

Apophysites

General Description

- Apophysis = secondary ossification center that a tendon attaches to
- Repetitive microtrauma from activities involving running, jumping, kicking etc. (often as part of sports participation) → inflammation
- Associated with rapid growth spurt → traction on the tendon insertion site
- Often presents as insidious onset pain, worse with activity, improved with rest
- Physical exam: tenderness +/- swelling over apophysis site
- Self-limited; resolves with fusion of the ossification center (6-18 months)
- [Next slide](#): specific locations & associated disease entities

Evaluation & Treatment

- Often a clinical diagnosis; x-rays not always needed
 - Perform if: pain at night, pain not associated with activity, acute onset of pain, systemic complaints (e.g. fever, weight loss), persistent (not intermittent) or worsening limp, concern for avulsion fracture
- Rest when pain occurs (but do *not* stop activity & sports participation)
 - Coaches may need to plan ahead because once a child sits out a quarter, may not be able to go back in
- Ice acutely right after activity
- NSAIDs (ibuprofen)
- Stretching exercises may ↓ traction
- Gel heel cups inside the shoes for Sever disease
- Hip apophysitis / avulsions may require crutches
- Rarely, immobilization is needed

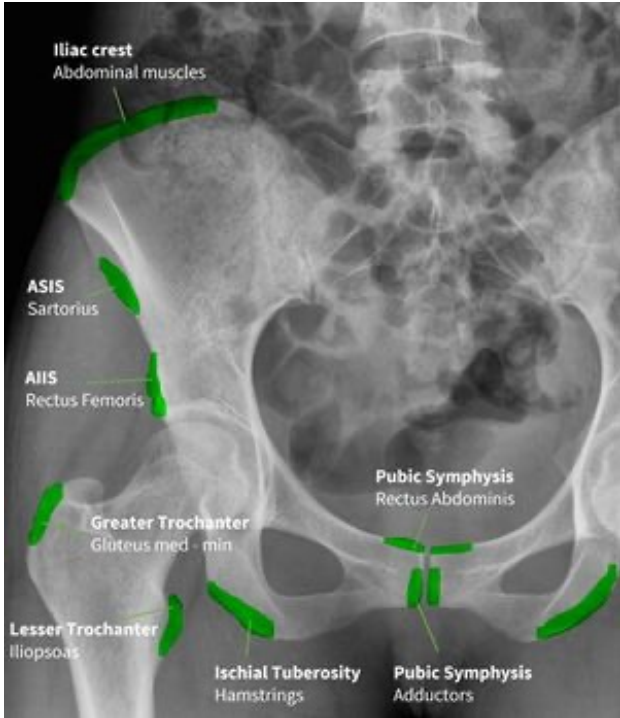
Apophysites

Apophysitis	Apophysis location	Epidemiology	Exacerbated by	Differential Diagnosis
Hip apophysitis	Multiple sites on pelvis (see next slide)	Age 14-16	Running, sprinting, dance, soccer	Avulsion fracture
Sinding-Larsen-Johansson	Inferior pole of patella	Age 10-13	Jumping, running, squatting, stairs	Knee effusion, infra-patellar bursitis
Osgood-Schlatter disease	Tibial tuberosity	Age 9-14, 25-50% bilateral	Running, jumping, cutting	Tibial tuberosity avulsion fracture
Sever's disease	Posterior inferior calcaneus	Age 8-12, M>F, bilateral in up to 2/3	Running, jumping, soccer, football, basketball, dance	Calcaneal fracture, Achilles tendon rupture
Iselin's disease	Base of 5 th metatarsal	Age 8-13	Running, jumping	Dancer's or Jones fracture
Little League Elbow	Medial epicondyle	Age 6-15, peak 11-12, overhead throwing	Valgus stress with throwing (pitchers, catchers)	Medial epicondyle avulsion fracture, UCL tear

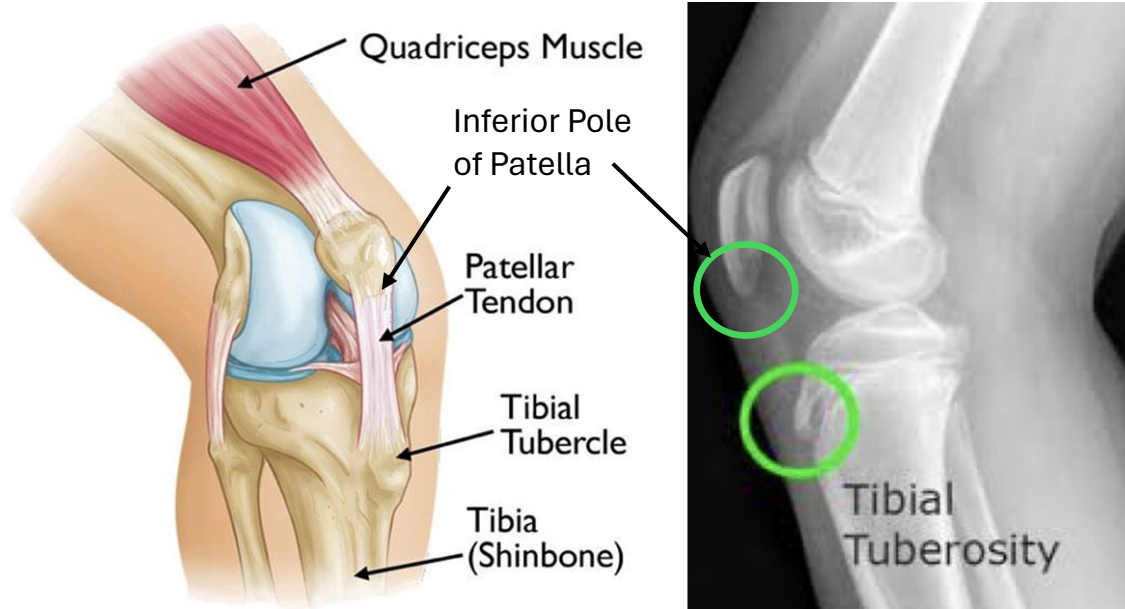
Locations and diagrams [next slide](#)

Apophysites Locations

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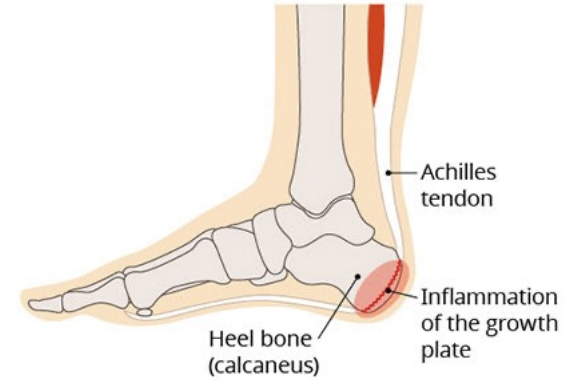


Osgood-Schlatter & Sinding-Larsen-Johannson

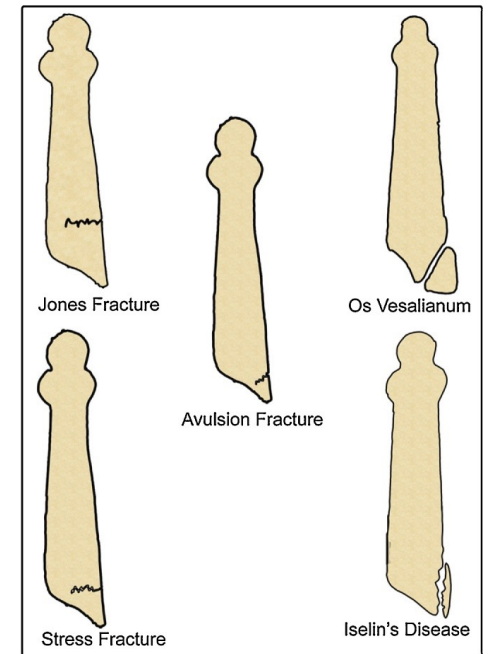


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Calcaneal Apophysitis (Sever's Disease)



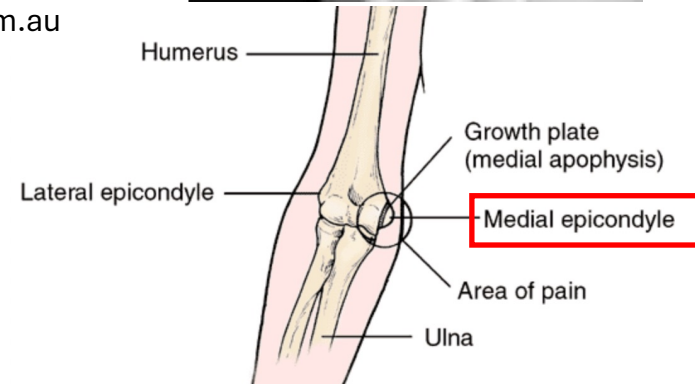
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Hip Avulsion Fracture Mechanisms

Iliac crest	Forceful turning or lateral flexion of trunk
ASIS	Sudden strain/twist of lower extremity
AIIS	Forceful hip extension
Ischial tuberosity	Forceful hip flexion with knee extended
Pubic symphysis	Forceful contraction of abdominal muscles



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