

Supplemental Table S1. Basic Characteristics of the Included Studies

Study	Intervention (Definition)	Comparison (Definition)	Subgroups
Andersson (1992) ²	<p>The ACL tear was repaired with inside-out sutures through the femur and augmented with a 1.5-cm wide strip of the iliotibial band. The strip was based distally and passed through a drill hole in the lateral femoral condyle and through the tibia anterior to the attachment of the ACL. The strip was pulled taut and secured to the tibia with a staple.</p> <p>Postoperatively, the patients who had ligament repair (i.e., groups A, C, and D) wore an ankle to groin cast for 5 weeks with no weightbearing allowed. The patients who had ACL repair (groups A and C) and those who had collateral ligament repair but not ACL repair (group D) were instructed to increase range of motion and strength gradually. Active extension exercises were allowed without limitations after 6 months, and rehabilitation was completed after 9 months.</p>	Patients with isolated ACL tears who had been assigned for conservative treatment (group B) entered the rehabilitation program as soon as their initial symptoms had resolved. They had no specific training restrictions.	<p>(A) Isolated ACL tear that was repaired and augmented</p> <p>(B) Isolated ACL tear that was not repaired</p> <p>(C) Combined ACL+MCL tear where both ligaments were repaired (with ACL augmentation)</p> <p>(D) Combined ACL+MCL tear where only the MCL was repaired</p>
Dahlstedt (1991) ³	An augmentation and reconstruction technique, pre-serving and suturing the ruptured ACL remnants to a patellar tendon strip, was used, as described by Eriksson, Jones and Clancy et al.	Conservatively treated patients started immediate active knee rehabilitation and full weightbearing under supervision of a physiotherapist, and when knee movements were restored to nearly normal, dynamic strength training exercises and balance exercises began. Return to recreational activities was permitted after 3-4 months. Regular physiotherapy was needed for 6-12 weeks. Information was given about the risks of reinjury during strenuous sports.	—
Kessler (2008) ⁴	Bone–patellar tendon–bone graft with extra-articular screw fixation of tibia and femur in arthroscope-assisted and mini-arthrotomy technique.	Wearing an ACL brace for 6 weeks, training of hamstrings and quadriceps muscle, proprioception training, no flexion under load greater than 60° for 6 weeks, return to sports activities after 3 months, and return to contact/pivoting sports after 9 months.	—

Supplemental Table S1. (continued)

Study	Intervention (Definition)	Comparison (Definition)	Subgroups
Kovalak (2017) ⁵	<p>ACL reconstruction was performed 6-8 weeks after the initial injury. All patients first underwent a rehabilitation program consisting of inflammation control, range of motion exercises, quadriceps, and hamstring strengthening exercises. After arthroscopic evaluation of the knee joint via standard anterolateral and anteromedial portals, the gracilis and semitendinosus tendons were harvested using a tendon stripper. Femoral tunnels were opened at the 10 or 2 o'clock position through the medial portal with a convenient width to accommodate hamstring tendons folded 4 times. On the tibial side, the ACL guide was set to 45 and placed at the stump of the ACL, then reamed over the guide wire after verification of the placement. The ACL stump was preserved to enhance proprioceptive and vascular properties on the tibial side. Notchplasty was not performed in any of the patients. Prepared grafts were embedded intra-articularly through the tibial tunnel and fixed by an EndoButton loop at the femoral side and a bioabsorbable screw at the tibial side. After fixation of the grafts, Lachman and pivot shift tests were performed for final verification of graft tension. Prior to rehabilitation, patients were allowed to ambulate with crutches and a knee brace locked in full extension with weightbearing as tolerated. Strength training started within 1 week. Criteria for neuromuscular training were full and pain-free knee range of motion, minimal joint effusion, at least 70% strength symmetry, and ability to hop in place without pain. The knee brace was removed 2 weeks after surgery. Jogging was allowed after 12 weeks, and pivot sports were allowed after 6 months. Contact sports were to be avoided.</p>	<p>Supervised neuromuscular training 3 weeks after the initial trauma aimed to improve neuromuscular control and compensatory functional stability. Movements were performed in a CKC manner as in strength training to improve functional stability. Criteria for neuromuscular training were full and pain-free knee range of motion, minimal joint effusion, at least 70% strength symmetry, and ability to hop in place without pain. The knee brace was removed before beginning neuromuscular rehabilitation. Jogging was allowed after 12 weeks, and pivot sports were allowed after 6 months. Contact sports were to be avoided.</p>	—
Tsoukas (2015) ⁸	<p>Four-stranded semitendinosus–gracilis tendon autografts. The anteromedial portal was used to create femoral tunnels. The grafts were fixed in the femoral side by use of a suspensory device (Endobutton, Acufex). Bioabsorbable screws were used for the fixation of the grafts in the tibial tunnel. Post-fixation was made every time using screws or staples. All the patients participated in the same rehabilitation program. Passive knee motions started immediately after surgery, while partial weightbearing was permitted for the first 6 weeks. A full-time knee extension brace was ordered for all cases for the same period. Stationary bike, proprioception exercises, short arc quadriceps sets and hamstring curls were performed for the next 6 weeks. At 3 months, jogging, swimming in straight line and bicycle were started. At 6 months, pivot sports such as ski, tennis and squash were started, while contact sports were permitted at 8 to 9 months</p>	<p>All the patients participated in the same rehabilitation programme. Passive knee motions started immediately after surgery, while partial weight-bearing was permitted for the first 6 weeks. A full-time knee extension brace was ordered for all cases for the same period. Stationary bike, proprioception exercises, short arc quadriceps sets and hamstring curls were performed for the next 6 weeks. At 3 months, jogging, swimming in straight line and bicycle were started. At 6 months, pivot sports such as ski, tennis and squash were started, while contact sports were permitted at 8 to 9 months</p>	—

Supplemental Table S2. Eligibility and Exclusion Criteria for the Included Studies

Study	Inclusion Criteria	Exclusion Criteria
Andersson (1992) ²	From the total population of 293 patients, 55 patients who had an isolated ACL tear and 52 patients who had an ACL tear with an associated MCL tear that needed repair were included in this study. an isolated ACL tear was defined as a lesion with no associated ligamentous or meniscal injury detected at surgery	Patients with a tear of the posterior cruciate ligament. Patients with a fracture
Dahlstedt (1991) ³	Patients with acute complete ACL tears with no concomitant meniscal or collateral ligament injuries	NA
Kessler (2008) ⁴	Isolated ACL rupture	Concomitant ligamentous injuries, meniscal and/or cartilaginous lesions, Fractures, BMI >30, age, nonattendance due to lack of symptoms, no reply and nonattendance, unknown address, revision operation
Kovalak (2017) ⁵	(1) male sex (2) age 18-40 years (3) BMI <30 (4) Tegner score 3-7 and having only recreational sporting activities (5) no concomitant ligamentous injury at the time of ACL injury (6) not greater than grade 1 meniscus degeneration at the time of ACL injury (7) no chondral lesions at the time of ACL injury (8) no surgical intervention related to the lower extremities before or after the ACL injury or reconstruction (9) no neurologic or vascular pathology (10) no symptoms in the contralateral knee (11) no psychosocial disorders.	Multiple ligament injuries or meniscal tears associated with ACL ruptures
Tsoukas (2015) ⁸	Isolated ACL injury, BMI <30, no previous major injury or surgery of the knee, successful completion of final follow-up	Combined ACL injuries, BMI >30, prior knee surgery

Supplemental Table S3. Results of GRADE Assessment^{1,7}

Certainty Assessment							Summary of Findings					
No. of Studies	Study Design	Risk of Bias	Inconsistency	Indirectness	Imprecision	Other Considerations	No. of Patients		Effect		Certainty	Importance
							ACLR	Nonop	Relative (95% CI)	Absolute (95% CI)		
Radiological Signs of OA												
2	Observational studies	Serious	Serious	Not serious	Not serious	None	31/77 (40.3%)	17/64 (26.6%)	RR 1.84 (0.90-3.75)	223 more per 1000 (27 fewer to 730 more)	⊕⊕○○ Low	CRITICAL
Knee Laxity (scale from 0 to 5)												
2	Observational studies	Serious	Serious	Not serious	Not serious	None	44	46	—	MD 2.44 lower (3.21 lower to 1.66 lower)	⊕⊕○○ Low	CRITICAL
Lysholm Score(scale from 0 to 100)												
2	Observational studies	Serious	Serious	Not serious	Not serious	None	65	62	—	MD 2.88 higher (1.09 lower to 6.85 higher)	⊕⊕○○ Low	CRITICAL

REFERENCES

1. GRADEpro GDT [software]. McMaster University and Evidence Prime Inc. 2020. www.gradepr.org.
2. Andersson C, Gillquist J. Treatment of acute isolated and combined ruptures of the anterior cruciate ligament. A long-term follow-up study. *Am J Sports Med.* 1992;20(1):7-12.
3. Dahlstedt L, Dalén N, Jonsson U, Adolphson P. Cruciate ligament prosthesis vs. augmentation: A randomized, prospective 5-year follow-up of 41 cases. *Acta Orthopaedica Scandinavica.* 1993;64(4):431-433.
4. Kessler MA, Behrend H, Henz S, et al. Function, osteoarthritis and activity after ACL-rupture: 11 years follow-up results of conservative versus reconstructive treatment. *Knee Surg Sports Traumatol Arthrosc.* 2008;16(5):442-448.
5. Kovalak E, Atay T, Çetin C, Atay IM, Serbest MO. Is ACL reconstruction a prerequisite for the patients having recreational sporting activities? *Acta Orthop Traumatol Turc.* 2018;52(1):37-43.
6. Moher D, Liberati A, Tetzlaff J, Altman DG, Group P. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med.* 2009;6(7):e1000097.
7. Schünemann H Brožek J, Guyatt G, Oxman A, editors. GRADE handbook for grading quality of evidence and strength of recommendations. Updated October 2013. The GRADE Working Group, 2013. guidelinedevelopment.org/handbook.
8. Tsoukas D, Fotopoulos V, Basdekis G, Makridis KG. No difference in osteoarthritis after surgical and non-surgical treatment of ACL-injured knees after 10 years. *Knee Surg Sports Traumatol Arthrosc.* 2016;24(9):2953-2959.