

also felt the need to house the battery and access the operating buttons caused concerns with cosmetic finishing of the prosthesis.

Our second patient, Ken Hammock, wears an Endolite Echelon foot. This foot has some abilities to adapt to slopes, ramps and stairs, although it utilizes hydraulic fluid instead of microprocessor technology.

Ken is a 77 year old, below knee amputee. He is 5' 10" and weighs 176 lbs.

We also noted no discernable difference in our walking speed time test. Ken also felt the Proprio worked well on stairs and ramps, but he felt there was a lag time of a step or two before it changed to ramp mode. He reported his Echelon foot did not have this delay.

Ken did not notice a weight difference of the Proprio compared to his Echelon foot, but like Don, reported reservations of the ability to house the battery and obtain a cosmetic finish while being able to access the control buttons.

We would like to thank both Don and Ken for taking the time to help us evaluate this product.

For more information on the Proprio foot, visit [www.ossur.com](http://www.ossur.com)

### Staff Update

Abilities In Motion prosthetic resident, Brian Johnson, has completed his one year residency. Brian has taken his board exams and awaits his results.

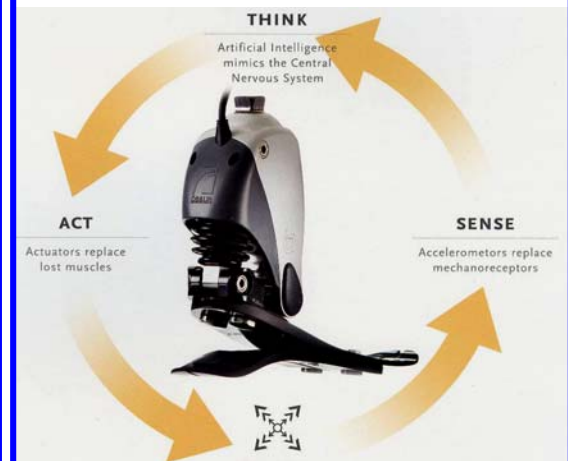
He has now joined his fiancée in Anchorage, Alaska, where he has taken a position as a board eligible Prosthetist.

Given Brian's love for hunting, fishing and the outdoors, it seems perfect for him. We wish him well.

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## Summer 2011 Newsletter



### Technology Update: A Patient Test

## Proprio Foot

Walking relies on a constant interaction between the body and the brain. Mechanoreceptors sense stimuli, communicating with the Central Nervous System, which process the data and directs the bodies response. When a foot is amputated, this mechanism is short-circuited.

Proprioception is the sense of the relative position of neighboring parts of the body. (The *Proprio* foot, Ossur claims mimics the natural proprioception and ankle flexion lost by amputation.)



Using accelerometer technology to replace the bodies mechanoreceptors, the Proprio foot, measures real-time motion at 1,600 cycles per second.

Sophisticated artificial intelligence mimics the Central Nervous System by quickly processing

this data and detecting everything from slopes, ramps and stairs, to whether the user is stationary or “relaxed”.

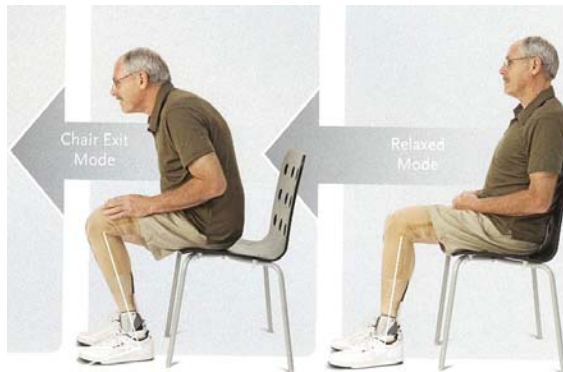
By determining the appropriate physical response, the battery operated on board computer, either flexes up or down to aid with the environmental barrier faced by the user.

The goal being that the wearer experiences reduced fear of tripping or falling. Ossur claims the Proprio foot also helps restore a life-like and confident gait, which in turn can enable the patient to walk further and more comfortably. It can also help reduce back, hip and knee pain.



Sitting down and standing back up is often difficult for amputees. Because most prosthetic feet are firmly fixed in one position, the prosthetic toe points upwards when sitting. This creates an un-natural appearance that can make some amputees self-conscious.

This can also cause discomfort when sitting for a long period of time, like through a movie. When standing up, the user typically loads most of their weight on their sound side, as most prosthetic ankles don't flex in the



same way that natural ankle joints do.

Lifelike ankle movement enables the Proprio foot to adjust so that the user can sit and stand normally. The foot can sit flat on the floor during the “relaxed mode” to give a more natural and comfortable appearance. It can also flex greatly to allow ankle bend to make it easier to stand from a chair when set in “chair exit mode”.

Another great feature of the Proprio foot is that it can



be set for use with a range of heel height shoes. A push of a button enables the automatic alignment mode, so that the wearer can easily change shoes throughout the day without compromising the alignment of the prosthesis.

Being an electronic device, it does require daily battery charging, a new socket design and involves an increase in weight of the foot. The foot also has a maximum patient weight limit of 220lbs.

### Comparison Testing

We asked two of our patient to test the foot and compare it to their current feet.

Our first patient was, Don McKenzie, 70 year old below knee amputee, who is 6' 1", 200lbs. Don currently wears a Variflex foot, also from Ossur. The Variflex foot is a carbon fiber energy storing foot.

We tested Don's walking speed in an industry standard timed test and found no significant difference between the feet.

He did report the foot worked well on ramps and stairs, and the cosmetics of foot position during sitting and standing were nice.

Don also reported the Proprio foot felt significantly heavier than his Variflex foot. He