



ANCILLARY ADJUSTMENTS WITH MUSCLE TESTING

Instructor: Dr James Glenn Drewry

Hour 1

The Pronated Foot Protocol and Adjusting Technique



The Pronated Foot Protocol and Adjusting Technique

1. The most common subluxation pattern of the foot is **EXCESSIVE PRONATION**. Pronation (with respect to the ankle/foot) is a combination of three motions that occurs mostly at the subtalar joint.

1. Eversion (sole out)
2. Dorsiflexion (toe up)
3. Abduction (toe out)



The Pronated Foot Protocol and Adjusting Technique

‘Nearly all excessive pronation is BILATERAL but ASYMMETRICAL.’ -Robert Kuhn DC, DABCR -Logan CC

- II. Most foot subluxations do not create foot SYMPTOMS.
- III. Whatever one arch in the foot does, so do the other two.



4 Global Postural Distortions Commonly Found Together:

1. Bilateral/asymmetrical foot pronation
2. Pelvic tilt
3. Anterior translation of pelvis
4. Anterior translation of cervical spine / Anterior head carriage



Low Back Pain & Pelvic Tilt:

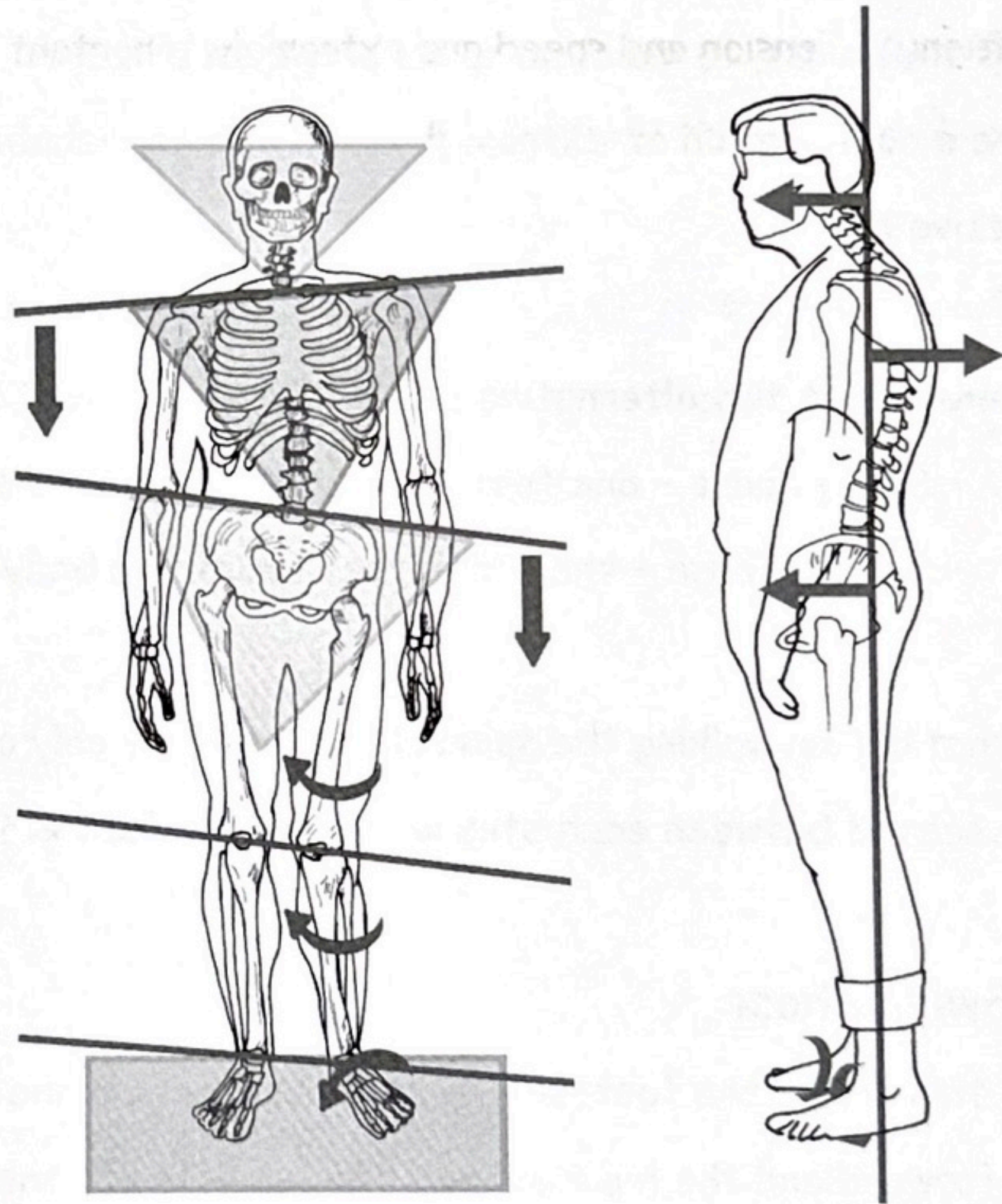
In 25 hospital patients it was found that “Pronation was greatest on the side of the longer leg, indicating that the pronation was a functional adaptation to reduce pelvic unleveling.” -Langer S.



Pelvis Tilt = Pronation

Unilateral pronation or asymmetrical bilateral pronation has the effect of producing pelvic tilt, OR the unlevelled pelvis may cause the pronation.





Common postural distortions





Arches of the Foot:

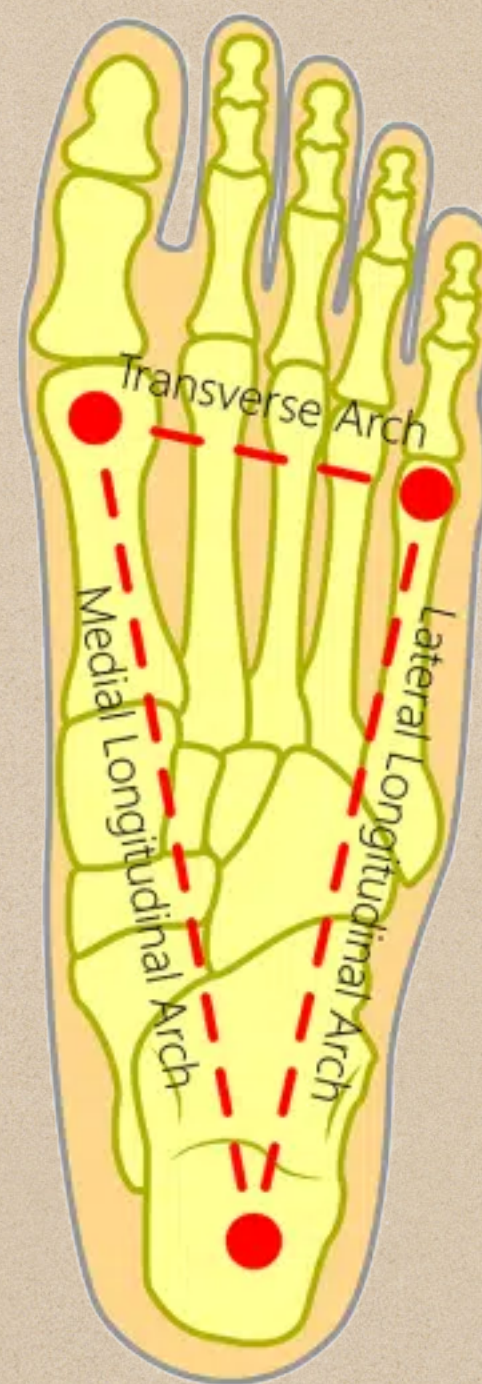
Low intensity forces for prolonged periods of time create PERMANENT plastic changes.

- ◆ Anterior Transverse Arch
- ◆ Lateral Longitudinal Arch
- ◆ Medial Longitudinal Arch

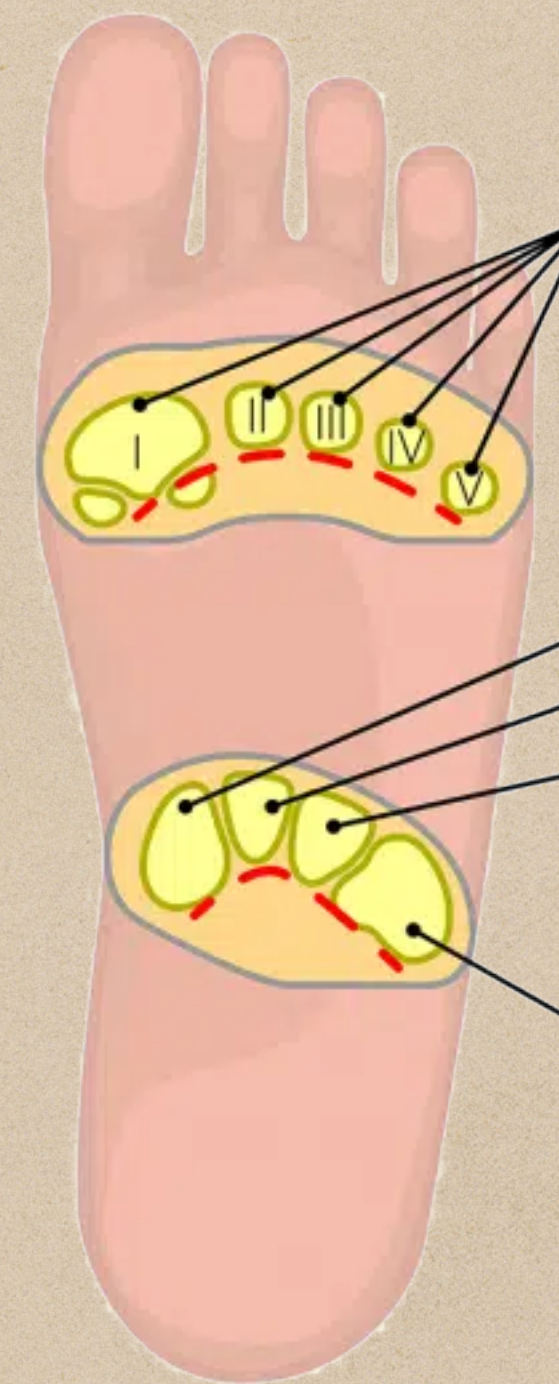
Sole



Foot (bottom view)



Transverse Arch (cross section)

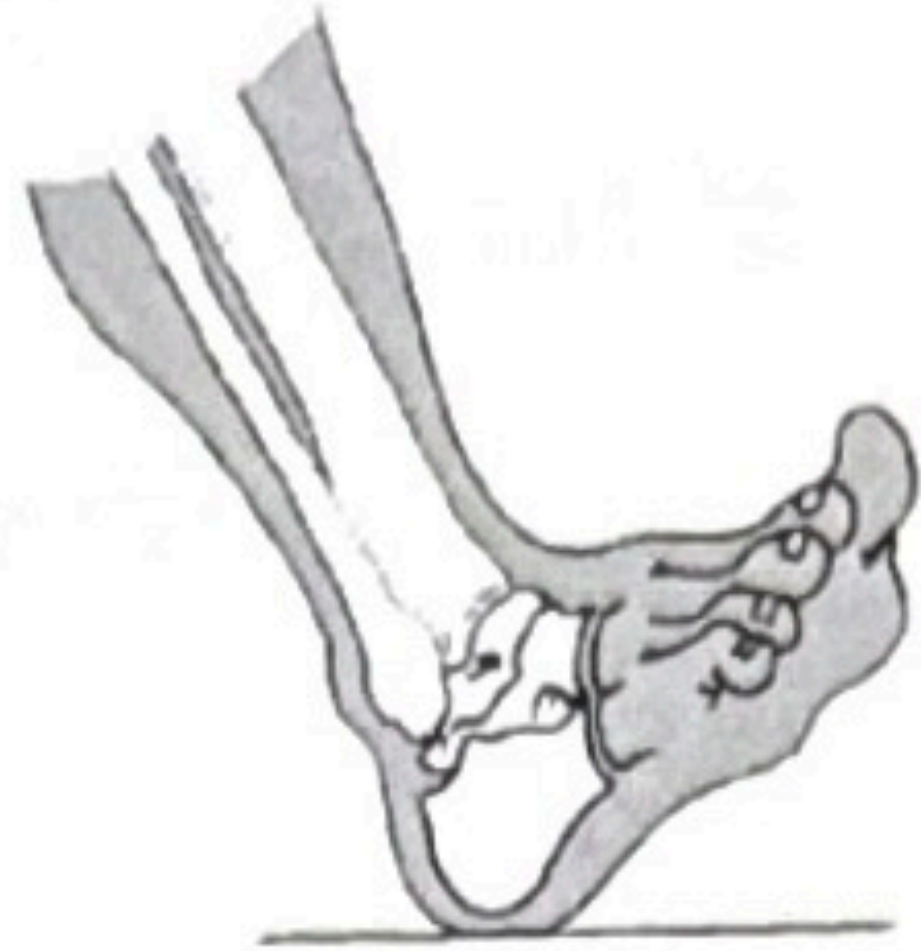


Heads of metatarsals

Cuneiform bones:
Medial
Intermediate
Lateral

Cuboid





Stance phase of gait -- contact, midstance, and propulsion

Indicators Excessive Pronation:

- ◆ Foot Flare / Toe Out
- ◆ Posterior/Lateral Heel Wear
- ◆ Patellar Approximation – (Knock-Kneed)
- ◆ Achilles Tendon Bowing
- ◆ Dropped Navicular / Flat Arch/ Pes Planus
- ◆ Callouses on 2-3-4 Metatarsal Heads
- ◆ Positive Navicular Drop Test (PSI)
- ◆ Non-Grade 5 Psoas, Gluteus Medius, Quadriceps



“Nearly all excessive pronation is BILATERAL but ASYMMETRICAL.”

- Robert Kuhn DC, DABCR from Logan CC submitted 3 papers to the ACC on the effects Foot Levelers on balancing the pelvis.



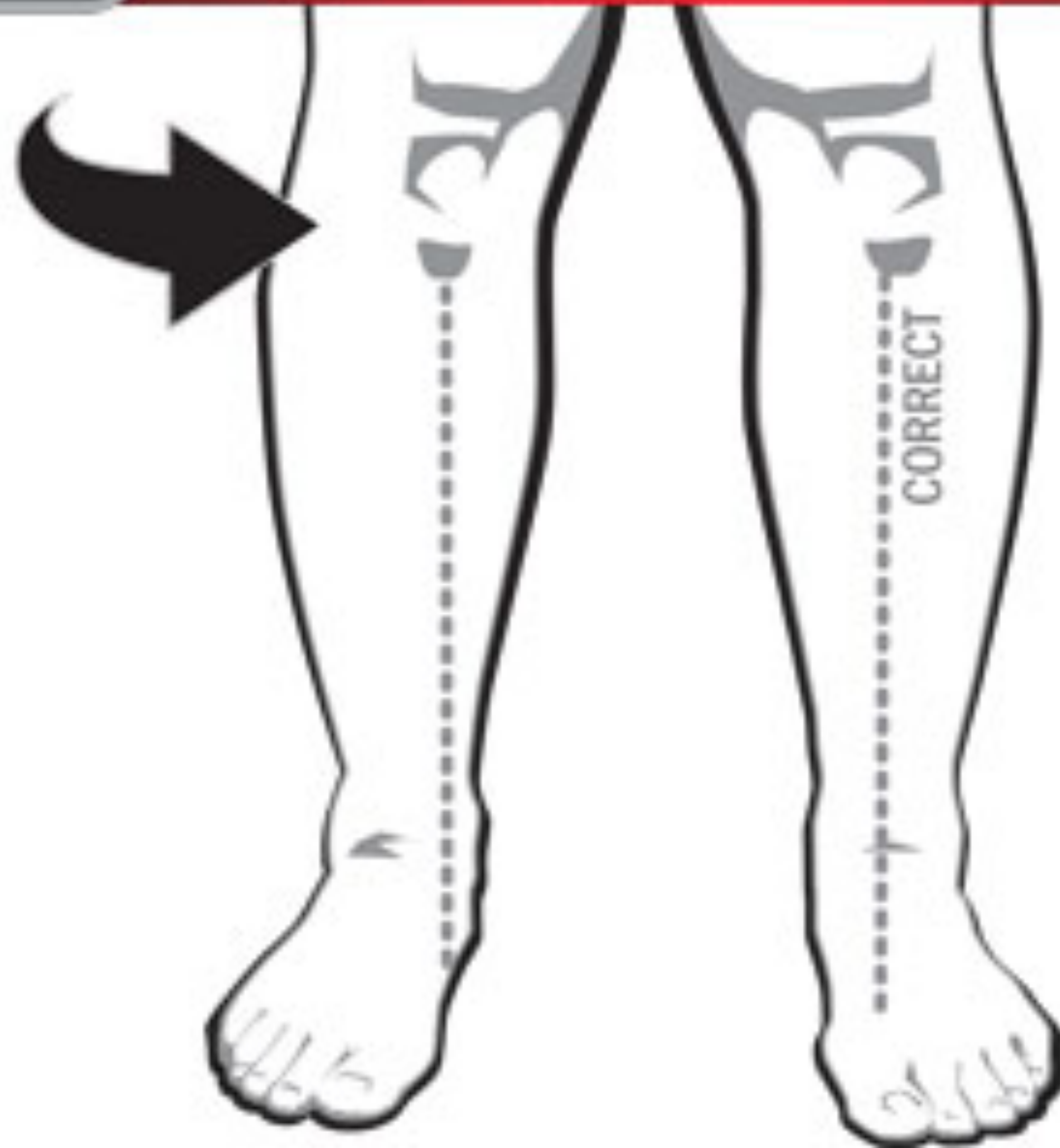
1

Foot Flare During Gait



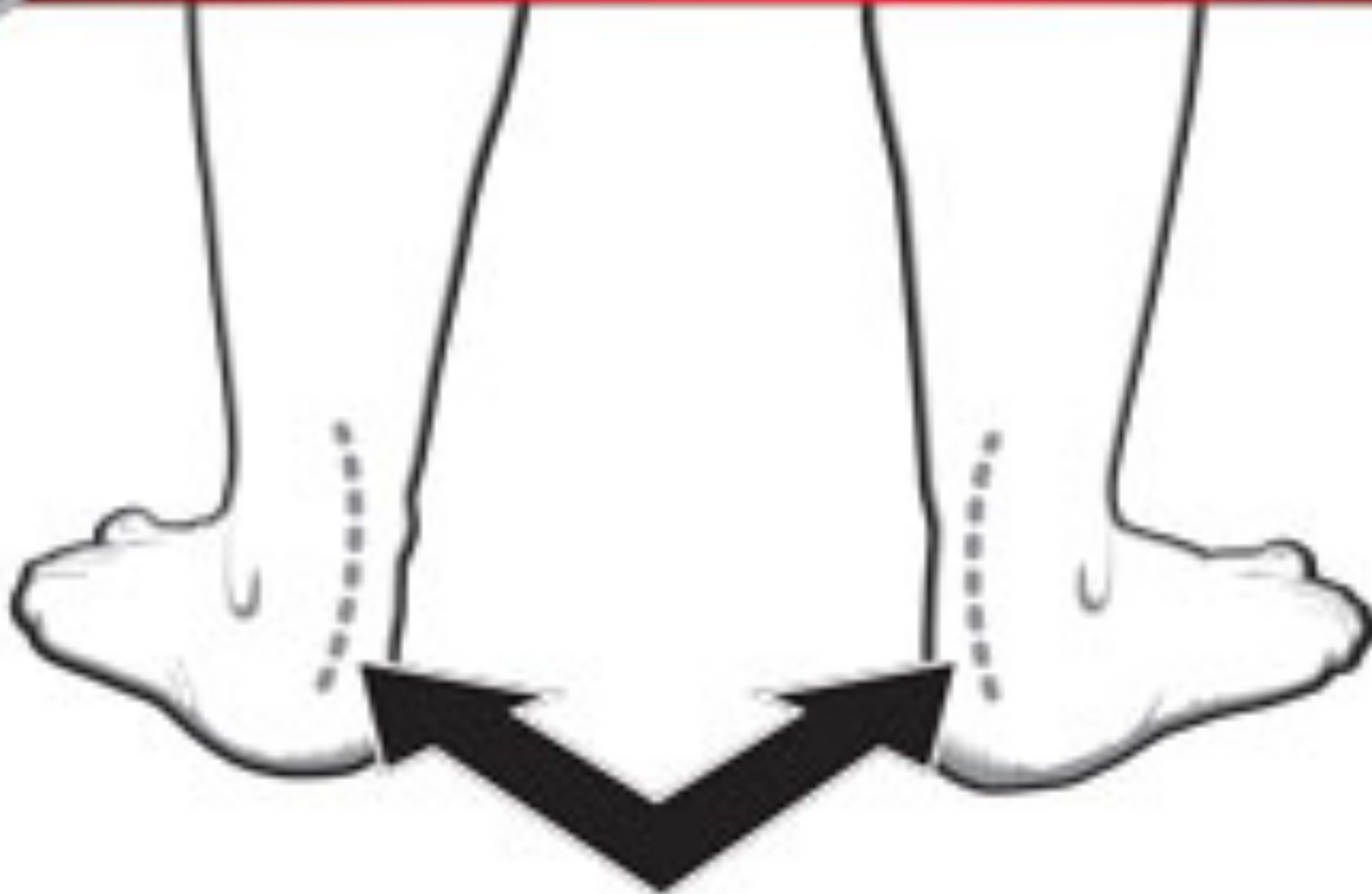
2

Internal Knee Rotation



3

Bowed Achilles Tendon



4

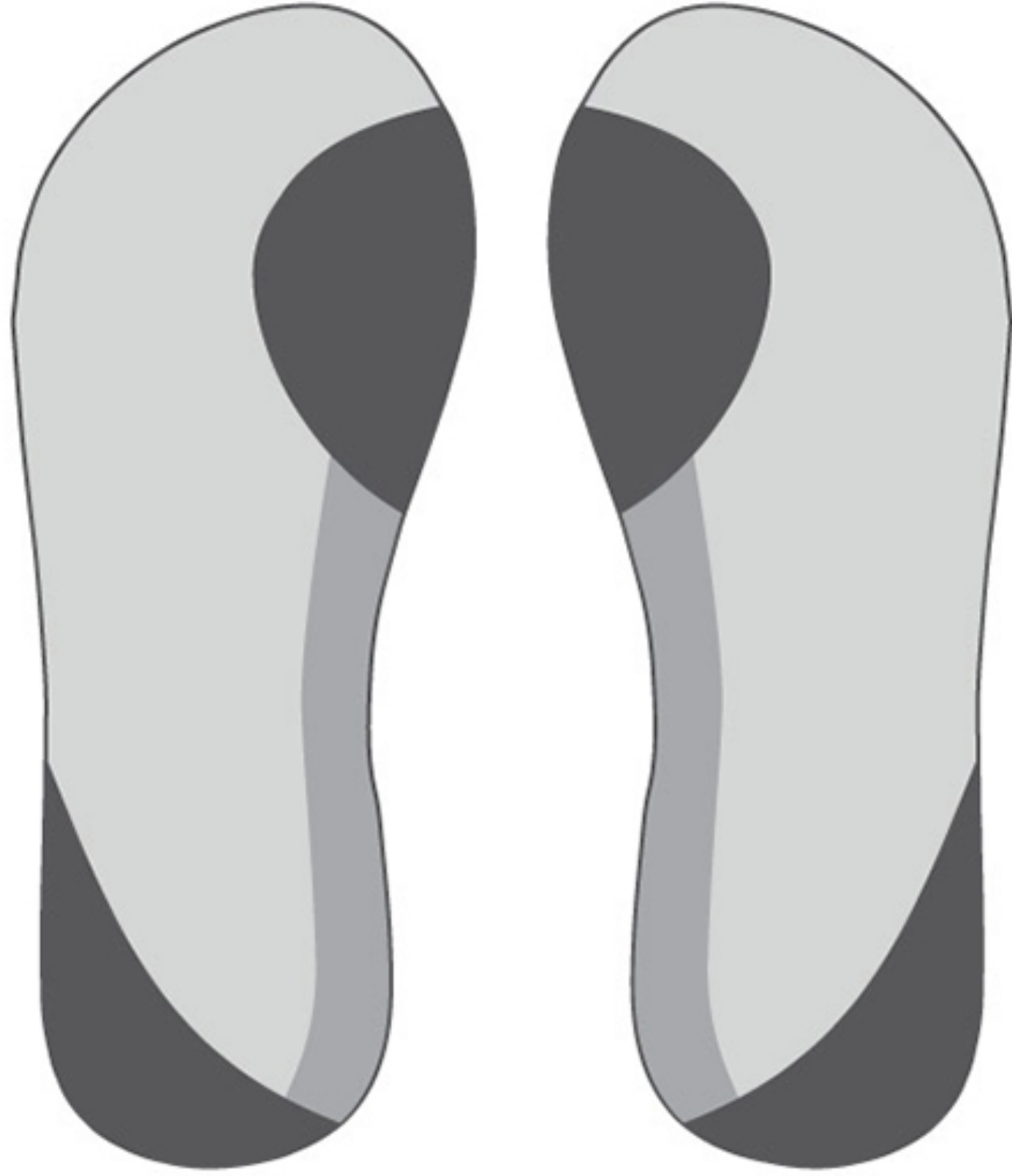
Flat Foot



5

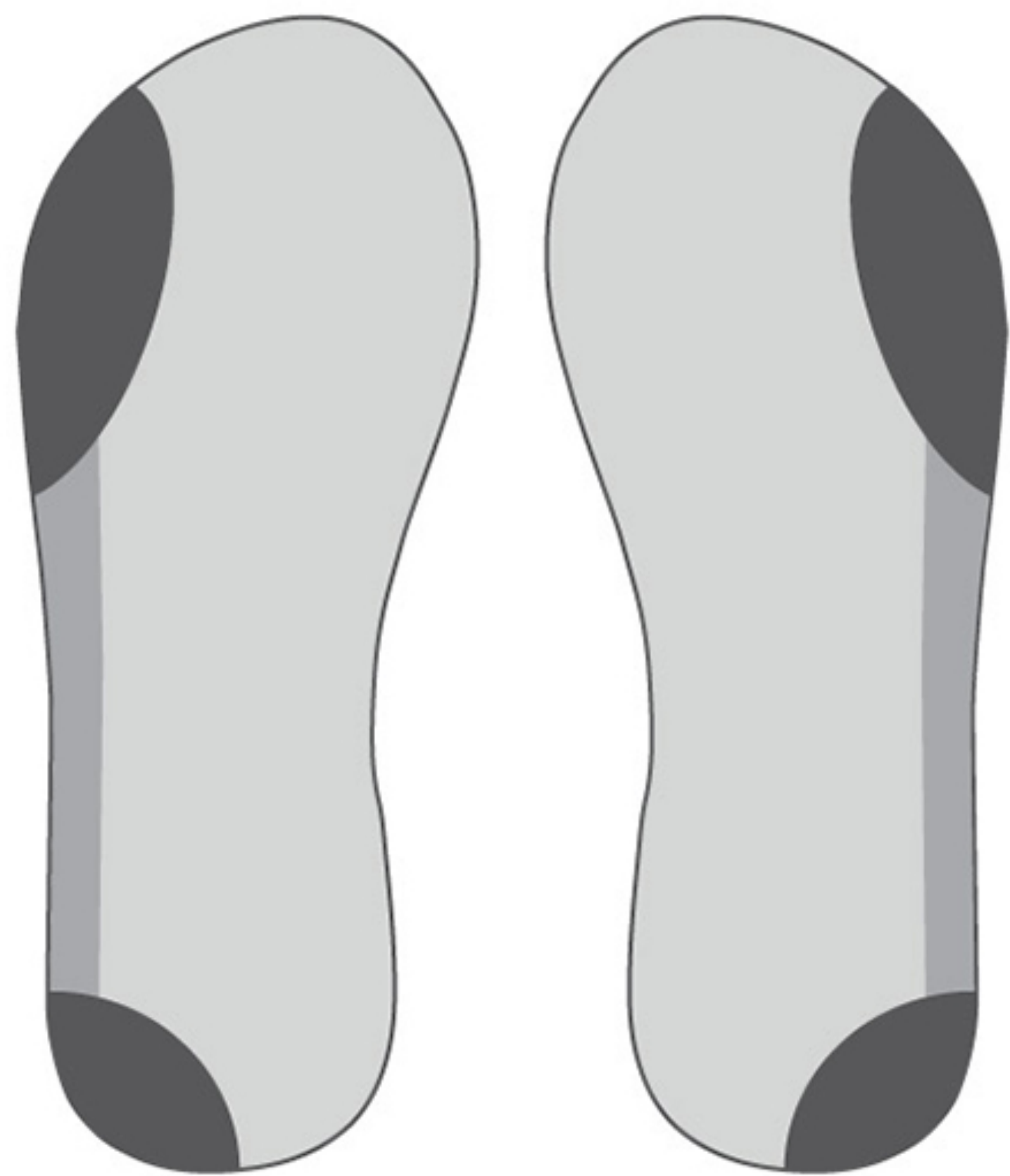
Uneven Shoe Wear





Overpronation





Oversupination

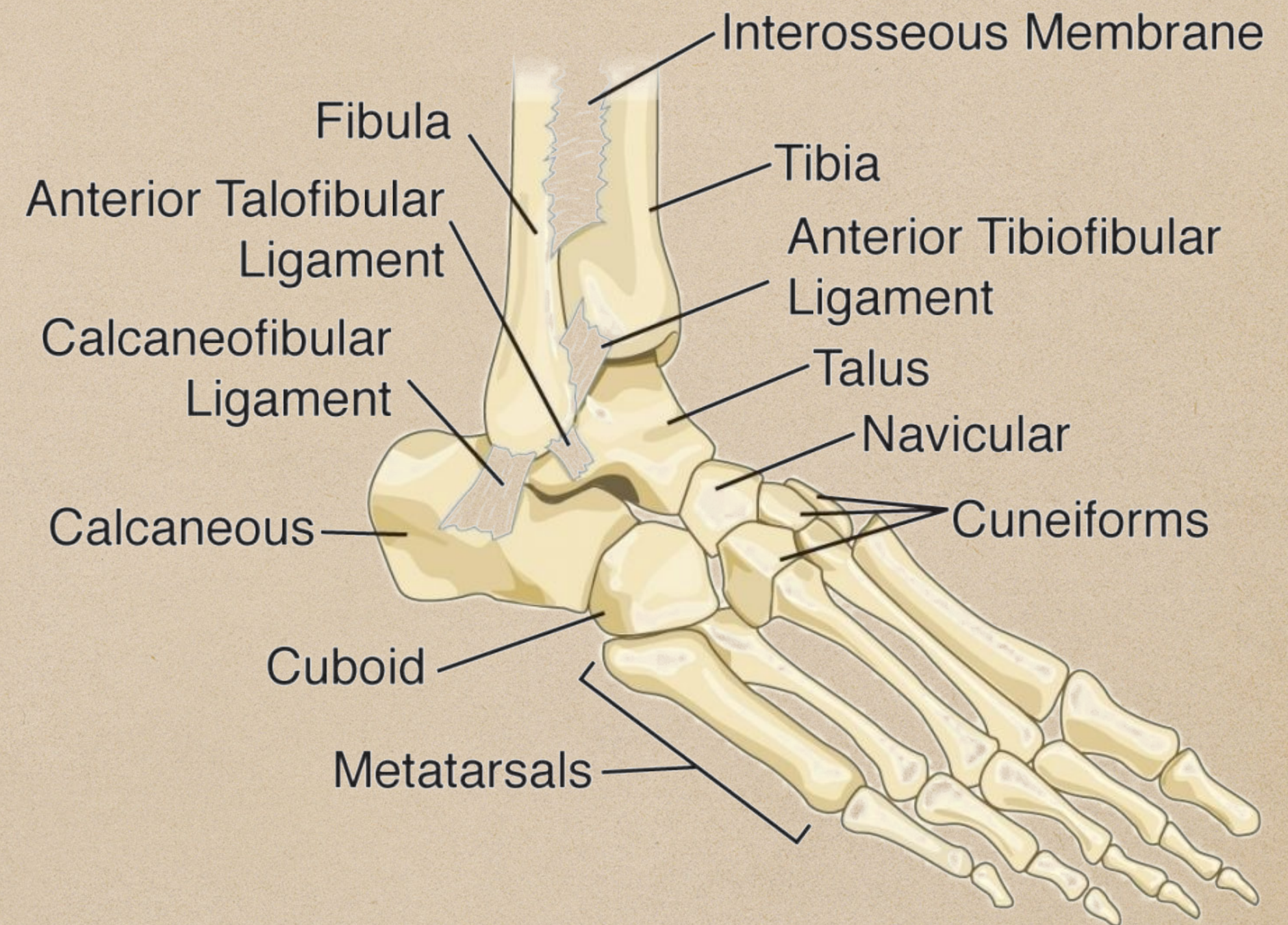


Medial Heel Wear

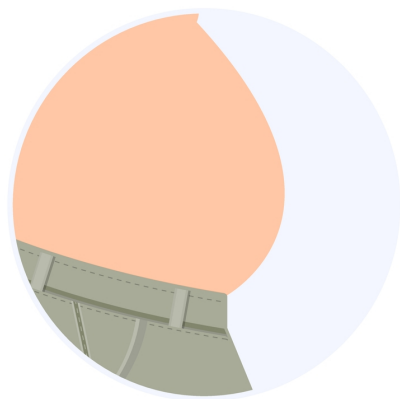
Abductory twist (aka Medial heel whip) is when the heel rises at the end of the stance phase and the foot goes into a rapid abduction. It occurs when there is excessive pronation accompanied by femoral internal rotation and tibial external rotation. This can also happen due to not enough range of motion at the ankle or big toe

Excessive Pronation Subluxation Pattern:

- ◆ Navicular- Inferior & Medial
- ◆ Cuboid- Superior & Lateral (or Inferior & Lateral) Cuneiforms- Inferior
- ◆ Metatarsal Heads 2-3-4- Inferior
- ◆ Metatarsal Heads 1 & 5- Superior and Lateral/Medial Talus- Mostly Anterior & Slightly Lateral
- ◆ Calcaneus- Everted & Plantar Flexed
- ◆ Fibular Head- Posterior & Lateral



RISK FOR DEVELOPING PLANTAR FASCIITIS



OBESITY INCREASED PRESSURE ON PLANTAR FASCIA LIGAMENTS



EXERCISE ACTIVITIES THAT PLACE A LOT OF STRESS ON HEEL



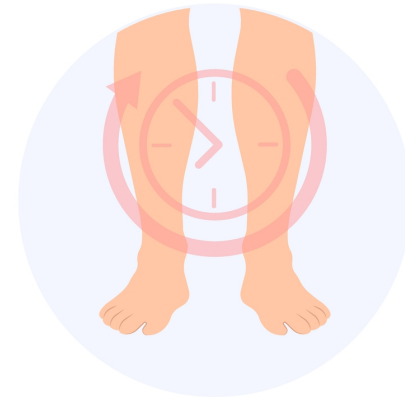
STRUCTURAL FOOT PROBLEMS



IMPROPER FOOTWEAR

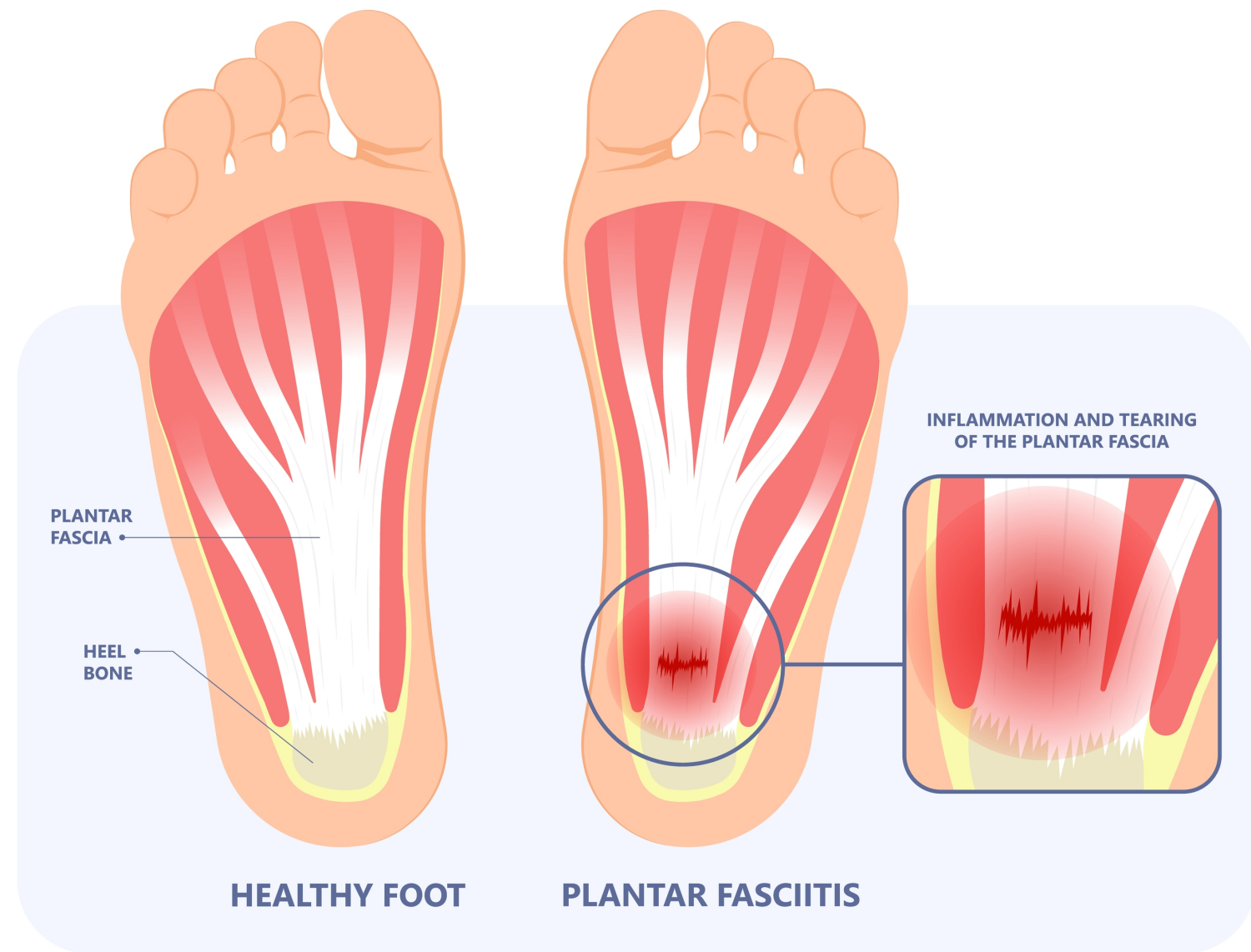
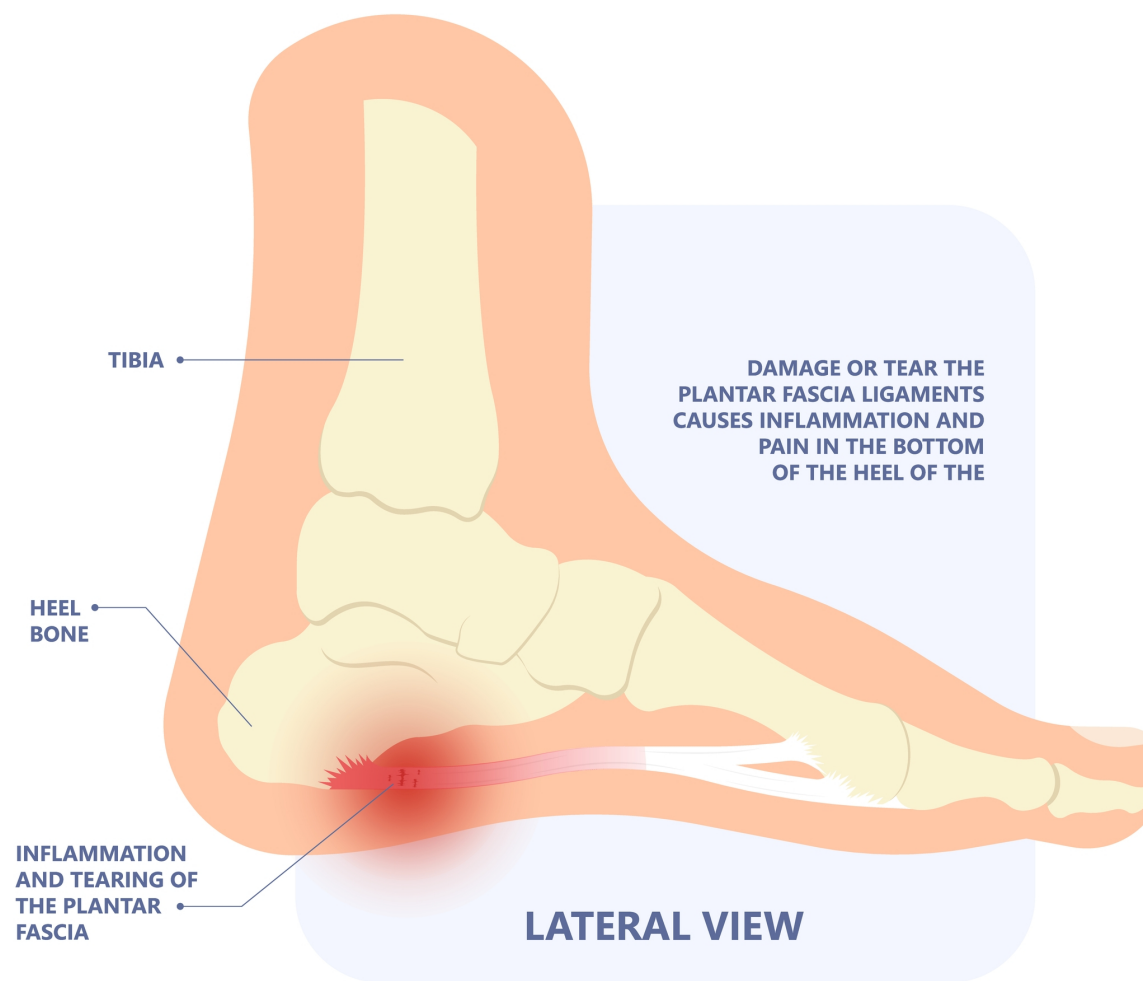


HAVE TIGHT ACHILLES TENDON



PROLONGED STANDING

PLANTAR FASCIITIS



11/20/2023

Steroid Injection Does Not Improve Plantar Fasciitis Outcomes

Medicine:

"[After 12 weeks of care for plantar fasciitis] ... The results indicate that combining a corticosteroid injection with exercise is not superior to exercise or no exercise."

Riel H, Vicenzino B, Olesen JL, Jensen MB, Ehlers LH, Rathleff MS. Does a corticosteroid injection plus exercise or exercise alone add to the effect of patient advice and a heel cup for patients with plantar fasciopathy? A randomised clinical trial. *British Journal of Sports Medicine*. 2023 Sep 1;57(18):1180-6. [Link](#)

Ski boot type

Very uncomfortable



Sock type
Less uncomfortable



04/12/2023

Plantar Fasciitis Responds to Home Stretching

Physical Therapy in Sport:

"[in patients with plantar fasciitis] A home-based stretching exercise was effective in reducing pain and some GRF [ground reaction force]-time variables ..."

Boonchum H, Sinsurin K, Kunanusornchai W, Richards J, Bovonsunthonchai S. The effect of a home-based stretching exercise on the ground reaction force generation and absorption during walking in individuals with plantar fasciitis. *Physical Therapy in Sport*. 2022 Nov 1;58:58-67. [Link](#)

Hour 2

The Pronated Foot Protocol and Adjusting Technique



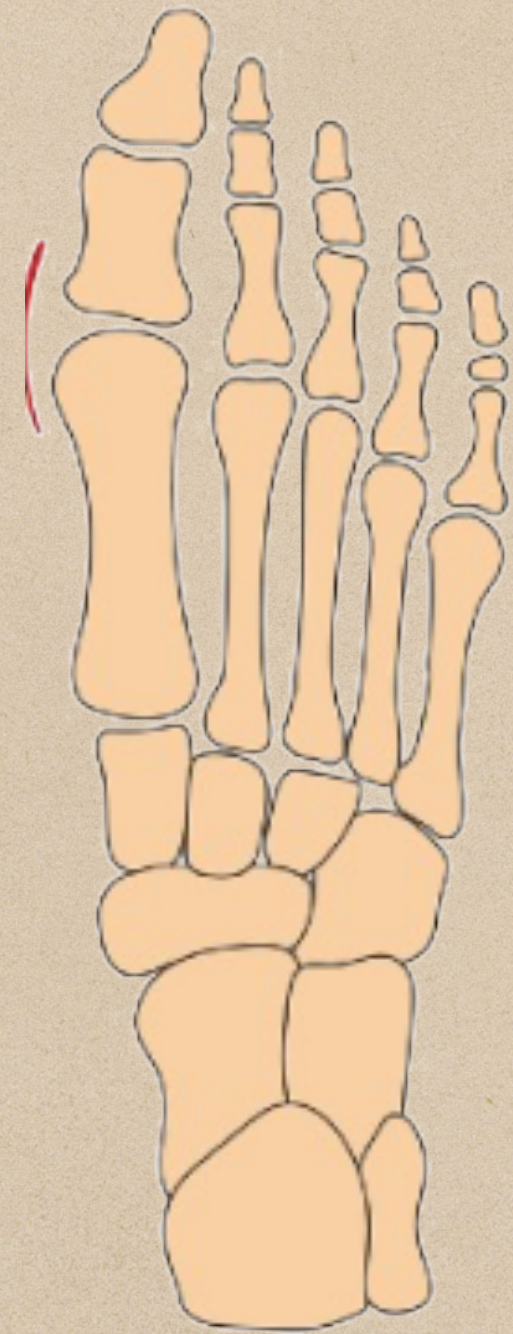
Associated Adjustments

Halux Abducto Valgus - 6 months to 1 year becomes fibrotic. Can only occur on a pronated foot. Causes Bunions.

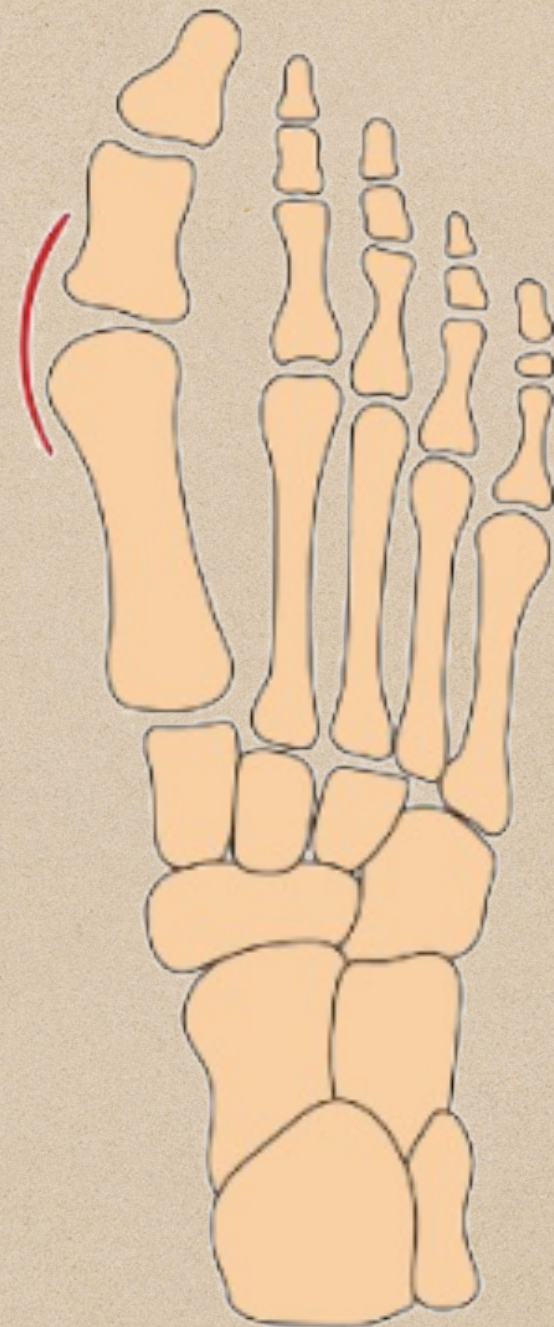
Do not push the toe in the opposite direction of the subluxation. Instead, pull toe in the line of the metatarsal shaft.



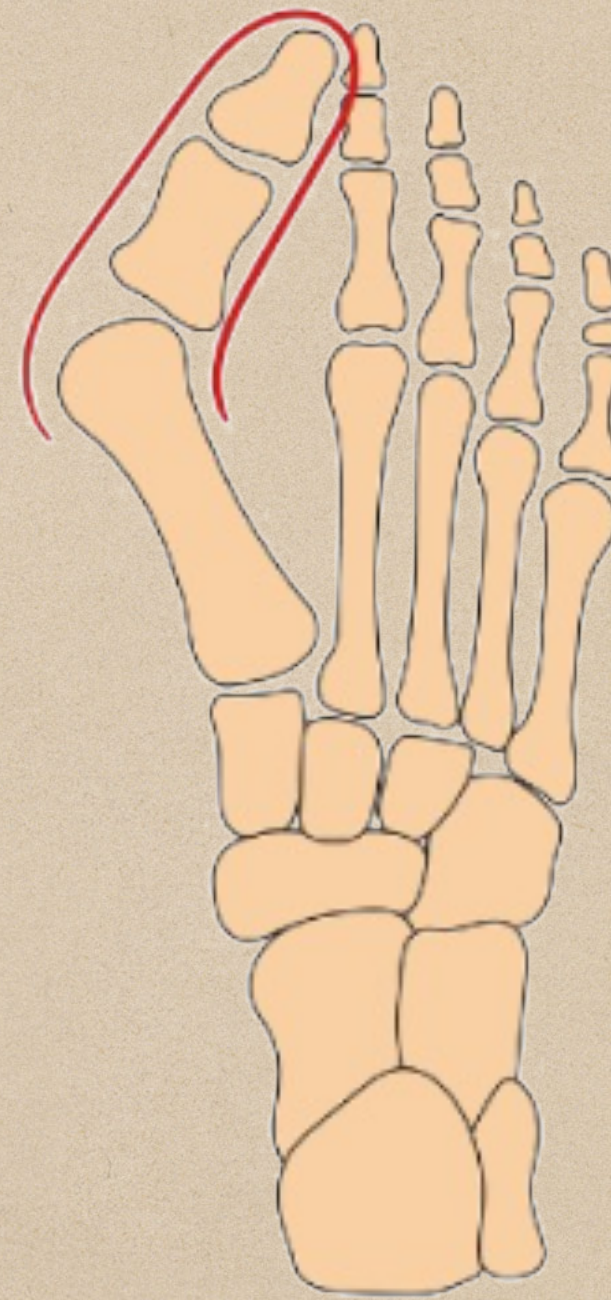
Hallux valgus types



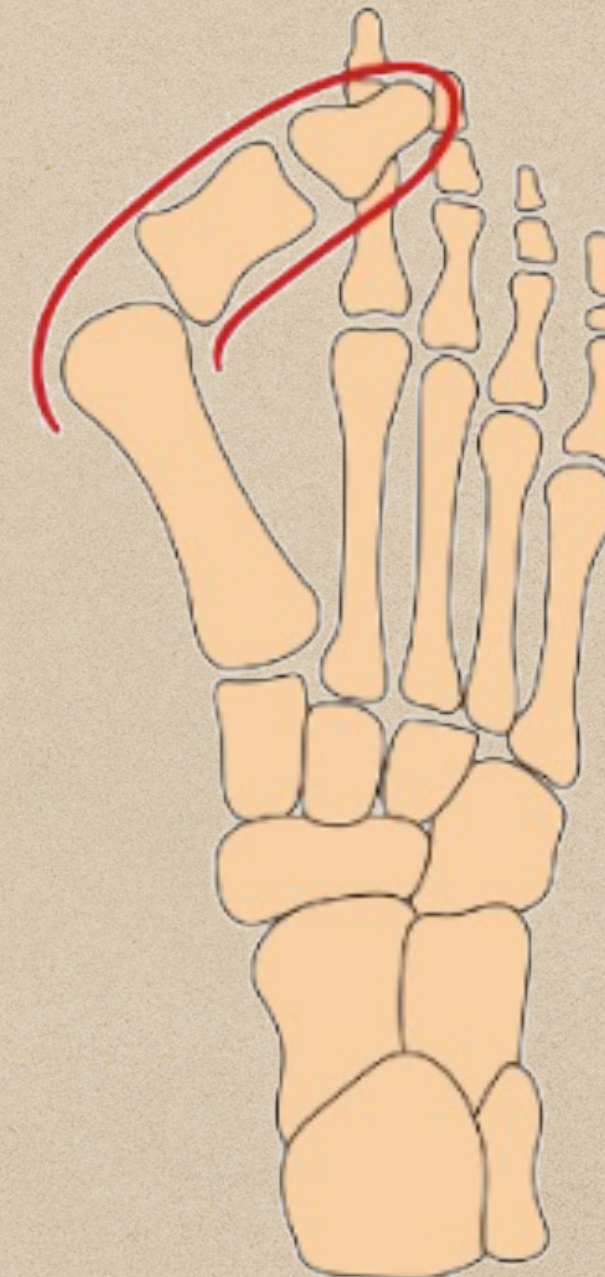
1 stage
(to 10°)



2 stage
(to 20°)



3 stage
(to 30°)



4 stage
(to 30°)



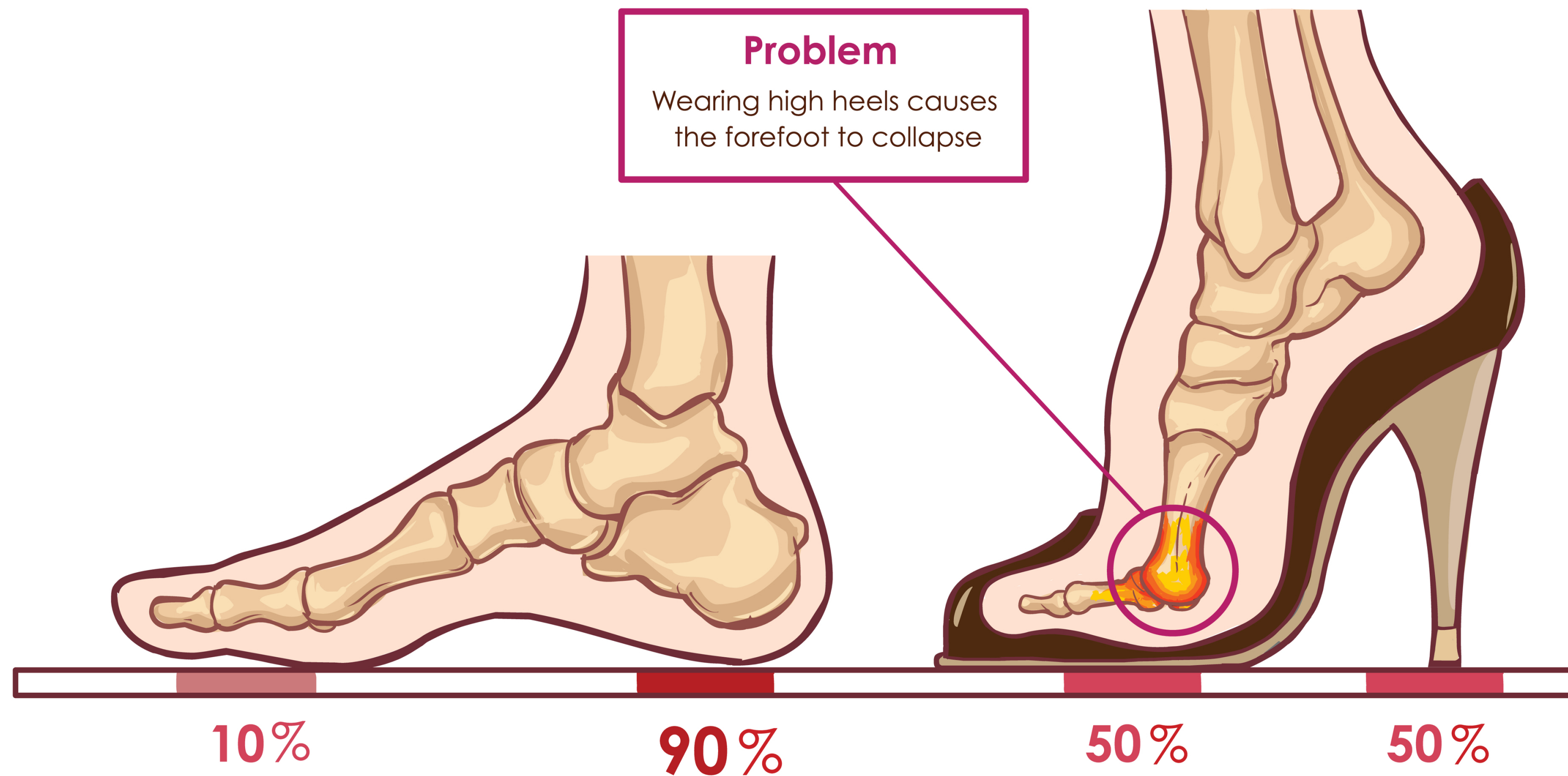
Plastic Deformation:

Low intensity forces for prolonged periods of time create
PERMANENT plastic changes

Demonstrate to patients with plastic wrap (foil)



WEIGHT DISTRIBUTION



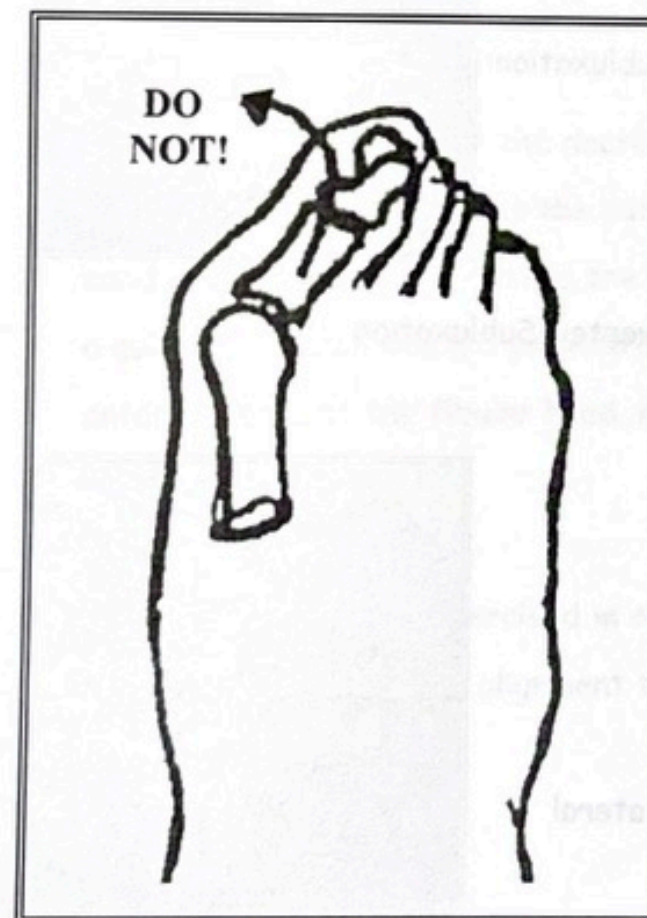
Associated Pronation Protocol Adjustments

Hallux Valgus

This condition is described as a deviation of the first toe away from the midline. It is most common on the excessively pronated foot with many contending that it is always associated with excessive pronation. I strongly recommend that this adjustment be used only when the patient has a symptomatic joint.

ADJUSTMENT:

The doctor stabilizes the lateral border of the foot with the "outside" hand while "inside" hand index finger contacts medial border of foot and thumb is over the shaft of the big toe. The thrust is a "pull" directly toward the doctor in alignment with the shaft of the 1st metatarsal. At the end of the pull-type thrust, the doctor releases the contact. This should be repeated 2-3 times.



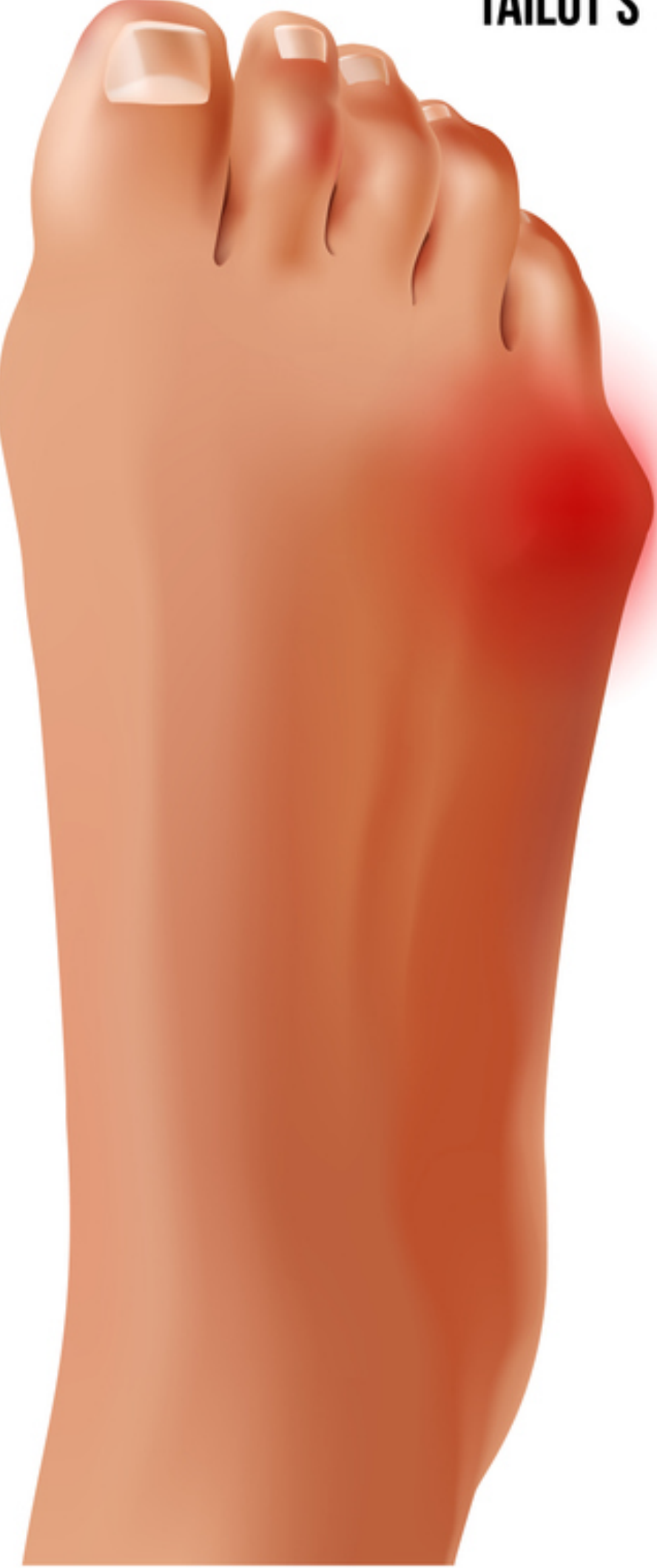
Great care should be exercised by the doctor so as not to pull in a medial/varus direction as there is a possibility of a sprain of the metatarsal-interphalangeal capsule.

BUNION TYPES

HALLUX VALGUS



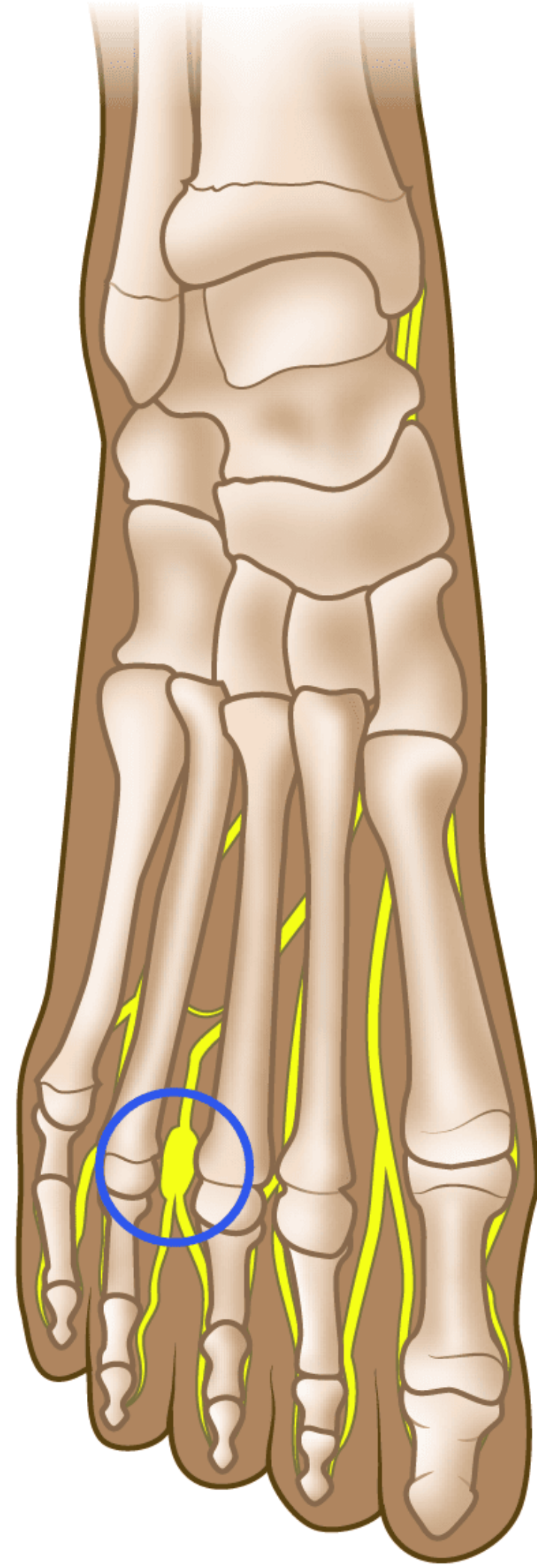
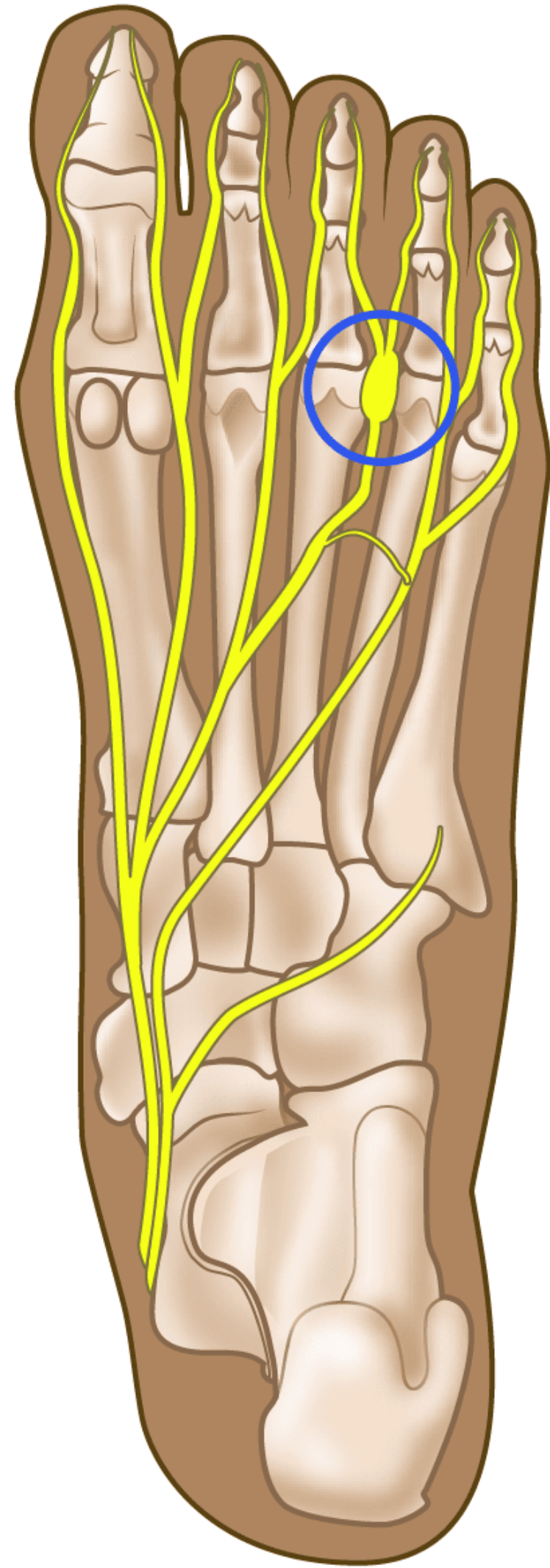
TAILOOT'S BUNION



**Bunion - a soft tissue growth on the apex
of a hallux valgus**







Morton's neuroma - a thickening of the tissue around one of the nerves leading to
the toes

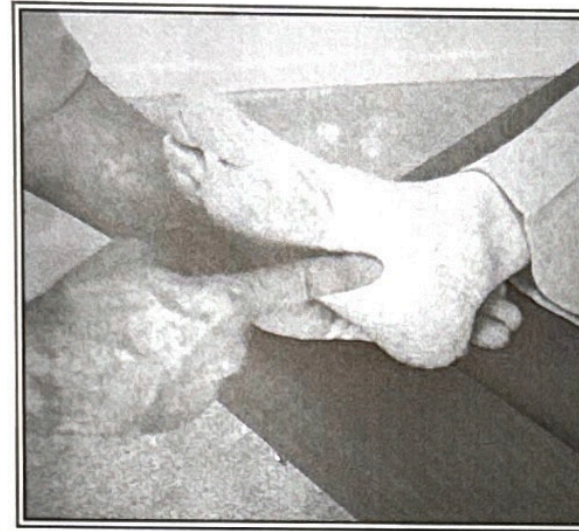
- sharp, burning pain in the ball of the foot
- stinging, burning or numbness in the affected toes

Excessive Supination Subluxation Pattern:

Bones	Subluxation Direction
Cuboid	Superior & Lateral
Cuneiforms	Superior
Navicular	Superior & Lateral
Metatarsal Heads 2-3-4	Superior
Metatarsal Heads. 1&5	Inferior and Lateral/Medial
Talus	Slightly Anterior & Mostly Lateral
Calcaneous	Inverted & Dorsiflexed
Fibular Head	Posterior & Lateral

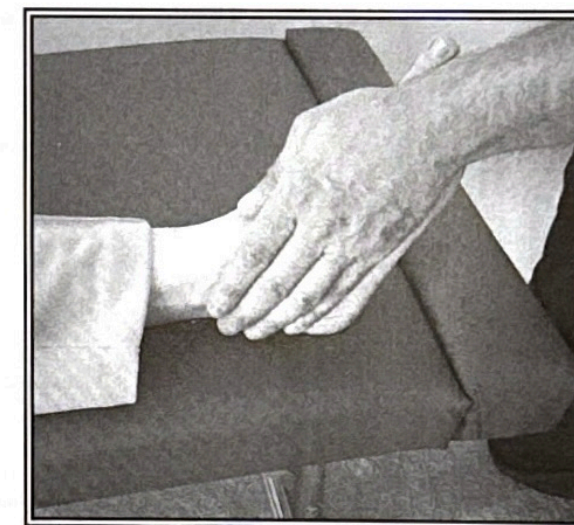
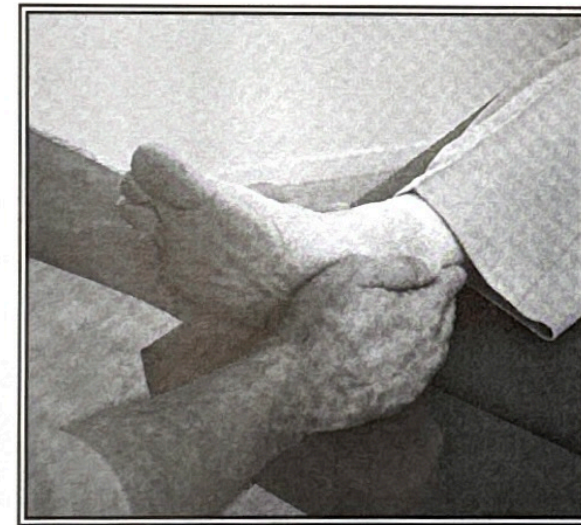


The Navicular - Inferior and Medial Subluxation



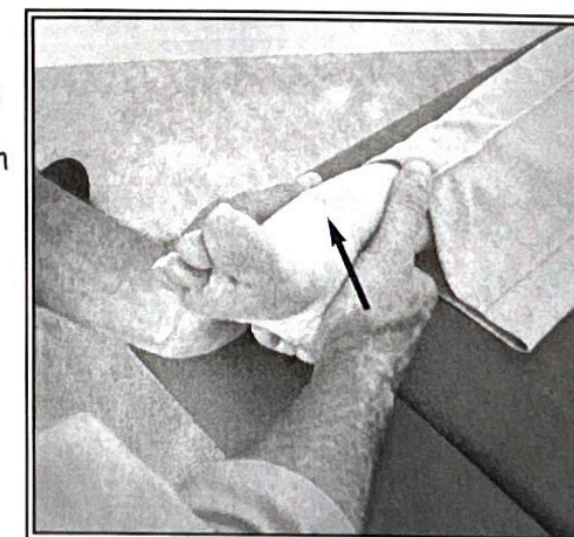
At the height of the medial longitudinal arch, on the plantar surface of the foot, approximately 1/2 inch lateral to the medial border of the foot is the CONTACT POINT. This point is frequently tender prior to an adjustment.

Doctor contacts the CONTACT POINT with the thenar of the "inside" hand. Stabilization is via the flat palm of the "outside" hand contacting the lateral aspect of the foot and ankle.



With both hands contacting the foot, the doctor brings the foot and ankle to its inversion TENSION point and (without "winding-up") the doctor thrusts with the thenar of the "inside" hand towards the lateral malleolus which is in a superior and lateral direction.

It should be noted that this is a dynamic thrust and audible release with this adjustment is not typical. Caution should be exercised by the chiropractor when an inversion sprain has occurred since this adjustment can aggravate the effects of excessive ankle/foot inversion.







CUBOID - Superior and Lateral Subluxation

I often refer to this adjustment as "The Money Adjustment" because it is one of the most powerful adjustments a chiropractor can render to a patient. The manual adjustment of the superior and lateral cuboid subluxation is an essential component to proper foot function. This pattern apparently occurs due to the repeated forced excessive inversion of the ankle/foot as in the inversion sprain.

The ligaments on the lateral aspect of the ankle (anterior tibiofibular, posterior tibiofibular, anterior talofibular, calcaneofibular, and posterior talofibular) will become plastically deformed to some degree and contribute to the persistence of this subluxation.

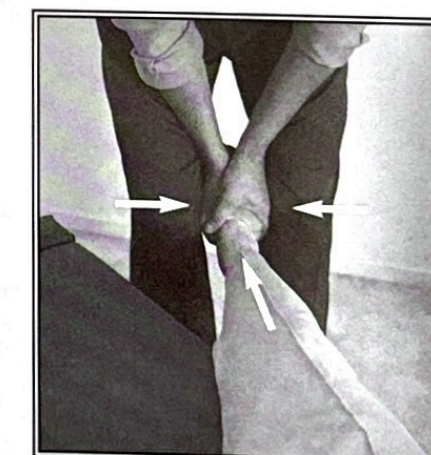


The CONTACT POINT on the patient is located on the superior and lateral aspect of the foot directly over the cuboid. The chiropractor will usually notice some degree of plastically deformed tissue in and around the area of the extensor digitorum brevis.

The doctor puts the distal interphalangeal joint of the thumb of the "inside" hand on the superior aspect of the contact point while the palm of the "outside" hand contacts directly over the inside hand. With both hands on the patient's foot, it is moved laterally off the table and placed between the doctor's slightly bent knees. For doctor comfort, make sure that the dorsums of the doctor's hands are contacting the posteriomedial aspect of the knees.



The thrust is a combination of 1) squeezing the hands and knees together and 2) extending the knees. The thrust or "pull" is fast but not extremely forceful.



Caution should be exercised as this adjustment may be contraindicated in the patient with hip/knee prostheses.





Calcaneus - Plantarflexed and Everted Subluxation/Fixation

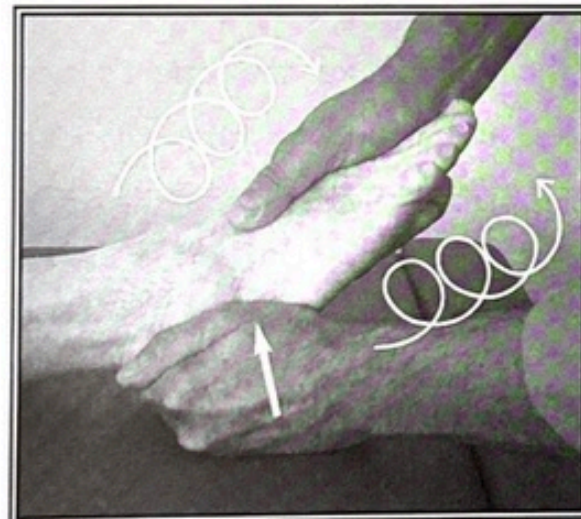
In order to avoid having the patient change to a prone position for this adjustment, I adjust the calcaneus with the patient in the supine position.



ADJUSTMENT:

Doctor contacts patient's calcaneus with palmar surface of "outside" hand and the thenar contacting the lateral aspect of the calcaneus.

The "inside" hand "shakes hands" with patient's midfoot.



The thenar of the "outside" hand applies constant lateral to medial pressure as the "inside" hand performs several clockwise and counterclockwise rotations.

It is typical for the doctor to hear a crepitus-type sound that decreases with subsequent rotations of the foot.

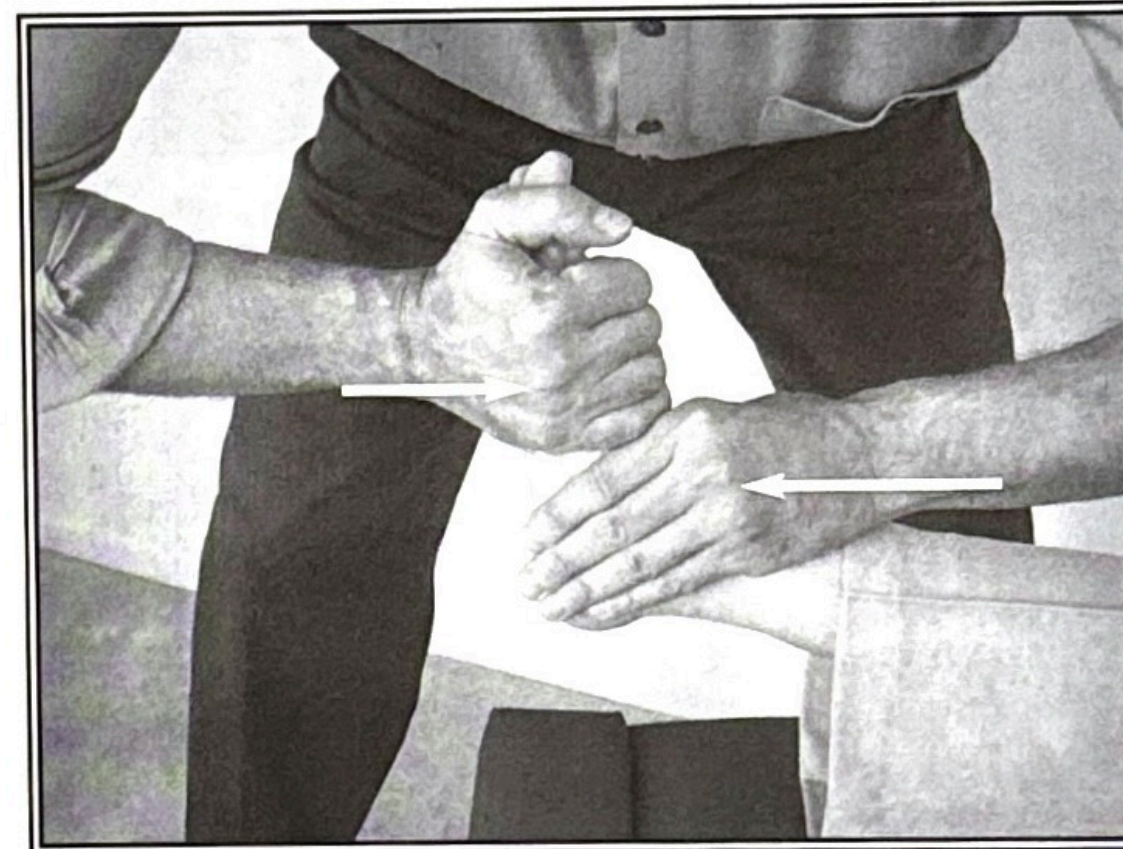
The Cuneiforms - Inferior Subluxation

The first, second and third cuneiforms will subluxate in an inferior direction as a unit. This procedure is designed to create a sheer force and adjust the cuneiforms in a superior direction.



With patient supine, the doctor stands on the involved foot side facing the opposite leg. Doctor's "headward" hand makes a "U" shape and stabilizes the hindfoot with the fingerpads contacting the medial aspect of the calcaneus.

The anteromedial aspect of the doctor's "footward" hand contacts the plantar surface of the foot under the cuneiforms. Make sure that the doctor's forearms are as parallel as possible to the patient's tibia.



The "headward" hand applies inferior traction as the "footward" hand thrusts superior. It is not common to hear an audible release but instead a "sliding" type of motion. Be aware that the cuneiforms are some of the most mobile bones in the foot.

The Talus - Anterior and Lateral Subluxation/Fixation

LITTLE FINGER CONTACT ADJUSTMENT:



Thumbpads of doctor's hands contact the 2nd, 3rd, and 4th metatarsal heads while both little fingers contact the contact point on patient. TENSION is achieved by adding inferior traction and slight dorsiflexion to the joint. Thrust is a "scooping" type action in an anterior to posterior and lateral to medial direction. Again, the doctor is reminded that this is a quick thrust NOT a forceful thrust.



A relatively loud audible release is typically heard when this adjustment is performed on an anterolateral subluxated/fixated talus.





The Metatarsal Heads

Upon forefoot loading in the midstance phase of the gait, the 2nd, 3rd, and 4th metatarsal heads will subluxate/fixate in an inferior direction. The 1st metatarsal head will subluxate/fixate in a superior and medial direction while the 5th metatarsal head subluxates/fixates in a superior and lateral direction.



The CONTACT POINTS are located on the plantar surface of the foot under the 2nd, 3rd, and 4th metatarsal heads. Doctor places his or her thumb pads on the contact point while the palmar surfaces of the fingers contact the dorsum of the foot.



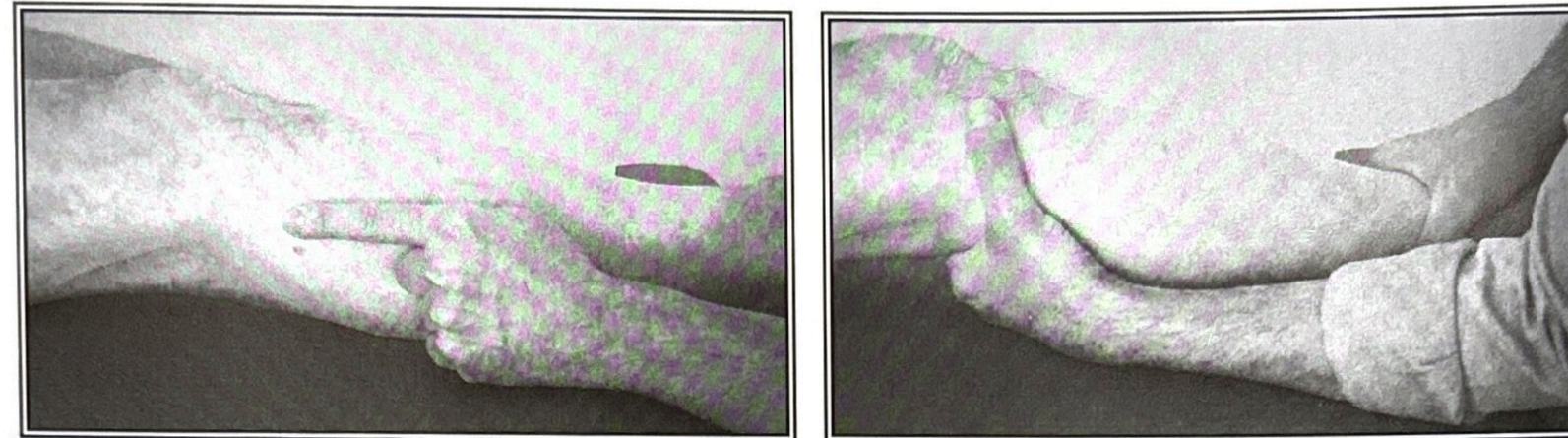
This procedure is a 4 to 5 repetition "squeeze" as opposed to a dynamic thrust. The thumbpads push superior as the fingers pull lateral/medial in a smooth and slow motion.

Any degree of discomfort around the metatarsal heads while adjustment is being performed indicates some degree of metatarsalgia.

Fibular Head - Posterior and Lateral Subluxation/Fixation

Though the fibular head is part of the knee complex, I adjust it as part of the pronation protocol. It is typical for the doctor to find point tenderness on the posterior and/or lateral aspect(s) of the fibular head with this subluxation/fixation.

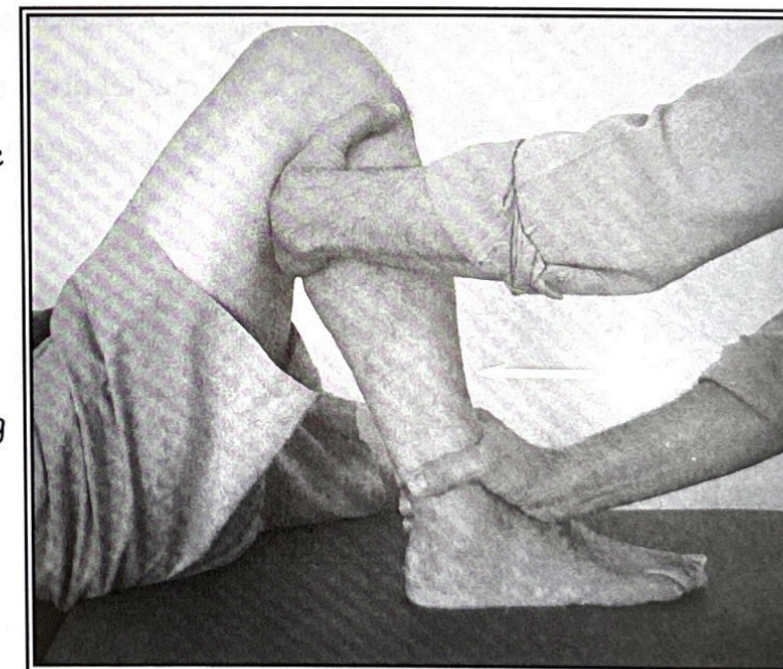
ADJUSTMENT:



With the doctor standing on the lateral aspect of the patient's leg, doctor's "inside" hand grasps patient's lower leg slightly above the ankle while the index finger of the "outside" hand locates the fibular head. This same index finger will take a tissue pull on the fibular head in an anterior to posterior direction followed by a tissue pull in a lateral to medial direction. The 1st metacarpal-interphalangeal joint should be contacting the posterior aspect of the fibular head and the doctor should not be able to see his/her 1st metacarpal-interphalangeal joint. This knuckle is acting as a fulcrum and does not move after this placement.

With the "inside" hand of the doctor grasping the patient's ankle, the doctor flexes the patient's knee and approximates the heel to the buttocks. When TENSION is achieved, doctor thrusts with the "inside" hand approximating the heel to the buttocks in a quick short arc. This will provide a posterior to anterior force on the fibular head. A "crisp" audible release is common.

Great care should be exercised in order to keep the foot, knee and hip in alignment to avoid inducing tibial rotation.

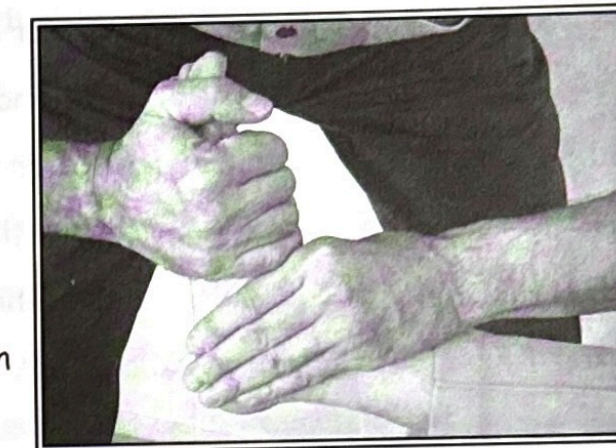


Summary - Pronation Protocol

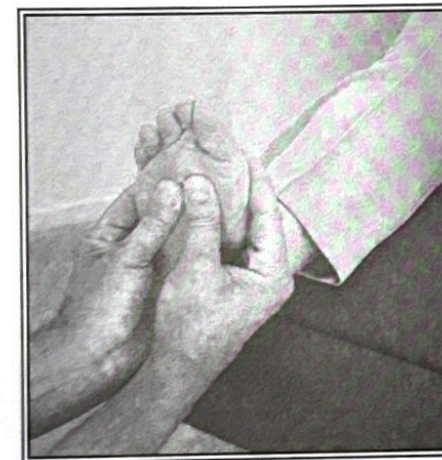
1. Navicular — Inferior and Medial Subluxation



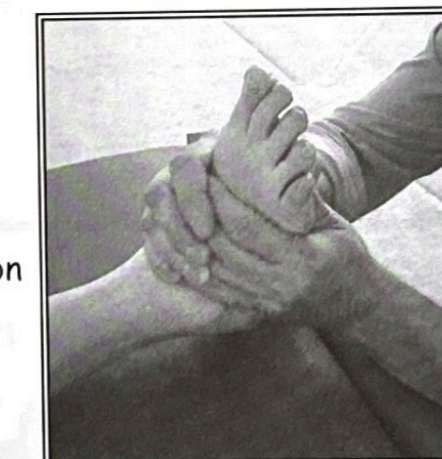
2. Cuboid — Superior and Lateral Subluxation



3. Cuneiforms — Inferior Subluxation



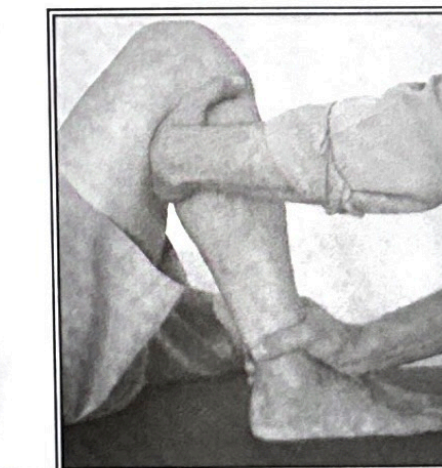
4. Metatarsal Heads
2nd-3rd-4th — Inferior Subluxation
1st — Superior Medial Subluxation
5th — Superior Lateral Subluxation



5. Talus — Anterior and Lateral Subluxation



6. Calcaneus — Plantarflexed and Everted Subluxation



7. Fibular Head — Posterior and Lateral Subluxation

INDICATORS OF EXCESSIVE SUPINATION

1.	Combination of Inversion, Plantar flexion and Adduction
2.	Excessively high arches - negative navicular drop test
3.	Achilles tendons bow laterally ()
4.	Grade 4 muscle response of psoas, gluteus medius, & quadriceps

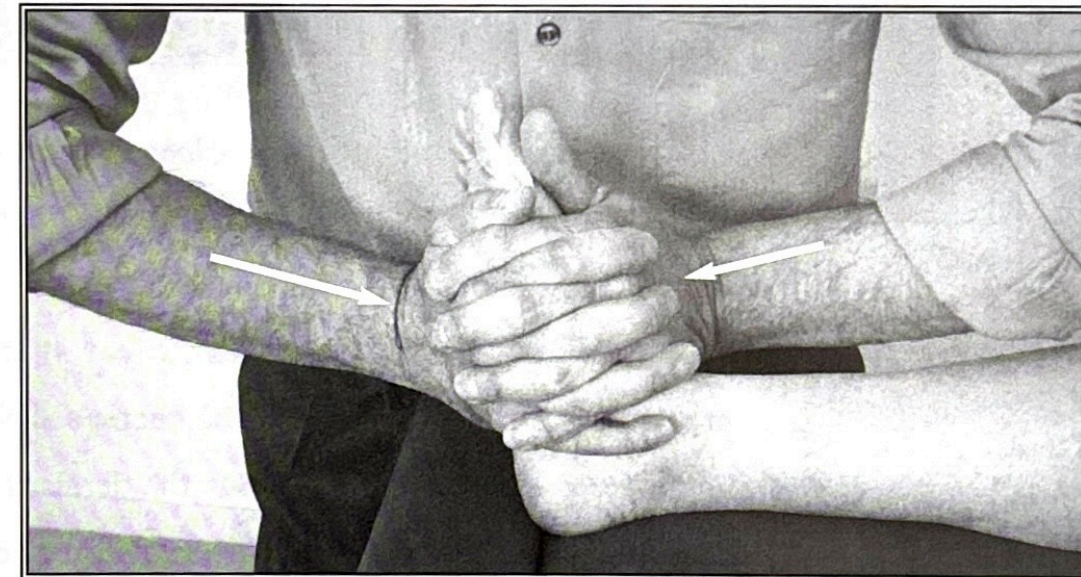
SUPINATION PROTOCOL

Navicular and Cuneiforms

Navicular — Superior and Lateral Subluxation/Fixation

Cuneiforms — Superior Subluxation/Fixation

ADJUSTMENT:



The doctor stands on the lateral aspect of the patient's foot with the fingers of the "headward" and "footward" hands interlaced along the medial border of the patient's foot.

TENSION is achieved by squeezing the hands together gently. The thrust is via the "headward" hand in a superior to inferior direction.

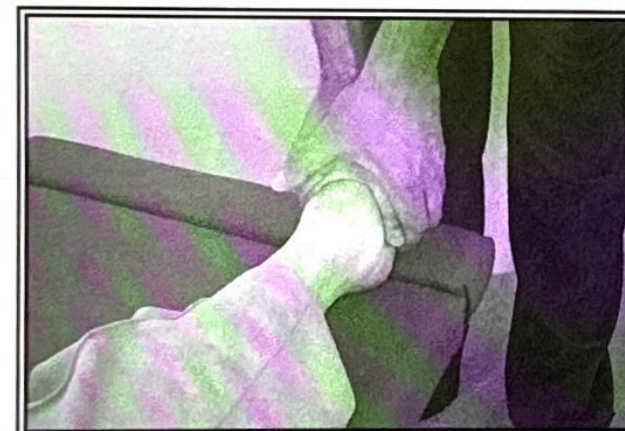
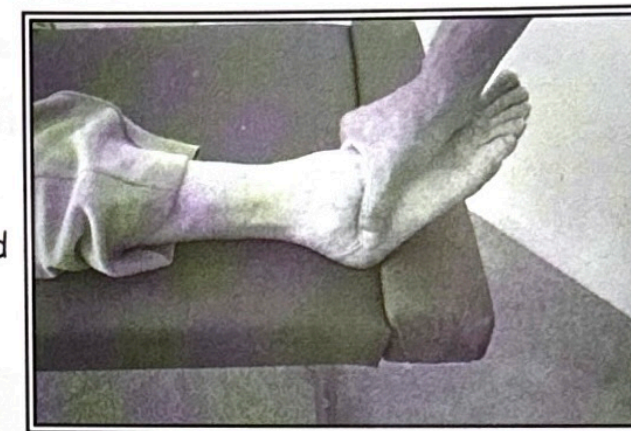
CUBOID — Superior and Lateral Subluxation

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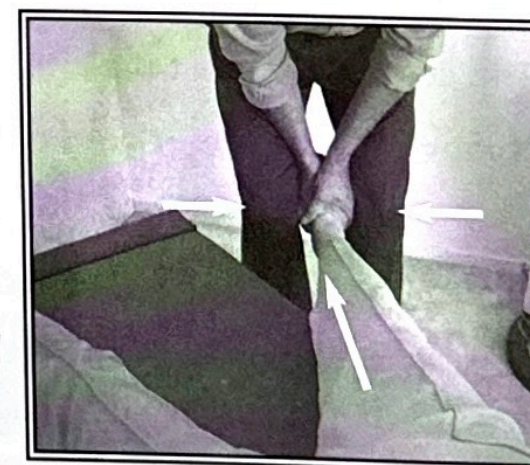
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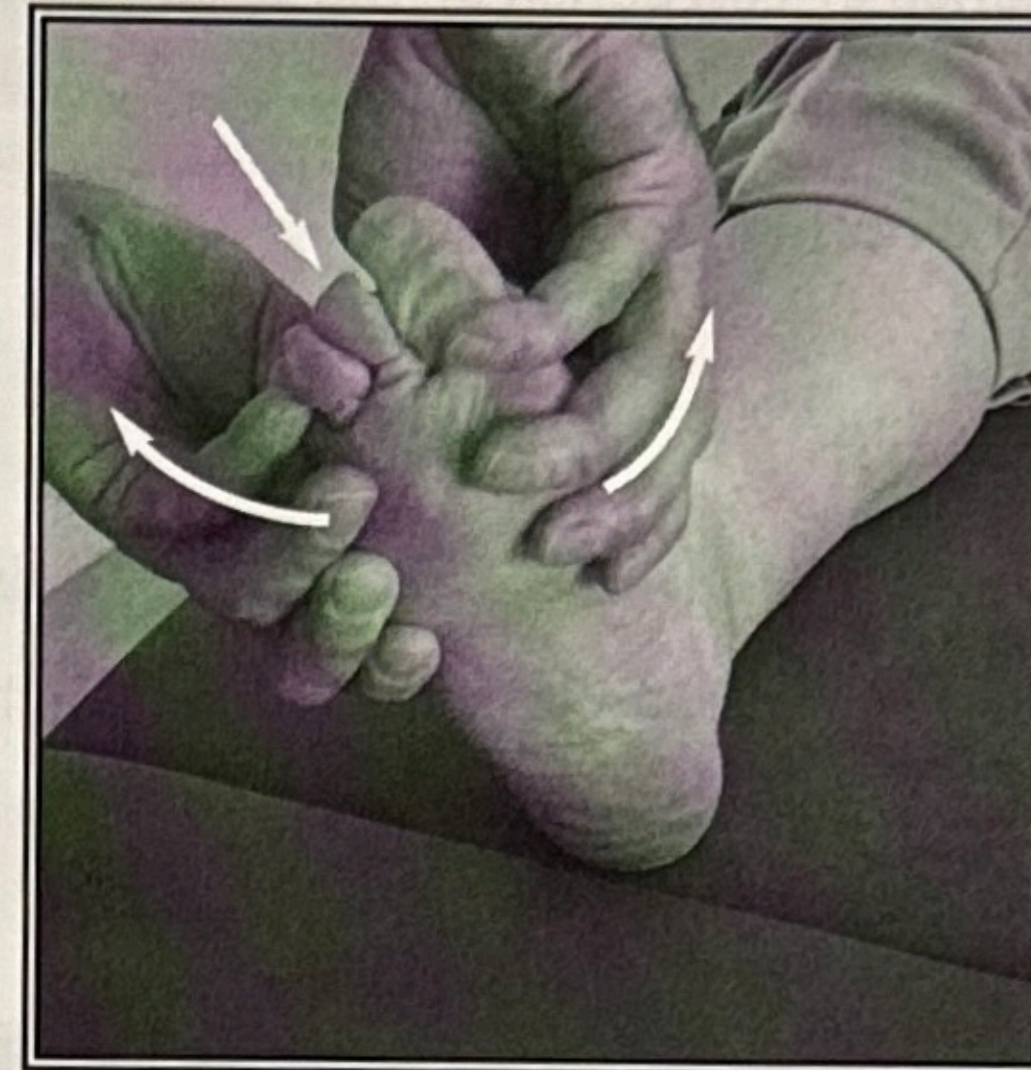
The thrust is a combination of 1) squeezing the hands and knees together and 2) extending the knees. The thrust or "pull" is fast but not extremely forceful.

Caution should be exercised as this adjustment may be contraindicated in the patient with hip/knee prostheses.



Metatarsal Heads
2nd-3rd-4th - Superior Subluxation/Fixation
1st and 5th - Inferior Subluxation/Fixation

ADJUSTMENT:



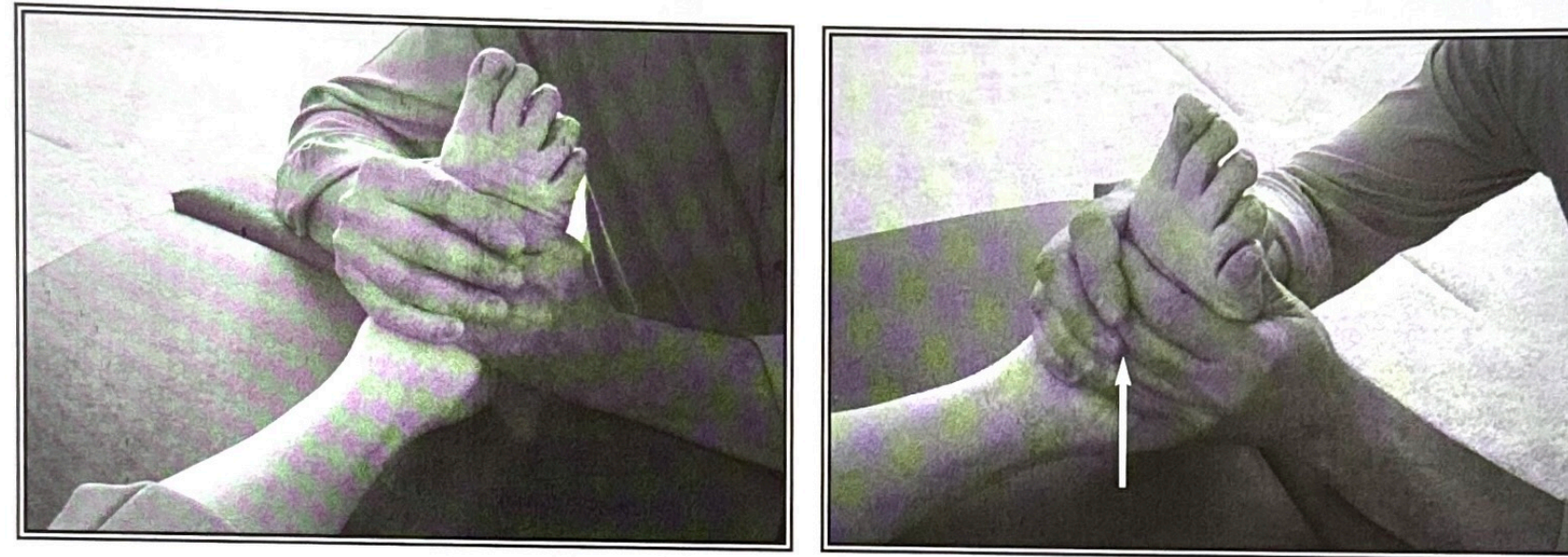
The doctor places the thumb pads of his/her hands on the dorsal surface of the 2nd, 3rd, and 4th metatarsal heads and finger pads on the plantar surface of the forefoot. Adjustment is achieved via a 4 to 5 repetition "squeeze". With the thumb pads, the doctor presses in a superior to inferior direction while the finger pads "pull" in medial and lateral directions.

Talus - Lateral and Anterior Subluxation/Fixation

In both the pronation and supination subluxation patterns the talus subluxates/fixates in an anterior and lateral direction. However, in the pronation pattern the talus subluxates/fixates in a mostly anterior direction and in the supination pattern the talus subluxates/fixates in a mostly lateral direction. Therefore, the direction of correction of the talus in the pronation pattern is in a primarily anterior to posterior direction while the direction of correction of the talus in the supinated pattern is in a primarily lateral to medial direction.

ADJUSTMENT:

With both little fingers of the doctor's hands overlapped on the junction of the talus and cuboid and doctor's thumb pads on the plantar surface of the 2nd, 3rd, and 4th metatarsal heads, the doctor tractions the foot inferiorly and adds slight dorsiflexion to bring the foot to TENSION.



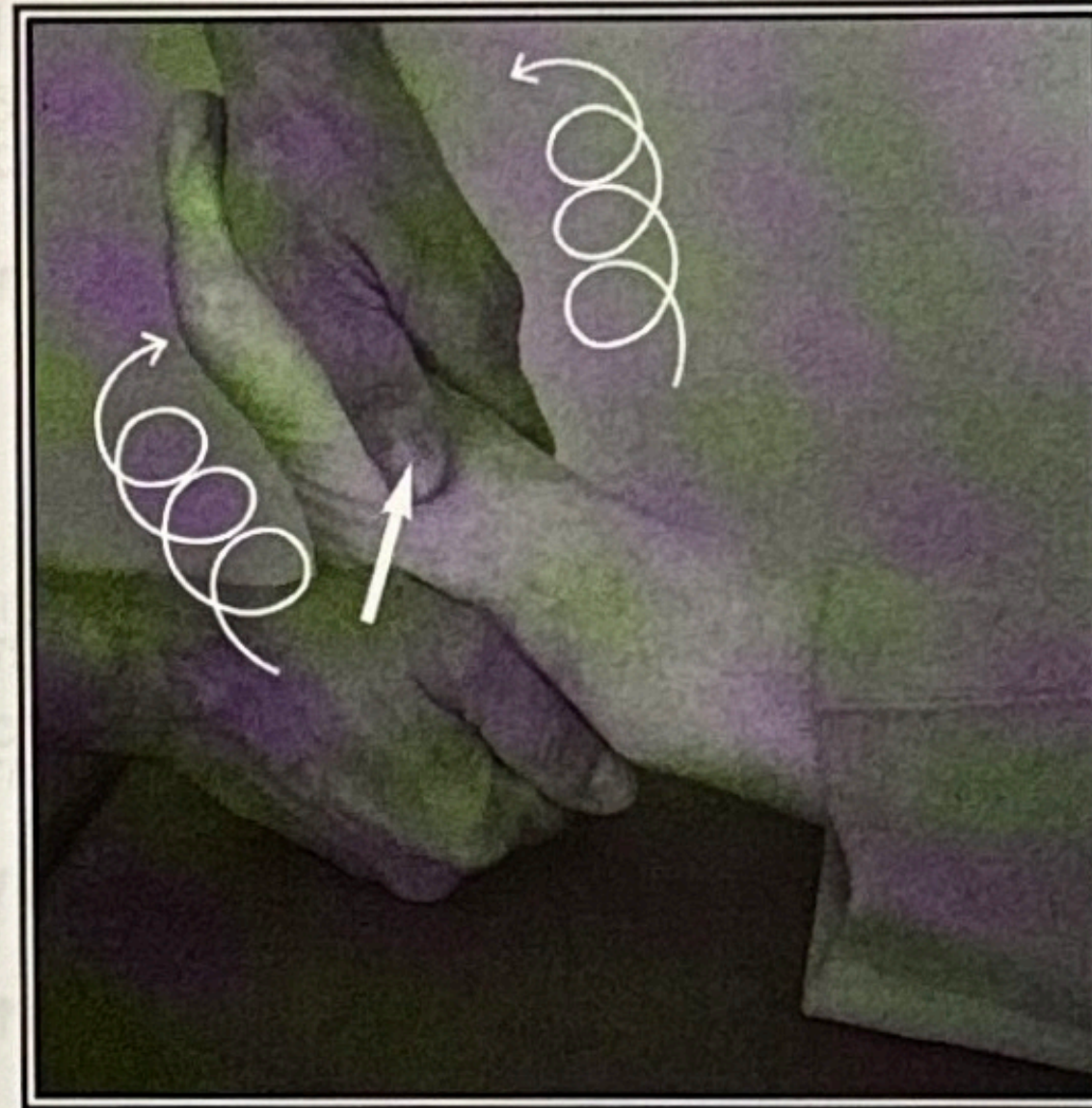
The thrust is very quick in a mostly lateral to medial direction with a slight anterior to posterior component. It very common to get a loud audible release using this adjustment.

*We find dysfunctional joints, term them subluxations,
and we treat those joints to restore
a proper physiological relationship with their
neighboring articulations.*

— Dr. Gideon Orbach

Calcaneus — Inverted and Dorsiflexed Subluxation/Fixation

ADJUSTMENT:



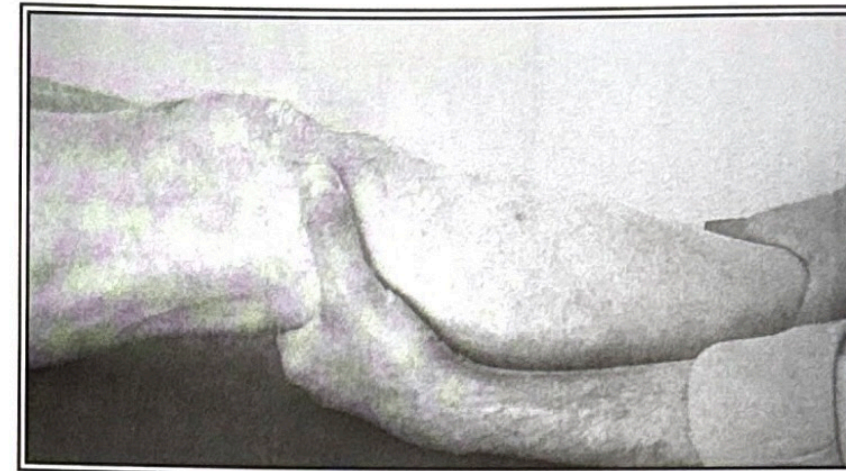
The palmar surface of the doctor's "inside" hand contacts the patient's calcaneus with the doctor's thenar contacting the medial aspect of the calcaneus. The doctor's "outside" hand "shakes hands" with the patient's midfoot.

The thenar of the doctor's "inside" hand puts medial to lateral pressure on the calcaneus as doctor's "outside" hand performs several clockwise then counterclockwise rotations of the foot.

Fibular Head — Posterior and Lateral Subluxation/Fixation

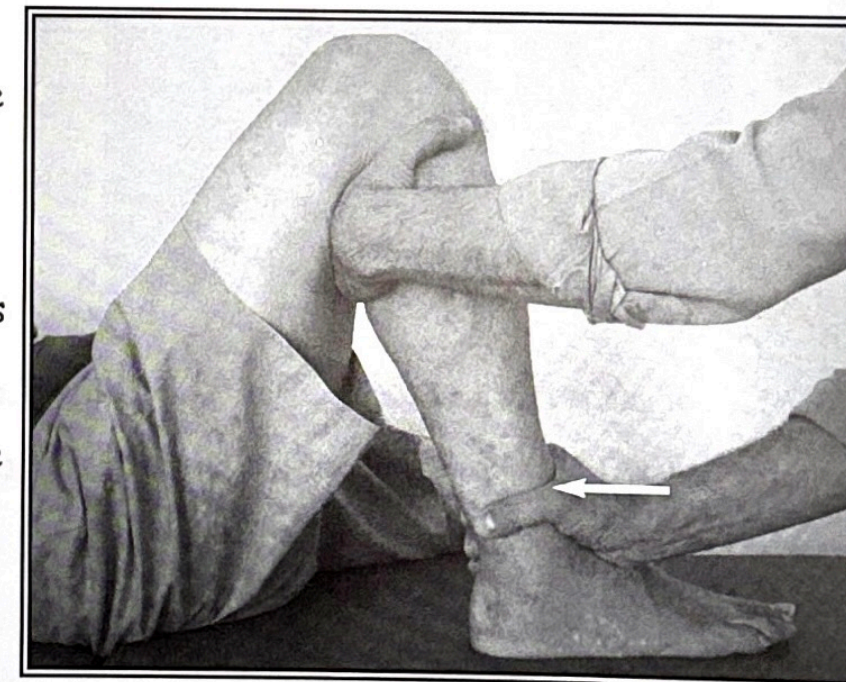
Though the fibular head is part of the knee complex, I adjust it as part of the supination protocol. It is typical for the doctor to find point tenderness on the posterior and/or lateral aspect(s) of the fibular head with this subluxation/fixation.

ADJUSTMENT:



With the doctor standing on the lateral aspect of the patient's leg, doctor's "inside" hand grasps patient's lower leg slightly above the ankle while the index finger of the "outside" hand locates the fibular head. This same index finger will take a tissue pull on the fibular head in an anterior to posterior direction followed by a tissue pull in a lateral to medial direction. The 1st metacarpal-interphalangeal joint should be contacting the posterior aspect of the fibular head and the doctor should not be able to see his/her 1st metacarpal-interphalangeal joint. This knuckle is acting as a fulcrum and does not move after this placement.

With the "inside" hand of the doctor grasping the patient's ankle, the doctor flexes the patient's knee and approximates the heel to the buttocks. When TENSION is achieved, doctor thrusts with the "inside" hand approximating the heel to the buttocks in a quick short arc. This will provide a posterior to anterior force on the fibular head. A "crisp" audible release is common.



Great care should be exercised in order to keep the foot, knee and hip in alignment to avoid inducing tibial rotation.

Summary Supination Protocol

1. Navicular — Superior and Lateral
Subluxation/Fixation
2. Cuneiforms — Superior
Subluxation/Fixation



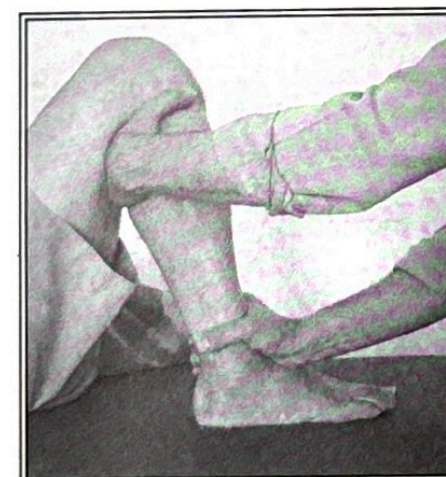
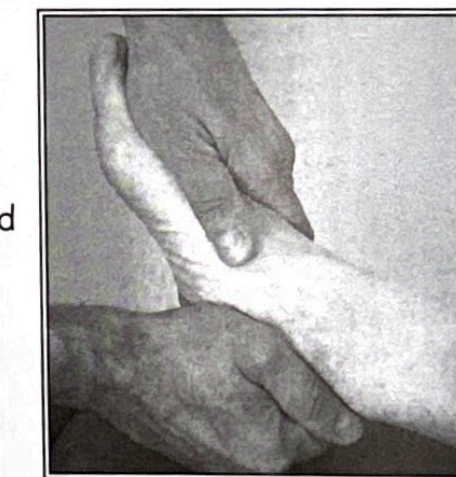
3. Cuboid — Superior and Lateral
Subluxation/Fixation

4. Metatarsal Heads 2-3-4 — Superior
Subluxation/Fixation
- Metatarsal Heads 1 & 5 — Inferior
Subluxation/Fixation



5. Talus — Lateral and Anterior
Subluxation/Fixation

6. Calcaneus — Inverted and Dorsiflexed
Subluxation/Fixation



7. Fibular Head — Posterior and Lateral Subluxation/Fixation

Summary - Pronation Protocol

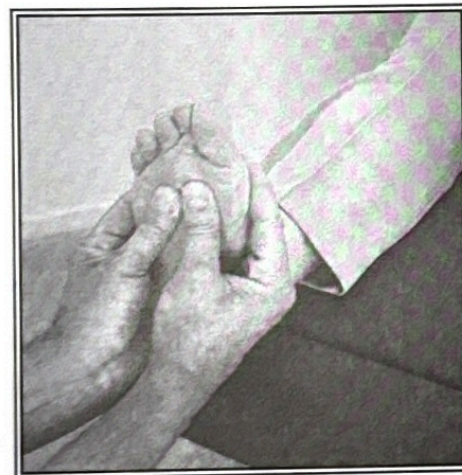
1. Navicular — Inferior and Medial Subluxation



2. Cuboid — Superior and Lateral Subluxation



3. Cuneiforms — Inferior Subluxation



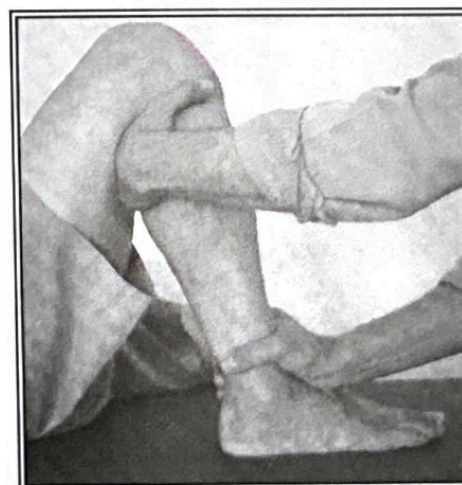
4. Metatarsal Heads
2nd-3rd-4th — Inferior Subluxation
1st — Superior Medial Subluxation
5th — Superior Lateral Subluxation



5. Talus — Anterior and Lateral Subluxation



6. Calcaneus — Plantarflexed and Everted Subluxation



7. Fibular Head — Posterior and Lateral Subluxation

Summary Supination Protocol

1. Navicular — Superior and Lateral Subluxation/Fixation

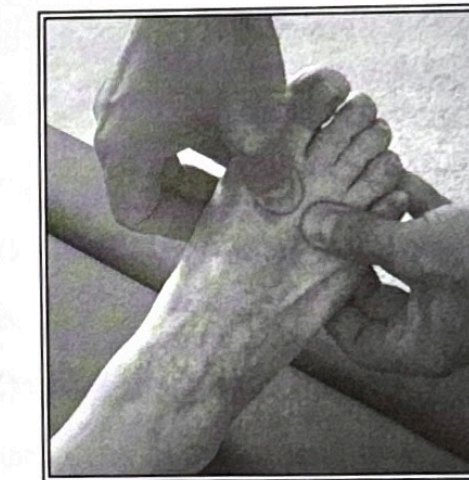


2. Cuneiforms — Superior Subluxation/Fixation

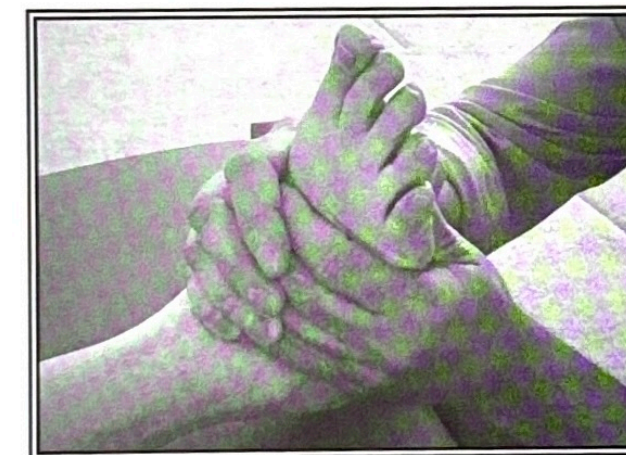


3. Cuboid — Superior and Lateral Subluxation/Fixation

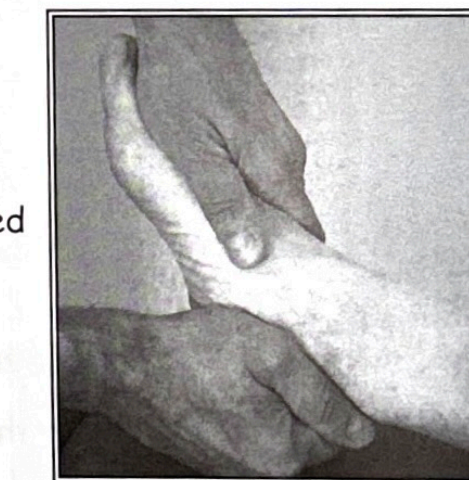
4. Metatarsal Heads 2-3-4 — Superior Subluxation/Fixation
Metatarsal Heads 1 & 5 — Inferior Subluxation/Fixation



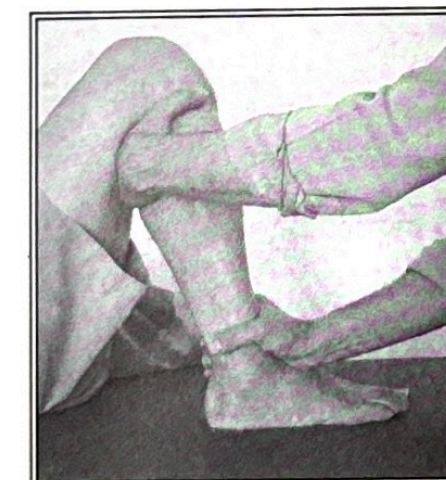
5. Talus — Lateral and Anterior Subluxation/Fixation



6. Calcaneus — Inverted and Dorsiflexed Subluxation/Fixation



7. Fibular Head — Posterior and Lateral Subluxation/Fixation



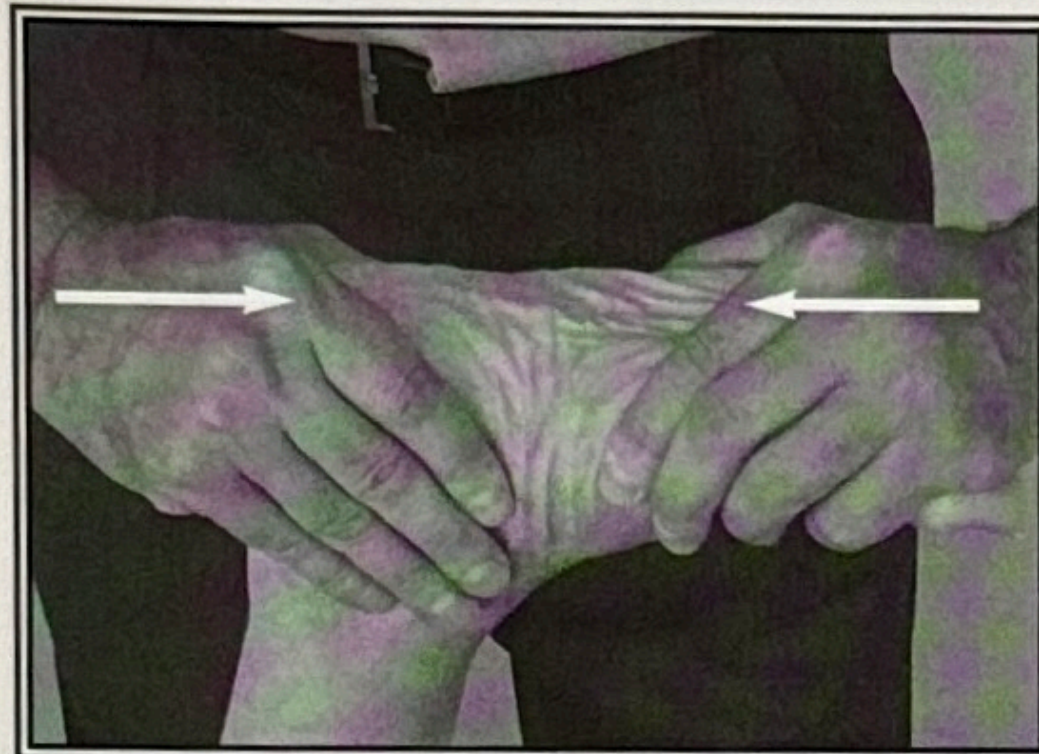
Associated Pronation Protocol Adjustments

Heel Spur Adjustment

In excessive pronation the height of the medial longitudinal arch decreases. The heel to toe measurement increases slightly and can put an additional strain on the plantar fascial attachment into the calcaneus. This is why the vast majority of heel spurs occur on the excessively pronated foot.

ADJUSTMENT:

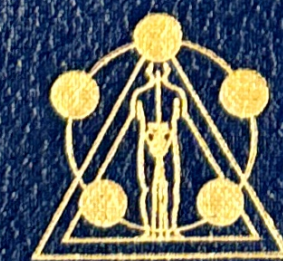
This is a very basic procedure that attempts to approximate the heel to the toes and relieve some degree of pressure on the plantar fascia.



The patient is in the prone position with the knee flexed at 90 degrees. The doctor stands on the lateral aspect of the flexed knee facing the opposite leg. The doctor's "headward" hand cups the calcaneus while the "footward" hand grasps the forefoot. Keeping the elbows "out" the doctor pushes hands toward each other simultaneously. This thrust is quick with audible release common in the symptomatic patient.

APPLIED KINESIOLOGY

SYNOPSIS
2ND EDITION



DAVID S. WALTHER



Tibialis Anterior

Origin: lateral condyle of tibia, proximal two-thirds of lateral surface of tibia, interosseous membrane, deep fascia and lateral intermuscular septum.

Insertion: medial and plantar surface of medial cuneiform, and base of 1st metatarsal.

Action: dorsiflexes foot and inverts it.

Test: The supine patient inverts and dorsiflexes the foot, with the toes kept in flexion. The examiner applies pressure against the medial dorsal surface of the foot in the direction of plantar flexion and eversion. The examiner should see effective contraction of tibialis anterior as indicated by the tendon elevation during the test.

Nerve supply: peroneal, L4, 5, S1.

Neurolymphatic:

Anterior: 3/4" above symphysis pubis bilaterally.

Posterior: L2 transverse process.

Neurovascular: bilateral frontal bone eminences.

Nutrition: vitamin A.

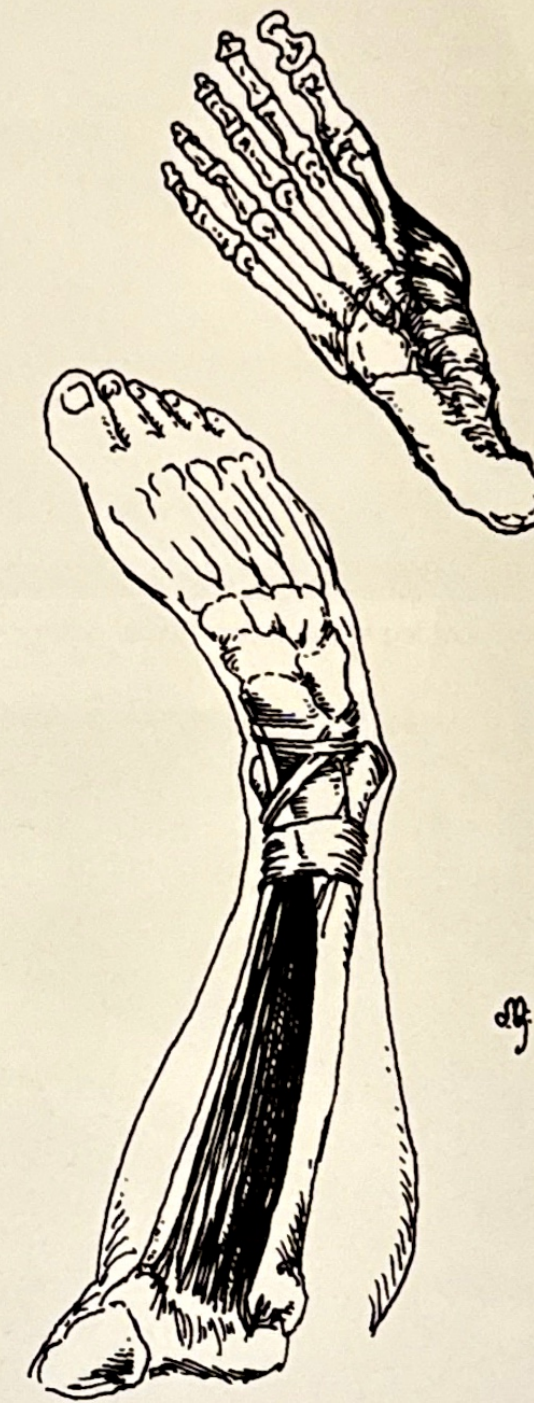
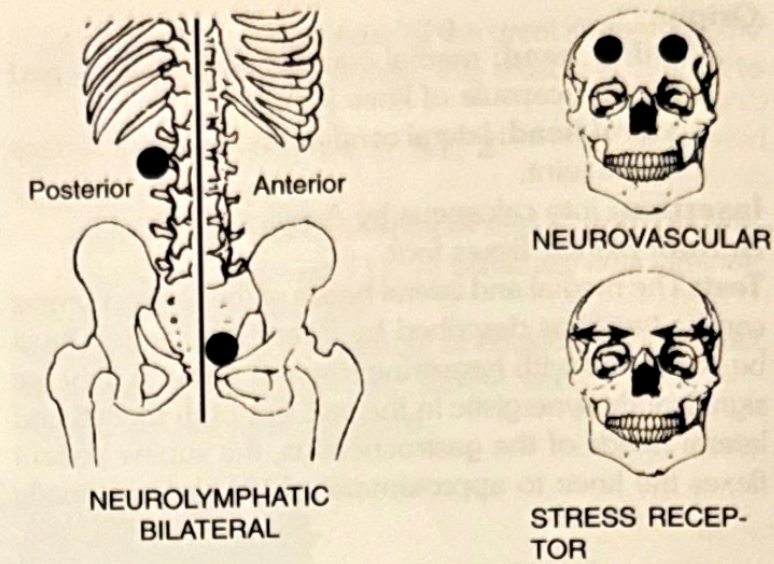
Meridian association: bladder.

Organ association: urinary bladder.



8-66. Observe for the tendon raising during the test.

330



8-67.



Tibialis Posterior

Origin: lateral part of posterior surface of tibia, medial two-thirds of fibula, interosseous membrane, intermuscular septa, and deep fascia.

Insertion: tuberosity of navicular bone, plantar surface of all cuneiforms, plantar surface of base of 2nd, 3rd, and 4th metatarsal bones, cuboid bone, and sustentaculum tali.

Action: inverts and plantar flexes foot; medial ankle stabilizer.

Test: The supine patient maximally plantar flexes the foot and then inverts it, keeping the toes in a flexed position. The examiner places his hand on the medial side and over the foot. Pressure is directed against the medial side of the foot in the direction of eversion. The examiner should observe for the rising tendon of the tibialis posterior when the muscle contracts. Care should be taken that the patient does not dorsiflex the foot to change the parameters of the test.

Nerve supply: tibial, L5, S1.

Neurolymphatic:

Anterior: 2" above the umbilicus and 1" from the midline bilaterally.

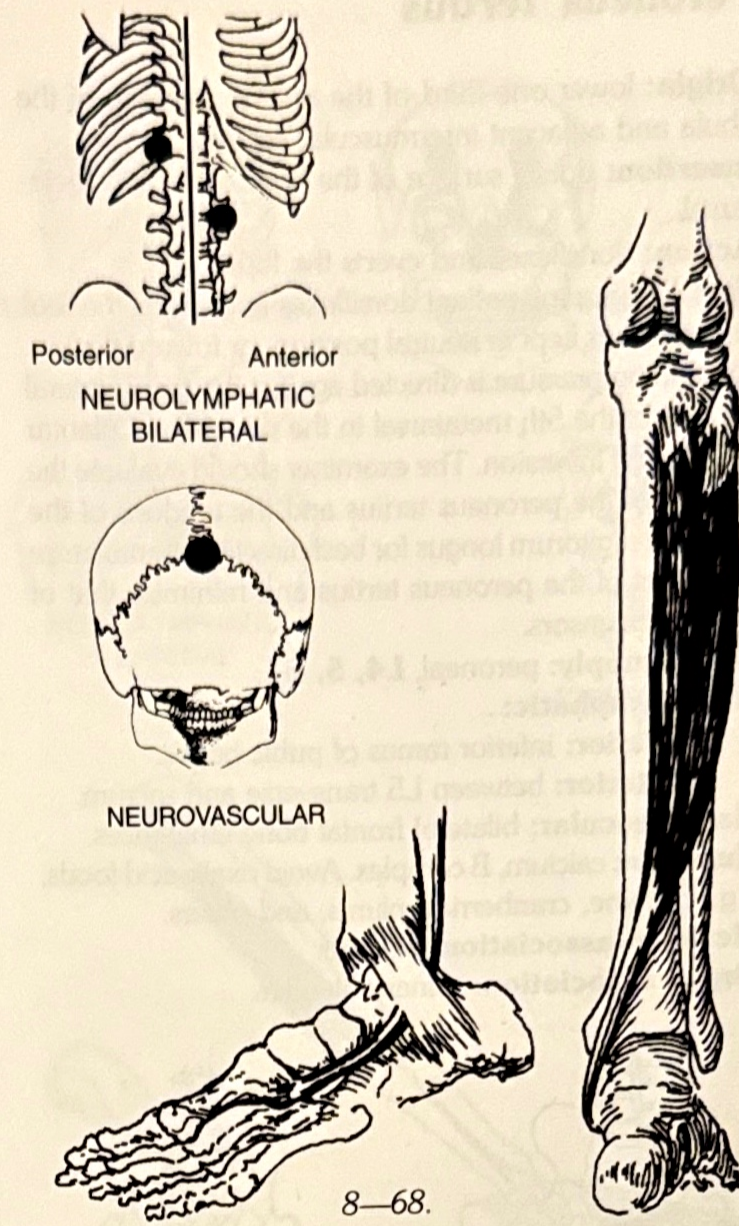
Posterior: between T11, 12 bilaterally by laminae.

Neurovascular: lambda.

Nutrition: adrenal concentrate or nucleoprotein extract.

Meridian association: circulation sex.

Organ/gland association: adrenal; possibly urinary bladder.



8-69. If patient dorsiflexes the foot, start the test over.



Peroneus Tertius

Origin: lower one-third of the anterior surface of the fibula and adjacent intermuscular septum.

Insertion: dorsal surface of the base of the 5th metatarsal.

Action: dorsiflexes and everts the foot.

Test: The supine patient dorsiflexes and everts the foot with the toes kept in neutral position, or toward flexion. Examining pressure is directed against the dorsal lateral surface of the 5th metatarsal in the direction of plantar flexion and inversion. The examiner should evaluate the tendon of the peroneus tertius and the tendons of the extensor digitorum longus for best direction to maximize the effect of the peroneus tertius and minimize that of the toe extensors.

Nerve supply: peroneal, L4, 5, S1.

Neurolymphatic:

Anterior: inferior ramus of pubic bones.

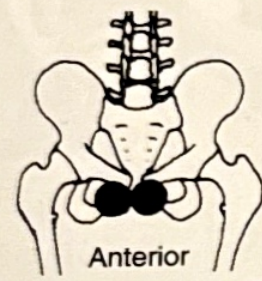
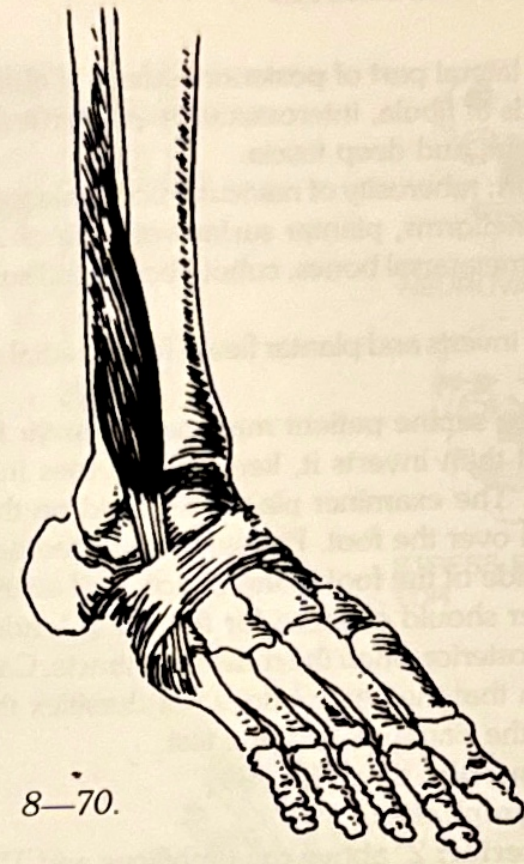
Posterior: between L5 transverse and sacrum.

Neurovascular: bilateral frontal bone eminences.

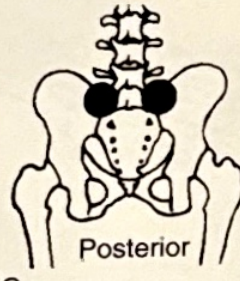
Nutrition: calcium, B complex. Avoid oxalic acid foods, e.g., caffeine, cranberries, plums, and others.

Meridian association: bladder.

Organ association: urinary bladder.



Anterior



Posterior

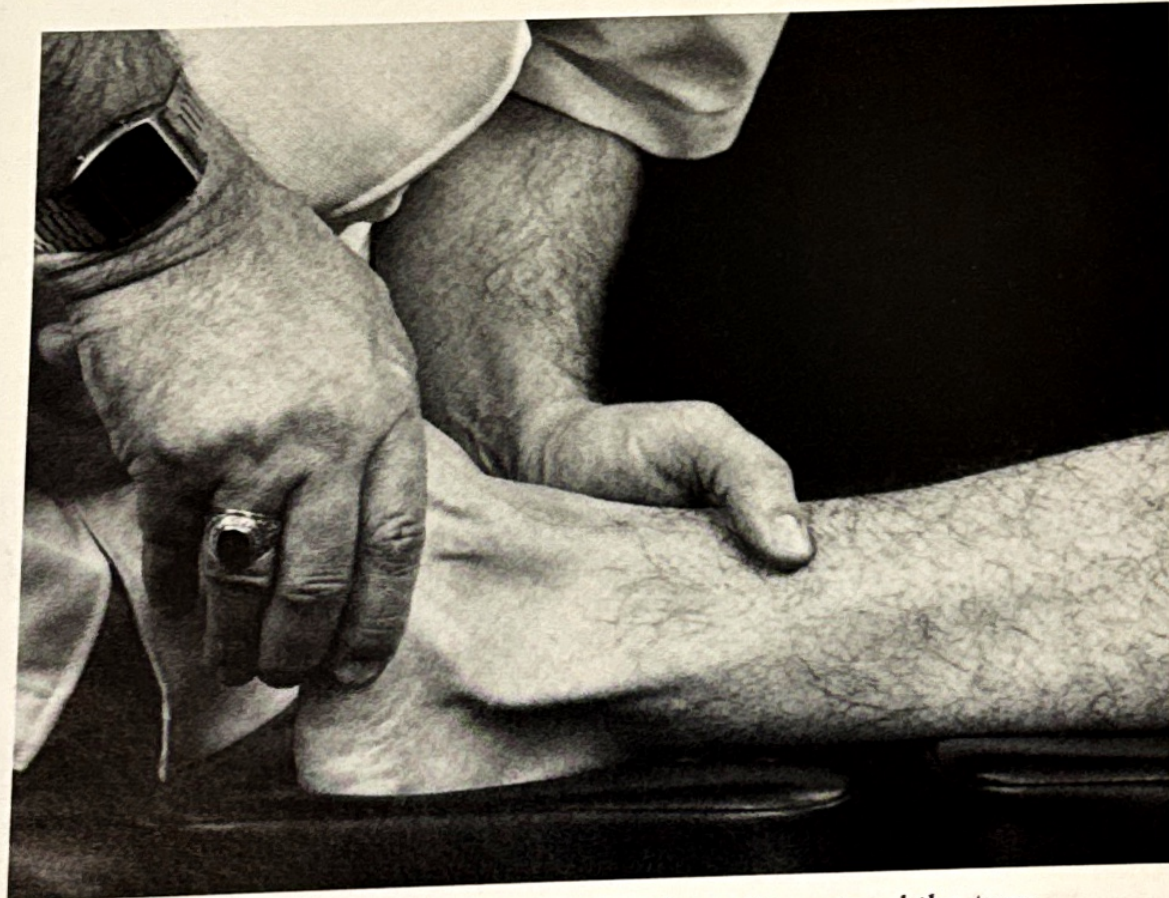
NEUROLYMPHATIC



NEUROVASCULAR



STRESS RECEPTOR



8-71. The patient should not be allowed to extend the toes.



Peroneus Longus and Brevis

Peroneus Brevis

Origin: lower two-thirds of fibula on lateral side and adjacent intermuscular septa.

Insertion: lateral side of proximal end of 5th metatarsal.

Action: plantar flexes foot and everts it; gives lateral stability to the ankle.

Peroneus Longus

Origin: lateral condyle of tibia, head and upper two-thirds of lateral surface of fibula, intermuscular septa and adjacent fascia.

Insertion: proximal end of the 1st metatarsal and medial cuneiform on their lateral portions.

Action: plantar flexes foot and everts it; gives lateral stability to the ankle.

Peroneus Longus and Brevis

Test: The supine patient maximally plantar flexes the foot and everts it, with the toes kept in flexion or neutral position. Testing pressure is directed to the side of the foot in the direction of inversion. The test must start from the maximum eversion allowed when the foot is in complete plantar flexion. The range of motion in this test is limited. No dorsiflexion of the foot should be allowed, nor should there be any extension of the toes. The examiner should observe the tendon that courses behind the external malleolus as evidence of maximum isolation of the muscles.

Nerve supply: peroneal, L4, 5, S1.

Neurolymphatic:

Anterior: inferior symphysis pubis, bilaterally.

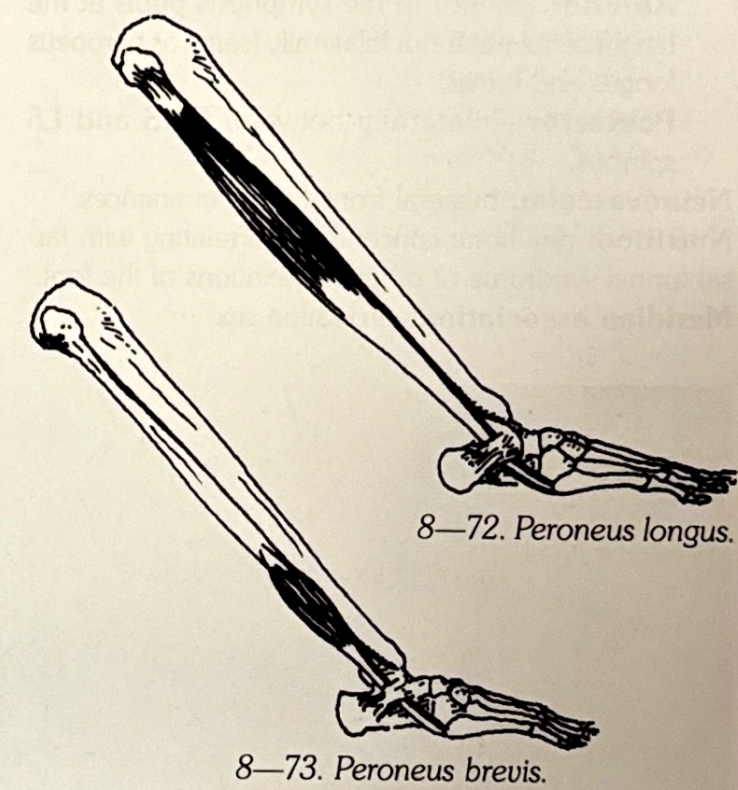
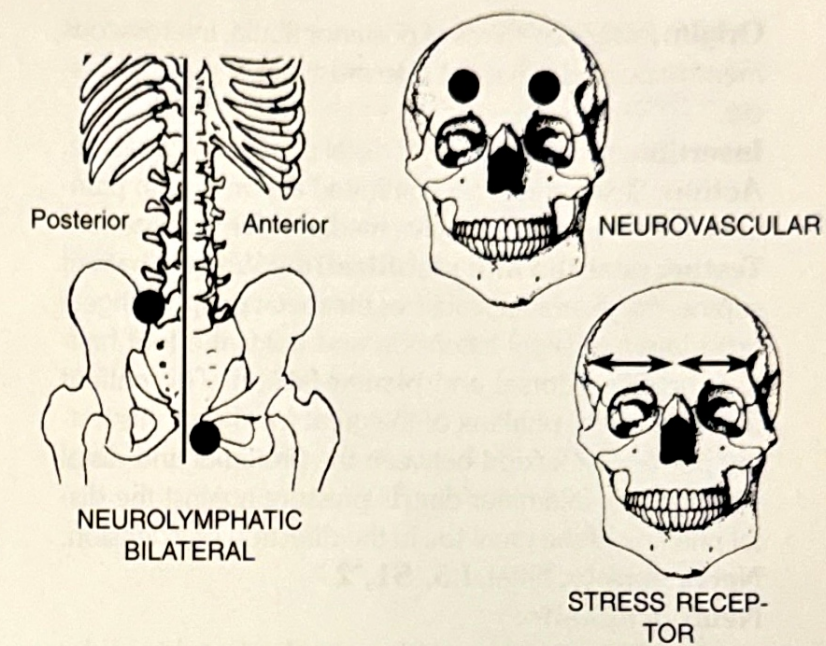
Posterior: bilaterally between posterior superior iliac spine and L5 spinous process.

Neurovascular: bilateral frontal bone eminences.

Nutrition: calcium, vitamin B complex. Avoid oxalic acid foods.

Meridian association: bladder.

Organ association: urinary bladder.



8—74. Do not allow foot dorsiflexion during the test.



8—75. Insertion of the peroneus longus tendon.

Flexor Hallucis Longus

Origin: lower two-thirds of posterior fibula, interosseous membrane and adjacent intermuscular septa and fascia.

Insertion: plantar surface of distal phalanx of great toe.

Action: flexes great toe; continued action aids in plantar flexing the foot; helps give medial ankle stabilization.

Testing position and stabilization: With the patient supine, the examiner stabilizes the metatarsophalangeal articulation in slight extension and holds the foot halfway between dorsal and plantar flexion. The patient flexes the distal phalanx of the great toe. From this testing position of flexion between the proximal and distal phalanx, the examiner directs pressure against the distal phalanx of the great toe in the direction of extension.

Nerve supply: tibial, L5, S1, 2.

Neurolymphatic:

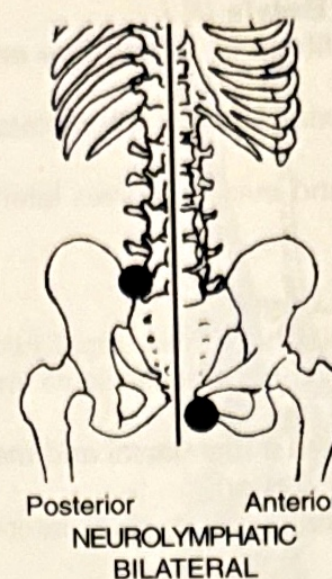
Anterior: inferior to the symphysis pubis at the height of the obturator bilaterally (same as peroneus longus and brevis).

Posterior: bilaterally between PSIS and L5 spinous.

Neurovascular: bilateral frontal bone eminences.

Nutrition: raw bone concentrate correlating with tarsal tunnel syndrome or other subluxations of the foot.

Meridian association: circulation sex.



8-76. Stabilize the proximal phalanx while applying testing pressure to the distal one.

8-77. Insertion of flexor hallucis longus tendon.

8-78.



Flexor Hallucis Brevis

Origin: medial portion of the plantar surface of the cuboid bone, adjacent portion of the lateral cuneiform bone, and from prolongation of the tendon of the tibialis posterior.

Insertion: medial and lateral sides of proximal phalanx of the great toe.

Action: flexes metatarsophalangeal articulation of great toe.

Test: The examiner stabilizes the interphalangeal articulation of the great toe and places the metatarsophalangeal articulation in flexion for the starting test position. While maintaining hyperextension of the interphalangeal articulation, the examiner directs pressure against the plantar surface of the proximal phalanx toward extension.

Nerve supply: tibial, L4, 5, S1, 2.

Neurolymphatic:

Anterior: inferior to the symphysis pubis at the height of the obturator (same as peroneus longus and brevis).

Posterior: between PSIS and L5 spinous.

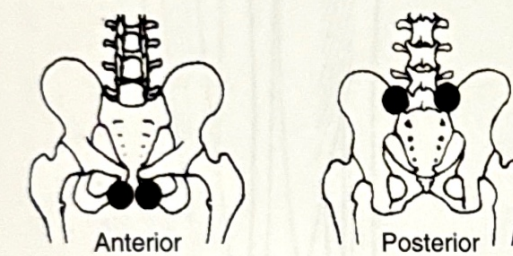
Neurovascular: bilateral frontal bone eminences.

Nutrition: raw bone concentrate correlating to tarsal tunnel syndrome or other subluxations of the foot.

Meridian association: circulation sex.



8-79.



NEUROLYMPHATIC



NEUROVASCULAR



8-80. First step — flex 2nd-5th toes.



8-81. Second step — extend great toe and hold extension of interphalangeal articulation.



8-82. Third step — starting position is with flexion at the metatarsophalangeal articulation.

