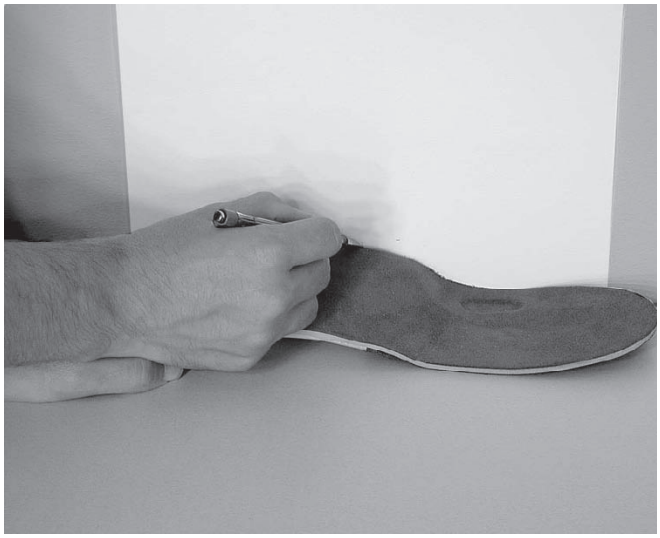
Orthotic Dispense, Break-In & Follow-Up

When The Orthotics First Arrive . . .

Inspect the orthotics to insure that they are as ordered. If a full foot orthotic was ordered, ***the forefoot part of the topcover will arrive over-sized***. This is to insure that the topcover will not be too short or narrow for the target shoe. Simply take the removable insole from the shoe, match it up carefully against the bottom of the same side orthotic, and trace out the forefoot with a pen. Then take any household pair of scissors and carefully trim the topcover along the tracing line. The orthotic should now fit perfectly inside the shoe.

Record Baseline Arch Dimensions At Dispense

Measure the height of the arch from counter top to the apex of the plastic arch support (mark this spot with a permanent marker so the spot is re-measured at a later date). Alternatively, you can trace the orthotic contour on paper: put the medial side of the orthotic against the back wall of a counter top with paper edge aligned flush to the counter top (see illustration); carefully trace the arch contour maintaining a consistent angle of the pen to the wall. Record both sides in patient's chart for future reference. (Our thanks to Sue Ann Hardy for this technique)



The paper edge is placed square to the counter top and the arch profile is carefully traced for each orthotic, holding the pen at the same angle to the wall.

A small amount of height loss, ~1/8", is to be expected with regular use.

Progressive loss within the first 6 months indicates a probable need for remake with thicker material.

Break In Your Sole Supports Slowly!

Sole Supports change the way muscles contract. Some muscles will contract earlier, later, longer, or shorter. Follow the break-in guidelines that are outlined on the back of each box that your Sole Supports come in.

One Hour First Day
Two Hours Second Day
Add an Hour each Day
Eight Hours Eighth Day
Full Day Thereafter

These are "casual hours". Not sitting the whole hour and not going for an hour walk.

Set clear expectations at dispensing for your patients. We are changing the way you walk, so expect things to feel different. You may experience discomfort in your arch, aches in your legs and muscle fatigue.

Stretch your calves at least a few times per day while breaking in your Sole Supports – see the Calf Stretch Instruction Sheet in this manual. Tight calves can cause either premature heel lift out of the shoe or excessively compress the patient's foot into the arch support. The latter can be a reason why a patient feels the arch is too aggressive and uncomfortable.

Break in different/demanding activities slowly in the first few months of wearing Sole Supports– i.e. Run 1 mile, then 2 miles. Every new activity poses different adaptations for your muscles.

Orthotic Therapy – During WORK and PLAY wear your Sole Supports! This cannot be emphasized enough. Your patients will not be helped if they are only wearing their orthotics while they run. Give them a consistent surface to walk, work, and run on.

Rigid Feet

Rigid feet May have more difficulty adjusting to new position.

They May require slower break-in. Add 1/2 Hour per day. See Orthotic Trouble shooting for more tips.

Orthotic Follow-Ups: What to look for?

Perform the Arch Correction Test – Look for generalized total contact of the orthotic to the

patient's foot. (See section on Arch Correction test for details)

Time lines for break-in vary for each individual – be patient this is transitional adjustment period for them.

The goal is to get full function out of the first ray. Hallux rigidus and other arthritic conditions in the foot and knee may take more time to adapt to change.

When do I Adjust a Sole Support?

1) The patient is not getting complete relief.

2) The patient's relief hit a plateau at less than desirable results.

3) Initially patient received relief but then symptoms recurred. (May be due to slow, progressive collapse of the shell).

4) The patient can not tolerate orthotic control. Most often this will be due to insufficient flexibility of the shell, NOT because the arch is too high. The Arch Correction test will indicate if it is too high (rare). Remember: we do not force the foot into a position it cannot easily assume, so the arch we capture is not excessive for any particular foot. Some very flexible feet, however, can be 'over-arched' -that is why we limit the frontal plane rotation to ~45° during casting.

If the complaint is unilateral, try flexing through both orthotics on a counter top with your palm. If the side complained of feels noticeably stiffer, that helps confirm that rigidity is the issue. The best way to adjust rigidity is to return the orthotic(s) to us for a quick buff or grind. Before taking this step, you should feel confident that the patient has been diligently increasing their wear time and consistently wearing the orthotics. Early and only intermittent use of the orthotics might accentuate the sensation of arch pressure.

Common Patient Questions:

Do I need these forever?

Yes, they are like glasses. They do not (except possibly in the very young patient) change the bony structure. They support what is there. It should be stressed that even after the symptom is relieved with the orthotic, it is essential to continue using it, as it will prevent all of the symptoms mentioned here from occurring.

Will they wear out?

If not abused and the proper rigidity is prescribed, the shell should not wear out. The covering material and posting may need to be replaced every 2-5 yrs depending on the activity and weight of the patient. This requires you to send in the orthotic for refurbishing and takes only 3-5 days maximum in lab. Repairs are given first priority because we are aware of how addictive "feeling good" can be.

Will they fit in all my shoes?

Some shoes will not accommodate orthotics. In very high heels, over 2", the forefoot drops and creates an arch making orthotics unnecessary. (They do create many other problems that are worse and therefore they are not recommended.) Cowboy boots are often hard to fit. Sometimes a hard to fit shoe should be sent in with the casting box to aid the lab in making accommodations. In these cases, the thinnest orthotic is necessary, making some of the paddings and special modifications impossible. Many patients choose to get two pairs for this reason. One pair to wear in their casual and athletic shoes, which contains all of the modifications that you design into the product, and one pair of very thin dress shoe orthotics.

What if they don't work?

Sometimes the condition has advanced beyond the point where straightening out the mechanics of the foot will relieve the symptoms. In this case medical and surgical treatments may become necessary. Even in these cases, the orthotic plays a central role, because it is the only treatment that addresses the biomechanical cause of the problem. It is essential in preventing recurrence, as well as the many other symptoms. Don't be caught treating the symptom and leaving the disease. This is why many bunion patients complain of recurrence after surgery. They were not followed up properly with orthotics.

Casting: Step-By-Step Summary (R Side)

1

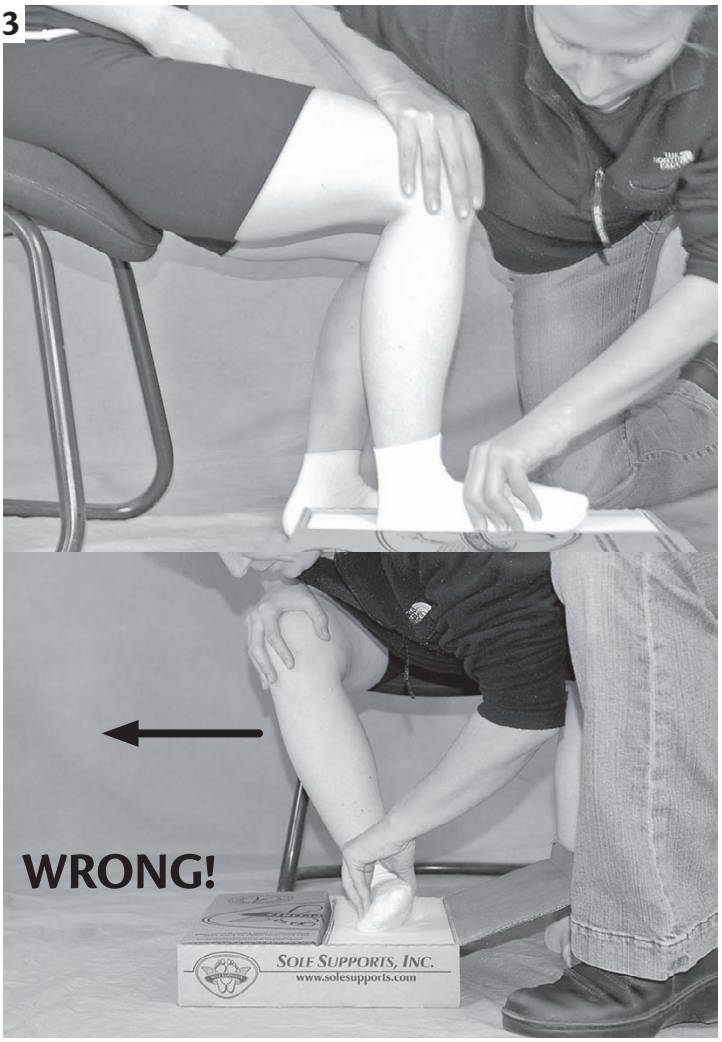
Starting position for R foot. Leg perpendicular to box, foot centered in foam (more room on lateral side)

Patients tend to relax their hips into abduction after you have positioned their feet. This will cause the leg to go out of vertical, so abduct their hips before positioning the foot

2

Supinate maximally without excessive inversion: L thumb under 1st Met head, other fingers on top of lateral foot

3

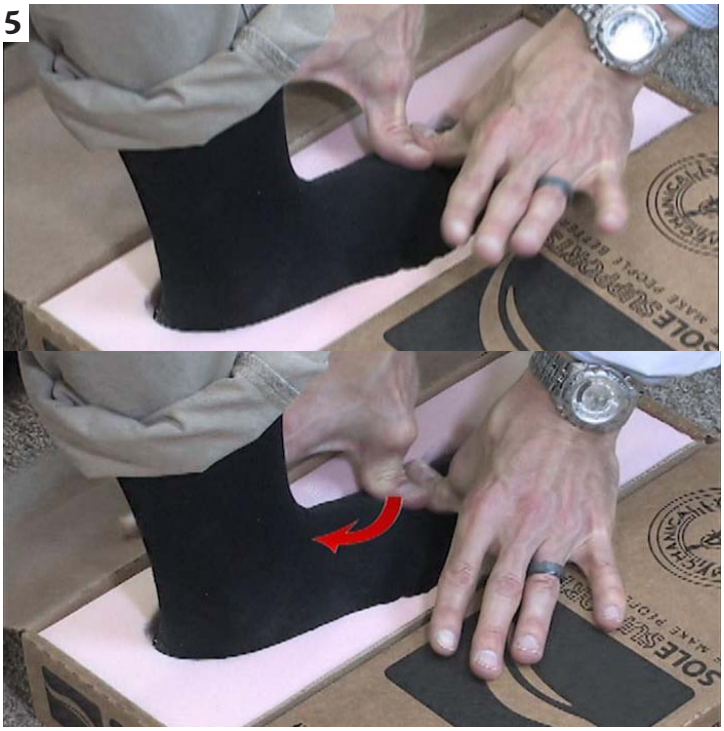


R hand on knee will drive leg straight down while L hand holds full supination. Do not allow knee to drift laterally! Fully bottom-out heel.

4

Bottom-out only the fifth met head on lateral side, then press the toenails down about half way to release the plantar fascia.

5



Palpate the now-prominent 1st MTP joint line, putting one thumb above and below. Bottom-out the 1st Met Head, pushing down and towards the heel.

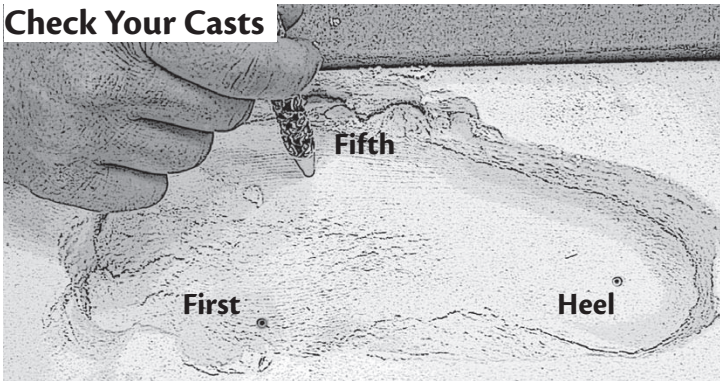
6

Bottom-out the rest of the met heads proceeding laterally. ***Repeat*** *thrusts on each met head to insure they are fully bottomed-out.*

7

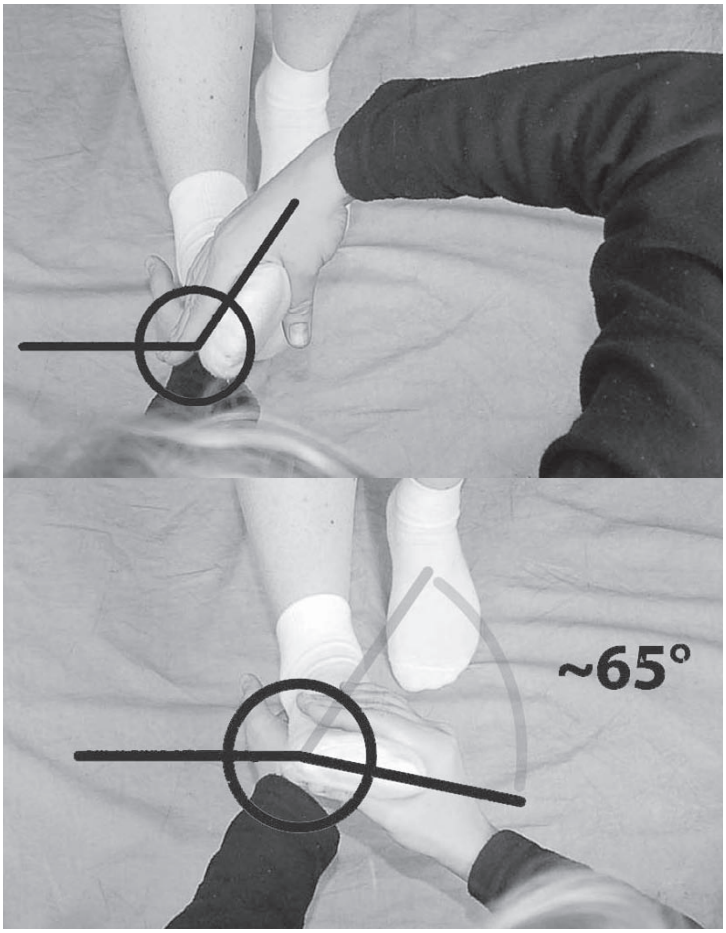
Re-seat the heel: place your L thumb on the 1st met head to stabilize the forefoot; R thumb pushes at crux of ankle towards outside bottom corner of heel

Check Your Casts



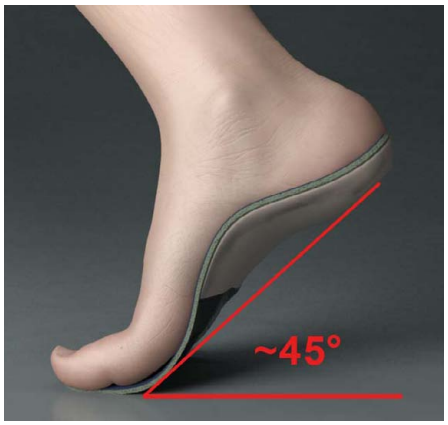
Foot Flexibility Test

Invert & stabilize heel with L hand; grasp across met heads with R hand, thumb on plantar aspect; Fifth met is axis of rotation.



Fully invert the forefoot while stabilizing heel. Note the angle relative to leg perpendicular. Evert fully and add that angle to get a total angle score

Full Contact Test



The Full Contact Test was developed to help determine the extent of arch height or plantar-grade supination that is possible in any given foot.

Steps:

1. The patient is seated as during casting.
2. The foot is put on top of the Sole Supports orthotic. Both foot and orthotic are lifted at the heel with forefoot remaining on the ground (approximately 45 degrees, normal push off position).
3. Holding the orthotic flush to the foot, assess the amount of space between the foot and orthotic arch. Any evident gap at the apex of the arch indicates there is still an available range of motion in the direction of supination that may benefit the patient. A nice flush fit at the arch apex indicates the orthotic is "Full Contact".

Purpose:

The Full Contact test is usually performed only during a follow-up visit if, after a month or so of full-time orthotic therapy, the patient is not satisfied with the results. Our initial response should be to check if there is adequate correction of the foot by the orthotic. The best measure of that is how high the orthotic arch is relative to the foot's arch at normal push-off position. The angle the foot makes to the ground in this position is approximately 45°.

This test is an excellent patient education tool. You can show a patient the lack of arch offered by their previous orthotics and compare it to the amount of correction available with Sole Supports.

COMFORT = CONTACT + CALIBRATION

The test is primarily looking for: Does the orthotic arch match the foot in the functional position (45°)?

1. If yes, then the orthotic should have enough correction to achieve the desired results. If the patient continues to have problems with the break in period, or feels as though the arch is "too high" then consider the flex or calibration of the orthotic shell. The proper flex of the shell along with the full contact position determines the comfort of their Sole Supports. Contact Technical Support for instructions on Warranty work for shell calibration.
2. If no, and the orthotic arch is lower, adjust it to match the 45° position arch of the foot. That is more than likely all it will take to get the full desired results.

Caution:

When performing the test, be careful not to take the foot to as high an angle as possible with the great toe still flush to the floor. That may result in too much arch in the foot, and is not the usual desired amount of arch we would put in the orthotic because this is not a typical or functional position of the foot for most activities.

Normal Full Contact Test Vs. Extreme Position

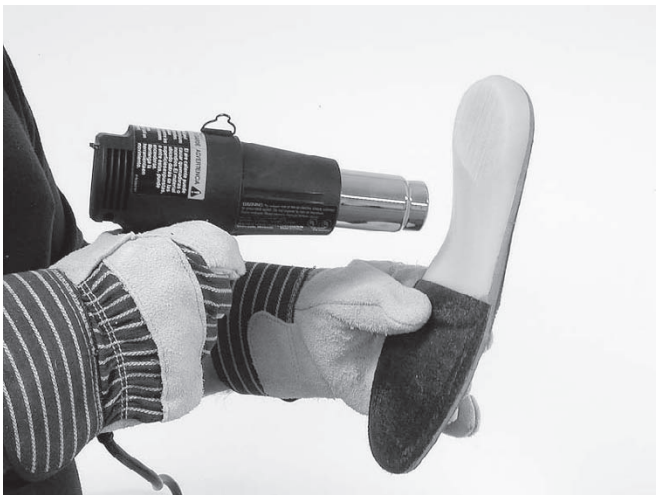
Considerations:

1. If the test is performed at this extreme angle position at the time of initial orthotic dispense, the practitioner thinks the orthotic was not made with enough arch.
2. During a routine follow-up visit, the patient has no complaints, the test is done in the extreme position, a gap is observed and the orthotic is unnecessarily adjusted up.
3. During the test, the practitioner does not keep the orthotic square to the plantar foot, and the orthotic either tilts medial or lateral around the A/P axis. (common is the patient is trying to see what you are doing and externally rotating their leg to see) If it is tilted medial, the orthotic arch will appear to be more congruent with the foot's arch than it should. If it is tilted lateral, there will appear to be more of a gap than there actually is.

Heat Adjustment

The plastic used to construct the Sole Supports orthotic shell can be adjusted with proper heating. Equipment needed includes a basic paint stripper gun, a pair of leather work gloves and a cup hook. The cup hook provides a safe place to park the gun after heating and should be set in a place to which patients will not have access. The metal nozzle of the paint stripper gun looks the same whether hot or cold. If you just lay it on the table after use, a curious staff member or a helpful patient might try to pick it up and hand it to you —and scorch their hand!

Another precaution is to fire up the gun for the first time outside. The heating coils are frequently coated with something in the factory to help retard rust. It is possible, with the combustion of this coating during first use, to create enough smoke to set off a sprinkler system in the clinic. Talk about throwing a wet blanket over the orthotic experience!

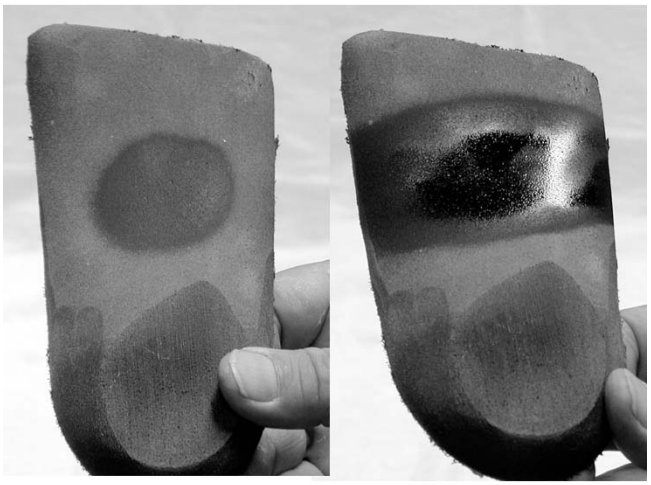


Aim the heat at the middle of the arch area, between medial and lateral borders, making small oval movements.

Before heat adjusting the orthotic for the first time, measure the highest point of the plastic shell from the counter top to get a baseline measure and record it in the chart for future reference. This is also good to do before dispensing the orthotic initially. Even if you are only adjusting one side and therefore have the other orthotic as a gauge, it is useful to have that information.

The first step is to wear gloves, hold the orthotic in one hand, aiming the heat gun at the bottom central arch area (between medial and lateral borders) with the other hand. You want to avoid overheating the edges of the orthotic for two reasons: the plastic is thinner toward the edges and will tend to over-dis-

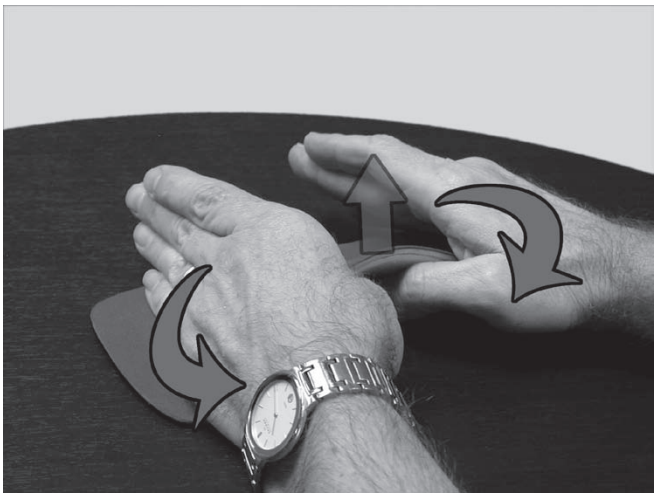
Heat until plastic begins to appear shiny. Note area described by the oval as the main target area for heat.



Black plastic early during heating (Left) and when ready for adjustment (Right).

Adjusting the arch upwards (hands ungloved for clarity).

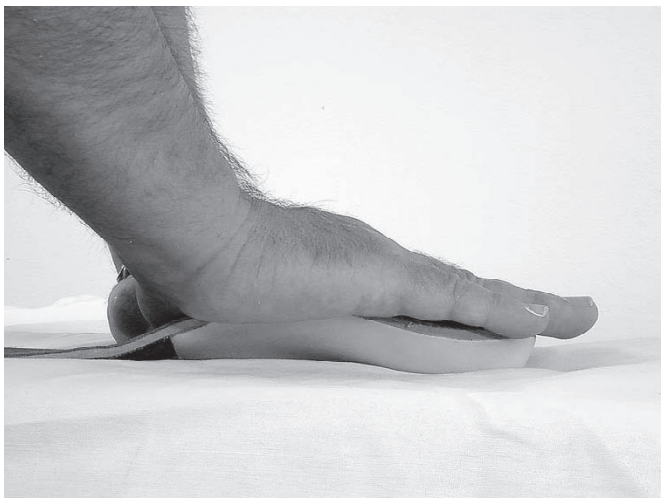
tort when you put pressure on it; the topcover may be singed. Move the gun in an oval pattern, as shown above, to distribute the heat. If you are not familiar with this procedure, we advise you to be conservative at first. Stop heating the plastic when it first starts to look shiny. Black plastic looks a little different when it is heated sufficiently for adjustment: as the pictures show, heated areas appear a deeper black rather than shiny. When the deep black area spans the entire width of the arch area it is ready for adjustment. Test deform



The sides of the hands do most of the work drawing the orthotic towards you while thumbs push upward moderately into the mid arch area. Shown without gloves for the sake of clarity.

the shell lightly to see if it will change shape fairly easily. If so, go ahead and make the change you want. If not, add a little more heat and re-test. Too much heat can make the orthotic change in many ways you don't want it to. It is possible to deform it so much that it may be difficult or impossible to regain most of it's original shape.

To increase the arch height, have the arch facing towards you, put your thumbs under the mid part of the arch and pull the heel and distal ends of the shell towards you while pushing down on the countertop with the sides of your hands. Most of the work should be done with the sides of your hands and only moderate thumb pressure should be applied in to the arch (to avoid local distortion of the shell). A good rule of thumb is to limit your height change, either way, to about 1/8" max. This is because more dramatic changes risk more inadvertent changes to other parts of the orthotic shape. Hold the new position for about one minute. If it seems to want to go back to the original shape, you may need more heat or to hold a bit longer.



Palm pressure at the mid arch allows an even distortion of the arch downwards

To adjust the arch downwards, heat the orthotic as above, and place on the counter. One hand spans the two ends of the orthotic to hold heel and distal edge flat; the other palm pressed down on the arch, midway between medial and lateral borders, until the amount of change desired is achieved. Hold as above until the new position sets.

After the orthotic has had a chance to cool for a few minutes, check the change in height accomplished by measuring with a tape or by comparison with the opposite side. Make any further changes as necessary. You may need to add more heat. If the orthotic has a tendency to creep back towards the initial shape, you may place a small weight on the arch if you want it to stay down or on the ends with something under the arch if you want it to stay high. The orthotic should *air cool* for 15 - 20 minutes prior to use. Using a refrigerator or ice pack to speed up cooling may facilitate eventual cracking of the plastic. Excessive heat adjustments (more than ~5), may also facilitate cracking. Using this technique it is possible to alter the shape of the orthotic in many different ways. For example, if it seems that the arch apex is too proximal or distal, you can move the arch curve accordingly (like a sine wave translating back or forth). You may dimple the plastic

up or down for special anatomical accommodations. As always, call us if you need recommendations for a particular situation.

.*High Heel Adjustment*

When you indicate a target heel height on the design form, we will adjust the shell appropriately for that height. If the orthotic still "see-saws" in the high heel shoe, the lateral edge of the shell will need further adjustment upwards to clear the shoe. To do this, simply heat the shell near the lateral side as during arch adjustment. Bow the lateral edge upwards just enough to clear the shoe.

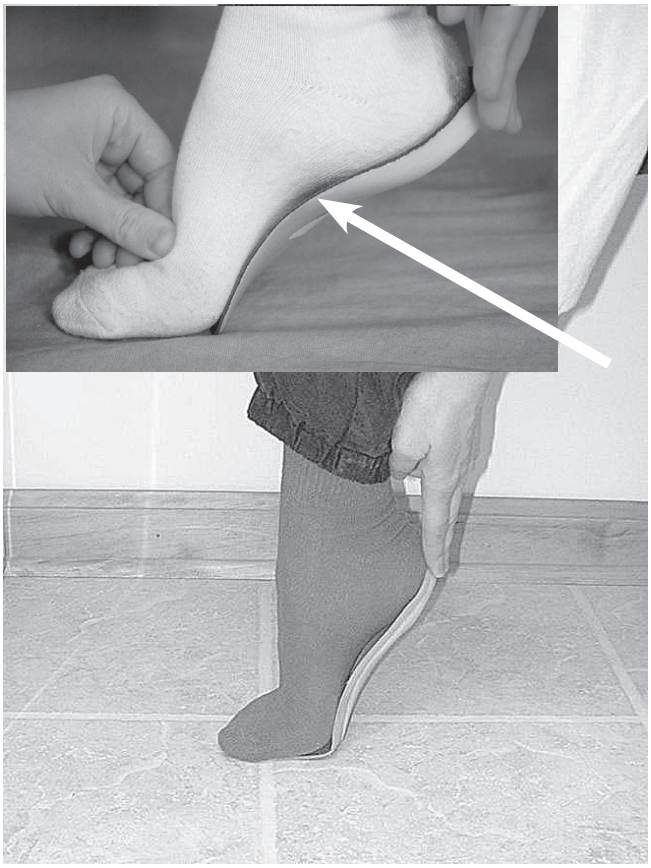
The patient's foot is positioned on top of the Sole Supports orthotic

The Arch Correction Test

The Arch Correction Test was developed to assess the arch height of the orthotic relative to the patient's foot. It helps to answer questions regarding appropriateness of orthotic arch height: is it too high, too low or about right? In the troubleshooting section we will explore the different ways of analyzing this and other issues. This section is about how to perform the test.

The patient is seated as during casting with the sock off the tested foot (if a sock is used, it should be fairly thin and tight fitting). The foot is put on top of the Sole Supports orthotic. Both foot and orthotic are lifted at the heel maximally with forefoot remaining on the ground.

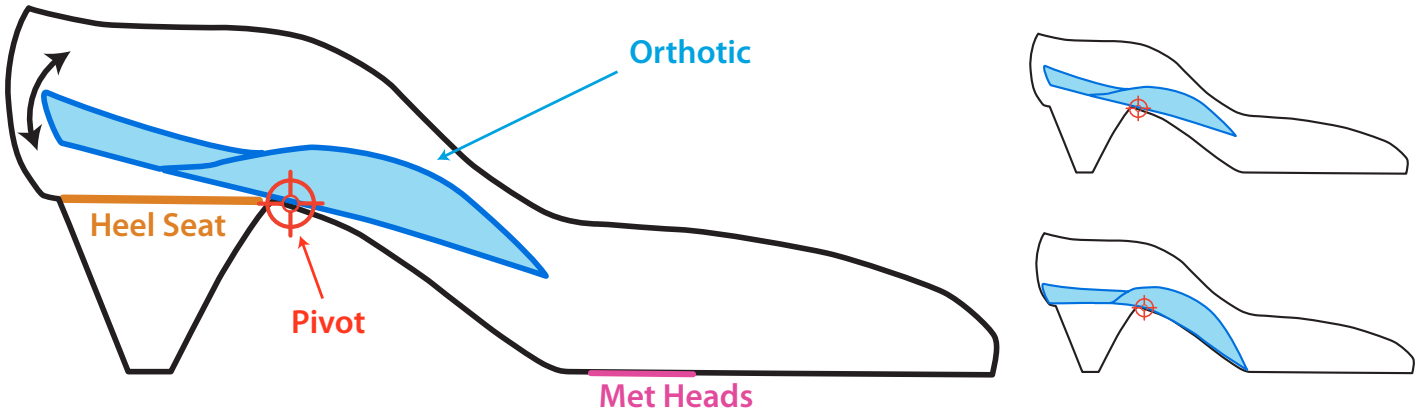
Holding the orthotic flush to the foot, assess the amount of space between the foot and orthotic arch. Any evident gap at the apex of the arch indicates there is still an available range of motion in the direction of supination that may benefit the patient. A nice flush fit at the arch apex indicates the orthotic is as high as it should go. If gaps are seen at the downslopes of the arch, this may indicate too much arch height in the orthotic. What you see helps determine changes you may want to make with heat adjustments.



Observe any gaps in the arch area. This example shows a significant gap in the arch apex area

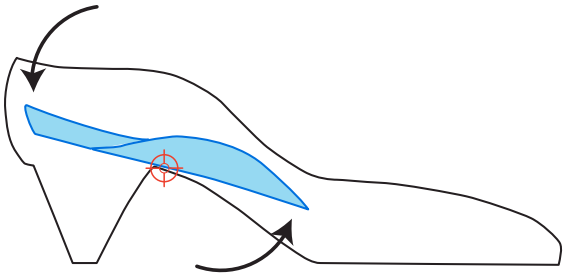
Heel Height for High Heel Modification

"I'm walking out the back of my shoes"



Simple Test:

- Place orthotic in shoe
- Press on the heel of the orthotic
- Does it pop up in front?



Second Reason why patients "walk out the back of their shoes":

- the heel counters of tight fitting dress shoes and loafers hug the heels, keeping the heel in the shoe
- Spreading of the heel counters with a deep heel cup will cause the heel to slip out