Meridium
Features and Benefits
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Microprocessor-Controlled Foot and Ankle
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Real-time Adaptation over full Range of Motion
 Separate control of dorsiflexion (14°) and plantarflexion (22°).

4 – Axis Kinematics
 Meridium’s 4-axis design allows movement of ankle, foot and separate toe section resulting in excellent adaptability, more similar to natural gait and reduced need for compensatory movements.

Walking Speed changes
 Real-time adaptation combined with Meridium’s 4-axis design provides almost natural rollover, resulting in better control of walking speed.
 Compare this to conventional prosthetic feet which have stiff ankles and only partially mimic the function of an ankle joint.
 When the user changes walking speed, the dorsiflexion resistance automatically adjusts itself to the change in forces, allowing the user to easily vary gait speed without feeling any change in the foot’s behavior.

Increased Foot clearance during swing
 During the swing phase, the foot remains in the dorsiflexion position to provide greater ground clearance which requires less compensatory movements and allows better gait symmetry. This prevents the tip of the foot from getting caught and may help to reduce stumbles and falls.

Expanded Full-Surface Contact with the Ground
 Meridium allows for expanded, full-surface contact with the ground for improved stability and traction when walking on level ground, uneven terrain, and slopes.

 Compare this to mechanical feet which have always represented a compromise between flexibility and stability.
 Individually adjusted plantar flexion resistance allows the foot to lower itself according to the gait situation with every step.
 Hydraulic resistance is adjusted during initial ground contact to achieve a comfortable heel leverage adapted to the user’s stride length.

Walking on Hills and Slopes
 Plantar flexion and rollover are adjusted in real time according to the incline and dorsiflexion resistance supports consistent rollover across the wide range of motion.
 With each step, the foot moves to a full-surface (flat on the ground) position as the user walks up or down the slope.
 Real-time adjustment and wide range of motion allow the user to place an equal load on both legs, and enables a more uniform gait symmetry.
 When descending a slope, this full-surface contact prevents undesired acceleration, providing additional safety. The user also finds it easier to control knee flexion, because less flexion moment occurs.
 The dorsiflexion position also provides greater ground clearance when walking up slopes. This prevents the tip of the foot from getting caught and may help to reduce stumbles and falls.
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Walking on Uneven Ground
- The advantages of real-time adjustment are particularly evident on uneven surfaces such as cobblestones, grass, forest paths, and other similarly structured surfaces. With every step, the dorsiflexion and plantar flexion angles are fully and immediately adapted to the walking surface. The improved contact with the ground increases the user’s safety.
- Smaller obstacles are therefore no longer perceived as a problem, but rather as if they had been smoothed over.

Stairs
- The Meridium recognizes the movement pattern when walking on stairs and adjusts both dorsiflexion and rollover angle, in real time, step by step.
- This allows up to full surface contact meaning that on stairs the patient doesn’t have to roll over the edge of the step anymore which provides additional stability. Benefit to the user is enhanced safety and stability.

Intuitive Stance
- Meridium can differentiate between walking and standing based on the situation.
- Meridium provides intuitive stance on both level ground and slopes and the user maintains the same level of stability in either case.
- Dorsiflexion is locked for stable standing and immediately returns to adaptation for walking once movement is sensed.

Backwards Walking
- The Meridium adapts in real-time to the movement pattern when walking backwards. Controlled lowering of heel down to the ground for full foot flat and ease of rolling over backwards.

Relief Function
- This function automatically lowers the foot to the floor when a load is placed on the heel for a prolonged period and allows the foot to be flat on the floor while sitting or standing. Helpful when in areas with minimal leg room, such as public transportation, or theaters, and cinemas.