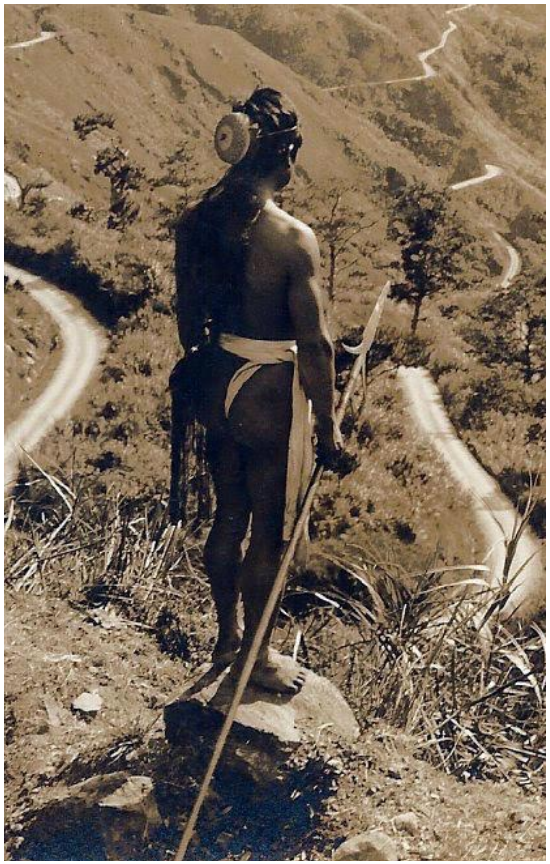
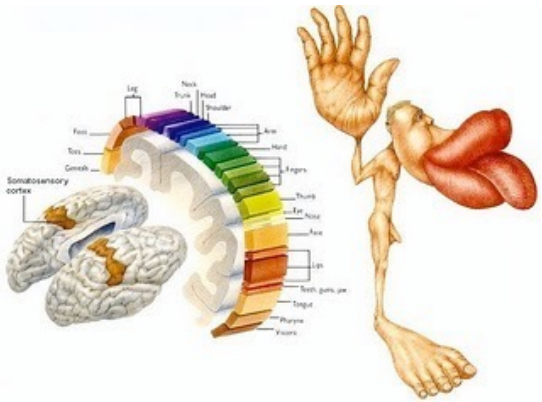
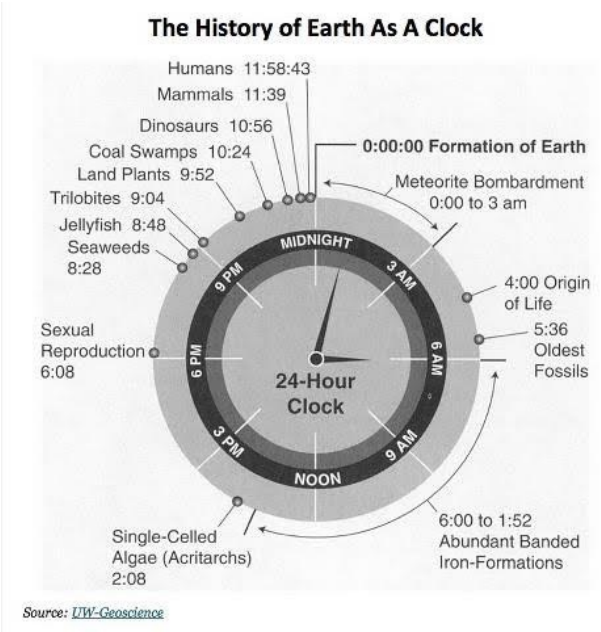
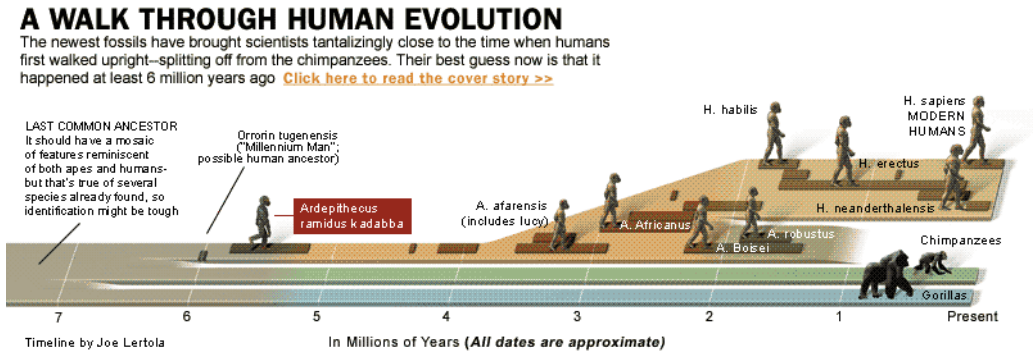
II) Evolutionary - Primal Tuning of Upright Posture - how modern lifestyle has lead to an inactivity crisis

FEBRUARY 18, 2017 I CRAIG LIEBENSON, D.C.



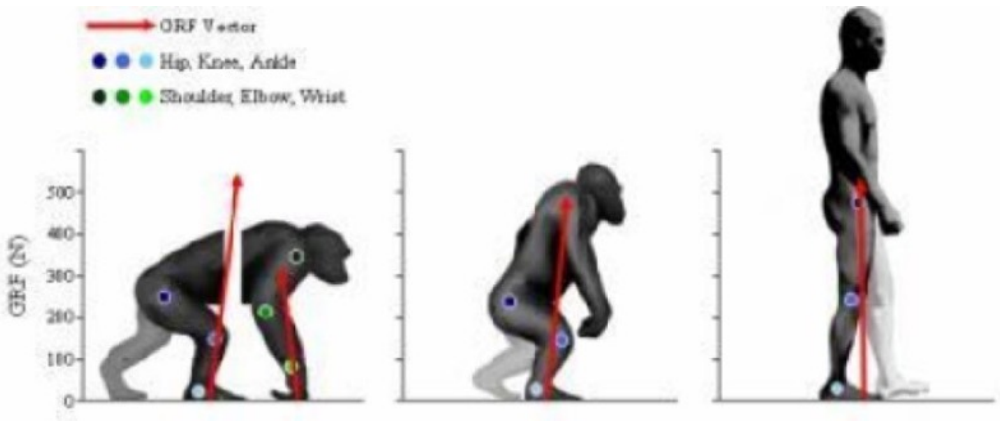

Somatosensory cortex

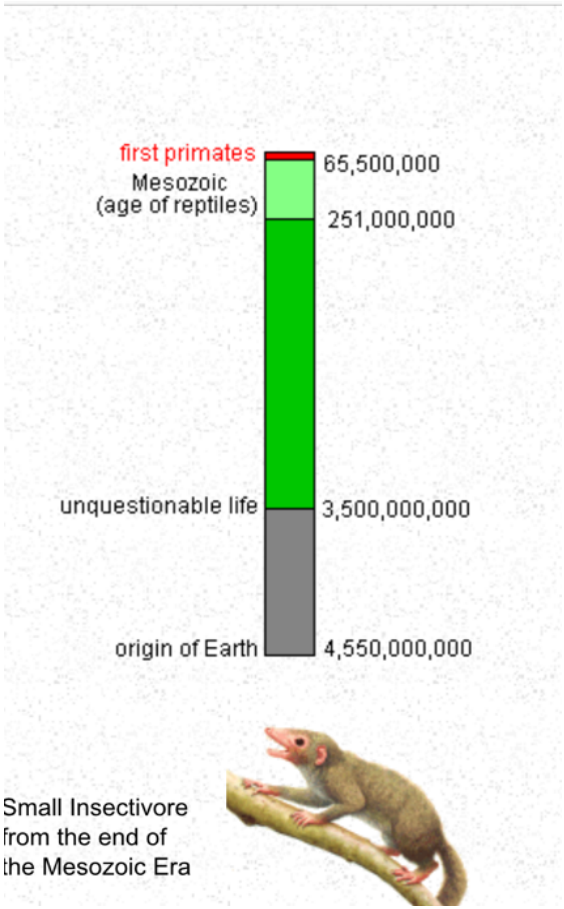




- 1st Life - 3 billion years
- Last Common Ancestor - > 7 million years
- Human - 200,000 years

EVOLUTION OF UPRIGHT POSTURE

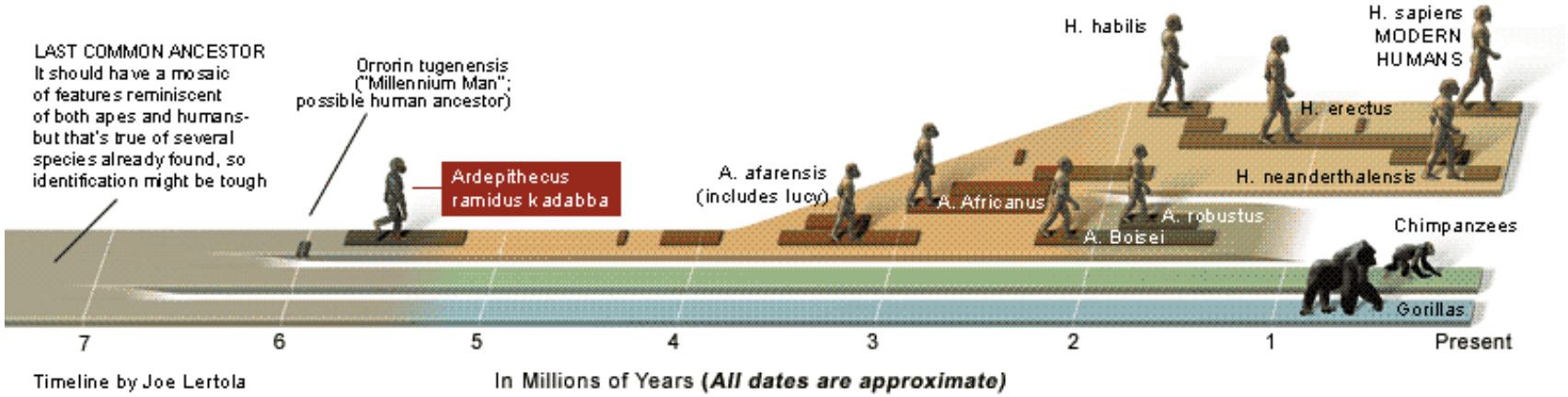




- Primates - 65 million
- Hominoids - >6 million
- Homo Sapian - 250,000

A WALK THROUGH HUMAN EVOLUTION

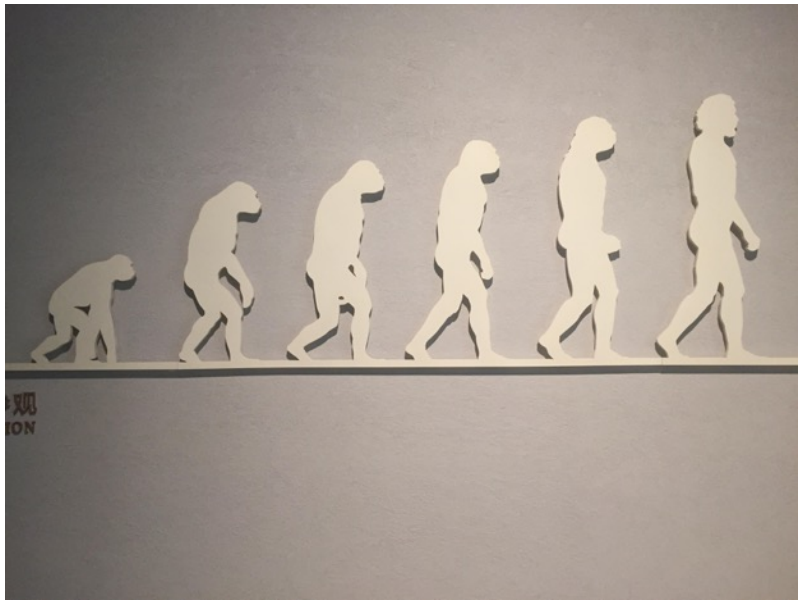
The newest fossils have brought scientists tantalizingly close to the time when humans first walked upright--splitting off from the chimpanzees. Their best guess now is that it happened at least 6 million years ago Click here to read the cover story >>



Timeline by Joe Lertola

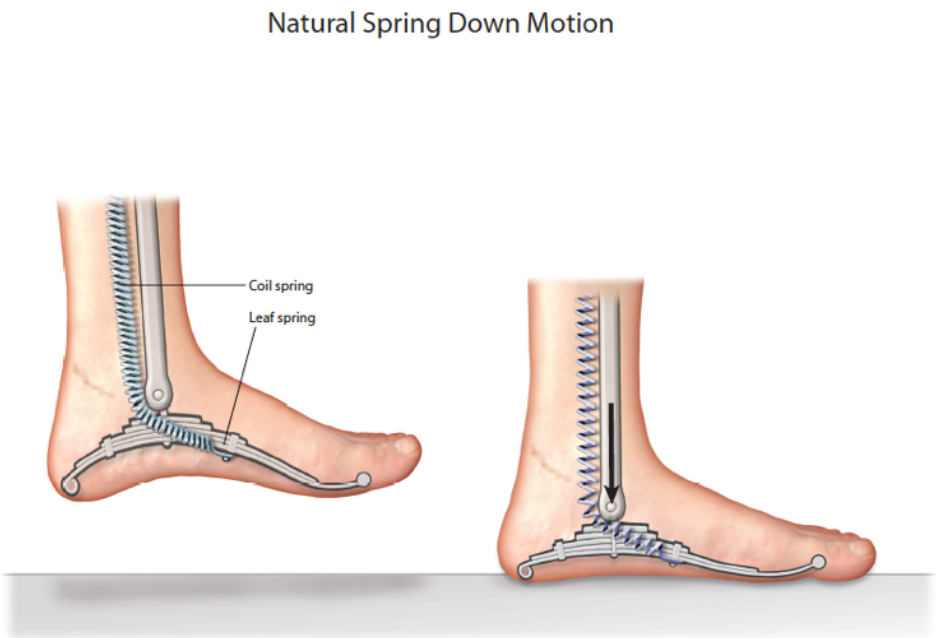
In Millions of Years (***All dates are approximate***)

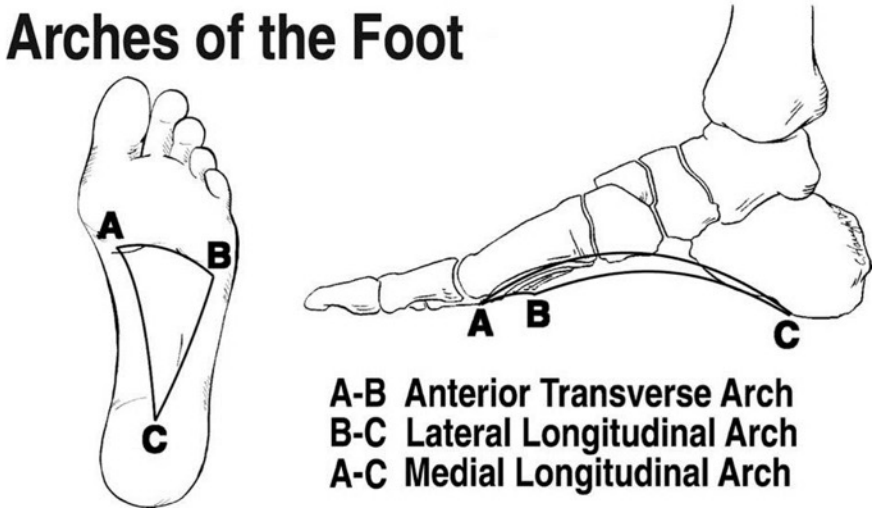
>6,000,000 YEARS AGO

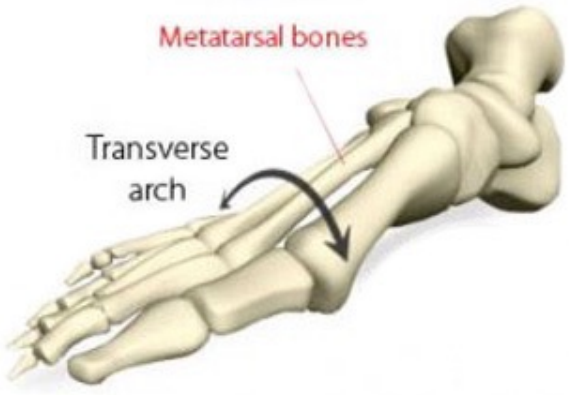


1. Springy arches in foot
2. Big toe function for propulsion
3. Lateral facing pelvis with glutes
4. Nuchal line
5. Arched L spine

SPRINGY ARCHES IN FOOT

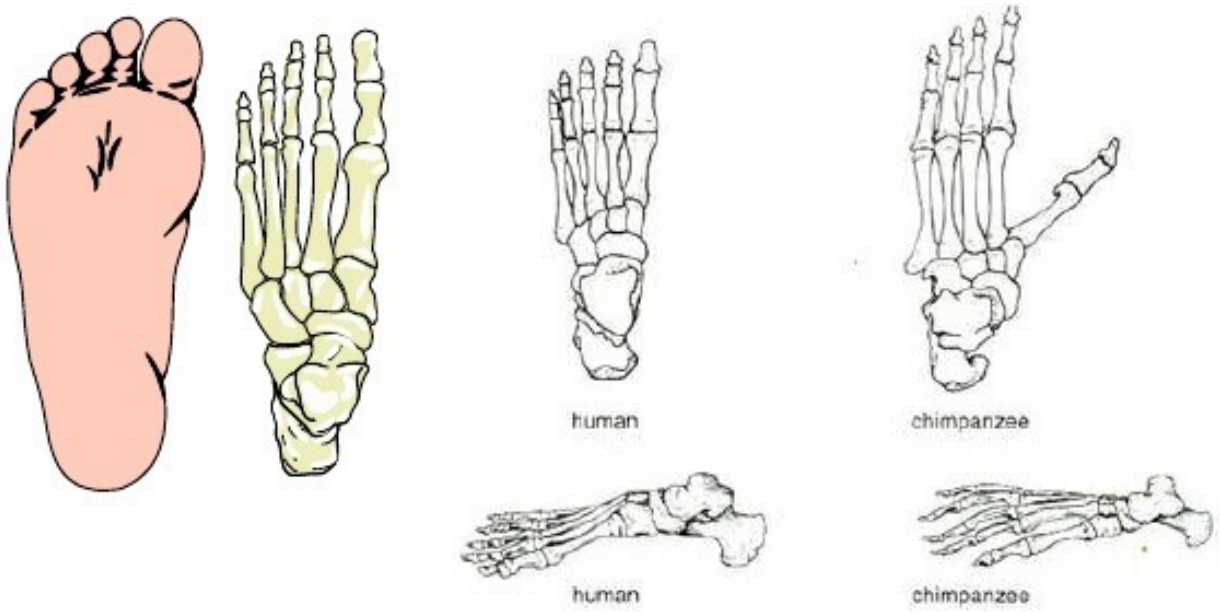






BIG TOE FUNCTION FOR PROPULSION

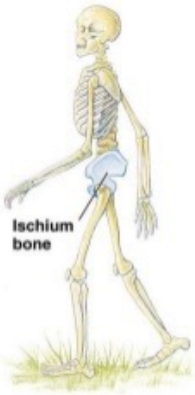
Big Toe Oriented Forward



ENDURANCE RUNNING & THE EVOLUTION OF HOMO

Comparison between quadrupedal and bipedal locomotion

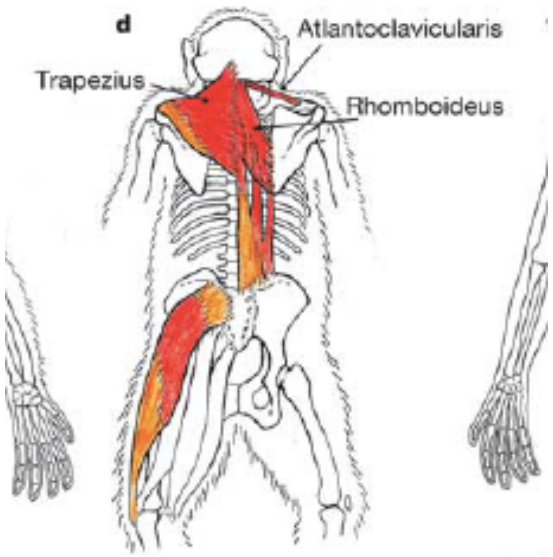
Gorillas: the ischium bone is long and the entire pelvis is tilted toward the horizontal

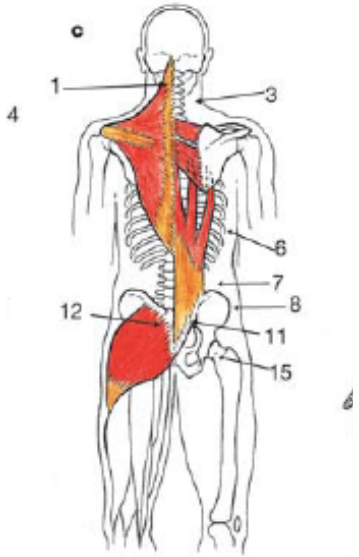


Humans: the ischium bone is much shorter and the pelvis is vertical

- Lateral facing pelvis with glutes
- Broader w/ more surface area

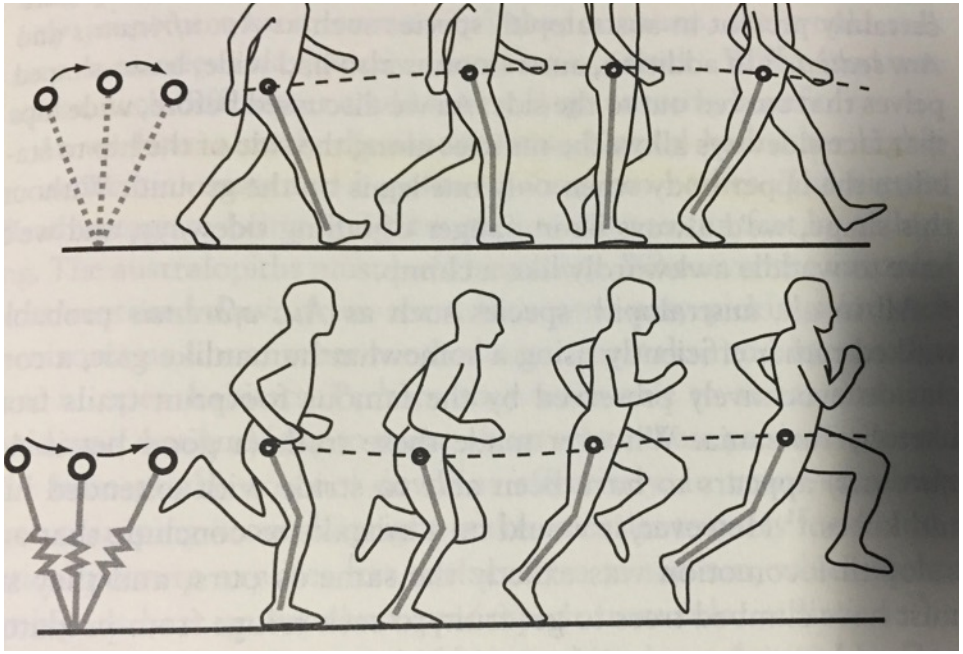
ENDURANCE RUNNING & THE EVOLUTION OF HOMO





Lateral facing pelvis with glutes

NUCHAL LINE



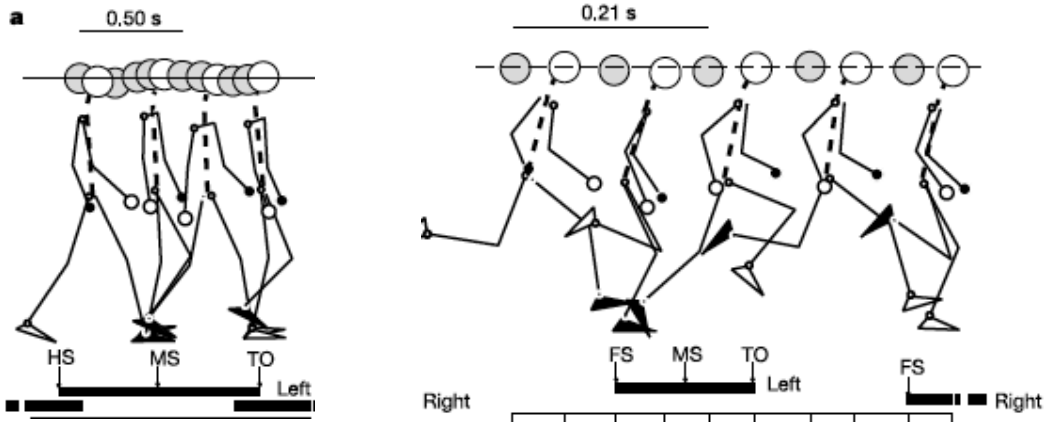
- Walking is upright
- Running is with a forward lean
- What is the role of the role of nuchal line?

Endurance running and the evolution of *Homo*

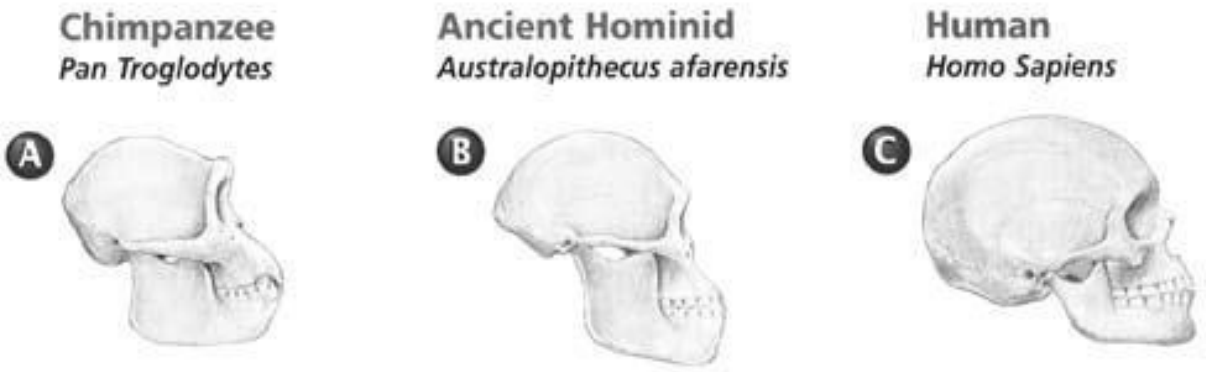
Dennis M. Bramble[1] & Daniel E. Lieberman[2]

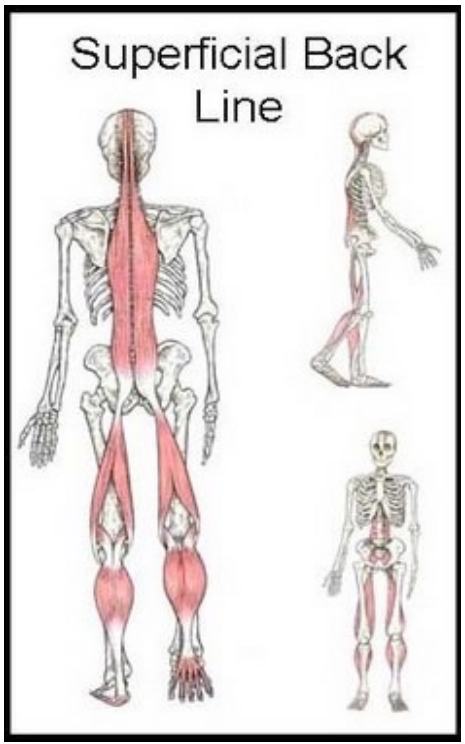
NUCHAL LINE

Nuchal line anchors posterior chain which check reins forward lean



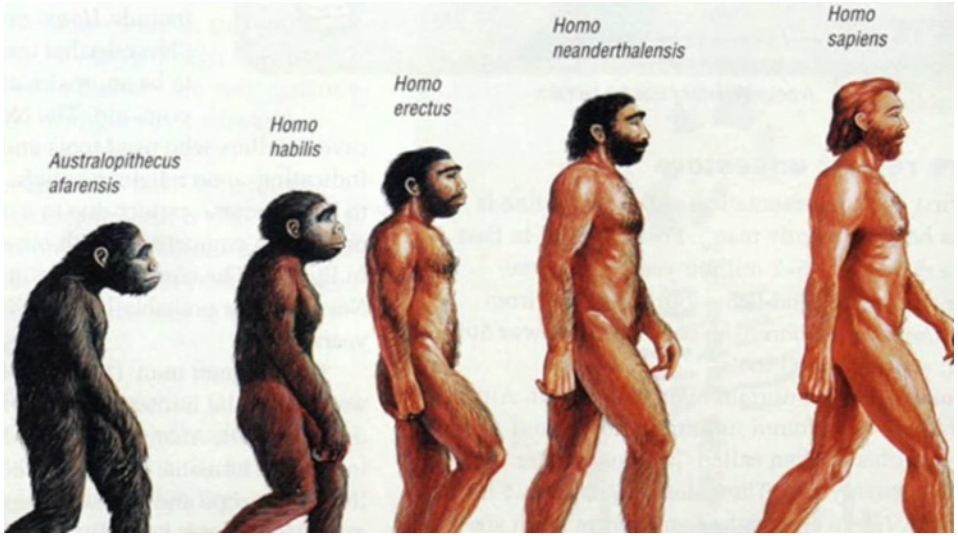
NUCHAL LINE ANCHORS POSTERIOR CHAIN





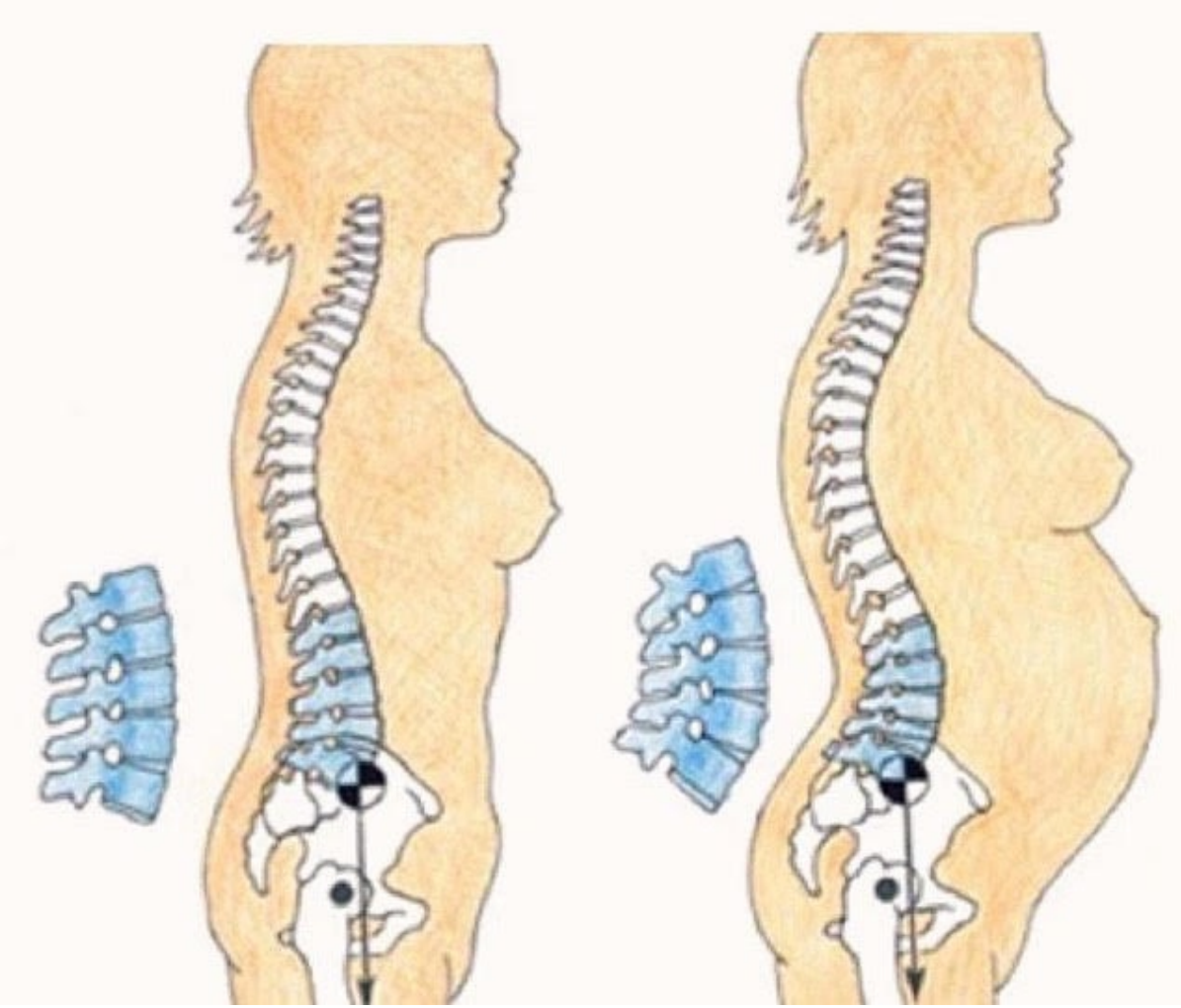

FIRE

ARCHED L SPINE

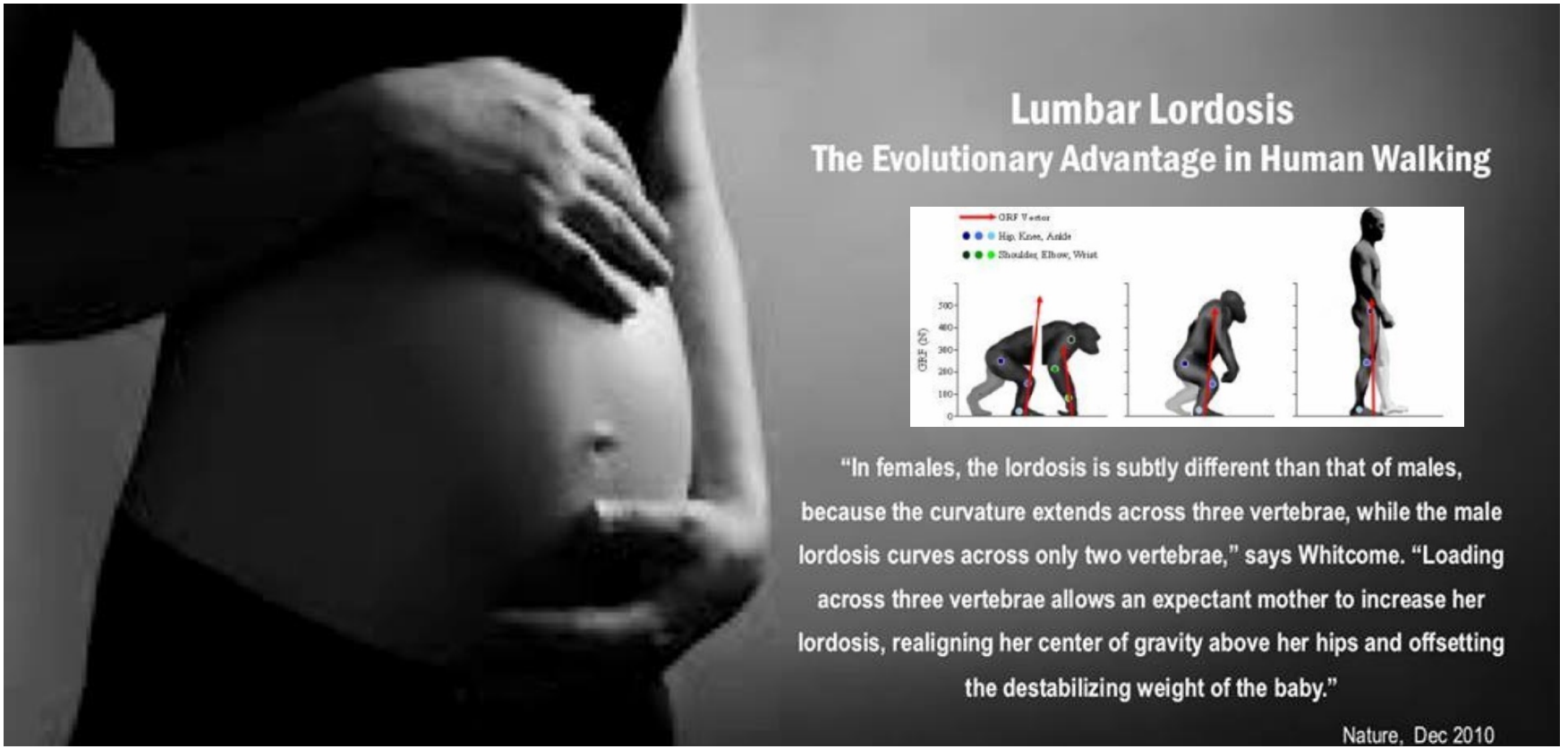


- Apes have 1 arched vertebrae
- Humans 2 or 3
- Men 2
- Women 3
- WHY?

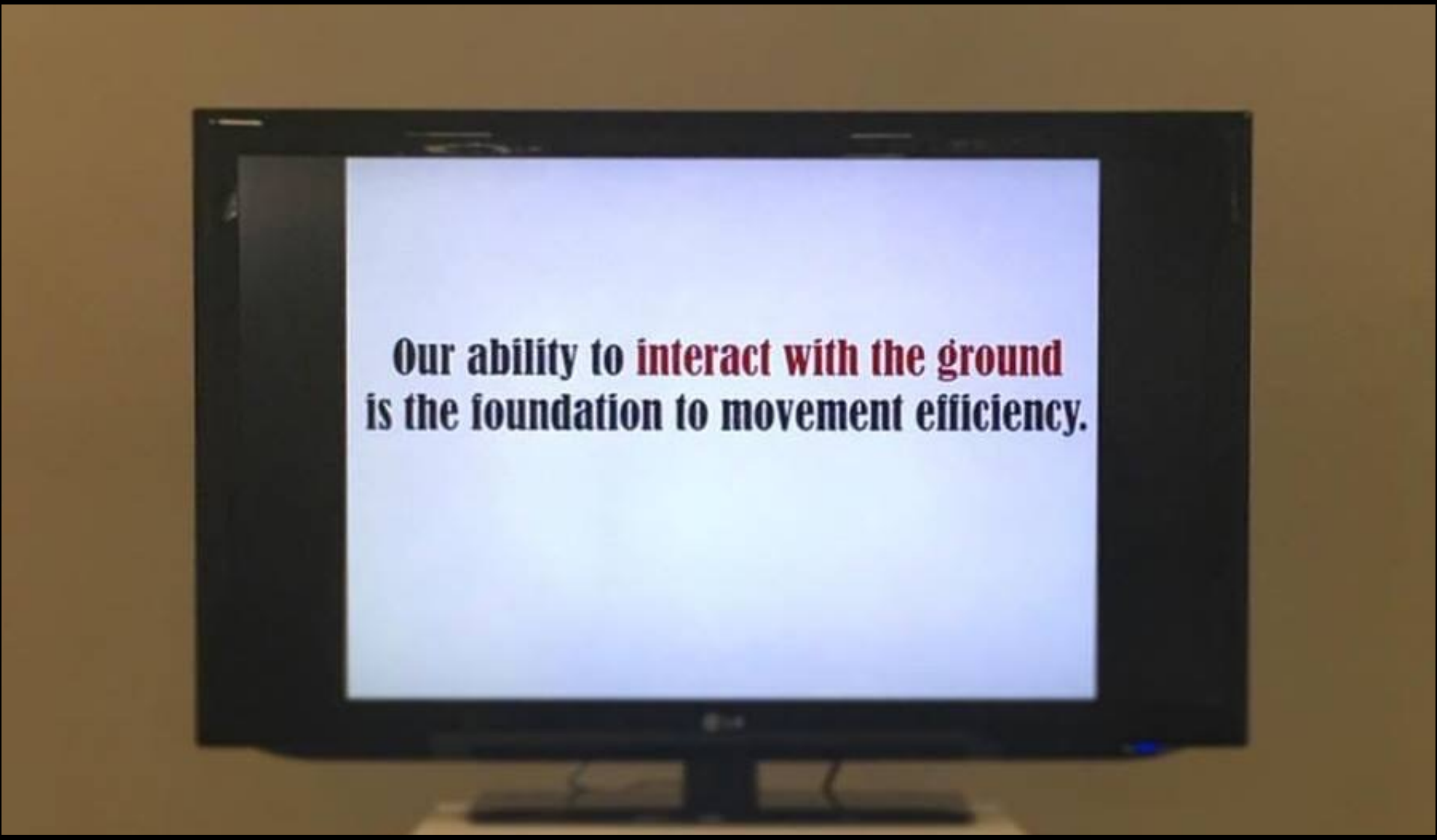
WHY DON'T PREGNANT WOMEN TIP OVER?



EVOLUTION OF UPRIGHT POSTURE




CITY MORGUE

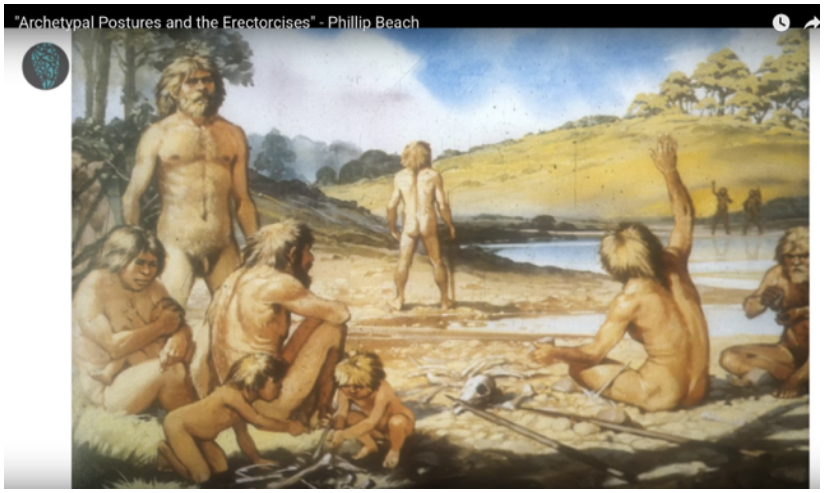

Our ability to interact with the ground
is the foundation to movement efficiency.

Our First Teacher…

"The first t*eacher* you meet is all around you-it is called the environment."

–Nick Winkelman, PhD

ACTIVE RECOVERY



Foreword by Leon Chaitow

Muscles and Meridians

The manipulation of shape

Phillip Beach

CHURCHILL LIVINGSTONE

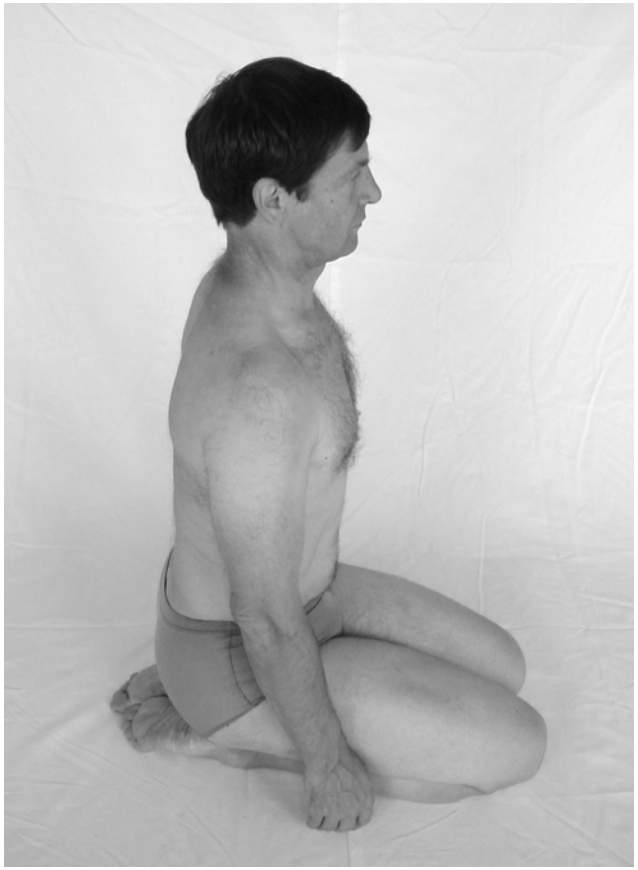
90:90 SHIN BOX

REGRESSION

PRIMAL REST POSES

1) Toe Sitting

PRIMAL REST POSES



2) Japanese

TOES UNDER BENT FORWARD

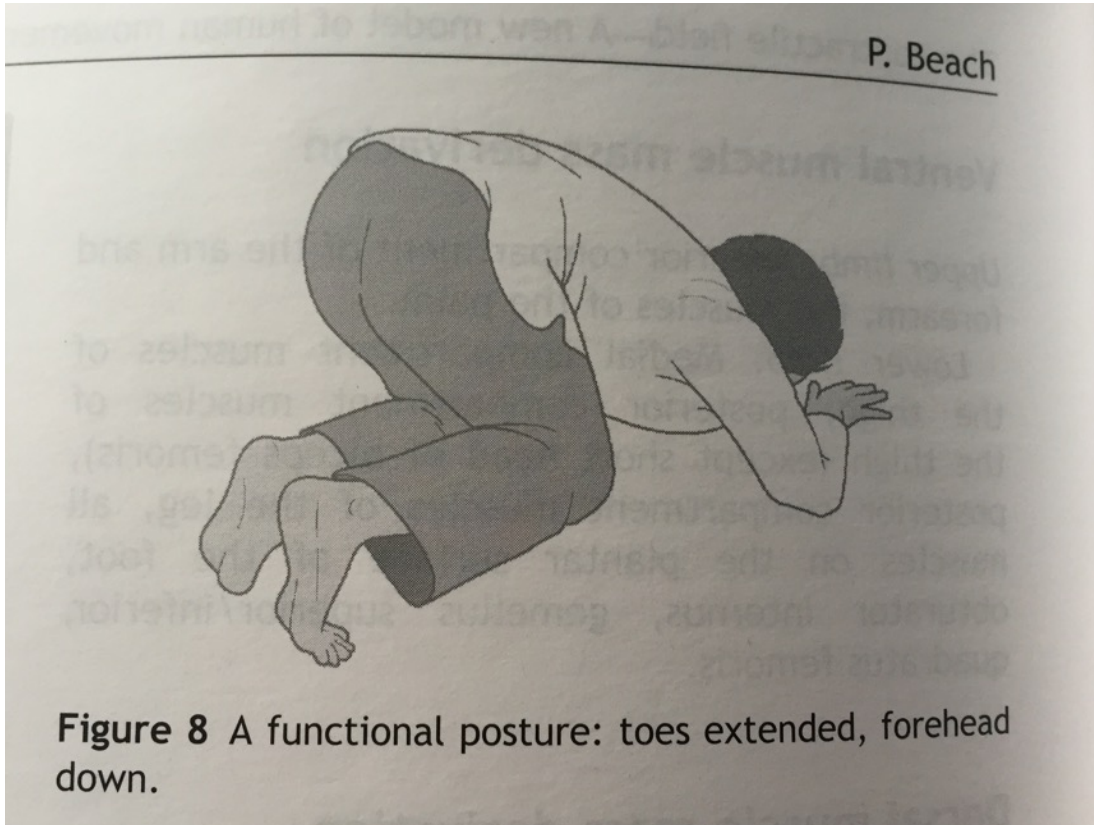
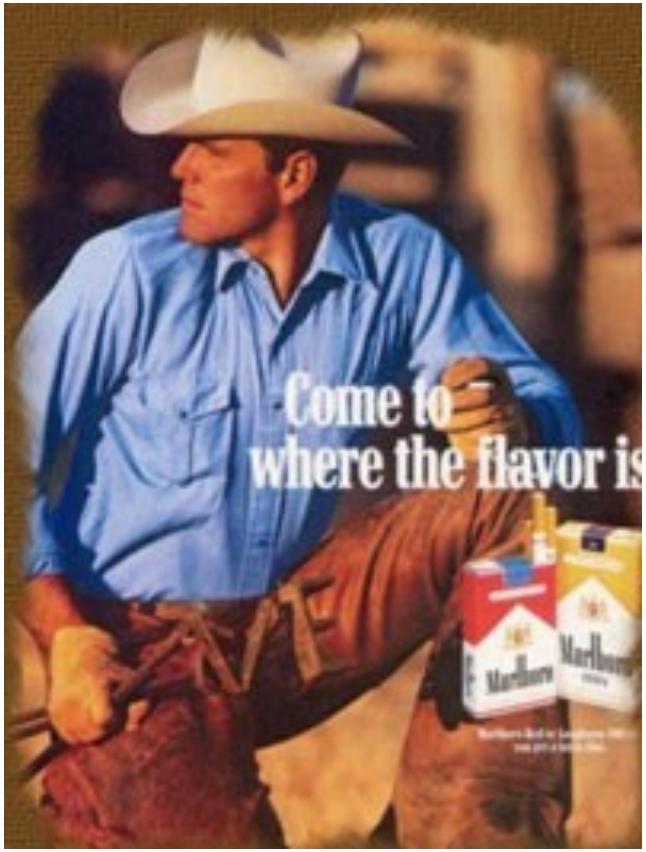


Figure 8 A functional posture: toes extended, forehead down.

3) Drinking Pose/Prayer



4) Cowboy Sit


USA

III) Foot ankle stability: What is the role of the dead foot?

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Function Better
Feel Better
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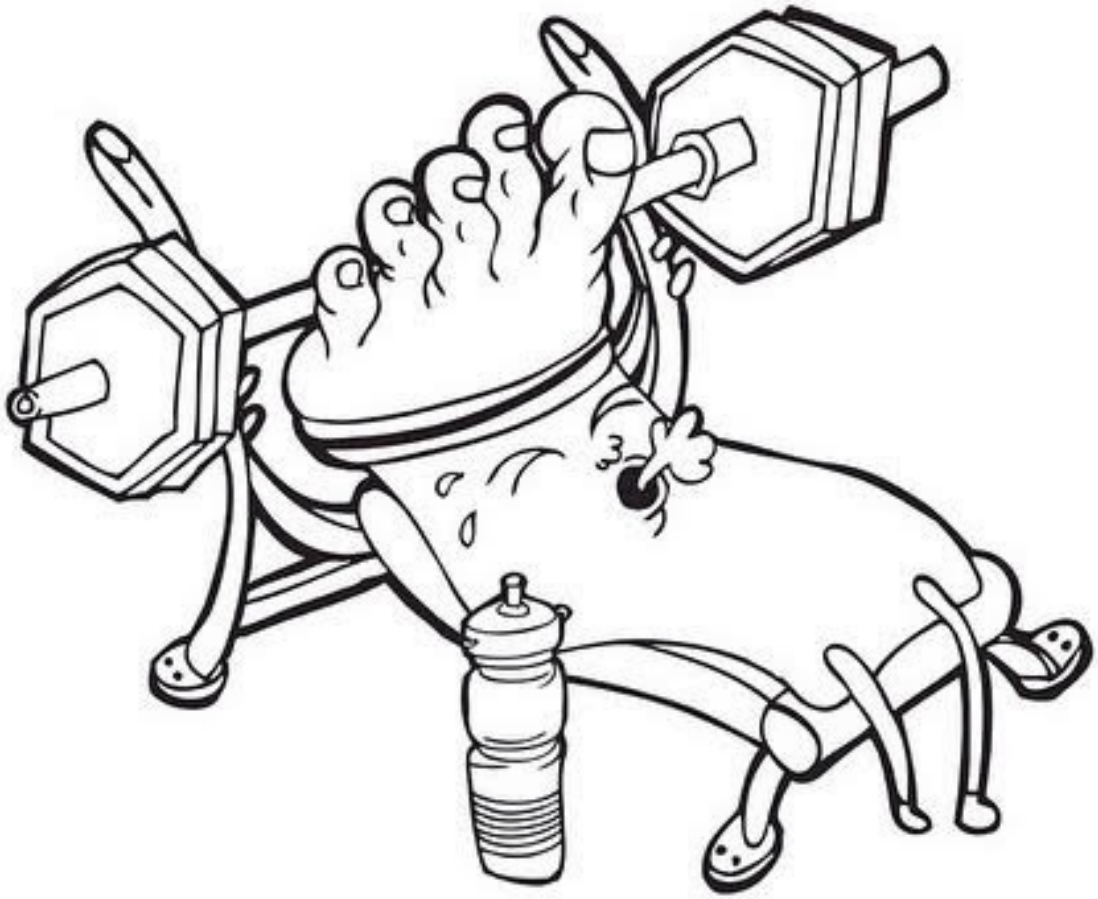
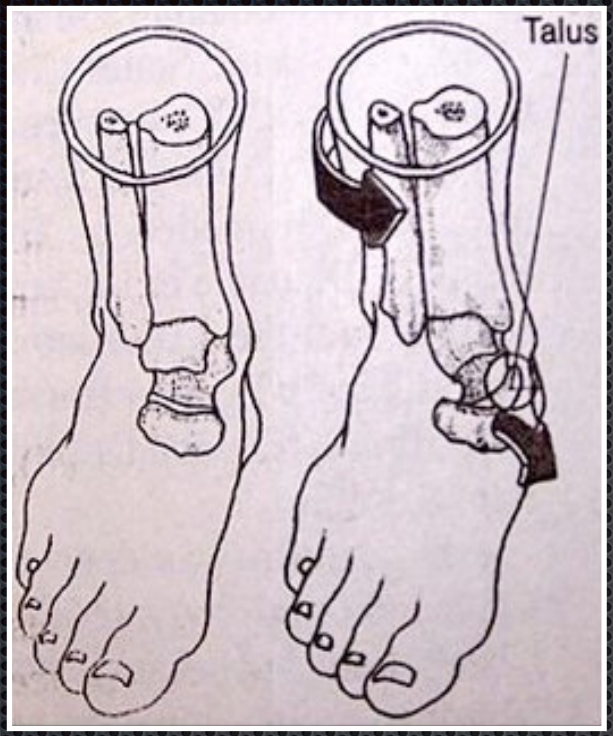
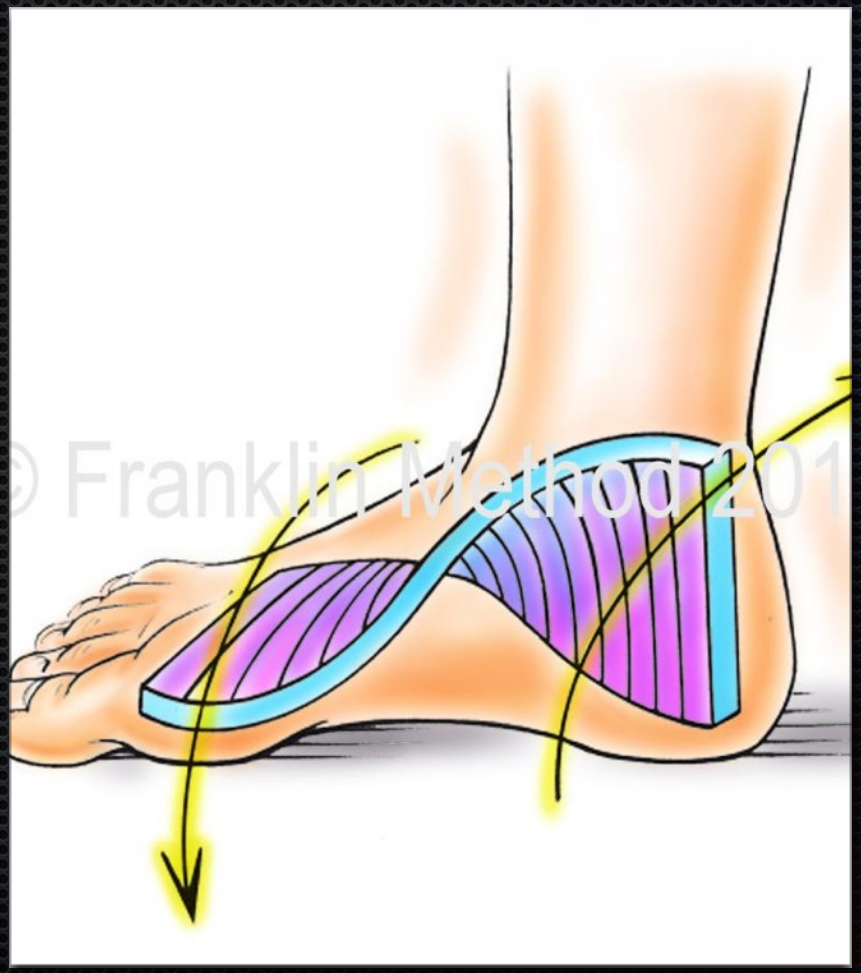
YOUR FOOT IS WEAK*



Loss of Healthy Arches






LIONS
BARRY SANDER

vonmiller

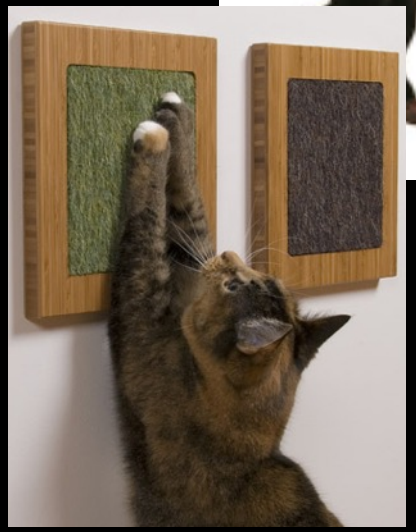

BULLS
3


DUKE
3


18|LB

A. Keeping the body in "tune"

- ACTIVE RECOVERY
- MOBILIZATION
- LOAD MANAGEMENT
- TISSUE SPARING
- SLEEP HYGIENE
- MINDFULLNESS PRACTICE



Full Squat


Prague Schoo
Development
part.A by Craig Liebenso
•일시 : 2016년 3월 25일(금) ~ 27일(일) •주관 : Orthofit Bodywork Academy

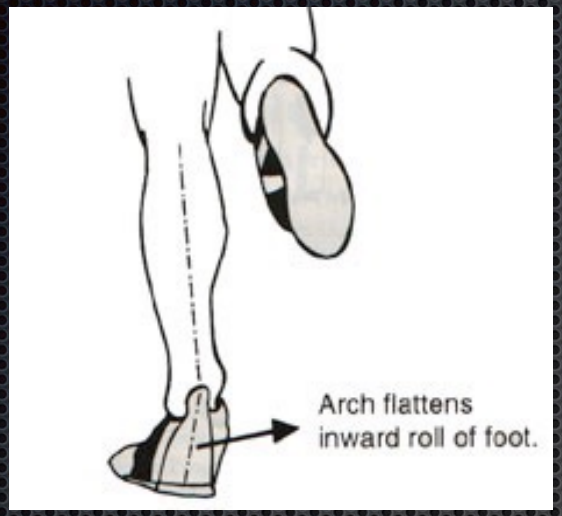
Full Squat

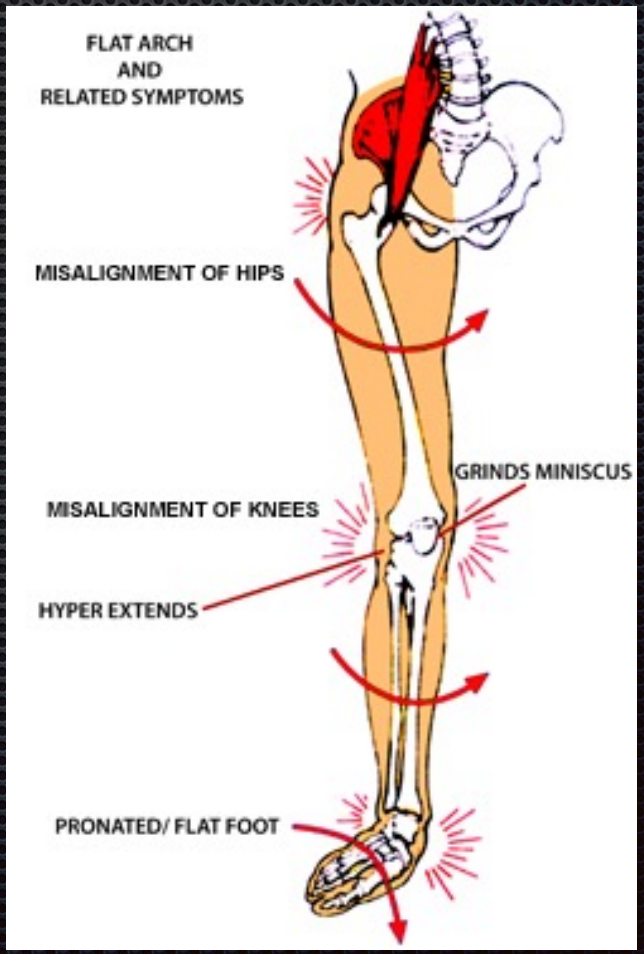
Full Squat

Full Squat

B. Typical Foot Problems

Typical Dysfunction

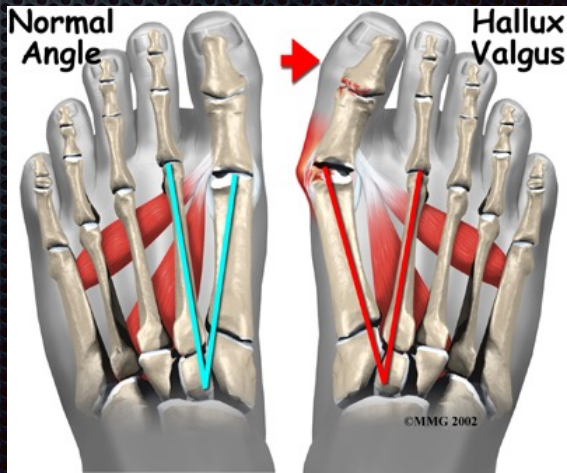




- Sole tends to be “dead”
- Ankle tends to be stiff

Hyperpronation should be our primary focus in injury prevention - True?

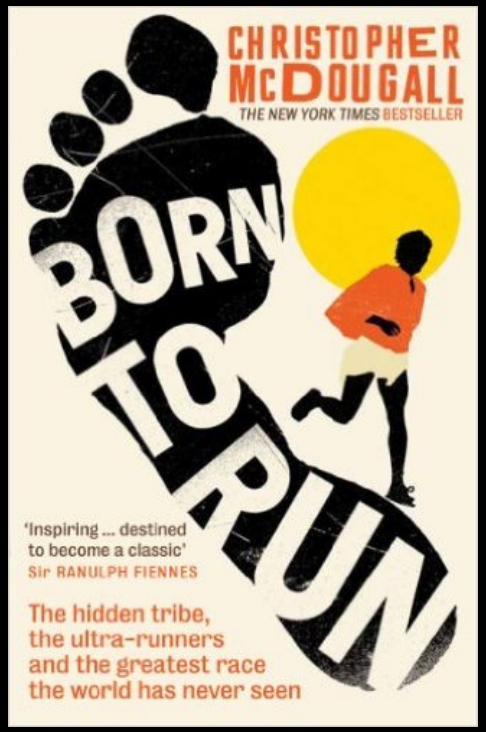
- Digital flexion has a protective role in plantar fasciitis, **whereas medial longitudinal arch height was found to be unrelated to this syndrome** (Wearing, 2004).



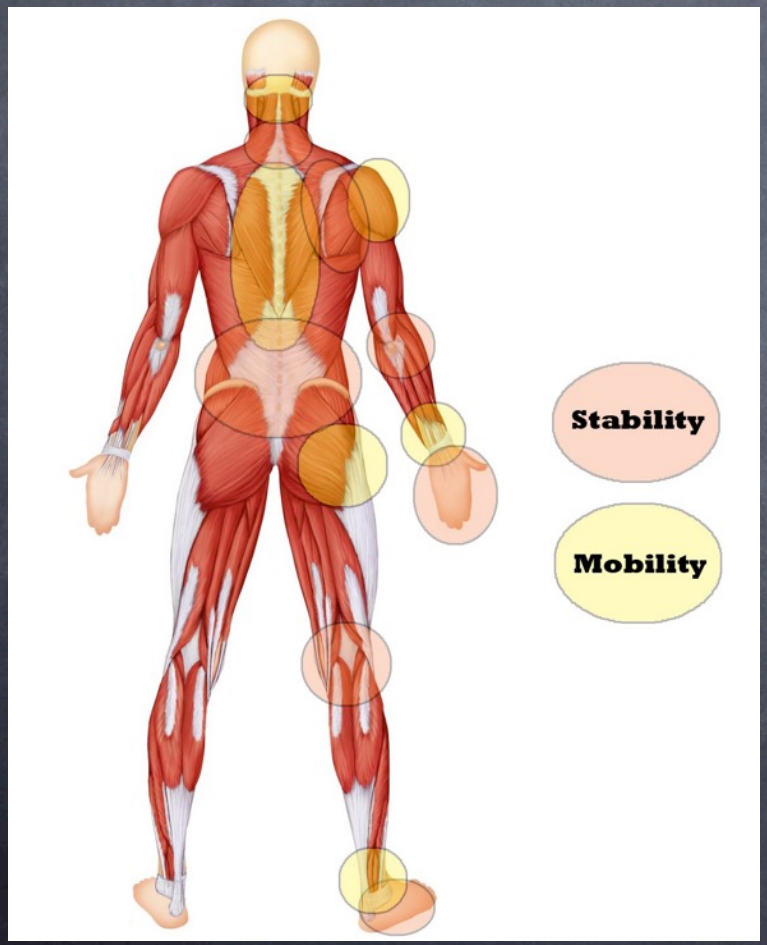
E.M- Sports Science
Friday at 11:21 PM ·

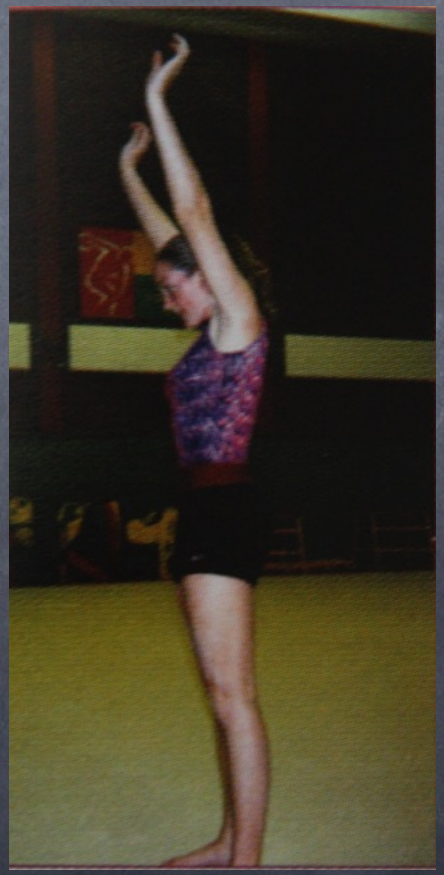
Is short Achilles tendon better for jumpers? The hypothesis presented in this video is based on the article:

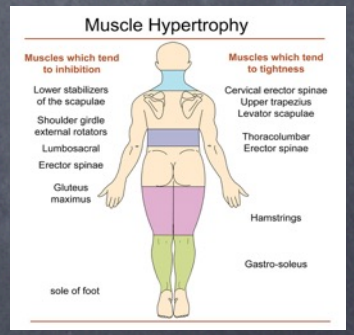
"Newton, P. Cormie, and Kraemer J. W. (2011), The Influence of Muscle-Tendon Unit Structure on Rate of Force Development, During the Squat, Countermovement, and Depth Drop Jumps. Journal of Strength and Conditioning"



Joint by Joint
FUNCTIONAL Approach







FUNCTION

- Foot needs stability
- Ankle needs mobility

In Function

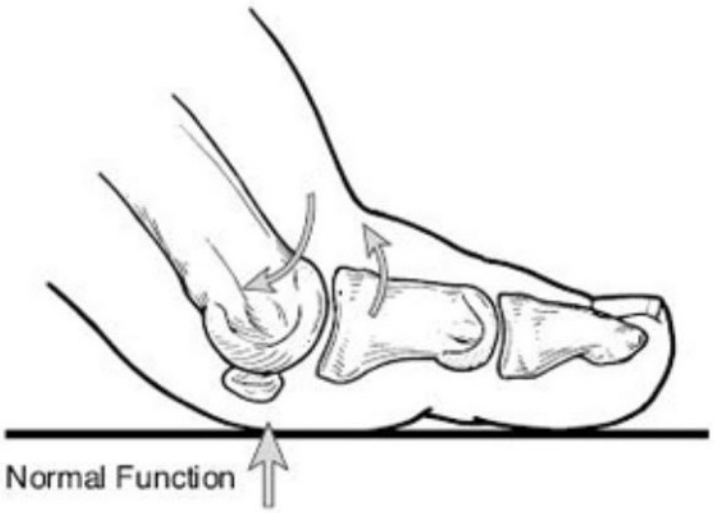
Acceleration

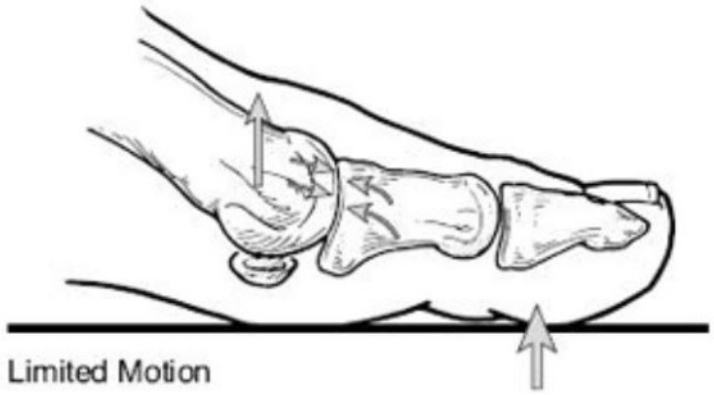
Clinical Pearl

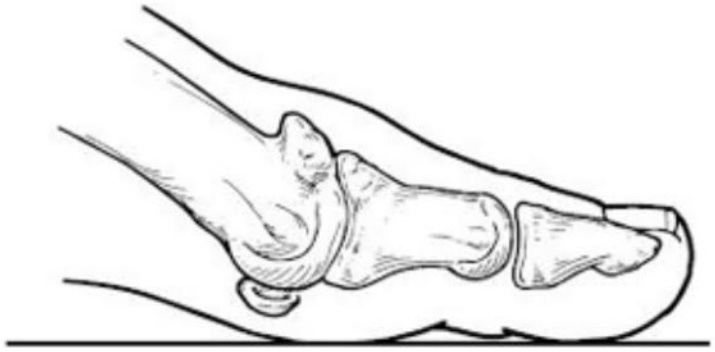
- Restoring 1st metatarsophalangeal (MTP) mobility will have a stabilizing effect during early heel rise

The Gait Guys — Hallux rigidus (...
thegaitguys.tumblr.com

Follow Open in App







Another case today. Right hallux limited dorsiflexion range. Causing early heel rise in late midstance phase of gait because the forefoot rocker was impaired. Thus, the

Big toe function

- 1st MTP needs at least 40-55 deg. for normal gait
- For running at least 65 deg.
- Michaud T. Human Locomotion, 2011.

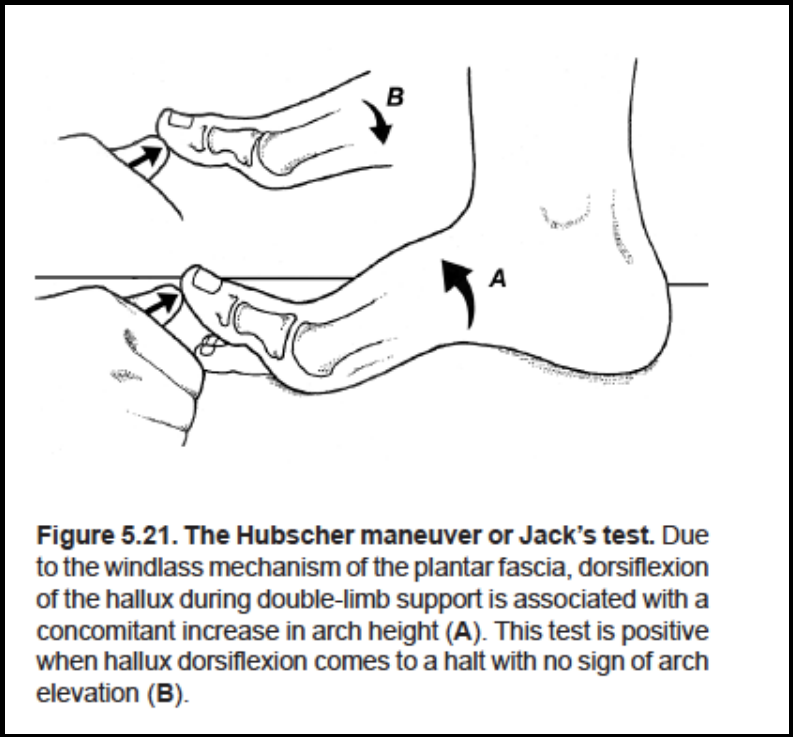


Figure 5.21. The Hubscher maneuver or Jack's test. Due to the windlass mechanism of the plantar fascia, dorsiflexion of the hallux during double-limb support is associated with a concomitant increase in arch height (**A**). This test is positive when hallux dorsiflexion comes to a halt with no sign of arch elevation (**B**).

The Sole of the Foot

- Postural Correction starts from the base of support

Central disturbance of coordination

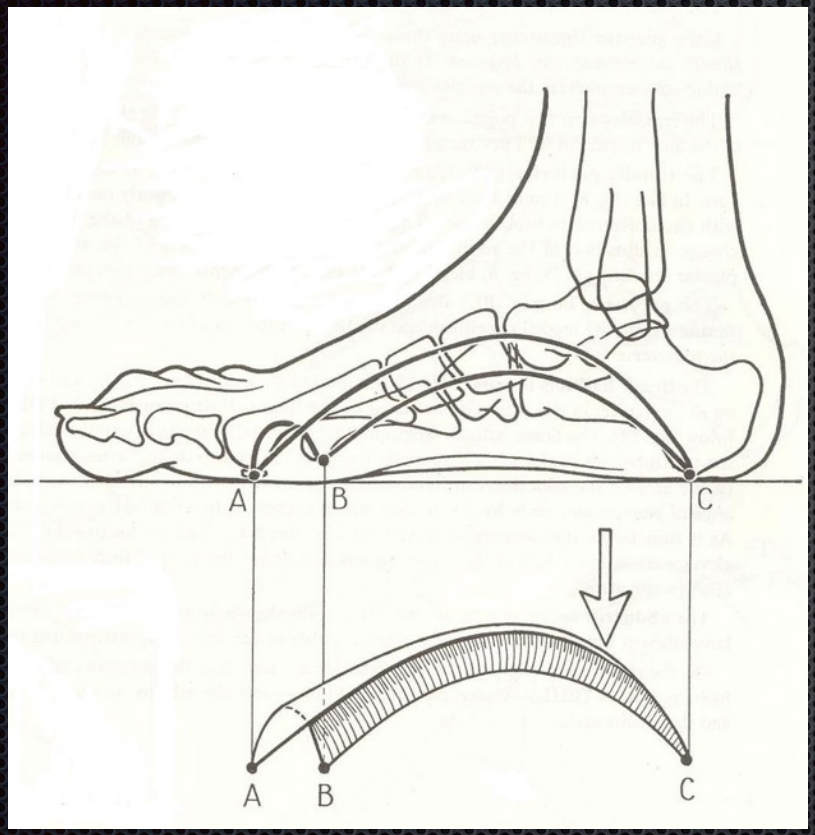
Central disturbance of coordination

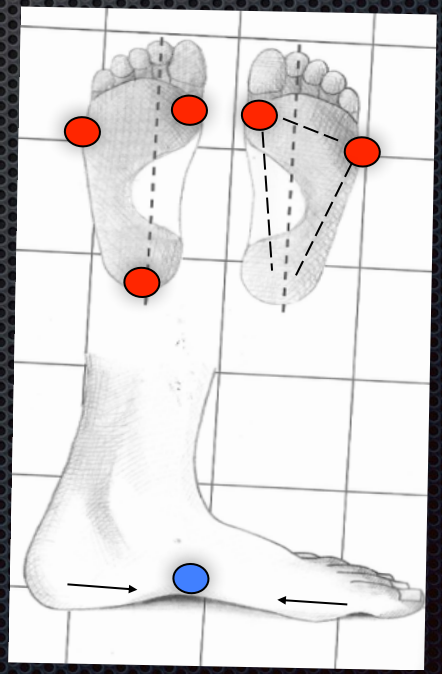
Central disturbance of coordination

Central disturbance of coordination

Central disturbance of coordination

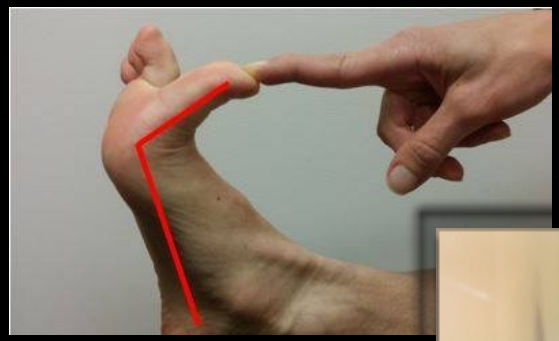
Transverse and Longitudinal Arches





3-POINT DISTRIBUTION OF SUPPORT IN THE FOOT

C. Functional Assessment



1. Janda's Perturbation Test/ Training (The Foot/Spine Connection)

Is the foot important for stability?

2) Vele's Forward Inclination Test

Sign of Instability

- L/P hinge
- Failure of toes to grip
- Asymetric grip
- See also - Janda's Lunge

3. 1 Leg Balance Test – p248-249, 807-809

- Maribo T, Iverson E, Andresen N, Stengaard-Pedersen K, Schiottz-Christensen B. Intra-observer and interobserver reliability of one leg stand test as a measure of postural balance in low back pain patients. Int Musc Med 2009;31:172-177

4. MOBILITY

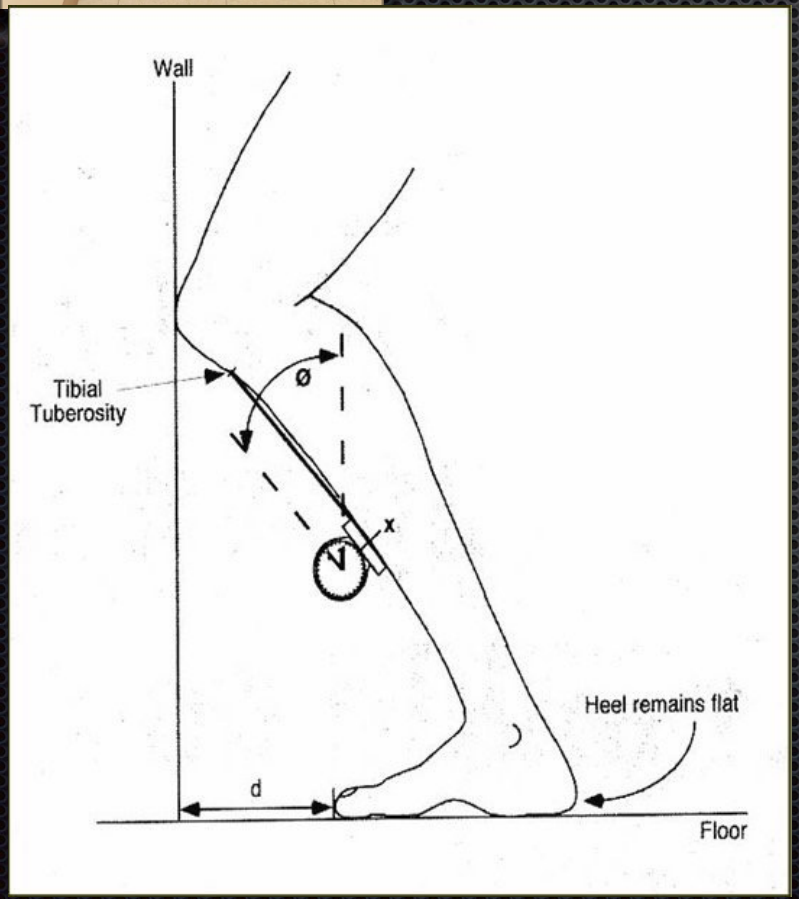
ANKLE

WALL LEAN CALF FLEXIBILITY/ DOWN DOG

Konor MM, et al. Int J Sports Phys Ther. 2012 June; 7(3): 279–287.

Goniometer

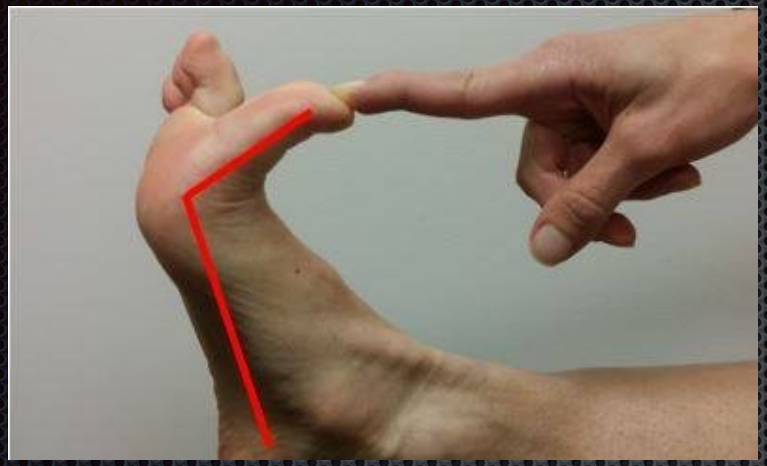
43.2 +/- 5.8

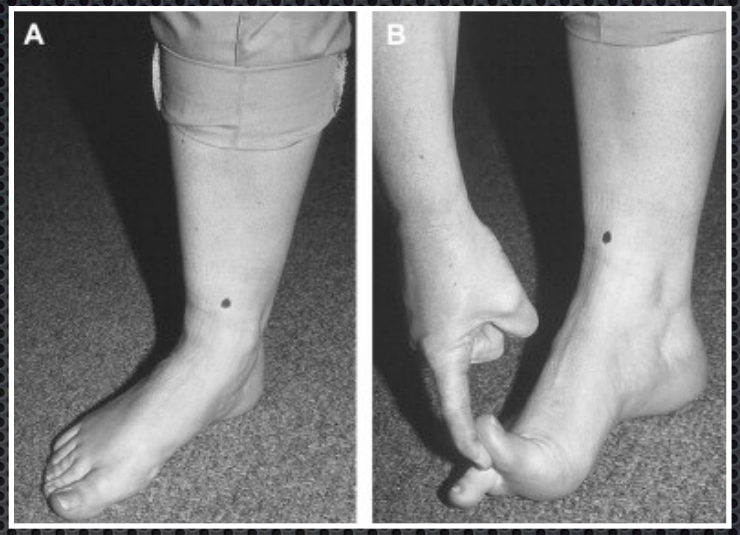


Inclinometer

38.8 +/- 5.2

1st MTP Mobility

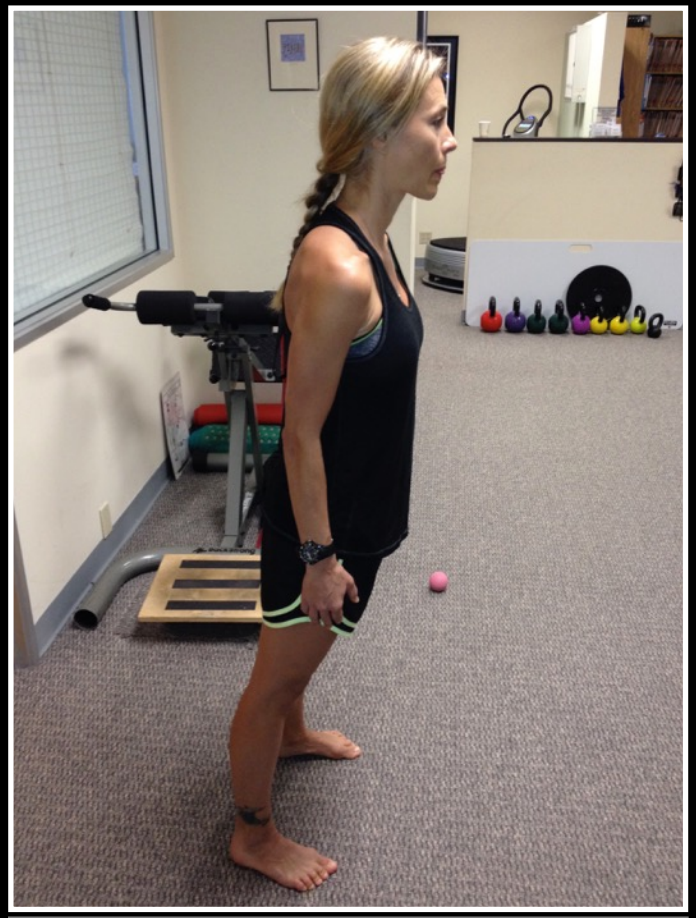


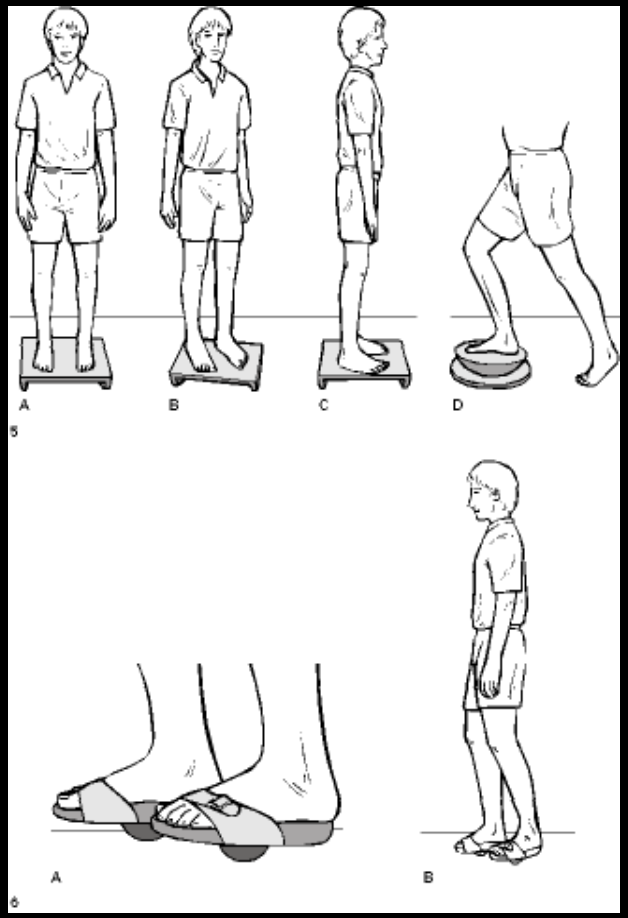


Weight bearing vs Non-Weight bearing

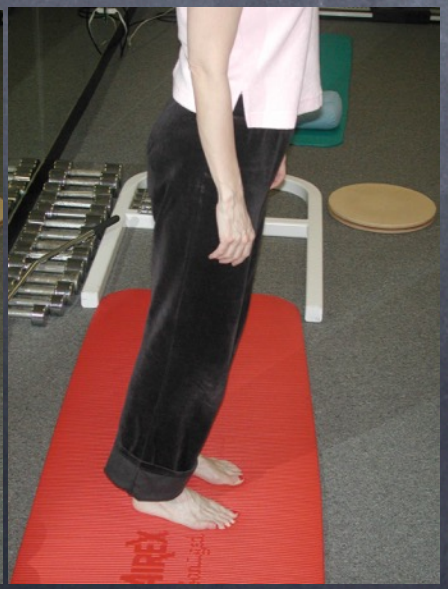
70 deg. = normal

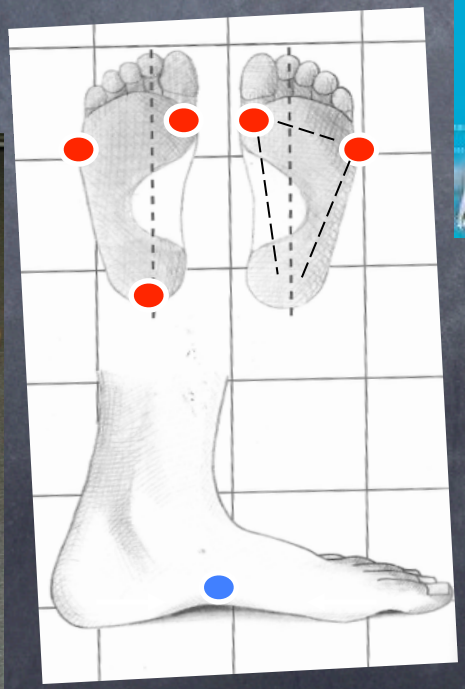
D. Training





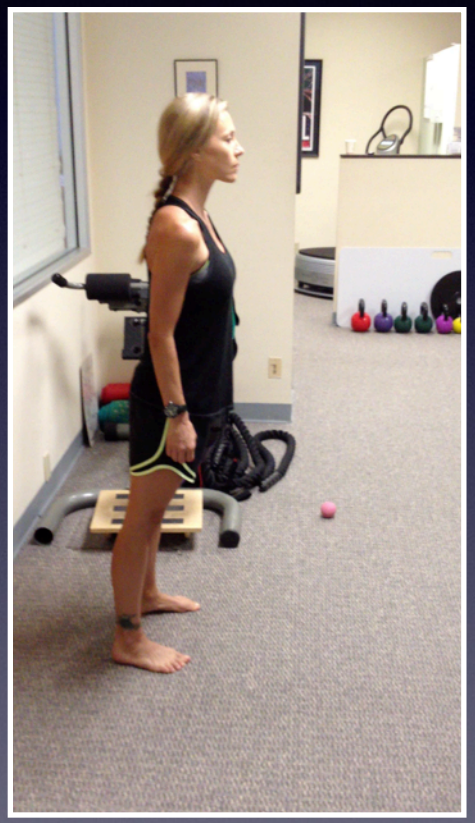
1. Vele's Transverse Arch Facilitation

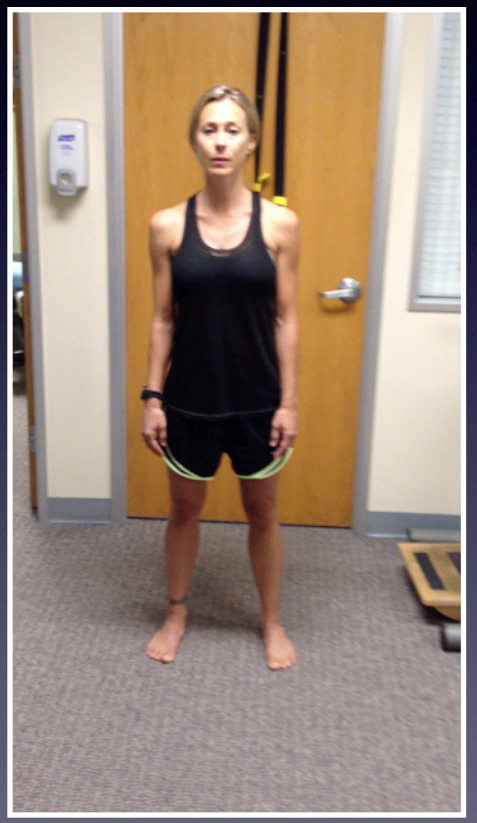


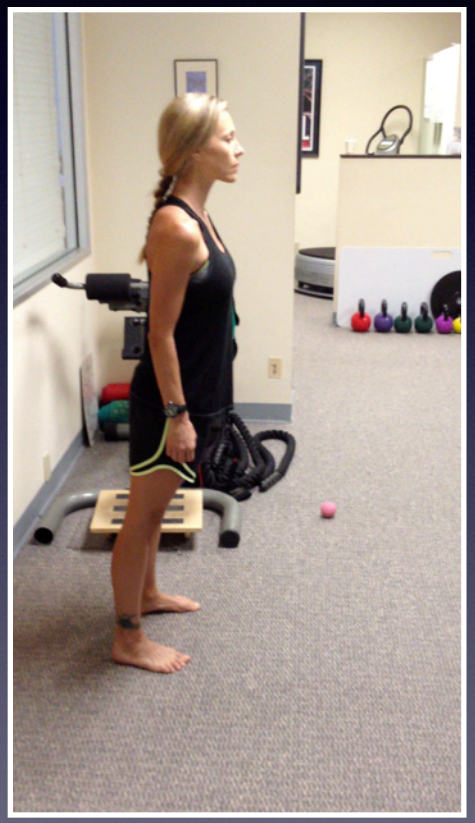


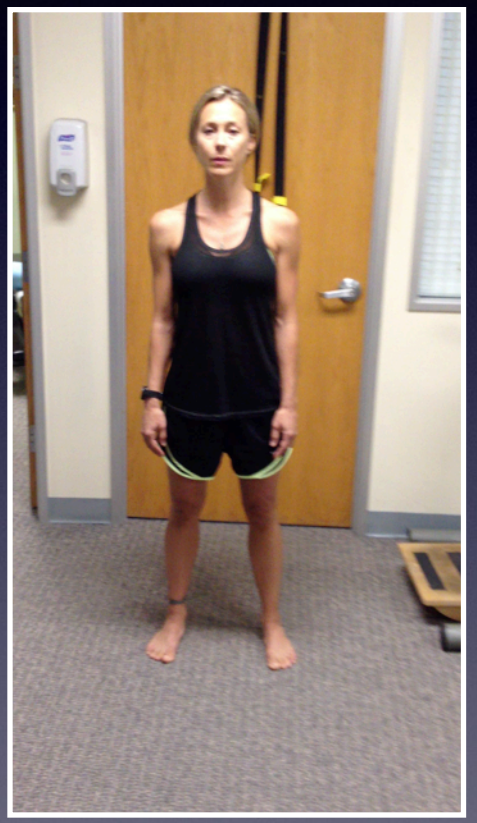

Trust Fall
lean-fall run with a partner

- Lean forward w/out lifting heels until transverse arch activates









SUSTAINABLE ATHLETICISM

Proper positioning with “hips locked in”

Improper position with “hips breaking”

1 THE FOLD

Prop the pizza on the upturned fingertips of both hands, at chin height, perpendicular to the body. Gently squeeze the outer edges of the crust until they meet in the middle. Crease the slice longways and direct the sharp end toward the mouth.

2 THE BEND

As the pizza approaches, lean forward at an angle of approximately 35 degrees, enabling the mozzarella grease to drip harmlessly onto the ground, thereby avoiding irremovable stains on the shirt or pants. Insert slice into mouth.

3 THE NIP

Still leaning, bite down and pull away, creating a string of cheese between mouth and pizza. Do NOT attempt to stretch the string to its breaking point. Instead, nibble to the edge of the slice and nip with the incisors. Swallow and repeat.

2. Standing Anti-Rotation

"Fall Forward"

Anti-Rotation Lean - Arms

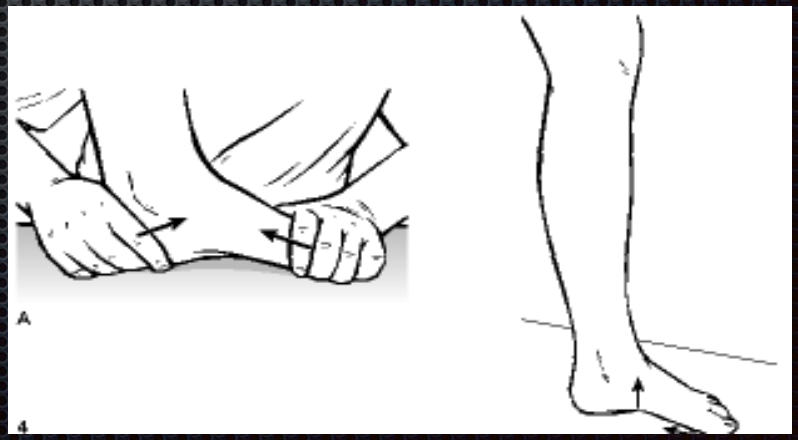
3) Toe Training


© Franklin Method 201

- Check Great Toe Standing & Sitting
- Re-Check w/ Tibial Ex Rot
- Place card under 1st MTP & raise/lower big toe
- Perform in Lateral Squat

4) Janda's Small Foot

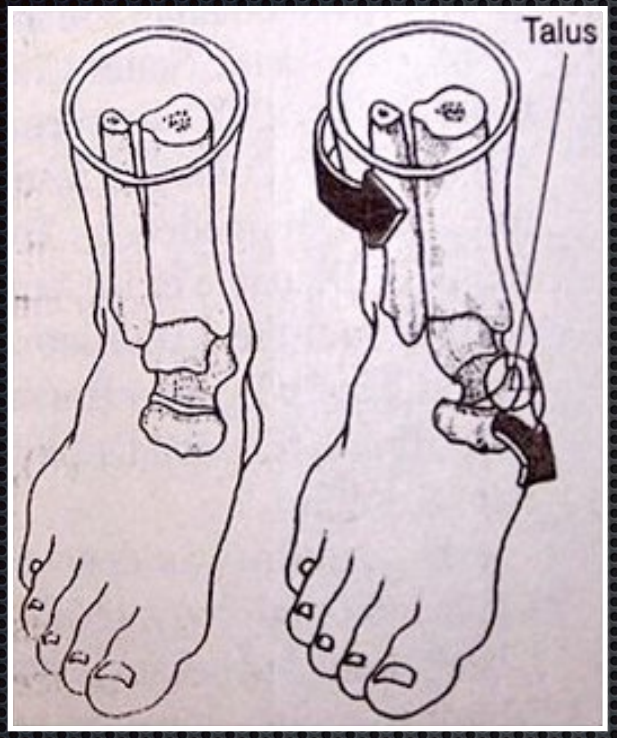
- Approximate the 1st MTP & medial calcaneous
- Passive modeling
- Active assistance
- Active modeling

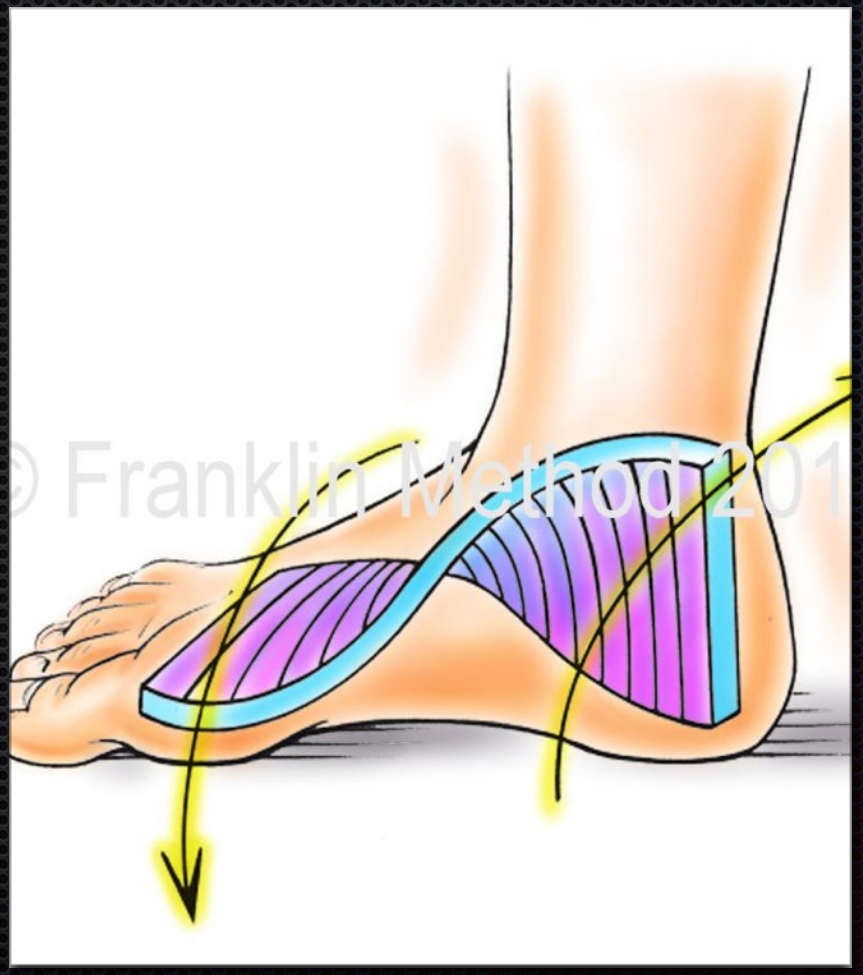


4. MOBILITY

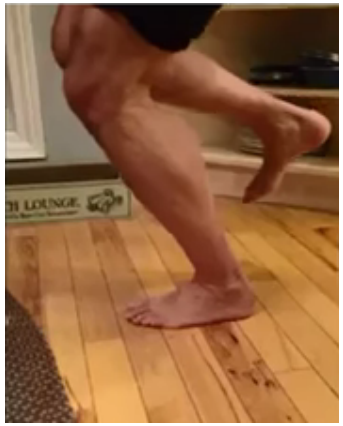
ANKLE

Rooting



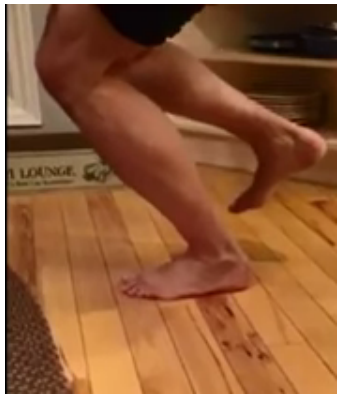


1 Leg Squat



- Arch Stability

- Positive Shin Angle for Ankle Dorsiflexion Mobility



Ankle Rocker

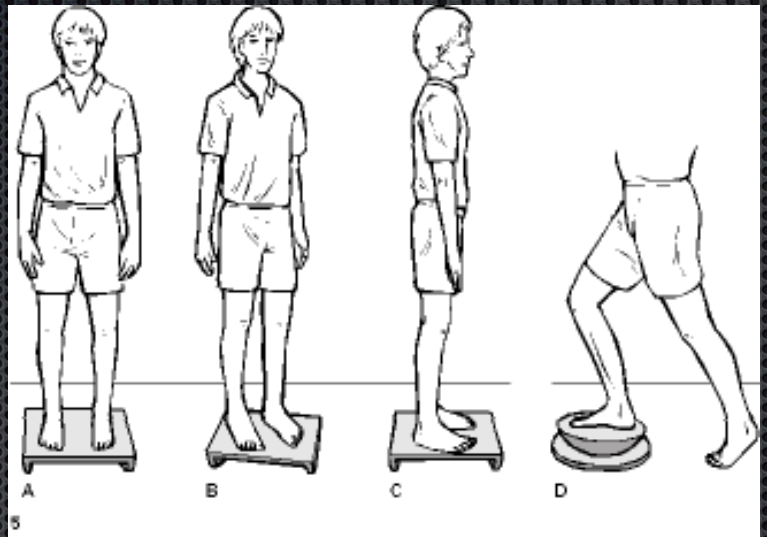
Scissor Lunges

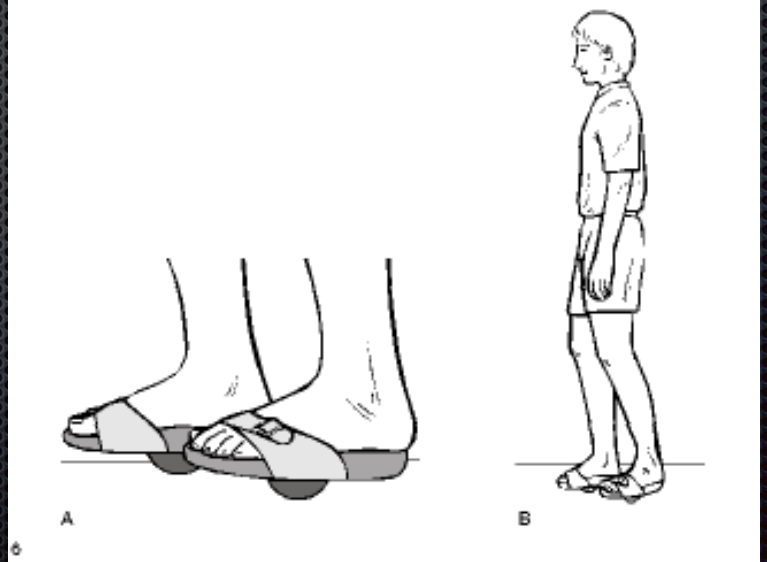
- Arch Stability during Jumping
- Positive Shin Angle for Ankle Dorsiflexion Mobility during Landing

5) Rocker/Wobble Board Training – p523 & 642

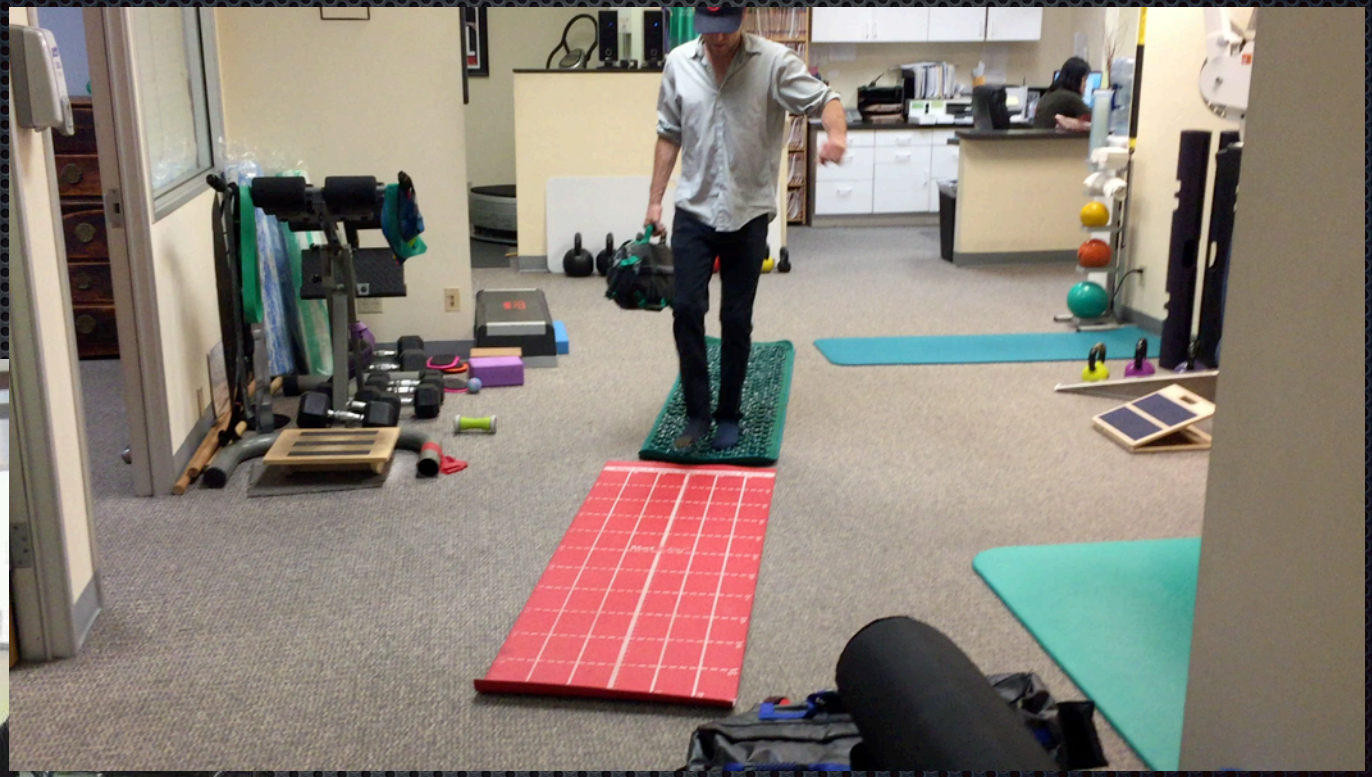
- Why (rationale)
  - Improve whole body stability (equillibrium)
- When (indications)
  - LBP (acute – chronic)
  - Fall prevention
  - Ankle sprain or instability
  - Knee instability

Rocker/Wobble Board & Balance Sandal Training – p523 & 642

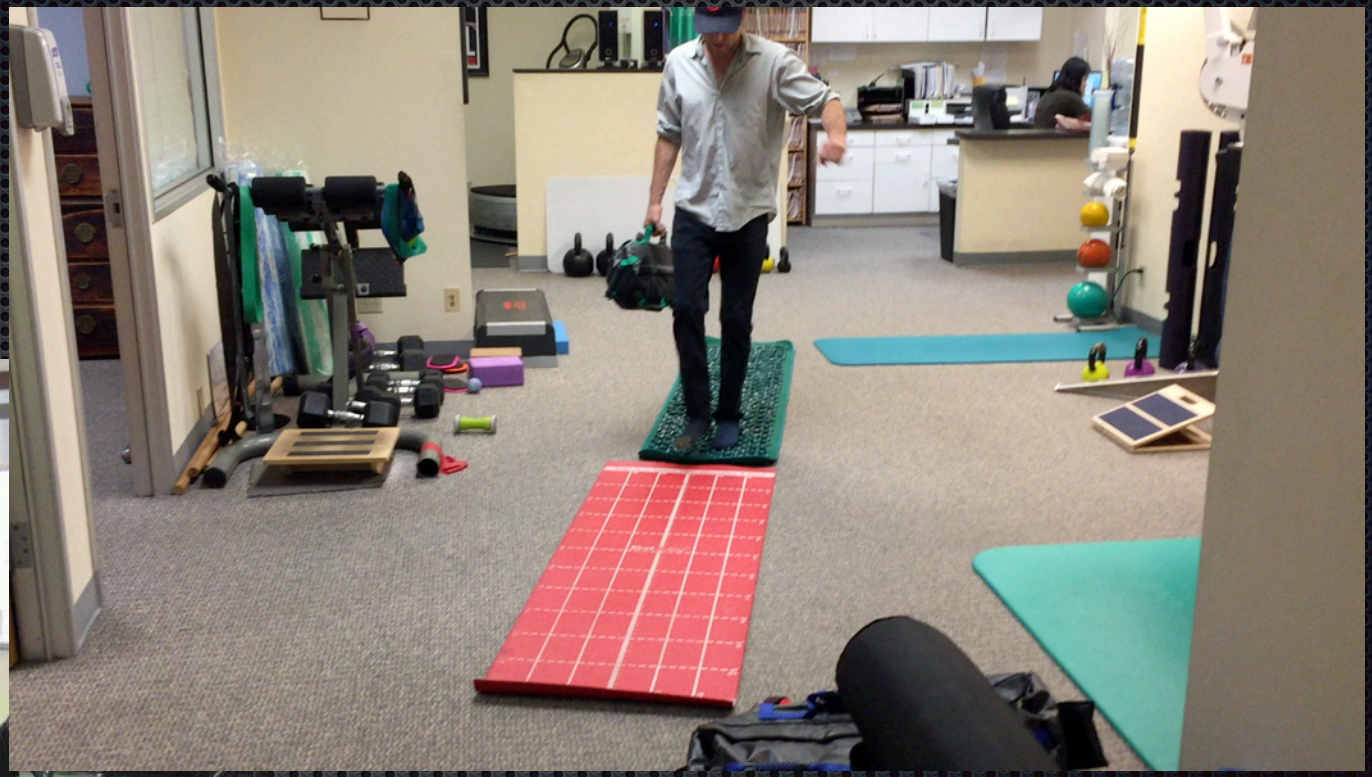




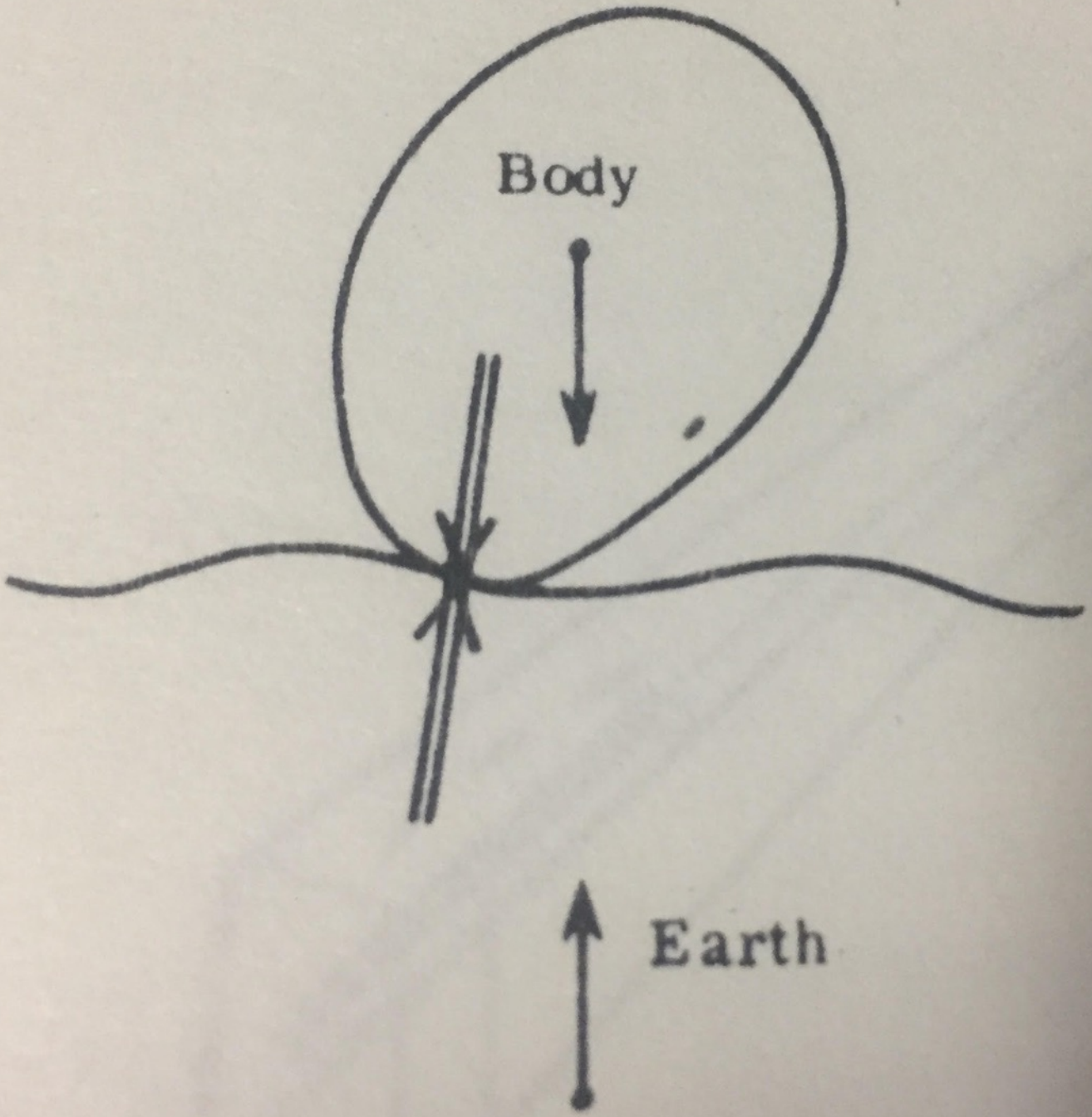
OPTIONS



OPTIONS



6) Balance Pad Training

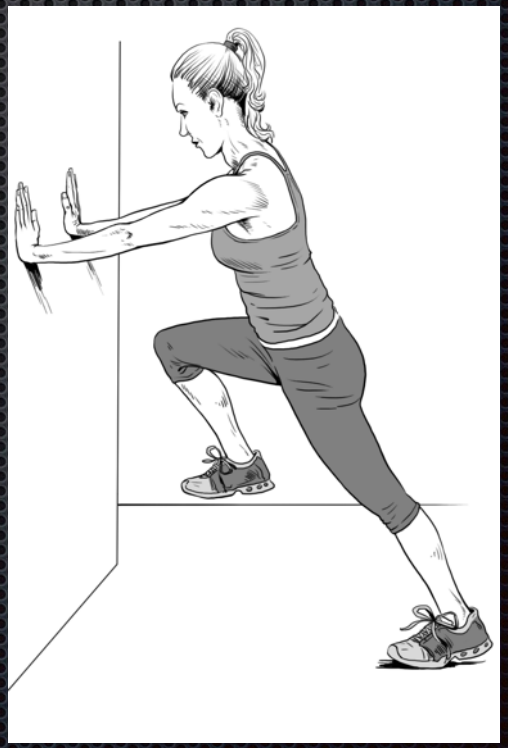

Body
Earth

8) Ankle Mobilizations

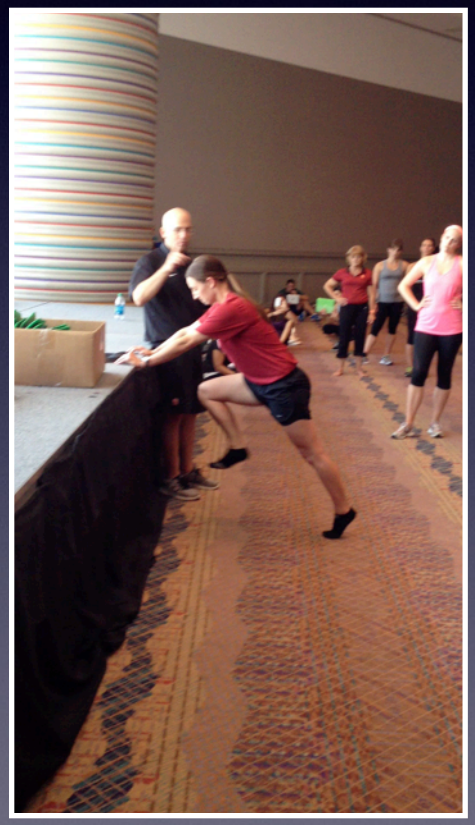
- LEG SWINGS

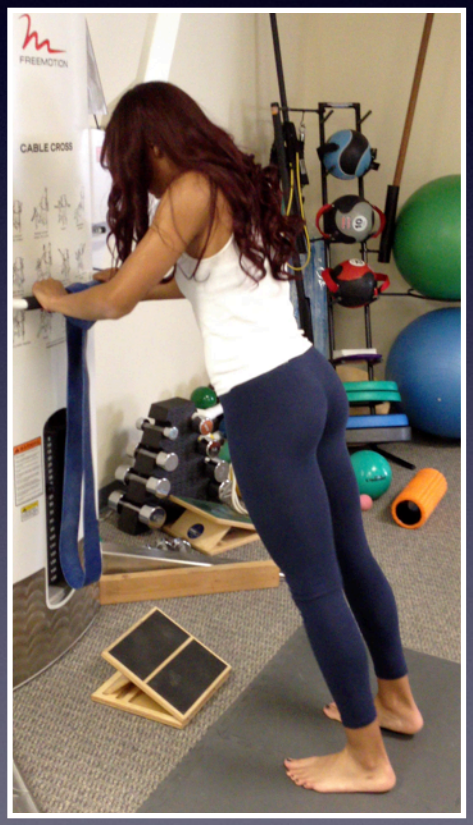
9) Hill Sprints

10. Wall Drill
March/Pillar Running



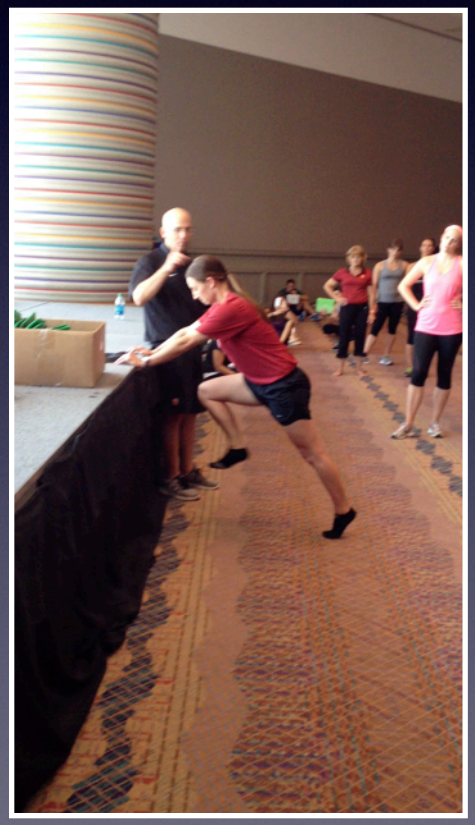
- Forward Lean/Plank
- Triple Flexion
- Slow/Quick 1-2/Quick 1-2-3 (leg drive against stable core)
- Avoid bending at waist

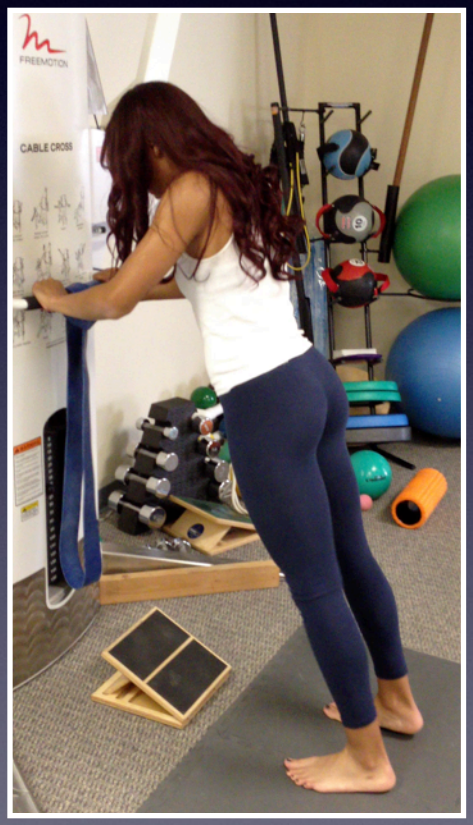




- Single

- 1-2-3





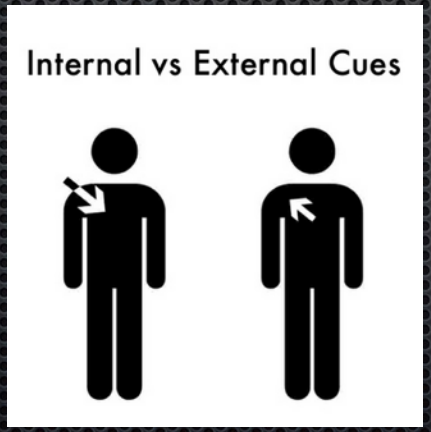
- Single

- 1-2-3

Reaction Time

1. Clap Split Stance
2. Hip Drive (1/2) Wall Drill
3. Arm/Hip Drive Split Stance
4. Front Foot Elevated Jump w/ tension

“A main issue in my work is not the output of training, but rather the outcome!”
Kraaijenhof



11) Ankle Stiffness/Reactive Strength

Reactive Speed Clap - Arm Drive

Reactive Speed
Clap - Arm Drive (Continuous)

More Resources on the Foot