

Monthly Newsletter

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Contact Your Podiatrists

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Wearable Robot for Foot and Ankle Rehabilitation

A new orthotic device designed to mimic the muscles and ligaments of the foot could greatly aid in rehabilitating patients with foot disorders such as foot drop.

Termed a 'wearable robotic', this device made its debut in a research project led by Yong-Lae Park, an assistant professor of robotics at the Carnegie Mellon University, United States.

This device is the brainchild of Park's collaboration with Harvard University, the University of Southern California, the Massachusetts Institute of Technology and BioSensics (an electromedical device manufacturer).

Designed to be worn on the foot, this robotic device holds promise in aiding those with neuromuscular disorders such

as cerebral palsy, multiple sclerosis, stroke victims and amyotrophic lateral sclerosis.

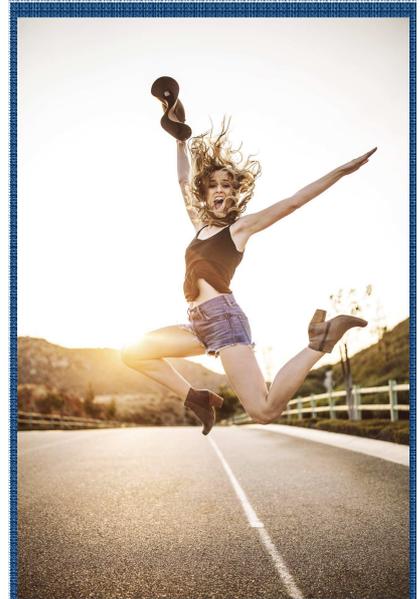
A key feature of this device is that it incorporates the use of soft plastics and composite materials instead of a rigid frame. Combined with pneumatic artificial muscles, sensors and a state-of-the-art control system – this robot allows the wearer to carry out natural foot movements.

The impressive joint flexibility that this system offers trumps previous, more rigid designs.

However, the inventors acknowledge that more work needs to be put in to improve the control system and to make it less bulky before it can be tested out in the clinical setting.

Oh No!!

In May, we had 13 patients that failed to attend their appointment!



Wearable Robot for Foot and Ankle Rehabilitation

(Cont'd from previous page)

'Wearable robotics' is not a new concept. The existence of wearable robotics can be dated back to the 1960s with the first exoskeleton suit built by an engineer from Cornell University that was designed to augment human strength.

Popularized by movies like Iron Man and fueled by the rapid expansion of technology, the development of wearable robotics exploded into the thriving industry that it is today.

Wearable robotics currently exist for medical uses (support for walking for paraplegics, robotic arms for those who have lost limbs), for industrial uses (helping people lift and turn repetitively for their jobs) and many other fields.

The market for rehabilitation robots, active prosthesis and exoskeletons was estimated to be worth USD\$43 million in 2014 and is projected to hit USD\$1.8 billion by 2020. Robots are indeed the future.



Fallen Arches

Our feet suffer heavy loads because the small area carries our entire bodyweight. Their structure must be firm and stable, in order to equally distribute the pressure.

One of the characteristics of a healthy foot is the arch. It is formed by several tendons in the feet and lower leg which pull together.

When the tendons do not pull together in the right balance, arch ligaments can become stretched, hence the term fallen arch or

'flat foot').

Causes

Fallen arches may be caused by birth abnormalities, torn tendons, inflamed posterior tibial tendon, broken bones, rheumatoid arthritis or nerve conditions.

Signs of Fallen Arches

Those people with naturally lower arches usually do not experience major problems and do not require treatment.

Fallen Arches (Cont'd from previous page)

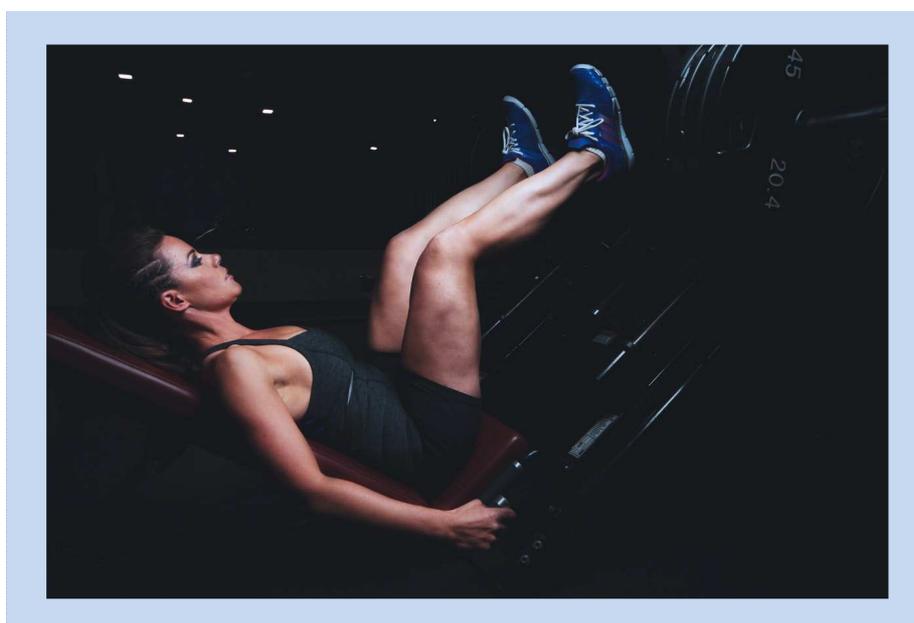
However, there are some signs of this condition, such as:

- Frequently feeling tired
- Pain in the feet, around the arch and heel areas
- Swollen feet, especially on the inside bottom
- Certain foot movements may be difficult
- Leg pain

Treatment Options

In minor to moderate cases, non-surgical options are usually sufficient. These include:

- Orthotic shoe inserts
- Stretching exercises
- Different therapies
- Rest and ice
- Medications to relieve pain



For more acute cases, some surgical procedures may be necessary:

- Fusing the ankle or foot bones
- Changing the shape of the bone
- Removing bony growths
- Cleaning of tendons' protective outer layers
- Tendon transfer – taking tendons from other parts of the body to aid in pulling and forming the foot arch
- Bone grafting to increase the arch higher

Managing the Pain at Home

If you suffer from fallen arches (flat feet), it's important to manage any pain that you experience.

Firstly, be sure to wear footwear that is adequate and comfortable for the activity you're engaging in. Use orthotic shoe inserts if needed.

Next, learn some stretches or strengthening from your podiatrist that you can do at home. Try to avoid high impact sports. When pain occurs, you could try rest and ice, as well as anti-inflammation medicines from the drug store.

If any pain becomes too severe, be sure to seek help immediately!

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The Care,
Professionalism and
Time that your feet
deserve



Foot Health Month

June is Foot Health month, and we are taking part to raise awareness of the importance of good foot health and help keep local people on their feet. Please see our leaflet in reception.

Foot Health Month is an annual awareness campaign run by The College of Podiatry.

The College is keen to raise awareness of how important foot health is to our overall health, and how simple it can be to keep our feet in peak condition. Having healthy, pain-free feet is important throughout life, so a little knowledge of foot care is essential for everyone, and that's what this year's campaign is all about.

Podiatrists are experts in all aspects of the foot and lower limb, and undertake years of specialist training to enable them to prevent, diagnose and treat the conditions that affect the feet and legs.

"There are some very simple steps that everyone can take to keep their feet healthy, but if they do hurt or you notice anything unusual about them, your registered podiatrist can diagnose the problem and provide the right treatment.

Google reviews



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