

Supplementary materials

Supplementary File S1: Detailed description of the standardized physiotherapy exercise program

This supplementary file provides a detailed description of the standardized physiotherapy exercise program applied in both study groups. The program was identical for the telerehabilitation and control groups and differed only in the mode of delivery and level of supervision.

Exercise intensity and execution were adapted to individual capabilities and symptoms.

Table S1. Exercise Program Structure and Progression

Exercise No.	Phase	Exercise Category	Exercise Name	Position / Equipment	Description	Sets × Repetitions	Rest
1	Warm-up	Activation	Heel raises	Standing, body weight	Slow bilateral heel raises using support if needed	2–3 × 10–15	20 s
2	Strength	Lower extremity	Supported squats	Standing, chair support	Partial squat holding a stable support	2–3 × 8–12	20 s
3	Strength	Lower extremity	Wall sit	Standing, wall support	Isometric knee flexion against wall	2–3 × 20–40 s	30 s
4	Strength	Hip abductors	“Crab walk”	Standing, lateral steps	Side-stepping with slight knee flexion	2–3 × 8–12 steps	20 s
5	Strength	Functional	Forward lunge	Standing	Short-step forward lunge within pain-free range	2–3 × 6–10 per leg	30 s
6	Strength	Gluteal	Pelvic lift	Supine	Pelvic lift with slightly flexed knees	2–3 × 10–15	20 s

Exercise No.	Phase	Exercise Category	Exercise Name	Position / Equipment	Description	Sets × Repetitions	Rest
7	Strength	Hip abductors	Side-lying leg raise	Side-lying	Hip abduction of the lower leg	2–3 × 10–15	20 s
8	Strength	Core	“Saw” exercise	Side-lying	Alternating leg movements for core control	2–3 × 8–12	20 s
9	Strength	Posterior chain	Prone leg lift	Prone	Hip extension with straight leg	2–3 × 8–12	20 s
10	Flexibility	Stretching	Calf stretch	Standing	Static calf stretch	2–3 × 20–30 s	—
11	Flexibility	Stretching	Hamstring stretch	Standing or supine	Static hamstring stretch	2–3 × 20–30 s	—

Progression Scheme

- **Month 1:** 2 sets per exercise, lower repetition range
- **Month 2:** 2–3 sets, moderate repetition range
- **Month 3:** 3 sets, upper repetition range or longer hold duration

Progression was based on symptom tolerance. Participants were instructed to **avoid pain exacerbation exceeding mild discomfort**.

Adherence and Safety

Participants were encouraged to maintain regular exercise performance and to respect rest intervals. If pain or discomfort increased, exercises were modified or temporarily reduced. No adverse events related to the exercise program were reported.

Supplementary file 2. Assessment of knee joint function improvement.

Please rate the difference in knee joint function, mobility, and health-related quality of life compared to the beginning of the online programme (insert X).

Knee Joint Function	Considerable worsening	Worsening	Neither worsening nor improvement	Improvement	Considerable improvement
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Mobility					
Pain					
Stiffness					
Physical activity					
Health-related quality of life					

SATISFACTION

Please rate your level of agreement regarding satisfaction with the service, i.e., telerehabilitation using an online application for exercises aimed at improving knee joint mobility and muscle strengthening (insert X).

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
The quality of the service I received was excellent.					
I received the service I wanted.					
The service fully met my needs.					
I would definitely recommend this service to a friend.					
The service greatly helped me improve my knee joint function, mobility, and health-related quality of life.					
Since starting the exercise programme, I have noticed significant progress.					
I am overall very satisfied with the service.					
If I needed similar services in the future, I would definitely use your service again.					

Supplementary file 3. Satisfaction.

Please rate your level of agreement regarding satisfaction with the service, i.e., telerehabilitation using an online application for exercises aimed at improving knee joint mobility and muscle strengthening (insert X).

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
The quality of the service I received was excellent.					
I received the service I wanted.					

The service fully met my needs.					
I would definitely recommend this service to a friend.					
The service greatly helped me improve my knee joint function, mobility, and health-related quality of life.					
Since starting the exercise programme, I have noticed significant progress.					
I am overall very satisfied with the service.					
If I needed similar services in the future, I would definitely use your service again.					