



# Introduction to Advanced Gait

## What is Advanced Gait?

Advanced Gait is an Indego® software suite option which allows Users to walk with a continuous stepping motion. A posture-based “lean forward walk forward” approach to trigger steps remains, but the pause between steps is eliminated. By eliminating the time a User is in double stance support, the User is able to achieve faster walking speeds with less effort relative to Standard Gait.

## Who is appropriate for Advanced Gait?

- Persons who walk and train using Indego Motion+ software suite.
- Indego Users who have mastered walking in Standard Gait and wish to be able to walk at faster speeds.

## What are the benefits of Advanced Gait?

- Allows for a smooth, efficient gait pattern more closely aligned with “normal” walking behavior.
- Provides safe transitions into and out of faster walking speeds.
- Promotes functional community ambulation and faster walking speeds compared to previously reported average exoskeleton speeds.†

### Broad Speed Range

In a recent clinical study‡, Indego Users were able to safely control transitions between Standard Gait and Advanced Gait. Although sample size and training sessions were limited, it can be assumed that full community ambulation speed can be achieved.

### Smooth Efficient Motion

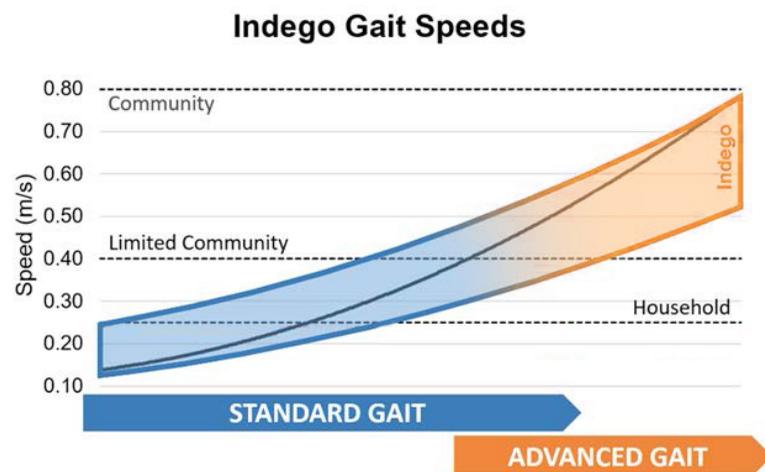
Continuous motion means that every phase of the Indego gait cycle is utilized to keep both the User and device moving forward, allowing for smoother steps and dramatic increases in overground gait speed.

### Community Ambulation

For people with Spinal Cord Injury using Indego as a personal device, the ability to walk at speeds exceeding 0.4 m/s is more compatible with community ambulation.

### Clinical Rehabilitation

Advanced Gait utilizes high frequency, high fidelity stepping to maximize stepping dose and task specific challenges.



†D.R. Louie, J.J. Eng, T.Lam, and SCIRF Research Team, “Gait speed using powered robotic exoskeletons after spinal cord injury: a systematic review and correlational study,” *Journal NeuroEngineering and Rehabilitation*, vol.12, no. 82, 2015. (The mean gait speed reported for Indego in this study, without Advanced Gait, was 0.31 m/s. The average gait speed reported for 3 commercially available exoskeletons, including Indego, in this study was 0.24 m/s.)

‡ S.A. Dalley, C. Hartigan, C. Kandilakis, and R.J. Farris, “Increased Walking Speed and Speed Control in Exoskeleton Enabled Gait,” to be presented at the 7th IEEE International Conference on Biomedical Robotics and Biomechanics (BioRob), Enschede, Netherlands, August 27-29, 2018.



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