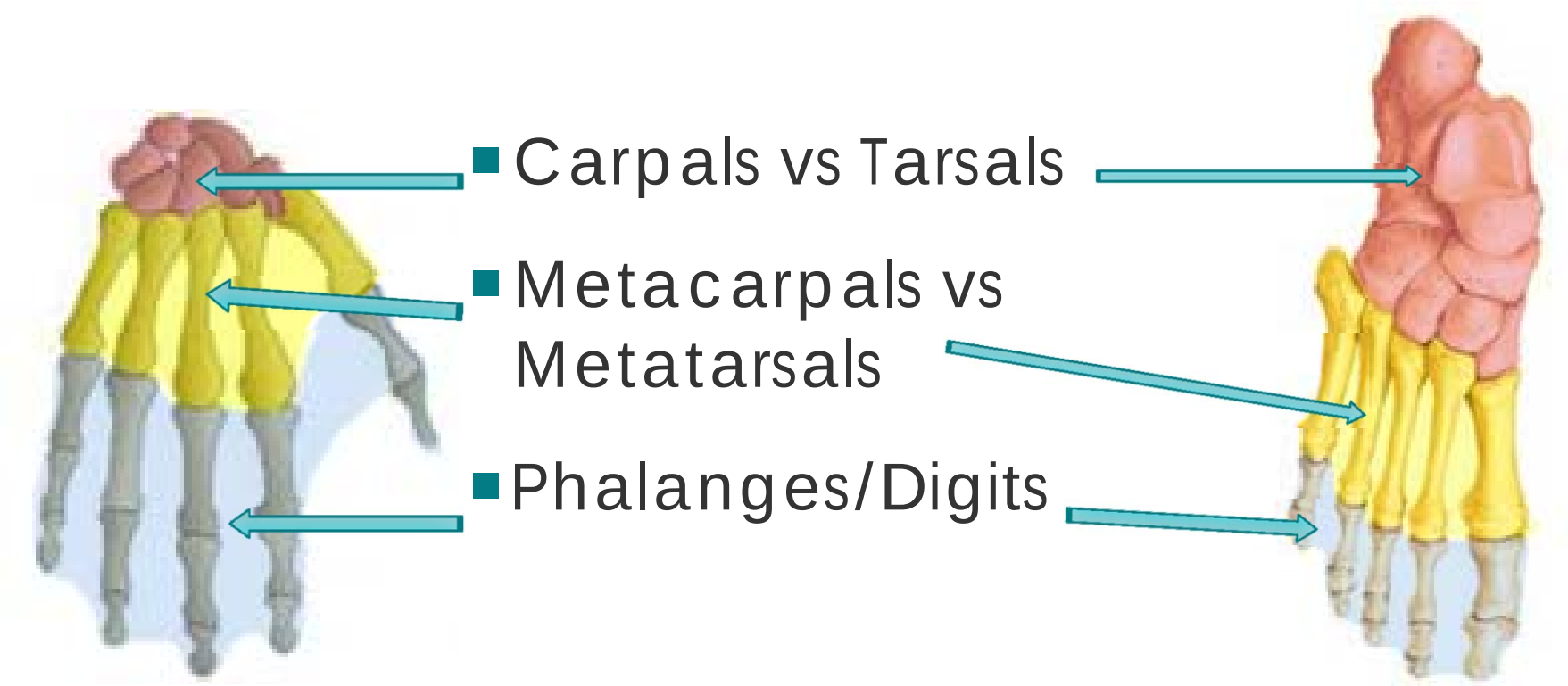
Underneath The Arches

The importance of weight bearing through hands and feet for Blind Children

By Jenny Andrew and Gendy Ritzema

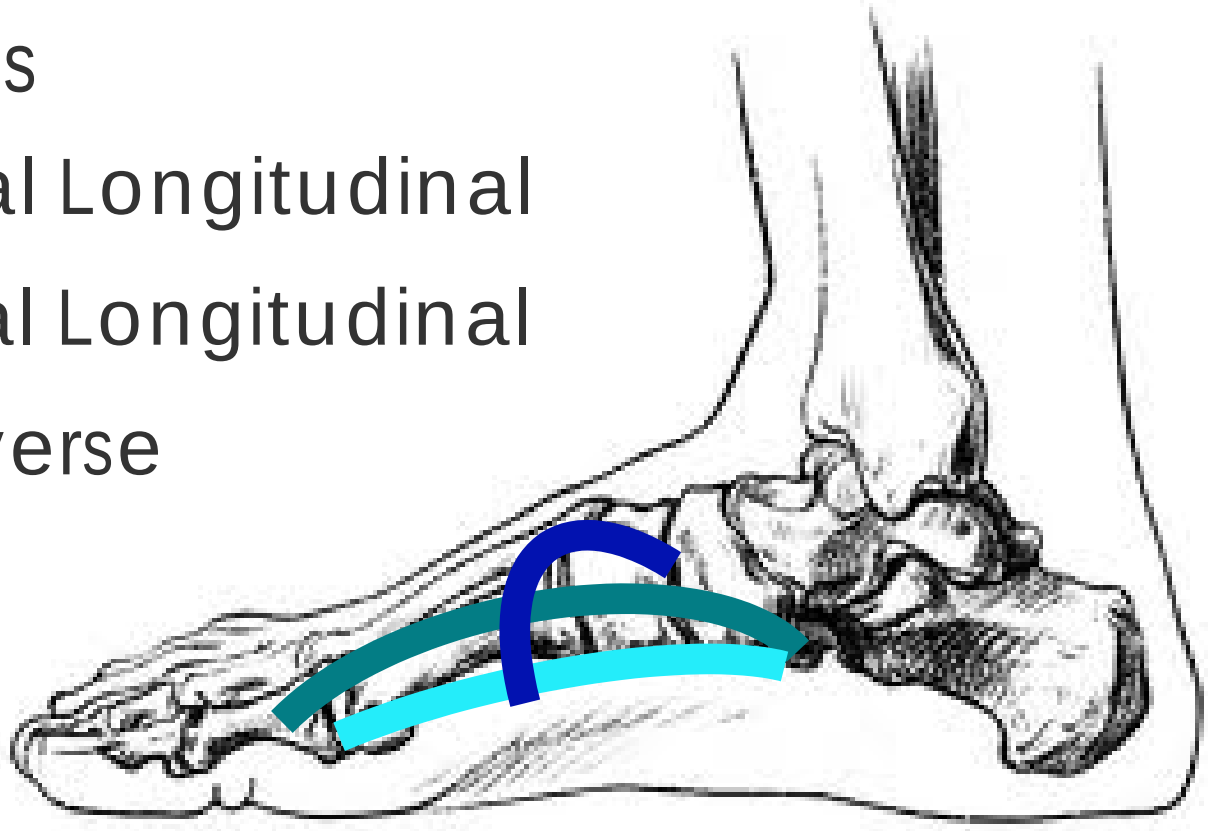
Comparative Anatomy

- Hand = 27 bones, 29 joints – all move
- Feet = 26 bones, 33 joints – 20 which move



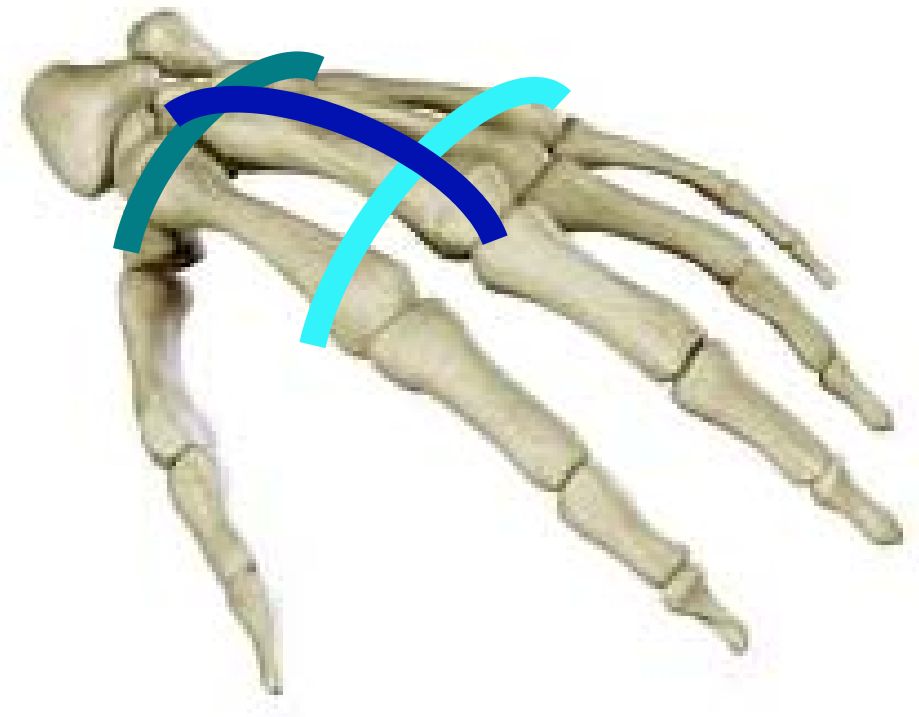
Foot Arches

- 3 Arches
  - Medial Longitudinal
  - Lateral Longitudinal
  - Transverse



Hand Arches

- 3 primary arches
  - Proximal Transverse
  - Distal transverse
  - Horizontal



Arches Are Developed by Weight Bearing

- Makes a child aware of limbs for use
- Essential for development of stability and strength of muscles and joints
- Movement with weight bearing develops skills of foot or hand

Practical – 5 minutes:

- Walking demo.
- On hands and knees – practice crawl.

Essential ideas for building foot arches

- Legs need to be introduced to their primary role for weight bearing and mobility with increased need to develop awareness of and tolerance to movement
- Transitions – rolling, to sitting; to side sitting; to crawling; to kneeling; to standing and back

Developing A Good Foot Arch

- The alignment of the legs and feet in early stance is all-important for the development of foot shape and strength.
- Cruising – keep brief (can affect the contact pattern)Maximum emphasis on walking forwards so that the longitudinal arch is strengthened.
- Continue to promote opportunities to walk at speed so as to exercise the foot and legs (especially once a cane has been introduced.

Developmental Problems in Blind and Low Vision Children

- Low muscle tone, decreased movement tolerance, poor balance
- Attain static milestone skills at ages similar to sighted children, but delayed in achieving movement milestones
- Feet are used as additional sensory tools often for a protracted period

Development of the Hand

- Non-prehensile patterns – bat, tap, push, pat, poke, shake, cast
- Develops from little finger to thumb side and from palm to fingertips
- Prehension – grasp, reach, release, carry, holding, supporting.

Hand arches

- Shape the hand to grasp
- Direct skilled movements of the fingers
- Grade the power of fingers for grasps
- Allow multiple sized object manipulation
- Allow for thumb movement

Activity

- Pen Pass
- Spiders on paper

Physical appearance of the hand of the Blind Child

Hand Skill Development in Blind and Low Vision Children

- Delayed skills for searching, exploration, shaping for function

Poor Arch development

Functional Impact

- Cane holding and usage as well as many daily tasks become limited or awkward:
  - Weak wrist extension
  - Poor wrist rotation
  - Weak grasp
  - Reduced ability to maintain effective grasp

Thank You

- We are grateful for your support in attending this session and thank you for your attention.
- It has been a privilege to share our ideas with you.

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