ottobock.

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*:

Better approximate a natural gait pattern [1, 8, 9, 11]

Improve balance and perception of safety [2, 5, 7, 9]

Better relieve contralateral limb stress (even when engaging the stance function or performing activities such as step-over-step stair ascent) [1, 9]

Enable a smoother and more intuitive gait (even in confined spaces or on uneven ground) [1, 2, 7, 8]

Facilitate activities of daily living (ADLs) [2, 5, 6, 7, 9]

Significantly increase in several aspects of quality of life [3, 9, 10]

References

* All publications compare *Genium*/*Genium X3* to *C-Leg*.

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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 prostetic 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% (n=4) found *Genium X4* superior for walking up stairs and down ramps; all users reported *Genium X4* to be equivalent or better to *Genium*/*Genium X3* for these tasks.

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)