

Increasing Mobility For Amputees

Bloorview Research Institute

Holland Bloorview Kids Rehabilitation Hospital

University of Toronto



Worldwide, about 30 million people require a prosthetic device to walk, yet only 10 percent of those individuals have access to the devices. Prosthetic devices available in developing countries are often rudimentary and do not offer the functionality of advanced prostheses, which can cost up to \$50,000.

Inventor Jan Andrysek, Ph.D., a scientist at Bloorview Research Institute at Holland Bloorview Kids Rehabilitation Hospital and an assistant professor at the University of Toronto, has created a more affordable solution for individuals for whom advanced prosthetics are out of reach.

“ *Amputees fitted with the All-Terrain Knee can engage in everyday activities more quickly and efficiently, whether that’s working or taking care of family.*

Jan Andrysek

The All-Terrain Knee is an innovative, mechanical prosthetic knee joint that is stable, durable and waterproof. The invention includes a proprietary stance-phase control mechanism (the AutoLock) and a swing-phase control mechanism that allows the knee to securely lock itself without impeding natural movement. The prosthetic knee is easy to fit and maintain, and can be used in harsh environments.

Andrysek established partnerships with rehabilitation centres to develop fitting procedures and teamed with the International Committee of the Red Cross to conduct clinical studies with the All-Terrain Knee. The inventor says the study results provide strong empirical evidence that the device provides users with a greater feeling of security and a reduction in falls.

In 2014, the technology was licensed to LegWorks Inc., a for-profit social enterprise established to commercialize the artificial knee joint. Today, the company offers four versions of the All-Terrain Knee with various features appropriate for different users, from sedentary to more athletic patients. LegWorks has reached patients in 28 countries, tiering its pricing to help reach underserved patient populations.

This story was originally published in 2016.

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