Choosing Proper Footwear

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Foot Facts:

- According to the American Podiatric Medical Association, the average person takes 8,000 to 10,000 steps a day, which adds up to about 115,000 miles over a lifetime. That's enough to go around the circumference of the earth four times.
- Walking puts up to 1.5 times your bodyweight on your foot.
- The running foot absorbs 7.9 times the normal body weight.
- 1 in 6 persons (approximately 43 million people) in the United States have foot problems.

Foot Function:

- ❑ Weight bearing and distribution
- ❑ Propulsion and locomotion of the body
- ❑ Traverse and accommodate uneven surfaces
- ❑ Provide a base of support for the skeleton

Foot Types:

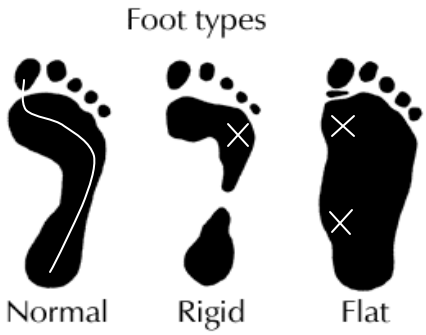
You can determine a person's foot type by performing a "**Wet-test**". Moisten the bottom of the foot with water and have the patient step on a dry surface such as a piece of paper. If this is not an option arch height can be measured using the **Feiss line**.

1. **The Normal Foot**

Characteristics: A normal foot lands on the outside of the heel, then rolls inward (pronates) slightly to absorb shock. The foot then rolls outward (supinates) to form a rigid lever to push off. Runners with a normal foot and normal weight are usually considered biomechanically efficient and do not require motion-control shoes.

2. **The Rigid or High-Arched Foot (Pes Cavus)**

Characteristics: Generally termed a supinated or under pronated foot. This type of foot usually doesn't pronate enough, so it's not an effective shock absorber. High-arched feet often need shoes with superior cushioning.



GRF and contact points

3. **The Flat Foot (Pes Planus)**

Characteristics: This imprint usually indicates an over pronated foot that strikes on the outside of the heel and rolls inward excessively. Over time, this can cause many different kinds of overuse injuries. Flat feet often need motion-control or stability shoes.

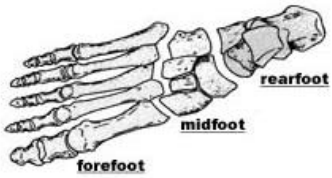
Components of a Good Shoe:

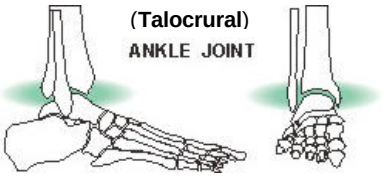
1. Toe Box: the tip of the shoe, usually round or pointed, which determines the amount of room for the toes.
2. Vamp: the upper middle part of the shoe where the laces are commonly placed.
3. Sole: the shock absorber of the shoe comprised of an insole, mid-sole and outsole. Generally the softer the sole the greater the shoe's shock absorbing ability. (Usually a gel type cushion is inserted to absorb shock)
4. Arch: the main supportive structure of the shoe that conforms to the shape of the arch of each foot.
5. Heel: the bottom part of the rear of the shoe that provides elevation and shock absorption.
6. Counter: typically a rigid support which functions to support and prevent heel movement.
7. Last: the part of the shoe that helps conform to the shape of the foot. There are straight, slip, board, semi-curved, and curved lasts.
8. Sockliner: the liner inside the shoe that has a bit of an arch and usually some shock absorbing material.

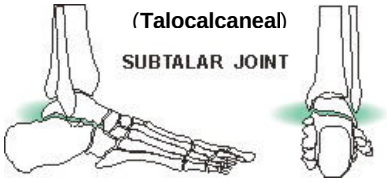
Anatomical Review of the Foot:

The foot is made up of 28 bones, 25 joints, 19 muscles, and 107 ligaments. The foot can be divided into 3 regions:

- **Forefoot**: 5 metatarsals and phalanges
- **Midfoot**: navicular, cuboid and cuneiforms
- **Hindfoot:** comprised of the talus and calcaneus: referred to as the coach because it helps to determine what the midfoot and forefoot will do in weight bearing







Ligamentous Support:

- Ligaments help retain osseous alignment and allow changes in the degree of forefoot twist.
- Are responsible for maintaining arcs in the twisted plate of the relaxed foot and in the static weight bearing foot.
- Important ligaments:
    1. **Spring ligament** → Forms anterior and posterior pillars of the medial longitudinal arch
    2. **Long plantar ligament** → Reinforces the lateral arch
    3. **Short plantar ligament** → Reinforces the lateral arch also
    4. **Plantar aponeurosis** → Reinforces both medial and lateral arches

Lateral Ligaments (✓ varus)	Medial Ligaments (✓ varus)	Interosseous Membrane
1. Anterior Talofibular 2. Calcaneofibular 3. Posterior Talofibular	1. Anterior Tibiotalar 2. Tibionavicular 3. Tibiocalcaneal 4. Posterior Tibiotalar	Inferior tibio-fibular syndesmosis (Syndesmotic Ligament)

Anterior Compartment Muscles (Deep Peroneal)

1. Tibialis Anterior
2. Peroneus Tertius
3. Extensor Digitorum Longus
4. Extensor Hallicus Longus

Posterior Compartment Muscles (Tibial Nerve)

(Lateral → Medial)	"Tom, Dick + Harry"
1. Flexor Hallicus Longus 2. Tibialis Posterior 3. Flexor Digitorum Longus	1. Tibialis Posterior 2. Flexor Digitorum Longus 3. Flexor Hallicus Longus

Lateral Compartment Muscles (Superficial Peroneal)

1. (Fibularis) Peroneus Longus
2. (Fibularis) Peroneus Brevis

Intrinsic Muscles of the Foot

- 1st Layer
  1. Abductor Hallicus — Medial Plantar
  2. Flexor Digitorum Brevis (2 heads)* — Medial Plantar
     - Medial
     - Lateral
  3. Abductor Digiti Minimi — Lateral Plantar

* 2 sesamoid bones serve as attachments for the medial and lateral heads of FDB

- 2nd Layer
  1. Quadratus Plantae — Lateral Plantar
  2. *Lumbricals — *2 = Med. Plantar *3-5 = Lat Plantar

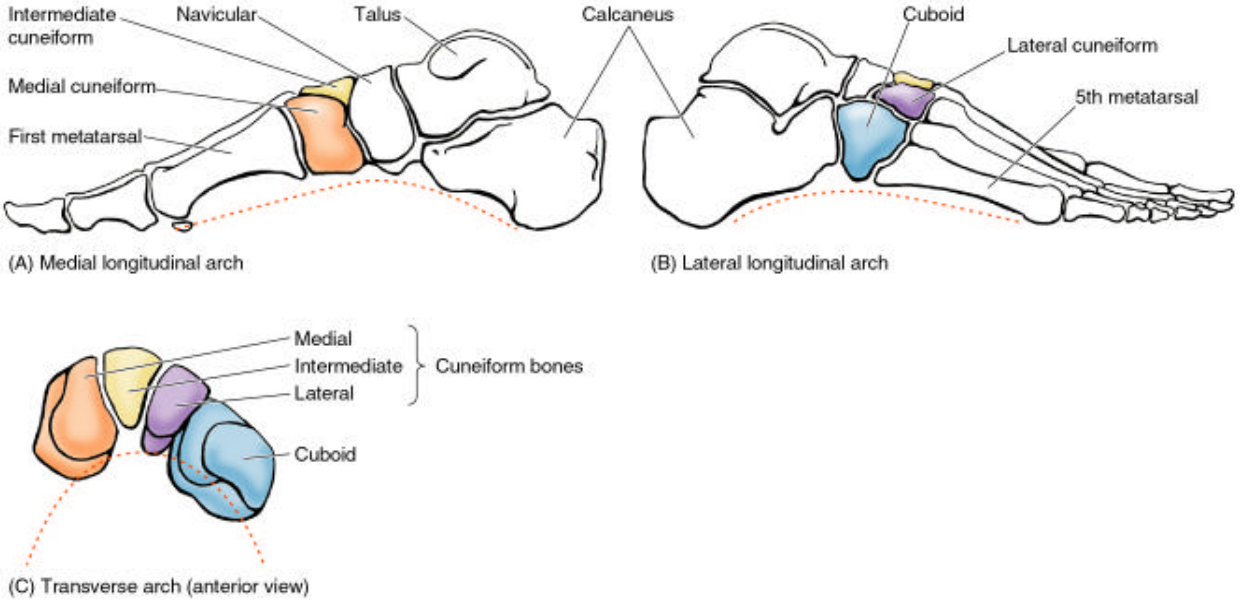
- 3rd Layer
  1. Flexor Hallicus Brevis — Medial Plantar
  2. Adductor Hallicus (2 heads) — Deep Lateral Plantar
     - Oblique
     - Transverse
  3. Flexor Digiti Minimi Brevis — Superficial Lateral Plantar

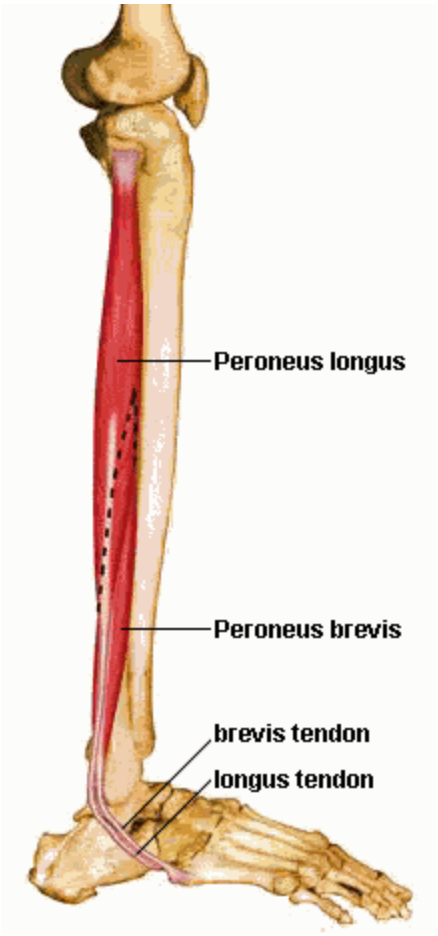
- 4th Layer
  1. 4 Dorsal Interossei (DAB) — Lateral Plantar
  2. 3 Plantar Interossei (PAD) — Lateral Plantar

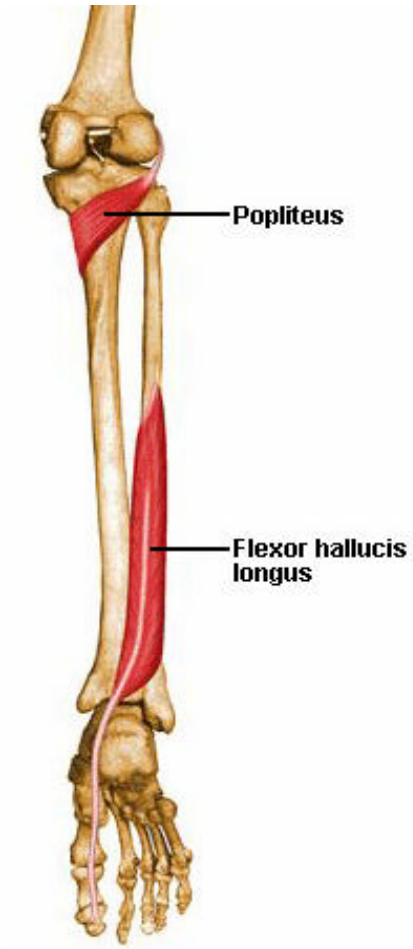
Arch Structure:

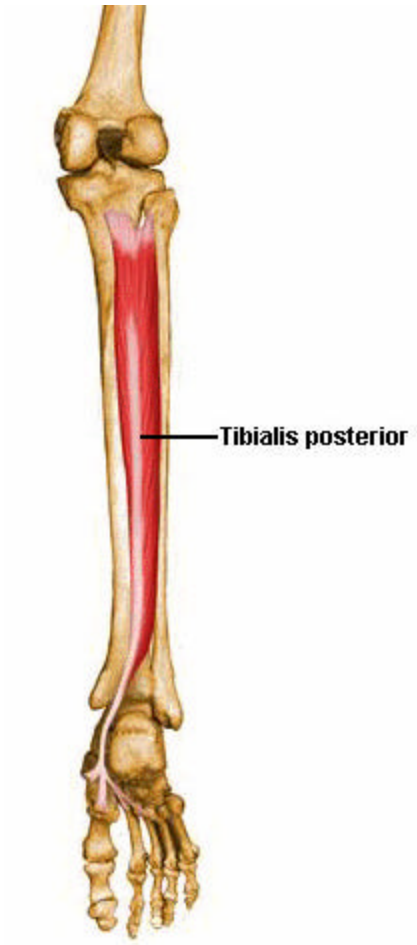
1. **Lateral Longitudinal Arch** – comprised of the lateral 2 metatarsals and the cuboid and calcaneus bones.
2. **Medial Longitudinal Arch** – comprised of the medial 3 metatarsals, all 3 cuneiforms and the navicular and calcaneus bones.
3. **Transverse Arch** – runs across the foot over the bases of the metatarsals, cuneiform and cuboid bones.

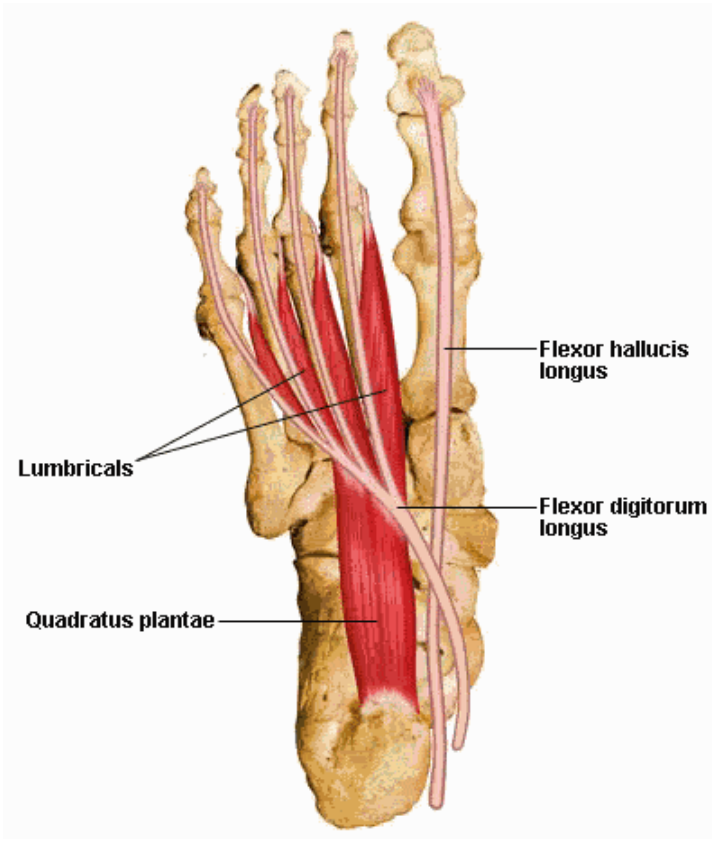
5.68A-C. Arches of the foot.

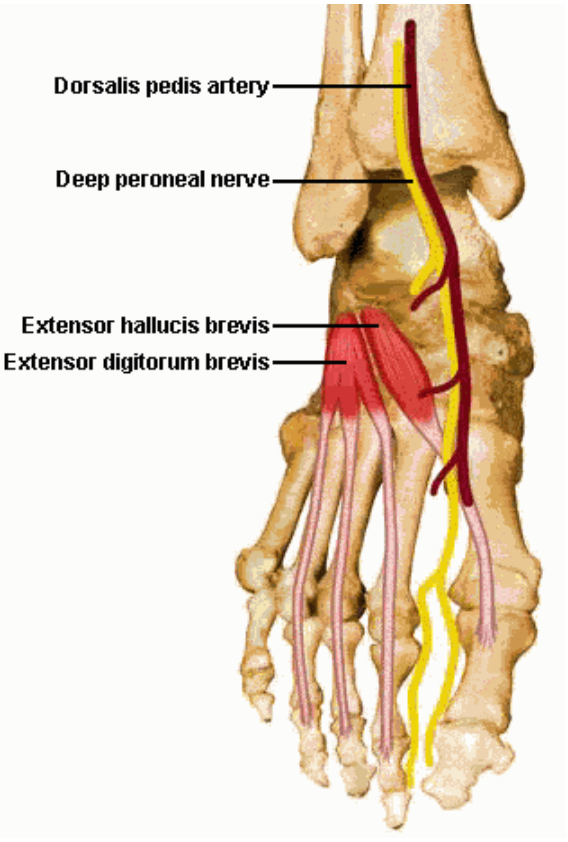



Peroneus longus
Peroneus brevis
brevis tendon
longus tendon


Popliteus
Flexor hallucis longus


Tibialis posterior


Flexor hallucis longus
Lumbricals
Flexor digitorum longus
Quadratus plantae


Dorsalis pedis artery
Deep peroneal nerve
Extensor hallucis brevis
Extensor digitorum brevis

Importance of Proper Footwear:

1. Provide support for the foot, specifically the arches.
2. Prevent abnormal weight distribution through the foot.
3. Decrease frictional forces produced on the foot surfaces.
4. Protect the foot from injury (trauma, burns, chemicals).
5. Allow for proper room and mobility of the toes.
6. Provide a clean, dry, and ventilated environment for the feet.

Injuries & Conditions Associated with Improper Footwear:

- Plantar warts: caused by a virus, which enters the foot through a break in the skin
  - don't walk barefoot!
- Athlete's foot: a fungal infection resulting from increased moisture buildup; keep feet dry!
- Corns, calluses or blisters caused by increased frictional forces on foot surfaces.
- Fallen arches due to poor support and cushioning of the foot or muscular weakness.
- Heel pain resulting from abnormal weight distribution or improper heel cushioning.
- Bunions (Hallux Valgus) form due to poorly fitted narrow shoes. Commonly seen in women who repeatedly wear dress shoes with a narrow toe box.
- Heel spurs: caused by stretching of the plantar fascia and laying down of ectopic bone (Wolfe's Law).
- Hammertoe caused by intrinsic muscle imbalance, fallen arches, or toe compression from narrow shoes.
- Morton's Neuroma: a swelling & inflammation of a small nerve typically between toes 2 & 3.
- Shin Splints commonly the result of fallen arches combined with excessive pronation.
- Stress Fractures commonly seen in high/rigid arches: ↑'d risk for inversion ankle sprain.
- Knee deformities (Genu Varum/Valgum) resulting from excessive rearfoot pronation or supination.
- Patellofemoral Syndrome: abnormal patellar tracking resulting from excessive pronation causing increased valgus force at the knee as well as strain on the MCL.
- Leg Length Discrepancy resulting from over-pronation, which flattens the foot decreasing both limb length and push off in the pre-swing phase of the gait cycle.
- Low Back Pain – due to excessive pronation the lower leg internally rotates. As a result the pelvis is forced to tilt forward causing an increased curvature in the low back.

Signs of Shoe Wear & Tear:

- **Outer Heel –** Rearfoot striker. The point of initial contact with the ground is usually the place showing the most wear. This could be normal wear. Most people have wear here. This can occur with a slight out toe and the increase in the varus foot position that occurs in running because of the narrower base of gait (the distance from the midline that the foot strikes the ground).
- **Inner Heel** – Rearfoot striker. Possibly in-toe gait, which would make this area the initial point of contact with the ground. Could also be severe pronation, if the heel counter is bent inward and the medial part of much of the sole shoes wear. The best way to tell is really looking at the foot in addition to the shoe.
- **Forefoot Wear –** Much forefoot wear and little heel wear, usually indicates forefoot strike, which the shoes of many faster short and middle distance runners will show. Uneven wear, or wear below a 2nd or 3rd metatarsal area may indicate a Morton's foot (short 1st metatarsal) and excessive prontation. The indicated metatarsal may be at a higher risk for a stress fracture.
- **Middle of the Sole –** Lateral sole wear in general, may reflect a high arch, excessively supinating foot. Medial sole wear, with a bent counter and a medial shift of the upper, probably indicates severe excessive pronation.
- **Heel Counter** – The heel counter may be bent inward with excessive pronation and tilted to the outside by a high arched foot.
- **Upper –** The upper may tilt inward with an over pronating foot and tilt outward with a supinated foot. It may exhibit holes by the toes or by the big toe alone. This means it may be too shallow or too short at the front of the foot. There should be a fingers width at the front of the shoe in front of the toes. If the toes make a big bump in the shoe less than 1/2 inch from the tip of the shoe, the shoe is probably too short.

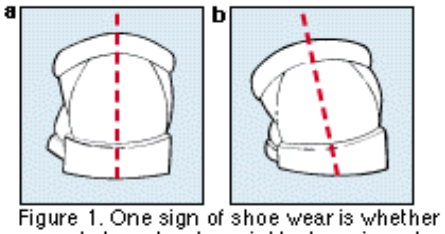
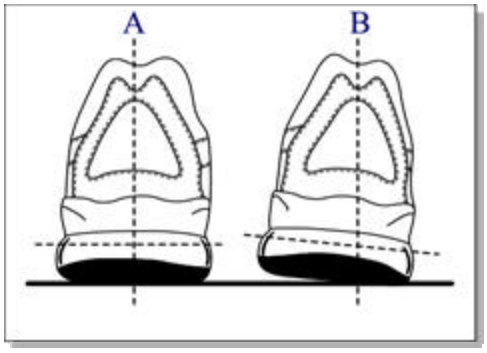
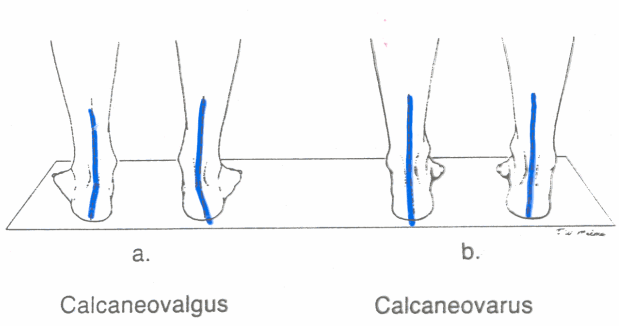


Figure 1. One sign of shoe wear is whether a used shoe stands upright when viewed from behind (a). A shoe that tilts inward, or medially (b), may be a sign that your foot has a structural imbalance called overpronation.

Observation of callus formation can provide information about a patient's gait pattern. The shoe areas showing the greatest wear or portion of the foot with the most callus deposition are the areas subject to the greatest amounts of pressure.

- ❑ Lateral bulge indicates excessive supination
- ❑ Medial bulge indicates excessive pronation.
- ❑ Outer heel wear indicates excessive pronation.



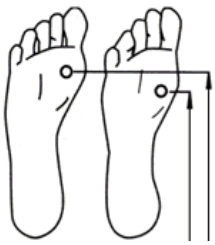


General Shoe Care Guidelines & Considerations:

- Shoes generally lose their cushioning before the uppers or soles wear out. 60% of a shoe's shock absorption is lost after 250-500 miles of use, so people who run up to ten miles per week should consider replacing their shoes every 4 – 6 months or if they experience nagging hip, leg or back pains. Ideally, non-runners should purchase a new pair of shoes approximately once very 9 to 12 months.
- Heavier individuals and those who strike the ground hard will need to replace their shoes more frequently.
- A good indicator that shoes have lost their cushioning is to place both shoes on a level surface and observe them from behind noting if one or both shoes lean to one side or the other (generally inwards).
- It is best to have two pairs of training shoes and to alternate wear of these shoes. This normally results in a longer life for each pair of shoes. It also ensures that you will have a dry pair of shoes for the next day should your shoes become wet from sweating.
- Sports specific shoes are designed solely for their intended sport. For example, running shoes are designed to prevent injuries caused by the repetitive stress on the legs while moving forward. They were not designed to support lateral or side movements of the foot and should not be worn for other activities such as hiking or sports such as tennis or basketball. Using a sports specific shoe for an activity other than what it is intended for can cause the shoe to break down more quickly and possibly result in injury such as an ankle sprain.
- Should your footwear get wet, let them dry naturally. Placing shoes near a fire or any other source of intense heat will dissipate the natural oils in leather shoes. This can cause hardness and shrinkage of the footwear or will cause increased breakdown of the midsole of athletic shoes.

Guidelines & Recommendations for Purchasing Shoes:

- Have the length and width of both feet measured in standing every time you purchase shoes; foot size increases with age and with weight bearing.
- If possible it is best to try on new shoes at the end of the day. Your feet normally swell and become larger after standing or sitting throughout the day.
- Always try on both shoes. Most people have one foot larger than the other, so fit new shoes to your largest foot.
- Feet that are the same length may need different size shoes. This is because shoes must be fitted heel to metatarsal head, not heel to toe.
- Always re-lace the shoes you are trying on. Begin at the farthest eyelets and apply even pressure making a crisscross lacing pattern to the top of the shoe.
- Walk around in the shoes to make sure they fit well and feel comfortable. The insteps should firmly support your arches yet provide comfortable cushioning.



- Inside the toe box there should be a ½ inch space (thumb's width) from the end of your big toe to the shoe's end, so you should be able to freely wiggle all your toes.
- A good shoe should firmly grip your heel and prevent it from slipping as you walk or run.
- Sizes vary among shoe brands and styles. Judge a shoe by how it fits not by the marked size.
- If pair of shoes feel too tight don't buy them. There is no such thing as a "break-in period."
- In terms of sports participation the general rule is: if you participate in a sport 3 times a week or more, you should consider purchasing a sports specific shoe.
- Women should not wear a shoe with a heel higher than $2^{1/4}$ inches. Most high heeled-shoes have a pointed, narrow toe box that crowds the toes and forces them into an unnatural triangular shape. As heel height increases, pressure under the ball of the foot increases, placing greater pressure on the forefoot and increasing the risk for toe deformities and injury.
- For special patient populations such as diabetics or patients with significant foot deformity, custom shoes may need to be fabricated by a licensed specialist such as an orthotist.

Physical Therapy Management & Interventions:

1. Patient Education
2. Orthotic inserts (heel cups, arch supports etc.,)
3. Vascular & sensory Integrity (protective sensation)
4. Observation and inspection
   - ❑ Pelvic alignment (Iliac crests, ASIS, PSIS)
   - ❑ Shoe wear patterns & areas of callous formation
   - ❑ Deformities (Genu valgus/varum, short leg)
   - ❑ Tibial/femoral torsion, Q-angle
   - ❑ Balance assessment → ankle sprain? remember proprioceptive damage!
5. Ligamentous Special Tests
6. * Sub-Talar Neutral (STN)
   - ❑ Functional/anatomic asymmetry
7. * Arch measurement – Feiss line
8. Stretching
9. Strengthening:
   - Tibialis posterior – eccentrically controls pronation by supporting transverse arch.
   - Tibialis anterior – supports medial longitudinal arch.
   - Peroneus longus – supports lateral longitudinal arch.
   - Peroneus brevis – supports lateral longitudinal arch.
   - all intrinsics
10. Modalities – cryotherapy, pulsed US, electric stimulation.
11. Gait Analysis & Training – absence of heel strike etc. (tandem walking, side-step, braiding)
12. Custom Orthotics – OTC orthotics may be attempted first due to higher price of custom orthotics.

- ❑ choosing proper footwear.
- ❑ inspect shoes for signs of wear & tear.
- ❑ avoid wearing unsupportive footwear.
- ❑ keep feet clean and dry.
- ❑ alternate running shoes and surfaces.
- ❑ if patient is diabetic education is crucial.

Functional asymmetry <u>disappears</u> in STN
Anatomic asymmetry <u>remains</u> in STN

*** Feiss Line** – mark inner apex of the medial malleolus and plantar aspect of 1st MTP joint while the patient is NWB. Patient then stands 8 – 15 cm apart. Palpate the navicular tuberosity noting where it is in line to the other 2 landmarks.

- If navicula falls 1/3 distance to floor = 1st ° flat foot
- If navicula falls 2/3 distance to floor = 2nd ° flat foot
- If navicula falls and rests on floor = 3rd ° flat foot

*** Subtalar Neutral** – the theoretical position in which the subtalar joint is neither pronated or supinated and optimally functions. Typically assessed first in the prone position looking at rearfoot alignment. A second position in WB determines talar head alignment. Reliability is an issue here due to an inability of clinicians to consistently produce similar assessments.

Foot Care Basics

- ❑ Practice daily foot care. Wash your feet with warm water and a mild soap. Thoroughly dry them with a clean towel. Use a moisturizing lotion to help prevent dryness, but avoid moisturizing the areas between the toes because this may cause skin maceration and lead to breakdown.
- ❑ Examine your feet regularly. Check for cuts, scrapes, bruises, calluses, ulcers or corns. Swelling lasting > than 24 hours or pain persisting > than 72 hours may signal infection/pathology.
- ❑ Wear clean, dry socks every day to draw moisture away from your feet.
- ❑ Wear shoes that fit comfortably, provide proper support, cushioning, and room for your toes.
- ❑ Avoid walking barefoot and exposing your feet to extreme temperatures whenever possible.
- ❑ Exercise; exercising promotes good health and improves circulation.
- ❑ Avoid smoking and if overweight begin dieting and/or exercise.

5 – Minute Shoe Inspection

When placed on a flat level surface a shoe should not be biased medially or laterally. The main purpose of the shoe is to hold the foot stable. It should be constructed so its upper, midsole and outsole is firmly attached. The uppers, heel counter and the sole should be straight. The shoes should not rock from side to side and the shock absorbing pockets should resist collapsing under load. Defective or worn out shoes that don't hold the feet in a neutral position may accentuate a pre-existing musculoskeletal imbalance (i.e. excessive pronation or supination). This may lead to unnecessary aches and pains and, if not treated, a more serious or permanent injury.

Test this by holding the shoe and trying to pull the upper part of the shoe away from the midsole, and the midsole from the outsole Any separation will weaken the shoe's support (**Figure 1**).

The upper part of the shoe should be glued straight into the sole. Test this by putting the shoe on a level surface and inspect the back of the shoe (**Figure 2A &B**). The heel counter should appear even and should not lean to the right or left. A brand new shoe that leans medially or laterally could cause injury especially if there is a large asymmetry between each shoe of a pair.

The sole of the shoe should be level to the surface on which the shoe is resting. Test this by checking that the medial and lateral aspect of the heel is even when resting on a flat, level surface (**Figure 3A and B**). Compare each shoe individually, then compare the right to the left shoe for symmetry. An asymmetry of two millimeters can tilt the shoe in or out significantly.

Test for asymmetry by applying a downward medial and a downward lateral force to both the right and the left shoe to see if the shoe rocks medially and/or laterally (**Figure 4A and B**). Check for this asymmetry from side to side within each shoe. The shoes should remain even and not roll. If they roll when they are new, they will not stop the foot from rolling excessively when worn, and can cause injury.

Air pockets and gel pockets must be inflated evenly. Test this by pushing on the sides of the air pockets medial to lateral, and lateral to medial to check for symmetry of inflation (**Figure 5**). Push down into the air pockets both medially and laterally from the top of the pocket (**Figure 6A and B**). If the pockets are inflated unevenly, this may cause the shoe to collapse unevenly, and the foot to roll when it hits the ground.

Fig 1

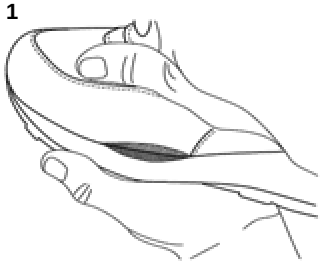


Fig 2

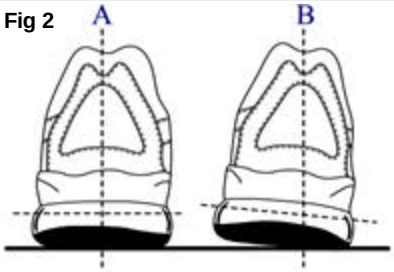


Fig 3

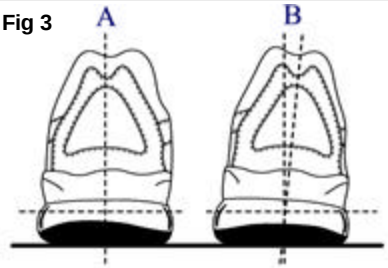


Fig 4

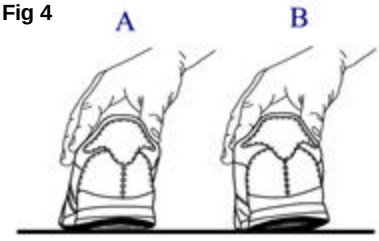


Fig 5

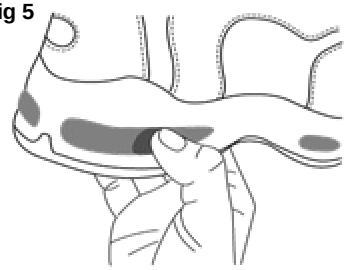
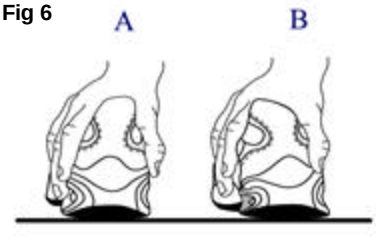


Fig 6



Clinical Tips & Considerations

- Heel lifts can be very helpful in the treatment of foot and ankle dysfunctions related to limited motion of the talocrural joint. A lack of 10° of dorsi-flexion at the talocrural joint can result in compensatory subtalar joint pronation during midstance and propulsion.
- The clinical efficacy of subtalar neutral is debatable. However if you attempt to assess this theoretical optimal functional position, the simplest way is to ask your patient/client to stand with feet shoulder width apart and simply ask them to perform weight bearing inversion and eversion while you palpate the talar head.
- When attempting to increase dorsi flexion range of motion you must "post" the great toe.

Haglund's Deformity (i.e. retrocalcaneal bursitis or "pump bump" is a condition of pain and discomfort on the posterior aspect of the heel at the area of the insertion of the Achilles tendon. The typical patient with Haglund's Deformity that is symptomatic is usually a female who wears high-heeled shoes. In mild cases, this inflammation and projection of bone at the back of the heel can be relieved with ice, compression, change of shoe gear, Achilles Heel pads, heel grip pads and orthotics. But in many cases where the bone is enlarged surgical excision is required. Cortisone injections in this area are not recommended because the chance of rupture of the Achilles tendon is high. Immobilization (such as with a cast walking boot) for acute symptoms is a much more effective measure, along with oral anti-inflammatory medications. Surgery, although successful, has a long post-operative recovery period, and needs cast immobilization.

Exercise Suggestions

Impairment	Goal	Intervention
Decreased intrinsic ankle pronation control	■ Improved posterior tibialis strength	■ Ankle inversion using elastic band, emphasizing eccentric control ■ Side-lying ankle inversion using ankle weight, emphasizing eccentric-phase control ■ Single-leg–stance balance activities with a neutral foot position (progress by incorporating uneven surfaces and eliminating visual cues)
Decreased intrinsic ankle supination control	■ Improved ankle plantar-flexor strength ■ Improved intrinsic foot musculature strength	■ Heel raises with the foot in a toed-in position ■ Arch raises with the foot in a weight-bearing position ■ Stand and bring the foot into and out of weight-bearing pronation-supination
Decreased extrinsic ankle pronation control	■ Improved proximal hip-musculature strength	■ Wall slides with a neutral foot position ■ Lateral step-downs on 4-in (10.16-cm) step with a neutral foot position ■ Single-leg stance with neutral foot position while performing proprioceptive neuromuscular facilitation patterns using elastic band with contralateral leg

*Reprinted with permission. Bolgla LA, Keskula DR. *Athl Ther Today*. 2003;8(5):11.

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5. American Orthopedic Foot & Ankle Society. *Foot Fitness For Life*. Retrieved on-line http://www.aofas.org/educational.asp

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9. American Association of Podiatric Sports Medicine. *Shoe Evaluations*. Retrieved on-line http://www.aapsm.org/

10. American Podiatric Medical Association: *APMA Foot FAQ's; General Questions*. Retrieved on-line: http://www.apma.org/faggeneral.html

11. Defective Footwear – An Unexpected And Often Overlooked Cause of Lower Extremity Injuries. Bruce Wilk, PT, OCS William Gutierrez, PT, OCS, ATC Retrieved on-line: http://www.therunnershigh.com/defective_footwear.htm

Additional Information Resources

American Podiatric Medical Association
9312 Old Georgetown Rd.
Bethesda, MD 20814
1-800-FOOTCARE
http://www.apma.org

American Assoc. of Podiatric Sports Medicine
P.O. Box 723,
Rockville, MD 20848-0723
1-800-438-3355
http://www.aapsm.org

American Orthopedic Foot & Ankle Society
1216 Pine St. Suite 201
Seattle, WA 98101
(206) 223-1120
http://www.aofas.org

American College of Foot & Ankle Surgeons
515 Busse Highway
Park Ridge, Illinois 60068-3150
1- 888-THE-FEET
http://www.acfas.org

Criteria for AAPSM Shoe Recommendation List:

The Shoe Recommendation Committee, while diverse in their background and experience, find certain fundamental criteria necessary for evaluating and subsequently recommending specific shoes. There are thus seven main criteria upon which selections are based for shoe recommendation:

1. **Stability**. Shoes that are constructed in such a way as to prevent excessive or abnormal motion of the foot and leg are considered stable and will inherently assist in injury prevention and will facilitate other forms of treatment in the management of lower extremity injuries. Certain aspects of the construction of the shoe inherently lend to enhanced stability. Methods of lasting, midsole construction, heel counter construction, mid and outsole geometry, etc. all contribute to what can be considered a stable shoe. Each one of these variables are evaluated individually and collectively in the final product and assessment.

2. **Durability**. It has been found that while some shoes are extremely stable when new, they rapidly break down and thus lose their ability to resist abnormal forces. For this reason, certain shoes that demonstrate specific motion control features are not necessarily found on a recommendation list since that same shoe may not resist excessive forces for what is deemed to be an acceptable period of time.

3. **Availability**. It is our attempt to recommend shoes that are readily, or at least reasonably, available. The recommendation of shoes that are either difficult to obtain because of manufacturer's distribution problems, or because they are manufactured in relatively small quantities, produces frustration for both the practitioner and the patient. For this reason, an attempt will be made to recommend only those shoes that can be purchased by the patient with relative ease.

4. **Price Point**. Whenever possible, the committee will attempt to find those shoes that are reasonably priced. While an effective shoe will never be disqualified from the list based on price, shoes that are more reasonably priced will be looked upon more favorably by the Committee, as this also results in a more satisfied patient. As we all know, not every shoe recommendation works out as well as we might hope, and this occurrence is easier to accept with a $75-80 shoe than a $150 shoe.

5. **Quality Control**. The committee has found that certain shoes are extremely consistent in their manufacture and the performance of that shoe is therefore predictable when recommended. It has been the unpleasant observation of the Committee that certain shoes have been somewhat inconstant with regard to quality control and performance and, as a result, cannot be recommended with confidence.

6. **Orthotic Compatibility**. Since most of us utilize functional orthoses as part of our lower extremity injury treatment plan, the recommendation of a shoe that is compatible with the use of a functional orthoses is critical. Shoes that appear on this list therefore fit these criteria according to the Committee.

7. **Specific Features**. While the aforementioned criteria are applicable to virtually every shoe that will appear on the Committee's recommendation list, specific categories may at times be featured for specific patients with specific biomechanic conditions or symptom complexes. In these instances, specific shoes may be recommended for particular applications, i.e. need for forefoot cushioning and flexibility, roomy toebox, etc.

Source: http://www.aapsm.org/crishoe.html

AAPSM List of Recommended Shoes

Walking Shoes

Brooks WT Leather Addiction (M/W) +3
Rockport World Tour (M/W) +2
Rockport Prowalker DMX (M/W) +2
New Balance 840 Series (M/W) +3
New Balance 810 Series (M/W) +2
Asics Tech Walker (M/W) +2

Basketball Shoes

New Balance 852 (M/W)
Nike Force Authority (M)
Nike Team Max II (M)
Nike Air Jordan XVI (M)
Nike Air Jordan IV (M)
Nike Air Jordan V (M)
Nike Air Force Strong (M)
Nike Air Jumpman Swift 6 (M)
Nike Holistic Max (M)
Nike Tuned Swoopes (W)
Nike Air Jordan Sweet Fade

Running Shoes - Mild Motion Control
Adidas Cairo II (M/W)
Adidas Calibrate (M/W)
Asics 2070 (M/W)
Asics Gel Kayano VII(M/W)
Brooks Adrenaline (M/W)
Brooks Vapor (M/W)
Brooks Trance (M/W)
New Balance 854 (M/W)
New Balance 763 (M/W)
New Balance 999 (M/W)
New Balance 1220 (M/W)
Nike Air Structure Triax (M/W)
Nike Air Durham (M/W)
Nike Kantara (M/W)
Saucony GRID Omni 3

Running Shoes - Moderate Motion Control
Asics Gel-Foundation III (M/W)
Asics Nandi (M/W) Trail Shoe
Brooks Addiction IV (M/W)
Brooks Gila (M/W) Trail Shoe
New Balance 587 (M/W)
Nike Air Durham Plus (M/W)
Reebock Supreme Control DMX (M/W)
Puma Complete Premise
Saucony GRID Omni 3 (u)
Saucony: Grid Stabil 3(M/W)
Saucony: Grid Courageous (M/W)
Saucony Grid Hurricane 5 Running Shoes

Running Shoes - Maximum Motion Control
Asics Gel MC+ V (M/W)
Brooks Beast (M/W)
Brooks Ariel (W) (* note somewhat less control then the Beast)
Mizuno Wave Renegade
New Balance 1121 (M/W)
New Balance 1122 (M/W)
Saucony: Grid Stabil Classic (M/W)
Reebock Ventilator DMX (M/W) Running Shoes

Running Shoes - Cushioning
Asics Gel-Cumulus IV
Asics Gel Nimbus IV
Mizuno Wave Rider '02

Running Shoes - Trail
Adidas Supernova Tail++
Asics Gel-Eagle Trail+
Montrail Diez Vista +
Montrail Vitesse +
Montrail Diablo ++
North Face Ultra GTX +

Source: American Academy of Podiatric Sports Medicine: Shoe Evaluations
http://www.aapsm.org/

Motion Control Shoes

Function: minimize foot movement (overpronation)

Recommended for:

- Pes Planus/hypermobile flat feet or overpronators
- Morton's Toe (2nd toe larger than great toe)

Not recommended for:

- Rigid, high-arched feet or over supinators

General Characterisitics:

- board or combination lasted
- straight lasted

Cushioned Shoes

Rigid

Function: allow full foot movement & provide max. shock absorption.

Recommended for:

- Rigid, high-arched feet or oversupinators

Not recommended for:

- Flexible, pes planus feet or overpronators

General Characterisitics:

- Slip or combination lasted
- Curved or semi-curved lasted
- Soft midsole without medial posting

Stability Shoes

Function: allow natural movement while providing a balance of shock absorption, cushioning and control

Recommended for:

- Runners with no significant biomechanical problems

Not recommended for:

- Severe overpronators or oversupinators

General Characterisitics:

- Semi-curve lasted
- Combination or slip lasted