Background: The compact **M**otorized orthosis for h**o**me **re**habilitation of **Gait** (MoreGait) device was developed for continuation of locomotion training at home. MoreGait generates important afferent stimuli of walking with the user in a semi-supine position and provides feedback about deviations from the reference walking pattern.

Objective: To test the safety and efficacy of an unsupervised home-based application of five MoreGait prototypes in subjects with incomplete spinal cord injury (iSCI)

Methods: Twenty-five (5 tetraplegic, 20 paraplegic) chronic (time since injury: 5.8 ± 5.4 years) sensorimotor iSCI (7 ASIA Impairment Scale (AIS) C, 18 AIS D; Walking Index for Spinal Cord Injury (WISCI II): 5 – 19) completed the training (45 min/d for at least 4 d/wk over 8 weeks). Baseline status was documented 4 and 2 weeks before and at training onset. Training effects were assessed after 4 and 8 weeks of therapy.

Results: At the end of therapy, 9 of the 25 study participants improved with respect to WISCI II. The short-distance walking velocity measured by the 10-Meter Walk Test showed significant improvements for both self-selected (39.4% ± 35.5%) and maximum (43.1% ± 40.6%) speed conditions, as well as the endurance estimated with the six-minute walk test (66.6% ± 72.1%). One device-related adverse event (pressure sore on the big toe) occurred in more than 800 training sessions.

Conclusions: Home-based robotic locomotion training with MoreGait is feasible and safe. The functional improvements in individuals with iSCI are in the range of those achieved with complex locomotion robots used at hospitals.