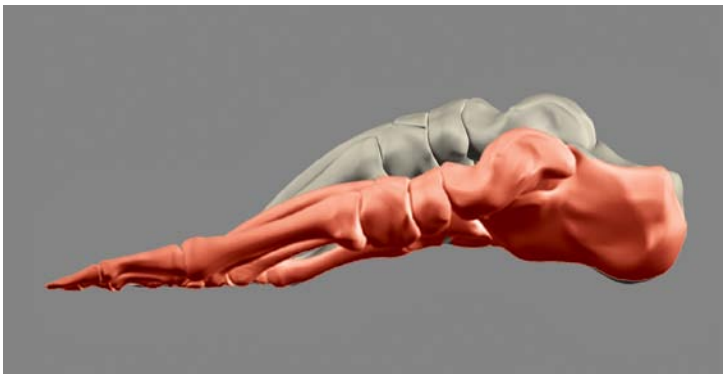
Corrective Paradigm: MASS Position
Going Beyond Neutral STJ Position



Neutral (red) vs. MASS position. The foot in neutral posture is already 50% pronated so will lack the structural integrity to resist further pronation at midstance.

The use of any corrective intervention strategy begs the question: what model or template do I use as a corrective goal? Before the work of Merton Root in the 1970s, there wasn't one. Most all of the practitioners today have now been trained on Neutral STJ theory and methodology. While this provides a professional standard, its universal acceptance also tends to freeze thinking and experimentation in time, in this case the 1970s. Is Neutral STJ theory still the best model for foot corrective science?

Neutral STJ Position theory is based on a number of assumptions that have never been tested by research and are also counter-intuitive:

1) That a neutral (50% pronated) posture of the foot is an important posture of the foot that has functional relevance to the gait cycle

2) That apparent, non-perpendicular angulations of the forefoot to the rearfoot in open-chain neutral position are important anatomical variances to correct for in the gait cycle

3) That rearfoot and/or forefoot posting is capable of making a significant change in foot function and therefore promote foot health

In all other fields of orthopedic practice the relationship of posture to function and health is well understood and, for that reason, improving posture is a goal in treatment. Joint systems are designed to work best when there bony elements are in proper alignment (posture). When it comes to the foot and Neutral Position Theory, however, the entire concept of posture restoration seems to have been abandoned. Instead we see a non-functional paradigm (neutral position) generate non-problems like "forefoot varus" and then attempt to correct things with small wedges under the foot that have no significant mechanical effect. The vast majority of research today shows no significant difference in results between stamped out pre-fabs and custom orthoses made along Rootian principles.

The real division in foot management strategies today is over its goals. Should we be content with "tissue stress" reduction by means of posts, skives, add-on pads or

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Comparison of two feet at midstance. The foot at top in that pronated posture, even with a supportive, posted orthotic, will have great difficulty achieving normal re-supination. The foot at bottom begins with a restored, supinated posture that is now prepared to deal normally with forefoot loading forces.

whatever; or, should we achieve pain and deformity relief by restoring posture and function. We would argue the latter is the most comprehensive and best therapeutic goal. Otherwise, one is merely treating symptoms and leaving the biomechanical disease.

The foot has complex, tri-planar, three dimensional architecture, the shape of which determines its actual degree of supination or pronation and therefore its function on the ground. That complex architecture is what we refer to as "posture" of the foot.

While there are many varieties of foot anatomy and points of relative flexibility or rigidity, all feet are:

1) Either completely rigid and therefore cannot be helped with orthotics

2) Or are to some degree flexible and cycle between a position of full closed chain supination and pronation (with high individual variation in where the most movement occurs within the tarsus).

Ninety-nine percent or so of feet are in category #2 and define the daily patient population coming to us for help. The vast majority has some degree of over-pronation and therefore is functionally deficient in supination. So the real, common and pertinent clinical problem is the lack of sufficient supination from late midstance to forefoot loading. That is the issue that MASS position theory addresses and it addresses it by restoring supination posture (MASS is an acronym for **M**aximum **A**rch **S**upination **S**tabilization.

So what is MASS position? It is the most supinated posture any particular foot can be put into with the heel and forefoot on the same plane (the floor). Our casting technique is able to capture this because we introduce the foot sequentially, from heel to forefoot, into the foam, using the floor that foam box sits on as the plane of reference: heel, fifth and first met heads are all brought down to floor level. Capturing full available supination in this way insures that there is not so much inversion that the forefoot might be inverted relative to the heel. The same process resolves any "forefoot varus/valgus" or "rearfoot varus/valgus" that might be present in a Rootian exam. The cast is done semi-weightbearing so as not collapse the arch.

How can one technique work for so many different

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With the semi-weightbearing MASS casting technique, each individual foot yields an individual plantar shape in Maximum Arch Supination Stabilization position.

feet? Many expert orthotic practitioners pride themselves on using many different correction designs and strategies based on the individual patient and deride any approach that utilizes one methodology as "simplistic" or "amateurish". The real question is where does the difference in patient to patient count: in the different techniques used to treat it or in the patient's own anatomy? We argue it is their own anatomy and foot flexibility that importantly distinguishes patients from each other, not in the diversity of tricks in the practitioner's toolbox. After all, all patient's need adequate supination from midstance forwards, but they will need different supportive shell shapes and calibrated shell flexibilities to achieve it comfortably. The shape is given to us by the patient's own foot; the flexibility is assessed by a manual test we developed. So with Sole Supports and MASS technology, the diversity is not arbitrarily dictated by a grab-bag of potential modifications; the diversity comes from each patient. Why guess at variation when the patient can give it to you?