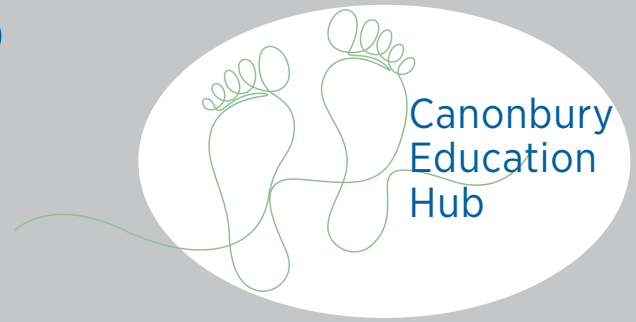


Canonbury Education Hub

INDEPENDENT PROFESSIONAL EDUCATION



Educational content developed in collaboration with podiatry professionals.
*Designed to support **reflective CPD learning**.*



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Can we do more than debride?

Diabetic Foot Disease, Plantar Tissue Stress and Orthotic Offloading

Introduction

Diabetes related foot disease (DFD) is one of the most significant and costly complications of diabetes, representing a global health crisis. It is recognised among the top 10 causes of global disability, with an estimated 6.3% of adults with diabetes affected by active foot disease at any given time.

The consequences of DFD are profound leading to high rates of infection, amputation and mortality. Once a diabetic foot ulcer develops the five year mortality rate is 30%, exceeding many cancers.

Plantar diabetic foot ulceration remains the most common presentation of DFD. Its development is best understood as a mechanical biological mismatch. When external loads applied to the sole (pressure and shear) accumulate over time, while the foot's tissue tolerance is reduced by neuropathy, structural deformity and microvascular dysfunction.

When cumulative stress exceeds local tissue tolerance, microdamage progresses through identifiable "pre-ulcerative" states (callus, haemorrhage, blister, fissure), before ultimately forming a full thickness plantar ulcer.

As the primary providers of foot care, Podiatrists are uniquely positioned to intervene early. Beyond neurovascular assessments, routine skin and nail care and sharps debridement, Podiatrists are the clinicians best placed to identify pre-ulcerative signs and modify mechanical load before tissue failure occurs. In many clinical pathways this preventative role remains underutilised.



In this roundtable discussion, we look at doing more than debriding in diabetic foot disease:

- the role of plantar tissue stress
- the barriers clinicians face in implementing offloading strategies and
- the practical orthotic solutions that can be integrated into everyday podiatry practice from our panel.

Understanding the problem: Diabetic foot disease and the pathway to ulceration

What is the burden of diabetic foot disease?

Maddy: The honest answer is it's enormous! The IWGDF guidelines are clear that diabetic foot disease remains one of the leading causes of preventable hospitalisation, amputation and premature death in people living with diabetes.

The word 'preventable' is what stays with me, because

Debride + orthotic offloading for your Diabetic patients

PLANTAR TISSUE STRESS



Offloading options: Walker, shoe & SCF

time and again in the High Risk Foot Clinic, I see patients who have arrived in crisis with ulcerations, infection and high risk amputation situations that, with earlier intervention, may never have reached this point.

What's particularly striking is how often the basics have been missed along the way. Many patients have tried SCF padding but never progressed to orthotics or appropriate footwear modifications. Many haven't been under regular podiatry care at all, despite the IWGDF consistently identifying early risk factor screening, callous management and mechanical offloading as cornerstones of ulcer prevention.

The pathway to prevention exists and the evidence is well established. The challenge is making sure people access it before they end up sitting across from us.

How does plantar foot ulceration occur?

Maddy: To treat a diabetic foot ulcer effectively, it helps to understand how it formed in the first place. Diabetes damages the nerves in three key ways: motor neuropathy weakens the small muscles, gradually changing the shape of the foot and the way you walk; sensory neuropathy strips away the ability to feel pain or pressure, meaning injuries go completely unnoticed; and autonomic neuropathy stops the body from sweating properly, leaving the skin dry and prone to cracking.

When you combine all three of these with the excess pressure that comes from altered foot mechanics, the skin starts to break down. Hard skin builds up, tiny injuries accumulate beneath the surface and small bleeds occur under the skin until eventually, a foot ulcer breaks through. It's a slow, silent cascade, but one that's entirely predictable and preventable when caught early.

What is Plantar Tissue Stress and why does it matter?

Maddy: For a long time, the focus in diabetic foot care was almost entirely on peak pressure, the highest force

recorded at a given point on the foot. But the evidence has moved on and the picture is now understood to be far more complex. What we're really dealing with is plantar tissue stress (PTS), a concept that brings together not just how much pressure is applied, but for how long, how many times and in what direction. Pressure-time integrals, shear forces, step counts, standing time and adherence to offloading all feed into this equation. When you add these up over the course of a day, the cumulative plantar tissue stress (CPTS) a person is exposed to tells a much richer story than a single peak pressure reading ever could.

I get asked a lot why does the same level of stress cause a pre-ulcer change or full breakdown in one person and nothing at all in another? The answer lies in individual tissue tolerance. Each person's plantar skin and subcutaneous tissue have a different capacity to withstand repeated stress before it starts to fail. In diabetes, that tolerance is quietly being eroded, altered tissue structure, reduced hydration and stiffness changes affect how the skin responds, impaired microvascular function limits the tissue's ability to recover and neuropathy removes the protective behaviours that would otherwise prompt a person to rest, offload or seek help. The result is a foot that is under greater stress, less able to cope with it and unable to send the warning signals that would normally trigger a response.

Can Podiatrists do more than debride?

Is debridement enough?

Maddy: Debridement is definitely important but it's only one part of the picture. What's often overlooked is that callus debridement is far more than a skin care procedure. It's actually a direct mechanical offloading intervention in its own right, physically reducing the peak pressures concentrated beneath thickened skin. So yes, it matters but there's more.

Without addressing the underlying mechanical load that caused the callus to build up in the first place, debridement alone is just buying time. The pressure returns, the callus reforms and the cycle repeats itself. Think of it like mopping the floor without turning off the tap. To truly break the cycle, debridement needs to be paired with strategies that tackle the root cause whether that's orthotics, footwear modifications or other offloading interventions.

What else can a clinician do before an ulcer forms?

Maddy: What we say in the clinic is, prevention is better than cure! Prevention starts long before a wound appears and podiatrists play such an important role in both identification and prevention. It begins with diabetic foot screening and identifying who is at risk

before anything goes wrong. From there, it's about spotting the early warning signs: pre-ulcerative changes like callus, haemorrhage beneath the skin, or areas of excessive pressure that are quietly doing damage with every step. These signs are the body's way of signalling that something needs to change and you can do something about it.

Once risk is identified, the focus shifts to action. A plantar tissue stress management plan brings together the strategies most likely to interrupt that cycle before it spirals including footwear modifications to redistribute load, orthotics to address the underlying mechanics and patient education about the role that daily step count, activity levels and adherence play in their outcomes. Because even the best orthotic in the world won't prevent an ulcer if it stays in the cupboard. Getting patients to understand the relationship between load, movement and tissue breakdown is one of the most powerful tools a clinician has.

How do we increase plantar pressure management in clinical practice

How can we increase the role of Podiatrists in plantar tissue stress management in Diabetic foot disease?

Maddy: Increasing the awareness of medical practitioners in your local area to the services Podiatrists can provide to people with Diabetes can only benefit these patients. Podiatrists don't just cut toenails. As I said before many patients presenting to our hospital based High Risk Foot clinic haven't tried footwear modification, insoles or orthotics prior to plantar ulceration or haven't been under the care of a Podiatrist.

Claire: When I talk to Podiatrists about DFD at conferences they often want to add more orthotic services but custom orthotics are cost prohibitive to many patients. The orthotic market has listened to this feedback and is continuing to expand lower cost options.

Luke: Keeping active the skill set in orthotic manufacturing we all learned at university. Successful shoe padding or offloading with semi compressed felt or foam turned into an insole for the patient. This makes it easier for the patient to manage PTS, to move between footwear and wear more consistently between visits.

Dan: An opportunity I observe is strengthening confidence in applying orthotics in practice, bridging the gap between theory and real world implementation, where the benefits of early intervention often outweigh perceived risks or cost. Building confidence through treatment directed testing, using in-shoe padding and short-term insole modifications with additions and pads, allows clinicians to gain real time feedback, see

early success and progressively translate this into more structured, long term orthotic solutions.

Nathan: Podiatrists are ideally placed to intervene early in plantar tissue stress management. Increasing our role comes down to identifying high-pressure areas early and implementing offloading strategies at the earliest stage, rather than waiting for tissue breakdown.

What are the single biggest barriers to successful orthotic use in diabetic foot care?

Luke: Confidence. Many podiatrists know what needs to be done but hesitate to prescribe, manufacture or modify orthotics, especially in single practitioner clinics. If we can build orthotic confidence in the profession, we will use more orthotics in DFD.

Claire: Cost. Custom orthotics cost can be prohibitive. Between the increase in materials cost, staffing costs and the general costs of keeping a lab open, the cost of the orthotic devices has had to rise. The good news is the market now offers more lower-cost, high-quality OTC and DIY manufacture options.

Blake: Information. Labs often receive incomplete prescriptions which will impact the success of the orthotic. Photos, templates, footwear details and previous orthotics help us deliver better results. Clinicians can be hesitant to call the lab or supplier and ask questions or discuss options, but we are all here to help.

Maddy: Patient adherence. Even when an orthotic is well prescribed, well made and affordable, it only works if the patient is wearing it consistently. Patients usually discontinue use because of discomfort during the break-in period; they don't fit into the shoes they want to wear or because they simply don't understand why the orthotic matters.

Nathan: I agree with Maddy, a key barrier I see every day in clinical practice is patient adherence. Patients present with orthotics that are not well integrated into the patient's footwear or daily routine, even if the underlying design principle was sound.

Dan: Complex systems. Full custom orthotic provision is often tied to funding and health insurance pathways that delay implementation, reduce patient centred care and increase the risk of condition progression. Encouragingly, more flexible, in-clinic approaches (including DIY custom solutions) allow for immediate, patient specific offloading and earlier intervention.

How can we increase orthotic confidence and support isolated practitioners?

Maddy: Special interest groups /specialised conferences. This is a great way to bring and connect like-minded clinicians who understand the challenges



Case example: Orthotic + offloading + diabetic anti-shear cover

of the work and also support those who are working in isolation whether in regional areas or small practices. A special interest group can be the difference between feeling alone in a complex clinical decision and having a network of peers to turn to. Your national association is a great place to start for special interest groups.

Luke: Conferences are a great way to connect with your peers, with orthotic labs or suppliers and to listen to the latest research or invited speakers. The annual Royal College of Podiatry conference, Foot & Ankle Show, The Foot Health Conference and don't forget conferences in other countries. Why not combine a holiday with a conference, the Australian Podiatry Association conference or Diabetes Feet Australia are great options.

Nathan: Online CPD and orthotic webinars are a simple and effective way to gain further information and confidence for those clinicians working in isolation. Open access videos or virtual conferences you can view in your own time without the need for travel, costs and time away from a solo practice.

Claire: Online training exploded during COVID and remains a huge resource for self-directed learning. Most national associations offer training courses, including the RCPod Foot in Diabetes module, but there are also



Case example: AFO + orthotic + medical grade footwear

free resources. YouTube is a great source of information and being in video form, it is a great way to watch and learn orthotic DIY manufacturing.

Blake: Your orthotic lab or supplier is there to help. Use them as a resource to help your everyday practice. You will never be the first person to ask that question, so don't be shy. We get to see the patterns of prescriptions across thousands of pairs of orthotics and Podiatrists around the world. This is a great resource of information.

Dan: No matter the format or forum all information needs to be presented with clarity. As orthotic providers we need to make our expertise easily accessible through simple language, clear processes and convenient learning platforms aligned with current technologies.

Managing cost without compromising care:

How do I keep the cost to my patient low but still offer an orthotic option?

Maddy: Not every patient needs a fully custom device. For low-to-moderate risk patients, a well-selected OTC or personalised prefabricated device can achieve the offloading goal at a fraction of the cost. Reserve your custom prescriptions for the patients who genuinely need them including complex foot deformity like a Charcot, severe morphology or previous ulceration.

Claire: Keep up to date with your knowledge of OTC or ready to dispense orthotics on the market. This selection has grown over the last few years and can provide low-cost options for your patients.

Luke: DIY orthotics can be more cost effective than



Case example: Sandal + orthotic



Case example: Toe-filler, full length plate for rocker footwear

lab supply. Keeping a selection of orthotic blanks that you can add your prescription variables can keep costs down but also often provide a quicker service to the patient. You don't need to have a large complex or expensive set up with grinder, dust extraction and gluing. Orthotic suppliers offer a range of self-adhesive additions and cover options, which continues to grow.

Blake: Have a look at your labs pricelist and compare to your prescriptions. There might be lower cost prescription selections that perform the same way. For example, an inbuilt rearfoot post vs an extrinsic or a single top cover vs multilayer.

Nathan: Keeping costs low comes down to selecting appropriate orthotic options based on clinical need rather than defaulting to custom devices. In many cases, prefabricated orthotics with simple modifications can provide effective offloading.

Dan: Focus on a Patient-centred approach. Cost should not lead the initial discussion; focusing on outcomes and demonstrating the benefit of orthotic intervention through short-term, in-shoe modifications/padding



Case example: Orthotic + 1st & 5th offload for plantar tissue stress

helps build patient understanding, trust and adherence. Where cost remains a barrier, these interventions may be sufficient or can transition into effective lower-cost long-term solutions without compromising outcomes.

Can you each give an example of how a low-cost option can be used with a patient or the change they can make?

Maddy: In high-risk clinics, ulcer healing is the endpoint. In pre-ulcer care, reduced callus recurrence and longer intervals between debridement are key indicators. A patient with heavy callus build-up at the first metatarsal head was presenting every four weeks for debridement. We dispensed a prefabricated device with a forefoot modification to match SCF padding and within two review cycles the callus formation had reduced significantly enough to extend their appointment interval from four weeks to eight weeks. That kind of measurable change is a practical win for the patient, the clinic and the waiting list.

Luke: A common presentation to the clinic is patients undergoing rehabilitation following a stroke. They often require support to improve walking ability and overall stability. These patients frequently experience muscle weakness, reduced control and altered gait patterns, which can significantly impact confidence and mobility.

The combination of an AFO with a customisable prefabricated orthotic provides a highly effective



Case examples: Orthotics with Plastazote toe-filler



Examples of useful clinical photos

solution. The AFO assists in controlling ankle position and improving limb alignment and the prefabricated orthotic enhances foot support, optimises load distribution and promotes a more stable base of support.

Together, this integrated approach delivers a significant improvement in gait efficiency, balance and patient confidence. It allows for safer ambulation, supports rehabilitation goals and helps patients regain independence in daily activities.

Nathan: I had a patient who was being managed with regular debridement's every 3 weeks. Despite multiple orthotics previously from a number of practitioners, she was non-compliant and remained symptomatic and was limited in footwear choice due to the warm climate.

By introducing a sandal as her primary footwear option to match her preference in the warmer climate alongside a simple prefabricated orthotic device, we were able to significantly reduce PTS symptoms and improve function.

Her management frequency changed from 4-weekly to around 8-weekly, with improved comfort, reduced pain and a reduced risk of tissue breakdown.

Dan: In a patient with forefoot amputation, a DIY customised insole was modified with a toe filler and plantar reinforcement to compensate for the missing forefoot and support forward progression. This was provided in conjunction with rocker sole footwear to further reduce pressure and improve overall function.

Blake: Our lab customisation service has manufactured a variety of Toe and Forefoot-fillers on prefabricated orthotics, using a range of materials including

Plastazote, Poron and EVA. Using a combination of low-cost methods to make a complex device.

Claire: In this case from our Osaka clinic, pre-ulcer signs and high plantar pressures were identified at PMA 1 and 5. The clinical markings were transposed in weightbearing onto a prefabricated orthotic which was modified with cut outs to offload the area. Using the architecture of the prefabricated device, prescription variables and the material properties of Poron and the top cover we aim to reduce the risk of ulceration and improve patient comfort and mobility.

What information can be collected in a consultation to help with orthotic prescription or DIY manufacture?

Claire: I always used to joke with my students that I would look at a patient's shoes before I would look them in the eyes to say hello. As Maddy said earlier even the best orthotic in the world won't prevent an ulcer if it stays in the cupboard, so first point of my focus was always the footwear, how I can make my prescription fit.

Blake : Following on from Claire's point, a footwear insole template with measurements is probably the most helpful piece of information for the lab. We can then reduce the amount of adjustment needed at the dispense appointment and provide an orthotic to fit the required footwear.

Maddy: Clinical photos are a great way to not only see the areas of hyperkeratosis but to assess the effectiveness of your offloading over time. This also allows you to take photos of the SCF offloading design to make DIY manufacturing easy or sending to the lab.

Nathan: Plantar pressure scans really help identify key loading patterns and highlight areas of increased tissue stress. When combined with clinical assessment and footwear evaluation, this improves the accuracy of both prescription and in-clinic modification of orthotic devices. It also provides a visual to help with patient education and understanding.

Dan: Understanding the details of the patient's life. Work, social, family, sport, footwear this is the context for the orthotic. Identifying where and how plantar tissue stress accumulates through callus patterns, activity levels and patient footwear adherence and selecting an orthotic design that fits it. This provides relevant information beyond biomechanics to guide effective prescription or in-clinic modification.

Luke: Our consults capture quite a lot of data to guide orthotic options. Usually video gait analysis, 3D foot scanning and pressure mapping to assess movement, foot dimensions and load distribution. Clinicians can also record key data such as foot type, range of motion, pathology, activity level and footwear. Together,

DOLA ORTHOTICS Orthotic Repeat Pair Checklist

1. Video or Photo Series

- ☐ Dorsal View: shape, dorsal additions, materials
- ☐ Plantar View: shape, plantar additions, materials
- ☐ Anterior View: arch contour and additions
- ☐ Posterior View: heel cup, rearfoot post, heel raise
- ☐ Medial View: elevation, heel raise, medial arch, additions
- ☐ Lateral View: lateral arch high point, additions
- ☐ Footwear: type, style, size
- ☐ Footwear Insole: shape, thickness

3. Materials List

- ☐ Shell material
- ☐ Mid-layer material
- ☐ Covering material
- ☐ Addition materials

5. Template with Addition Details

- ☐ Dimensions of additions
- ☐ Positions of met domes, met bars and cut-outs
- ☐ Shapes of pads and additions

Additional Notes

2. Measurements (mm)

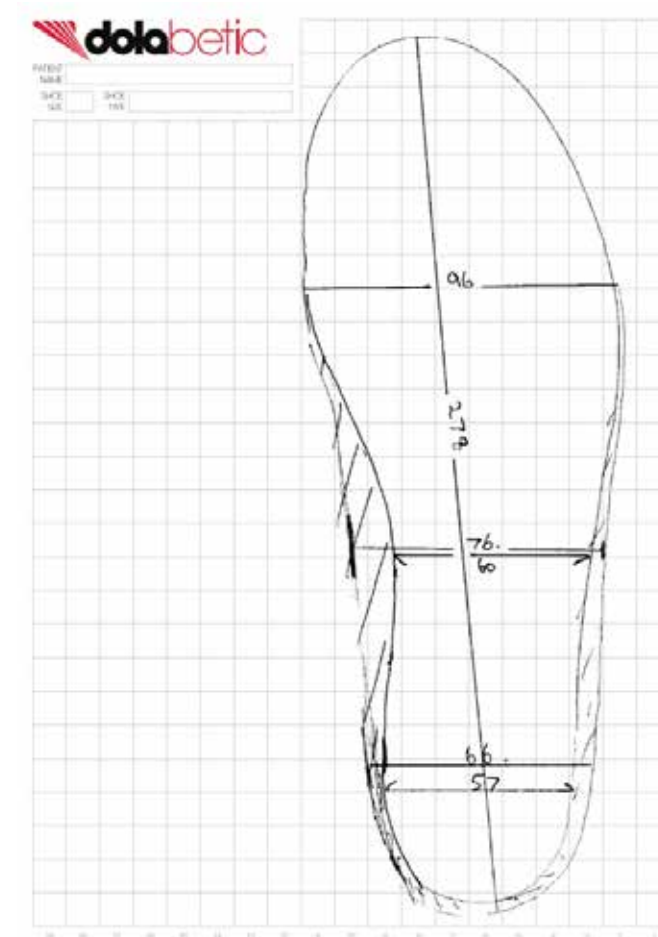
- ☐ Orthotic Shell Length: heel to proximal met heads ($\frac{3}{4}$ devices)
- ☐ Overall Orthotic Length: heel to sulcus or full length
- ☐ Shell Width: behind met heads ($\frac{3}{4}$ device)
- ☐ Orthotic Forefoot Width: widest forefoot point (full length)
- ☐ Mid Shell Width: note if flares or tapers
- ☐ Heel Cup Width: at centre of heel
- ☐ Cover Length: $\frac{3}{4}$, sulcus, or full length
- ☐ Cover Forefoot Shape: widest forefoot
- ☐ Heel Cup Height: Medial / Lateral / Posterior
- ☐ Flange Height: Medial / Lateral
- ☐ Medial Arch Height & High Point: from heel (mm)
- ☐ Lateral Arch Height & High Point: from heel (mm)

4. Prescription Variables

- ☐ Postings: position, type, angle, material, dimensions
- ☐ Additions: position, type, thickness, material, dimensions
- ☐ Cover: material, thickness, length

6. Other Information

- ☐ Footwear Details: size and style
- ☐ Insole Details: dimensions, shape, thickness



Footwear insole template on the DOLAbetic grid

this technology driven approach creates a precise, repeatable and scalable pathway from assessment through to orthotic prescription or in-clinic DIY modification.

What are some of the most common questions you get from clinicians about orthotics and Diabetic foot care?

Maddy: What can I do to stop my patients ending up in a high risk clinic in the first place? Early and consistent orthotic intervention is one of the most powerful tools in preventing the cascade that leads to ulceration, infection and referral to specialist services. A prefabricated device with a targeted modification, can meaningfully reduce plantar pressure at known high risk sites before tissue breakdown occurs.

Luke: Podiatrists are often just after a quick confirmation of their thoughts on a case. Many Podiatrists don't have someone to run their ideas past, don't see their colleagues throughout the day as everyone is busy. These can be clinical or prescription questions.

Dan: Backing up Lukes's comment, Reassurance. Clinicians often seek confirmation that they are on the

right track, particularly in more complex cases. This highlights the value of accessible support systems, workmates, peers, suppliers, your orthotic lab all are options to help decision-making and strengthen confidence in orthotic management.

Blake: For custom orthotics or our lab customisation service we encourage Podiatrists to check if the information they are sending to the lab is what is needed for that case. This helps greatly to identify anything extra we might need to get the best results. Most commonly this could be photos or details of a previous orthotic or offloading padding, or footwear details including templates.

Claire: Podiatrists wanting the latest information on orthotic options other than custom orthotics. This support can be in the form of training manuals or links to DIY videos or help with product selection, the style of prefab to best suit the patient's footwear, density of prefabs, top cover choice or offloading suggestions.

Nathan: Where I practice, we often talk about or present cases. We want to share the knowledge. Help everyone with similar patient presentations select the most appropriate orthotic option and answer questions about material selection, prescription variables, custom pad design and footwear fit. As a senior Podiatrist I like to mentor our new staff our students on placement and help answer questions where I can.

Plantar pressure management in clinic

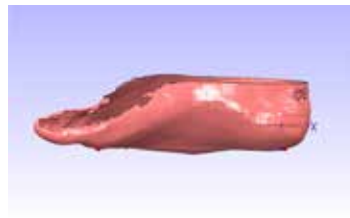
What technology do you use or have you seen used in plantar tissue stress management?

Maddy: I recently published an article investigating a combination of technologies to measure cumulative plantar tissue stress including tissue temperature, activity tracking, plantar pressure and adherence monitoring and found that feasibility is currently low in people with an active diabetes-related foot ulcer. This was primarily due to the burden of managing multiple sensor devices alongside an already demanding treatment regimen. The association between cumulative plantar tissue stress and ulcer healing outcomes remains an important question.

Luke: We are testing smart orthotics and using AI assisted tools to interpret data and suggest orthotic variables or modifications, creating a more precise and repeatable approach to managing plantar tissue stress.

Blake: Depending on the orthotic type the lab receives 3D scans in a variety of positions, STJ neutral, semi-weight bearing or weight bearing, clinical photography (of padding, templates, foot posture, footwear), plantar pressure scans and gait video. The more information the better.

Dan: In clinic, we used in-shoe pressure mapping or



Blake: As a lab manager there is nothing more satisfying as getting a request for a repeat pair of custom orthotics. We know the patient was happy, the clinician was happy and while labs don't often get feedback on the results of individual pairs, we take this as a win. As for OTCs, we are often involved in the initial selection process for styles either at a conference or over the phone, so when a clinic starts to order of product regularly you know they are getting use out of it.

Nathan: In practice, effectiveness is assessed in reduced symptoms and decreased frequency of care. When plantar tissue stress is well managed, patients require less frequent debridement.

Dan: I look at Tissue response. Effectiveness can be tracked by observing changes over time, including reduction in callus formation, increased time between visits, improvement in skin condition and the patient's ability to tolerate daily activity without progression toward breakdown. Consistent use and patient adherence remain key indicators of successful plantar tissue stress management.

What are some tips when trying to DIY or Lab order a copy of an existing successful orthotic when you can't keep the original device or send it to the lab?

Blake: Collecting as much information as possible when you have the orthotic in front of you in the consultation is key.

The first thing I would recommend is taking either a video or photo series of the device from all angles. This will help you write the prescription after the patient has gone, send it to the lab or use them for reference if you are self manufacturing.

Second is to trace and template. Place the device on a grid or template sheet and trace the outline. Mark key dimensions and the precise position of any offloading, additions or pads. For plantar tissue stress management in high-risk patients, it's often the offloading elements that are doing the most therapeutic work, so these must be documented with precision.

Document in as much detail as possible for every pad, addition, or modification, record the position on the device, shape and dimensions (length x width x height, thickness and Materials (density, Shore hardness where known, type). We have an online grid sheet anyone can use (add link)

In high-risk foot management particularly, a seemingly minor variation in pad placement or material durometer can significantly alter plantar pressure distribution, so the more detailed your notes, the more faithful the replication.

This is a check list we send out to our clients to help them collect key information.

Indications for custom orthotic: oot morphology, Charcot

treadmill-based systems with integrated pressure analysis to objectively assess the effectiveness of orthotic or custom footwear interventions and refine them to reduce plantar tissue stress.

Nathan: I agree with Dan, I find plantar pressure analysis useful for identifying high-load areas and also for patient education around tissue stress. Knowledge equals change in behaviour, increasing patient knowledge I find is a benefit of technology.

How do you assess the effectiveness of your plantar tissue stress management?

Maddy: In the high risk clinic, for active ulceration we track healing, but in the pre-ulcerative state success simply means keeping your patient from breaking down. If you are achieving that, you are meeting the clinical guidelines. Clinical photography of hyperkeratosis at every visit applies the same principle we use for ulcers, reducing callus over successive appointments is your objective evidence that your plantar tissue stress management is working. It costs nothing and tells you everything.



Targeted offloading with a prefabricated orthotic

When might you select a custom foot orthotic from a scan, cast or impression box over other orthotic options?

Maddy: When the foot morphology is beyond what any prefabricated device can accommodate. A Charcot foot being the clearest example in our population. The structural deformity, collapsed midfoot and pressure redistribution challenges that come with Charcot require a custom device that is built to the exact contours of that individual foot.

Dan: I agree with Maddy, in cases of extreme deformity (e.g. Charcot) or advanced amputation within the foot, particularly where combination with custom footwear is required.

Blake: When fitting medical grade or custom footwear. The dimensions of a premade shell might not match these types of footwear or require larger dimensions in specific areas. Like a medial flare or wider midfoot to accommodate significant talonavicular bulge or collapse.

Nathan: I consider custom orthoses when prefabricated or simpler devices are not sufficient to adequately reduce plantar tissue stress. This is often seen in patients with higher body mass, increased activity demands, or more complex loading patterns where greater control of pressure distribution is required.

Claire: When the prescription variables you require might not be part of the prefab design or easily added. For example, an extra deep heel cup, medial flange or lateral flange.

Luke: Also, the patient BMI or ORF required may warrant customised construction from direct milled or 3D printed materials of a specific thickness, density or performance.

What is your favourite benefit / feature of using an OTC or prefabricated orthotic?

Nathan: I have 2, Lower cost and readily available. This can ensure patients leave the clinic with offloading in place, rather than waiting.

Dan: Accessibility. Any clinic type can offer a solution that can be easily customised in clinic, enabling timely, patient-centred and effective offloading.

Claire: Reduced wait times. The hardest thing I find is knowing you can help a patient but having to wait depending on your lab turn around times.

Luke: I am a big fan of being able to instantly see and feel how well the orthotic fits into your patients' shoes. There is nothing quite like having a few styles that you know can fit into almost any style of shoe and your patients being able to try them instantly, they just get what you are trying to do immediately!

What are some tips for DIY manufacturing in clinic?

Claire: Clinical markings: If you have the OTC in stock, you can mark clinically significant areas on weightbearing assessment with the patient in the consultation.

Maddy: Keep it simple. DIY manufacture is appropriate when the clinical goal is straightforward offloading or pressure redistribution at a known site where a targeted modifications can achieve the outcome.

Nathan: Targeted Offloading: Effective DIY manufacture in clinic focuses on simple, targeted offloading rather than complex device replication. Marking high-pressure areas and using self-adhesive modifications allows for quick adjustments, with regular reviews helping refine outcomes over time.

Luke: Self-adhesive additions: These are now available



Self adhesive additions for treatment directed testing and orthotic manufacture

for the most common pads, additions and wedges you apply to an orthotic. This makes DIY quick and easy, you can treatment directed test with the patient in the consultation.

Blake: Template Grid: Use a template grid to help with footwear fit if you can't keep the patient's footwear.

Dan: Practice. Start simple, test your modifications in clinic and use the ability to adjust on the spot to refine your approach, building confidence through experience and real-time feedback.

The future of Plantar Tissue Stress Management

What does the future hold for plantar tissues stress management?

Maddy: The future lies in simplifying the technology so it can move out of the research setting and into everyday clinical practice like wearable sensors, smart insoles and real-time pressure feedback need to become accessible

tools for podiatrists, not just researchers.

Blake: Progression in material science & manufacturing. New materials for OTC orthotics and using 3D printed manufacturing for OTC designs.

Dan: Increased Accessibility. The future lies in using AI and technology to make expert knowledge available at the point of care, supporting clinicians in real time decision making and translating expertise into practical application, enabling more consistent and patient centred management.

Nathan: The future of plantar tissue stress management will likely see lower-cost orthotic options becoming increasingly comparable to custom devices for many presentations. This allows earlier intervention for plantar pressure areas before they progress to tissue breakdown, shifting care from reactive ulcer management to proactive prevention of tissue breakdown.

Luke: Ultimately, the future is about closing the loop. Identify plantar tissue stress and consistently apply intelligent, data driven orthotic solutions and objectively measure outcomes. This level of care should be standard.

Claire: Hopefully Podiatrists becoming the go to Health profession for plantar tissue stress management in DFD.

As a profession, can we do more than debride?

Maddy: Yes, there is no doubt Podiatrist have extensive anatomical knowledge, biomechanical understanding and clinical skill to intervene before ulceration occurs. Plantar tissue stress management is not optional if we want to battle the core of diabetic foot care.

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