**Title:**

IMPACT -Improvement of Motoric Abilities in Patients with Cystinosis

Results of adult patients

**Abstract:**

The muscular state is a crucial factor for the course of nephropathic cystinosis. As a primary working hypothesis, the current study aimed to investigate whether regular home practice using Galileo vibration training platforms positively impacts muscle strength and increases cardiorespiratory performance in cystinosis patients. Secondary objectives included whether the training results in a general increase in everyday activity and an improvement in the quality of life and whether it is possible to integrate the therapy into the day-to-day life of chronically ill patients.

The study was designed as a randomized controlled trial, with a matched pair design. The patients have been matched based on their age, sex, and major previous surgeries. The Wilcoxon signed-rank test was used to calculate the necessary number of pairs (n). 20 pairs were selected.

Patients trained with Galileo vibration plates according to a fixed training schedule which provides for 10 short training sessions per week (maximum 2 per day). Within one training session, four exercises have been performed. The control group performed the same exercises without vibration plates, but with dumbbells, during the three-month home training phase. A baseline and two follow-up clinical assessment, one after the three-month home training phase and one after the follow-up phase, took place.

As a primary endpoint the change in muscle strength (in %) from the baseline examination to the measurement after the training phase and a difference of 5 % between the treatment group and the control group was considered clinically relevant.