

Appendix S1. Search strategy. **Since this is a very extensive supplemental material, the format and content have not been edited by JRM**

Table A1.1. Key words and search fields used in the search

	Pathology		Condition		Joint		Intervention
MeSH terms	exp calcium/ OR exp calcinosis/	AND	exp tendinopathy/ OR exp tendon injuries/	AND	exp shoulder/ OR exp rotator cuff/	AND	exp "Extracorporeal Shockwave Therapy/" (MeSH Heading) exp Ultrasonography, Interventional exp "Physical Therapy Modalities" exp "Conservative Treatment"
Free Text (default)	calc*		tend*		shoulder* OR rotator cuff OR supraspinatus OR infraspinatus OR subscapularis OR "teres minor"		shock* OR ESWT OR ESWL OR RSW OR ultrasoun* OR ultrason* OR inject* OR aspiration OR irrigation OR barbotage OR needl* OR physiother* OR "physical therap*" OR exercise* OR "transcutaneous electrical nerve stimulation" conservative OR non-operative OR non-surgical

Table A1.2. Database specific searches

Database	Specifics	Search	
EMBASE (Ovid)	Advanced search MeSH and multiple purpose search (default free text)	#1	exp calcium/ OR exp calcinosis/ OR calc*.mp
		#2	exp tendinopathy/ OR exp tendon injuries/ OR tend*.mp
		#3	exp shoulder/ OR exp rotator cuff/ OR shoulder*.mp OR rotator cuff.mp OR supraspinatus.mp OR infraspinatus.mp OR subscapularis.mp OR teres minor.mp
		#4	exp Extracorporeal shockwave therapy/ OR shock*.mp OR ESWT.mp OR ESWL.mp OR RSW.mp
		#5	exp Interventional ultrasonography/ OR ultrasoun*.mp OR ultrason*.mp OR inject*.mp OR aspiration.mp OR irrigation.mp OR barbotage.mp OR needl*.mp
		#6	exp Physical Therapy Modalities/ OR physiother*.mp OR physical therap*.mp OR exercise*.mp OR "transcutaneous electrical nerve stimulation".mp
		#7	exp Conservative Treatment/ OR conservative OR non-operative OR non-surgical
		#8	#1 AND #2 AND #3
		#9	#4 OR #5 OR #6 OR #7
		#10	#8 AND #9
Medline (Ovid)	Advanced search MeSH and multiple purpose search (default free text)	#1	exp calcium/ OR exp calcinosis/ OR calc*.mp
		#2	exp tendinopathy/ OR exp tendon injuries/ OR tend*.mp
		#3	exp shoulder/ OR exp rotator cuff/ OR shoulder*.mp OR rotator cuff.mp OR supraspinatus.mp OR infraspinatus.mp OR subscapularis.mp OR teres minor.mp
		#4	exp Extracorporeal shockwave therapy/ OR shock*.mp OR ESWT.mp OR ESWL.mp OR RSW.mp
		#5	exp Interventional ultrasonography/ OR ultrasoun*.mp OR ultrason*.mp OR inject*.mp OR aspiration.mp OR irrigation.mp OR barbotage.mp OR needl*.mp
		#6	exp Physical Therapy Modalities/ OR physiother*.mp OR physical therap*.mp OR exercise*.mp OR "transcutaneous electrical nerve stimulation".mp
		#7	exp Conservative Treatment/ OR conservative OR non-operative OR non-surgical
		#8	#1 AND #2 AND #3
		#9	#4 OR #5 OR #6 OR #7
		#10	#8 AND #9
CINAHL (EBSCOhost)	Advanced search MH and default free text="select a field", some MeSH not available so omitted/replaced by similar	S1	(MH "Calcium" OR "calcinosis")
		S2	calc*
		S3	(MH "tendinopathy" OR "tendon injuries")
		S4	tend*
		S5	(MH "shoulder" OR "rotator cuff")
		S6	shoulder* OR "rotator cuff" OR supraspinatus OR infraspinatus OR subscapularis OR "teres minor"
		S7	(MH "Lithotripsy")
		S8	(MH "Physical Therapy")
		S9	shock* OR ESWT OR ESWL OR RSW OR ultrasoun* OR ultrason* OR inject* OR aspiration OR irrigation OR barbotage OR needl* OR physiother* OR "physical therap*" OR exercise* OR "transcutaneous electrical nerve stimulation" OR conservative OR non-operative OR non-surgical
		S10	((S1 OR S2) AND (S3 OR S4) AND (S5 OR S6)) AND (S7 OR S8 OR S9)
Cochrane Register of Clinical Trials	Search manager, then back to MeSH or search tab for next line, repeat.	#1	calcium <i>[go to MeSH tab, search term, explode all trees, add to search manager]</i>
		#2	calcinosis <i>[go to MeSH tab...]</i>
		#3	calc* <i>[in search tab, copy and paste line, title/abstract/keywords, search, add to search manager]</i>
		#4	tendinopathy <i>[go to MeSH tab...]</i>

	MeSH and	#5	tendon injuries	<i>[go to MeSH tab...]</i>
	title/abstract/key	#6	tend*	<i>[go to search tab...]</i>
	word (default	#7	shoulder	<i>[go to MeSH tab...]</i>
	free text)	#8	rotator cuff	<i>[go to MeSH tab...]</i>
	? instead of #	#9	shoulder* OR "rotator cuff" OR supraspinatus OR infraspinatus OR	
	for single		subscapularis OR "teres minor" <i>[go to search tab...]</i>	
	truncation	#10	Extracorporeal Shockwave Therapy	<i>[go to MeSH tab...]</i>
		#11	Ultrasonography, Interventional	<i>[go to MeSH tab...]</i>
		#12	Physical Therapy Modalities	<i>[go to MeSH tab...]</i>
		#13	Conservative Treatment	<i>[go to MeSH</i>
			<i>tab...]</i>	
		#14	shock* OR ESWT OR ESWL OR RSW OR ultrasoun* OR ultrason* OR	
			inject* OR aspiration OR irrigation OR barbotage OR needl* OR	
			physiother* OR "physical therap*" OR exercise* OR "transcutaneous	
			electrical nerve stimulation" OR conservative OR non-operative OR non-	
			surgical <i>[go to search tab...]</i>	
		#15	((#1 OR #2 OR #3) AND (#4 OR #5 OR #6) AND (#7 OR #8 OR #9)	
			AND (#10 OR #11 OR #12 OR #13 OR #14))	
PEDro	Simple search		calc* tendin* treatment	
			calc* tendon* treatment	
SPORTDiscus	Advanced	S1	(SU ("Calcium" OR "calcinosis")) OR (calc*)	
	search	S2	(SU ("tendinitis" OR "tendon injuries")) OR (tend*)	
	Uses SU and	S3	(SU (shoulder OR "rotator cuff")) OR (shoulder* OR "rotator cuff" OR	
	default free		supraspinatus OR infraspinatus OR subscapularis OR "teres minor")	
	text="select a	S4	(SU ("Lithotripsy")) OR (shock* OR ESWT OR ESWL OR RSW)	
	field"	S5	ultrasoun* OR ultrason* OR inject* OR aspiration OR irrigation OR	
	Some MeSH not		barbotage OR needl*	
	available so	S6	SU ("Physical Therapy") OR (physiother* OR "physical therap*" OR	
	omitted or		exercise* OR "transcutaneous electrical nerve stimulation")	
	changed to	S7	conservative OR non-operative OR non-surgical	
	similar (e.g.	S8	(S1 AND S2 AND S3) AND (S4 OR S5 OR S6 OR S7)	
	tendinopathy			
	not available so			
	tendinitis was			
	used)			

Appendix S2. Studies excluded on full-text.

Table A2.1. Studies excluded on full-text with reason for exclusion

Number	Study by first author, year	Reason for exclusion
1	Albert, 2007 (63)	Previous steroid injection reported (subacromial steroid injection) Previous US-PICT reported (calcification needling)
2	Cacchio, 2006 (64)	Previous steroid injection reported (steroid injection)
3	Cacchio, 2009 (65)	Previous steroid injection reported (steroid injection)
4	Carlisi, 2018 (66)	Not randomized (matched controls)
5	Chiou, 2001 (67)	Not randomized (Group 1 and 3a were randomized, but 3b was not. Group 3a and 3b were analysed together and therefore randomization did not properly occur)
6	Cosentino, 2003 (68)	Previous steroid injection reported (local steroid injection)
7	Cosentino, 2004 (69)	Not randomized (longitudinal cohort study) Previous steroid injection reported (local steroid injection)
8	Daecke, 2002 (70)	Not randomized (divided in order of enrollment)
9	de Boer, 2017 (71)	Previous steroid injection reported (failed cortisone infiltration)
10	de Witte, 2013 (72)	Pre-existing pathology reported (partial rotator cuff tears)
11	de Witte, 2017 (73)	Pre-existing pathology reported (partial rotator cuff tears); Surgical intervention reported
12	Farr, 2011 (74)	Previous steroid injection reported (failed repetitive subacromial infiltrations)
13	Gerdesmeyer, 2003 (75)	Previous steroid injection reported (corticosteroid injection)
14	Haake, 2002 (76)	Previous steroid injection reported (subacromial injections)
15	Hsu, 2008 (77)	Previous steroid injection reported (corticosteroid injection)
16	Jiménez-García, 2008 (27)	Full-text not available in English (attempted to contact author 3 times)
17	Kransy, 2005 (78)	Previous steroid injection reported (infiltration with local steroid) Previous ESWT reported (ESWT previously attempted)
18	Loew, 1999 (79)	Previous steroid injection reported (subacromial injections of steroid)
19	Mangone, 2010 (80),	Not randomized (no mention of randomization)
20	Monteforte, 2002 (28)	Full-text not available in English (attempted to contact author)
21	Perlick, 2003 (81)	Previous steroid injection reported (subacromial injections of steroid)
22	Pleiner, 2004 (82)	Previous steroid injection reported (local infiltration of glucocorticoids)
23	Schmitt, 2001 (83)	No radiological or sonographic observation of calcific tendinopathy (non-calcific tendinopathy cohort)
24	Seil, 1999 (26)	Full-text not available in English (attempted to contact author 3 times)
25	Shomoto, 2002 (84)	Pre-existing pathology reported (general disease, complicated diabetes mellitus)
26	Wang, 2003 (85)	Not randomized (subjects selected control or intervention group)

Appendix S3. List of articles included in systematic review.

1. Del Castillo-Gonzalez F, Ramos-Alvarez JJ, Rodriguez-Fabian G, Gonzalez-Perez J, Jimenez-Herranz E, Varela E. Extracorporeal shockwaves vs ultrasound-guided percutaneous lavage for the treatment of rotator cuff calcific tendinopathy: a randomized controlled trial. *Eur J Phys Rehabil Med* 2016; 52: 145–151.
2. Ebenbichler GR, Erdogmus CB, Resch KL, Funovics MA, Kainberger F, Barisani G, et al. Ultrasound therapy for calcific tendinitis of the shoulder. *N Engl J Med* 1999; 340: 1533–1538.
3. Frassanito P, Cavalieri C, Maestri R, Felicetti G. Effectiveness of extracorporeal shock wave therapy and kinesio taping in calcific tendinopathy of the shoulder: a randomized controlled trial. *Eur J Phys Rehabil Med* 2018, 54: 333–340.
4. Hearnden A, Desai A, Karmegam A, Flannery M. Extracorporeal shock wave therapy in chronic calcific tendonitis of the shoulder – is it effective? *Acta Orthop Belg* 2009; 75: 25–31.
5. Ioppolo F, Tattoli M, Di Sante L, Attanasi C, Venditto T, Servidio M, et al. Extracorporeal shock-wave therapy for supraspinatus calcifying tendinitis: a randomized clinical trial comparing two different energy levels. *Phys Ther* 2012; 92: 1376–1385.
6. Kim EK, Kwak KI. Effect of extracorporeal shock wave therapy on the shoulder joint functional status of patients with calcific tendinitis. *J Phys Ther Sci* 2016; 28: 2522–2524.
7. Kim YS, Lee HJ, Kim YV, Kong CG. Which method is more effective in treatment of calcific tendinitis in the shoulder? Prospective randomized comparison between ultrasound-guided needling and extracorporeal shock wave therapy. *J Shoulder Elbow Surg* 2014; 23: 1640–1646.
8. Leduc BE, Caya J, Tremblay S, Bureau NJ, Dumont M. Treatment of calcifying tendinitis of the shoulder by acetic acid iontophoresis: a double-blind randomized controlled trial. *Arch Phys Med Rehabil* 2003; 84: 1523–1527.
9. Orlandi D, Mauri G, Lacelli F, Corazza A, Messina C, Silvestri E, et al. Rotator cuff calcific tendinopathy: randomized comparison of US-guided percutaneous treatments by using one or two needles. *Radiology* 2017; 285: 518–527.
10. Pan P, Chou C, Chiou H, Ma H, Lee H, Chan R. Extracorporeal shock wave therapy for chronic calcific tendinitis of the shoulders: a functional and sonographic study. *Arch Phys Med Rehabil* 2003; 84: 988–993.
11. Perron M, Malouin F. Acetic acid iontophoresis and ultrasound for the treatment of calcifying tendinitis of the shoulder: a randomized control trial. *Arch Phys Med Rehabil* 1997; 78: 379–384
12. Peters J, Luboldt W, Schwarz W, Jacob V, Herzog C, Vogl TJ. Extracorporeal shock wave therapy in calcific tendinitis of the shoulder. *Skeletal Radiol* 2004; 33: 712–718.
13. Rompe JD, Bürger R, Hopf C, Eysel P. Shoulder function after extracorporeal shock wave therapy for calcific tendinitis. *J Shoulder Elbow Surg* 1998; 7: 505–509
14. Sabeti M, Dorotka R, Goll A, Gruber M, Schatz K. A comparison of two different treatments with navigated extracorporeal shock-wave therapy for calcifying tendinitis – a randomized controlled trial. *Wien Klin Wochenschr* 2007; 119: 124–128.
15. Sabeti-Aschraf M, Dorotka R, Goll A, Trieb K. Extracorporeal shock wave therapy in the treatment of calcific tendinitis of the rotator cuff. *Am J Sports Med* 2005; 33: 1365–1368.
16. Sconfienza L, Bandirali M, Serafini G, Lacelli F, Aliprandi A, Leo G, et al. Rotator cuff calcific tendinitis: does warm saline solution improve the short-term outcome of double-needle US-guided treatment? *Radiology* 2012; 262: 560–566.
17. Tornese D, Mattei E, Bandi M, Zerbi A, Quaglia A, Melegati G. Arm position during extracorporeal shock wave therapy for calcifying tendinitis of the shoulder: a randomized study. *Clin Rehabil* 2011; 25: 731–739.
18. Zhu J, Jiang Y, Hu Y, Xing C, Hu B. Evaluating the long-term effect of ultrasound-guided needle puncture without aspiration on calcifying supraspinatus tendinitis. *Adv Ther* 2008; 25: 1229–1234.

Appendix S4. Quality appraisal and assessment of risk of bias.

Table A4.1. Quality appraisal of risk of bias assessment

Study/ source of bias	Was the method of randomization adequate?	Was the treatment allocation concealed?	Was the patient blinded to the intervention?	Was the care provider blinded to the intervention?	Was the outcome assessor blinded to the intervention?	Was the drop-out rate described and acceptable?	Were all randomized participants analysed in the group to which they were allocated?	Are reports of the study free of suggestion of selective reporting?	Were the groups similar at baseline regarding the most important prognostic indicators?	Were co-interventions avoided or similar?	Was the compliance in all groups acceptable?	Was the timing of the outcome assessment similar in all groups?	Other sources: power analysis?	Other sources: validate outcome measure?	Other sources: conflict of interest declared?	Overall risk of bias
del Castillo-Gonzalez et al. (47)	+	+	-	-	?	-	?	+	+	-	-	+	-	VAS	+	High
Ebenbichler et al. (41)	+	+	+	+	+	+	?	+	+	+	+	+	-	CMS	-	High
Frassanito et al. (21)	+	+	-	-	?	+	?	+	+	+	+	+	+	VAS, DASH, SSRQ, OSS	+	High
Hearnden et al. (42)	-	+	+	-	?	+	+	-	+	+	+	+	-	VAS, CMS	+	High
Ioppolo et al. (37)	+	+	+	-	+	+	+	+	+	+	+	+	+	VAS, CMS	-	High
Kim et al. (48)	+	?	-	-	?	+	?	+	+	-	+	+	+	VAS	+	High
Kim et al. (43)	-	?	?	?	?	+	?	+	?	+	+	+	-	CMS	-	High
Leduc et al. (44)	?	?	+	+	+	-	?	+	+	+	-	+	+	SPADI	+	High
Orlandi et al. (22)	+	?	-	?	?	+	?	+	+	-	+	+	+	CMS	+	High
Pan et al. (49)	?	?	-	-	?	+	?	+	+	+	+	+	-	CMS, VAS	+	High
Perron et al. (45)	?	-	-	-	+	+	?	+	+	-	+	+	-	-	+	High
Peters et al. (46)	+	?	+	+	?	+	+	+	+	+	+	+	-	-	-	High
Rompe et al. (38)	-	?	-	-	?	+	?	+	?	-	+	+	-	CMS	-	High
Sabeti et al. (50)	-	?	-	-	+	+	+	+	?	-	+	+	+	CMS, VAS	+	High

Sabeti-Aschraf et al. (51)	-	?	+	-	-	+	+	+	?	+	+	+	-	CMS, VAS	+	High
Sconfienza et al. (52)	-	?	-	-	?	-	?	+	+	-	+	+	-	VAS	+	High
Tornese et al. (53)	+	?	-	-	+	+	+	+	+	+	+	+	+	CMS	+	High
Zhu et al. (54)	-	?	?	?	?	+	+	+	+	-	+	+	-	VAS	-	High

In relation to assessment of quality, "no" would indicate a potential high risk of bias and the opposite for an answer of "yes"

+ = Yes; - = No; ? = Unclear

VAS: visual analogue scale; CMS: Constant Murley Score for shoulder function; SPADI: Shoulder Pain And Disability Index; DASH: Disabilities of the Arm: Shoulder and Hand; SSRQ: Subjective Shoulder Rating Questionnaire; OSS: Oxford Shoulder Score.

Appendix S5. Data extraction tables.

Table A5.1. Results of placebo trials – extracorporeal shockwave therapy (ESWT)

	RoB /15	Intervention	n	Outcome measure (follow- up)	Findings	Other conclusions	Limitations
Hearnden et al. (42)	10	<i>Group 1:</i> Sham ESWT – same set-up as group 2, EFD=0.03 mJ/mm ² <i>Group 2:</i> ESWT – Single session, 2000 shocks fixed at 0.28mJ/mm ² (high energy). Local anaesthetic given prior (0.5% marcaine 20 mL)	9 11	Function 6m Global impression 6m Calcific morphology	<i>CMS</i> Significant difference in CMS improvement in favour of ESWT at 6 m; ESWT: average 11 improvement; Sham: average 0 improvement ($p<0.03$) <i>Self satisfaction (yes/no)</i> Significant difference in favour of ESWT at 6m; ESWT: 5/11 patients had satisfactory results at 6m; Sham: 0/9 had satisfactory results ($p<0.038$). <i>Calcific resorption</i> 6/11 in Group 2 had complete resorption of calcification at 6 m follow-up, although 2 of these continued to have symptoms	No correlation between calcific morphology and symptoms	Small number of participants, only single blinded, reporting bias
Kim et al. (43)	6	<i>Group 1:</i> ESWT – 0.14mJ/mm ² (medium- energy), 4Hz, 240 impulses/min, 960 times, 3/p w until 6 w, then nothing between 6–12 w + control variables below <i>Group 2:</i> Control – NSAIDs for 6 w, 20 min hot pack, 15 min TENS, 5 min US therapy 1 W/cm ² , 3 times per w for 12 w	18 16	Function 2, 6, 12w	<i>CMS</i> Significant difference in favour of ESWT for CMS at 2, 6, 12w ($p<0.05$)	No side-effects of ESWT at 0.14 mJ/mm ²	Not a true control, small number of participants, high risk of bias throughout, poorly reported
Peters et al. (46)	10	<i>Group 1:</i> med ESWT – 0.15 mJ/mm ² (E1), 1500 pulses per session, isolated using US <i>Group 2:</i> high ESWT – 0.44 mJ/mm ² (E2), 1500 pulses per session, isolated using US <i>Group 3:</i> Sham – indistinguishable All: session every 6 w, up to 5 times or until symptoms resolved/withdrawal, no local anaesthesia	30 31 29	Pain During treatment Pain and function Throughout Calcific morphology 6m after last session	<i>Pain</i> Significant difference in pain levels favouring Grp1 (low-energy ESWT) compared with Grp2 (high-energy- ESWT) during the treatment ($p<0.001$) <i>Symptoms</i> Significant difference in number of sessions required to resolve symptoms favouring Grp2 compared with Grp 1 and Grp3 ($p<0.001$) <i>Calcification resorption</i> Significant difference in calcific resorption favouring Grp2 (high-energy ESWT) over Grp1 and Grp3 at 6 m follow-up	Haematomas are more common in higher energy levels, ESWT is still appropriate without local anaesthesia	Variable follow-up times

RoB: risk of bias; m: months; w: weeks; yrs: years; Grp: group; RC: rotator cuff; RCCT: rotator cuff calcific tendinopathy; OA: osteoarthritis; RA: rheumatoid arthritis; VAS: visual analogue scale for pain; CMS: Constant Murley Score for shoulder function; ROM: range of motion; ESWT: extracorporeal shockwave therapy; EFD: energy flux density; US-PICT: ultrasound-guided percutaneous irrigation of calcific tendinopathy; KT: kinesiotape; MMT: Manual Muscle Test; TENS: transcutaneous electrical nerve stimulation; Rx: treatment; CD: calcium deposit; US: ultrasound; PT: physiotherapy; AAI: acetic acid iontophoresis; sig: significant

Table A5.2. Results of inter-modality trials – ultrasound-guided percutaneous irrigation of the calcific deposits (US-PICT) vs extracorporeal shockwave therapy (ESWT)

	RoB /15	Intervention	n	Outcome measure (follow-up)	Findings	Other conclusions	Limitations
Del Castillo et al. (47)	7	<i>Group 1:</i> US-PICT – anxiolytic (1.5 mg bromazepam) 30 min prior, 10mL local anaesthetic (2% mepivacaine 10 mL), single (18G/20G) needle, normal saline lavage (no aspiration), 2 mL bursal steroid injection <i>Group 2:</i> ESWT – localised by fluoroscopy, medium energy (0.20 mJ/mm ²), 8–10Hz, 2×1000 impulses, 2×weekly for 2 wk, ibuprofen 600 mg/12 h for 3 days post	121	Pain 3, 6, 12 m Calcific morphology 3, 6, 12 m	VAS Significant improvement in pain score of both groups over time ($p<0.01$). Significant differences between groups at 3, 6, 12 m favouring US-PICT ($p<0.01$). <i>Calc size</i> Significant reduction in calcification size in both groups over time ($p<0.01$). Significant differences between groups at 3, 6, 12 m favouring US-PICT ($p<0.01$).	Positive correlation between size of calcification and pain over time after treatment in both	No placebo, high-risk of bias
Kim et al. (48)	9	<i>Group 1:</i> US-PICT – local anaesthesia (2% lidocaine), single 18G needle without lavage, multiple percutaneous punctures. Then subacromial steroid injection (1mL methylprednisolone acetate). Oral NSAIDs for 7 days. <i>Group 2:</i> high ESWT – 3 sessions, 1 w apart, 1000 impulses at 0.36 mJ/mm ² (high energy), localized by maximum tenderness. Oral NSAIDs for 7 days.	25 29	Pain 6, 12 w, 6, 12 m, last follow-up visit Function 6, 12 w, 6, 12 m, last follow-up visit Calcific morphology 6, 12 w, 6, 12 m, last follow-up visit	VAS Significant difference in favour of US-PICT for VAS at 12m ($p<0.05$); US-PICT=1.4; ESWT=3.3) NS difference between groups at 6 w, 12 w or 6 m ASES Significant difference in favour of US-PICT for ASES at 12m ($p<0.05$); US-PICT=90.3; ESWT=74.6) NS difference between groups at 6 w, 12 w or 6 m SST Significant difference in favour of US-PICT for SST at 12m ($p<0.05$); US-PICT=83.3; ESWT=70.8) NS difference between groups at 6 w, 12 w or 6 m <i>Calcification size</i> Significant difference in favour of US-PICT for calcification size at last follow-up (** uncertain time interval)	NS correlation between the initial size of the calcium deposit and clinical outcomes in both groups ($p<0.05$)	No placebo, small number of participants, inconsistent data reporting for last follow-up time, stage of CT not taken into account, cointerventions (SAI + US-PICT), X-rays and not US/MRI

RoB: risk of bias; m: months; w: weeks; yrs: years; Grp: group; RC: rotator cuff; RCCT: rotator cuff calcific tendinopathy; OA: osteoarthritis; RA: rheumatoid arthritis; VAS: Visual Analogue Scale for pain; CMS: Constant Murley Score for shoulder function; ROM: range of motion; ESWT: extracorporeal shockwave therapy; EFD: energy flux density; US-PICT: ultrasound-guided percutaneous irrigation of calcific tendinopathy; KT: kinesiotape; MMT: Manual Muscle Test; TENS: transcutaneous electrical nerve stimulation; Rx: treatment; CD: calcium deposit; US: ultrasound; PT: physiotherapy; AAI: acetic acid iontophoresis ; sig: significant.

Table A5.3. Results of intra-modality trials – extracorporeal shockwave therapy (ESWT) energy flux density comparison

	RoB /15	Intervention	<i>n</i>	Outcome measure (follow-up)	Findings	Other conclusions	Limitations
Ioppolo et al. (37)	13	<i>Group 1:</i> 4 sessions, 1 p/week, 0.20 mJ/mm ² , 2400 pulses, NSAID (dexibuprofen 400 mg) 1 h prior, but NO local used <i>Group 2:</i> 4 sessions, 1 p/week, 0.10 mJ/mm ² , 2 400 pulses, NSAID (dexibuprofen 400 mg) 1 h prior, but NO local used	23 23	Pain 3, 6 m (VAS) 12 m (NRS) Function 3, 6 m Calcific morph. 6 m	VAS Significant difference in favour of Grp1 for level of pain at 6 m, but not at 3 m NRS Significant difference in favour of Grp1 for level of pain at 12 m ($p<0.045$); Grp1: mean=2.60, SD 2.1, 95% CI=1.62–3.58; Grp2: mean=4.56, SD=3.5, 95% CI=2.69–6.44. CMS Significant difference in favour of Grp1 for CMS at 6 m, but not at 3 m <i>Complete resolution of calcification</i> NS difference between groups at 6m	No correlation between calcific morphology and symptoms	No placebo, small number of participants
Peters et al. (46)	10	<i>Group 1:</i> med ESWT – 0.15 mJ/mm ² (E1), 1500 pulses per session, isolated using US <i>Group 2:</i> high ESWT – 0.44 mJ/mm ² (E2), 1500 pulses per session, isolated using US <i>Group 3:</i> Sham – indistinguishable	30 31 29	Pain During treatment Pain and function Throughout Pathology 6 m after last session	<i>Pain</i> Significant difference in pain levels favouring Grp1 (low-energy ESWT) compared with Grp2 (high-energy-ESWT) during the treatment ($p<0.001$) <i>Symptoms</i> Significant difference in number of sessions required to resolve symptoms favouring Grp2 compared with Grp 1 and Grp3 ($p<0.001$) <i>Calcification resorption</i> Significant difference in calcific resorption favouring Grp2 (high-energy ESWT) over Grp1 and Grp3 at 6 m follow-up	Haematomas are more common in higher energy levels, ESWT is still appropriate without local anaesthesia	Variable follow-up times
Rompe et al. (38)	5	<i>Group 1:</i> low-energy ESWT – 1500 impulses of 0.06 mJ/mm ² , without local anaesthesia <i>Group 2:</i> high-energy ESWT – 1500 impulses of 0.28 mJ/mm ² , under regional anaesthesia All: 1 session per patient, physical therapy for the next 3 days, then continue exercises at home	50 50	Function 6, 24 w Calcific morphology	CMS Significant difference in favour of Grp2 (high-frequency ESWT) for CMS at 24 w only ($p<0.01$) <i>Partial/complete resorption</i> Significant difference in favour of Grp2 (high-frequency ESWT) for partial/complete resorption of CD at 24 w ($p<0.01$)	Significant difference in favour of Grp2 (high-frequency ESWT) for patient satisfaction at 24 w ($p<0.01$)	Additional treatment during follow-up to both groups
Sabeti et al. (50)	9	<i>Group 1:</i> low-energy ESWT – 3 times using constant 0.08 mJ/mm ² with	21	Pain 12 w Function	VAS NS difference between groups for VAS at 12 w ($p=0.42$)	Patients with complete dissolution of	Failed to exclude RC tears, variable

1000 impulses at each session; no local anaesthetic <i>Group 2</i> : medium-energy ESWT – 2 sessions of 0.2 mJ/mm ² with 2000 impulses; subacromial local anaesthetic (Lidocaine 5 ml)	23	12 w Calcific morphology	<i>CMS</i> NS difference between groups for CMS at 12 w ($p=0.69$) <i>Calcific morphology</i> Values of significance not reported	calcium deposit had the best clinical results	treatment number as well as dose
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RoB: risk of bias; m: months; w: weeks; yrs: years; Grp: group; RC: rotator cuff; RCCT: rotator cuff calcific tendinopathy; OA: osteoarthritis; RA: rheumatoid arthritis; VAS: visual analogue scale for pain; CMS: Constant Murley Score for shoulder function; ROM: range of motion; ESWT: extracorporeal shockwave therapy; EFD: energy flux density; US-PICT: ultrasound-guided percutaneous irrigation of calcific tendinopathy; KT: kinesiotape; MMT: Manual Muscle Test; TENS: transcutaneous electrical nerve stimulation; Rx: treatment; CD: calcium deposit; US: ultrasound; PT: physiotherapy; AAI: acetic acid iontophoresis; NRS: numerical rating scale; sig: significant.