

Table S1. Baseline characteristics prior to the latest ACLR surgery.

Variable	Total (n=22,928)	Only one ACLR (n=21,748)	One revision ACLR (n=1,144)	Multiple revision ACLR (n=36)	P	Test between groups P		
						Only one ACLR vs One revision ACLR	Only one ACLR vs More than one revision ACLR	One revision ACLR vs More than one revision ACLR
Age at the time of surgery (years)	28.9 ± 10.6 26 (16-74)	29.1 ± 10.7 26 (16-74)	26.2 ± 8.1 24 (16-63)	28.7 ± 7.1 27 (20-50)	<0.0001	0.0020	0.82	0.088
Sex (male)	12,055 (52.6)	11,429 (52.6)	604 (52.8)	22 (61.1)	0.58			
BMI (kg/m²)	24.7 ± 3.3 24.2 (15.1-49.8)	24.7 ± 3.3 24.2 (15.1-49.8)	24.5 ± 3.1 24.2 (17.6-37.6)	24.7 ± 3.2 23.5 (19.6-34)	0.42			
Time from injury to surgery (months)	20.6 ± 36.6 8.5 (0-551)	20.9 ± 37.3 8.5 (0-551)	15.4 ± 19.8 8.4 (0.2-152)	22.6 ± 26.0 12 (2.7-112.9)	0.20	0.0020	0.62	0.070
ACL graft (yes)								
Patellar tendon autograft	1,942 (8.6)	1,214 (5.6)	714 (63.0)	14 (40.0)				
Semitendinosus autograft	20,053 (88.5)	19,821 (92.2)	230 (20.3)	2 (5.7)				
Quadriceps tendon autograft	459 (2.0)	338 (1.6)	116 (10.2)	5 (14.3)				
Allograft	156 (0.7)	77 (0.4)	65 (5.7)	14 (40.0)				
Direct suture/synthetic/other	50 (0.2)	42 (0.2)	8 (0.7)	0 (0.0)	<0.0001			
Meniscus injury (yes)								
Lateral meniscus	5,476 (23.9)	5,239 (24.1)	235 (20.5)	2 (5.6)	0.0008	0.0061	0.0075	0.029
Medial meniscus	6,055 (26.4)	5,783 (26.6)	264 (23.1)	8 (22.2)	0.027	0.0087	0.71	1.00
Cartilage injury (yes)								
Lateral femoral condyle	1,336 (5.8)	1,208 (5.6)	120 (10.5)	8 (22.2)	<0.0001	<0.0001	0.0014	0.068
Medial femoral condyle	4,398 (19.2)	4,050 (18.6)	334 (29.2)	14 (38.9)	<0.0001	<0.0001	0.0073	0.29
Lateral patella	728 (3.2)	669 (3.1)	56 (4.9)	3 (8.3)	0.0006	0.0017	0.20	0.53
Medial patella	1,236 (5.4)	1,149 (5.3)	81 (7.1)	6 (16.7)	0.0004	0.013	0.022	0.087
Lateral tibial plateau	1,532 (6.7)	1,412 (6.5)	115 (10.1)	5 (13.9)	<0.0001	<0.0001	0.16	0.60
Medial tibial plateau	1,292 (5.6)	1,181 (5.4)	105 (9.2)	6 (16.7)	<0.0001	<0.0001	0.025	0.23
Trochlea	788 (3.4)	699 (3.2)	83 (7.3)	6 (16.7)	<0.0001	<0.0001	0.0019	0.096
Collateral ligament injury (yes)								
MCL	936 (4.1)	913 (4.2)	21 (1.8)	2 (5.6)	0.0004			
LCL	236 (1.0)	225 (1.0)	9 (0.8)	2 (5.6)	0.019			
PLC injury (yes)	62 (0.3)	48 (0.2)	12 (1.0)	2 (5.6)	<0.0001			
Activity at the time of injury (yes)								
Alpine/skiing	3,768 (16.5)	3,693 (17.0)	74 (6.5)	1 (2.8)				
Pivoting sport	14,361 (62.8)	13,638 (62.8)	703 (61.6)	20 (55.6)				
Non-pivoting sport	990 (4.3)	954 (4.4)	36 (3.2)	0				
Other physical activity	1,013 (4.4)	953 (4.4)	57 (5.0)	3 (8.3)				
Traffic	407 (1.8)	396 (1.8)	10 (0.9)	1 (2.8)				
Other	2,343 (10.2)	2,071 (9.5)	261 (22.9)	11 (30.6)	<0.0001	<0.0001	0.0002	0.40
Tibial fixation (yes)								
Interference screw	14,703 (64.1)	13,802 (63.5)	870 (76.5)	31 (86.1)				
Intratunnel fixation	457 (2.0)	457 (2.1)	0 (0.0)	0 (0.0)				
Suture post	4,885 (21.3)	4,780 (22.0)	105 (9.2)	0 (0.0)				
Retroscrew	265 (1.2)	253 (1.2)	12 (1.1)	0 (0.0)				
Fixed suspensory fixation	21 (0.1)	21 (0.1)	0 (0.0)	0 (0.0)				

Adjustable suspensory fixation	2,537 (11.1)	2,435 (11.2)	99 (8.7)	3 (8.3)				
Staple	38 (0.2)	0 (0.0)	38 (3.3)	0 (0.0)				
Endobutton	4 (0.0)	0 (0.0)	4 (0.4)	0 (0.0)				
Infinitybutton	1 (0.0)	0 (0.0)	1 (0.1)	0 (0.0)				
Annan	10 (0.0)	0 (0.0)	8 (0.7)	2 (5.6)	<0.0001	<0.0001	<0.0001	0.034
Femoral fixation (yes)	45 (0.2)	0 (0.0)	44 (3.1)	1 (2.4)				
Fixed suspensory fixation	9,340 (40.8)	9,099 (41.8)	232 (20.5)	9 (25.0)				
Intratunnel fixation	3,659 (16.0)	3,646 (16.8)	12 (1.1)	1 (2.8)				
Interference screw	3,576 (15.6)	3,014 (13.9)	550 (48.5)	12 (33.3)				
Adjustable suspensory fixation	6,324 (27.6)	5,989 (27.5)	324 (28.6)	11 (30.6)				
AO-screw	2 (0.0)	0 (0.0)	2 (0.2)	0 (0.0)				
Metall screw / Endopearl	9,340 (40.8)	9,099 (41.8)	232 (20.5)	9 (25.0)				
XO-button	2 (0.0)	0 (0.0)	2 (0.2)	0 (0.0)				
Infinity button	1 (0.0)	0 (0.0)	1 (0.1)	0 (0.0)				
Other	1 (0.0)	0 (0.0)	1 (0.1)	0 (0.0)				
Other	13 (0.1)	0 (0.0)	10 (0.9)	3 (8.3)	<0.0001	<0.0001	<0.0001	0.0082

Values are given as n (%) and mean \pm SD or median (minimum-maximum) for categorical and continuous as well as ordinal variables, respectively. The sums may vary to because of missing values. The variables with missing values, n (%) of the total sample were BMI 7,846 (34.2), Time from injury to surgery 679 (3.0), ACL graft 268 (1.2), Activity at the time of injury 46 (0.3), Tibial fixation 7 (0.03), and Femoral fixation 10 (0.04). ACL=anterior cruciate ligament; ACLR=anterior cruciate ligament reconstruction; BMI=body mass index; LCL=lateral collateral ligament; LM=lateral meniscus; MCL=medial collateral ligament; PLC=posterior lateral corner; SD=standard deviation.

Pivoting sport (American football/rugby, basketball, dancing, floorball, gymnastics, handball, ice hockey/bandy, martial arts, racket sports, soccer, volleyball, wrestling); Non-pivoting sport (cross-country skiing, cycling, horseback riding, motocross/endure, skateboarding, snowboarding, and surfing/wakeboarding); Alpine/skiing; Other physical activity (other recreational sport, exercise, trampoline); Traffic related; and Other (other outdoor activity and work). Tibial fixation devices were divided into 6 different subcategories: 1) Interference screw (metal screw, metal screw with backup staple fixation, resorbable screw, resorbable screw with backup post fixation, metal screw with backup osteosuture, intrafix); 2) Intratunnel fixation (rigidfix); 3) Suture post (AO screw, suture washer); 4) Retroscrew; 5) Fixed suspensory fixation (retrobutton); 6) Adjustable suspensory fixation (tightrope). Femoral fixation devices were also divided into four different subcategories: 1) Fixed suspensory fixation (endobutton, retrobutton, ezloc); 2) Intratunnel fixation (rigidfix, transfix); 3) Interference screw (metal screw); 4) Adjustable suspensory fixation (toggleloc, ultrabutton).

Table S2. 1-year postoperative KOOS

Variable	Total (n=22,928)	Only one ACLR (n=21,748)	One revision ACLR (n=1,144)	More than one revision ACLR (n=36)	P	Test between groups P		
						Only one ACLR vs One revision ACLR	Only one ACLR vs More than one revision ACLR	One revision ACLR vs More than one revision ACLR
KOOS Symptoms	76.5 ± 18.0 78.6 (0- 100) n=22,410	76.5 ± 17.9 78.6 (0- 100) n=21,744	70.7 ± 20.1 75 (0-100) n=650	60.5 ± 23.9 58.9 (17.9- 100) n=16	<0.0001	<0.0001	0.0050	0.073
KOOS Pain	84.0 ± 15.7 88.9 (0- 100) N=22,410	84.2 ± 15.5 88.9 (0- 100) n=21,744	77.7 ± 19.2 83.3 (5.6- 100) n=650	65.8 ± 26.8 70.8 (5.6- 94.4) n=16	<0.0001	<0.0001	0.0008	0.051
KOOS ADL	91.1 ± 13.3 97.1 (0- 100) n=22,411	91.2 ± 13.2 97.1 (0- 100) n=21,745	87.1 ± 17.2 94.1 (2.9- 100) n=650	79.3 ± 23.7 89 (22.1- 100) n=16	<0.0001	<0.0001	0.011	0.12
KOOS Sport/Rec	63.7 ± 26.9 70 (0-100) n=22,405	64.1 ± 26 70 (0-100) n=21,739	51.1 ± 28.6 52.2 (0- 100) n=650	44.1 ± 30.7 42.5 (0-95) n=16	<0.0001	<0.0001	0.0079	0.31
KOOS QoL	58.1 ± 23.1 62.5 (0- 100) n=22,400	58.6 ± 23.0 62.5 (0- 100) n=21,734	44.8 ± 23.7 43.8 (0- 100) n=650	41.8 ± 23.4 37.5 (0- 81.3) n=16	<0.0001	N/A	N/A	0.65

Values are given as n (%) and mean ± SD or median (minimum-maximum) for categorical and continuous as well as ordinal variables, respectively. The sums may vary to because of missing values.

ADL=activities of daily living; KOOS=knee injury and osteoarthritis outcome score; QoL=quality of life; Sport/Rec=Function in sport and recreation.