Why Your Feet Affect Your Whole Body

Understanding the Connection Between Foot Mechanics and Your Knees, Hips, and Back

Many people are surprised to find that foot problems can contribute to pain in the knees, hips, or lower back — and that treating the feet can improve these symptoms. This happens because the body works as a connected system. The way your feet move affects everything above them. Understanding this connection helps explain why your treatment may include more than just addressing where it hurts.

1 Your Body Works as a Chain

Every time you take a step, a chain of movement passes from your foot through your ankle, knee, hip, and up into your lower back. This is called the kinetic chain. When one part of the chain moves differently — because of stiffness, weakness, or an unusual foot shape — every joint above it has to adapt.

What the Foot Does	The Chain Effect Upward	What You Might Feel
Excessive inward rolling (overpronation)	The shin rotates inward -> the knee moves inward -> the hip drops on the opposite side	Inner knee pain; anterior knee pain; hip pain; shin splints; IT band pain
High-arched foot (supination)	The foot stays rigid and absorbs less shock -> more force passes to the ankle, knee, and hip	Outer ankle pain; outer knee pain; stress fractures; hip tightness
Limited big toe movement	The foot compensates by collapsing the arch inward to complete push-off, causing tibial rotation	Forefoot pain; shin pain; medial knee pain; altered walking pattern
Limited ankle bend	Compensatory knee flexion increases; or early heel rise; forefoot overloaded in midstance	Knee and thigh aching; increased forefoot pressure; plantar fascia strain
Leg length difference (functional or structural)	Pelvic tilt; spinal side-bending; uneven load on one hip and knee across every step	One-sided hip, knee or lower back pain; asymmetric orthotic wear

2 Common Connections: Foot to Body

Body Region	How Foot Mechanics Can Contribute
Inner knee pain	Overpronation causes the tibia (shin bone) to rotate inward excessively on each step. This increases the load on the inner knee structures — the medial collateral ligament and medial joint line. Orthotics that reduce overpronation can directly reduce this force.
Kneecap pain (anterior knee pain / PFPS)	When the foot rolls inward, the knee follows and the kneecap is pulled toward the outside of the knee joint. Over thousands of steps a day, this creates friction and pain. A combination of hip strengthening exercises and orthotics is usually most effective.
IT band syndrome (outer knee pain)	Overpronation also causes the hip to drop slightly on the opposite side, increasing tension in the IT band — the thick band of tissue running from the hip to the outer knee. Hip strengthening and foot control are both important.
Hip pain (GTPS / outer hip pain)	Excessive foot pronation and poor hip stability reinforce each other. If the hip abductor muscles are weak, the foot pronates further, and vice versa. Treating both the foot and the hip together gives the best outcome.
Shin pain (MTSS / shin splints)	Overpronation increases tibial rotation, placing repetitive stress on the shin bone and the muscles attached to it. This is one of the most common running injuries. Load management and orthotics are the most effective combination.
Lower back pain	Asymmetric pronation or a functional leg length difference means the pelvis is not level across every step. Over time, this can contribute to muscular imbalance and lower back pain, particularly on one side. A heel raise or corrective orthotic can reduce this asymmetry.

3 How Orthotics Help the Whole Body

Foot orthotics are not just for foot pain. By changing the way the foot contacts the ground and moves through each step, they change the mechanical environment for every joint above. Here is what orthotics do and what they cannot do:

What Orthotics Can Help With	What Orthotics Cannot Do Alone
Reduce excessive inward rolling of the foot and shin	Replace the need for muscle strengthening
Reduce the load on specific tendons, joints, and plantar fascia	Fix poor balance or proprioception without exercise
Correct a functional leg length difference with a heel raise	Correct structural deformities without combined treatment
Reduce tibial rotation and downstream knee and hip stress	Improve hip strength, which must be trained separately
Redistribute forefoot pressure and protect healing tissues	Replace appropriate footwear — they work together
Provide proprioceptive feedback to improve foot position	Act as a permanent fix if the cause is not also addressed

4 Getting the Best Results: Orthotics and Exercise Together

Orthotics work best when combined with exercises that address the muscles involved in the kinetic chain. The most commonly prescribed exercises for lower limb conditions include:

- Calf stretching — addresses tight calves that limit ankle bend and increase plantar fascia load
- Single-leg calf raises — strengthen the muscles that support the arch and ankle
- Hip abductor strengthening (e.g. clamshells, side-lying leg raises) — reduces tibial rotation and knee valgus
- Glute strengthening — improves hip stability and reduces overload at the knee and IT band
- Arch and intrinsic foot exercises (e.g. toe spread, short foot) — improve foot control from within

> **It is not just your feet**
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> Pain in one part of the body often has its roots elsewhere. Your podiatrist looks at the whole picture — not just where it hurts. If you have been told that your foot mechanics may be contributing to your knee or hip pain, treating your feet is a legitimate and effective part of your recovery.