EXERTIONAL COMPARTMENT SYNDROME AT THE FOOT

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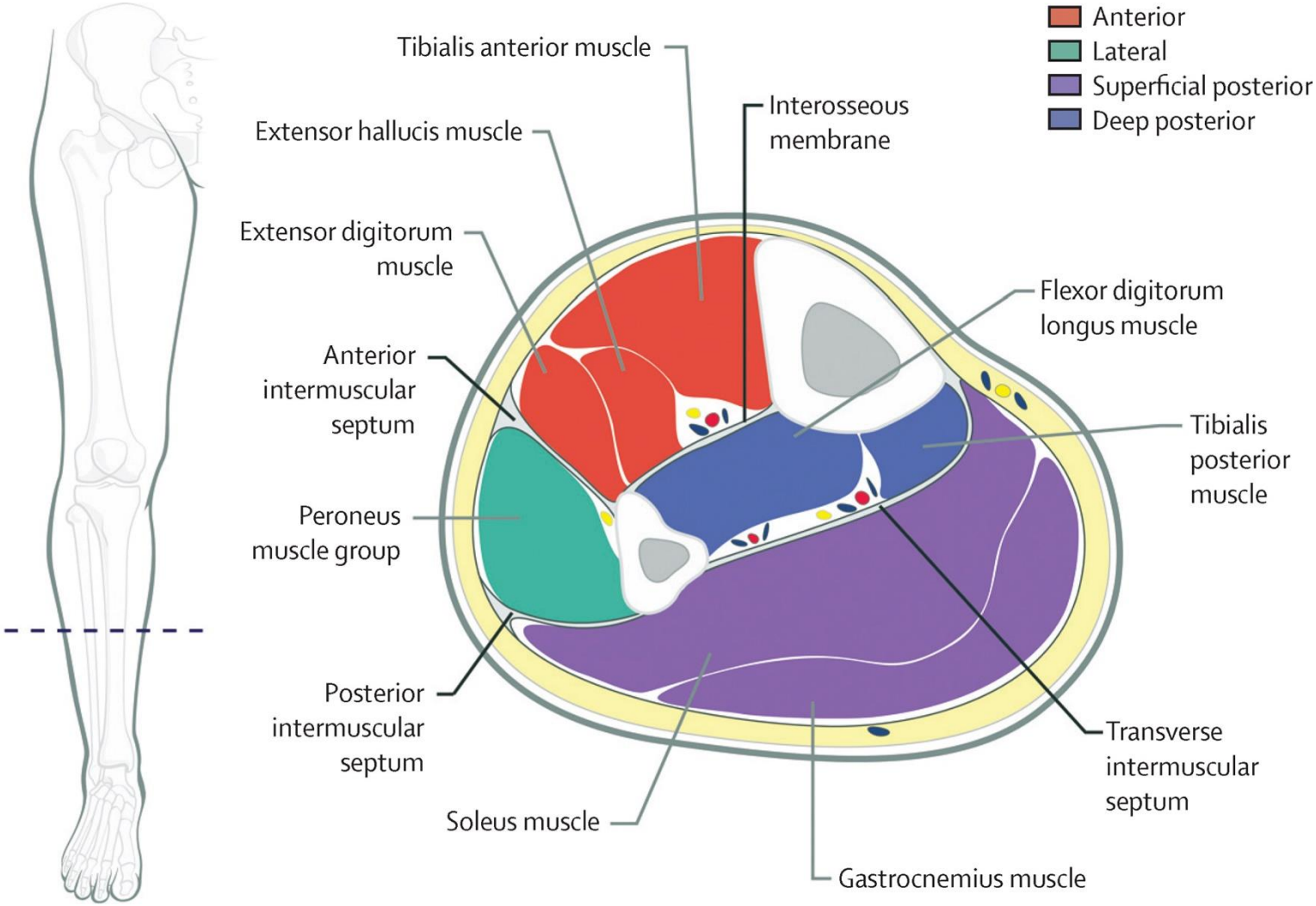
Compartment Syndrome Definition

- A short-lived yet consistent and exercise-induced, symptomatic elevation of compartment pressure

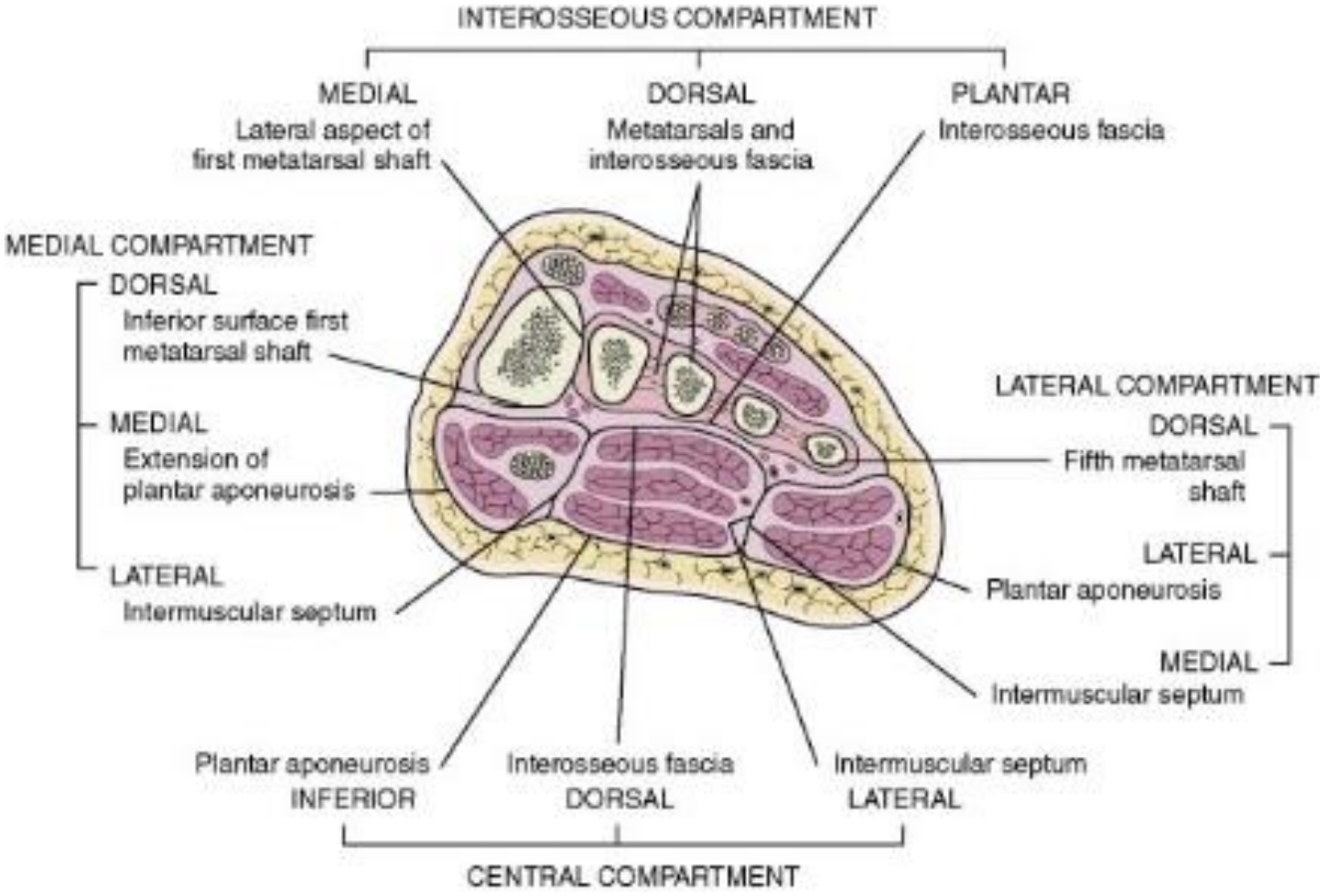
Compartment Syndrome - Leg



Anatomy – Foot Compartments

- Kamel & Sakla, *Anat Rec* (1961)
- Sarrafian, Anatomy of the Foot and Ankle 2nd Ed (1993)
- Manoli & Weber, *Foot Ankle* (1990)
- Reach et al, *Foot Ankle Int* (2007)
- Faymonville et al, *Surg Radiol Anat* (2012)

Anatomy – Foot Compartments



Aetiology

- Still not at clear as we'd like

- ? Somatotype
- ? Venous return competency
- ? Foot mechanics

Subjective Reports

- Principally pain-free during non-exercise times

- Deep aching, burning, cramping, bursting sensations
- Absent at the start of exercise
- Pain increases in proportion to exercise duration
- Symptoms relieved with rest
- Pain returns with activity resumption

Medial Compartment of the Foot

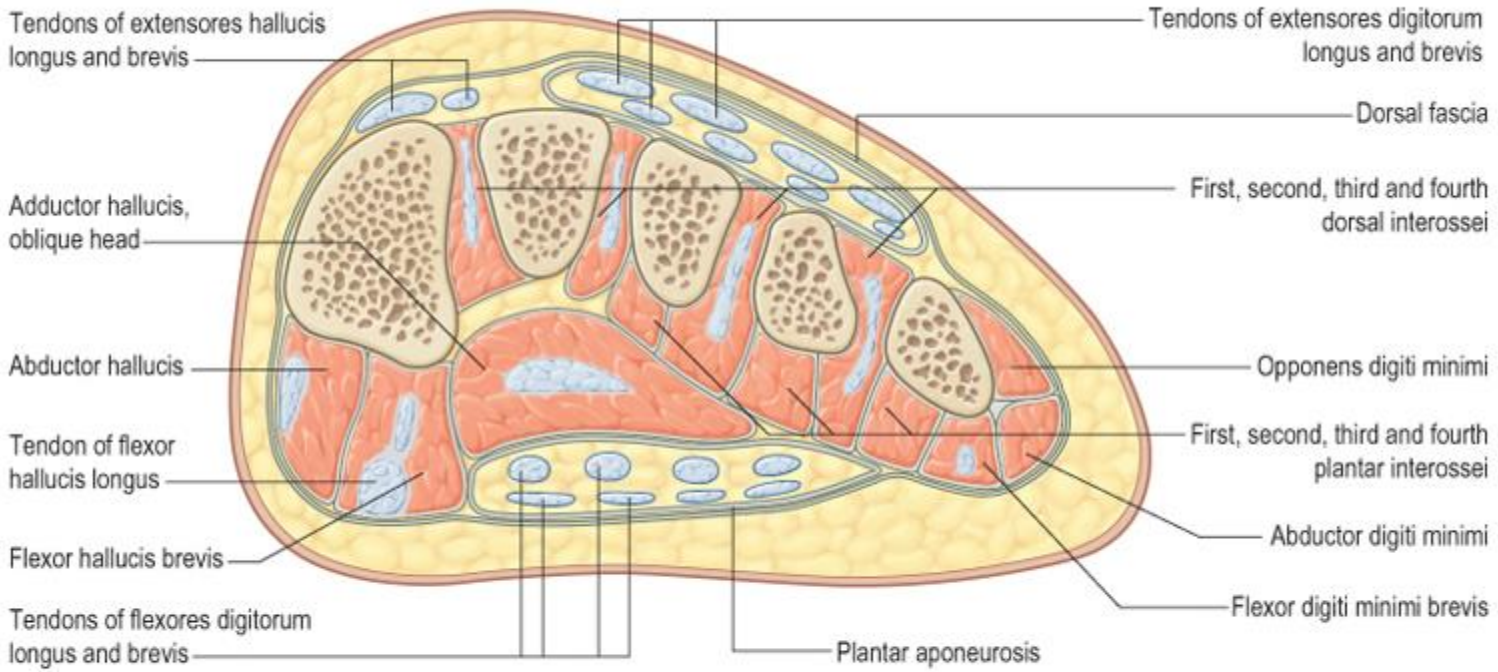


Fig. 84.4 Transverse section through the midfoot showing the main fascial compartments.

From Standring, Gray's Anatomy, 40th edn. Churchill Livingstone/Elsevier, Philadelphia, 2009 with permission.

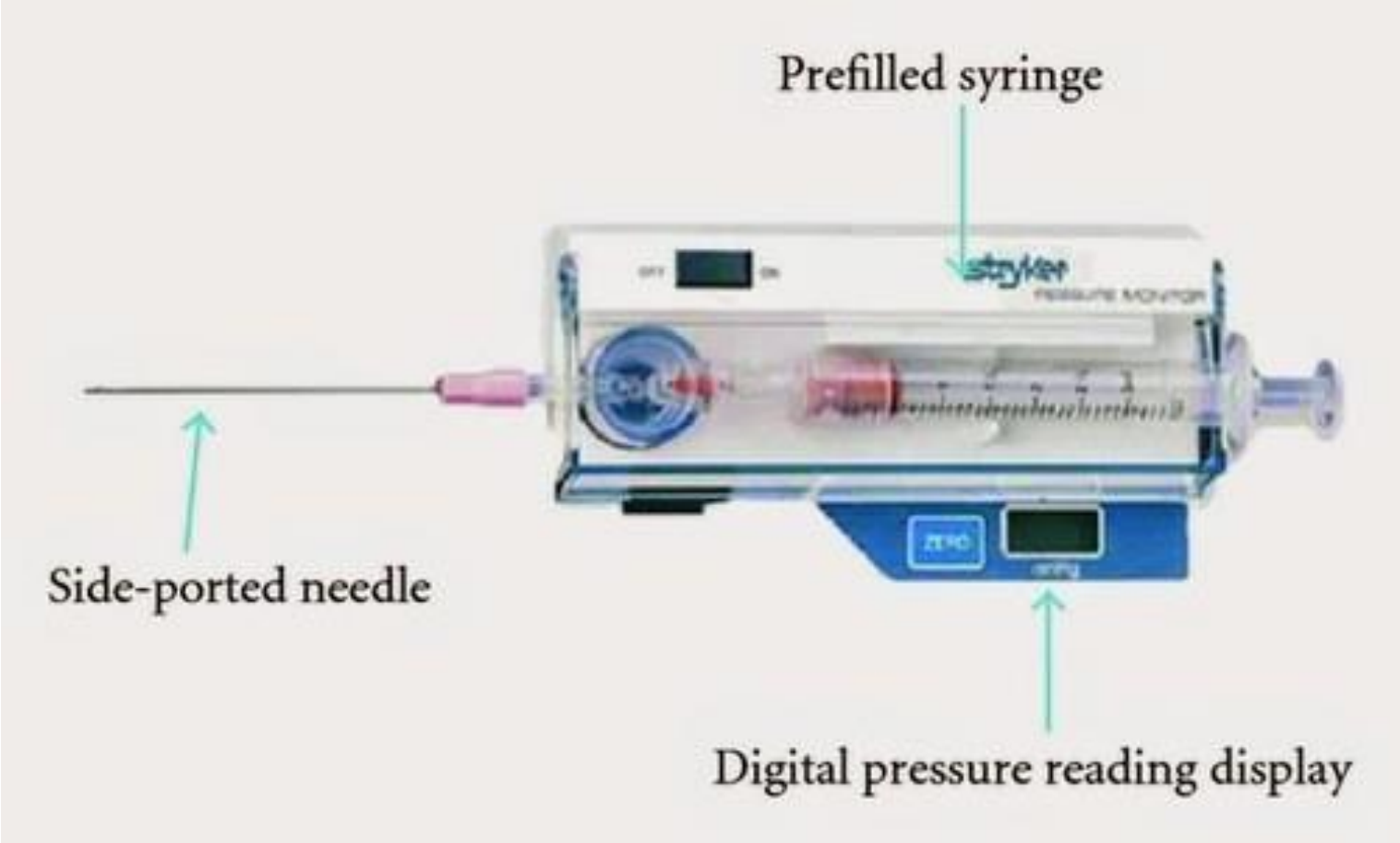
Clinical Assessment

- Typically pain-free during physical examination
- ? Abductor hallucis hypertrophy
- Exam following pain reproducing exercise
  - The affected compartment is hardened, swollen and tender
  - Pain with stretch of the muscles in the compartment
  - Weakness & pain on resisted contraction of the muscles
  - Pulses absent?

Compartment Pressure Testing

- Pain must be reproduced during typical exercise
- Pressure recorded 1 & 5 minutes after activity
- Time taken to dip below 15mmHg
- Comparison to Pedowitz et al, *AJSM* (1990)
- Roscoe et al, *AJSM* (2015) ?

Pressure Testing



Differential Diagnosis

- Plantar fascial pathology
- Popliteal artery entrapment
- Tarsal tunnel syndrome
- Stress fracture
- Proximal nerve entrapmentment
- Other

Treatment Options

- Rest
- Dry needling
- Massage
- Footwear changes
- Orthotics?
- Compression?
- Activity modification
- Surgery

Surgery

- Fasciotomy / -ectomy
- Muscle resection?
- Neurolysis?
- Return to activity is the aim and usually achieved

Jowett et al, *F&A Int* (2008)

Surgery