WHY FEET?

WHY FEET?

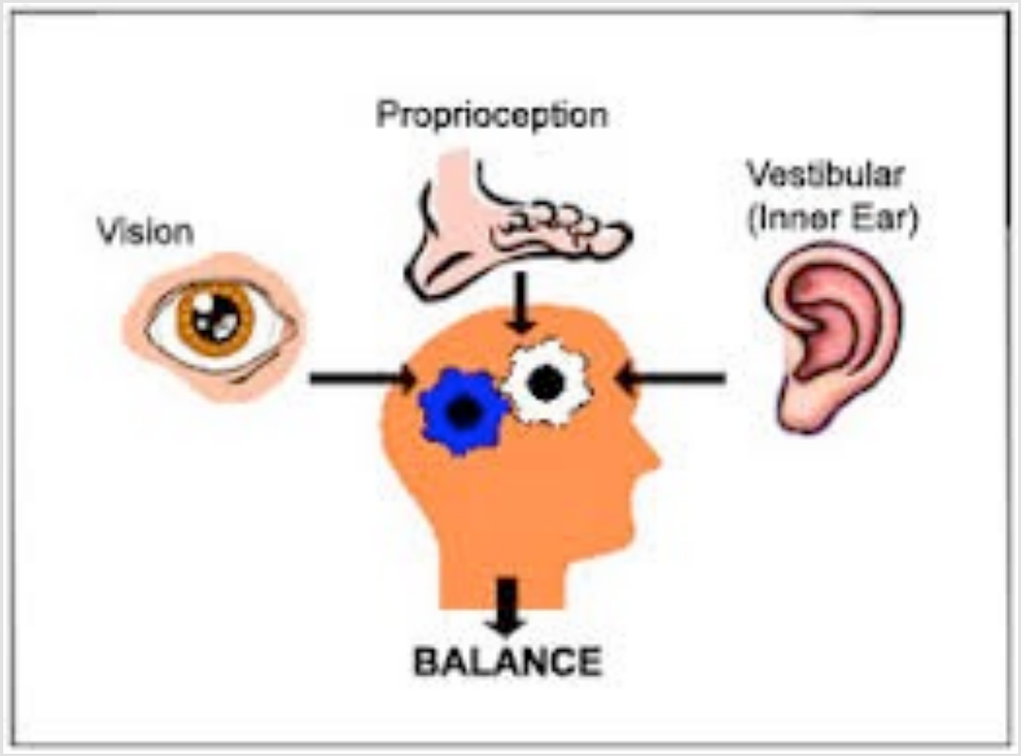
By walking on **artificial surfaces** all of our lives, our amazing, strong, variable musculature has adapted to becoming very good on one kind of ground...adaptation isn't good or bad: **adaptation is just adaptation.** We have this idea that the body can endlessly adapt to whatever we choose to do, but that's not the case. We can adapt for a while, but there is **always a biological tax."**

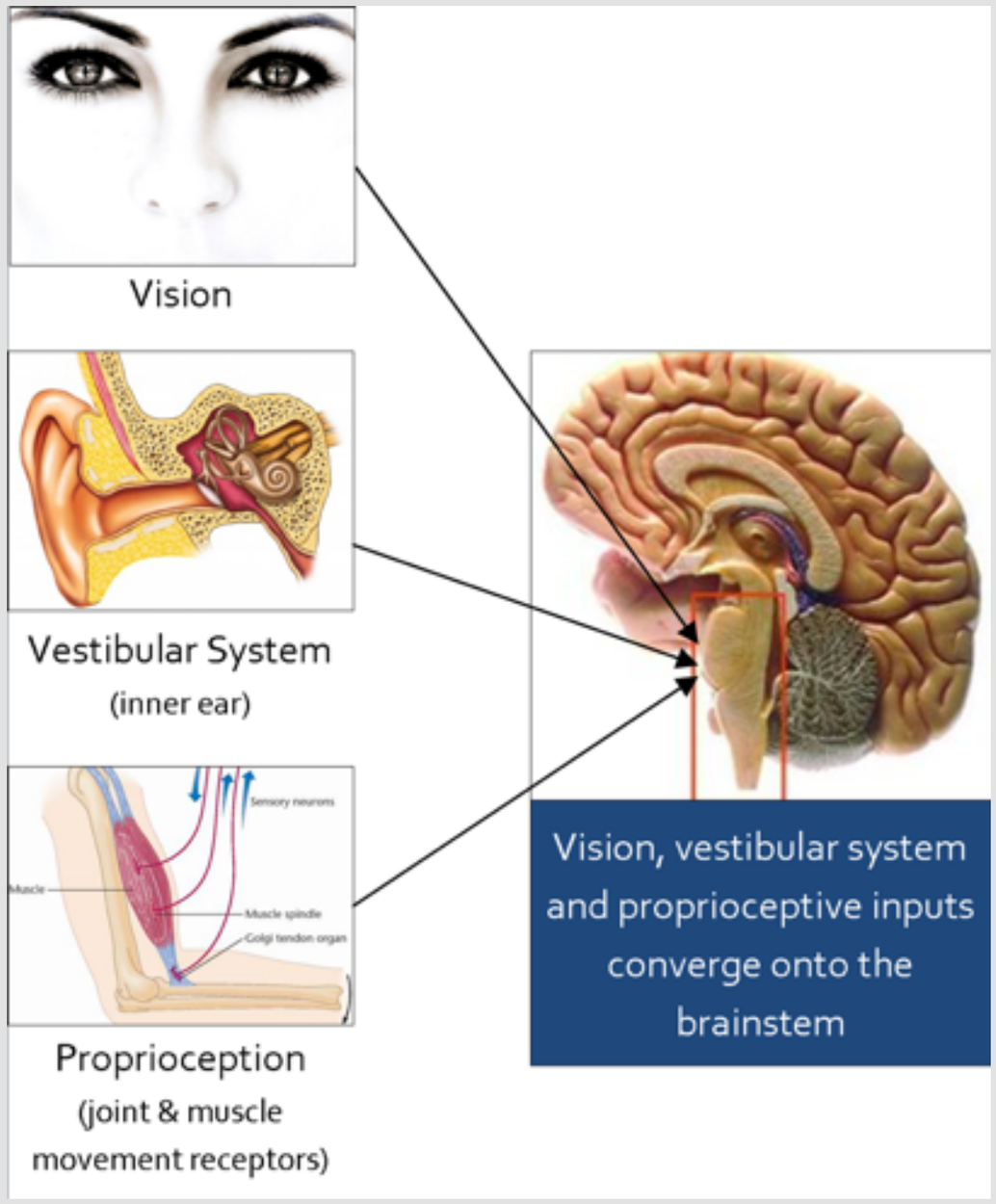
---Katy Bowman, biomechanist, author

"...**Strong, adaptable feet** and ankles can allow...**entire body weight to pass over the talus bone painlessly, even when carrying a heavy pack.** The foot and ankle...adapt to changing ground and relay tactile details to the brain. The brain uses this...to activate the muscles...in response to what was sensed...walking is accomplished and perceived in an efficient flowing manner. Unfortunately, most **Americans have not had the opportunity to develop strength and adaptability in their feet and ankles over their lifetimes. Exacerbating the problem is...technologies built into a shoe or boot, such as motion-controlling or anti-pronation features. "**

--Dr Ray McClanahan, holistic podiatrist

THE BALANCE TRIAD





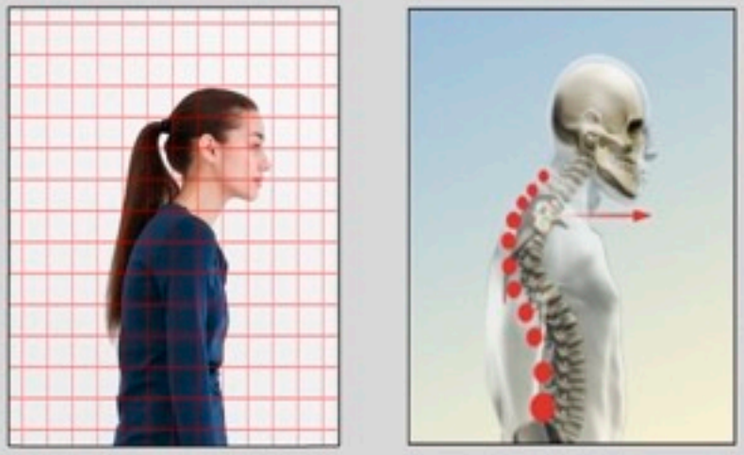
Date Added: 03/28/2017	Arch Height Difference	0	<= 1
Exam Date: 03/27/2017	Left to Right Balance	11.4%	< 1%
Examiner: Test Practitioner	Orthotic Recommendation	Vital	

www.MainStreetChiro.com
(555) 123-4567

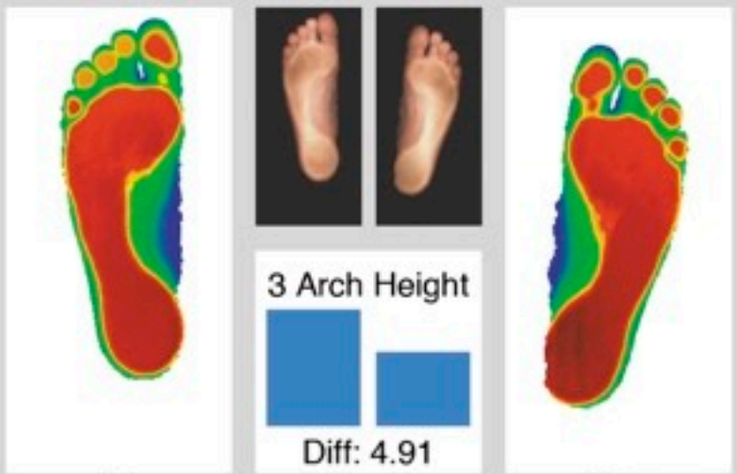
Your Logo

YOUR POSTURE

YOUR POSTURE PHOTO



YOUR FOOT SCAN



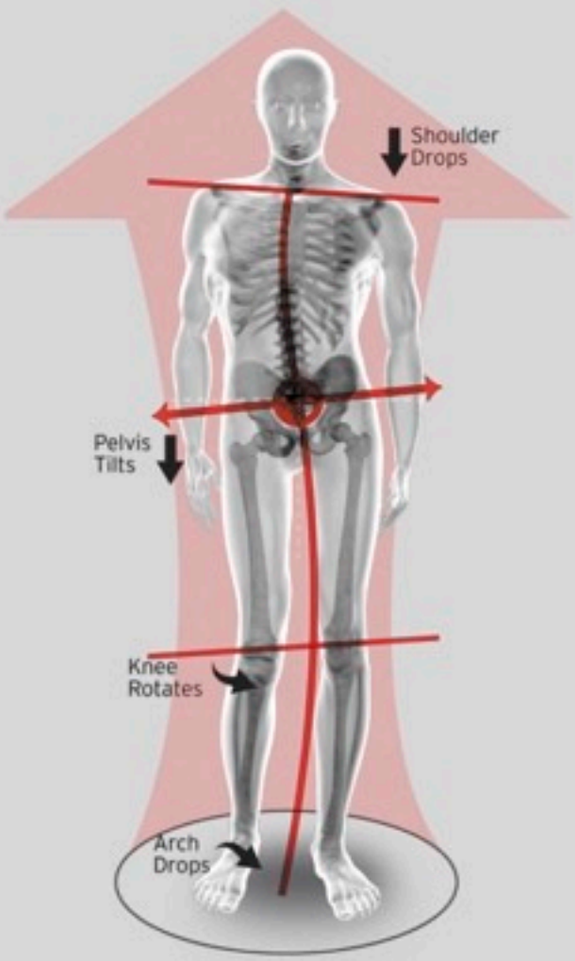
PRONATION STABILITY INDEX™ (PSI)

Optimal	Mild	Moderate	Severe
0-34	35-84	85-124	125+

100

Orthotics Vital

KINETIC "CHAIN REACTION"

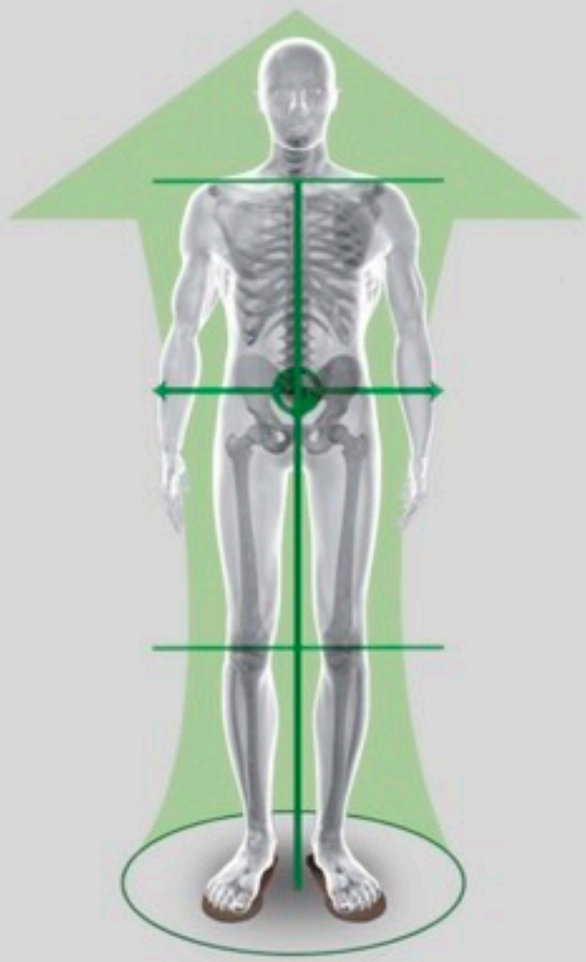


Right %	Left %
55.7	44.3

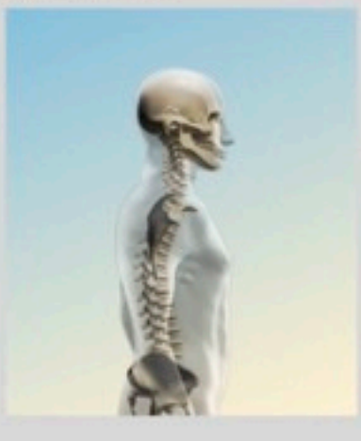
CORRECTED POSTURE

FOOT LEVELERS

SUPPORTED WITH ORTHOTICS



SIDE VIEW



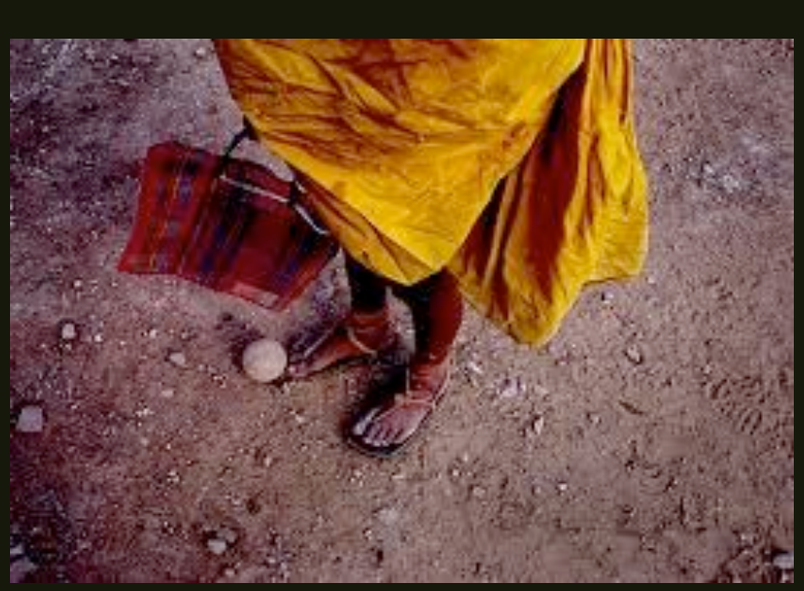
OPTIMAL FEET

A properly aligned body will have balanced symmetrical feet and level knees, pelvis, and shoulders.

STANDING/WALKING

- what do you notice
- eyes/gaze and posture
- think about the impact of feet-gait-overall health as you take millions of steps
- trace your foot

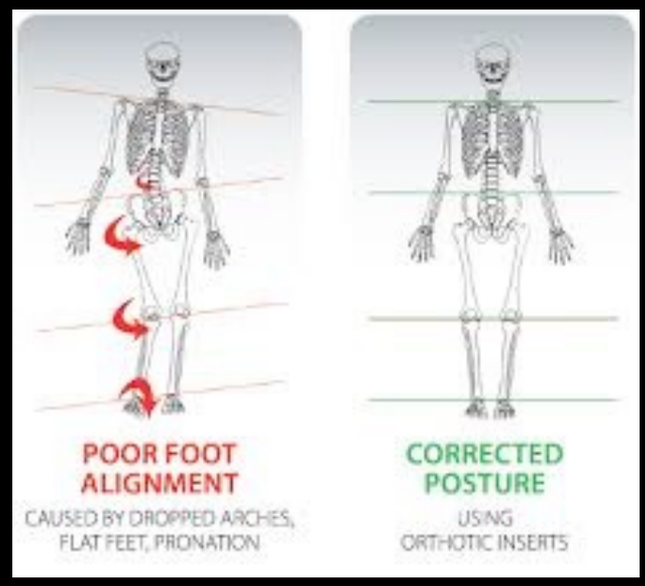
BORN WITH HAPPY FEET



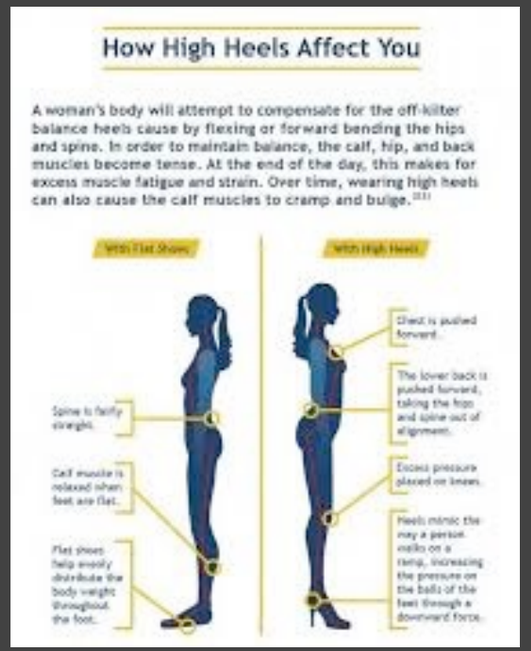
SHOES THAT BIND

- lack of proprioception
- toe rise holding toes in extension
- positive heel
- narrow toe box squishing toes = forefoot problems
- too rigid for foot movement
- negative effects on posture


Ankle Sprain
Fibula
Tibia
Medial ligament
Anterior tibiofibular ligament
Torn calcaneofibular ligament
Torn anterior talofibular ligament
webExercises

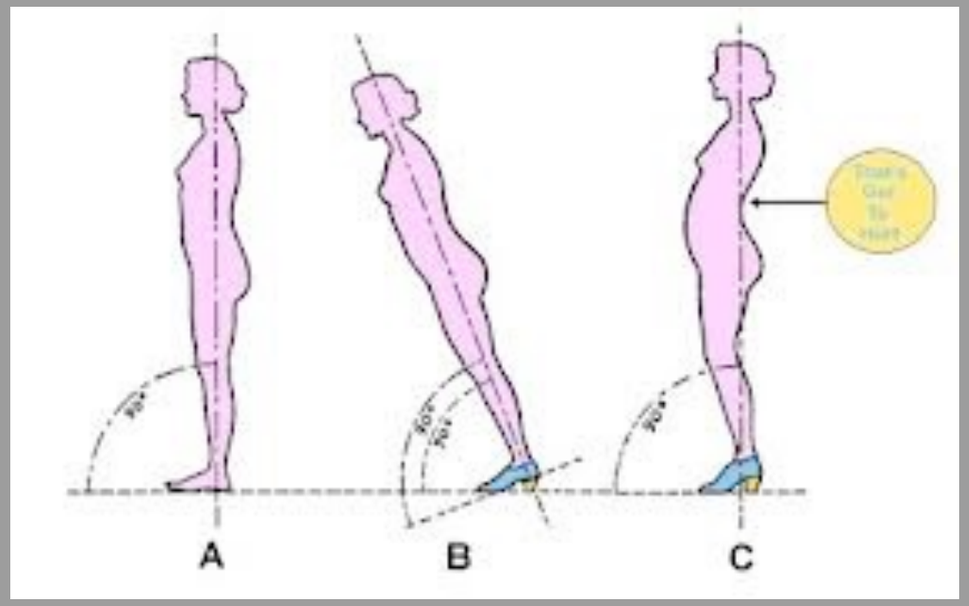

POOR FOOT ALIGNMENT
CAUSED BY DROPPED ARCHES, FLAT FEET, PRONATION
CORRECTED POSTURE
USING ORTHOTIC INSERTS

HEELS



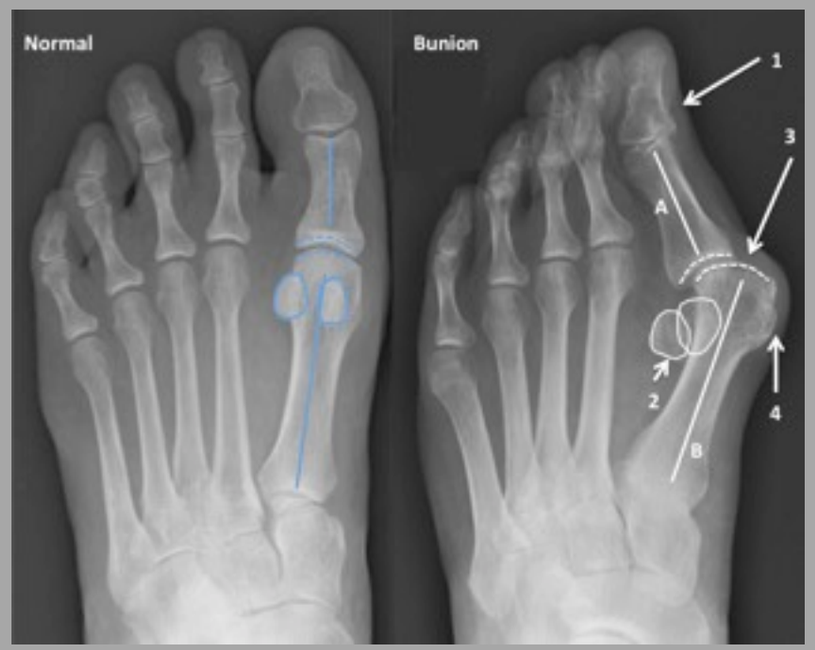
- ***The higher the heel*, the more forward the body is projected.**
- ***The shorter the foot,* the more forward the body is projected.**
- ***The taller the body,* the more forward the body is projected.**

POSITIVE HEEL



- Stance
- Gait Cycle
- Stride
- Speed
- internal abdominal pressure
- Pelvic floor

COMMON CONCERNS



~neuroma ~bunions ~plantar fasciitis ~hammer toes

BENEFITS OF
STRONG MOBILE FEET

SHOES THAT ALLOW YOUR FEET TO BE FEET

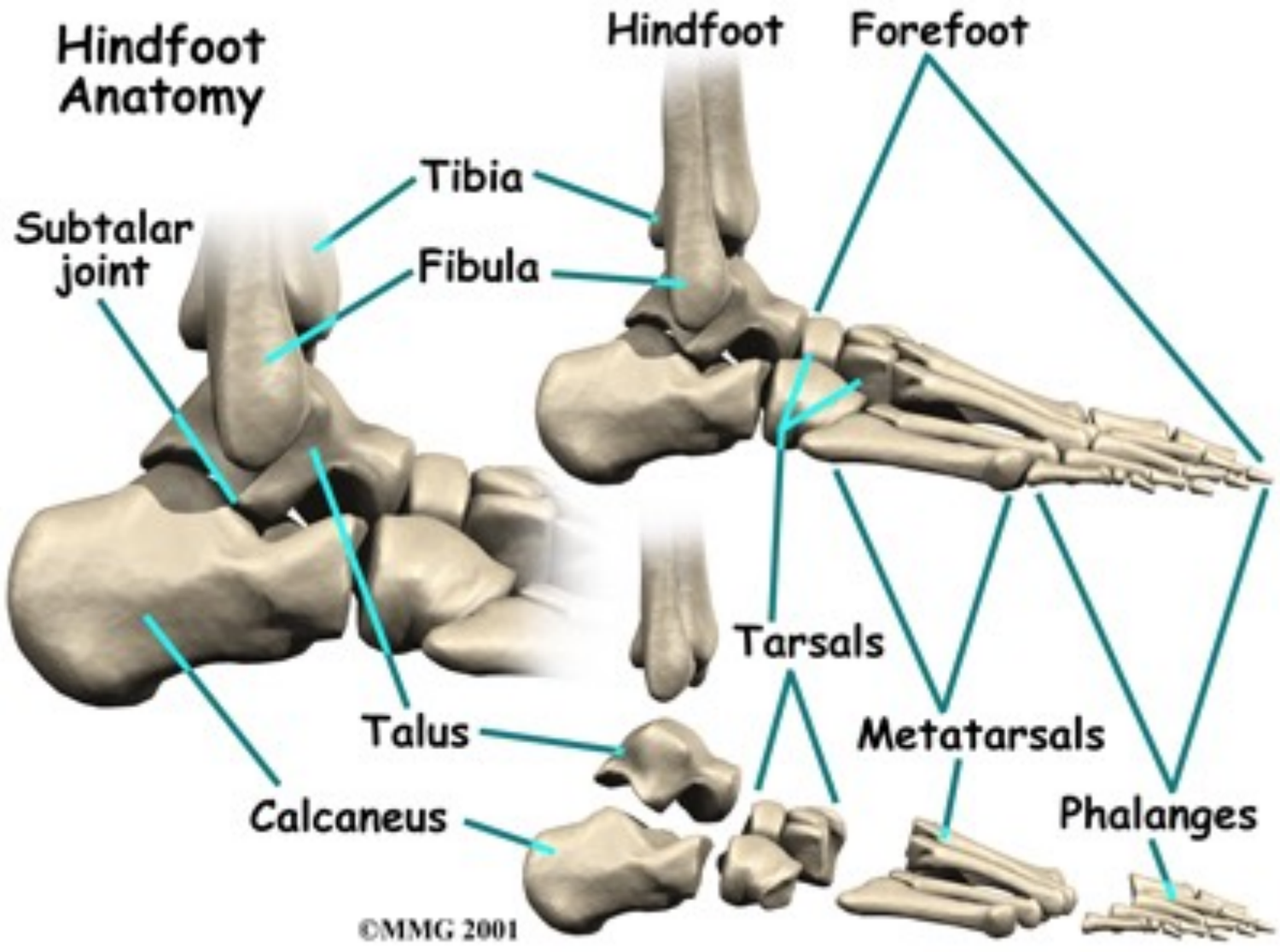
SHOE CRITERIA:

- Neutral/no heel
- Flexible
- Wide toe box
- No toe rise
- Attached securely to foot
- Ground feel

BASIC TERMS

distal/proximal
dorsiflexion/plantarflexion
eversion/inversion
supination/pronation
first ray
subtaler joint
talocrural joint
MPJ or 1st ray

FOOT ANATOMY 101



ANATOMY

26 bones

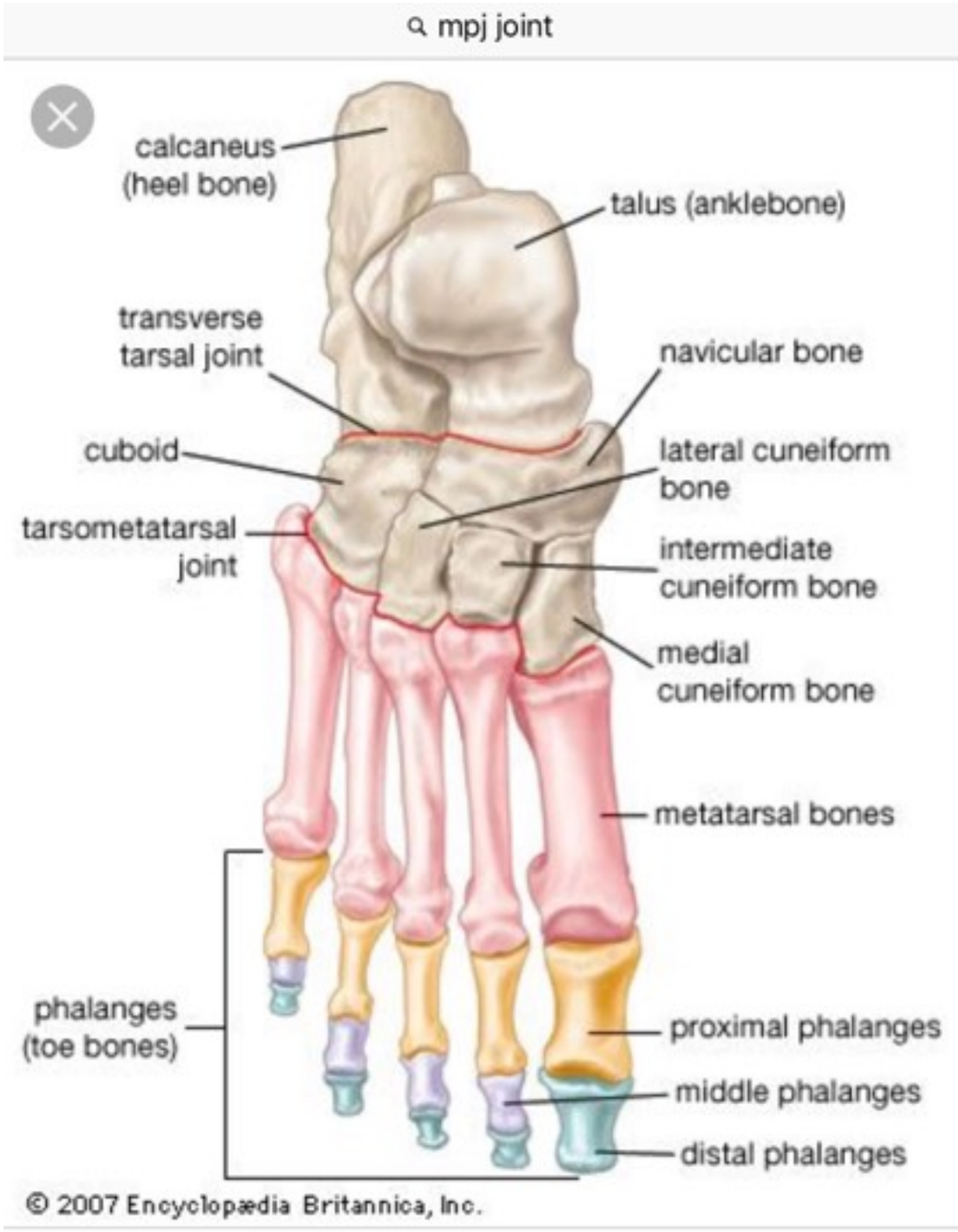
7 tarsals

5 metatarsals

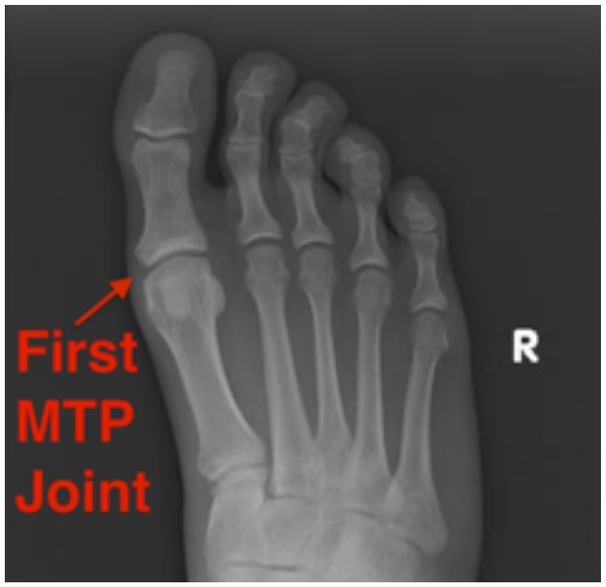
14 phalanges

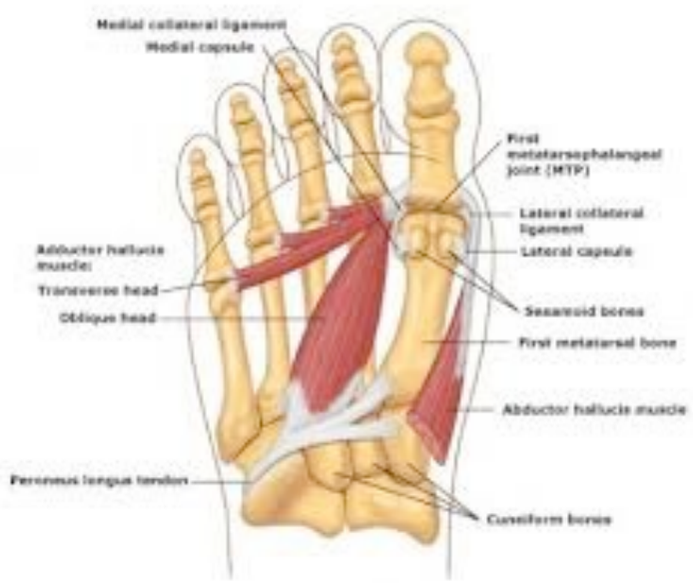
33 joints

20 of them are actively articulated



MPJ & FIRST RAY



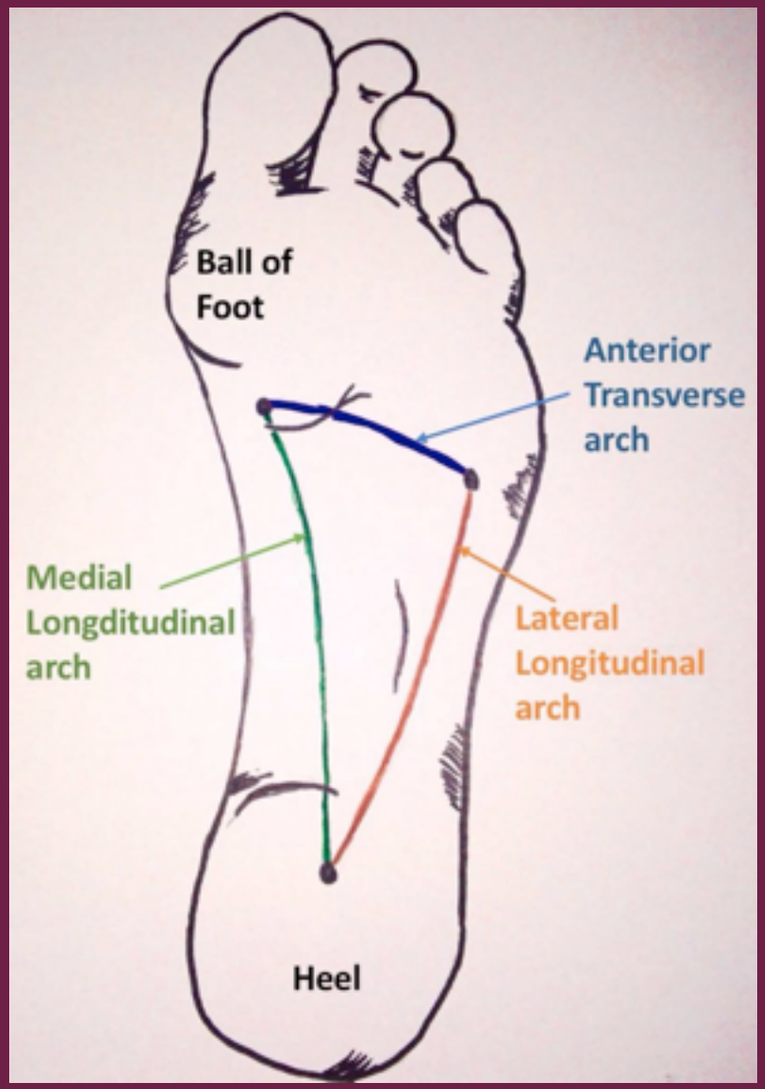


<u>The **medial longitudinal arch s**erves as the **chief load-bearing structure** in the foot, dependent on the kinematics of the first ray for optimal support during gait.</u>

The first ray: **first metatarsal and first cuneiform** bones.

Pronation of the subtalar joint lowers the first ray to the ground in early stance and dissipates the shock of heel impact.

ARCHES

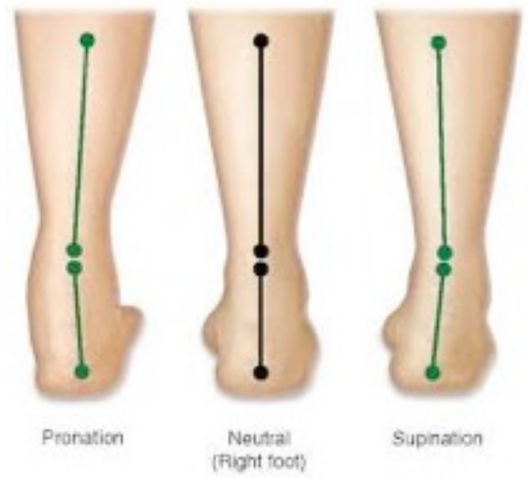

Ball of
Foot
Anterior
Transverse
arch
Medial
Longditudinal
arch
Lateral
Longitudinal
arch
Heel

SENSORY BEFORE MOTOR

MOBILIZATION/SENSORY WARM-UP

MYOFASCIAL TARGETING
FIVE POSITIONS
PLANTAR REGION
HOLD STEADY PRESSURE
MULTIDIRECTIONAL GLIDES

ASSESSMENT



eversion

hypermobile

unstable

unlocked

loading impact forces

absorption

pronation

inversion

rigid

stable

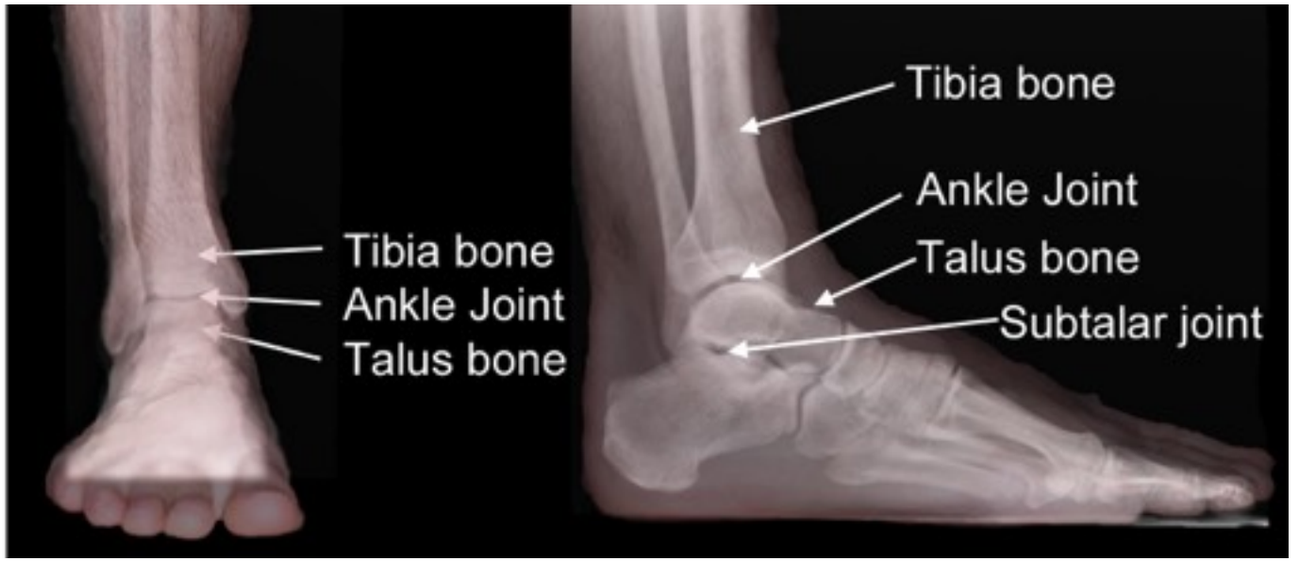
locked

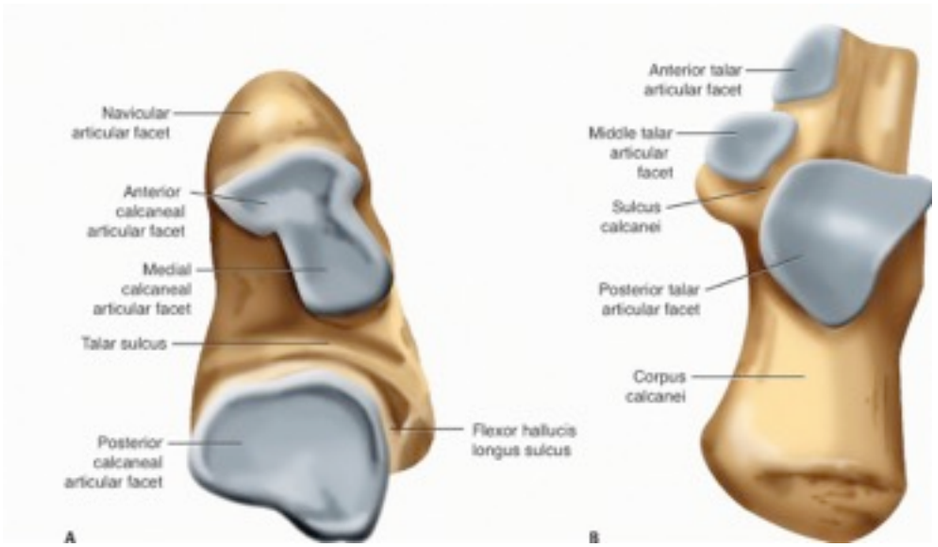
unloading forces

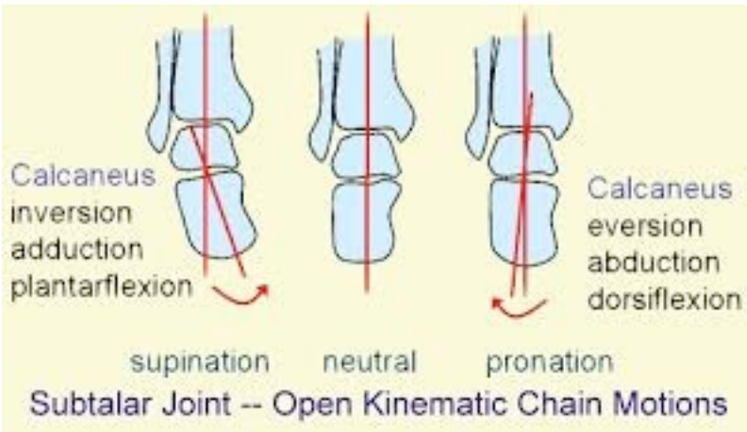
propulsion

supination

SUBTALER (ANKLE) JOINT

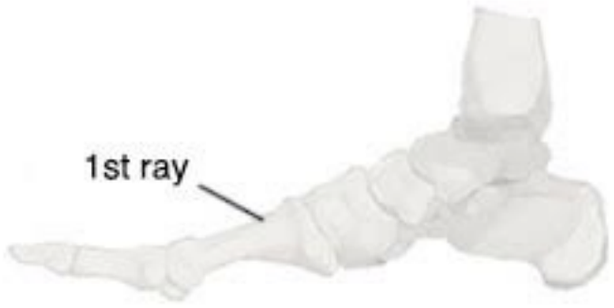







Talo-Crural Joint
(TCJ)
Talus
Navicular
Calcaneus
Mid-Tarsal Joint
(MTJ)
Subtalar Joint
(STJ)
Cuboid
Rear Foot
Fore Foot


Tibia
Fibula
Metatarsals
Talus
Subtalar
joint
Calcaneus


1st ray

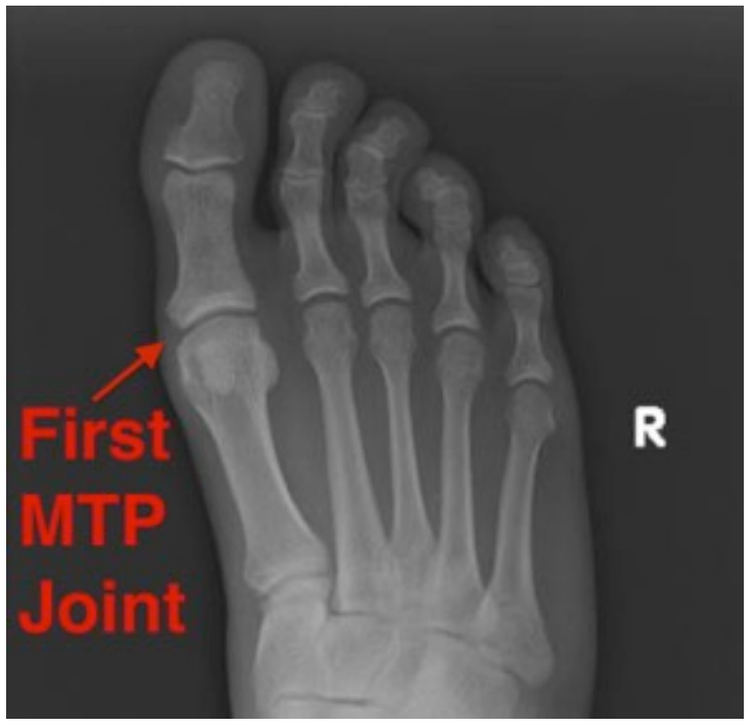

First
MTP
Joint
R

Figure 11.21 Extrinsic Muscles That Move the Foot and Toes

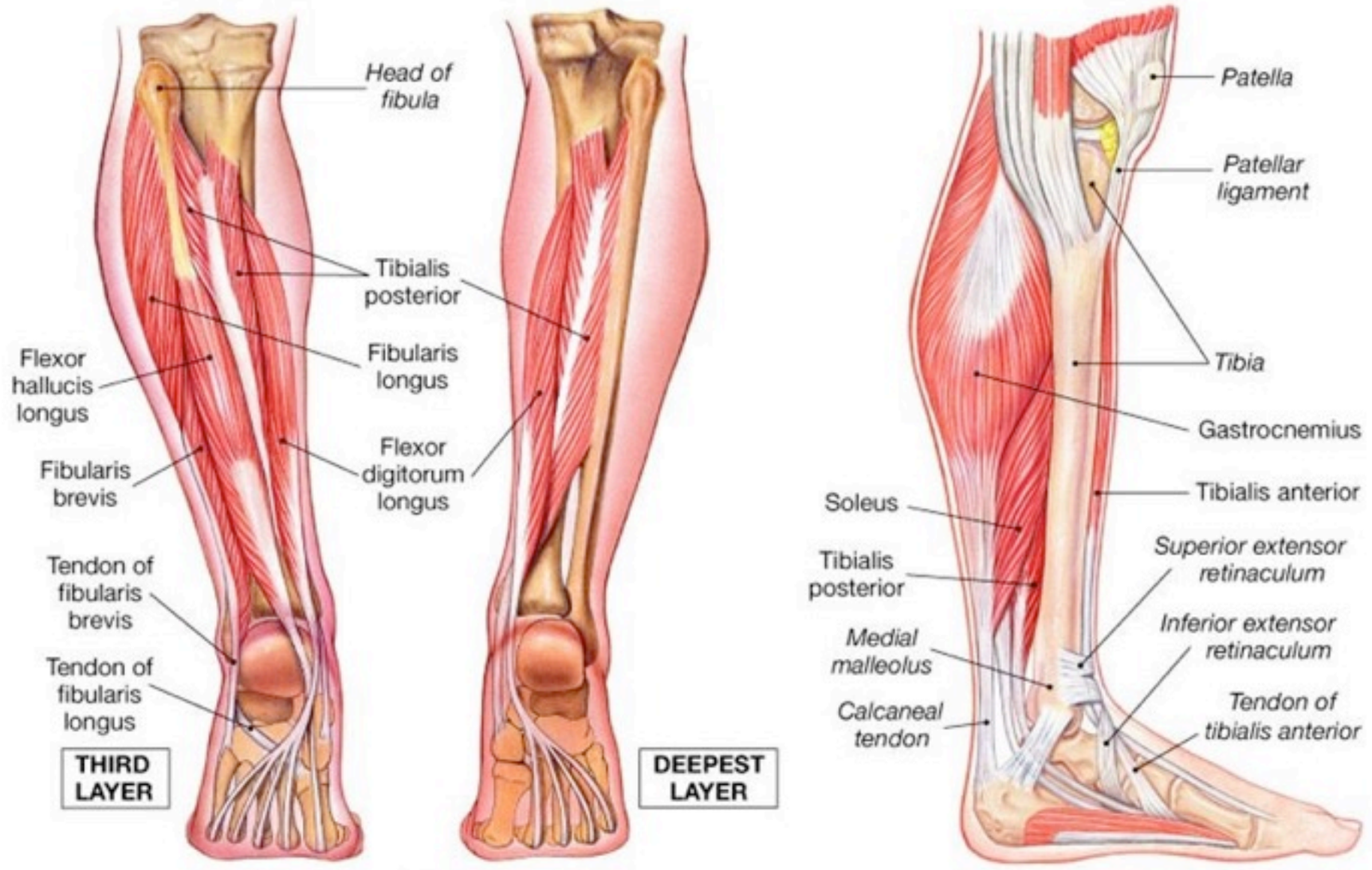


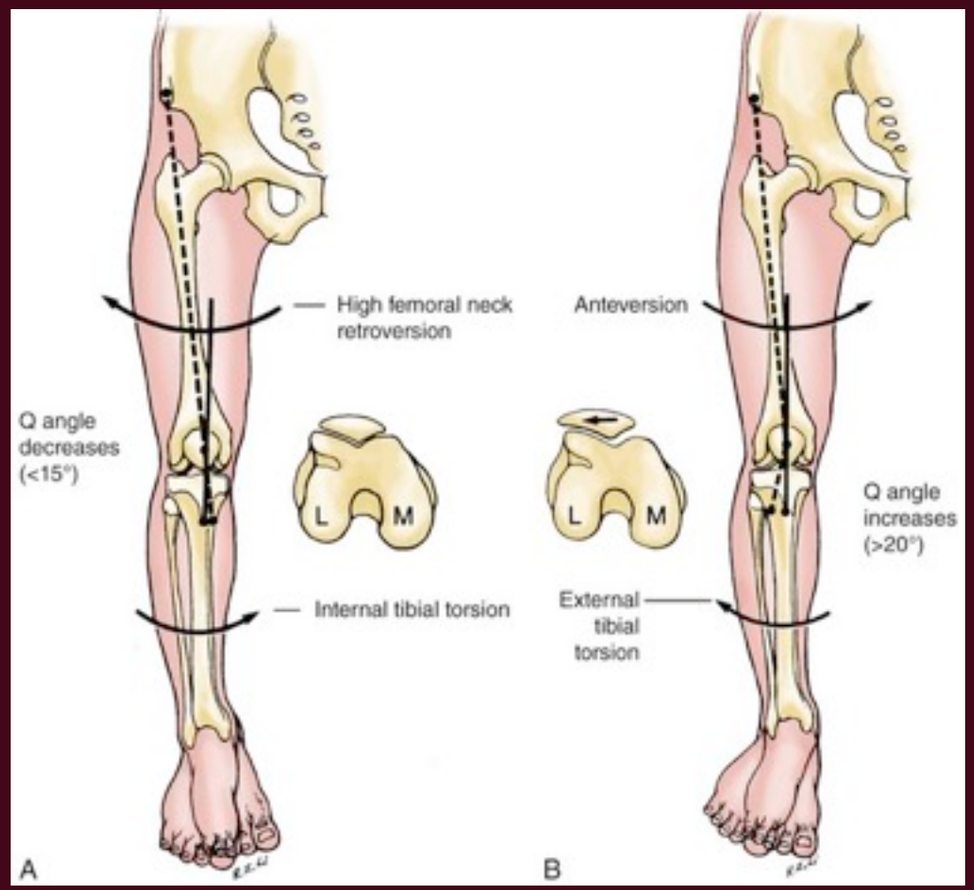
Figure 11.21c, d

The **extrinsic** foot muscles **originate outside** of the foot, but **insert within the foot** (Figure 1). There are 12 (and sometimes 13) extrinsic muscles of the foot, which can be divided into compartments of the lower leg. It is their coordinated muscle contractions that create tension and stiffness during dynamic movement.

EXTRINSIC GLOBAL STABLIZER MUSCLES

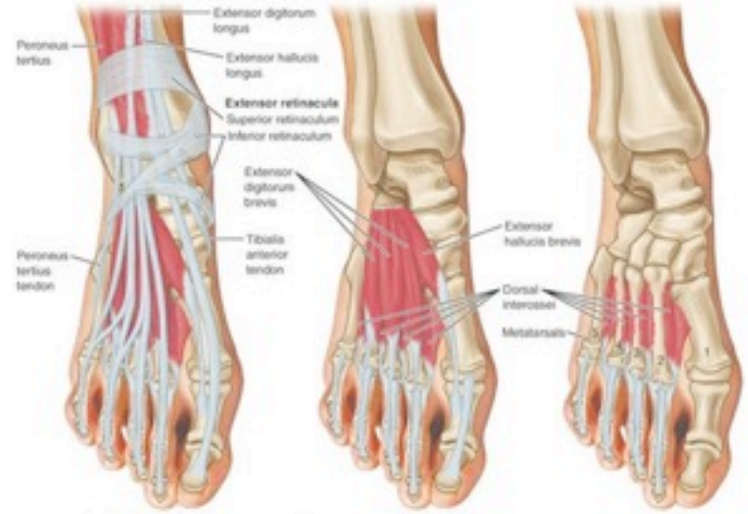
- block squeeze and strap push heel lifts (if you're not getting over great toe not getting enough hip extension gluteal amnesia/mpj dysfunction)
- Foot to core: short foot with ball between heels and plantar flex (lift pelvic floor)
- ankle pails/rails on rolled up mat and with resistance bands
- ankle tilts with and without bands
- ankle circles
- ankle circles in 6 positions
- hip and knee rehab circles
- calf raises/calf lowerings on step (with block between ankles and band around ankles)
- hip list with and without block
- tree in the wind
- compass lunges (5 leg positions + 3 foot positions = 15 positions)
- compass lunges with band
- dorsiflex/plantarflex walks
- bouncing/jumping/skipping
- burdenko FOM crossovers
- hopscotch
- balance board/bosu ball standing and balancing
- crab walk with dorsiflex and plantarflex
- monster walks/rock hopping
- dorsiflex work with foot up on couch/ bed
- parkour walks

hip, knee and ankle REHAB CIRCLES



intrinsic foot muscles both originate and insert within the foot (Figure 2). There are 12 intrinsic muscles, two on the top of the foot and 10 in the plantar aspect of the foot. Like the extrinsic muscles, the intrinsic muscles are grouped into compartments, which allows for the dissipation of impact forces and foot stability.

– Intrinsic muscles of the foot – dorsal view



Intrinsic Muscles of Foot

- four ventral muscle layers
- support for arches
  - abduct and adduct the toes
  - flex the toes
- one dorsal muscle
  - extensor digitorum brevis extends toes

Figure 10.43

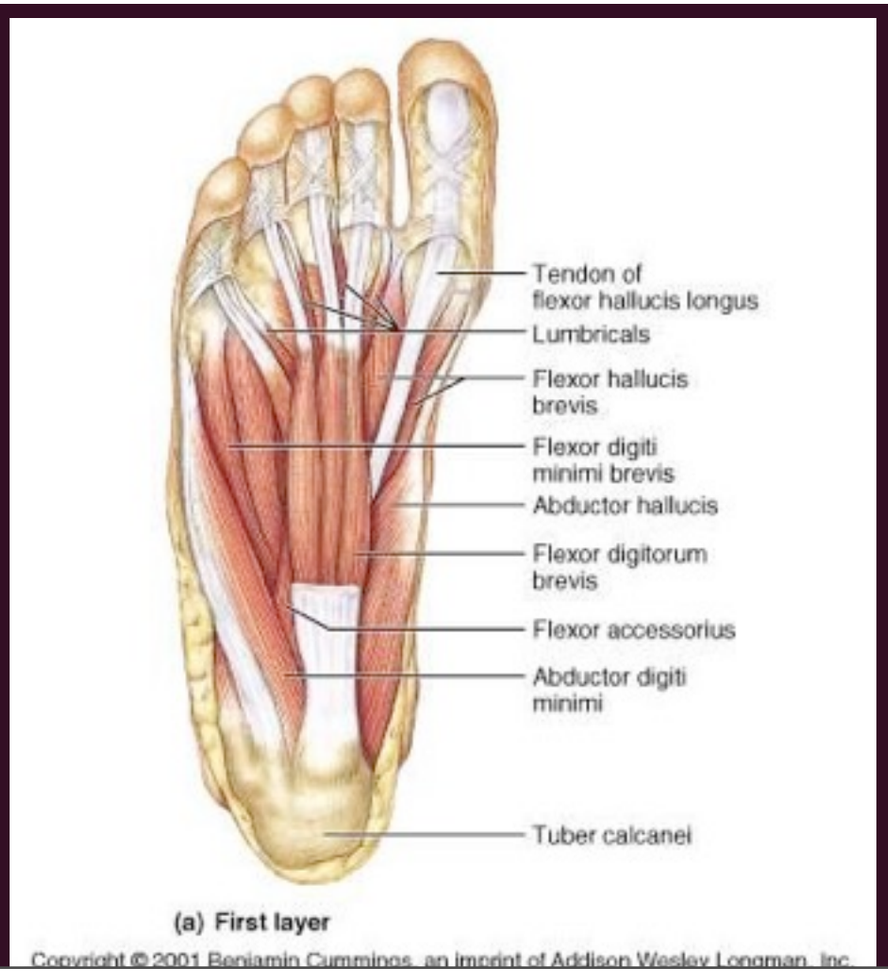
dorsal view

10-16

The intrinsic foot muscles are presented in their anatomic orientation within the four plantar layers and the dorsal intrinsic muscle.

Patrick O McKeon et al. Br J Sports Med 2015;49:290

BJSM



(a) First layer

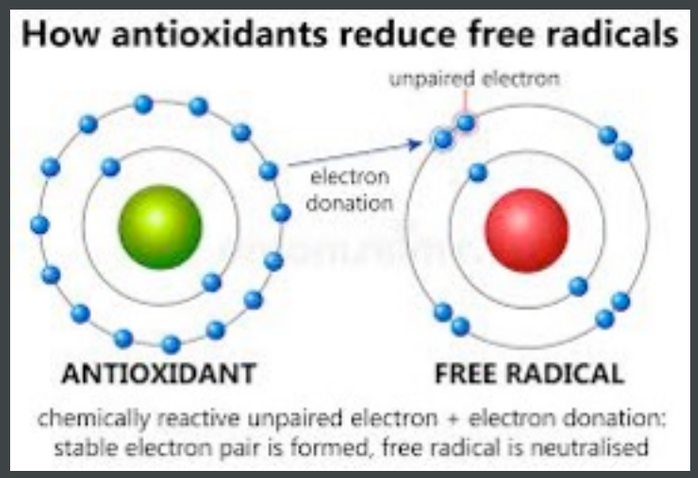
INTRINSIC

LOCAL STABILIZER MUSCLES STRENGTHENING

- short foot
- single stance short foot
- towel scrunching (push/pull)
- picking up small ball with toes
- toe pails and rails (resistance)
- controlled forward lean (single and double stance)
- single leg balancing
- toe isolated raises
- toe abduction/adduction
- ball of foot circles
- foot waves
- inversion/eversion walks
- dorsiflex/plantarflex rocking
- dorsiflex/plantarflex walks
- slow motion sticky feet walk forward and back
- balance on small sticks/rods
- block/pillow/pool noodle/yoga mat balancing and walking
- stone/sand/texture standing and walking
- one foot standing on large slightly deflated ball/foam roll/yoga block
- compass lunges with ball of foot circles
- balls/bottles play

STACKING

EARTHING



When bare are feet or skin comes in **contact** with the earth, **free electrons are absorbed**

- **cope and repair**
- **vitality**
- **better sleep**
- **stabilizes the body's basic biological rhythms**
- **knocks down (and even knocks out) chronic inflammation**
- **reduces and eliminates pain**
- **anti-inflammatory and anti-aging**

TRANSITIONING

- increase sensation (massage/balls etc)
- mobility (more focus for inverted/supinated type)
- strengthen intrinsic muscles (every foot type)
- stability (more focus for everted/pronated type)
- provide varying surfaces
- change your shoes (Altra brand may be good for transitioning)
- go outside/ground
- FOOT CLUB: 10 minutes a day to stronger/more mobile feet (short frequent sessions throughout the day is best for seeing change)