

Table 1. Summary of patient characteristics, study outcomes, and complications.

| Authors | Year of publication | Sample size | Average age | Technique | Graft | Clinical outcomes | Radiological outcomes | Complications |
|--------------------------------|---------------------|--|--|---|--|---|--|--|
| Bangert et al ¹ | 2022 | 33 | 20.8 yrs | Ali Krogius | Medial retinaculum | Median: 86% in the Kujala score 90% in the Lysholm score 88% in the IKDC 2000 93% in the KOOS score 6 in the Tegner score | N/A | Re-dislocation (24.2%) |
| Knapik et al ² | 2022 | 14 | Adult specimens | N/A | N/A | N/A | Fluoroscopic angle with higher notch violation: mean angle of 43±15° (range: 10-60 degrees) from neutral | N/A |
| Featherall et al ³ | 2022 | 49 | 13±2.3 yrs | N/A | N/A | N/A | In 49 of 49 cases (100%): the Schottle point distal to the physis on 3D volume rendering. The Schottle point mean distance: 7.5±3.14 mm posterior to medial epicondyle 6.2±2.9 mm superior to medial epicondyle | N/A |
| Gurusamy et al ⁴ | 2021 | 76 | 14±1.9 yrs | MPFL reconstruction, repair, or conservative treatment | N/A | SANE score: Conservative/repair 84.3±11.8 Reconstruction 88.7±10.1 <i>p</i> -value 0.134 Kujala: Conservative/repair 89.4±10.4 Reconstruction 92.7±7.6 <i>p</i> -value 0.276 Patient satisfaction (0-10): Conservative/repair 8.8±1.3 Reconstruction 9.4 6± 0.9 <i>p</i> -value 0.08 | N/A | Recurrent instability: conservative/repair group (59%) reconstruction group (10%) Second surgery: conservative/repair group (48%) reconstruction group (7%) |
| Hendawi et al ⁵ | 2019 | Autograft group: 21 Allograft group: 35 | Autograft group: 15.3 yrs Allograft group: 16 yrs | MPFL reconstruction: L-shaped tunnel at the proximal third of the patella with a 3.5-mm drill bit. On the femur, a guidewire was drilled from medial to lateral out the lateral thigh. A reamer was used to overdrill the guidewire | Gracilis tendon autograft or allograft | Autograft group: Kujala score: 80.3 Allograft group: Kujala score: 92.1 | N/A | Autograft group: Graft failure (28.6%) Allograft group: Graft failure (0%) |
| Irarrázaval et al ⁶ | 2020 | 80 | 10-17 yrs | N/A | N/A | N/A | Ideal orientation for femoral drilling during anatomic reconstruction of MPFL was | N/A |

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| | | | | | | | obtained when aiming 30-40° distal and 5-35° anterior, regardless of sex. | |
| Masquijo et al ⁷ | 2021 | 20 | Skeletally immature patients (average age not available) | N/A | N/A | N/A | Femoral graft fixation site 1 cm distal to the physis along the posterior femoral cortex in the lateral view closely represents the length relationship of the nMPFL. | N/A |
| Pascual-Leone et al ⁸ | 2023 | MPFLR + AMZ 28 iMPFLR 28 | 15.5±2 yrs | MPFLR+AMZ or iMPFLR | N/A | N/A | 6.2° improvement in patellar tilt following MPFLR + AMZ and 3.9° improvement in patellar tilt following iMPFLR. | N/A |
| Quinlan et al ⁹ | 2022 | 88 (67 skeletally mature (SM), 21 skeletally immature (SI)) | Skeletally mature 15.4 yrs Skeletally immature 13.1 yrs | 5-mm reamer used to drill the patellar tunnel. Graft trimmed to fit 5-mm tunnels and fixed into the tunnel using a 4.75-mm PEEK tenodesis interference screw | Semitendinosus allograft: 35 SM 11 SI Gracilis allograft: 25 SM 3 SI Peroneus longus allograft: 1 SM 1 SI Tibialis anterior allograft: 1 SM 0 SI Unspecified allograft: 5 SM 2 SI | IKDC score, mean (SD) 77.8 (18.0) SM 77.3 (22.5) SI <i>p</i> -value 0.921 Marx Activity Scale score, mean (SD) 9.0 (4.8) SM 10.0 (5.3) SI <i>p</i> -value 0.487 | N/A | Recurrent lateral patellar instability: SM 3% SI 9% Subsequent ipsilateral surgery for patellar instability: SM 10% SI 13% Stiffness: SM 43% SI 38% |
| Allahabadi and Pandya ¹⁰ | 2021 | 20 | 15.7 yrs | Double-bundle technique | Gracilis allograft | MPFL reconstruction using allograft tissue has good outcomes at midterm follow-up, few complications, and a low rate of recurrent instability | N/A | Recurrent instability events (12.5%), patellar fractures (4.2%), persistent laxity on examination, loss of knee motion/arthrofibrosis, symptomatic hardware (8.3%), and wound complications |
| Shamrock et al ¹¹ | 2019 | 126 | 13.2 yrs | Modes of femoral fixation: soft tissue pulley around the medial collateral ligament (MCL) (n=11) or the adductor magnus (n=24) tendon, suture anchors (n=51) and interference screw fixation (n=46). Methods of patellar fixation: blind bone tunnel with an interference screw (n=5), a single bone tunnel in which the graft was looped (n=45), suture anchor fixation (n=41), | Autografts: gracilis tendon (n=80; 60.6%), quadriceps tendon (n=41; 31.1%), semitendinosus tendon (n=11; 8.3%). | Pooled Kujala scores improved from 59.1 to 84.6 following MPFL reconstruction | N/A | Recurrent instability: 15.2% Knee pain: 3.8% |

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| | | | | and no osseous fixation, with the quadriceps tendon reflected from its intact insertion on the patella (n=41) | | | | |
| Uppstrom et al ¹² | 2019 | 49 | 13.3±1.6 yrs | Short patellar and femoral sockets with tenodesis screws for fixation | Hamstrings autograft | N/A | Reconstructing the MPFL using femoral sockets for graft fixation: safe technique that does not lead to significant disturbances of the distal femoral physis | Recurrent patellar instability: 9.3% Subsequent patellar realignment with tibial tubercle osteotomy (TTO): 5.6% |
| Zampieri et al ¹³ | 2022 | 57 | 14 yrs | Tendon-tendon fixation (29) Anchor-screw fixation (28) 13 patients underwent ATT medialization or ATT medialization with lowering of patellar tendon or Grammont procedure | Gracilis autograft | Anchor-screw fixation reduces risk of patellar dislocation recurrence. Functional outcomes comparable with the two techniques | N/A | Tendon-tendon fixation: 2 dislocation recurrences, 2 stiffness, 1 removal of ATT screw Anchor-screw fixation: 1 disabling pain, 2 removal of ATT screw |

iMPFLR: isolated medial patellofemoral ligament reconstruction.

MPFLR + AMZ: medial patellofemoral ligament reconstruction + anterior medializing osteotomy.

ATT: anterior tibial tuberosity.

SM: skeletally mature.

SI: skeletally immature.

IKDC: The International Knee Documentation Committee.

KOOS: Knee Injury and Osteoarthritis Outcome.

SANE: Single Assessment Numeric Evaluation.