

STARTUP SATURDAY

Bamboo socks, shoes with soul in the sole

HOT TO TROT While there are many young entrepreneurs learning to leverage their knowledge and skills to create path-breaking technologies, Heelium, a startup, aims to change the way we run with their specialised socks and shoes

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PUNE: When technology and sports come together, you can bet your jogging gets easier.

Prateek Sharma is a sports enthusiast, having played hockey for his school and college. So when he joined IIT Roorkee for his masters, it was only natural for him to use his knowledge for the benefit of sports.

"After completing my masters in material science, I went on to study sports engineering at the Sheffield University in UK. I am a diehard sports person and this field is of great interest to me," said Sharma.

INCEPTION

At Sheffield, Sharma worked with Adidas on footwear research and gained deeper insights into the business of sports shoes. Together with Siddharth Jain, another IIT Roorkee graduate, the two set up Heelium, a footwear company that focuses on providing solutions to sportsmen. Since they were working at the Venture Centre, a Pune-based business incubator focusing on technology commercialisation, Heelium got its first tranche of funding of 10 lakh from the department of science and technology, under the Nidhi Prayas Yojana.

BAMBOO SOCKS

Since I am a materials engineer, I came up with a solution for socks initially. Most sportsmen wear cotton socks that hold in the perspiration and bacteria which cause a foul odour and even infections. So we created a fibre from bamboo. "This material is thermodynamically stable and keeps your feet warm in winter and cool in summer. It does not absorb the sweat as it is ventilated and keeps your feet odour free and keeps your feet free from blisters. This is especially helpful for long distance runners," said Sharma. "Cotton constitutes 3% of the world crop but uses 30% of pesticides, leaving a huge impact on the environment. However, bamboo is eco friendly and I feel we have yet to discover its uses. Bamboo truly is the green gold as stated by finance minister Arun Jaitley," he added.

Heelium developed the material in August 2017 and outsourced the production to a company in Mumbai. Heelium provides the company with the materials and the design which is then manufactured according to the required specifications. The bamboo socks were launched in late January 2018 and have already sold 1,000 pairs at ₹399 a pair through Amazon and Flipkart.

HELPING SPORTSMEN

Heelium has also developed its own proprietary process that helps customise running shoes that helps avoid injuries. The customisation involves getting customers' measurements to produce custom shoes. However, their patented process manages



(From left) Prateek Sharma, Gaurav Bachhav and Siddharth Jain, the brains behind Heelium, with their products, at the Venture Centre. BANDISHA JOSHI/HIT PHOTO

Helping you off to a smart start

Heelium's products are aimed at providing sportsmen with a safe alternative to cotton socks which often hold in perspiration, bacteria and cause foul odour and infections

ATHLETIC BAMBOO SOCKS:



Cost: ₹399 a pair

CUSTOMISED RUNNING SHOES:

Made according to the customer's unique feet measurement by implementing a technology that designs shoes by referring to images of the customer's feet at certain angles.



to do this customisation without any physical measurements.

Clients only need to send images of their feet at certain angles to receive a custom designed shoe according to their specifications. Heelium has also built a proprietary material for the mid sole, which is where Sharma believes most injuries occur. This gives his shoes an edge over the others.

CUSTOMISED SHOES

We use a novel Polyurethane based material in the midsole that absorbs most of the impact while running, walking and standing. We customise the insole based on the shape of the runner's feet and their running style which enhances injury prevention. The

energy absorbed by the material reduces the stress and reaction forces on the knee, heel and ball area drastically with tests showing over five times more impact attenuation than most widely used ethyl vinyl acetate (EVA) based midsoles.

The novel material has negative Poisson's ratio (Poisson's ratio is a measure of the Poisson effect, the phenomenon in which a material tends to expand in directions perpendicular to the direction of compression) and low density. "When compressed in one direction, the material compresses in the other direction too thereby densifying and absorbing more impact. We're preparing to file a provisional patent," said Sharma.

AN IDEA WHOSE TIME HAS COME

Future plans

While the patenting process will take its own time, Sharma is also working on outsourcing the manufacturing of the shoes. "We are in talks with a contract manufacturer in Delhi who makes shoes for Adidas.

"Our aim is to build a new product every six to twelve months rather than get bogged down by the manufacturing process. We aim to market our products and focus on newer materials, technologies and products that will help sports persons," he added. Sharma sees this as a huge opportunity. "More than

50% of all runners are injured every year and impact force experienced during running has been recognised as a major source of injury. Considering a runner's foot strikes the ground an average of 800 times per mile, imagine the periodic force cycle runner's heel and knee goes through.

"Unable to afford a high performance running shoe, they resort to buying an ill-fitting shoe leading to overuse injuries. In value terms, the Indian running footwear market is estimated at ₹5,000 crore with close to 700 marathons being organised across India annually.

Challenges

The road ahead for Heelium though, has its fair share of challenges. "This is an awareness driven market. So generating general awareness is our single biggest challenge.

"We also need to tap the right sales and marketing channels to facilitate the awareness campaign and to ensure people have access to these injury prevention products, not just our bet even competitors." Running, it seems, is going to get easier and safer.

What users say about Heelium socks

Heelium's athletic Bamboo socks have sold 1,000 units on Amazon and Flipkart. Here is some user reviews.

PRADEEP RATHI:

"I can't believe that bamboo fabric can be so smooth and comforting! The added cushioning makes it much more comfortable, safe and makes it a long lasting product. I had ordered this for my father, but now, my mother, wife and son have also demanded a pair"



ANKUR GUPTA:

I got the socks delivered before time and in good condition from Amazon with good packaging and a personalised message. It also has complete information about the socks on the inner card. This is my second pair and I am very happy with the socks for two simple reasons:

- 1 The super comfort that it offers to the heel and toe with the adequate cushioning it provides. Ideal for using for running and walking.
- 2 The sock is well ventilated at the heel and toe which keeps perspiration to a minimum while still offering nice comfort to the foot.

MOHNISH DESHMUKH:

The product is every bit as expected and described. The fit is really nice and the craftsmanship is brilliant. A few points to take into consideration that I personally loved and would advocate for are:

- 1 The extra cushioning at toe and heel makes it quite comfortable while doing repetitive strenuous activities like running. Being a runner myself, I found it very efficient.
- 2 The elastic band situated midfoot protects the sock from moving around and holds it firm in place and also provides additional support to the foot when it's stretched.

NAYAN:

The socks is of bad quality and is a substandard product. The first wash, the threads of the socks started popping and it won't survive in the long run.

sharma says

The material used in the socks is thermodynamically stable and keeps your feet warm in winter and cool in summer. It does not absorb the sweat as it is ventilated and keeps your feet free from odour and blisters. This is helpful for long distance runners.

Our aim is to build a new product every six to twelve months rather than get bogged down by the manufacturing process. We aim to market our products and focus on newer materials and technologies for sports persons.

PRATEEK SHARMA, co-founder, Heelium