



# Creating a Successful Orthosis Program

These key steps will increase clinical efficacy and help grow your orthotics practice.

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Custom orthoses have long been an integral part of a podiatric medical practice. However, the lack of formal double-blind studies has led many to shy away from utilizing custom orthoses and instead rationalizing that a prefabricated arch support would serve to be equally effective. Nevertheless, one must understand that it would be extremely difficult to perform adequate studies due to the number of variables involved. Such studies would require hundreds of orthoses cast by the same well-trained practitioner and fabricated by the same qualified laboratory. One would also have to consider the treating diagnosis, compliance of the patient, anticipated usage and footwear, to name just a few parameters. Therefore, one may argue that not considering the utilization of custom orthosis therapy based solely on the lack of scientific evidence would be philosophically inappropriate in the treatment of your patient.

This has created a huge opportunity for the podiatric practitioner. Medical doctors, including pediatricians and orthopedic surgeons, have failed to recommend custom

orthoses within their treatment protocols and at best will direct their patient to purchase an OTC product. When custom orthoses are utilized by non-podiatric physicians, very often there is the lack of an adequate biomechanical exam, and casting for the devices is done poorly. It is for these reasons that results have been less than optimal. The lack of didactic education regarding biome-

chanics in the allopathic medical community has resulted in a decline in podiatric referrals. From a podiatric standpoint, there is a clear understanding that the most commonly-treated podiatric problems are the result of faulty biomechanics and may have a strong hereditary component. From this understanding alone, it would make sense that controlling the poor biomechanics would benefit the patient by alleviating pain and preventing the progression of foot deformities. For the specialist in podiatric medicine, this creates an opportunity to be able to educate your patient as you introduce a new possibility into their treatment plan. Should a patient

lament that they have already tried custom orthoses that 'didn't work', you can easily reassure them that if the previously fabricated orthoses were created based on a non-existent or inadequate examination, or an improper cast was taken by a poorly-trained staff member, failure would be expected. Therefore, less than optimal performance in the past should never be thought of as a reason not

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## Subjective Findings

This is the opportunity to discuss with your patient the chief complaint, symptoms, and previous treatment. Should this be a pediatric patient make sure to include the parent and, when possible, both parents in the conversation. Remember that your treatment plan will be based on compliance and if the patient and/or parents do not have a clear understanding of the problem, the ensuing

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proposed treatment plan will likely be rejected.

## Clinical Evaluation

Be certain to engage your patient as the examination proceeds, as s/he will be much more likely to agree with your treatment plan even though it may involve an out-of-pocket expense. The biomechanical exam should at a minimum include an assessment in both the non-weight-bearing and weight-bearing position, rearfoot/forefoot relationship to evaluate for both varus and valgus deformities, calcaneal resting position, subtalar joint range of motion, and evaluation for equinus deformity.

In the case of a pediatric patient with a significant increased calcaneal valgus deformity, be sure to point this out to the parent or caregiver. This finding can be dramatically demonstrated by having the patient stand while you sit by his/her side. Have the parent sit at least five feet behind the child while you supinate the foot into neutral. As you palpate neutral, you can then direct the parent's attention to visualize that the heel is now in its stable, or 'neutral' position. Have the child hold this position as you release the foot. You and the parent can now view together the resultant deformity as the foot falls into the calcaneal resting position. The relaxed calcaneal stance position is also a useful measurement that can be periodically taken and compared to the 'base' value. It can be employed to document not only improvement, but also the continued need for treatment as the child matures.

## Radiographic Evaluation

This is a very critical component as the outcome of the radiographic evaluation may result in a recommendation to initiate orthosis therapy. Simply put, "a picture is worth a thousand words." Minimal radiographic views should include a weight-bearing dorsoplantar and lateral view in angle and base of support. Depending on the suspected pathology, a medial oblique, calcaneal axial and sesamoid axial view may also be necessary. In the case of

evaluation of the navicular, os tibiale externum, or hypertrophied navicular, a lateral oblique view should also be considered.

Review of radiographs should be performed with the patient present. This is an excellent opportunity to review biomechanics with your patient in language they will comprehend. It is often effective to utilize a flexible skeletal model to reference to your patient normal vs. abnormal alignment of the subtalar joint, calcaneal

of the front desk staff!) to place the subtalar joint in a congruent position while loading the forefoot to allow for frontal plane correction. The following casting methods may be most effective:

- A 3-D scanner that allows off-weight-bearing, subtalar joint neutral with forefoot loading.
- A plaster cast; however, one must consider the additional time required for clean-up and setting.
- An STS fiberglass slipper sock

## Poor castings will reflect with less-than-optimal devices and poor results.

inclination angle, and talar declination angle. This will clearly differentiate the cavus and planus foot type from normal anatomy. It will also demonstrate pathology such as plantar and posterior calcaneal spurring that will be consistent with their foot type. In the case of unilateral findings, it is beneficial to examine for a limb length discrepancy that may be consistent with compensatory findings.

Consideration for pediatric radiographs should also be considered when evaluating for biomechanical issues. Review of radiographs will offer a baseline analysis as well as a review of anatomical osseous alignment, development of osseous structures, and evaluation of growth plates. Follow-up radiographs offer comparative analysis of osseous structures and an evaluation of improvement and correction of deformity through the use of custom orthoses.

## The Casting

This may be the most critical step in developing your successful orthotic program. Simply said, the final product will only be as good as the cast. Improper casting will inevitably result not only in an ineffective device but may also be extremely uncomfortable. The patient will often complain of the orthotic feeling "hard" and causing pain in the arch region.

The casting technique employed should be one that is consistent, reproducible, and allows you (NOT one

cast, in which quick drying time makes this an optimal casting technique. There is, however, an initial learning curve to familiarize yourself with the sizing and handling of the fiberglass material.

It is best to avoid foam casts, weight-bearing impression mats, and 2-D scanners as they are poor methods to obtain the recommended contours for optimal casts. Poor castings will result in less-than-optimal devices and poor results.

## The Prescription

Evaluate your casts for accurate representation of the foot. Properly fill out the orthosis prescription to note the deformity and type of device to be prescribed. A huge mistake is often not questioning the patient about their footwear. Not everyone wears athletic shoes as their shoe of choice. Though it is strongly recommended that the most optimal device be used, it will serve no purpose if the patient cannot or does not wish to utilize their custom orthoses. However, in the case that fabrication of a dress device is desired, one would be best served to include a pair of the most representative type of dress shoes to the lab along with the negative casts. This will allow the laboratory to optimize the design, fabrication, and fitting of the orthoses to ensure satisfaction and compliance.

Apart from the pediatric patient under seven years of age, correct

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ing for non-reducible forefoot frontal plane deformities should also be strongly considered.

## Expectations

Do not set the expectations high up front. A custom orthosis that is produced as a result of proper casting and a thoughtful, specific prescription will offer surprising results within a short period of time. But your patient needs to know that they must adhere to the break-in schedule that you will recommend specifically for that patient. Remember that patients come in all sizes, and the ability to become accustomed to wearing functional appliances will vary substantially. The break-in program needs to be designed for each individual patient. Share with your patient that the break-in period has little to do with their foot but rather for their entire body to become accustomed to the newly-created, but ultimately improved, alignment. Failure to follow the program, even if the new appliances “feel great,” can have consequences which not only will impede progress but may induce an additional musculoskeletal problem in the knee, hip or low back.

Therefore, upon dispensing a custom orthosis, it is prudent to schedule a follow-up visit within two weeks. This is presented as an initial follow-up to assure that the appropriate break-in period was successful and has no bearing on the success of the orthosis therapy. This is a visit where modifications or adjustments to the orthosis may be considered. A clear expectation should be related to the patient that a two-month period of usage full-time would be an appropriate measure of the success of the treatment. However, the patient will find it incredible when they already have results, even at the first visit.

## Follow-up

To maintain a successful orthosis program, it is important to schedule a follow-up visit at a minimum of once a year. There should be a program in place where the orthoses can be evaluated and refurbished, as necessary.

Careful consideration should be given when allowing your orthotic company to get involved directly with the patient when purchasing extended warranty programs. This may encourage the patient not to be seen by the doctor as they feel they already paid for an adjustment or refurbishment. It may be more prudent to offer your

tom orthoses for treatment. Correcting for the etiology of foot complaints does not only rid the patient of pain, but can also prevent further progression of deformities, return the patient back to sport activity, and lessen the need to undergo major reconstructive surgery. Addressing the pediatric patient not only provides for a long-

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own program in order to prevent an orthotic lab from direct mailing your patient.

Direct contact with your patient concerning orthoses may also be beneficial in order to schedule your patient back for a follow-up visit. As several insurance companies do cover custom orthoses on an annual basis, this should also be included in your direct mailing. Either way, your patient should be encouraged to maintain podiatric treatment long-term as symptoms often recur after significant wear of their orthoses occurs. It's recommended that every patient leaves the office with a scheduled return visit even if it is scheduled 12 months later.

## Conclusion

When performed correctly, most practitioners find the results of custom orthoses significantly successful. General podiatric physicians will find this treatment successful for myriad foot problems, including heel spur syndrome and plantar fasciitis, and many other biomechanical issues that podiatrists encounter daily.

These may be the result of heredity, progressive deformity, overuse, trauma, and post-surgery.

Podiatric and orthopedic surgeons will often fail to address the etiology of the deformities they are correcting. Post-surgical custom orthoses would be an excellent opportunity to improve healing times and lessen re-occurrence rates.

Podopediatrics also presents an excellent opportunity to provide cus-

tom patient but also allows an excellent opportunity for family members to be evaluated.

Never let the cost of an orthosis treatment pre-empt one from utilizing this treatment. It is important not to financially prejudice your patient. There is ample time to discuss this important treatment with your patient through the processes discussed in this article. These include your clinical and radiographic evaluation as well as the custom casting process. This education allows your patient to become engaged and have a thorough understanding that they are investing in their own health.

The podiatric physician can benefit greatly in the success of patient treatment as well as the growth of the practice when establishing a custom orthosis program. Establishing this program presents a great opportunity for podiatric providers to share their knowledge and success where others have failed. The practice growth and results-based rewards for the provider cannot be overstated. **PM**



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