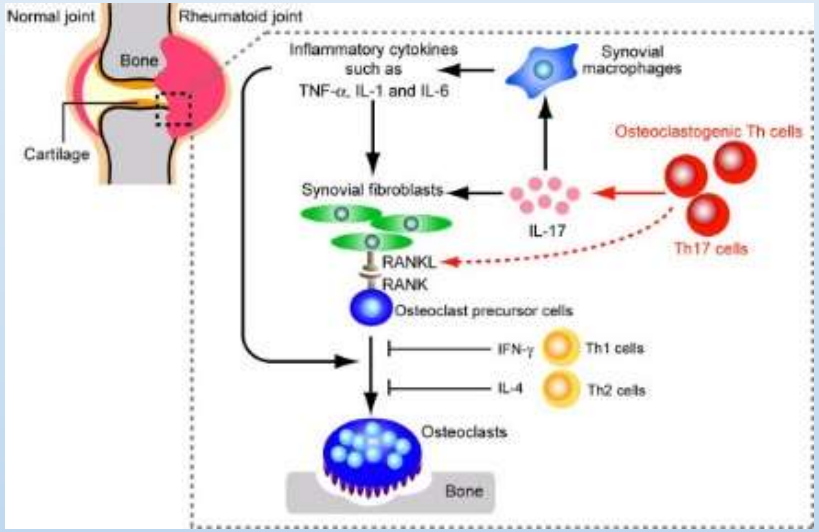


XR: First we must know what is Normal

TIP: COMPARE!

Use the most **accurate textbook** available

The science of ice



In all these conditions:

- These conditions should clear up when the young athlete **stops growing.**

- The most important thing is to train only as much as **pain will allow**, which may mean focusing on quality rather than quantity

- It often occurs “**seasonal**”

Some less common conditions:

- Stress fractures
  - More focal pain in a bone
  - If suspected do **MRI**
- Growth plate fractures (Salter-Harris)
  - History of **trauma**
- "shin splints" or Periostitis
  - More **diffuse** over edge of Tibia
- Osteochondral lesions
  - **Deep joint pain** with synovitis
  - MRI needed

Some important points – ask the child!

- Was there significant trauma?
- Does the pain move around?
- Is there a pattern? Is it painful:
  - When you get out of bed?
  - Can you run around during break?
  - Can you climb stairs at school?
  - Can you finish training?
  - Does it hurt in bed at night?

My Suggestions:

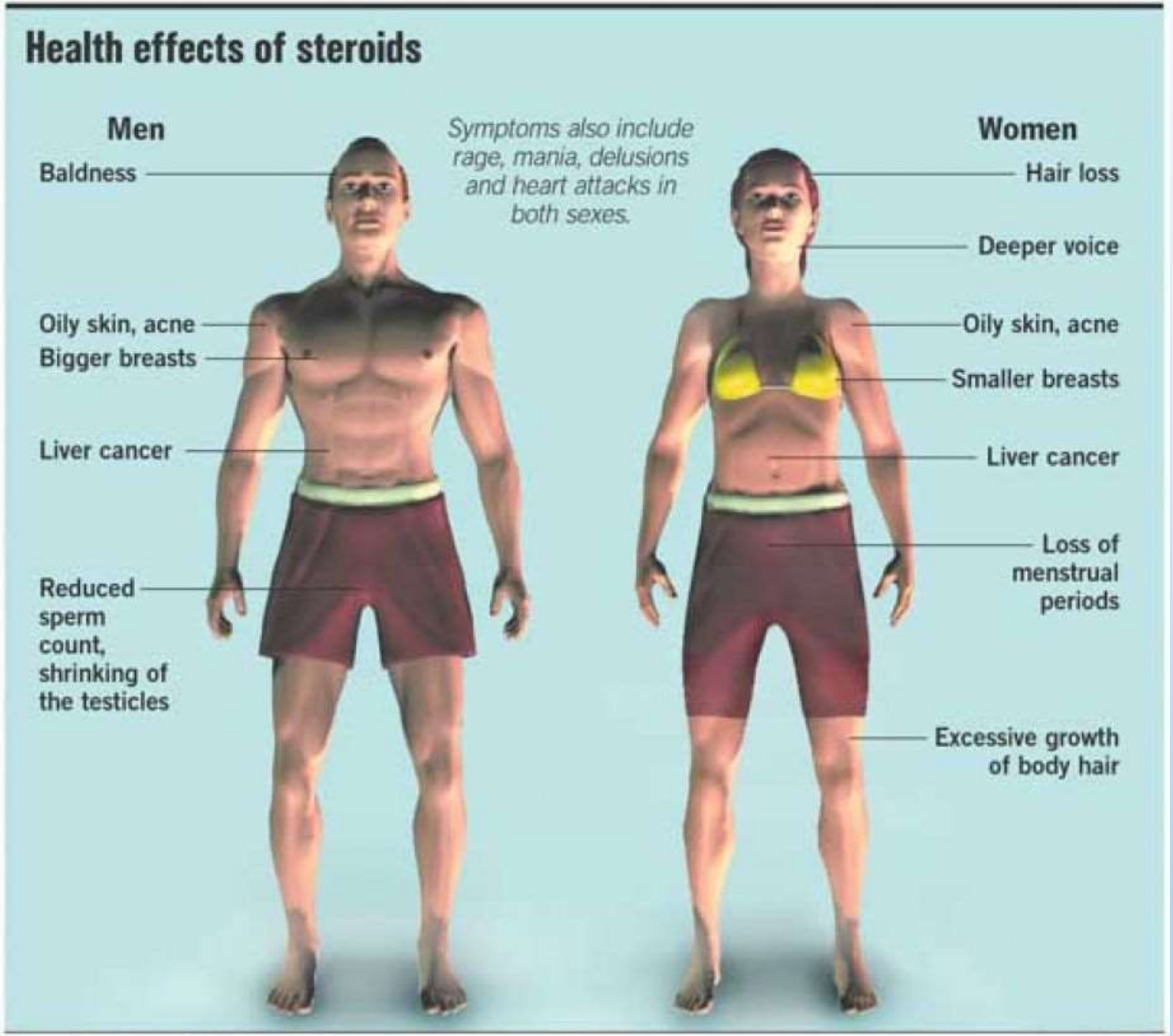
- **Never** give analgesics to facilitate participation in sport
- “You can only complain after you have done **30min of icing”**
- A **bad** Sonar / Ultrasound only adds to the confusion
- Screen with XR and diagnose clinically
- I use short course **Celebrex** and Panado if indicated
- Cortisone is VERY, VERY seldom indicated (never orally)

PED's

- Anabolic Steroids
  - Injectable: Nebido vs DepoTest
  - Oral
  - Creams
- Growth Hormone
  - Cost
  - Glow Time
- Other: Anastrazole
  Insulin

Also used for cosmesis

- Girls
  - Bodybuilding
  - Fitness Models
- UK – so called “Boy Band Look”


Health effects of steroids
Men
Baldness
Oily skin, acne
Bigger breasts
Liver cancer
Reduced sperm count, shrinking of the testicles
Symptoms also include rage, mania, delusions and heart attacks in both sexes.
Women
Hair loss
Deeper voice
Oily skin, acne
Smaller breasts
Liver cancer
Loss of menstrual periods
Excessive growth of body hair
Source: National Institute of Drug Abuse
Chronicle Graphic

“I have always used it”

Developed 1969

Ibuprofen

Developed 1973

Diclofenac

Developed 2000

Celecoxib

What is the big deal?

- **COX-1** is found in platelets and plays a role in the protection of the gastrointestinal mucosa, renal hemodynamics, and platelet thrombogenesis = "**Housekeeping enzyme**"

- COX-2 is mostly expressed in cells involved in **inflammation (>20x)**

- Nonselective NSAIDs (aspirin, diclofenac, ibuprofen etc) inhibit **both** COX-1 and COX-2

- Celecoxib is a **selective** COX-2 inhibitor

- Celecoxib is approximately **30 times** more selective for COX-2 inhibition than COX-1

- This selectivity allows celecoxib and other COX-2 inhibitors to reduce inflammation (and pain) while minimizing adverse **systemic side-effects** that are common with non-selective NSAIDs.

- GI bleeds may be less relevant to you than in adults but during sport athletes become dehydrated – **RENAL PROTECTION**

COX-2 in modern Paediatrics

- FDA trial that led to the approval of celecoxib for children with JIA provide evidence that the benefit-risk for celecoxib treatment in JIA remains positive even in long-term treatment.

- Celecoxib at a dose of 16 mg/kg/day, corresponding to the adult dose of 400 mg BID, is safe and well tolerated. (15kg = 200mg/d!)

Sportmedicine 101

- If in doubt:
  - Rest and ice for 2/52
  - Then a “Trial of sport”
- If it flares up- refer