



Clinical Evidence Parkinson's Disease

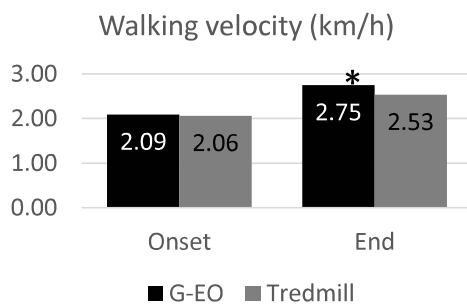
Evidence: Parkinson's Disease

End-Effector: G-EO

Robot-Assisted Walking Training for individuals with Parkinson's Disease: A Pilot Randomized Controlled Trial

Sale et al., BMC Neurology 2013, 13:50

Population: 20 idiopathic Parkinson's Disease patients on stable doses
Intervention: 45 min walking training on the G-EO (N=10) or 45 min walking on the treadmill with visual Biofeedback (N=10), 5 times/week, 4 weeks of treatment
Primary Outcome: Walking velocity (km/h)



Further results:

- Sig. Improvement in step length (~7cm) and stride length (~17cm) with G-EO [mean]
- The G-EO simplifies the treatment of PD
- The Control Group did not show significant improvements

*Sig. Within group difference

Evidence: Parkinson's Disease

End-Effector: G-EO

Use of the Gait Profile Score for the quantification of the effects of Robot-Assisted Gait Training in patients with Parkinson's Disease

Galli M., RTSI, 2016 IEEE 2nd International Forum on RTSI

Population:	23 patients with Parkinson's Disease on stable doses with independent walking ability
Intervention:	45 minutes of G-EO walking training, 5 days / week for 4 weeks (speed was increased and body weight support was decreased over the therapy period)
Primary Outcome:	spatio-temporal parameters, kinematic variables and UPDRS III
Measurement tool:	3D-Gait Analysis with infrared cameras and passive markers

- Spatio-temporal parameters:
 - Gait velocity (m/s) ($T_0=0.3 \rightarrow T_1=0.7$)
 - Step length (m) ($T_0=0.2 \rightarrow T_1=0.4$)
 - Cadence (step/min) ($T_0=98.1 \rightarrow T_1=101.1$)
- Kinematics
 - Hip abduction normalization (°) ($T_0=6.3 \rightarrow T_1=4.8$)
 - Pelvic movement (up/down) normalization (°) ($T_0=4.4 \rightarrow T_1=3.1$)
- Clinical assessment
 - UPDRS III ($T_0=36.9 \rightarrow T_1=31.9$)

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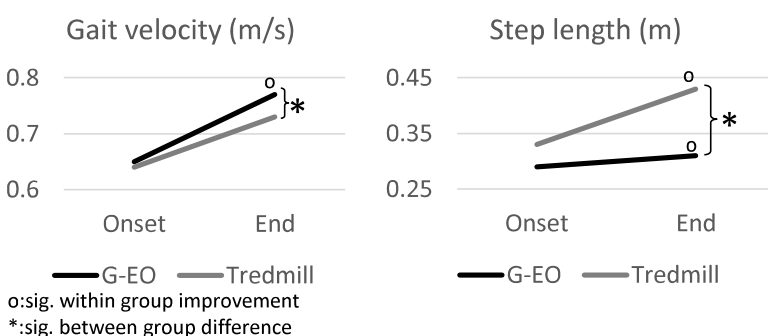
Robot-assisted gait training versus treadmill training in patients with Parkinson's disease: a kinematic evaluation with gait profile score

Galli M., Functional Neurology 2016; 31(3):163-170

Population: 50 patients with idiopathic Parkinson's Disease
Intervention: 45 minutes of G-EO walking training (N=25) or 45 minutes of treadmill walking with video Feedback (N=25), 5 days / week for 4 weeks
Primary Outcome: spatio-temporal parameters and kinematic variables
Measurement tool: 3D-Gait Analysis with infrared cameras and passive markers

Spatio-temporal parameters:

- G-EO improved cadency whereas treadmill did not



Kinematics:

G-EO

- Hip Ab-Adduction normalization
- Pelvic obliquity normalization

Treadmill

- Non detectable improvements

Take away message: Parkinson's Disease

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Use of the Gait Profile Score for the quantification of the effects of Robot-Assisted Gait Training in patients with Parkinson's Disease

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- Superior effect of G-EO walking training compared to treadmill training and conventional therapy in terms of:
 - Spatio-temporal gait parameters
 - Gait kinematic variables
 - Clinical outcomes
- The G-EO System simplifies the treatment of Parkinson's Disease