

# The Only Prosthesis with Powered Propulsion for Enhanced Mobility

The Power of BiOM Personal Bionics:

- Helps your patients walk faster and farther
- Reduces joint forces and potential for osteoarthritis (OA)
- Enables safety and stability on variable terrain
- Provides powered propulsion to climb ramps, hills and stairs



# The challenge

Whether you're seeing new or existing patients, you are challenged with improving mobility. This requires careful selection of a prosthesis to help patients:

- Walk farther and faster
- Minimize joint pain
- Be safer and more stable on variable surfaces
- Climb ramps, hills and stairs more easily

This high performing prosthesis must also have assured reliability and best-in-class support from a company committed to the long term success of your practice and your patients.



The BiOM Ankle is the only prosthesis with powered propulsion for enhanced mobility. With each step, utilizing its Personal Bionics technology, the BiOM Ankle delivers powered propulsion to lift and drive the patient forward, smoothly transitioning weight to the active limb. The BiOM Ankle conserves metabolic energy to reduce fatigue.<sup>17</sup> In clinical studies, patients on the BiOM Ankle increased their walking speed an average 23%.<sup>1</sup>

When compared to energy store and return prostheses in Stair Climb Tests, the BiOM Ankle produced a 167% increase in ankle push-off.<sup>4</sup> There was no significant power difference between the BiOM Ankle and the non-amputee control group. Achieving normal ankle function requires a substantial increase in power, only available with the BiOM Ankle.<sup>4</sup>

66 Before, with my traditional prosthesis, I did not feel stable. At times I avoided tasks because I was worried about balance. Now, I can focus on the job at hand, not on my next step.

Barry, Indiana

#### Improved safety and stability on variable terrain

The natural ankle decelerates the body at heel-strike to control rollover, before re-powering for push-off. The BiOM Ankle uses dynamic resistance to replicate this deceleration which improves control and stability on any terrain.<sup>3</sup> At the same time, the BiOM Ankle automatically adjusts the degree of plantar flexion to the angle of the ground below.





# **Reduced joint forces and potential of OA**

People with lower limb amputations suffer a higher incidence of osteoarthritis due to gait deviation caused by conventional prostheses.<sup>5</sup> A prosthesis that seems effective at first may soon cause joint pain that leads to OA. The BiOM Ankle mimics normal ankle movement and provides positive push off power, which can normalize the gait and reduce the adduction moment, considered the root cause of OA. Wearing the BiOM Ankle daily may help delay its onset.<sup>12,6</sup>

# Easier climbing ramps, hills and stairs

Ramps, hills and stairs are difficult for people in prostheses. They use their hips, residual limb and healthy side to provide power. They often feel unstable and unsafe.

With the BiOM Ankle, powered propulsion drives the patient forward and upward while balancing weight transfer. No other prosthesis attempts to do this. The BiOM Ankle replaces the power generated by the gastrocnemius and soleus muscles.



With BiOM, I have the energy and confidence to run my businesses, do my hospital counseling and play with my grandchildren – often on the same day.

Judi, Massachusetts

# The BiOM Advantage

# POWER

Emulates the function of lost muscles and tendons.

Energizes every step, to walk farther and faster – even up ramps, hills and stairs.

# CONTROL

Mimics normal ankle movement to enable a more natural stride.

Centers alignment to reduce joint forces which may result in less pain.

# STABILITY

Dynamic resistance controls the ankle movement from heel strike until toe push off.

Provides balance so your patients feel confident on any surface.

Only BiOM Personal Bionics offers this combination of POWER, CONTROL and STABILITY.

BiOM helps your patients have more freedom in life so they can do the things that they want to do.

### Assured performance, reliability and support

The BiOM Ankle uses tablet-based software to customize tuning and gait normalization for each patient. This provides documentation of K3 mobility. A BionX Clinical Specialist will train and support you for the best fitting experience for your patients.

The BiOM Ankle is for people with above or below the knee amputations who are low to moderately active and want to maintain an active lifestyle.

The BiOM Ankle has a 3 year warranty.

BionX is committed to offering bionic solutions that restore normalized function and quality of life for people with amputations. More than 1,000 people have experienced the power of BiOM Personal Bionics.

#### **Insurance coverage**

The BiOM Ankle is covered by a number of providers, including Workers' Compensation, the U.S. Department of Veteran Affairs and Non-Profit Funding for veterans who do not have the VA benefit.

Ask about BionX Reimbursement Support for pre-authorizations, appeals and other reimbursement needs.

#### Give your patients the opportunity to experience BiOM Personal Bionics

The device is intended to replace a missing foot and ankle. The BiOM Ankle is to be used exclusively for fittings of lower extremity amputations as prescribed by a healthcare professional.

The BiOM Ankle does not work for everyone and individual results may vary. The most common complications are complete battery discharge which may reduce walking distance and speed, improper tuning or improper walking up and down stairs which increases the risk of falls.

- 1. H. Herr, A. Grabowski, 'Bionic ankle–foot prosthesis normalizes walking gait for persons with leg amputation', Proc Biol Sci. Vol. 7; 279(1728): 457–464. 2012.
- 2. A. Ferris, J. Aldridge, J. Sturdy, J. Wilken, 'Evaluation of the Biomimetic Properties of a New Powered Ankle-Foot Prosthetic System', Dept. of Orthopedics and Rehabilitation, Center for the Intrepid, Brooke Army Medical Center, Fort Sam Houston, TX, USA. Presented at American Society of Biomechanics 2011.
- D. Gates, J. Aldridge, J. Wilken. 'Kinematic comparison of walking on uneven ground using powered and unpowered prostheses', Clinical Biomechanics, 28, 467–472, 2013.
- 4. J. Aldridge, A. Ferris, J. Sturdy, J. Wilken, 'Kinematics and Kinetics with a Powered Lower Leg System During Stair Climbing Ascent Following Transtibial Amputation', Gait & Posture, Vol. 36, , 291–295, June 2012.
- 5. D. Morgenroth, G. A. Gellhorn, P. Suri. 'Osteoarthritis in the Disabled Population: A Mechanical Perspective', PM R., Vol 4 S20-S22 2012.
- 6. A. Grabowski, S. D'Andrea. J., 'Effects of a powered ankle-foot prosthesis on kinetic loading of the unaffected leg during level-ground walking', Neuroeng Rehabil., 10:49, 2013.
- 7. E. Esposito, et al., 'Step-to-step transition work during level and inclined walking using passive and powered ankle-foot prostheses', Prosthet Orthot Int. 2015 Jan 27.



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