

PORON® *Prescription*

Fall 2008

Welcome to the premier edition of PORON® Prescription. Our mission is to provide interesting market trends, case studies, and useful information about PORON Medical® Urethanes. In this issue: A look at sports orthoses. If you have a suggestion for a topic for a future issue, please contact us at solutions@rogerscorporation.com.

PORON Medical® Urethane plays supportive role in orthoses lab

In addition to running two busy private practices, Steven Levitz, DPM, is a professor at the New York College of Podiatry Medicine and also part-owner of a custom foot orthotics laboratory. His lab has fabricated orthoses for numerous athletes, from pro baseball, football, basketball, and ice hockey players, to long-distance runners, pole vaulters, and high jumpers.

The type of orthoses used, he says, depends on the athletes' needs. Big, heavy football players need rigid orthoses. "If you make it flexible, it's not going to give them the support they need," he explains. Polyethylene and/or polypropylene are used to produce these rigid, thicker, less-flexible plastics. In addition, types of carbon graphite are sometimes used.

For semi-rigid or semi-flexible orthoses, his lab uses different material for the arch fill to make the device either more rigid and supportive or more flexible and cushioned. Dr. Levitz uses PORON Medical® Urethanes (soft) to fill in the arch on certain types of foot orthoses.

"What's great about PORON Medical Urethane is that it comes in a variety of thicknesses such as: 1/16", 1/8", and 1/4". That makes it easy to grind in a grinding machine. You can contour it and glue it," Levitz says.

"We use it to cover the majority of our foot orthoses."

In addition, PORON Medical Urethane is used to make certain metatarsal, arch, and heel pads, which



Trimming PORON Medical Urethane arch fill from shell.



In the lab: Grinding heel with arch fill.

Photos courtesy of Dr. Steven J. Levitz

are balance pads to redistribute the pressure off metatarsal heads.

Orthoses made from PORON Medical Urethane are comfortable, durable, flexible, and resistant to collapse. PORON® urethane outperforms vinyl sponge, neoprene sponge, sponge rubber, latex foam and solid viscoelastic. ♦

Steven J. Levitz, DPM, is a podiatrist in private practice in New York City and Professor of Podiatric Orthopedics at New York College of Podiatric Medicine. He is vice president of STJ Orthotic Services.

Courtside with foot doc to basketball elite

Keeping pro basketball players on their feet presents two unique challenges. First, basketball requires running and jumping on hard surfaces; and second, basketball players tend to be above-average size.

Patrick DeHeer, DPM, has served as team podiatrist for the NBA Indiana Pacers for about 10 years and served the WNBA Indiana Fever team for about four years. During his tenure, he has prescribed orthoses for players as a preventive measure, to offer protection from such problems as bunions, heel pain, tendonitis, hammer toe, injuries from overuse, and plantar fasciitis.

Overall, he prefers semi-rigid or semi-rigid flex control. “When dealing with basketball players, two main concerns are shock absorption and cushioning,” says Dr. DeHeer. There is a need for a material that is more accommodating—padding that can maintain its shape, yet offer shock absorbing and cushioning. If something is too rigid, the player won’t tolerate it well. PORON Medical® foams offer both shock absorbing and cushioning properties,” says Dr. DeHeer.

“Basketball orthotic material walks a fine line,” he says. “The shoes that the players wear are tight, so the thickness of the cushioning has to be taken into consideration along with control and support.”

For example, even after prescribing, measuring, custom fitting, and getting an orthotic device made, one challenge remains: The athlete has to be willing to wear it. Players aren’t always on

board with the treatment plan. There is a break-in period required to adapt to an orthotic device. Often, players don’t want to take the time to adjust to the device—they just want to play.

“When dealing with basketball players, two main concerns are shock absorption and cushioning.”

“Keeping the line of communication open with elite athletes is essential,” says Dr. DeHeer. The team trainer is integral in making sure that happens. The trainer



Semi-rigid basketball foot orthoses with PORON Medical Urethane arch fill.

works with the player every day. He or she can seek feedback on the orthotic device, encourage cooperation with usage, and educate the player on the benefits of complying with orthotic usage. “A basketball player has to learn that anything that helps to reduce or absorb the shock will help prevent injuries—and ultimately prolong his or her career,” says Dr. DeHeer. ♦

Patrick DeHeer, DPM, team podiatrist for the Indiana Pacers and Indiana Fever, is in private practice in central Indiana. He is Board-certified by the American Board of Podiatric Surgery and is a Fellow of the American College of Foot and Ankle Surgeons.

Photo courtesy of Dr. Steven J. Levitz



PORON Medical Urethane comes in a wide variety of colors, thicknesses, densities and surface textures.

PORON® Prescription is published semi-annually by Rogers Corporation, 245 Woodstock Road, Woodstock, CT 06281, USA. www.rogerscorp.com.

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From pounding the pavement to teeing off: Which sports lead in orthoses?

Modern sports are sending athletes in search of relief in the form of custom orthoses. Sports orthoses are medical devices that allow the feet and ankles to function without pain, and to protect them from the repetitive stress of sports activities.

Doctors Patrick DeHeer and Steven Levitz agree that long-distance running/jogging is the number one problem sport, accounting for the largest portion of sports orthoses. Running sports apply undue stress to the feet and ankles, which are not constructed to bear such abnormal forces.

Basketball, cycling, tennis, skiing, soccer, and golf are also keeping orthotics labs busy making various modified devices. Some may be surprised at the increase of orthotic use among golfers. But Dr. Levitz says that more orthoses orders for golfers are pouring into the lab. "Golf is getting bigger and

Photos courtesy of Dr. Steven J. Levitz



A side view of finished arch and fill. Left: PORON Medical Urethane arch fill with full cover to toes.

bigger," says Dr. Levitz. "If you can afford to play golf, you have disposable income. Serious golfers will spend money to try to improve their game. If a better pair of shoes or certain orthoses is going to give them a better feel or better balance, they are going to go for it." ♦

Staying on top of your game

Want to keep at the top of your game? Then look what's at the bottom of your feet.

Here's how orthoses provide benefits:

- **Running/jogging:** Absorbs shock at heel contact, provides control, and sets up the forefoot for pushoff.
- **Sprinting:** Controls the movement of the forefoot.
- **Cycling:** Controls the internal and external rotation of the lower leg.
- **Skiing:** Stabilizes feet in neutral and inhibits motion within the ski boot.
- **Tennis:** Provides lateral support, decreases shear factors, absorbs shock (especially in the forefoot), and allows subtalar motion.
- **Basketball:** Controls the forefoot during jumping, controls the rearfoot during running, and controls excessive inversion. ♦

Source: American Orthopaedic Foot & Ankle Society, www.aofas.org

Targeting turf toe

After the development of artificial turf, football players commonly sustained a specific type of foot injury known as turf toe. Cleated shoes suited for grass fields were too flexible on the artificial surface and held the front of the shoe fixed within the turf. This caused the foot to move rapidly over the big toe, forcing the plantar structures to tear—resulting in a sprain of the bottom portion of the big-toe joint, or even a dislocation of the big-toe joint.

Now shoes are designed with low plastic cleats and a more rigid construction that allows some motion between the shoe and the artificial turf. Turf toe plates, made from various carbon graphite composites, can be inserted into the shoe to make them even more rigid.

Oh, our aching feet

Toe, foot, or ankle symptoms accounted for more than 11.2 million physician visits and 2.8 million emergency room visits in 2004. When it comes to seeking medical attention for toe, foot, or ankle pain, women outpace men. Of the 11.2 million seeing a physician, 58 percent were female versus 42 percent male. In the ER, 55 percent of the patients were women versus 45 percent men.

Source: American Academy of Orthopaedic Surgeons

Boomers: Getting hurt on the way to getting fit?

In 2005, more than 128,000 adults between the ages of 45 and 64 were treated for injuries related to exercise and exercise equipment.

Source: U.S. Consumer Products Safety Commission

Custom versus prefab

Custom orthoses are worn by 8 percent of Americans. Another 17 percent wear shoe inserts purchased off the shelf at drug or sporting goods stores.

Source: American Podiatric Medical Association (APMA) survey, www.apma.org

Ow! Most common sports-related injuries

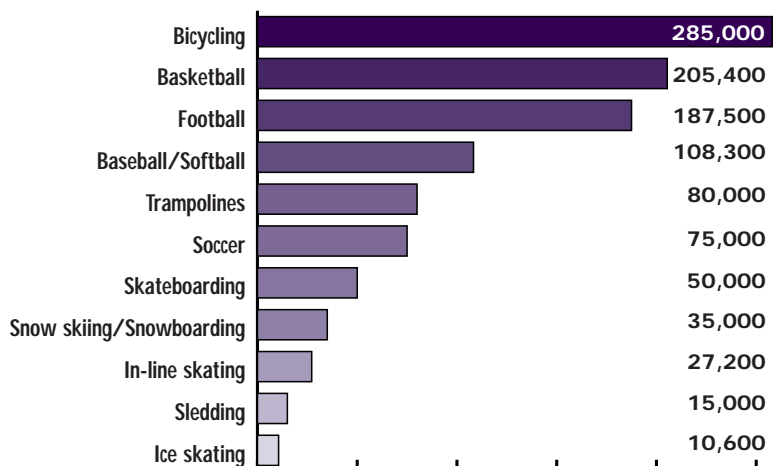
- Sprains and strains
- Knee injuries
- Swollen muscles
- Achilles tendon injuries
- Shin bone pain
- Fractures
- Dislocations

Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases, www.nlm.nih.gov

It's all fun and games, until...

Children and adolescents ages 5 to 14 suffer more than 3.5 million sports- and recreational-related injuries each year. The most recent statistics show the approximate numbers of injuries related to the following activities, per cases treated in hospital emergency rooms:

...People Get Hurt: Sports Injuries Cases Seen in the ER



Source: National SAFE KIDS Campaign and the American Academy of Pediatrics (AAP)

Healing heels for soccer kids

Soccer has become the leading sport to recommend itself to the use of orthoses by preadolescent children between the ages of 8 and 12, says Steven Levitz, DPM. Girls (from about age 8) and boys (between 10 and 12) can develop apophysitis, a condition in which the growth plate on the heel bone that hasn't fused yet becomes symptomatic.

It's a self-limiting condition, says Dr. Levitz, and does not necessarily require orthoses—yet more and more, clinicians and podiatrists are fabricating custom foot orthoses for kids on soccer teams to wear inside their soccer shoes. ♦

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