

## Step Into The Future of Orthotics

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Founded in July 2013, SOLS is a leader in the 3D printing space and the pioneer of custom mass-manufacturing. SOLS is one of the world's first applications of 3D printing in orthotic therapy.

### Innovation Founded from the SOLS Up

Kegan Schouwenburg is no stranger to orthotics, having grown up wearing them as a child. For Kegan, fallen arches and pronation meant foot fatigue. The thing about orthotics was that they never fit in the shoes she wanted to wear.

Kegan had been experimenting with 3D printing in college back in 2006, saying that: 'One day, this is how we're going to make everything.' Then in 2014, she had a chance to make a change.

She was leading the U.S. production at Shapeways, and saw the potential 3D printing could bring to the medical market. Current manufacturing processes are often messy, slow, tedious, and don't offer repeatability. 3D printing allowed for the complete customization of orthotics that was quick, accurate, and fit both the individual's medical needs, as well as the shoes the patients wear.

### A Team with a Vision

Based in NYC, SOLS HQ employs around fifty full time employees, with teams ranging across 3D printing, bio-mechanics, healthcare, engineering, and mobile.

Our advisory board includes Dr. Joseph Geldwert—Medical Director of the New York City Triathlon, Dr. Hal Ornstein—Chairman of the American Academy of Podiatric Practice Management, Dr. Patrick DeHeer—Founder/President Step By Step Haiti, Dr. Wenjay Sung—board certified foot & ankle surgeon, Dr. Alec Hochstein—board certified American Board of Podiatric Surgery, and Dr. Emily Splichal, Human Movement Specialist.



CEO Kegan Schouwenburg at SOLS Headquarters featured in INC's 30 Under 30

### The Future of 3D Printing

3D printing is changing the landscape across the medical field, allowing for a new generation of custom fitted medical devices ranging from casts, supportive scaffolding, and even custom orthotics. Surgeons can now create a 3D printed heart from a CT scan, as a way to map out a surgery before operating on a real human

heart, while another company, Exovite, is using 3D printed splints that can help heal broken bones faster than before.

SOLS custom orthotics are created using a 3D printing technology called SLS, also known as Selective Laser Sintering. Nylon-11, a NASA grade plastic powder, is used to create the orthotics at the micron level, with an accuracy of 0.1mm. Repeatable Accuracy—A laser beam fuses the Nylon-11 powder into thin layers. (Thinner than a piece of paper) The micro thin layers are then stacked on top of each other to create the custom fit orthotics.



The SOLS SLS 3D Printing Process

### The SOLS Solution

SOLS Rx has been built from the ground up, with input from our medical advisory board, to create a solution specifically designed for medical providers. Over 350+ providers are currently prescribing SOLS RX in their practice.

The SOLS process captures three images of each foot with an iPad: a plantar view, medial view, and posterior view in weight bearing and non-weight bearing stances, to create a 3D impression of the foot. The whole process takes about 15 minutes.

From the 3D image, SOLS then calculates how the orthotic should behave based on the patient's biomechanics, lifestyle, and the physician's medical prescription. The finished orthotics are tailored to the patient's foot geometry, weight distribution, and activity level.

## SOLS (continued)

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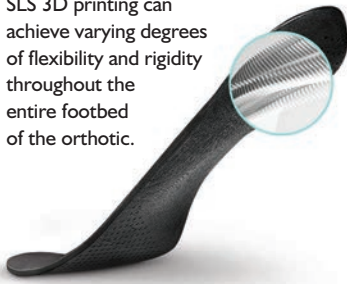
SOLS can treat a variety of medical diagnoses. Some include:

- Flat feet
- Achilles tendinitis
- Metatarsalgia,
- Plantar fasciitis
- Sesamoiditis

Some of the many medical features that can be prescribed with the orthotics include:

- Rounded Heel
- Squared Heel
- Arch Adjustment
- Heel Raise
- Full Length
- Sulcus Length
- Forefoot Posting
- First Ray Dropout
- Metatarsal Pad
- Shoe Width

SLS 3D printing can achieve varying degrees of flexibility and rigidity throughout the entire footbed of the orthotic.



A provider can choose from a variety of top cover options. Top cover choices include leather, neoprene, and merino wool. Impact absorbing foam covers provide an excellent contact surface for your feet, and the premium cover materials wear and age beautifully with use.

Consumers looking for orthotics can find a local provider via the SOLS Find-a-Provider page on the company website.



Providers can choose from a variety of top covers, including leather, neoprene, and wool.

### The Doctor Is In

*"...I have had a chronic issue with my left knee varus, which caused knee pain and cavitations when applying a valgus force. Other orthotics never addressed this issue. SOLS helps correct this issue and level my pelvis. Now I can walk in a biomechanically symmetrical manner with reduced back pain."*—Reese Petersen, DC, Clinton, IA

For more information, visit [www.sols.com/new](http://www.sols.com/new) perspective, call 855-932-7765 or [click here](#).