

Techniques of Foot Manipulation -- Part II

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Mankind does not stand or walk on the ends of the tibia and fibula -- feet are attached. When you rotate your upper body on the thigh and leg in a standing position, your ankle joint does not rotate on a "y" axis as in spinning a top. Instead, many complicated intrinsic joint motions occur in the foot itself. We need to know this fact in order to understand podiatric foot mechanics and manipulative biomechanics.

However, looking at the foot as a series of interlocking and/or interconnecting bones forming uniquely shaped joints, we discover a specialty of its own. Remembering that we do not find fixations in hypermobile joint margins, and that most often such hypermobile joints are found in the medial subtalar and mid-tarsal, then we seldom should need to adjust these joints. These are specifically named the talocalcaneal, talonavicular, and calcaneocuboid. We should also remember the cause of these hypermobilities, i.e., hyperpronation of the foot. All such hypermobilities absolutely need a functional foot orthotic. The same pair of feet may also require foot manipulation, but in what joints? Certain parts of the talocalcaneal are fixated although other parts may be hypermobile. Usually this is a compensatory adaptation where nature attempts to stabilize the joint. These "subtalar" joints need an orthotic to stabilize the anterior aspect as well as the joint one-half inch distal, i.e. talonavicular. The posterior and lateral aspect of the subtalar joint usually needs to be adjusted for fixation. Also, in hyperpronated feet, chronic strain results in fixated cuneiforms with the metatarsals, navicular, and cuboids. Inversion sprains often result in a fixation at the sinus tarsi (lateral subtalar joint) and are often associated with chronic pain relieved dramatically by adjusting. Hearon has identified a subluxation fixated anteriorly in the ankle mortise which can create a false forefoot valgus or varus condition. This may follow an untreated ankle sprain typically in the equinovarus position as in stepping into a gopher hole. (Illustrations I)

Procedure:

Figure 3 shows general manipulation for fibrosed feet.

1. Begin foot manipulation with a warm-up by rolling the foot between both of your hands. This achieves an anterior/posterior glide and rotation of the metatarsals.
2. Grasp the phalanges, excluding the big toe, between your thumb and the first interphalangeal joint of the index finger and apply long axis extension. You may then move each or any metacarpophalangeal or interphalangeal joint in any axis of motion. The adjustment is made by testing joint play and adding an "impulse."
3. Metatarsal/cuneiform/cuboid
 - a) Glide from dorsum to plantar: Apply one contact hand over metatarsals and the other over cuneiforms or cuboid. Push with one hand and pull with the other.
 - b) Figure-of-eight metatarsals/tarsal loosening: Hold heel in one hand and metatarsal heads in the other.

c) Plantar thrust on sole of the foot: Doctor uses reinforced thumb contact. Attributed originally to the Canadian, Dr. Locke, used for all articulations with the metatarsal/tarsals.

d) Navicular twist: Using a web contact with thumb under the navicular/cuneiform, the opposite hand over dorsum of metatarsals, twist upward with navicular contact and downward with the other hand, thus twisting the foot. Note: Chronic pronation often causes dorsal deformation across metatarsal bases.

4. Talonavicular (midtarsal joint)

a) Cavus feet often lack a "mobile adapter" shock absorption function. Feet tend to be neutral or supinated and the talonavicular joint is often, if not usually, fixated. Have patient supine. You place your middle finger over the talonavicular joint and overlap with your other hand. Medially rotate the leg; dorsiflex and invert the foot; apply long axis traction and impulse. Very often you will feel or hear an audible release.

b) Push/pull (dorsal-to-plantar glide as above).

5. Calcaneal/cuboid

a) The above manner can be used, but instead of inverting the foot, evert it for cuboid adjustment.

b) Patient sitting or lying supine, using the patient's right foot for example, you face the patient. Use a web contact with thumb under cuboid; you can see the dorsum of both your hands in this move. With your other hand, grasp metatarsals with your right thumb under the navicular area and twist as if wringing out a washcloth; you are pronating the cuboid and supinating the metatarsonavicular.

c) Patient prone (lying face down) you grasp the cuboid/metatarsal with a reinforced double thumb contact; push-pull repeatedly with impulse.

6. Subtalar joint

a) Patient sitting or lying supine with knee bent with heel resting on adjusting table: Cup patient's heel in your hand and rest on the table; with your other hand use a web contact, dorsum of your hand up. Now, push-pull in a rocking motion.

b) Long axis extension with rocking motion. Doctor sits between patient's legs (patient supine), contacts talus with thumb and index finger using both hands.

c) Patient prone, you grasp the heel with one hand and talus with the other; push-pull with impulses.

d) Lateral subtalar (patient prone) -- same as above with thrust from lateral to medial (thrust opposite for medial subtalar fixation).

e) Lateral or medial fixation of subtalar joint with recoil adjustment: You place patient's foot on table, preferably with "drop" mechanics. Contact subtalar joint with soft pisiform and thrust with recoil or impulse to gap the joint space.

7. Ankle mortise

The ankle normally moves in dorsi and plantar flexion. There is no rotation or lateral flexion other than possibly some joint play. Hearon describes anterior subluxation of the talus in the mortise and

his technique, illustrated in Dynamic Chiropractic, August 18, 1990 issue.

a) Long axis extension: The position of the patient is prone and the maneuver is described under subtalar joint. Doctor sits between the patient's legs and leans against the patient's thigh, then pushes talus away from mortise. Separation can easily be felt.

b) Anteroposterior glide -- patient sitting on the table with hip and knee flexed: With knee bent, with heel on table, grasp patient's tibia with one hand and talus with the other hand, then push-pull with impulse.

The above manipulations are fundamental maneuvers. Many variations are possible; however, these work very well. Adjunctive physiotherapy is quite useful, especially in chronic cases or when inflammation is secondary to pathomechanical conditions. The average pronation patient does not require foot x-rays; occasionally blood work is helpful such as uric acid levels in gout, etc. Ninety-five percent of the time the diagnosis of foot pathomechanics is straightforward and is made from clinical findings. Chiropractors can do more for the average patient than any other clinician by applying expertise in both orthotics and foot biomechanical correction.

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