

DURABLE MEDICAL EQUIPMENT FOR THE PODIATRIC ATHLETE

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INTRODUCTION

There is no doubt there are numerous types of injuries seen in the podiatric athlete. These injuries can range from stress fractures, ankle sprains, to ankle fractures. As podiatric physicians we are often bombarded with information on durable medical equipment. How do we utilize each of these products for a specific injury? How do we implement these dispensable items, not only for our day to day patients, but for our athletic patients? The authors will discuss durable medical equipment (DME) and its role in the podiatric athlete.

ORTHOTICS

In school we were taught how to cast for orthotics and the correct position the foot and ankle should be placed in to do so. However, did anyone ever tell you the role of orthotics in the ice hockey player or tennis player? Custom orthotics can be made to fit any shoe, skate, or boot. Why is this important? The answer is simple: to prevent pain and injury. Have the individual athlete bring in their shoe, skate, or boot during the casting process. After proper casting of the foot take the insole of the device out and make a sketch of the insole on a separate sheet of paper. When the mold is mailed off to be made into orthotics, include the sketch for adequate sizing. This will save you time later in the office attempting to fit the orthotic into the boot.

It is important to remember when the athlete begins to wear the orthotics that they break them in slowly to prevent injury. We advocate a few hours a day for a week and to slowly increase the wearing of the orthotic until full comfort has been reached. Remember the orthotic can be used to both reduce pain from an existing injury and prevent a future injury. A separate recommendation is for the athlete to have a pair of orthotics for their athletic gear and one pair for everyday walking. This enables the

athlete adequate support at all times and continuous wear of orthotics.

The type of material recommended are sport dependent and listed below are the materials that seem to work well.

Running orthotics: full length, semi-flexible orthotics designed to control excessive foot motion under high impact. Deep heel, nylon shell with rear foot stabilizer. High impact absorbing top cover with urethane forefoot cushion.

Court sport orthotics: orthotics for court shoes like basketball and tennis require durability for cutting, jumping, and quick starts. Court sport orthotics are semi-rigid with a cork fill for maximum control. Full length vinyl covered foam for superior abrasion resistance and comfort.

Golf orthotics: the golf orthotics need to incorporate a semi-rigid nylon shell with rear foot stabilization and full length moisture reducing top cover.

Skate versus skiing orthotics: we incorporate these for skate and or ski boots and the orthotic has a deep heel nylon shell with rear foot stabilization providing improved power and more stable glide. The top cover is full length velour laminated.

Turf sports orthotics: orthotics for soccer shoes and football cleats are low volume while providing support and control for quick sprints and turns. Slim nylon shell with rear foot stabilization and low volume perforated top cover.

Cycling orthotics: cycling orthotics have a slim nylon shell with low volume top cover. We recommend a floating rear foot design that allows natural foot and ankle motion.

We have seen a dramatic reduction in foot stress fractures due to orthotics. Patients with a history of stress fractures have seen a decrease in the occurrence of these injuries. A paper by Mueller et al showed that orthotic inserts compared to regular shoe gear had a pressure reduction of between 29% to 47% across the metatarsal heads.¹ Proper casting and offloading in the applicable area of the foot can make you look like a hero in and out of the office. Orthotics can help with injuries such as metatarsal pain, plantar fasciitis, pes planus, or pes cavus deformities.

ANKLE BRACES

There are numerous ankle braces on the market. The type and brand that you use should be specific for the injury you are attempting to treat. It has been shown in athletes that wear ankle braces versus those that do not, have an increase chance in preventing injury.² The ankle braces all seem to have a different function and marketing focus. When placing an ankle brace on an athlete there are a few factors to keep in mind. What sport are they playing and what is the type of injury most prone for that sport activity? The thought behind this is that if the sport is prone to inversion sprains then you would not want to strap the brace into a position to protect the deltoids. Secondly, which ankle brace will work best in the athlete's foot gear? If you are dealing with a boot of some sort, then you would want the brace to be as low profile as possible. Trying to avoid plastic side bars on the brace would be beneficial in this situation. A lace up ankle brace may be the best option in skates, boots, ski boots, or tennis shoes.

Ankle braces serve numerous functions from avoiding injuries to protecting an old injury. Instead of attempting to discuss each and every brace we have kept it simple, because in a year their will be a whole new set of braces. When looking at the braces, take the time to explore the braces' adaptability and why it would work best for the individual athlete. One of the most important things that can be said about bracing is if you as the physician are struggling to put it on the athlete, then how are you going to get him or her to use it? Keep it as simple as possible.

ANKLE SLEEVES

One of the best parts of ankle sleeves is that they are easy to use. Ankle sleeves fit into any type of shoe or boot. They provide some support and relief of pain. They may even give the athlete a psychological advantage to feeling like they have more support than they really do. However, the major disadvantage of ankle sleeves are they do not support as well as ankle braces. Also, an important point to remember is that over a span of months depending on sleeve use they will loosen and lose their strength and support. Ankle sleeves have to be exchanged more often than ankle braces. However, ankle sleeves are a good starting point for the physician. If the patient/athlete feels like they are stable, but could use a little more support then you can always make adjustments as needed.

HEEL CUPS/HEEL CUSHIONS

These devices are useful for conditions such as plantar fasciitis, Achilles tendon pain, equinus, or previous calcaneal stress fractures. The major advantage of the device is to reduce the stresses on the calcaneus. This in turn can affect all of the previously mentioned conditions. These devices will fit into any type of foot gear or sporting device. They are also easily adjusted or cut to fit. The other nice thing about these devices is that they can be raised or lowered to a specific height to offload the Achilles. So with these types of devices it is important to continue to stay in touch with the athlete to make adjustments as needed to fit their level of comfort. Heel cups and cushions can also come in numerous types of materials, making them stiff or soft with everything in between.

An excellent use of a heel cup or cushion is in a young athlete with Sever's disease of the calcaneus. They are easily dispensable out of the office and can be replaced as they get worn out. We have seen incredible results with implementation of these devices in this situation.

TOE SPACERS

Think of those athletes in which the shoe gear is not ideal. The ballet dancer, professional tango dancer, or acrobat. These patients wear shoes that cram the forefoot together. This causes pressure sores and interdigital corns. Instead of jumping right to surgery, one can offer them a simpler solution. Take a toe sleeve or interdigital spacer and relieve the pressure areas. This is simple, effective and can alleviate the problem all together. These come in a variety of materials and sizes. They are extremely cost effective and can be transferred from shoe to shoe.

DISCUSSION

Durable medical equipment is an essential part of the podiatric physician's knowledge. Having the capability to utilize these devices in your everyday patient and in the serious athlete will broaden your role in the community. There are numerous brands on the market and it is your job to become familiar with them and their role in treatment. When the team doctors are unable to make an ailment better and you are, then you become the hero.

REFERENCES

1. Mueller JM. Efficacy and mechanism of orthotic devices to unload metatarsal heads in people with diabetes and a history of plantar ulcers. *Phys Therapy* 2006;86:833-42.
2. Schmdit MD. Effectiveness of an outside-the-boot ankle brace in reducing parachuting related ankle injuries. *Injury Prev* 2005;11:163-8.