A Plethora of Pearls

Ten DPMs offer their collective wisdom on orthotics.

In a recent issue of *PM News*, a DPM posted this request:

Prescription orthotics are a big part of our practice. We are always striving to get the orthotics to not only fit like a glove, but to do what we want them to do for the patient and to hit that target a high percent of the time. I would like to ask my colleagues to share one simple pearl that you've found to get orthotics right "most of the time."

Tom Silver, DPM, Minneapolis, MN

A number of Dr Silver's colleagues responded with some of the most valuable and helpful tips we've seen on "how to get orthotics right most of the time." Here are ten posts culled from the large pool of offerings:

The best pearl is a complete and thorough biomechanical exam. Then the rest will fall into place like a glove.

Richard J. Manolian, DPM, Cambridge, MA

My classmate brings-up an interesting subject. We were trained in Root biomechanics by Drs. Forman, Spencer, and Tax. I still follow those principles with non-weight-bearing neutral plaster impressions with basic measurements. The pearl that I learned many years ago was to indicate to the lab "no cast correction." I will also write "fabricate orthotics to full-casted arch height." This is especially important for orthotics fabricated for a cavus foot type. I often see "custom" orthotics that do not at all look like the patient's foot in neutral position. Is it because of blue foam boxes, poor technique, or a generation of podiatrists not trained to do the job properly?

Greg Caringi, DPM, Lansdale, PA

Indicate to the lab, "fabricate orthotics to full-casted arch height."—Caringi

When adding an accommodation to the forefoot of an orthotic for an IPK or to off-load a sesamoid or metatarsal head, I have found that even when you mark the lesion in the cast or the scan, it frequently does not line up correctly the first time. When you place the orthotic up against the patient's foot it looks correct but when they stand on the orthotic in the shoe, the forefoot usually slides laterally.

I always use lipstick on the foot of the patient in the area you want to off-load when I dispense an orthotic. Then I have the patient walk barefoot on the orthotic in the shoes. I think you will find that the area you want to off-load is frequently slightly lateral to your accommodation. In addition, the accommodation often does not extend as far distally as the end of the symptomatic area.

I ask for all of my accommodations to end at the sulcus. I think you will be surprised how often the build-up meant to be around the painful area is actually pressing directly on it and either not helping or making it worse. Better to find out with lipstick right away rather than having to wait six months until the patient shows wear in the forefoot of the orthotic that shows it needs to be adjusted.

Ken Meisler, DPM, NY, NY

Cast prone. I do not know why we were taught to do it with the patient sitting supine in a chair; perhaps a colleague can tell me. However, I doubt it will change my mind as I get superior results when the patients are flat on their bellies.

Matthew B. Richins, DPM, Joplin, MO

What I consider pearls are more likely than not a way of practice life. Somewhere along the road a bright light came on and a few things became more apparent than ever. Some "pearls" if you will:

- Rearfoot to lower leg alignment is an absolute must if FF control is to be established. Hence the need for a RF post most of the time.
- With the FF following the RF (for most of us bipeds) it's the band-leader. The FF (the band) takes its cue and does whatever it's told to do. RF malfunction simply means FF

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I ask for all of my accommodations to end at the sulcus.—Meisler

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malfunction (i.e., functional adaptation.) Neuromas, bunions, HT's TB HR, HL etc. etc., etc. results.

• Neutral position closed kinetic chain suspension impressions technique is an absolute must. No fill for sure, as noted by Dr. Caringi.

Rearfoot to lower leg alignment is an absolute must if FF control is to be established.—Tager

• Without a thorough biomechanical exam (Dr. Manolian) you're flying blind in a snowstorm. The more information available, the more intelligent the treatment and the better the outcome.

• Perfect alignment is not a must. The body we live in continues to be an amazing piece of equipment. Get it close enough and it will adapt, and symptoms will subside.

• Shoe fit is always a concern. Amazing how many DPMs have no clue.

• Put an orthotic with motion control posts in the shoe with an unstable outsole and watch the whole process fail. (check with Mark Reeves, DPM, Virginia Mason Hospital for his guidelines for shoes).

• Review Rich Blake's book *The Inverted Orthotic Technique.* Perhaps a better name for his book might have been "Saving the Lower Extremity from Unnecessary Surgery."

• Glasses are to eyes as orthotics are to feet, except invisible.

• Functional adaptation doesn't appear in the morning.

• Resting calcaneal stance position (RCSP) is very real and often clearly demonstrates the control objective. Enough said? Probably not! More response in kind may be necessary. It's the foundation of our specialty. Help others to help themselves.

Steven E. Tager, DPM, Scottsdale, AZ

Here are my pearls for this discussion.

A good deal of pronation is retrograde, i.e., forefoot to rearfoot. Using various-sized 1st ray cut-outs works wonders and permits a reduction in the amount of rearfoot posting required.

The length of the orthotic shell is of paramount importance. Making sure that it ends PROXIMAL to the metatarsal heads improves the comfort of the shell.

The addition of fascia grooves makes the device far more comfortable, particularly in cavus feet.

Don't cast patients the day they present. Their feet are invariably swollen so the accuracy of the fit will be compromised if casting is performed too soon. Consider some type of temporary orthotic or several taping visits to reduce swelling prior to impression casting.

Howard Dananberg, DPM, Stowe, VT

The biggest thing that has helped me is to know that there are both intrinsic and extrinsic pronatory factors. Intrinsic factors are varus/valgus influences in the foot and functional hallux limitus, while extrinsic factors are all the factors outside of the foot. This includes varus/valgus influences above the foot; functional and structural leg lengths; and equinus.

Learn how to evaluate these factors and apply these to your orthoses.

Stanley Beekman, DPM, Cleveland, OH

1) Do not order one set of "compromised" custom orthotics that will work in all varieties of shoe styles for your patients. You will end up with an orthotic that still doesn't fit in some shoes and also doesn't function well enough in the shoes they do fit into. On those patients who will require different types of orthotics because they wear different shoe styles, make one set for the most important shoes and wait a bit and then make other sets at a different date when you see how your patient responds to the first ones.

2) Never, never, never make multiple sets of orthotics at the same time when it is the patient's first time using foot orthotics, even when the patient tells you they want to purchase multiple sets. Make and dispense the first set, wait a couple weeks for the patient to see how they respond, and if all goes well, then order for the patient as many sets as they are willing to purchase and pay for.

The biggest thing that has helped me is to know that there are both intrinsic and extrinsic pronatory factors.—Beekman

This will save you time and costs by not having to adjust or modify multiple sets of problem orthotics.

3) Bulky orthotics do not fit well in shoes. Only order modifications such as deep heel cups and flanges and clips and thick padded coverings when absolutely necessary and advise the patient that this will require different shoes. Patients become frustrated and angry when they learn they will need to purchase new or different shoes, after they come in to be fitted for the orthotics. Advise the patient in advance, but try to prescribe and order the least bulky orthotic that will get the job done. And if the patient is wearing bad or worn-out shoes, advise them in advance that orthotics work as a system in shoes. They must have proper shoes for orthotics to work well. I like the leaning tower of Pisa analogy: The tower is made of white marble but the foundation was built on unstable soil, etc.

4) Here is a good one, but you may need to fall off the bike once or twice to become a believer: When an elderly patient comes in who has old worn- out full-length leather accommodative orthotics and the patient wants/needs new orthotics, do not try to change them to rigid or functional orthotics, even if you think they need it. If they were happy with their leather orthotics, do your best to "newly" replace the inserts. If you try to make them

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something more modern (carbon fiber, poly plastics) you will likely lose the battle and lose the war. If you want to win the battle and avoid the war, make them a beautiful nice new set of full-length leather accommodative devices and you will have a very happy patient.

5) If you expect insurance to be involved in payment for orthotics, check benefits in advance, know the benefits in advance and obtain coverage. Always reference the call with a reference #, to whom you spoke and the date and time. Create a form and modify the form over time. When you are told that orthotics are covered subject to diagnosis, they usually will not be covered. Rule #1: Always get deposits from your patients. It is much better to issue a refund to the patient when insurance pays, than to try to collect the money later. I do not subscribe to the "Wimpy the Hamburger Man" philosophy: Wimpy use to say, "I will gladly pay you next Tuesday for a Hamburger today." When it comes to orthotics, if a patient says they will pay you later, you know that they can pay you now. If they will not pay you now, they probably won't want to pay you later.

If you want lots of orthotics sitting in your office waiting to be picked up, don't get deposits. If you want orthotics to be picked up and into your patients' shoes, get deposits.

Keith L. Gurnick, DPM, Los Angeles, CA

For high arch feet: Use standard arch fill, deep heel cup, medial very skive, 4 degrees of varus heel post.

For Low arch feet: use low arch fill, deep heel cup, medial skive, vertical heel post, overlap like a medial arch area extension of only the top cover over the device, giving extra padding to the medial arch in the shoe.

The patient should be plaster-casted NWB with locking in the mid-tarsal joint position.

David Stoller, DPM, Tulsa, OK

If you want lots of orthotics sitting in your office waiting to be picked up, don't get deposits.—Gurnick

Here's a few of my pearls that I don't think have thus far been mentioned. It should go without saying that unless there has been a thorough biomechanical examination of at least the lower extremity along with observational gait analysis these suggestions of and by themselves are incapable of effecting optimum alignment, performance and symptom resolution.

1) Neutral subtalar position plaster impression casting in the supine position. This position, as recommended by Drs. Root, Weed, Orion, Blake, Kirby, Valmassy, Smith, Scherer and countless others allows a true representation of the forefoot to rearfoot relationship and lessens the likelihood of excessive varus being incorporated into the impression due to gravitational forces as is observed in the prone position. This does not mean I never use the prone position but reserve it for use in some children and those individuals in whom I'd like to replicate the total degree of forefoot varus I clinically observed to be present. One additional note: if you're going to err in the cast position, err on the slightly supinated side of neutral rather than crossing over into a slightly pronated attitude.

2) Utilize an assistant to stabilize the leg at the geniccular level while performing a subtalar neutral plaster impression cast in the supine position. This allows the foot and ankle to be positioned properly and if need be somewhat forcibly without being influenced by any primarily frontal plane movement of the leg occurring during the casting process.

3) Make sure to capture the calcaneal inclination region both medially and laterally in the cast by constant smoothing and attention to this area during the casting process. Sheldon Langer, DPM once asked me what's the most important part of the orthotic and I said the posting and he said no, it's the calcaneal inclination region. Richard Nuccio, DPM former long-time instructor at NYCPM also always stressed the importance of capturing the medial calcaneal inclination area during the casting procedure. This insured that the device would exhibit maximal control, especially critical in the difficult-to-control golf ball-like calcaneal segment.

4) For optimal results, paraphrasing the words of Royal Whitman, MD—whenever there's motion available endeavor to correct rather than accept the problem.

Joseph C. D'Amico, DPM, NY, NY