

# Genium X4.

## Setting a new standard for MPK performance.

Moves users closer to natural gait with the OPG 3.0

- Makes it easier to move in crowded spaces with a Start-to-Walk feature
- Enables safer, easier backward movement, even when pulling a load
- Gives users even more support when going uphill
- Enables easier walking speed transitions
- Makes biking simpler and safer with an Intuitive cycling function



## Genium technology: Clear clinical benefits.

Genium X4 offers advantages that can only come with a knee built on 25+ years of MPK experience. Multiple studies have shown that the Genium Family outperforms previous MPKs in a range of clinically meaningful areas.

### Genium/Genium X3 has been proven to:

**Maximally approximate a natural gait pattern<sup>1, 6, 7, 8, 9</sup>**

**Significantly reduce user fall rates<sup>1, 3, 4, 6</sup>**

**Relieve contralateral limb stress<sup>1, 7, 9</sup>** (even when engaging the stance function or performing activities such as step-over-step stair ascent)

**Enable safe backwards walking<sup>6</sup>**

**Enable a smoother and more intuitive gait<sup>1, 3, 6, 7, 8</sup>** (even in confined spaces or on uneven ground)

**Facilitate activities of daily living (ADLs)<sup>4, 5, 6</sup>**

**Significantly increase quality of life<sup>6, 2, 4, 10, 9</sup>**

### References

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# Upcoming publication.

## Genium X4 users in Germany\*

\*Publication in preparation

### Participants

8 *Genium X4* users with prior transfemoral amputation or knee disarticulation

- Everyday prosthesis: *Genium X3* (n=7) or *Genium* (n=1)
- 2 bilateral amputees
- Mobility level 3 (n=2) or 4 (n=6)

### Assessments

- Subjective perception of safety
- Prosthesis usage and performance
- Specific gait/movement situations
- Activities of Daily Living (ADLs)
- Body image
- Work/life limitations
- Preference and satisfaction
- Gait lab assessments (biomechanics and metabolic energy consumption)

### Gait analysis

- Knee flexion control: More consistent with *Genium X4* during level walking with varying gait velocities.
- Walking up ramps: More natural movement pattern of the prosthetic leg and reduced ankle power on the contralateral side.
- Starting to walk: Could be performed with a more natural movement pattern of the prosthetic leg and reduced compensatory movements of the pelvis and upper body.
- Walking backwards: Higher anterior-posterior ground reaction force due to limited knee flexion, indicating an improved acceleration phase.

### User feedback outcomes

After an average of 14 weeks using *Genium X4*:



All users (n=8) preferred *Genium X4* over *Genium/Genium X3*.



50% of users (n=4) reported that *Genium X4* required less exertion while walking than their everyday prosthesis; 50% reported no difference.



A majority of users reported that *Genium X4* was superior to *Genium/Genium X3* when walking up ramps (n=5), starting to walk (n=7), walking backwards (n=6), and cycling (n=4/5).



50% of users (n=4) reported that *Genium X4* was either equivalent to or better than *Genium/Genium X3* when walking up stairs and down ramps.



A majority of users (n=5) reported either equivalent or greater walking comfort compared with *Genium/Genium X3*.



Users reported clinically relevant improvement in many ADLs, including multiple mobility-related activities (e.g., walking in a crowded environment, pulling open a heavy door, stepping over minor obstacles, walking up ramps, walking up stairs, stepping backwards, walking at varying speeds, riding a bicycle, moving around in small spaces)