Supplemental Online Content

Shen X, Liu T, Xu S, et al. Optimal timing of anterior cruciate ligament reconstruction in patients with anterior cruciate ligament tear: a systematic review and meta-analysis. *JAMA Netw Open*. 2022;5(11):e2242742. doi:10.1001/jamanetworkopen.2022.42742

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This supplemental material has been provided by the authors to give readers additional information about their work.

eMethods

Search strategy and trial selection

The protocol for the systematic review is registered on PROSPERO (CRD42018089972). The PubMed, Cochrane Library, and Web of Science databases were systematically searched in September 2022. Using a search strategy for combined terms (((anterior cruciate ligament OR ACL) AND (reconstruction OR surgery OR repair)) AND (early OR acute)) AND (delayed OR chronic). The references in the included articles were further reviewed to identify additional studies.

The inclusion and exclusion criteria were reported in eTable 1 in Supplement. To ensure that the selected articles met the specified inclusion criteria, the titles and abstracts of the studies were independently reviewed by two authors (XYS and BC) in a blinded manner. Any disagreements on trial inclusion and data were resolved through discussion and consensus with the participation of a senior reviewer (JLX).

Data extraction

The extracted data included the following: study design, randomization, definition of surgery timing, inclusion/exclusion criteria, operative technique, rehabilitation protocols, and follow-up duration. The following participant and surgical characteristics were also collected: participants' sample size, age, sex, graft type, associated lesions, injury mechanisms, injury-to-surgery time, and rehabilitation principle. The selected clinical outcomes took into account the most commonly used outcome measures in recent publications.

Statistical analysis

To evaluate the outcomes of early vs. elective delayed ACLR after different follow-up durations, we recorded the data given for all follow-up time points. The included trials were grouped according to their follow-up durations as follows: 6 months, 1 year, 2 years, and 5 years. If the relevant outcomes were reported at multiple follow-up time points, the data were analyzed separately for each time point. When same RCTs were included in subgroup analyses of different follow-up duration, only subtotals were calculated. All eligible studies were included in the meta-analyses and subgroup analyses, as applicable.

To estimate the standardized mean difference (sMD), we calculated the mean and standard deviation (SD) values. If the mean and SD data were not provided in the included studies, the sMD was calculated using the P value and sample size. The I² statistic was considered to evaluate the data

| for heterogeneity among studies and confirm the appropriateness of pooling among groups. Clinical |
|---|
| heterogeneity was assumed present, a random-effects model was preferred. |
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eTable 1. Study Inclusion and Exclusion Criteria

| Inclusion Criteria | Exclusion Criteria | | | | |
|---|---|--|--|--|--|
| Randomized clinical Trial | Non-English articles | | | | |
| | Case series and reviews | | | | |
| Clinical or functional outcomes and adverse | Not compare clinical outcomes between early | | | | |
| complications associated with early versus | and delayed ACLR | | | | |
| elective delayed ACLR | Not clearly define specific cutoff points for | | | | |
| | early and elective delayed surgery | | | | |

Note: ACLR, anterior cruciate ligament reconstruction.

eTable 2. Risk of Bias of Assessment for the Included RCTs Using Cochrane Collaboration's Tool

| Author (Year) | Sequence generation | Allocation concealment | Blinding | Incomplete outcome data | Selective outcome report | Free of other bias |
|---------------------------------------|------------------------|------------------------|----------|----------------------------|--------------------------|--------------------|
| Meighan et al. ¹⁹ (2003) | ✓ | ✓ | ✓ | ? | ✓ | ✓ |
| Bottoni et al. ²⁰ (2008) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Raviraj et al. ²¹ (2010) | ✓ | ✓ | ✓ | × | ? | ? |
| Frobell et al. ²² (2010) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Frobell et al. ²³ (2013) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Chen et al. ²⁴ (2015) | ✓ | ✓ | ✓ | ✓ | ? | ? |
| Manandhar et al. ²⁵ (2018) | × | × | ✓ | ✓ | ✓ | ? |
| Eriksson et al. ²⁶ (2018) | ✓ | ✓ | ✓ | ✓ | ✓ | ? |
| von Essen et al. ¹⁶ (2020) | ✓ | ✓ | ✓ | ✓ | ✓ | ? |
| von Essen et al. ²⁷ (2020) | ✓ | ✓ | ✓ | ✓ | ✓ | ? |
| Reijman et al. ¹⁷ (2021) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Note: \checkmark = Low risk of bias, ? = Unclear risk of bias, \times = High risk of bias.

eTable 3. Patient and Treatment Characteristics of Included Trials

| | | | | | | Associat | ed lesions | | | |
|-------------------------------------|----------------|--------------------|----------------|-------|--------------------------|--------------------|-------------------|---|-------------------|----------------------|
| Author (Year) | Timing of ACLR | No. of Patients | Age | M/F | Graft type | Meniscal injury | Chondral injuries | Mechanisms of injury | Injury to surgery | Operation time (min) |
| Meighan et | Early | 13 | 21 (15 25) | 28/3 | hamstring | 3 | NA | 10 football 6 makes 4 hadrathall | NA | 67 |
| al.19 (2003) | Delayed | 18 | 21 (15-35) | 28/3 | hamstring | 4 | NA | 18 football, 6 rugby, 4 basketball | NA | 74 |
| Bottoni et | Early | 35 | 26.4 (18-40) | 29/6 | hamstring | 32 | 9 | 49 sports, 13 falls, 4 training | 9.0 ± 4.4 | 64.0 ± 25.5 |
| al.20 (2008) | Delayed | 35 | 27.5(19-43) | 29/6 | hamstring | 24 | 5 | accidents, 4 vehicle accidents | 84.8 ± 38.2 | 61.5 ± 23.9 |
| Raviraj et | Early | 51 | 31.6 ± 5.3 | 25/26 | hamstring | 38 | 29 | 23 fall, 21 sports injury, 7 traffic accidents | 7 (2-14) | 64.9 ± 7.8 |
| al. ²¹ (2010) | Delayed | 48 | 31.2 ± 5.3 | 26/22 | hamstring | 35 | 31 | 15 fall, 24 sports injury, 9 traffic accidents | 32 (29-42) | 64.2 ± 7.8 |
| F 1 11 4 | Early | 62 | 26.3 ± 5.1 | 48/12 | 36 hamstring, 25 BPTB | 39 | NA | 35 soccer, 9 Alphine skiing, 7 floor hockey, 11 others | 23.4 ± 9.5 | NA |
| Frobell et al. ²² (2010) | Delayed | 23 | 25.8 ± 4.7 | 16/7 | 10 hamstring, 13 BPTB | 30 | NA | 42 soccer, 7 Alphine skiing, 2 | 347 ± 124 | NA |
| | Rehabilitation | 36 | | 23/13 | NA | | | floor hockey, 8 others | NA | |
| E. L. H. 4 | Early | 62 | 26.6 ± 5.1 | 47/12 | 36 hamstring, 25 BPTB | NA | NA | 35 soccer, 9 Alphine skiing, 7 floor hockey, 11 others | 23.4 ± 9.5 | NA |
| Frobell et al. ²³ (2013) | Delayed | 30 | 25.2 ± 4.5 | 19/11 | 15 hamstring, 15 BPTB | NA | NA | 42 soccer, 7 Alphine skiing, 2 | 867 (743-1695) | NA |
| | Rehabilitation | 29 | 26.4 ± 4.9 | 20/9 | NA | NA | NA | floor hockey, 8 others | NA | NA |
| Chen et al.24 | Acute | 27 | 29.4 ± 5.8 | 15/12 | LARS graft | NA | NA | NA | 5.4 w (3–7) | NA |
| (2015) | Chronic | 28 | 31.9 ± 7.0 | 11/17 | LARS graft | NA | NA | NA | 7.2 m (6–11) | NA |
| Manandhara | Early | 53 | 30 (18-55) | 83/21 | hamstring | 22 | 10 | 73 sports injury, 26 road traffic | 11.20 (4-21) | NA |

| et al. ²⁵ (2018) | Delayed | 51 | | | hamstring | 34 | 28 | accidents, 5 others | 48 (42-60) | NA |
|--------------------------------------|--|----|----------------|-------|------------------------------------|----|----|---|------------------|---------|
| E il | Early | 33 | 27.7±6.5 | 23/10 | hamstring | 20 | 10 | 13 soccer, 6 indoor floorball 7 Alphine skiing, 1 handball, 3 wrestling, 2 gymnastics, 1 Dance | 5 ± 2 | 93 ± 20 |
| Eriksson et al. ²⁶ (2018) | Delayed | 35 | 26.1±5.7 | 24/11 | hamstring | 12 | 4 | 13 soccer, 10 indoor floorball, 3 Alphine skiing, 4 handball, 1 Ice hockey, 1 football, 1badminton, 1basketball, 1 tennis | 55 ± 8 | 83 ± 18 |
| von Essen et | Early | 33 | 27.7±6.5 | 23/10 | hamstring | 20 | 10 | 13 soccer, 6 indoor floorball, 7 Alphine skiing, 7 other sports activity | 5 ± 2 | 93 ± 20 |
| al. ¹⁶ (2020) | Delayed | 35 | 26.1±5.7 | 24/11 | hamstring | 12 | 4 | 13 soccer, 10 indoor floorball, 3 Alphine skiing, 9 other sports activity | 55 ± 8 | 83 ± 18 |
| von Essen et | Early | 34 | 27.7 ± 6.5 | 24/10 | hamstring | 20 | 10 | 14 soccer, 6 indoor floorball, 7 Alphine skiing, 7 other sports activity | 5 ± 2 | 93 ± 20 |
| al. ²⁷ (2020) | Delayed | 35 | 26.1±5.7 | 24/11 | hamstring | 12 | 4 | 13 soccer, 10 indoor floorball, 3 Alphine skiing, 9 other sports activity | 55 ± 8 | 83 ± 18 |
| D.'' | Early | 85 | 31.2±10.3 | 36/49 | 78hamstring, 4BPTB | 38 | 23 | NA | 39.0 (25.5-53.0) | NA |
| Reijman et al. ¹⁷ (2021) | Rehabilitation with optional delayed | 82 | 31.4±10.7 | 31/51 | 41ACLR, (38hamstring, 3BPTB) | 37 | 16 | NA | 40.5 (29.8-52.5) | NA |

Note: ACLR, anterior cruciate ligament reconstruction; BPTB, bone-patellar tendon-bone; NA, not available; LARS, ligament advanced reinforcement system.

eTable 4. Summary of Adverse Events After Early and Delayed ACLR in Included RCTs

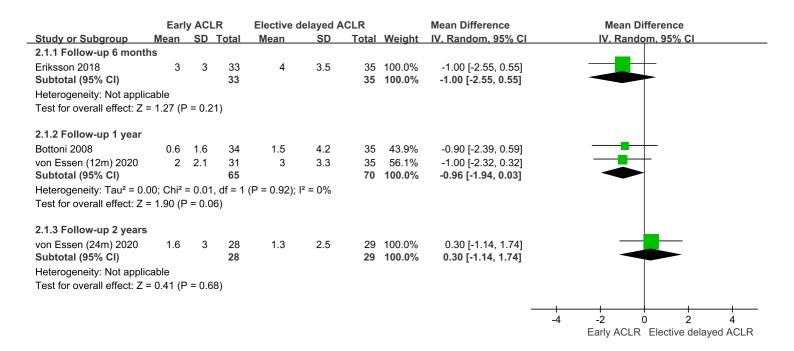
| Author (Voor) | Adverse Eve | ents | | | | |
|--|--|--|--|--|--|--|
| Author (Year) | Early ACLR | Elective delayed ACLR | | | | |
| Meighan et al. ¹⁹ (2003) | 2 deep vein thrombosis; 1 wound infection; 1 extension deficit; 1 | 1 knee stiffness; 1 subjective instability; 1 retear | | | | |
| Wieighan et al. (2005) | painful tibial fixation screw; 1 knee stiffness | | | | | |
| Bottoni et al. ²⁰ (2008) | 1 intra-articular infection; 1 retear; one 5°-10° loss of extension; | 1 retear; One >10° loss of extension; two 5°-10° loss of | | | | |
| Dottom et al. (2000) | one > 10°loss of flexion; five 5°-10° loss of flexion | flexion; five 5°-10 loss of flexion | | | | |
| Raviraj et al. ²¹ (2010) | 2 superficial wound infection | 1 pain | | | | |
| | 2 subjective or clinical instability; 1 meniscal signs and symptoms; | 19 subjective or clinical instability; 13 meniscal signs | | | | |
| Frobell et al. ²² (2010) | 6 pain, swelling, or both; 4 decreased ROM;1 extension deficit; 1 | and symptoms; 3 pain, swelling, or both; 1 decreased | | | | |
| | arthrofibrosis; 3 retear | ROM; 1 retear | | | | |
| Frobell et al. ²³ (2013) | 19 radiographic osteoarthritis; 3 retear | 10 radiographic osteoarthritis; 1 retear | | | | |
| Chen et al. ²⁴ (2015) | 1 mild arthrofibrosis; 1 arthralgia due to loosen screw | 1 mild arthrofibrosis | | | | |
| Manandhara et al. ²⁵ (2018) | 1 infection | None | | | | |
| Eriksson et al. ²⁶ (2018) | Seven > 5° extension defects | Thirteen > 5° extension defects | | | | |
| von Essen et al. 16 (2020) | 1 retear; four > 5° extension defects | 1 retear; five > 5° extension defects | | | | |
| von Essen et al. ²⁷ (2020) | NA | NA | | | | |
| May Daii at al 17 (2021) | 4 retear; 3 ruptures of contralateral ACL; 1 tibial screw events; 4 | 2 retear; 1 rupture of contralateral ACL; 2 tibial screw | | | | |
| MaxReij et al. ¹⁷ (2021) | meniscal tear; 2 extension deficit | events; 3 meniscal tear; 4 extension deficit | | | | |

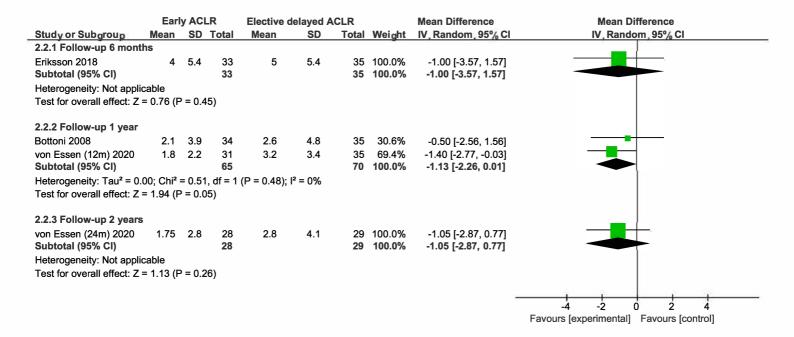
Note: ACLR, anterior cruciate ligament reconstruction; ROM, range of motion; NA, not available.

eFigure 1. Forest Plot Depicting the Operative Time of Early ACLR Versus Elective Delayed ACLR

| | Ear | ly ACI | _R | Elective | delayed A | CLR | | Mean Difference | | Mea | an Differer | nce | |
|--------------------------------------|-----------|---------|-------|--------------|-------------------------|-------|--------|---------------------|----------------------|-----------------|-------------|-----------------|-------------|
| Study or Subgroup | Mean | SD | Total | Mean | SD | Total | Weight | IV, Random, 95% C | | IV, R | andom, 9 | 5% CI | |
| Bottoni 2008 | 64 | 25.5 | 34 | 61.5 | 23.9 | 35 | 15.7% | 2.50 [-9.17, 14.17] | | | - | | |
| Eriksson 2018 | 93 | 20 | 33 | 83 | 18 | 35 | 21.3% | 10.00 [0.94, 19.06] | | | | | |
| Raviraj 2010 | 64.9 | 7.8 | 51 | 64.2 | 7.8 | 48 | 41.5% | 0.70 [-2.37, 3.77] | | | - | | |
| von Essen (12m) 2020 | 93 | 20 | 34 | 83 | 18 | 35 | 21.5% | 10.00 [1.01, 18.99] | | | | | |
| Total (95% CI) | | | 152 | | | 153 | 100.0% | 4.97 [-0.68, 10.61] | | | | | |
| Heterogeneity: Tau ² = 17 | | | , | 3 (P = 0.08) |); I ² = 55% | | | | -1 -20 | -1 0 | 0 | 10 | |
| Test for overall effect: Z | = 1.72 (F | 0.0 = د | 18) | | | | | | | Early A | CLR Elec | tive delaye | d ACLR |

eFigure 2. Forest Plots Depicting the Extension Deficit and Flexion Deficit of Early ACLR Versus Elective Delayed ACLR



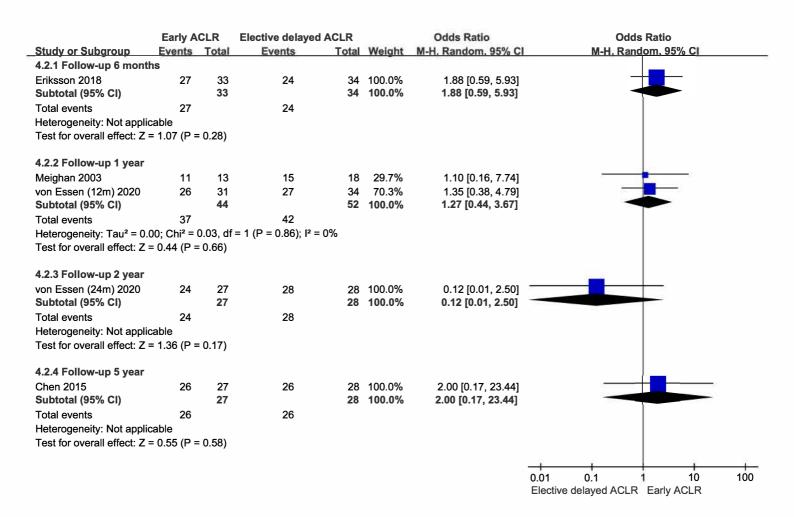


eFigure 3. Forest Plot Depicting the Tegner Score of Early ACLR Versus Elective Delayed ACLR

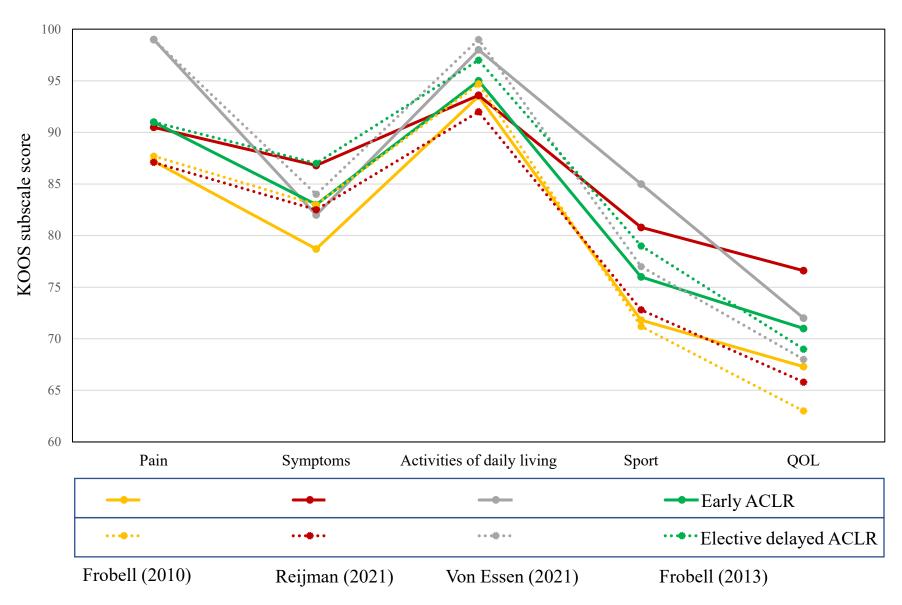
| | Elective | delayed A | ACLR | Ear | ly ACI | _R | | Mean Difference | Mean Difference |
|---------------------------------------|-------------|-----------|-----------------|------|--------|-------|--------------------------|--|----------------------------------|
| Study or Subgroup | Mean | SD | Total | Mean | SD | Total | Weight | IV, Random, 95% C | I IV, Random, 95% CI |
| 3.1.1 Follow-up 6 mont | hs | | | | | | | | |
| Mananandhar 2018 Subtotal (95% CI) | 4.15 | 1.45 | 53 53 | 3.72 | 1.34 | | 100.0% 100.0 % | 0.43 [-0.10, 0.96] 0.43 [-0.10, 0.96] | |
| Heterogeneity: Not appli | cable | | | | | • | 1001070 | | |
| Test for overall effect: Z | | = 0.11) | | | | | | | |
| 3.1.2 Follow-up 1 year | | | | | | | | | <u>_</u> |
| Chen 2015 | 6.3 | 1.1 | 27 | 6.1 | 0.9 | 28 | | 0.20 [-0.33, 0.73] | |
| Subtotal (95% CI) | | | 27 | | | 28 | 100.0% | 0.20 [-0.33, 0.73] | |
| Heterogeneity: Not appli | cable | | | | | | | | |
| Test for overall effect: Z | = 0.74 (P = | = 0.46) | | | | | | | |
| 3.1.3 Follow-up 5 years | \$ | | | | | | | | <u> </u> |
| Chen 2015 | 6.3 | 1.3 | 27 | 6.3 | 1.2 | 28 | 100.0% | 0.00 [-0.66, 0.66] | |
| Subtotal (95% CI) | | | 27 | | | 28 | 100.0% | 0.00 [-0.66, 0.66] | |
| Heterogeneity: Not appli | cable | | | | | | | | |
| Test for overall effect: Z | = 0.00 (P = | = 1.00) | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | -2 -1 0 1 2 |
| | | | | | | | | | Elective delayed ACLR Early ACLR |

eFigure 4. Forest Plots Depicting the IKDC Score and IDKC Rating Scale of Early ACLR Versus Elective Delayed ACLR

| | Early ACLR | | _R | Elective | delayed A | CLR | | Mean Difference | Mean Difference |
|-----------------------------------|------------|-------------|-----------|--------------|-------------------------|-------|--------|--------------------|----------------------------------|
| Study or Subgroup | Mean | SD | Total | Mean | SD | Total | Weight | IV, Random, 95% C | I IV, Random, 95% CI |
| 4.1.1 Follow-up 6 mg | onths | | | | | | | | |
| Mananandhar 2018 | 69.68 | 8.14 | 53 | 67.14 | 6.08 | 51 | 10.4% | 2.54 [-0.21, 5.29] | <u> </u> |
| Reijman 2021 | 69.6 | 3.1 | 83 | 66.8 | 3 | 80 | 89.6% | 2.80 [1.86, 3.74] | - |
| Subtotal (95% CI) | | | 136 | | | 131 | 100.0% | 2.77 [1.89, 3.66] | • |
| Heterogeneity: Tau ² = | 0.00; CI | $hi^2 = 0.$ | 03, df = | 1 (P = 0.86 | 3); I ² = 0% | | | | |
| Test for overall effect: | Z = 6.13 | 3 (P < 0 | 0.00001 |) | | | | | |
| Total (95% CI) | | | 136 | | | 131 | 100.0% | 2.77 [1.89, 3.66] | • |
| Heterogeneity: Tau ² = | 0.00; CI | $hi^2 = 0.$ | 03, df = | 1 (P = 0.86 | S_{1} ; $I^{2} = 0\%$ | | | | 4 2 0 2 4 |
| Test for overall effect: | Z = 6.13 | 3 (P < 0 | 0.00001 |) | • | | | | -4 -2 0 2 4 |
| Test for subgroup diffe | erences: | Not an | policable | . | | | | | Elective delayed ACLR Early ACLR |



eFigure 5. KOOS Subscales for Early ACLR and Elective Delayed ACLR Cohorts From Four Included Studies



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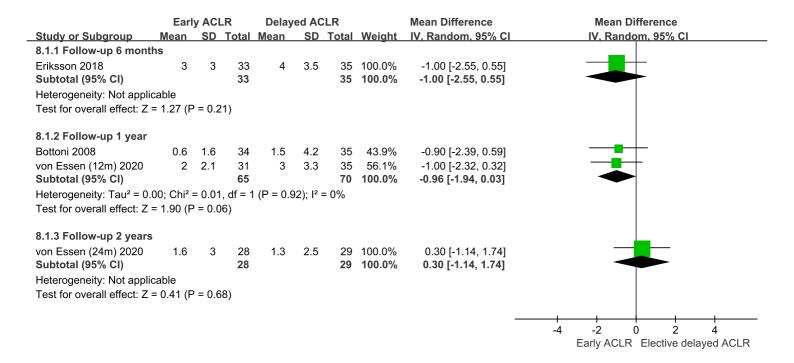
eFigure 6. Forest Plot of the Results of Re-Tear of Early ACLR Versus Elective Delayed ACLR

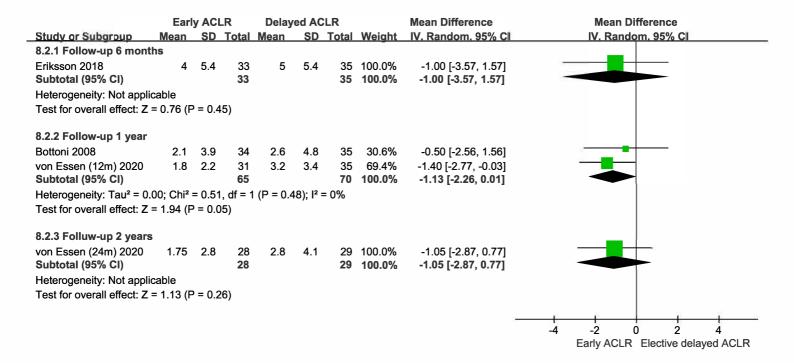
| | Early A | CLR | Elective delayed | ACLR | | Odds Ratio | | | Odd | s Ratio | | |
|--------------------------------------|------------------------|----------|-------------------------|-------|--------|---------------------|------|------|-------------------|--|---------------|-----|
| Study or Subgroup | Events | Total | Events | Total | Weight | M-H, Random, 95% CI | Year | | M-H, Ran | dom, 95% | CI | |
| Meighan 2003 | 0 | 13 | 1 | 18 | 10.7% | 0.43 [0.02, 11.47] | 2003 | | • | | _ | |
| Bottoni 2008 | 1 | 34 | 1 | 35 | 14.5% | 1.03 [0.06, 17.16] | 2008 | | | + | | |
| Frobell 2010 | 3 | 62 | 1 | 59 | 21.8% | 2.95 [0.30, 29.18] | 2010 | | | - | | - |
| Chen 2015 | 0 | 27 | 0 | 28 | | Not estimable | 2015 | | | | | |
| von Essen (12m) 2020 | 1 | 34 | 1 | 35 | 14.5% | 1.03 [0.06, 17.16] | 2020 | | | † | | |
| Reijman 2021 | 4 | 85 | 2 | 82 | 38.5% | 1.98 [0.35, 11.09] | 2021 | | | | _ | |
| Total (95% CI) | | 255 | | 257 | 100.0% | 1.52 [0.52, 4.43] | | | - | | | |
| Total events | 9 | | 6 | | | | | | | | | |
| Heterogeneity: Tau ² = 0. | 00; Chi ² = | 1.12, df | $= 4 (P = 0.89); I^2 =$ | 0% | | | | 0.01 | 0.1 | 1 | 10 | 100 |
| Test for overall effect: Z | = 0.76 (P = | = 0.44) | | | | | | 0.01 | 0.1 Early ACLF | R Elective | 10 delayed | |

eFigure 7. Forest Plot of the Results Infection of Early ACLR Versus Elective Delayed ACLR

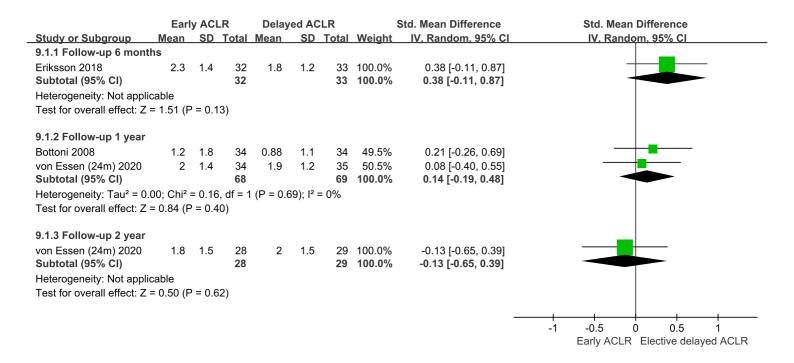
| | Early A | CLR | Elective Delayed | ACLR | | Odds Ratio | | | C | odds Ratio | 5 | |
|-----------------------------------|------------------------|----------|--------------------------|-------|--------|---------------------|--------|------|----------------|------------------|----------------|---------------|
| Study or Subgroup | Events | Total | Events | Total | Weight | M-H, Random, 95% C | l Year | | M-H, F | Random, 9 | <u> 35% CI</u> | |
| Meighan 2003 | 1 | 13 | 0 | 18 | 23.7% | 4.44 [0.17, 118.00] | 2003 | | | | - | |
| Bottoni 2008 | 1 | 34 | 0 | 35 | 24.4% | 3.18 [0.13, 80.79] | 2008 | | | | | |
| Raviraj 2010 | 2 | 51 | 0 | 48 | 27.3% | 4.90 [0.23, 104.70] | 2010 | | _ | | _ | |
| Chen 2015 | 0 | 27 | 0 | 28 | | Not estimable | 2015 | | | | | |
| Mananandhar 2018 | 1 | 53 | 0 | 51 | 24.6% | 2.94 [0.12, 73.92] | 2018 | | | | - | |
| Total (95% CI) | | 178 | | 180 | 100.0% | 3.80 [0.77, 18.79] | | | | | | |
| Total events | 5 | | 0 | | | | | | | | | |
| Heterogeneity: Tau ² = | 0.00; Chi ² | = 0.07, | $df = 3 (P = 1.00); I^2$ | = 0% | | | | 0.01 | 0.1 | - - | 10 | 100 |
| Test for overall effect: | Z = 1.64 (F | P = 0.10 |)) | | | | | 0.01 | 0.1 Early A | CLR Elec | tive delaye | 100 d ACLR |

eFigure 8. Forest Plots Depicting the Extension Deficit and Flexion Deficit of Early ACLR Versus Elective Delayed ACLR After Redefinition

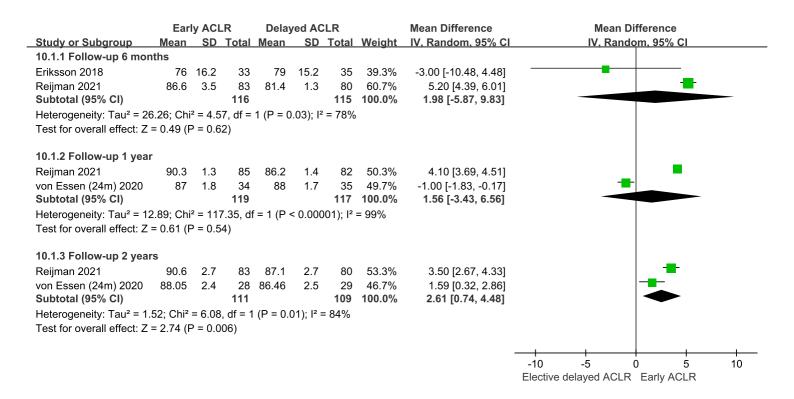




eFigure 9. Forest Plot Depicting the Knee Laxity of Early ACLR Versus Elective Delayed ACLR After Redefinition



eFigure 10. Forest Plot Depicting the Lysholm Score of Early ACLR Versus Elective Delayed ACL After Redefinition



eFigure 11. Forest Plot Depicting the Tegner Score of Early ACLR Versus Elective Delayed ACLR After Redefinition

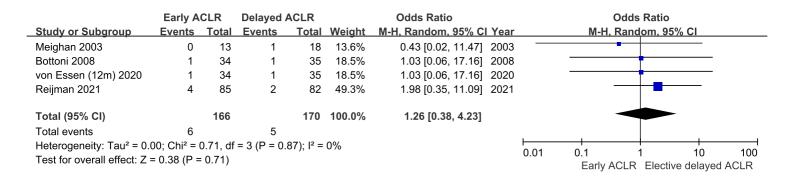
| | Earl | y ACL | .R | Dela | yed AC | CLR | | Mean Difference | Mean Difference |
|--------------------------|----------|---------|---------|------|--------|-------|--------|--------------------|----------------------------------|
| Study or Subgroup | Mean | SD | Total | Mean | SD | Total | Weight | IV, Random, 95% CI | IV, Random, 95% CI |
| 11.1.1 Follow-up 6 mg | onths | | | | | | | | |
| Mananandhar 2018 | 4.15 | 1.45 | 53 | 3.72 | 1.34 | 54 | 100.0% | 0.43 [-0.10, 0.96] | +- - - |
| Subtotal (95% CI) | | | 53 | | | 54 | 100.0% | 0.43 [-0.10, 0.96] | |
| Heterogeneity: Not app | olicable | | | | | | | | |
| Test for overall effect: | Z = 1.59 | (P = 0) |).11) | | | | | | |
| Total (95% CI) | | | 53 | | | 54 | 100.0% | 0.43 [-0.10, 0.96] | |
| Heterogeneity: Not app | olicable | | | | | | | | |
| Test for overall effect: | Z = 1.59 | (P = 0) |).11) | | | | | | -2 -1 0 1 2 |
| Test for subaroup diffe | rences: | Not an | plicabl | е | | | | | Elective delayed ACLR Early ACLR |

eFigure 12. Forest Plots Depicting the IKDC Score and IKDC Rating Scale of Early ACLR Versus Elective Delayed ACLR After Redefinition

| | Early ACLR | | | Delayed ACLR | | | | Mean Difference | Mean Difference |
|-----------------------------------|------------|-------------|----------|---------------------|--------|-------------|--------|--------------------|---|
| Study or Subgroup | Mean | SD | Total | Mean | SD | Total | Weight | IV, Random, 95% C | IV, Random, 95% CI |
| 12.1.1 Follow-up 6 m | onths | | | | | | | | |
| Mananandhar 2018 | 69.68 | 8.14 | 53 | 67.14 | 6.08 | 51 | 10.1% | 2.54 [-0.21, 5.29] | <u>-</u> |
| Reijman 2021 | 69.6 | 3.1 | 85 | 66.8 | 3 | 82 | 89.9% | 2.80 [1.87, 3.73] | 🛖 |
| Subtotal (95% CI) | | | 138 | | | 133 | 100.0% | 2.77 [1.90, 3.65] | • |
| Heterogeneity: Tau ² = | 0.00; Cł | $ni^2 = 0.$ | 03, df = | = 1 (P = | 0.86); | $I^2 = 0\%$ | | | |
| Test for overall effect: | Z = 6.20 | (P < 0 | 0.0000 | 1) | | | | | |
| 12.1.2 Follow-up 1 ye | ear | | | | | | | | <u></u> |
| Reijman 2021 | 81.6 | 1.9 | 85 | 74.4 | 1.9 | 82 | 100.0% | 7.20 [6.62, 7.78] | |
| Subtotal (95% CI) | | | 85 | | | 82 | 100.0% | 7.20 [6.62, 7.78] | • |
| Heterogeneity: Not ap | plicable | | | | | | | | |
| Test for overall effect: | Z = 24.4 | 8 (P < | 0.0000 | 01) | | | | | |
| 12.1.3 Follow-up 2 ye | ears | | | | | | | | |
| Reijman 2021 | 84.7 | 3 | 85 | 79.4 | 3 | 82 | 100.0% | 5.30 [4.39, 6.21] | |
| Subtotal (95% CI) | | | 85 | | | 82 | 100.0% | 5.30 [4.39, 6.21] | • |
| Heterogeneity: Not ap | plicable | | | | | | | | |
| Test for overall effect: | Z = 11.4 | 1 (P < | 0.0000 | 01) | | | | | |
| | | | | | | | | | + |
| | | | | | | | | | -10 -5 0 5 10 |
| | | | | | | | | | Elective delayed ACLR Early ACLR |

| | Early ACLR | | Delayed ACLR | | | Odds Ratio | Odds Ratio |
|---------------------------------------|-------------|----------|--------------|------------------------|--------|---------------------|----------------------------------|
| Study or Subgroup | Events | Total | Events | Total | Weight | M-H, Random, 95% CI | M-H, Random, 95% CI |
| 12.2.1 Follow-up 6 mon | ths | | | | | | |
| Eriksson 2018 | 27 | 33 | 24 | 34 | 100.0% | 1.88 [0.59, 5.93] | + |
| Subtotal (95% CI) | | 33 | | 34 | 100.0% | 1.88 [0.59, 5.93] | |
| Total events | 27 | | 24 | | | | |
| Heterogeneity: Not applic | cable | | | | | | |
| Test for overall effect: Z = | = 1.07 (P = | 0.28) | | | | | |
| 12.2.2 Follow-up 1 year | | | | | | | |
| Meighan 2003 | 11 | 13 | 15 | 18 | 29.7% | 1.10 [0.16, 7.74] | |
| von Essen (12m) 2020 | 26 | 31 | 27 | 34 | 70.3% | 1.35 [0.38, 4.79] | * - |
| Subtotal (95% CI) | | 44 | | 52 | 100.0% | 1.27 [0.44, 3.67] | * |
| Total events | 37 | | 42 | | | | |
| Heterogeneity: Tau ² = 0.0 | 00; Chi² = | 0.03, df | = 1 (P = 0. | .86); I ² = | 0% | | |
| Test for overall effect: Z = | = 0.44 (P = | 0.66) | | | | | |
| 12.2.3 Follow-up 2 years | S | | | | | | |
| von Essen (24m) 2020 | 24 | 27 | 28 | 28 | 100.0% | 0.12 [0.01, 2.50] | 2 |
| Subtotal (95% CI) | | 27 | | 28 | 100.0% | 0.12 [0.01, 2.50] | |
| Total events | 24 | | 28 | | | | |
| Heterogeneity: Not applic | able | | | | | | |
| Test for overall effect: Z = | = 1.36 (P = | 0.17) | | | | | |
| | | | | | | | a v l i su |
| | | | | | | | 0.005 0.1 1 10 200 |
| | | | | | | | Elective delayed ACLR Early ACLR |

eFigure 13. Forest Plot of the Results of Re-Tear of Early ACLR Versus Elective Delayed ACLR After Redefinition



eFigure 14. Forest Plot of the Results Infection of Early ACLR Versus Elective Delayed ACLR After Redefinition

