

PROTO

HOME-BASED DIGITAL PHYSICAL REHABILITATION AFTER ANTERIOR CRUCIATE LIGAMENT INJURY

STUDY PARTICIPANTS WANTED

- RECENTLY HAD SURGICAL ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION
- 18-50 YEARS OLD
- NO OTHER LOWER LIMB INJURIES OR SURGERIES

For further information
about the study

Email:
claudia.lukits@charite.de

Tel.: 030 450 515235

Website:
www.proto-horizon.eu



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Dear patients,

Did you recently sustain a knee injury? Will you receive surgical **reconstruction of the anterior cruciate ligament (ACL)**? Despite surgery, such an injury often results in abnormal movement patterns and can lead to the development of osteoarthritis of the knee joint.

The Julius Wolff Institute of the Berlin Institute of Health, in collaboration with Berlin Movement Diagnostics (BeMoveD) and the Center for Musculoskeletal Surgery (CMSC) of the Charité is currently conducting a study:

Home-based digital physical rehabilitation after knee injury to correct abnormal movement patterns.

Together with national and international partners, Charité Berlin is developing a novel science-based physical rehabilitation program using a sensor-based system with avatar training via a mobile app. Using two special sensors attached to your leg, the re.flex app will give you real-time guidance and feedback in the form of text and 3D animations on how to correctly perform each exercise. We want to find out if this novel rehabilitation program can correct abnormal movement patterns that are involved in the development of knee osteoarthritis after an ACL tear.

Study objective: To evaluate if a home-based digital physical training program can correct abnormal knee movement patterns after ACL reconstruction.

What are the benefits of participating in this study?

You will receive additional information about your knee joint function and health. If you complete the rehabilitation program, you can expect to experience general health benefits of physical exercise, including improvements in knee muscle strength, physical function, symptoms and quality of life. It is also possible that you regain normal movement patterns, which may potentially help in preventing or slowing the development of knee osteoarthritis.

Procedure: If you are eligible for the study, you will be invited for a preliminary screening appointment during which you will complete an extensive gait analysis using specialized equipment. There, we will analyze the way you walk to determine if you display abnormal movement patterns. Only persons who display abnormal movement patterns will be eligible to take part in the study.

If you are enrolled in the study, you will be allocated to either the intervention group or the non-intervention group. If you are part of the intervention group, you will complete the rehabilitation program (3-4 sessions per week for 3 months). Otherwise, you will not complete the training program but will have the option to do so after 6 months.

Your participation will last a total of 3 years during which you will be examined at the Charité at three time points: (1) at the time of initial screening; (2) 6 months later; and (3) 36 months later.

At each study time point, you will:

- Be examined physically and provide blood and urine samples;
- Answer surveys about your well-being and physical function;
- Complete a gait analysis;
- Complete a magnetic resonance imaging (MRI) examination of your knee.

Prerequisite for participation in the study:

- 18 - 50 years old;
- Had an acute ACL tear in the past 6 months;
- Recently had (or will have) surgical ACL reconstruction;
- No other previous knee surgeries (other than the ACL reconstruction);
- No injury to the hip, knee or ankle joints in the past 12 months.

**Thank you for your interest.
The PROTO Team of the Charité**