TONEFIT REHA

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Short summary:

Exercise-based therapies are an integral part of rehabilitation in patients with reduced functional status. Minimally required doses for impactful interventions are often not met due to restricted time spent with the patients or limited motivation of the patients themselves. This project's objective is to develop a semi-autonomous portable device for exercise-based rehabilitation. To achieve high clinical usability, the project takes a user-centred approach, involving therapists and patients as part of an agile development process.

The proposed device will be worn around the waist, based on the concepts of an existing fitness device (TONEFIT belt). It has two independent pull-push power elements actively moved forward and backwards as part of the natural arm movement during walking or running. The modified device will have adaptable intensity and will be linked to a mobile phone application that allows recording of essential walking parameters. This will allow follow-up evaluations of the patient's training behaviour and enable independent training with pre-programmed exercise modes.

The project will be concluded with the development of a prototype tested in a clinical setting. Main outcomes will be usability, safety and proof-of-concept (i.e. increased intensity) as well as the belt's effect on natural gait patterns.