Arize Helps Podiatrists Digitize Orthotics

With a solution that's easy to learn and use, this new technology gives DPMs all the tools they need to scan and order custom orthotics.

BY JOHN HAUER

The Old Way

The process of prescribing and fitting orthotics can be slow and require multiple visits to achieve the desired result. It's not only challenging for the patient; podiatrists and their staff spend an inordinate amount of time managing each case, from the person's first visit through final product delivery and beyond.

Podiatrists get exactly what they expect, because each device is manufactured with precision, quality and control using HP's game-changing 3D printing technology.

While plaster casting is still considered by many to be the "gold standard" of molding techniques, accuracy can also be an issue. Newer foam impression casting methods have the advantages of being semi-weight-bearing, in addition to being quicker and cleaner, but uneven pressure or a wrong angle of impression can exacerbate the accuracy issues.

Even when the mold is correct, there is still potential for inaccuracy depending on how the lab interprets the prescription and orthotic design. Also, because orthotics are traditionally made using subtractive manufacturing methods like milling and plastic casting, they require a significant amount of time and heavily depend on skilled labor. In such a high-touch environment, the likelihood of human error is considerable.

New Technologies Create New Opportunities

"Without a doubt the future of orthotic therapy will include scanning technology and the ability to 3D print custom orthotics," says Dr. Jack A. Reingold, D.P.M., F.A.C.F.A.S.

Digital technology has impacted many industries over the last 40 years. With the advent and ongoing improvement in computer aided design (CAD), technologies like CNC machining and laser cutting have become more prevalent in many areas of manufacturing.

The healthcare market is no exception. Consider the audiology industry, where parts of nearly all hearing aids are additively manufactured. Smile Direct Club offers another example. Their digital workflow involves blending 3D scanning, software, and HP's MultiJet Fusion (MJF) 3D printing systems to enable production of millions of personalized invisible aligners.

The Orthotics Industry Will Go Digital

The podiatry industry has had access to some digital technologies for a while now, including glass plate scanning and CNC milling, which have been available since the mid-1990's. But many of these solutions required clinicians to learn complex new workflows and only affected parts of the overall process.

Now the same digital technology that's impacting so many other industries is poised to quickly change how orthotics are prescribed and sold. For one, the quality of 3D scanning has vastly improved and the cost of imaging devices has diminished. Today's 3D scanners allow clinicians to capture high-quality images of a patient's feet that are accurate down to one half of a millimeter. Further, because they're digital, the scanned images are submitted electronically and stored indefinitely.

Software is another big enabler. Not only does it simplify the process of taking a scan, but it also helps healthcare professionals manage how they order customized medical devices. Using a simple app, a podiatrist can take a scan, analyze the results, prescribe the correct orthotic, and place an order. Time and money are saved throughout the process and many opportunities for human error are eliminated.

Until recently, the biggest barrier was in manufacturing technology. Although 3D printing has been around for over

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New Concepts and Studies

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30 years, it was expensive and slow. Further, there were few materials to choose from and part quality was so inferior that its only real use was in prototyping. But in the last five years, 3D printing technology has improved exponentially. In 2016 HP launched MultiJet Fusion and radically changed how people thought about additive manufacturing. Their new 3D printing technology offered production quality parts, faster and less expensively than anything else in the market. Since then, HP has built on its foundation by offering faster speeds, a wider range of materials, and full color 3D printing.

By harnessing the power of additive manufacturing, Arize helps podiatrists and their patients participate in the shift towards a more circular, sustainable and inclusive economy.

Arize Offers the Complete Package

The goal at Arize was to combine the best and easiest-to-use software with state-of-the-art scanning and 3D printing technology, providing podiatry clinics with a solution that allows them to efficiently and economically order quality custom orthot- After much development and testing, Arize has officially launched its platform.

As with other healthcare applications, accuracy and consistency are critical requirements. As part of its solution, Arize provides the HP 3D Laser Foot Scanner, which enables clinicians to capture highly accurate digital scans (within .5mm or .02 inches) within two minutes.

But Arize doesn't just offer scanning, it provides a complete, end-to-end solution. Instead of having to design an orthotic in CAD, Arize has developed a solution where the orthotic design is created by the doctor, but in a quick and easy workflow.The orthotic is designed using anatomical markers, the Arize design application, and the doctor's prescription. Prior to submission, the clinician can even preview the design in the software, ensuring that what they order is what they get.

The software is easy to learn and very user friendly, allowing the podiatrist to select from a list of familiar orthotic styles, and quickly apply industry-standard modifications such as heel seat, arch adjustment, medial flange and heel lift. It also allows clinicians to design custom orthotics with innovative design features such as a low-profile heel post and Morton's Extension designs that can only be enabled by 3D printing.

All orthotics offered by Arize are manufactured using HP's MJF 3D printing technology. Not only do they offer the strength and durability needed for years of stress and use, they offer unique features that improve function, fit and comfort. The additive manufacturing process enables a thin and light design with a lower profile than traditional orthotics.

The Benefits Are Clear

"Arize Orthotic Solution has increased my clinic's productivity and has allowed me to be more efficient due to the ease of use and streamlined workflow," says Dr. Gavin P. Ripp from Premier Podiatry & Orthopedics. "I've been using Arize in my practice for the past six months and my patients are excited about the innovative, lightweight, and low-profile 3D printed custom orthoses. Plus with Arize, I can easily place reorders and I receive consistent fitting orthoses every time."

With a solution that's easy to learn and use, Arize gives podiatrists all the tools they need to scan and order custom orthotics. They get exactly what they expect, because each device is manufactured with precision, quality and control using HP's game-changing 3D printing technology. But Arize isn't some faceless enterprise. It also offers a team of clinicians and technical support specialists to assist along the way.

Instead of managing highly variable and error-prone processes, business-savvy clinics can easily adopt this new orthotic solution into their current office workflow. Not only do they gain efficiencies at every step, with Arize's flat-rate pricing model, the cost of each orthotic is completely predictable, offering customers a single, uniform price that includes modifications and shipping the orthotic to the podiatrist's clinic.

This is possible for two reasons. First, automation removes much of the upfront design cost. Also, HP's 3D printing technology creates a scenario where there is little or no incremental cost to printing each custom design.

While the solution certainly offers its share of tangible benefits, there are also other considerations. Arize offers powerful 3D visualization tools which can encourage patient buy-in by helping illustrate the benefits of a custom orthotic. Further, by harnessing the power of additive manufacturing, it helps podiatrists and their patients participate in the shift towards a more circular, sustainable and inclusive economy.

To learn more about Arize, please visit ArizeClinical.com. **PM**

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