

1 **SUPPLEMENTARY 1** Search strategy2 *PubMed*

#17	Search: <b>#14 AND #15 AND #16</b> Sort by: <b>Most Recent</b>	1,768
#16	Search: ((( <b>"Recurrence"</b> [Mesh] OR <b>recurr*</b> [tiab] OR <b>relaps*</b> [tiab] OR <b>recrudesc*</b> [tiab] OR <b>repeat*</b> [tiab]) AND ( <b>"Joint Dislocations"</b> [Mesh] OR <b>dislocat*</b> [tiab] OR <b>luxat*</b> [tiab] OR <b>instabilit*</b> [tiab])) OR <b>risk*</b> [tiab] OR <b>lesion*</b> [tiab] OR ( <b>hill</b> [tiab] AND <b>sachs</b> [tiab]) OR <b>injur*</b> [tiab] OR <b>Perthes</b> [tiab] OR <b>ALPSA</b> [tiab] OR ( <b>anterior</b> [tiab] AND ( <b>labro</b> [tiab] OR <b>labral</b> [tiab]) AND <b>periosteal</b> [tiab] AND <b>sleeve</b> [tiab] AND <b>avulsion*</b> [tiab]) OR <b>HAGL</b> [tiab] OR ( <b>humeral</b> [tiab] AND <b>avulsion*</b> [tiab] AND <b>glenohumeral</b> [tiab] AND <b>ligament*</b> [tiab]) OR ( <b>greater</b> [tiab] AND <b>tuberosity</b> [tiab]) OR <b>fracture*</b> [tiab] OR <b>"Fractures, Bone"</b> [Mesh] OR <b>"Rotator Cuff"</b> [Mesh] OR ( <b>rotator</b> [tiab] AND <b>cuff</b> [tiab]) OR <b>tear*</b> [tiab] OR <b>age</b> [tiab] OR <b>sport*</b> [tiab] OR <b>laxity</b> [tiab] OR ( <b>glenoid</b> [tiab] AND <b>bone</b> [tiab] AND <b>loss</b> [tiab])) Sort by: <b>Most Recent</b>	5,603,913
#15	Search: ( <b>Bankart</b> [tiab] OR <b>"Bankart Lesions/surgery"</b> [Mesh] OR <b>arthroscopic stabilization</b> [tiab] OR <b>arthroscopic stabilisation</b> [tiab] OR <b>labral repair</b> [tiab]) Sort by: <b>Most Recent</b>	2,300
#14	Search: ( <b>"Shoulder Dislocation"</b> [Mesh] OR <b>"Shoulder"</b> [Mesh] OR <b>"Shoulder Joint"</b> [Mesh] OR <b>shoulder*</b> [tiab] OR <b>glenohumeral</b> [tiab]) Sort by: <b>Most Recent</b>	82,527

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4 *Embase/Ovid*

1	exp shoulder dislocation/	6512
2	exp shoulder/	83055
3	(shoulder* or glenohumeral).ti,ab,kw.	101743
4	1 or 2 or 3	138684
5	(Bankart or arthroscopic stabilization or arthroscopic stabilisation or labral repair).ti,ab,kw.	2813
6	Bankart lesion/su [Surgery]	198
7	5 or 6	2862
8	(recurr* or relaps* or recrudesc* or repeat*).ti,ab,kw.	1930525
9	exp joint dislocation/	4059

10	(dislocat*or luxat* or instabilit*).ti,ab,kw.	154727
11	9 or 10	158430
12	8 and 11	19548
13	(risk* or lesion* or (hill and sachs) or injur* or Perthes or ALPSA or (anterior and (labro or labral) and periosteal and sleeve and avulsion*) or HAGL or (humeral and avulsion* and glenohumeral and ligament*) or (greater and tuberosity) or fracture* or (rotator and cuff) or tear* or age or sport* or laxity or (glenoid and bone and loss)).ti,ab,kw.	8234845
14	exp fracture/	336756
15	exp rotator cuff/	8999
16	12 or 13 or 14 or 15	8303779
17	4 and 7 and 16	2119

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6 *Cochrane Database of Systematic Reviews & Cochrane Central Register of Controlled Trials*

#1	MeSH descriptor: [Shoulder Dislocation] explode all trees	143
#2	MeSH descriptor: [Shoulder] explode all trees	537
#3	MeSH descriptor: [Shoulder Joint] explode all trees	745
#4	(shoulder* or glenohumeral):ti,ab,kw	11763
#5	#1 OR #2 OR #3 OR #4	11763
#6	MeSH descriptor: [Bankart Lesions] explode all trees and with qualifier(s): [surgery - SU]	3
#7	(Bankart OR arthroscopic stabilization OR arthroscopic stabilisation OR labral repair):ti,ab,kw	238
#8	#6 OR #7	238
#9	MeSH descriptor: [Recurrence] explode all trees	12084
#10	(recurr* or relaps* or recrudesc* or repeat*):ti,ab,kw	159845
#11	#9 OR #10	159894
#12	MeSH descriptor: [Joint Dislocations] explode all trees	687
#13	(dislocat*or luxat* or instabilit*):ti,ab,kw	5839
#14	#12 OR #13	6413

#15	#11 AND #14	1018
#16	(risk* or lesion* or (hill and sachs) or injur* or Perthes or ALPSA or (anterior and (labro or labral) and periosteal and sleeve and avulsion*) or HAGL or (humeral and avulsion* and glenohumeral and ligament*) or (greater and tuberosity) or fracture* or (rotator and cuff) or tear* or age or sport* or laxity or (glenoid and bone and loss)):ti,ab,kw	549185
#17	MeSH descriptor: [Fractures, Bone] explode all trees	6053
#18	MeSH descriptor: [Rotator Cuff] explode all trees	344
#19	#15 OR #16 OR #17 OR #18	549508
#20	#5 AND #8 AND #19	145

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8 CINAHL/Ebsco

S18	S3 AND S6 AND S17	729
S17	S13 OR S14 OR S15 OR S16	1,482,038
S16	(MH "Rotator Cuff+")	3,063
S15	(MH "Fractures+")	58,529
S14	( TI (risk* OR lesion* OR (hill AND sachs) OR injur* OR Perthes OR ALPSA OR (anterior AND (labro OR labral) AND periosteal AND sleeve AND avulsion*) OR HAGL OR (humeral AND avulsion* AND glenohumeral AND ligament*) OR (greater AND tuberosity) OR fracture* OR (rotator AND cuff) OR tear* OR age OR sport* OR laxity OR (glenoid AND bone AND loss)) ) OR ( AB (risk* OR lesion* OR (hill AND sachs) OR injur* OR Perthes OR ALPSA OR (anterior AND (labro OR labral) AND periosteal AND sleeve AND avulsion*) OR HAGL OR (humeral AND avulsion* AND glenohumeral AND ligament*) OR (greater AND tuberosity) OR fracture* OR (rotator AND cuff) OR tear* OR age OR sport* OR laxity OR (glenoid AND bone AND loss)) ) )	1,469,860
S13	S9 AND S12	4,294
S12	S10 OR S11	33,871
S11	( TI (dislocat* OR luxat* OR instabilit*) ) OR ( AB (dislocat* OR luxat* OR instabilit*) )	31,033
S10	(MH "Dislocations+")	8,266
S9	S7 OR S8	231,945

S8	( TI (recurr* OR relaps* OR recrudesc* OR repeat*) ) OR ( AB (recurr* OR relaps* OR recrudesc* OR repeat*) )	212,296
S7	(MH "Recurrence")	48,901
S6	S4 OR S5	1,126
S5	( TI (Bankart OR arthroscopic stabilization OR arthroscopic stabilisation OR labral repair) ) OR ( AB (Bankart OR arthroscopic stabilization OR arthroscopic stabilisation OR labral repair) )	1,123
S4	(MH "Bankart Lesions/SU")	58
S3	S1 OR S2	30,919
S2	( Ti (shoulder* OR glenohumeral) ) OR ( AB (shoulder* OR glenohumeral) )	28,334
S1	(MH "Shoulder") OR (MH "Shoulder Dislocation") OR (MH "Shoulder Joint+")	12,823

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10 *Web of Science/Clarative*

11 TOPIC: (shoulder\* OR glenohumeral) AND (Bankart or arthroscopic stabilization or  
 12 arthroscopic stabilisation or labral repair) AND (((recurr\* or relaps\* or recrudesc\* or repeat\*)  
 13 AND (dislocat\* or luxat\* or instabilit\*)) OR risk\* or lesion\* or (hill and sachs) or injur\* or  
 14 Perthes or ALPSA or (anterior and (labro or labral) and periosteal and sleeve and avulsion\*)  
 15 or HAGL or (humeral and avulsion\* and glenohumeral and ligament\*) or (greater and  
 16 tuberosity) or fracture\* or (rotator and cuff) or tear\* or age or sport\* or laxity or (glenoid and  
 17 bone and loss))

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Database	Before deduplication	After deduplication
PubMed	1768	1762
Embase	2119	580
Cochrane Database of Systematic Reviews	1	0
Cochrane Central Register of Controlled Trials	143	51
CINAHL	729	55
Web of science	2578	1136

<b>Total</b>	7338	3584
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22 **SUPPLEMENTARY 2**

23 The manuscript's authors will collect the following potential risk factors from the databases

24 provided by authors of the Machine Learning Collaboration:

- 25 o Gender (male/female)
- 26 o Age at time of operation (years)
- 27 o Ethnicity
- 28 o Preoperative BMI
- 29 o ASA classification at time of operation (1-4)
- 30 o Epilepsy (yes/no)
- 31 o Hyperlaxity (Beighton score  $< 4$  or  $\geq 4$ )
- 32 o Affected side (right/left/bilateral)
- 33 o Side of operation (right/left/bilateral)
- 34 o Dominance (right/left/both)
- 35 o Daily smoking at time of operation (yes or no)
- 36 o Number of pre-operative dislocations
- 37 o Duration of follow-up (years)
- 38 o Bony lesions
  - 39  Bony Bankart lesion (yes/no)
  - 40  Hill-Sachs lesion
    - 41 • Yes/no
    - 42 • Off-track yes/no
  - 43  Greater Tuberosity Fracture (yes/no)
  - 44  Glenoid bone loss ( $<20\%$ ,  $\geq 20\%$ )
- 45 o Soft tissue lesions
  - 46  Anterior labrum periosteal sleeve avulsion (ALPSA) lesion (yes/no)
  - 47  Superior labrum anterior and posterior (SLAP) lesion (yes/no)
  - 48  inferior glenohumeral ligament (IGHL) (yes/no)

- 49            Humeral avulsion of the glenohumeral ligament (HAGL) lesion (yes/no)
- 50            Perthes lesion (yes/no)
- 51            Glenolabral articular disruption (GLAD) lesion (yes/no)
- 52            Full thickness Rotator Cuff Tear (yes/no)
- 53            Partial thickness Rotator Cuff Tear (yes/no)
- 54      o      Nerve Palsy (yes/no)
- 55      o      Surgical Characteristics:
  - 56      o      Side (right/left/bilateral)
  - 57      o      Time from injury to surgery (months)
  - 58      o      Time to surgery from hospital admission (days)
  - 59      o      Surgeon level (Surgeon/Resident/Fellow)
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