

Appendix Table A1: Physical Therapy protocol  
The exercise program for both groups performed during 8 weeks

Time (week)	Exercises	repetitions or time
0-8	stationary bicycling for warming up and cooling down or cardiovascular training	gradual increase 7-15 min or longer
0-8	pully, strap around healthy ankle, stay and keep balance on injured side, move healthy leg forward, backward and sideward by standing in all 4 directions	3x12
0-4	calf raises on a leg press	3x12
0-8	standing hip extension in a "multi-hip" trainings device	3x12
0-4	balance on wobble board on both feet	
0-8	stair walking, walking, running, jumping according the patients ICF challenging with throwing a ball	10 min
5-8	calf raises standing on one leg	3x12
1-8	leg press, place the shinbone horizontal and the knee starting at 110°, unilateral	3x12
5-8	lunges (according the needs of the patient) with < 90° of knee flexion	3x12
5-8	balance on wobble board on one foot challenging with throwing a ball	3 min
5-8	crosstrainer as cardiovascular and cooling down training	10 min or more

**footnote:**

*By all exercises is it important to keep the patients individual needs and limitations focused by using the ICF.*

*The uninjured side is as well less trained as usual and therefore both sides should be trained. Beside the training of the lower extremity is "core stability" training from importance for good posture positioning and moving.*

*The active rehabilitation program is designed around cardiovascular- (circulation), coordination and balance-, and close-chain strength exercises. Shearing forces in the knee are less using close-chain exercises compared to open-chain exercise. The close-chain exercise activates both agonistic and antagonistic around the knee joint resulting in a direct rotatory movement and prevents from shearing forces seen by open chain exercises. (Heijne 2004, 2006 studied the role of open- and close-exercise in the rehabilitation after a reconstruction of the anterior cruciate ligament and advised to be careful with open-chain exercises in the early start of rehabilitation)*

**Appendix Figure A1. Patient inclusion and follow up**

