Sprains, Strains
& Salter-Harris Fractures
Sprains & Strains

- Ligaments in children are stronger than bone; Fractures more likely than sprains
- Sprains tend to resolve with in a few days
- Painful over 5-10 days; is a fracture until proven otherwise
- Pain over physis, not joint, even if negative x-ray; Probable fracture and needs referral
Fracture Types:

Fig. 1-4. Fracture types in children.

- Bend
- Buckle
- Greenstick
- Complete

W/O Weight
Salter-Harris Fractures

- **Type I**: Epiphysis separated from metaphysis
- **Type II**: Physis fractured & extends into metaphysis
- **Type III**: Physis fractured & extends into epiphysis
- **Type IV**: Physis fractured & extends into metaphysis & epiphysis
- **Type V**: Crush injury to physis
Salter-Harris Type I Fractures

- Often missed initially (dx sprain)
- X-rays: acute, often normal except for soft tissue swelling over physis
- X-rays subacute – may be widening of physis (healing)
Growth Plate Fractures

- $\frac{1}{3}$ of all growth plate fractures occur during competitive sports.
- $\frac{1}{5}$ of all growth plate fractures occur from recreational activity such as biking, skiing, skateboarding, etc.
- Growth plate fractures can also occur with repetitive stress or overuse.
Distal Radius Fracture

- Most commonly fractured bone in children
- Metaphysis most commonly followed by distal radius physis
- Simple falls are the most common cause
Knee

- Distal femoral and proximal tibial physeal fractures: most common fractures mistaken for ligamentous injury (sprain).
- Where is child tender: joint or growth plate?
- Effusion is usually not sprain; suspect fracture or intraarticular injury.
Second most common site of physeal fracture after wrist

All ligamentous structures attach distal to physis

Ligaments stronger than physis
Summary

- Ligaments are stronger than the growth plate
- True joint swelling is usually not a sprain
- Sprain or pain lasting >5 days is most likely a growth plate fracture