Addressing an Amputee's Fear of Falling

For an above knee amputee, the fear of falling is ever present, especially on uneven ground, when there's a need for a quick movement or in crowds. The microprocessor knee I designed to calm that fear.

There are basically 2 types of prosthetic knees: non-microprocessor (mechanical) and microprocessor (MPK). The mechanical knee uses a mechanical hinge as your knee joint. Friction controls the swing, using a locking mechanism or some kind of hydraulic system.

On the other hand, microprocessors are more complex knee joints using sensors, a resistance system, a microprocessor, a battery and software to monitor and control the knee movements. They provide a more stable gait that more closely resembles a natural walking movement. The continuous monitoring and control of the internal fluid of the microprocessor makes adjustments in resistance so you can walk at various speeds and up and down ramps and stairs more naturally.

Ottobock brought the first microprocessor-controlled knee to the US in 1999 with the C-Leg – a significant advancement in prosthetic history. In the years since, MPK technology has been taking advantage of the increasing sophistication of software, increased use of smartphones, the fast evolution of microprocessors which have increased in power without increasing the cost, and improved battery technology, plus new improved and miniaturized controls. Other manufacturers developed MPKs and there is now a selection available based on activity levels, visual preferences and comfort.

Ottobock's newest MPK is the weatherproof C Leg 4 and there is their Triton family of feet, and ankle joints to fit it. It's monitored by a smartphone Cockpit app. Studies have proven that the frequency of falls in people with a transfemoral amputation is significantly lower with the C-Leg in comparison to conventional prostheses.

Another popular MPK is made by Ossur – the Rheo XC knee is their latest model. It's a weatherproof knee with a natural knee function which continuously adapts to the user and the environment. It can be monitored by the Ossur Logic smartphone app. Ossur's Pro-Flex foot and ankle fit the Rheo XC knee.

An MPK uses sensors to determine where it is in space at all times and to make precise adjustments at every moment of every step. This facilitates navigation of stairs, ramps, rough terrain – nearly every type of challenging surface.

The foot of the MPK should be fitted with a footshell for a realistic appearance as well as to fill a shoe comfortably.

An MPK requires the candidate to be someone who would benefit from the improved safety. They must be able to handle the increased weight of the prosthetic and the monitoring technology and not engage in high impact sports or activities with it.Sunshine P&O Prosthetists can customize them to the individual user needs.

If interested in a free evaluation and consultation, call Sunshine Prosthetics and Orthotics for an appointment: 973-696-8100. We're located at 1700 Route 23 North, Suite 180, Wayne, NJ 07470.