## Supplementary material 1. Database Search strategies

## PubMed (search date 24/04/2017):

"triangular fibrocartilage" [MeSH Terms] OR "triangular fibrocartilage" OR "triangular cartilage" OR "triangular fibrocartilaginous" OR TFCC OR (("distal radioulnar joint" OR "distal radioulnar joints" OR DRUJ) AND (instability OR unstable)) OR "ulnar avulsion" OR "ulnar avulsions"

Ovid Embase (search date 25/04/2017):

- 1 triangular fibrocartilage/
- 2 "triangular fibrocartilage".mp.
- 3 "triangular cartilage".mp.
- 4 "triangular fibrocartilaginous".mp.
- 5 TFCC.mp.
- 6 (radioulnar joint/ or "distal radioulnar joint".mp. or "distal radioulnar joints".mp. or DRUJ.mp.) and (instability or stability or unstable or stable).mp.
- 7 "ulnar avulsion".mp.
- 8 "ulnar avulsions".mp.
- 9 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8

Cochrane Central Register of Controlled Trials (CENTRAL) (search date 25/04/2017):

[mh "triangular fibrocartilage"] OR "triangular fibrocartilage" OR "triangular cartilage" OR "triangular fibrocartilaginous" OR TFCC OR (("distal radioulnar joint" OR "distal radioulnar joints" OR DRUJ) AND (instability OR stability OR unstable OR stable)) OR "ulnar avulsion" OR "ulnar avulsions"

Supplementary table I. References for full text articles excluded, with key reasons for exclusion.

Full text article excluded	Key reason for exclusion				
Abe et al, [1]	No DRUJ stability status documented				
Anderson et al, [2]	No differentiation between peripheral types				
Andersson et al, [3]	Associated injuries				
Atzei et al, [4]	No DRUJ stability status documented post-op				
Atzei, [5]	Overlap with 2008 paper and included reconstruction with PL				
Badia and Khanchandani, [6]	No DRUJ stability status documented				
Baehser-Griffith et al, [7]	No DRUJ stability status documented				
Buterbaugh et al, [8]	No DRUJ stability status documented No differentiation between peripheral tear type Associated injuries				
Chou and Lee, [9]	Only four isolated 1B tears included - sample size considered to be too small for inclusion by senior author (TL)				
Chou et al, [10]	Associated injuries and procedures				
Corso et al, [11]	Associated injuries				
Dailey and Palmer, [12]	No primary data available				
Degreef et al, [13]	No Pre-op DRUJ stability documented Previous treatments unknown Age range: 16-56 Follow up: 7-36m				
De Smet et al, [14]	No DRUJ stability status documented				
Estrella et al, [15]	No differentiation between tear types				
Hess et al, [16]	Reconstruction with tendon graft				
Kovachevich and Elhassan, [17]	No primary data available				
Luchetti et al, [18]	Associated injuries				
McAdams et al, [19]	Associated ECU tendinosis in 1 DRUJ instability in 4 - unclear which patients they were				

Millants et al, [20]	No DRUJ stability status documented			
Miwa et al, [21]	Pre-op DRUJ status unclear Age range 14-55			
Moritomo et al, [22]	4 subjects had simultaneous USO			
Moritomo, [23]	3 subjects had LT 11 subjects had simultaneous USO			
Nakamura et al, [24]	Limited patient information (Age, outcome scores, mean follow up)			
Nakamura et al, [25]	Ambiguity regarding whether positive UV had corrective osteotomy first			
Papapetropoulos et al, [26]	No DRUJ stability status documented			
Park et al, [27]	No differentiation of outcomes for tear types. No post op DRUJ stability status (stable pre-op)			
Reiter et al, [28]	Mean follow up of 11 months			
Ruch & Papadonikolakis, [29]	No DRUJ stability status Associated injuries No differentiation between tear types			
Shih et al, [30]	No differentiation between tear types.			
Shinohara et al, [31]	Unclear which patient had distal radius fracture			
Soreide et al, [32]	No DRUJ stability status documented			
Tang et al, [33]	Mean follow up 8.2 months			
Tang et al, [34]	Mean follow up 8 months.  No differentiation between tear types			
Trumble et al, [35]	Four patients were included with distal radius fractures			
Wolf et al, [36]	5 subjects had USO post TFCC repair			
Wolf et al, [37]	5 subjects had USO before mid-term results (overlap with Wolf et al, 2010)			
Woo et al, [38]	Age range 17-34			
Yao, [39]	No DRUJ stability status documented			
Yao and Lee, [40]	No DRUJ stability status documented			

- 1. Abe Y, Moriya A, Tominaga Y, Yoshida K. Dorsal Tear of Triangular Fibrocartilage Complex: Clinical Features and Treatment. J Wrist Surg. 2016;5(1): 42-6
- 2. Anderson ML, Larson AN, Moran SL, Cooney WP, Amrami KK, Berger RA. Clinical comparison of arthroscopic versus open repair of triangular fibrocartilage complex tears. J Hand Surg [AM]. 2008;33 (5): 675-82.
- 3. Andersson JK, Axelsson P, Stromberg J, Karlsson J, Friden J. Patients with triangular fibrocartilage complex injuries and distal radioulnar joint instability have reduced rotational torque in the forearm. J Hand Surg Eur Vol. 2016;41(7): 732-8
- 4. Atzei A, Rizzo A, Luchetti R, Fairplay T. Arthroscopic foveal repair of triangular fibrocartilage complex peripheral lesion with distal radioulnar joint instability. Tech Hand Up Extrem Surg. 2008;12(4): 226-35
- 5. Atzei A. New trends in arthroscopic management of type 1-B TFCC injuries with DRUJ instability. Journal of Hand Surgery (European Volume). 2009;34(5): 582-591.
- Badia A and Khanchandani P. Suture welding for arthroscopic repair of peripheral triangular fibrocartilage complex tears. Tech Hand up Extrem Surg. 2007;11(1): 45-50
- 7. Baehser-Griffith P, Bednar JM, Osterman AL, Culp R. Arthroscopic repairs of triangular fibrocartilage complex tears. AORN J. 1997;66(1): 101-2
- 8. Buterbaugh GA, Brown TR, Horn PC. Ulnar-sided wrist pain in athletes. Clin Sports Med. 1998;17(3): 567-83
- 9. Chou CH and Lee TS. Peripheral tears of triangular fibrocartilage complex: results of primary repair. Int Orthop. 2001;25(6): 392-5.
- 10. Chou KH, Sarris IK, Sotereanos DG. Suture anchor repair of ulnar-sided triangular fibrocartilage complex tears. J Hand Surg Br. 2003;28(6): 546-50
- 11. Corso SJ, Savoie FH, Geissler WB, Whipple TL, Jiminez W and Jenkins N. Arthroscopic repair of peripheral avulsions of the triangular fibrocartilage complex of the wrist: a multicenter study. Arthroscopy: The Journal of Arthroscopic & Related Surgery. 1997;13(1): 78-84.
- 12. Dailey SW and Palmer AK. The role of arthroscopy in the evaluation and treatment of triangular fibrocartilage complex injuries in athletes. Hand Clin. 2000;16(3): 461-76
- 13. Degreef I, Welters H, Millants P, Van Ransbeeck H, De Smet L. Disability and function after arthroscopic repair of ulnar avulsions of the triangular fibrocartilage complex of the wrist. Acta Orthop Belg. 2005;71(3): 289-93

- 14. De Smet L. Van De Meulebroucke B. Van Ransbeeck H, Zachee B, Fabry G. Arthroscopic suturing of ulnar avulsions (Type 1-B) of the triangular fibrocartilage complex of the wrist. Hand Surg. 1998;3(1): 35-39
- 15. Estrella EP, Hung LK, Ho PC, Tse WL. Arthroscopic repair of triangular fibrocartilage complex tears. Arthroscopy. 2007;23 (7): 729-37
- Hess F, Sutter R, Nagy L, Schweizer A. Stability and clinical outcome after reconstruction of complete triangular fibrocartilage disruption. J Wrist Surg. 2016;5 (2): 124-130
- 17. Kovachevich R and Elhassan BT. Arthroscopic and open repair of the TFCC. Hand Clin. 2010;26 (4):485-94
- 18. Luchetti R, Atzei A, Cozzolino R, Fairplay T and Badur N. Comparison between open and arthroscopic-assisted foveal triangular fibrocartilage complex repair for post-traumatic distal radio-ulnar joint instability. Journal of Hand Surgery (European Volume), 2014;39(8): 845-855.
- 19. McAdams TR, Swan J, Yao J. Arthroscopic treatment of triangular fibrocartilage wrist injuries in the athlete. Am J Sports Med. 2009;37 (2): 291-7
- 20. Millants P, De Smet L, Van Ransbeeck H. Outcome study of arthroscopic suturing of ulnar avulsions of the triangular fibrocartilage complex of the wrist. Chir Main. 2002;21(5): 298-300
- 21. Miwa H, Hashizume H, Fujiwara K, Nishida K, Inoue H. Arthroscopic surgery for traumatic triangular fibrocartilage complex injury. J Orthop Sci. 2004;9(4): 354-9
- 22. Moritomo H, Masatomi T, Murase T, Miyake J, Okada K, Yoshikawa H. Open repair of foveal avulsion of the triangular fibrocartilage complex and comparison by types of injury mechanism. J Hand Surg Am. 2010;35 (12): 1955-63
- 23. Moritomo H. Open repair of the triangular fibrocartilage complex from palmar aspect. J Wrist Surg. 2015;4(1): 2-8
- 24. Nakamura T, Nakao Y, Ikegami H, Sato K, Takayama S. Open repair of the ulnar disruption of the triangular fibrocartilage complex with double three-dimensional mattress suturing technique. Tech Hand Up Extrem Surg. 2004;8(2): 116-23
- 25. Nakamura T, Sato K, Okazaki M, Toyama Y, Ikegami H. Repair of Foveal Detachment of the Triangular Fibrocartilage Complex: Open and Arthroscopic Transosseous Techniques. Hand clinics. 2011;27: 281-90

- 26. Papapetropoulos PA, Wartinbee DA, Richard MJ, Leversedge FJ, Ruch DS. Management of peripheral triangular fibrocartilage complex tears in the ulnar positive patient: arthroscopic repair versus ulnar shortening osteotomy. J Hand Surg Am. 2010;35(10):1607-13.
- 27. Park MJ, Jagadish A, Yao J. The rate of triangular fibrocartilage injuries requiring surgical intervention. Orthopedics. 2010;3(11): 806
- 28. Reiter A, Wolf MB, Schmid U, Frigge A, Dreyhaupt J, Hahn P and Unglaub F. Arthroscopic repair of Palmer 1B triangular fibrocartilage complex tears. Arthroscopy: The Journal of Arthroscopic & Related Surgery. 2008;24(11): 1244-1250.
- 29. Ruch DS and Papadonikolakis A. Arthroscopically assisted repair of peripheral triangular fibrocartilage complex tears; factors affecting outcome. Arthroscopy. 2005;21(9): 1126-30
- 30. Shih JT, Lee HM and Tan CM.. Early isolated triangular fibrocartilage complex tears: management by arthroscopic repair. Journal of Trauma and Acute Care Surgery. 2002;53(5): 922-927.
- 31. Shinohara T, Tatebe M, Okui N, Yamamoto M, Kurimoto S, Hirata H. Arthroscopically assisted repair of triangular fibrocartilage complex foveal tears. J Hand Surg Am. 2013;38(2): 271-7
- 32. Soreide E, Husby T, Haugstvedt JR.. A long-term (20 years") follow-up after arthroscopically assisted repair of the TFCC. J Plast Surg Hand Surg. 2016;1-5
- 33. Tang C, Fung B., Chan R, Fok M. The beauty of stability: distal radioulnar joint stability in arthroscopic triangular fibrocartilage complex repair. Hand Surg. 2013;18(1): 21-26
- 34. Tang CY, Fung B, Rebecca C, Lung CP. Another light in the dark: review of a new method for the arthroscopic repair of triangular fibrocartilage complex. J Hand Surg Am. 2012;37 (6): 1263-8
- 35. Trumble TE, Gilbert M, Vedder N. Isolated tears of the triangular fibrocartilage: management by early arthroscopic repair. J Hand Surg Am. 1997;22 (1): 57-65
- 36. Wolf MB, Kroeber MW, Reiter A, et al.. Ulnar shortening after TFCC suture repair of Palmar type 1B lesions. Arch Orthop Trauma Surg. 2010;130(3): 301-6
- 37. Wolf MB, Haas A, Dragu A, Leclere FM, Dreyhaupt J, Hahn P, Unglaub F. Arthroscopic repair of ulnar-sided triangular fibrocartilage complex (Palmar Type 1B) tears: a comparison between short-and midterm results. J Hand Surg Am. 2012;37 (11): 2325-30

- 38. Woo SJ, Jegal M, Park MJ. Arthroscopic-assisted repair of triangular fibrocartilage complex foveal avulsion in distal radioulnar joint injury. Indian J Orthop. 2016;50 (3): 263-268.
- 39. Yao J. All-arthroscopic repair of peripheral triangular fibrocartilage complex tears. Operative techniques in sports medicine. 2010;18(3): 168-172
- 40. Yao J and Lee AT. All-arthroscopic repair of Palmer 1B triangular fibrocartilage complex tears using the FasT-Fix device. The Journal of hand surgery. 2011;36(5): 836-842.

	Iwasaki	Kim	Bayoumy
	et al,	et al,	et al,
	2011	2013	2015
1. Were there clear criteria for inclusion in	Yes	Yes	No
the case series?			
2. Was the condition measured in a	Yes	Yes	Yes
standard, reliable way for all participants			
included in the case series?			
3. Were valid methods used for identification	Yes	Yes	Yes
of the condition for all participants included			
in the case series?			
4. Did the case series have consecutive	Yes	Unclear	Yes
inclusion of participants?			
5. Did the case series have complete	Unclear	Yes	Yes
inclusion of participants?			
6. Was there clear reporting of the	Yes	Yes	Yes
demographics of the participants in the			
study?			
7. Was there clear reporting of clinical	Yes	Yes	Unclear
information of the participants?			
8. Were the outcomes or follow up results of	Yes	Yes	Yes
cases clearly reported?			
9. Was there clear reporting of the	N/a	N/A	N/A
presenting site(s)/clinic(s) demographic			
information?			
10. Was statistical analysis appropriate?	Yes	Yes	Yes
	l		l l

## Supplementary table III. Joanna Briggs Checklist results – Secondary analysis group

	Wysocki	Jegal	Woo et	Atzei	Nakamura	Yao &	Luchetti
	et al	et al	al	et al	et al	Lee	et al
	2012	2016	2016	2015	2011	2011	2014
1. Were there clear	Yes	Unclear	No	Yes	Unclear	Yes	Yes
criteria for inclusion							
in the case series?							
2. Was the condition	Yes	Yes	Yes	Yes	Unclear	Yes	Yes
measured in a							
standard, reliable							
way for all							
participants included							
in the case series?							
3. Were valid	Yes	Yes	Yes	Yes	Unclear	Yes	Yes
methods used for							
identification of the							
condition for all							
participants included							
in the case series?							
4. Did the case	Unclear	Unclear	Unclear	Unclear	No	Unclear	Unclear
series have							
consecutive							
inclusion of							
participants?							
5. Did the case	Yes	Unclear	Unclear	Unclear	No	Unclear	Unclear
series have							
complete inclusion							
of participants?							
6. Was there clear	Yes	Yes	Yes	Yes	Yes	Yes	Yes
reporting of the							
	l	l	l	l	l	l	l