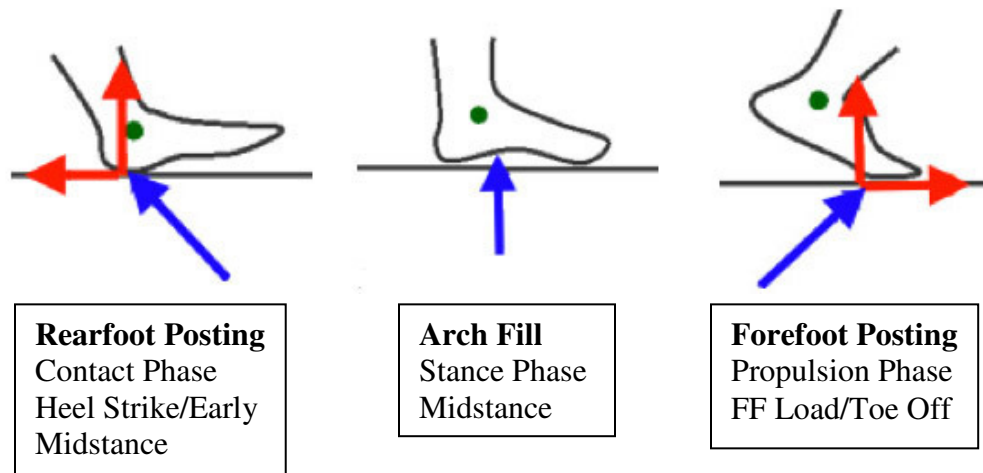


Posting- a lab view

A. Brian Stoodley, C. Ped Tech (C), C. Ped (C)

Posting in general refers to the process of tilting or angling specific aspects of an orthotic shell, insole or shoe to alter motion and/or joint forces. Posting can be added to the rearfoot and/or the forefoot of a device. Determining where and how much posting to apply to the orthoses is a challenging choice however the desired result is to manage pronation and/or supination of the foot. Although, recent literature challenges the affects of posting in regard to functional control, it has been theorized that posting influences the foot during gait as per the following:



Posting can be either intrinsic (on positive cast) or extrinsic (on shell) Adding to the challenge is that the clinician can combine intrinsic and extrinsic posting at the forefoot and rearfoot of the orthotic device allowing for a countless number of combinations and options for the final design.

About Intrinsic Posting:

The modified positive cast serves as the final foundation of the shell of the custom foot orthoses that you will dispense to your patient thus should reflect exactly the shape and contours that you visualized during your assessment and negative casting processes. Careful cast modification is fundamental to the comfort and therapeutic results of an orthoses. Owing to the individuality of every foot, countless eventualities will arise

however with clinical acumen, knowledge of the basic principles and the development of sound technical skills it will be possible to achieve good results whichever the situation.
-Philps

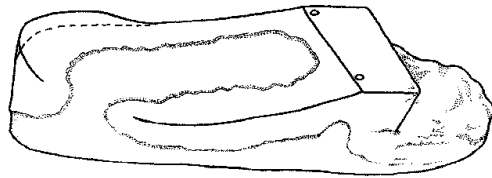


Intrinsic Forefoot Posting:

One of the main advantages of utilizing intrinsic posting in the foot orthotic design is the obvious reduction of bulk. As material does not need to be added to the outside of the orthotic shell, intrinsic posting is an advantageous way to support the foot in lower volume footwear. The fact that material is not added to the outside of the orthotic shell also results in a main disadvantage of intrinsic posting vs. extrinsic posting is it tends to yield a less corrective device due the reduced mechanical advantage through the lever arms of the shell. The alteration that must be made to the forefoot of the positive cast involves the addition of plaster on the plantar surface of the mtpjs (via the metatarsal platform) to hold the cast in the posting angle required. The effect of this additional plaster will create an exaggerated bend on the orthosis shell just proximal to the metatarsal heads. This change in shape to distal one third of the shell, serves to “prop up” or post the required area of the foot.

Tech Tips:

- intrinsic ff posting needs to be addressed when preparing the metatarsal platform in the cast positive
- when used in conjunction with intrinsic rf posting, intrinsic ff posting should be addressed in the positive cast first, this will assist the fabricator’s vantage point when utilizing the vertical rearfoot bisection line in the positive cast
- allow 4-6 degrees of pronation between the rearfoot and forefoot relationship for normal function
- intrinsic forefoot posting can not be evaluated in the final product unless compared against the negative cast or the patient’s foot



Arch Fill:

Primarily, pedorthists utilize arch fill of the positive cast to allow for normal soft tissue expansion of the foot on weight bearing and to allow forgiveness in the medial aspect of the orthotic to allow for normal midstance pronation (4-6 degrees). Recent literature suggests that the addition or removal of plaster beneath the arch is the most clinically significant modification of the positive model, because it determines how much the resultant orthotic will support the medial (and lateral) arch during stance phase. One can hardly argue the validity of these new opinions and although arch fill is technically not considered as posting it deserves appropriate consideration due to its high influence on the final correction of our orthotic devices.

Tech Tips:

- adding plaster to the arch of the positive mold lowers the arch of the final device, opposing removing plaster will raise the arch
- the height of the arch, influences the strength of the material used in the final orthoses thus will influence functional control

Intrinsic Rearfoot Posting:

Philips provides us a useful analogy, comparing the heel as a wooden ball. The convex shape of the ball makes it quite unstable and allows free movement however if one were to flatten an aspect of the wooden ball, it would create stability.

This concept is different than forefoot posting as it requires the fabricator to remove plaster from the positive mold rather than add plaster. The effect of this removal of plaster creates a flattened area in the heel cup of the orthotic shell. This flattened aspect of the shell creates pressure on the corresponding area of the foot in an attempt to stabilize or reposition that area. By far, the most common intrinsic rearfoot post utilized by pedorthists today was the Kirby Skive. The Kirby skive is usually incorporated into the medial aspect of cast functioning like a rearfoot varus post.

Tech Tips:

- intrinsic rearfoot posting may need to be avoided if the pressure derived from the modification creates direct pressure in a sensitive area of the patient's foot
- the fabricator must ensure that the flattened area is blended both on the cast and the final orthoses to avoid creating uncomfortable pressure points for the patient

About Extrinsic Posting:

Since intrinsic modifications require extensive knowledge of laboratory preparation and orthotic manufacturing, many practitioners opt for the simpler extrinsic posting technique, in which a specific material is cemented directly to the rearfoot and/or forefoot of the orthotic shell and ground to the desired angle.



Rearfoot post:

By far the most common post added to an orthoses. The rearfoot post serves two functions: to angle the orthotic shell in a desired direction and/or to stabilize the orthotic shell on a flat surface. In theory the rearfoot post is applied to the shell of the orthosis in an effort to control the subtalar joint at midstance however recent texts suggest post efficacy may be more related to its ability to improve ankle inversion moments. A “true” extrinsic post will create a rocker effect on the orthosis shell.

Forefoot post:

The forefoot post is found in three lengths all starting 10-15 mm proximal to the shell’s anterior border: to the distal anterior border of the shell, to the sulcus, to the toes. To avoid iatrogenic injury, it is suggested the clinician utilize lower durometer compressible materials when utilizing extrinsic forefoot posting. In theory, the forefoot post is added to the shell of the orthoses to angle the orthotic in a desired direction and to effectively distribute ground-reactive forces. Recent literature cautions the clinician to avoid incorporating extrinsic forefoot posting when deformities that are not considered rigid and structural.

Tech Tips:

- material thickness of 10-12 mm provides ample working material to incorporate bevels and posting as needed
- the extrinsic rearfoot post is applied before the forefoot post

- allowance must be ground on the distal border of the rearfoot heel post to allow for the heel height of the shoe it will fit in
- a standard rearfoot post sits approximately 10-15 mm distal to center of the heel seat
- a standard forefoot post is bonded approximately 10-15 mm proximal to the anterior border of the shell
- commonly material of 50-70 durometer is used for extrinsic rearfoot posting however softer material of 30-50 is most often recommended for forefoot posting

A Thought About Posting:

To use posting, where to add posting and how much to use is more complex than a mathematical equation. Aligning every patient's foot square to the ground, does not ensure we reduce/remove our patient's pain. Careful considerations should include and understanding that:

- negative casting methods affect starting point
- negative casting positions affect starting point
- pain threshold of the patient limits "correction"
- position of comfort vs. textbook position of the patient is a very important decision
- severity of misalignments limit "correction"

In summary, a C. Ped (C) has an astronomical amount of variables in their tool box when deciding if, when, why and where to use posting. This statement begs the question: Do you post all your patients to the same end position?

Sources:

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- Decker/Albert, Contemporary Pedorthics,*
- Michaud, Human Locomotion*
- J.W. Philips, The Functional Foot Orthosis*
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Brian Stoodley is the president of Biotech Orthotic Design Inc., instructor of the Foot Orthotic Theory course in the Western University Pedorthic Program, Vice Chair for the College of Pedorthics of Canada, past president of the Pedorthic Association of Canada and continues to be an active member of PAC's Insurance and Government Relations Committee.