SMNZ (Waikato) Evening Seminar Series
Clinical Gems
Foot “core” training

Stephen Burden
MSc (Medicine) Exercise Science
Registered Clinical Exercise Physiologist (CEPNZ)
The foot “core” system

Three subsystems:

• Passive
  – Bones, ligaments and joint capsules

• Active
  – Muscles and tendons

• Neural
  – Sensory receptors in the plantar fascia, ligaments, muscles, tendons and joint capsules

(McKeon & Fourchet, 2015)
Foot core system (cont.)

• “The functional configuration of the bony anatomy of the foot results in four distinct arches – medial & lateral longitudinal; anterior and posterior transverse metatarsal arches” (McKeon et al. 2015, pg2).

• McKenzie (1955) proposed that these arches work as “functional half domes”, able to flex and adapt to load changes during dynamic activities.
Foot “core” Exercises

Freeing the Foot – Integrating the Foot Core System into Rehabilitation for Lower Extremity Injuries (McKeon & Fourchet, Clin Sports Med, 2015)

Isolated foot core training

Short foot contraction
Foot “core” Exercises

Neuromuscular Electrostimulation (NMES) for Active-Assisted Intrinsic Foot muscle training (McKeon & Fourchet, 2015)
Foot “core” Exercises

- Balance & foot muscle retraining (Orton, 2013)
- $30^\circ$ Slant board:
- Start with 2 poles for balance (30s; 60s; 2min)
Foot “core” Exercises

- Balance & foot muscle retraining (Orton, 2013)
- Progress to 1 pole; then no poles for balance (30s; 60s; 2min)

Forward  Uphill  Downhill
Advanced Foot “core” Exercises

Side lift (uphill)

Frog lift (downhill)

Knee drive (forward)