

Official Study Title :

The Effect of Hybrid Tele-rehabilitation Versus in Person Rehabilitation on Pain and Function in Patients with Knee Osteoarthritis

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Document Type : *Study Protocol*

(Exercise Program)

All participants receive the following exercise program either in person or via Zoom video. The selection of the exercises will be tailored to individuals' ability and needs according the first screening session.

- Warm up 5 minutes (marching in place with chair support).
- Maximum of 6 exercises in a single session from the following, with progression aligned to patient's ability: 2 Quadriceps strengthening, 1 Hip Abductor/Gluteal strengthening, 1 hamstring/gluteal strengthening, 1 calf strengthening, 1 other exercise as appropriate.

- **Quadriceps strengthening exercises:**

- 1) Seated knee extension (progress with elastic bands)
- 2) inner range quads over roll
- 3) sit to stand (no hands, progress by lowering chair height or using a resistance band around knees)
- 4) asymmetrical chair stands (more weight on affected leg)
- 5) Step-ups (progress by increasing step height)
- 6) partial wall squats (progress by holding the halfway position).

- **Hip Abductor/Gluteal strengthening exercises:**

- 1) Side leg raises (progress with elastic band)
- 2) Wall push (opposite leg, standing on affected leg) (progress by holding position longer)
- 3) crab walking (progress with elastic band)

- **Hamstring/gluteal strengthening exercises:**

- 1) Bridge withholds (progress split leg bridge withhold)
- 2) Seated knee flexion (progress with increase elastic band resistance)
- 3) Hamstring curls (standing with chair support, progress with elastic band)
- 4) Hip extension (progress with elastic band).

- **Calf strengthening exercises:**

- 1) Double leg calf raises with chair support (progress to single leg calf raises).

- **Balance exercises (if appropriate):**

- 1) Natural stance with foot taps (forward and backward)
- 2) Single-leg stance (progress by increasing hold time).

- Cool down 10 minutes (lower limb stretching exercises).
- Each participant will receive advices on weight control and physical activity (Walking with step count record, progressive walking time plan, increase or maintain activity intensity).