Appendix A: Search Strategies

Medline

Number	Search Statement	Results
1	Anterior Cruciate Ligament Reconstruction/	2968
2	Anterior Cruciate Ligament/su [Surgery]	7265
3	limit 2 to yr="1990 - 2011"	5337
4	"anterior cruciate ligament".tw,kf.	15231
5	acl.tw,kf.	13519
6	4 or 5	19636
7	(surg* or graft* or transplant* or autograft* or auto-graft* or autotransplant* or auto-transplant* or rebuild* or rebuilt or repair* or reconstruct*).tw,kf.	2570983
8	Time Factors/	1112687
9	(timely or timeliness or timing or (time adj2 factor*) or earl* or delay* or late or later or "less than" or "greater than").tw,kf.	3199358
10	(injur* adj2 surg*).tw,tk. or (injur* adj2 surgic*).tw,kf. or (injur* adj2 operat*).tw,tk.	8691
11	((surg* or graft* or transplant* or autograft* or auto-graft* or autotransplant* or auto-transplant* or rebuild* or rebuilt or repair* or reconstruct*) adj5 (timely or timeliness or timing	109408
12	1 or 3 or 6	20449
13	8 or 10 or 11	1212547
14	12 and 13	2125
15	exp Randomized Controlled Trials as Topic/	116074
16	exp randomized controlled trial/	454076
17	Random Allocation/	93288
18	Double Blind Method/	144151
19	Single Blind Method/	24635
20	clinical trial/	508501
21	clinical trial, phase i.pt.	17777
22	clinical trial, phase ii.pt.	28703
23	clinical trial, phase iii.pt.	13393
24	clinical trial, phase iv.pt.	1463
25	controlled clinical trial.pt.	92162
26	randomized controlled trial.pt.	453812
27	multicenter study.pt.	228630
28	exp Clinical Trials as topic/	310458
29	trial*.ti.	239982
30	(clinical adj trial*).ti,ab.	300420
31	(controlled adj trial*).ti,ab.	180581
32	(blind*3 or mask*3).ti,ab.	304729
33	PLACEBOS/	33800
34	placebo*.ti,ab.	192579
35	"control group".ti,ab.	342079
36	RCT.ti.	1048
37	RCTs.ti.	368
38	random*.ti,ab.	957793
39	or/15-38	2239047
40	Editorial/	450635
41	News/	185788
42	(letter not (letter and randomized controlled trial)).pt.	972078
43	historical article/	343368
44	or/40-43	1930176
45	39 not 44	2178449
46	14 and 45	451

Embase:

Number	Search Statement	Results
1	anterior cruciate ligament reconstruction/	7113
2	anterior cruciate ligament/su [Surgery]	2189
3	limit 2 to yr="1974 - 2007"	1072
4	"anterior cruciate ligament".tw.	17346
5	acl.tw.	16826
6	1 or 3 or 4 or 5	24977
7	(surg* or graft* or transplant* or autograft* or auto-graft* or autotransplant* or auto-transplant* or rebuild* or rebuilt or repair* or reconstruct*).tw.	3275818
8	(timely or timeliness or timing or (time adj2 factor*) or earl* or delay* or late or later or "less than" or "greater than").tw.	3913062
9	((surg* or graft* or transplant* or autograft* or auto-graft* or autotransplant* or auto-transplant* or rebuild* or rebuilt or repair* or reconstruct*) adj5 (timely or timeliness or timing or (time adj2 factor*) or earl* or delay* or late or	150869
10	time/ or chronology/ or time factor/ or turnaround time/	415139
11	((injur* adj2 surg*) or (injur* adj2 surgic*) or (injur* adj2 operat*)).tw.	10965
12	9 or 10 or 11	571744
13	6 and 12	1923
14	Clinical Trial/	967750
15	controlled clinical trial/	454734
16	multicenter study/	175770
17	Phase 3 clinical trial/	32388
18	Phase 4 clinical trial/	2829
19	exp RANDOMIZATION/	77241
20	Single Blind Procedure/	30408
21	Double Blind Procedure/	146460
22	Crossover Procedure/	54337
23	PLACEBO/	319614
24	randomi?ed controlled trial$.tw.	174413
25	rct.tw.	27250
26	(random$ adj2 allocat$).tw.	35858
27	single blind$.tw.	20600
28	placebo$.tw.	268426
29	Prospective Study/	423693
30	or/14-29	1874927
31	Case Study/	52036
32	case report.tw.	355566
33	abstract report/ or letter/	1042476
34	Conference proceeding.pt.	0
35	Conference abstract.pt.	2884315
36	Editorial.pt.	555527
37	Letter.pt.	1002204
38	Note.pt.	701599
39	or/31-38	5549233
40	30 not 39	1460603
41	13 and 40	276

Scopus

Number	Search Statement	Results
13	(((TITLE-ABS-KEY ("anterior cruciate ligament" OR acl)) AND ((TITLE-ABS-KEY (surg* OR graft* OR transplant* OR autograft* OR auto-graft* OR autotransplant* OR auto-transplant* OR rebuild* OR rebuilt OR repair* OR reconstruct*)) AND (TITLE-ABS-KEY (timely OR timeliness OR timing OR "time factor" OR "time factors" OR early OR earlier OR delay* OR late OR later OR "less than" OR "greater than")))) AND ((TITLE-ABS-KEY (randomi?ed OR randomly OR randomi?ation? OR rct? OR placebo?)) OR (TITLE-ABS-KEY (singl* OR doubl* OR trebl* OR tripl*) W/5 TITLE-ABS-KEY (mask* OR blind* OR dumm*)) OR (TITLE (trial)))) AND NOT (INDEX (medline)) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re"))	116 document Results
12	(((TITLE-ABS-KEY ("anterior cruciate ligament" OR acl)) AND ((TITLE-ABS-KEY (surg* OR graft* OR transplant* OR autograft* OR auto-graft* OR autotransplant* OR auto-transplant* OR rebuild* OR rebuilt OR repair* OR reconstruct*)) AND (TITLE-ABS-KEY (timely OR timeliness OR timing OR "time factor" OR "time factors" OR early OR earlier OR delay* OR late OR later OR "less than" OR "greater than")))) AND ((TITLE-ABS-KEY (randomi?ed OR randomly OR randomi?ation? OR rct? OR placebo?)) OR (TITLE-ABS-KEY (singl* OR doubl* OR trebl* OR tripl*) W/5 TITLE-ABS-KEY (mask* OR blind* OR dumm*)) OR (TITLE (trial)))) AND NOT (INDEX (medline)) ...View More	128 document results
11	INDEX (medline)	23,478,777 document results
10	((TITLE-ABS-KEY ("anterior cruciate ligament" OR acl)) AND ((TITLE-ABS-KEY (surg* OR graft* OR transplant* OR autograft* OR auto-graft* OR autotransplant* OR auto-transplant* OR rebuild* OR rebuilt OR repair* OR reconstruct*)) AND (TITLE-ABS-KEY (timely OR timeliness OR timing OR "time factor" OR "time factors" OR early OR earlier OR delay* OR late OR later OR "less than" OR "greater than")))) AND ((TITLE-ABS-KEY (randomi?ed OR randomly OR randomi?ation? OR rct? OR placebo?)) OR (TITLE-ABS-KEY (singl* OR doubl* OR trebl* OR tripl*) W/5 TITLE-ABS-KEY (mask* OR blind* OR dumm*)) OR (TITLE (trial))) ...View More	527 document results
9	(TITLE-ABS-KEY (randomi?ed OR randomly OR randomi?ation? OR rct? OR placebo?)) OR (TITLE-ABS-KEY (singl* OR doubl* OR trebl* OR tripl*) W/5 TITLE-ABS-KEY (mask* OR blind* OR dumm*)) OR (TITLE (trial))	1,465,325 document results
8	TITLE (trial)	289,334 document results
7	TITLE-ABS-KEY (singl* OR doubl* OR trebl* OR tripl*) W/5 TITLE-ABS-KEY (mask* OR blind* OR dumm*)	263,604 document results
6	TITLE-ABS-KEY (randomi?ed OR randomly OR randomi?ation? OR rct? OR placebo?)	1,276,292 document results
5	(TITLE-ABS-KEY ("anterior cruciate ligament" OR acl)) AND ((TITLE-ABS-KEY (surg* OR graft* OR transplant* OR autograft* OR auto-graft* OR autotransplant* OR auto-transplant* OR rebuild* OR rebuilt OR repair* OR reconstruct*)) AND (TITLE-ABS-KEY (timely OR timeliness OR timing OR "time factor" OR "time factors" OR early OR earlier OR delay* OR late OR later OR "less than" OR "greater than")))	4,518 document results
4	(TITLE-ABS-KEY (surg* OR graft* OR transplant* OR autograft* OR auto-graft* OR autotransplant* OR auto-transplant* OR rebuild* OR rebuilt OR repair* OR reconstruct*)) AND (TITLE-ABS-KEY (timely OR timeliness OR timing OR "time factor" OR "time factors" OR early OR earlier OR delay* OR late OR later OR "less than" OR "greater than"))	920,120 document results
3	TITLE-ABS-KEY (timely OR timeliness OR timing OR "time factor" OR "time factors" OR early OR earlier OR delay* OR late OR later OR "less than" OR "greater than")	7,325,817 document results
2	TITLE-ABS-KEY (surg* OR graft* OR transplant* OR autograft* OR auto-graft* OR autotransplant* OR auto-transplant* OR rebuild* OR rebuilt OR repair* OR reconstruct*)	4,627,293 document results
1	TITLE-ABS-KEY ("anterior cruciate ligament" OR acl)	30,800 document results

Appendix B: Detsky Quality Assessment Scale

	Yes	Partly	No
Randomization			
Were the patients assigned randomly?	1		0
Randomization adequately described?	2	1	0
Was the treatment group concealed to the investigator?	1		0
Outcome Measures			
Description of outcome measures adequate?	1		0
Outcome measures objective?	2	1	0
Were the assessors blind to treatment?	1		0
Inclusion/Exclusion			
Were the inclusion/exclusion criteria well defined?	2	1	0
Number of patients excluded and reason given?	2	1	0
Intervention			
Was the therapy fully described for the treatment group?	2	1	0
Was the therapy fully described for the controls?	2	1	0
Statistics			
Was the test stated and was there a p-value?	1		0
Was the statistical analysis appropriate?	2	1	0
If the trial was negative, were confidence intervals or post hoc power calculations performed?	1		0
Sample size calculations before the study?	1		0
Total = /20 if positive trial and /21 if negative trial			

Appendix C: Stratification of Risk of Bias Criteria

SEQUENCE GENERATION: Was the allocation sequence adequately generated?	
Criteria for a judgement of 'Low Risk' (i.e. low risk of bias).	The investigators describe a random component in the sequence generation • Referring to a random number table; • Using a computer random number generator; • Coin tossing; • Shuffling cards or envelopes; • Throwing dice; • Drawing of lots; • Minimization*. *Minimization may be implemented without a random element, and this is considered to be equivalent to being random.
Criteria for the judgement of 'High Risk' (i.e. high risk of bias).	The investigators describe a non-random component in the sequence generation process. Usually, the description would involve some systematic, non-random approach, for example: • Sequence generated by odd or even date of birth; • Sequence generated by some rule based on date (or day) of admission; • Sequence generated by some rule based on hospital or clinic record number. Other non-random approaches happen much less frequently than the systematic approaches mentioned above and tend to be obvious. They usually involve judgement or some method of non-random categorization of participants, for example: Allocation by judgement of the clinician; • Allocation by preference of the participant; • Allocation based on the results of a laboratory test or a series of tests; • Allocation by availability of the intervention.
Criteria for the judgement of 'Unclear Risk'	Insufficient information about the sequence generation process to permit judgement of 'Yes' or 'No'.
ALLOCATION CONCEALMENT: Was allocation adequately concealed?	
Criteria for a judgement of 'Low Risk' (i.e. low risk of bias).	Participants and investigators enrolling participants could not foresee assignment because one of the following, • Central allocation (including telephone, web-based, and pharmacy-controlled, randomization); • Sequentially numbered drug containers of identical appearance; • Sequentially numbered, opaque, sealed envelopes. • Computer generated assignment
Criteria for the judgement of 'High Risk' (i.e. high risk of bias).	Participants or investigators enrolling participants could possibly foresee assignments and thus introduce selection bias, such as allocation based on: • Using an open random allocation schedule (e.g. a list of random numbers); • Assignment envelopes were used without appropriate safeguards (e.g. if envelopes were unsealed or nonopaque or not sequentially numbered); • Alternation or rotation; • Date of birth; • Case record number; • Any other explicitly unconcealed procedure.
Criteria for the judgement of 'Unclear Risk' (uncertain risk of bias).	Insufficient information to permit judgement of 'Yes' or 'No'. This is usually the case if the method of concealment is not described or not described in sufficient detail to allow a definite judgement – for example if the use of assignment envelopes is described, but it remains unclear whether envelopes were sequentially numbered, opaque and sealed.
BLINDING OF PARTICIPANTS, PERSONNEL AND OUTCOME ASSESSORS **Was knowledge of the allocated interventions adequately prevented during the study? [Short form: *Blinding*?]**	
Criteria for a judgement of 'Low Risk' (i.e. low risk of bias).	Any one of the following: • No blinding, but the review authors judge that the outcome and the outcome measurement are not likely to be influenced by lack of blinding; example: surgeon and patient not blinded to treatment but outcome assessor is • Blinding of participants and key study personnel ensured, and unlikely that the blinding could have been broken; • Either participants or some key study personnel were not blinded, but outcome assessment was blinded and the non-blinding of others unlikely to introduce bias.
Criteria for the judgement of 'High Risk' (i.e. high risk of bias).	Any one of the following: • No blinding or incomplete blinding, and the outcome or outcome measurement is likely to be influenced by lack of blinding;

	• Blinding of key study participants and personnel attempted, but likely that the blinding could have been broken; • Either participants or some key study personnel were not blinded, and the non-blinding of others likely to introduce bias.
Criteria for the judgement of 'Unclear Risk' (uncertain risk of bias).	Any one of the following: • Insufficient information to permit judgment of 'Yes' or 'No'; • The study did not address this outcome.
INCOMPLETE OUTCOME DATA **Were incomplete outcome data adequately addressed?**	
Criteria for a judgement of 'Low Risk' (i.e. low risk of bias).	Any one of the following: • No missing outcome data; • Reasons for missing outcome data unlikely to be related to true outcome (for survival data, censoring unlikely to be introducing bias); • Missing outcome data balanced in numbers across intervention groups, with similar reasons for missing data across groups; • For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk not enough to have a clinically relevant impact on the intervention effect estimate; • For continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes not enough to have a clinically relevant impact on observed effect size; • Missing data have been imputed using appropriate methods.
Criteria for the judgement of 'High Risk' (i.e. high risk of bias).	Any one of the following: • Reason for missing outcome data likely to be related to true outcome, with either imbalance in numbers or reasons for missing data across intervention groups; • For dichotomous outcome data, the proportion of missing outcomes compared with observed event risk enough to induce clinically relevant bias in intervention effect estimate; • For continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes enough to induce clinically relevant bias in observed effect size; • 'As-treated' analysis done with substantial departure of the intervention received from that assigned at randomization; • Potentially inappropriate application of simple imputation.
Criteria for the judgement of 'Unclear Risk' (uncertain risk of bias).	Any one of the following: • Insufficient reporting of attrition/exclusions to permit judgement of 'Yes' or 'No' (e.g. number randomized not stated, no reasons for missing data provided); • The study did not address this outcome.
SELECTIVE OUTCOME REPORTING **Are reports of the study free of suggestion of selective outcome reporting? [Short form: *Free of selective reporting*?]**	
Criteria for a judgement of 'Low Risk' (i.e. low risk of bias).	Any of the following: • The study protocol is available and all of the study's pre-specified (primary and secondary) outcomes that are of interest in the review have been reported in the pre-specified way; • The study protocol is not available but it is clear that the published reports include all expected outcomes, including those that were pre-specified (convincing text of this nature may be uncommon).
Criteria for the judgement of 'High Risk' (i.e. high risk of bias).	Any one of the following: • Not all of the study's pre-specified primary outcomes have been reported; • One or more primary outcomes is reported using measurements, analysis methods or subsets of the data (e.g. subscales) that were not pre-specified; • One or more reported primary outcomes were not pre-specified (unless clear justification for their reporting is provided, such as an unexpected adverse effect); • One or more outcomes of interest in the review are reported incompletely so that they cannot be entered in a meta-analysis; • The study report fails to include results for a key outcome that would be expected to have been reported for such a study.
Criteria for the judgement of 'Unclear Risk'	Insufficient information to permit judgement of 'Yes' or 'No'. It is likely that the majority of studies will fall into this category.
OTHER POTENTIAL THREATS TO VALIDITY **Was the study apparently free of other problems that could put it at a risk of bias?**	
Criteria for a judgement of 'Low Risk' (i.e. low risk of bias).	The study appears to be free of other sources of bias.
Criteria for the judgement of 'High Risk' (i.e. high risk of bias).	There is at least one important risk of bias. For example, the study: • Had a potential source of bias related to the specific study design used;

	• Had extreme baseline imbalance; or • Has been claimed to have been fraudulent; or • Had some other problem.
Criteria for the judgement of 'Unclear Risk' (uncertain risk of bias).	There may be a risk of bias, but there is either: • Insufficient information to assess whether an important risk of bias exists; • Insufficient rationale or evidence that an identified problem will introduce bias.