Joint Injections

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WHEN TO INJECT

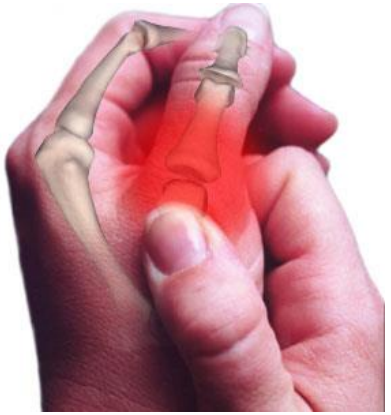
Arthrocentesis and Injection

- Aspiration
  - Septic arthritis
  - Gout
- Injection
  - Inflammatory arthritis with good response to previous injection
  - Soft tissue structures such as the subdeltoid bursa, trochanteric bursa, and tendon sheathing.
    - Soft tissue injections can be curative in some cases.
    - Short-term pain relief does not ensure a better long-term outcome.

UpToDate

CAUTION AND PREPARATION

Counselling



- Common local post-injection flare
  - (up to 20% in muscular trigger or tender point injections)
- Flushing
  - transient flushing and dizziness (<10%)
  - Local symptoms
    - post-injection flare, transient pain, irritation, sterile abscesses, hyper- or hypo-pigmentation, Charcot-like arthropathy and occasional increase in joint discomfort may occur.
    - Local fat atrophy may occur if the injection is not given into the joint space, but is temporary and disappears within a few weeks to months.

http://www.medicines.org.uk/emc/medicine/11366#UNDESIRABLE_EFFECTS

Hygiene

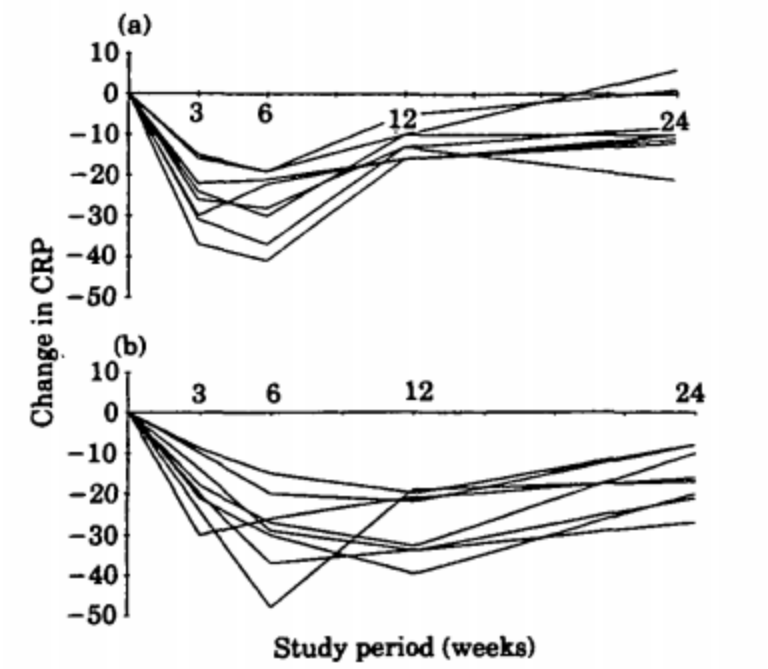
Table 3 Precautions taken to prevent septic arthritis post steroid injection of the knee by orthopaedic surgeons, rheumatologists and GPs in the UK

Question	Response			
	GPs ($n=28$) (%)	Rheumatologists ($n=89$) (%)	Orthopaedic surgeons ($n=74$) (%)	Total ($n=191$) (%)
How often do you inject knees?				
1. <1–5 a week	35.7	2.2	8	9.4
2. 1–5 a week	53.6	64	67.6	63.9
3. 6–10 a week	3.6	24.7	12.2	16.8
4. >10 a week	7.1	9	12.2	9.9
What cleansing method do you use?				
1. Alcohol only	64.3	61.8	50	57.6
2. Chlorhexidine only or Betadine only	28.6	27	41.9	33
3. Alcohol + (chlorhexidine or Betadine or both)	7.1	9	5.4	7.3
4. Chlorhexidine + Betadine	–	2.2	2.7	2.1
5. No antiseptic	–	–	–	0
Do you use sterile towels to isolate the injection field?				
1. Yes	17.9	11.3	21.6	16.3
2. No	82.1	86.5	78.4	82.7
3. Sometimes	–	1.1	–	0.5
4. No answer	–	1.1	–	0.5
Do you use gloves?				
1. Yes – sterile	32.1	23.6	43.2	32.5
2. Yes – non-sterile	25	15.7	6.8	13.6
3. No gloves	42.9	60.7	48.6	53.4
4. Sometimes	–	–	1.4	0.5
Do you change needle before injecting?				
1. Yes	92.9	89.9	91.9	91.1
2. No	7.1	10.1	6.8	8.4
3. Sometimes	–	–	1.3	0.5

Charalambous CP et al. Clin Rheumatol. 2003;22(6):386.

Rest

Good for the knee



. 5.—Individual change in CRP response curves in the (a) no t and (b) rest groups.

Chakravarty K et al.
Br J Rheumatol. 1994 May;33(5):464-8.

Bad for the wrist?

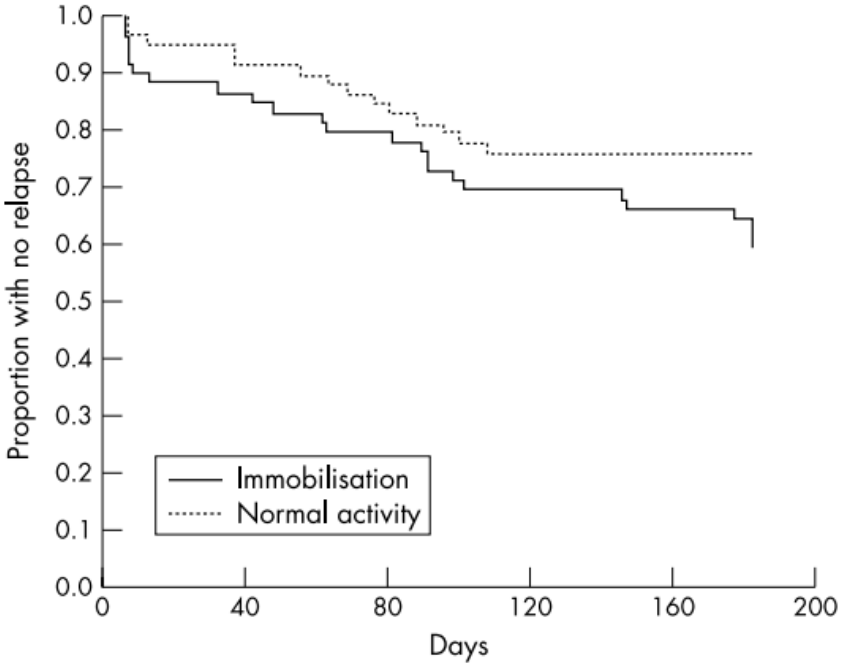


Figure 1 Duration of the therapeutic effect after glucocorticoid injection in the wrist with or without immobilisation in elastic wrist orthoses.

Weitoft T et al.
Ann Rheum Dis. 2003 Oct;62(10):1013-5.

Complications

- Tendon
  - rupture, due to injection of glucocorticoids into a tendon or of undiluted glucocorticoids in very close proximity to the tendon
- Nerve
  - atrophy or necrosis, when glucocorticoids enter the nerve sheath directly
- Skin
  - loss of pigmentation and/or atrophy of the skin
- Joint
  - Postinjection flare – usually lasts hours
  - Septic arthritis: between 1 in 2000 and 1 in 15,000 procedures
- Metabolic
  - Increases in blood glucose for up to several days in diabetics

Anticoagulation

Table 1 Baseline Characteristics

	Group A (INR ≥ 2) (n = 456)	Group B (INR < 2) (n = 184)	*P* Value
Age	73	72	.79
Sex (female) (%)	58	59	.79
BMI (kg/m^2)	32	31	.18
Diabetes (%)	24	31	.08
Hypertension (%)	68	61	.10
Renal failure (%)	3	5	.16
Aspirin (%)	43	53	.15
Clopidogrel (%)	7	11	.23
Hemoglobin (mean ± SD)	12 ± 0.1	12 ± 0.3	.91
Platelet (mean ± SD)	282 ± 9	274 ± 12	.61
Creatinine (mean ± SD)	1.3 ± 0.1	1.5 ± 0.2	.19

INR = international normalized ratio; BMI = body mass index; SD = standard deviation.

Ahmed I et al. Am J Med. 2012 Mar;125(3):265-9.

Anticoagulation

Table 2 Early and Late Complications Between Two Groups

Complications	Group A (INR ≥ 2) (n = 456)	Group B (INR < 2) (n = 184)	*P* Value
Clinically significant bleeding (early)	1 (0.2%)	0	NS
Clinically significant bleeding (late)	0	0	NS
Infection of joint (late)	1 (0.2%)	0	NS
Pain of joint causing physician visit	3 (0.7%)	0	NS

INR = international normalized ratio; NS = not significant.

Table 3 Details of Patients in Group A with Complications

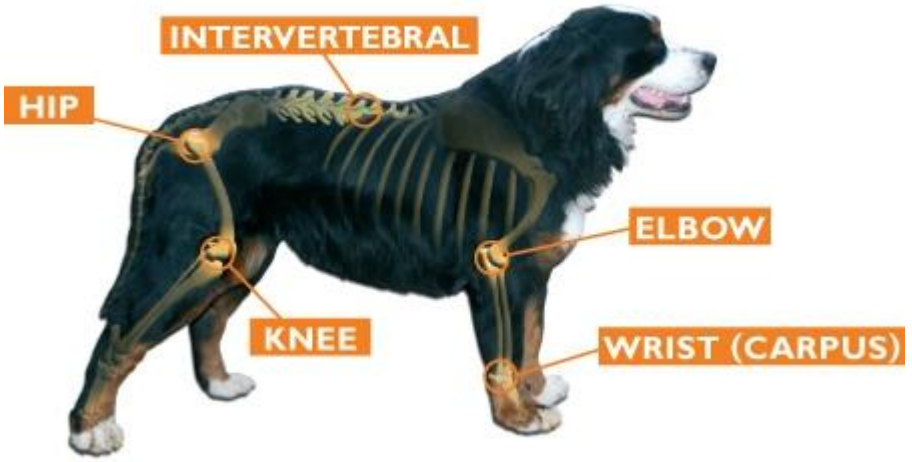
Complications	Age	Sex	Antiplatelet Agents	Pre-procedure INR
Bleeding and pain*	70	M	Aspirin	2.3
Pain	77	F	None	5.3
Pain	67	F	None	3.3
Infection	74	F	Aspirin	2.0

INR = international normalized ratio.
*Same patient.

Ahmed I et al. Am J Med. 2012 Mar;125(3):265-9.

Are Injections bad for the joint?

- Protective
  - Dog model of OA
  - Repeated steroid injections were best for the joint
    - 24 dogs, ACL sectioned
      - 12 nothing
      - 6 PO steroid
      - 6 IA steroid
    - Cartilage erosions
      - Nothing (25%)
      - PO steroid (8%)
      - IA steroid (0%)



Pelletier JP et al. Arthritis Rheum. 1989;32(2):181.

Injections before joint replacement

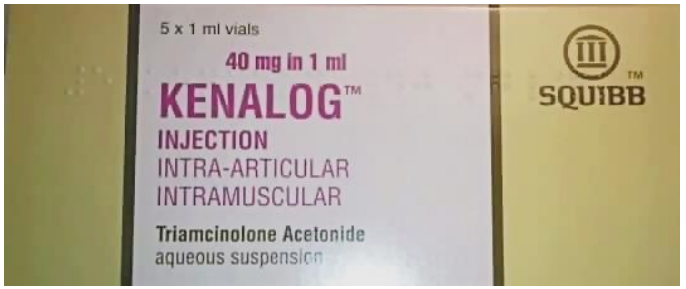
- A mixed meta-analysis and narrative review of 12 studies with 2068 participants was conducted.
- Steroid injection prior to total joint replacement was found to confer no increased risk of deep or superficial prosthetic infection (CI = 95%).

McMahon SE et al. Acta Orthop Belg. 2013 Dec;79(6):672-9.

WHAT TO INJECT

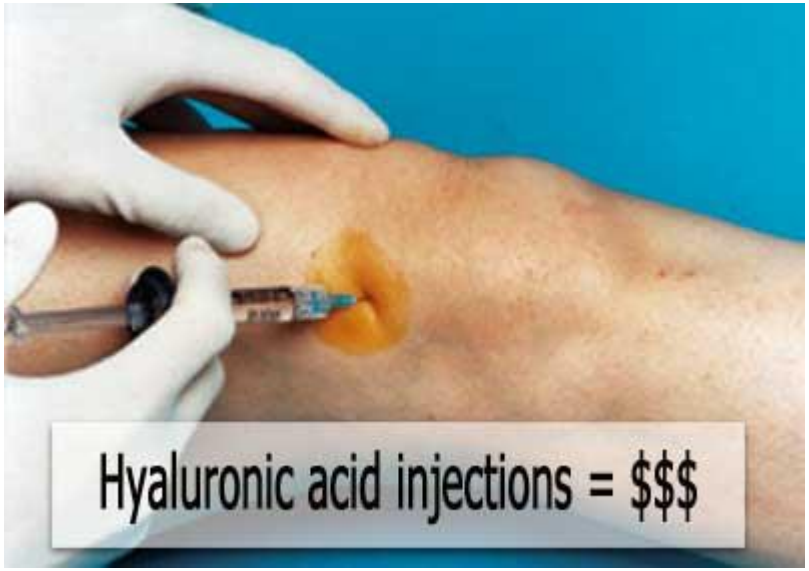
Which steroid?

- Triamcinolone *hexacetonide* better?
  - *In short term term studies:*
    - *TH>MP*
    - *MP>TA*
    - *TH>TA*



Garg, N et al. *Clinical rheumatology* (2014): 1-12.

HYALURONIC ACID



Hyaluronic acid

- 76 trials
- Effects of viscosupplements against 'placebo' controls generally **supported the efficacy** of this class of intervention
  - Of note is the 5 to 13 week post injection period which showed a percent improvement from baseline of 28 to 54% for pain and 9 to 32% for function
  - comparable efficacy was noted against NSAIDs
  - longer-term benefits were noted in comparisons against IA corticosteroids

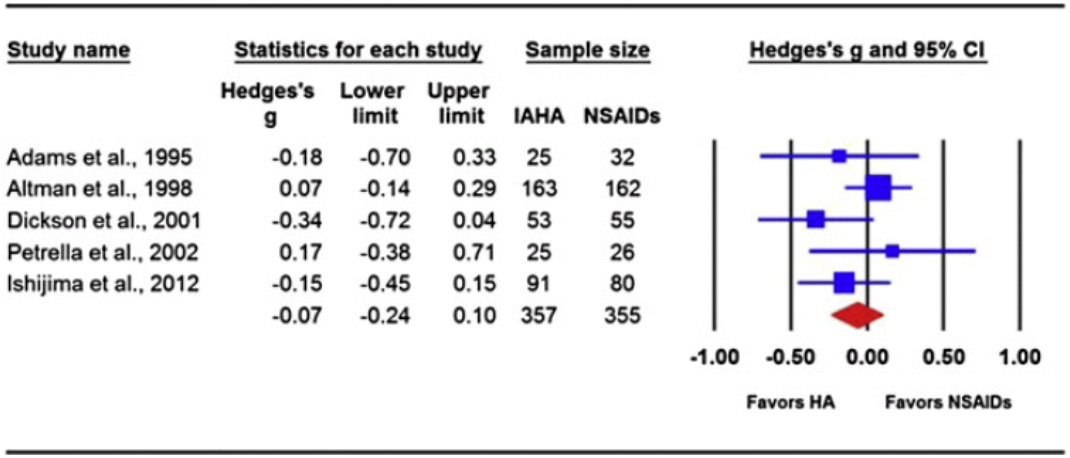
Bellamy N et al. Cochrane Database Syst Rev. 2006 Apr 19;(2):CD005321..

Hyaluronic acid

Results for Pain, Stiffness and Function

Study	Trials N	Patients N	Effect Size	I^2
Pain				
All timepoints	5	712	-0.07 (-0.24, 0.10)	16%, low
4 weeks	3	547	0.01 (-0.15, 0.18)	0%, no
12 weeks	4	541	-0.05 (-0.28, 0.17)	30%, low
Stiffness	2	159	0.03 (-0.27, 0.34)	0%, no
Function	2	159	-0.08 (-0.39, 0.23)	0%, no

Note: CI = Confidence Interval; I^2 = Heterogeneity Score



Bannuru, R. R., et al. Osteoarthritis and Cartilage 21 (2013): S298-S299.

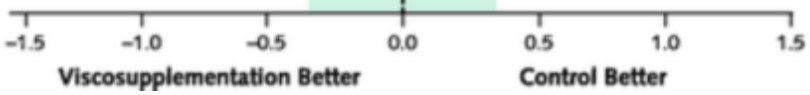
Hyaluronic acid

- 89 trials involving 12 667 adults
  - Overall, 71 trials (9617 patients) showed that viscosupplementation moderately reduced pain (effect size, -0.37 [95% CI, -0.46 to -0.28]).
  - Trial size, blinded outcome assessment, and **publication status were associated with effect size**.
  - Five unpublished trials (1149 patients) showed an effect size of -0.03 (CI, -0.14 to 0.09).
  - Eighteen large trials with blinded outcome assessment (5094 patients) showed a clinically irrelevant effect size of -0.11 (CI, -0.18 to -0.04).
  - Six trials (811 patients) showed that viscosupplementation increased, although not statistically significantly, the risk for flare-ups (relative risk, 1.51 [CI, 0.84 to 2.72])
  - Fourteen trials (3667 patients) showed that viscosupplementation **increased the risk for serious adverse events** (relative risk, 1.41 [CI, 1.02 to 1.97]).
- Conclusion
  - In patients with knee osteoarthritis, viscosupplementation is associated with a **small and clinically irrelevant benefit and an increased risk for serious adverse events**.

Rutjes AW et al. Ann Intern Med. 2012 Aug 7;157(3):180-91.

Annals of Internal Medicine
Established in 1927 by the American College of Physicians

Variable	Trials, *n*	Patients in Experimental Group/Control Group, *n/N*	Effect Size (95% CI)	τ^2	*P* for Interaction
All trials	71	5178/4439	−0.37 (−0.46 to −0.28)	0.09	
Concealment of allocation					0.053
Adequate	13	1584/1422	−0.18 (−0.36 to −0.01)	0.08	
Inadequate or unclear	58	3594/3017	−0.43 (−0.53 to −0.32)	0.10	
Type of control intervention					0.33
Sham intervention	54	4138/3556	−0.34 (−0.44 to −0.24)	0.09	
Nonsham intervention	18	1104/931	−0.48 (−0.67 to −0.29)	0.10	
Blinding of patients					0.53
Adequate	16	1409/1321	−0.32 (−0.49 to −0.14)	0.09	
Inadequate or unclear	55	3769/3118	−0.38 (−0.49 to −0.28)	0.10	
Blinded outcome assessment					0.003
Adequate	46	3998/3440	−0.25 (−0.34 to −0.16)	0.06	
Inadequate or unclear	25	1180/999	−0.66 (−0.84 to −0.44)	0.16	
Intention-to-treat					0.46
Yes	15	1076/855	−0.29 (−0.47 to −0.10)	0.08	
No or unclear	56	4102/3584	−0.39 (−0.49 to −0.28)	0.10	
Trial size					0.002
≥100 per trial group	21	3187/2898	−0.16 (−0.26 to −0.07)	0.04	
<100 per trial group	50	1991/1541	−0.52 (−0.67 to −0.39)	0.17	
Publication status					0.040
Full journal articles	52	3927/3435	−0.36 (−0.46 to −0.26)	0.09	
Other publications*	14	617/489	−0.63 (−0.91 to −0.36)	0.17	
Unpublished	5	634/515	−0.03 (−0.14 to 0.09)	0.00	



Annals of Internal Medicine
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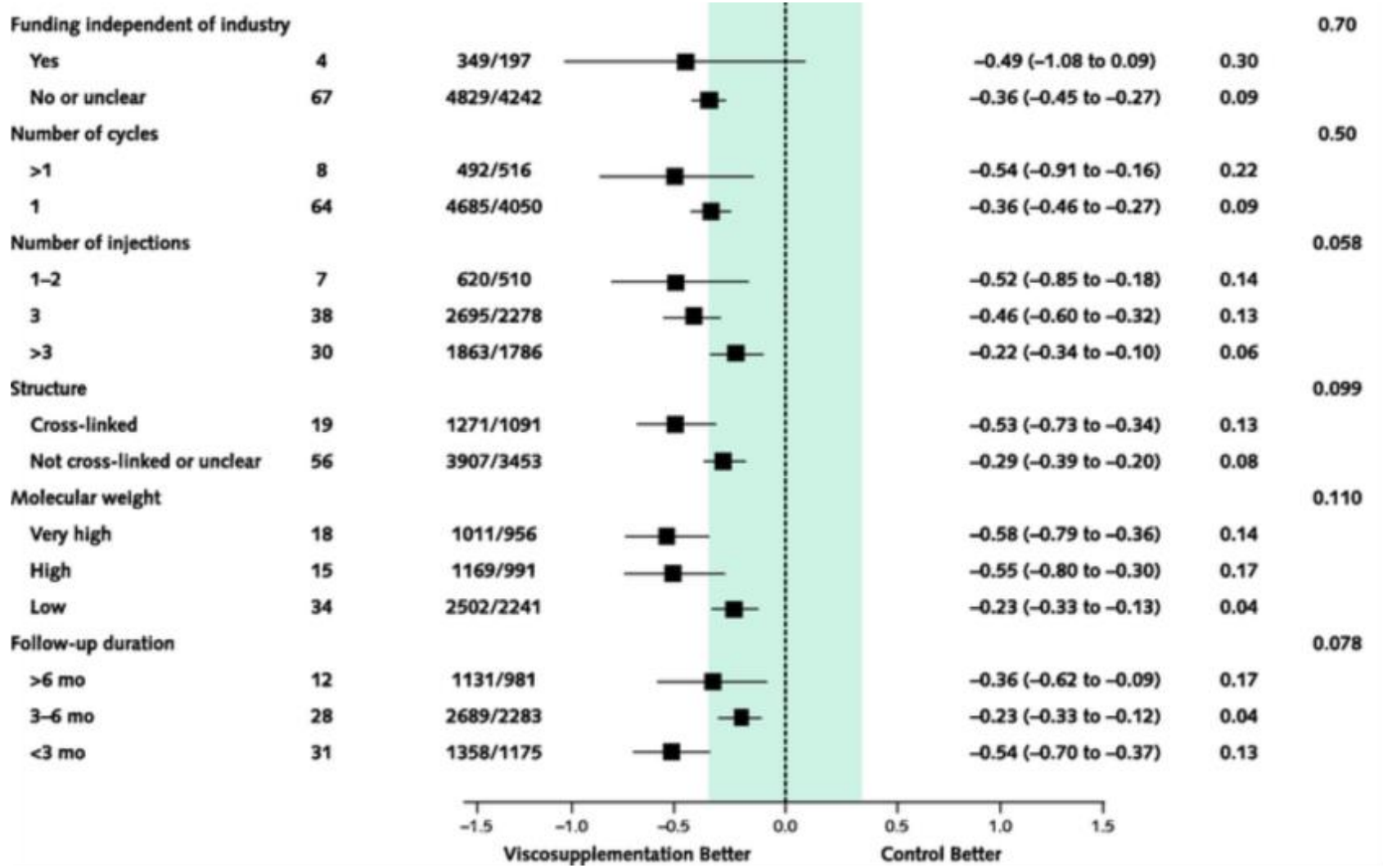

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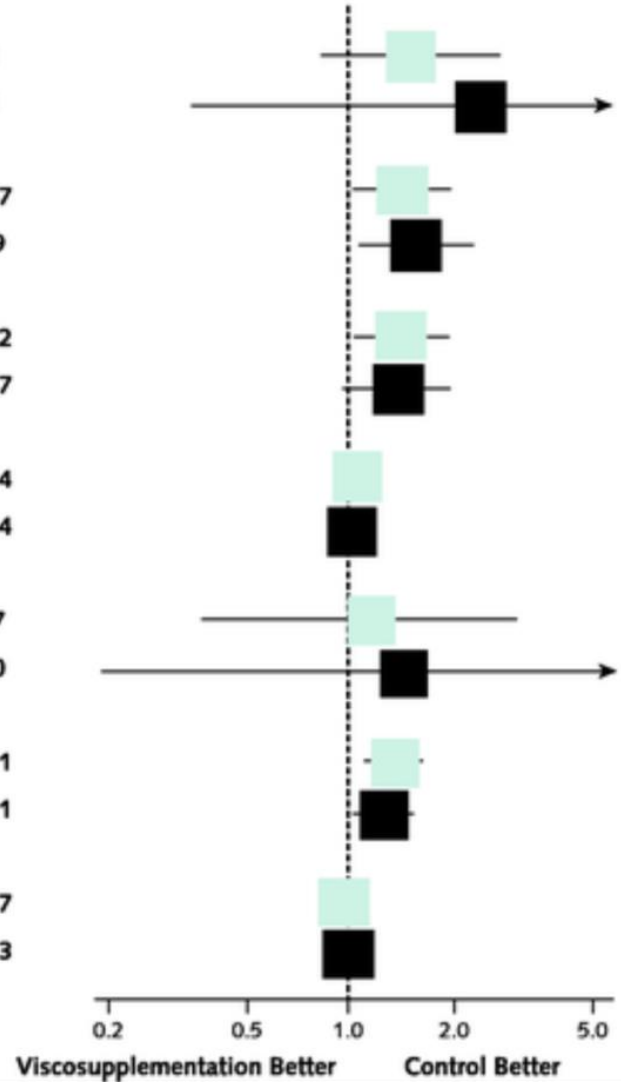
Annals of Internal Medicine
Established in 1927 by the American College of Physicians

From: Viscosupplementation for Osteoarthritis of the Knee: A Systematic Review and Meta-analysis

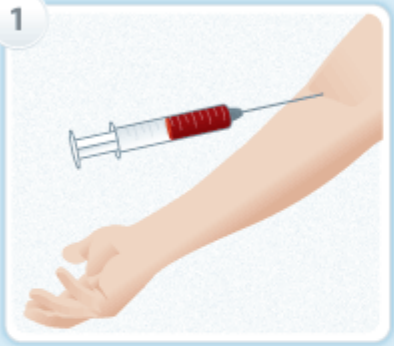
Safety Outcome	Trials/Patients Randomly Assigned, *n/n*	Relative Risk (95% CI)	*P* Value	τ^2
Flare-up in the injected knee				
All trials	6/811	1.51 (0.84–2.72)	0.165	0.00
Large trials with blind outcome assessment	2/541	2.39 (0.35–16.19)	0.37	0.00
Serious adverse events				
All trials	14/3667	1.41 (1.02–1.97)	0.039	0.00
Large trials with blind outcome assessment	8/2899	1.55 (1.07–2.24)	0.019	0.00
Dropouts due to adverse events				
All trials	23/5522	1.33 (1.01–1.74)	0.040	0.00
Large trials with blind outcome assessment	13/3877	1.30 (0.97–1.73)	0.081	0.00
Adverse events overall				
All trials	25/5204	1.04 (0.99–1.09)	0.158	0.00
Large trials with blind outcome assessment	11/3214	1.01 (0.96–1.06)	0.74	0.00
Effusions at the injected knee				
All trials	6/1337	1.15 (0.38–3.54)	0.80	0.00
Large trials with blind outcome assessment	3/1090	1.43 (0.20–10.49)	0.72	0.63
Any local adverse event in the injected knee				
All trials	31/5241	1.34 (1.13–1.60)	0.001	0.02
Large trials with blind outcome assessment	12/3631	1.26 (1.05–1.51)	0.012	0.00
Withdrawals overall				
All trials	40/7277	0.97 (0.87–1.09)	0.63	0.00
Large trials with blind outcome assessment	15/4443	1.00 (0.88–1.14)	0.97	0.00



PROCESS OF **PRP THERAPY**

IRMO THE INSTITUTE OF REGENERATIVE & MOLECULAR ORTHOPAEDICS

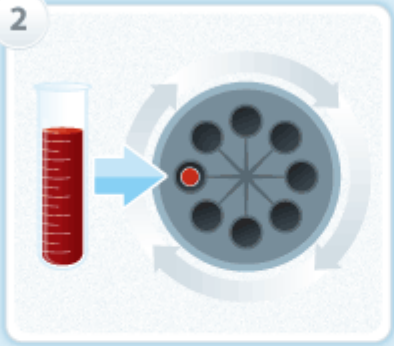
1



Collect blood

30-60ml of blood is drawn from the patient's arm.

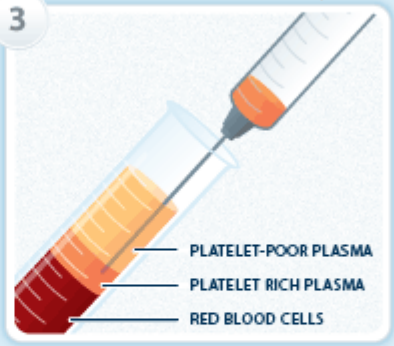
2



Separate the platelets

The blood is then placed in a centrifuge. The centrifuge spins and separates the platelets from the rest of the blood components.

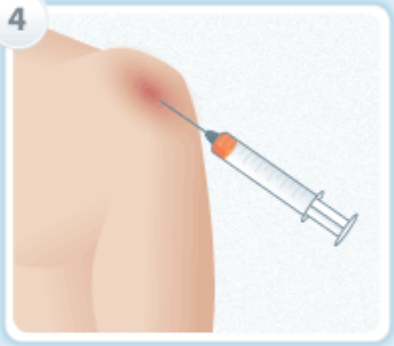
3



Extract platelet-rich plasma

Extract 3-6ml of platelet-rich plasma.

4

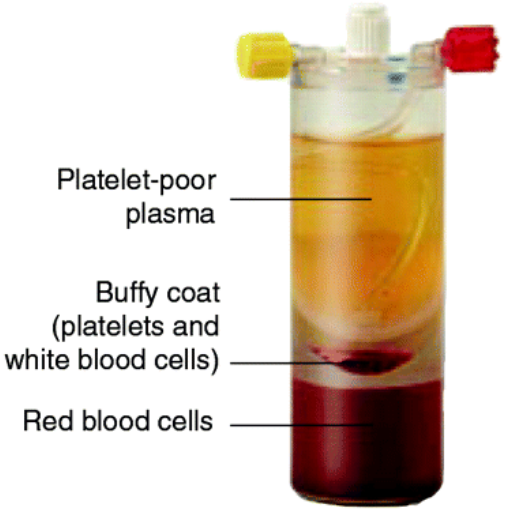


Inject injured area with PRP

Using the concentrated platelets, we increase the growth factors up to eight times, which promotes temporary relief and stops inflammation.

www.stemcellorthopedic.com

PLATELET RICH PLASMA



Platelet rich plasma

- Does it aid repair?
  - rotator cuff tears (arthroscopic repair) (six trials)
  - shoulder impingement syndrome surgery (one trial)
  - elbow epicondylitis (three trials)
  - anterior cruciate ligament (ACL) reconstruction (four trials)
  - ACL reconstruction (donor graft site application) (two trials)
  - patellar tendinopathy (one trial)
  - Achilles tendinopathy (one trial)
  - acute Achilles rupture surgical repair (one trial)

Moraes VY et a. Cochrane Database Syst Rev. 2013 Dec 23;12:CD010071.

Platelet rich plasma

- Overall, and for the individual clinical conditions, there is currently insufficient evidence to support the use of PRT for treating musculoskeletal soft tissue injuries.

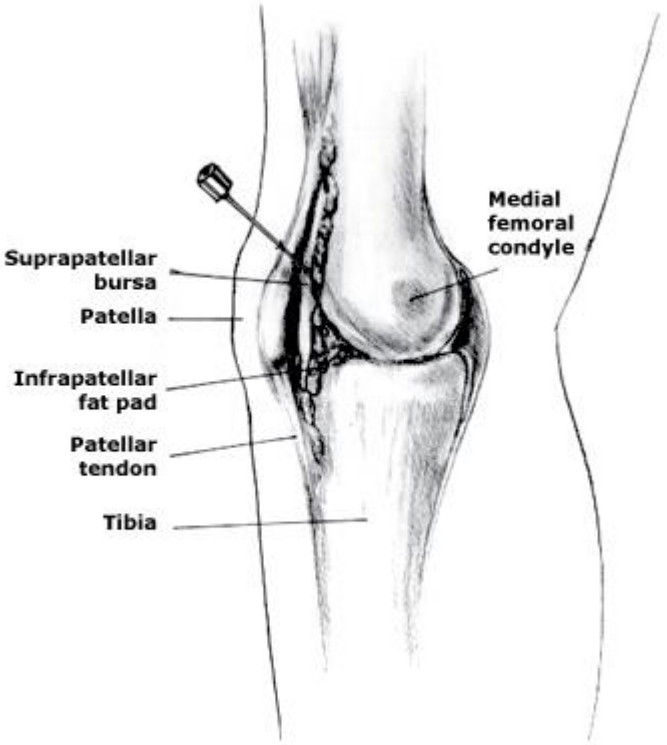
Moraes VY et a. Cochrane Database Syst Rev. 2013 Dec 23;12:CD010071.

HOW TO INJECT

THE KNEE

How To Inject

- The needle is inserted just posterior to the medial portion of the patella and is directed slightly posteriorly and slightly inferiorly.



UpToDate

How To Inject

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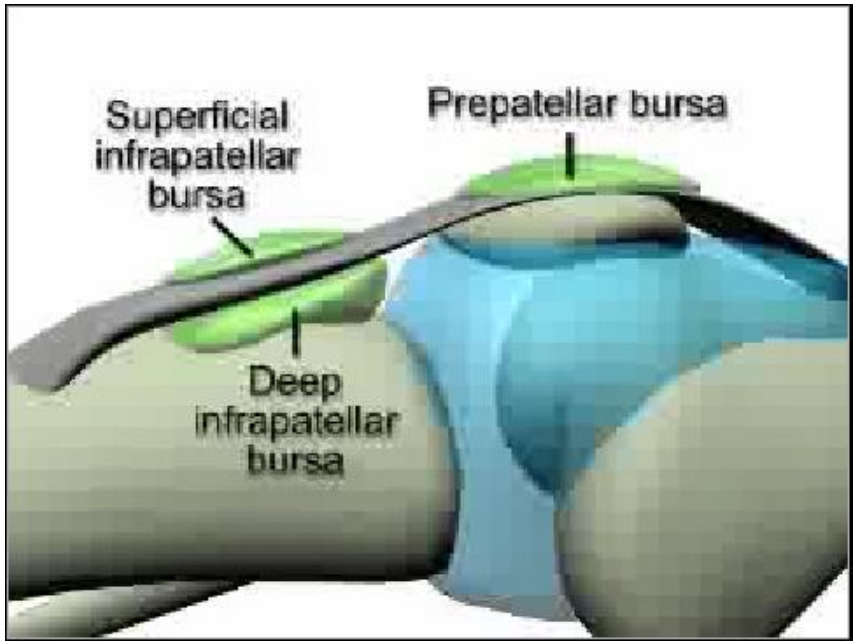


UpToDate

Can we predict who will respond?

- Possible factors
  - Effusion
  - Whether fluid drained
  - Synovitis – clinically, on ultrasound
- In general, where predictive factors have been identified, findings are based on single studies, with at least one other study failing to reproduce the observation

Hirsch G et al. Semin Arthritis Rheum. 2013 Apr;42(5):451-73.

Can we predict who will respond?

Table 2 Factors Examined as Predictors to Intra-articular Steroid Injection in Knee Osteoarthritis

Variable	Author	Number Receiving IA Steroid	Method of Measurement	Outcome Measure	Observation Point (Weeks)	Result	Method of Analysis	Jadad Score
Clinical and structural joint factors								
Effusion	Gaffney et al. [10]	42	Clinical examination (present/absent)	Pain VAS (absolute change)	1, 6	1 week: greater pain reduction in patients with effusion ($P < 0.05$). 6 weeks: ns	Univariate analysis (ANOVA)	3
Effusion	Gaffney et al. [10]	42	Fluid aspirated (yes/no)	Pain VAS (absolute change)	1, 6	1 week: fluid aspirated significantly greater pain reduction ($P < 0.01$). 6 weeks: ns	Univariate analysis (ANOVA)	3
Effusion	Pyne et al. [12]	57	Clinical effusion grade (non-validated)—all patients had effusion	Pain VAS (absolute change)	3, 8	8 weeks: trend ($P = 0.07$) towards greater pain reduction in THA group where grade 1 effusion vs grade 2–3. Ns THA week 1, ns MPA week 1 and 8	Linear regression analysis (simple regression)	4
Effusion	Arden [11]	79	Clinical Examination (present/absent)	WOMAC pain subscale (absolute change)	2, 4, 12, 26	26 weeks: significantly greater pain reduction in patients with basline effusion ($P = 0.04$)	Regression techniques	4
Effusion	Jones and Doherty [13]	59	Clinical Examination (present/absent)	Pain VAS response (15% improvement)	3	ns	Stepwise logistic regression	4
Effusion	Jones and Doherty [13]	59	Fluid aspirated (yes/no)	Pain VAS response (15% improvement)	3	ns	Stepwise logistic regression	4
Effusion	Friedman and Moore [14]	17	Fluid aspirated (yes/no)	Pain likert (absolute change)	1, 4, 8	ns	Univariate analysis	4

Hirsch G et al. Semin Arthritis Rheum. 2013 Apr;42(5):451-73.

ACR guidelines

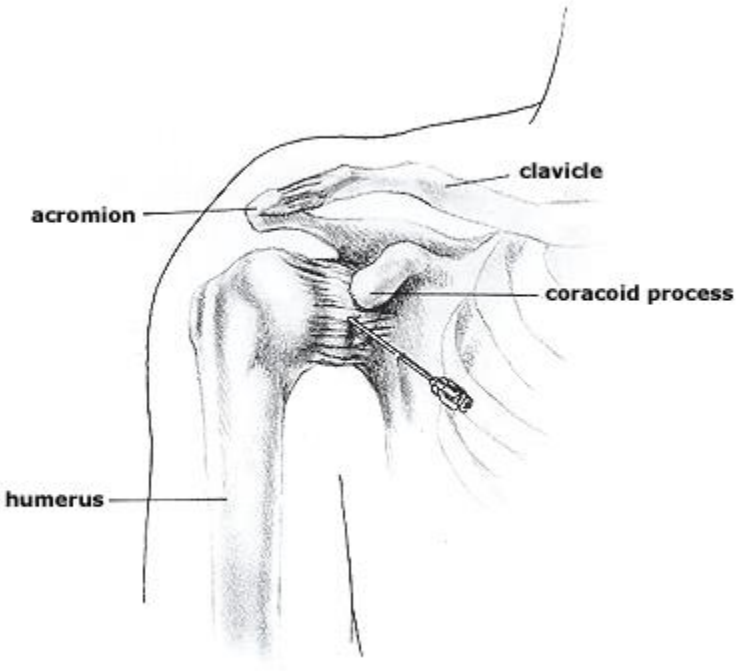
- Pharmacologic modalities conditionally recommended for the initial management of patients with knee OA included
  - Paracetamol
  - oral and topical NSAIDs
  - tramadol, and
  - intraarticular corticosteroid injections
  - conditionally recommended in patients who had an inadequate response to initial therapy
    - intraarticular hyaluronate injections
    - Duloxetine
    - opioids

Hochberg MC et al. Arthritis Care Res (Hoboken). 2012 Apr;64(4):465-74.

THE SHOULDER

How To Inject

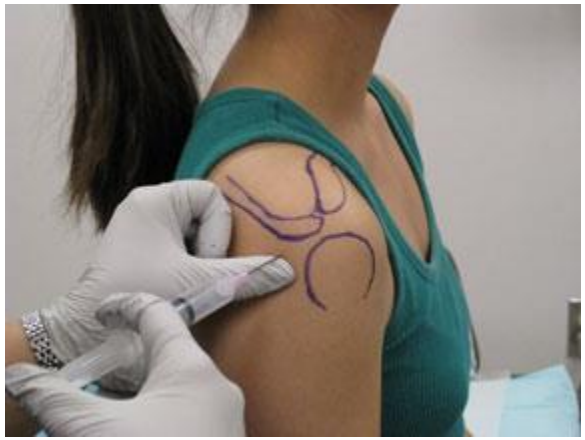
- With the shoulder externally rotated, the needle is inserted at a point just medial to the head of the humerus and slightly inferior and lateral to the coracoid process. The needle is then directed posteriorly and slightly superiorly and laterally.



UpToDate

How To Inject

- Advance a 21-25 gauge, 1.5 inch needle attached to the syringe perpendicular to the skin at the previously identified space, with your needle directed towards the patient's sternal notch.
- Keep gently advancing the needle until you appreciate subtle resistance, followed by a sensation of "giving way." This is the penetration of the deltoid muscle fascia and entrance into the subacromial bursa.

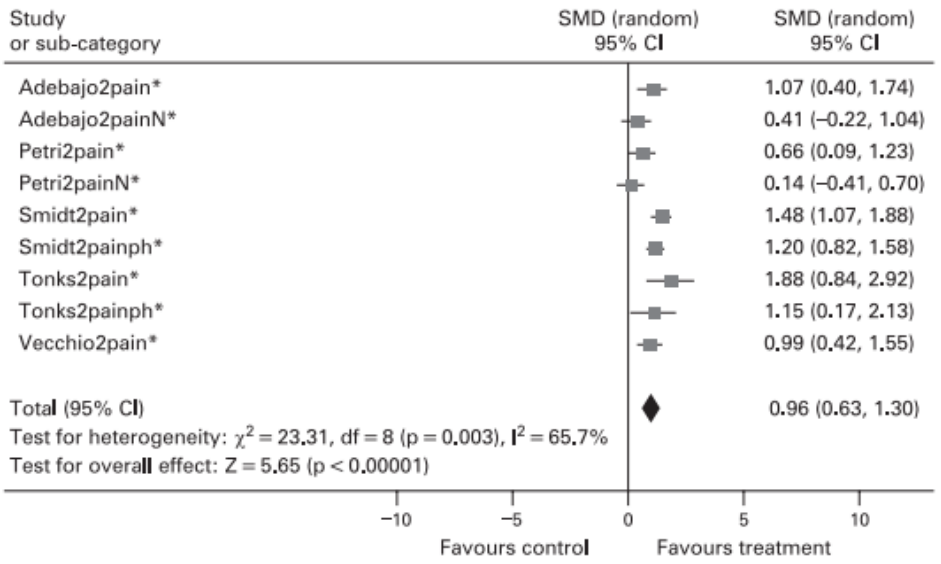


University of Michigan

Whether to Inject

- Systematic review
- 20 RCTs were analysed
  - 744 patients treated by injections
  - 987 patients treated by controls
  - 618 shoulders
  - 1113 elbows

Figure 1 Pain standardised response mean (SRM) at weeks 4–8 versus all comparators.



Gaujoux-Viala C, Dougados M, Gossec L.
Ann Rheum Dis. 2009 Dec;68(12):1843-9.

Whether to Inject

- Systematic review
- 20 RCTs were analysed
  - 744 patients treated by injections
  - 987 patients treated by controls
  - 618 shoulders
  - 1113 elbows

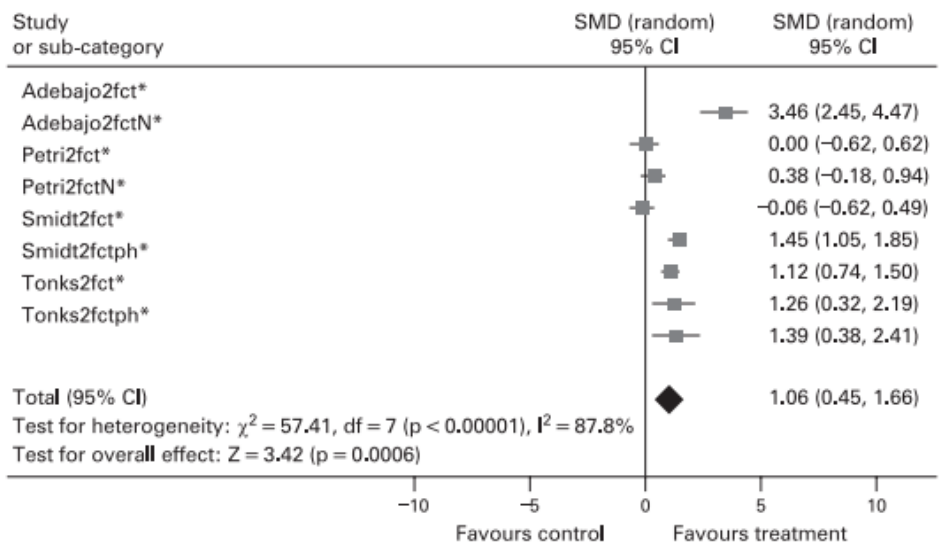


Figure 2 Function standardised response mean (SRM) at weeks 4–8 versus all comparators.

Gaujoux-Viala C, Dougados M, Gossec L.
Ann Rheum Dis. 2009 Dec;68(12):1843-9.

Whether to Inject

- Short-term effectiveness
  - (1–3 weeks and 4–8 weeks) of steroid injections in shoulder and elbow tendinosis on pain and functional disability
- Longer-term follow-up
  - no difference for pain could be detected
- Steroid injections appeared less effective for function than pooled other treatments.
- Compared to NSAIDs however, steroid injections did not appear statistically more efficacious in the short term!

Gaujoux-Viala C, Dougados M, Gossec L.
Ann Rheum Dis. 2009 Dec;68(12):1843-9.

Acromioclavicular Joint

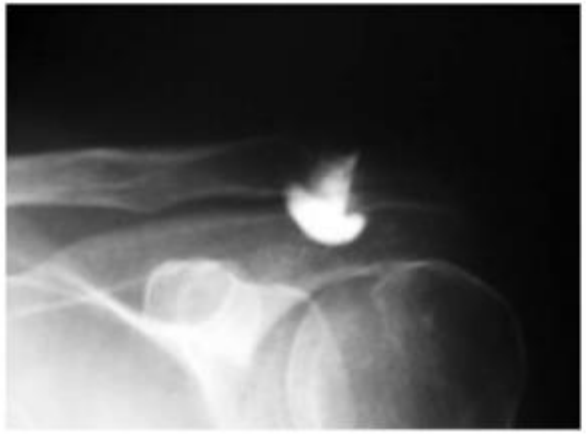


Figure 1. Radiograph demonstrating contrast dye within the acromioclavicular joint, indicative of an intra-articular injection.

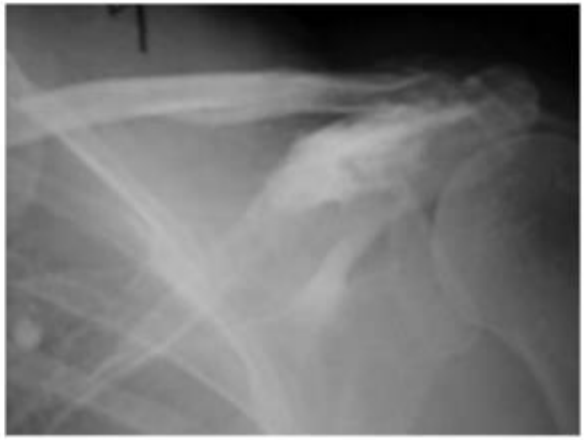


Figure 2. Radiograph demonstrating contrast dye outside the acromioclavicular joint, indicative of an extra-articular injection.

Of the 30 injections performed, 13 (43.3%) were intra-articular, 7 (23.3%) were partially articular, and 10 (33.3%) were extra-articular.
When the intra-articular and the partially articular groups were combined, 20 patients (66.7%) had some contrast dye in the AC joint.

Wasserman et al. Am J Sports Med 2013 41: 149

Landmark or ultrasound guided?

FIG. 3 RevMan data, pain scores at 6 weeks.

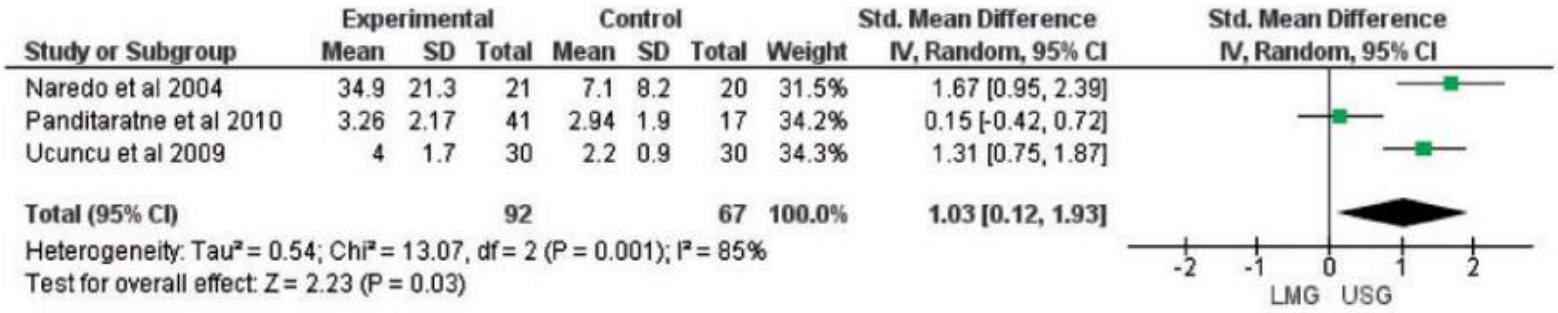
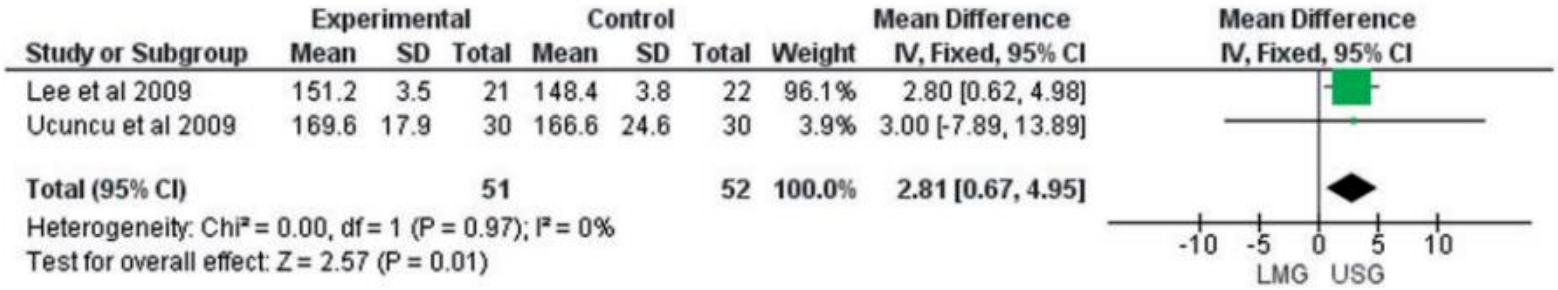


FIG. 4 RevMan data, ROM abduction at 6 weeks.



Sage, W et al. *Rheumatology* 52.4 (2013): 743-751.

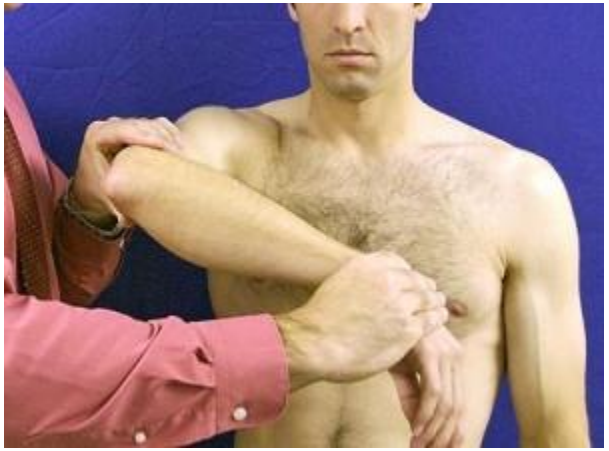
Landmark or ultrasound guided?

- Based upon moderate evidence from five trials:
  - our review was unable to establish any advantage in terms of pain, function, shoulder range of motion or safety, of ultrasound-guided glucocorticoid injection for shoulder disorders over either landmark-guided or intramuscular injection

Bloom JE et al. Image-guided versus blind glucocorticoid injection for shoulder pain. Cochrane Database of Systematic Reviews 2012, Issue 8

Rotator cuff disease

- US guided shoulder injection vs IM injection
- Inclusion criteria
  - shoulder pain for more than three months
  - pain on abduction
  - less than a 50% reduced glenohumeral range of motion in no more than one direction of external rotation, internal rotation, or abduction
  - pain on two of three isometric tests for abduction, external rotation, and internal rotation;
  - and a positive Hawkins-Kennedy impingement sign



Ekeberg Ole M et al. *BMJ* 2009; 338:a3112

Rotator cuff disease

No difference was seen between local and systemic therapy

Table 2 | Outcome measures

Measure	Local group (n=53)	Systemic group (n=53)	Difference in improvement (95% CI)	Adjusted difference (95% CI)	P value
Shoulder pain and disability index—mean (SD)					
Baseline	53 (18)	51 (17)	–	–	–
2 weeks	32 (25)	28 (23)	0.8 (−7.9 to 9.4)	–	–
6 weeks	29 (21)	32 (23)	−5.2 (−13.9 to 3.5)	−4.1 (−12.3 to 4.1)	0.32
Western Ontario rotator cuff index*—mean (SD)					
Baseline	45 (17)	47 (16)	–	–	–
2 weeks	64 (23)	63 (22)	3.0 (−4.6 to 10.6)	–	–
6 weeks	67 (21)	60 (22)	9.0 (1.2 to 16.8)	8.1 (0.7 to 15.6)	0.032
Abduction†—median (interquartile range)					
Baseline	131 (98-144)	126 (88-144)	–	–	–
2 weeks	140 (130-148)	133 (108-146)	−2 (−11 to 7)	–	–
6 weeks	141 (122-150)	121 (99-144)	−4 (−12 to 4)	−6 (−15.9 to 3.8)	0.23
Flexion†—median (interquartile range)					
Baseline	151 (132-160)	150 (129-158)	–	–	–
2 weeks	158 (148-164)	150 (134-161)	−4 (−10 to 1)	–	–
6 weeks	156 (148-166)	152 (132-160)	−2 (−8 to 5)	−4.4 (−14.7 to 5.9)	0.40
Pain at rest†—median					
Baseline	6.0	7.0	–	–	–
2 weeks	4.0	4.0	0 (−1.0 to 1.0)	–	–
6 weeks	3.0	5.0	1.0 (0 to 2.0)	−0.6 (−1.5 to 0.2)	0.13
Pain in activity†—median					
Baseline	6.0	7.0	–	–	–
2 weeks	3.0	2.0	0 (−1.0 to 1.0)	–	–
6 weeks	2.0	3.0	1.0 (0 to 2.0)	−0.5 (−1.1 to 0.2)	0.19
Change in main complaint†—median					
2 weeks	5.0	4.0	1.0 (0 to 2.0)	–	–
6 weeks	6.0	2.0	2.0 (0 to 4.0)	–‡	0.009§

*Local group n=52; systemic group n=52.
†Non-parametric statistics.
‡No adjustment possible for baseline score.
§Mann-Whitney test of hypothesis of difference between medians *v* no difference.

Ekeberg Ole M et al. *BMJ* 2009; 338:a3112

Adhesive Capsulitis

- All patients improved
- Steroid was associated with short but not long term benefits

TABLE V Shoulder Pain and Disability Index (SPADI) Score

	SPADI Score* *(points)*				
	Baseline	6 Weeks	14 Weeks	26 Weeks	52 Weeks
Intra-articular steroid	67 (44)	25 (44)	19 (44)	14 (44)	17 (44)
Intra-articular saline solution (2 mL) (control)	64 (49)	44 (49)	30 (49)	23 (49)	18 (49)

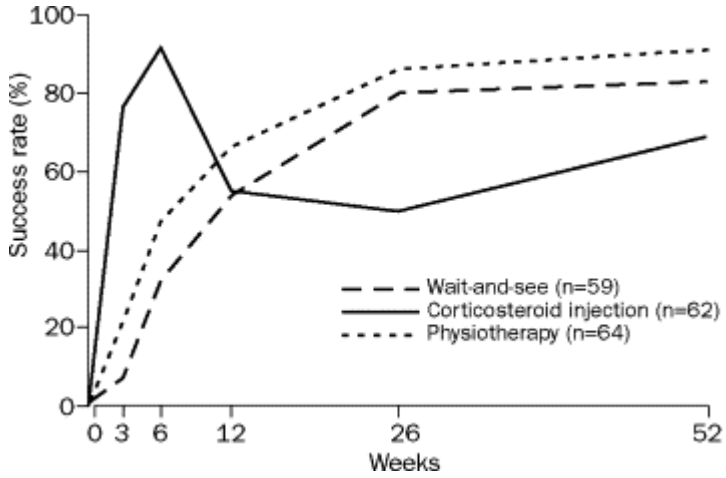
*The values are given as the mean, with the number of patients in parentheses.

Griesser, MJ, et al. *The Journal of Bone & Joint Surgery* 93.18 (2011): 1727-1733.

THE ELBOW

Tennis Elbow

- 185 patients with lateral epicondylitis of at least 6 weeks' duration
- Success rates were
  - 92% for injection
  - 47% for physiotherapy
  - 32% for wait-and-see
- But long term different..



Smidt N et al. Lancet. 2002

THE SPINE

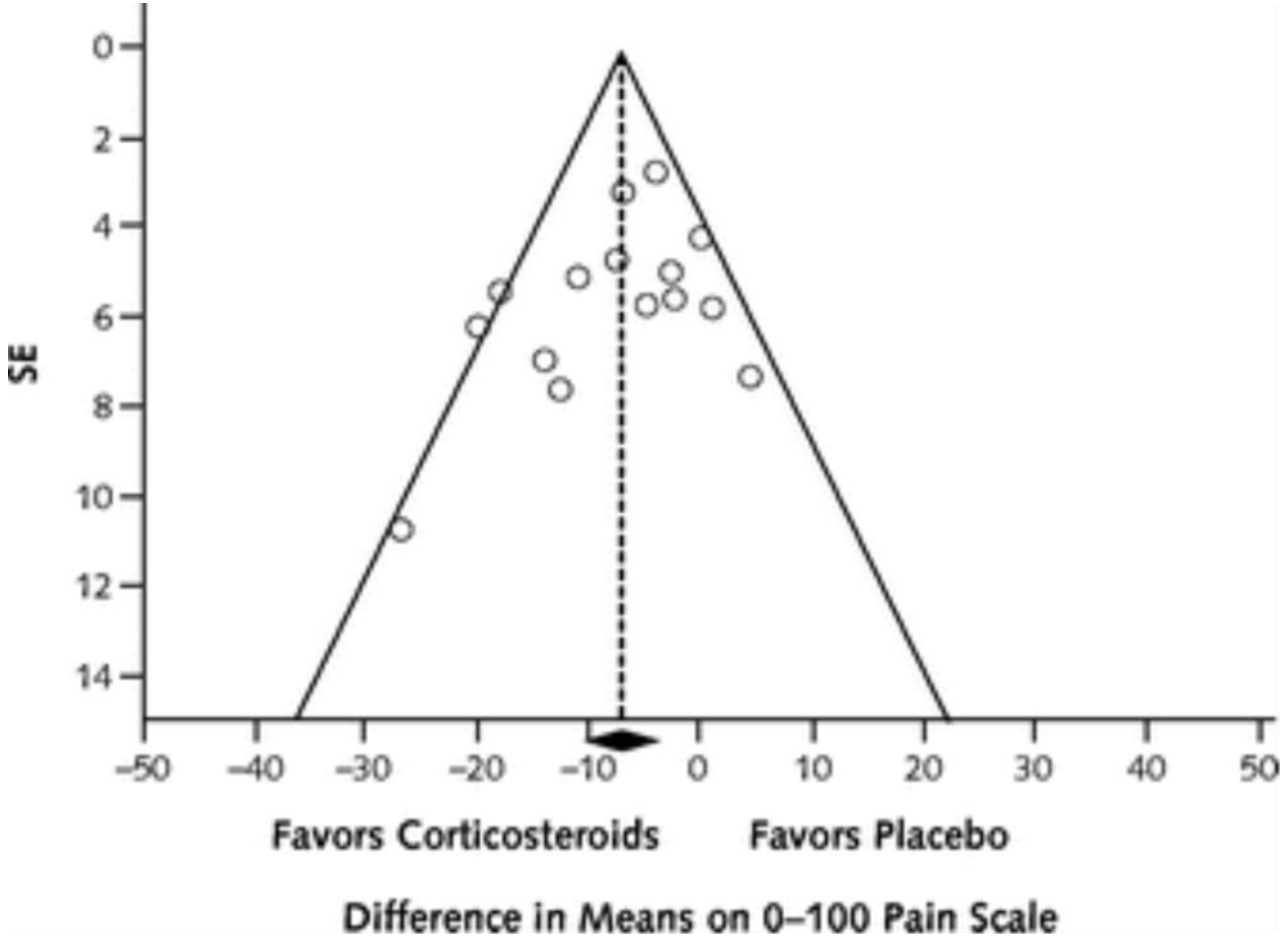
Spinal injections for Low Back Pain

- Guidelines from the United States, Europe, Italy, and the United Kingdom do not recommend injection therapy for chronic low back pain.
- Instead, they recommend brief education about
  - low back pain, back schools (ie, school-based education and skills programs, including exercises, supervised by a paramedical therapist or medical specialist), NSAIDs, opioid analgesics, back exercises, spinal manipulative therapy, multidisciplinary rehabilitation, and behavioral therapy.
- Based on available literature, injection therapy for low back pain and sciatica can be regarded as having limited clinical benefit.
- The reported guidelines indicate that clinicians currently have other more evidence-based and noninvasive treatment options at their disposal, such as:
  - NSAIDs in the acute phase and supervised exercise therapy and multidisciplinary rehabilitation in the chronic phase.

Staal J, Nelemans PJ, de Bie RA. Spinal Injection Therapy for Low Back Pain. *JAMA.* 2013;309(23):2439-2440.

Annals of Internal Medicine
Established in 1927 by the American College of Physicians

From: Epidural Corticosteroid Injections in the Management of Sciatica: A Systematic Review and Meta-analysis



Pinto RZ et al. Ann Intern Med. 2012 Dec 18;157(12):865-77.

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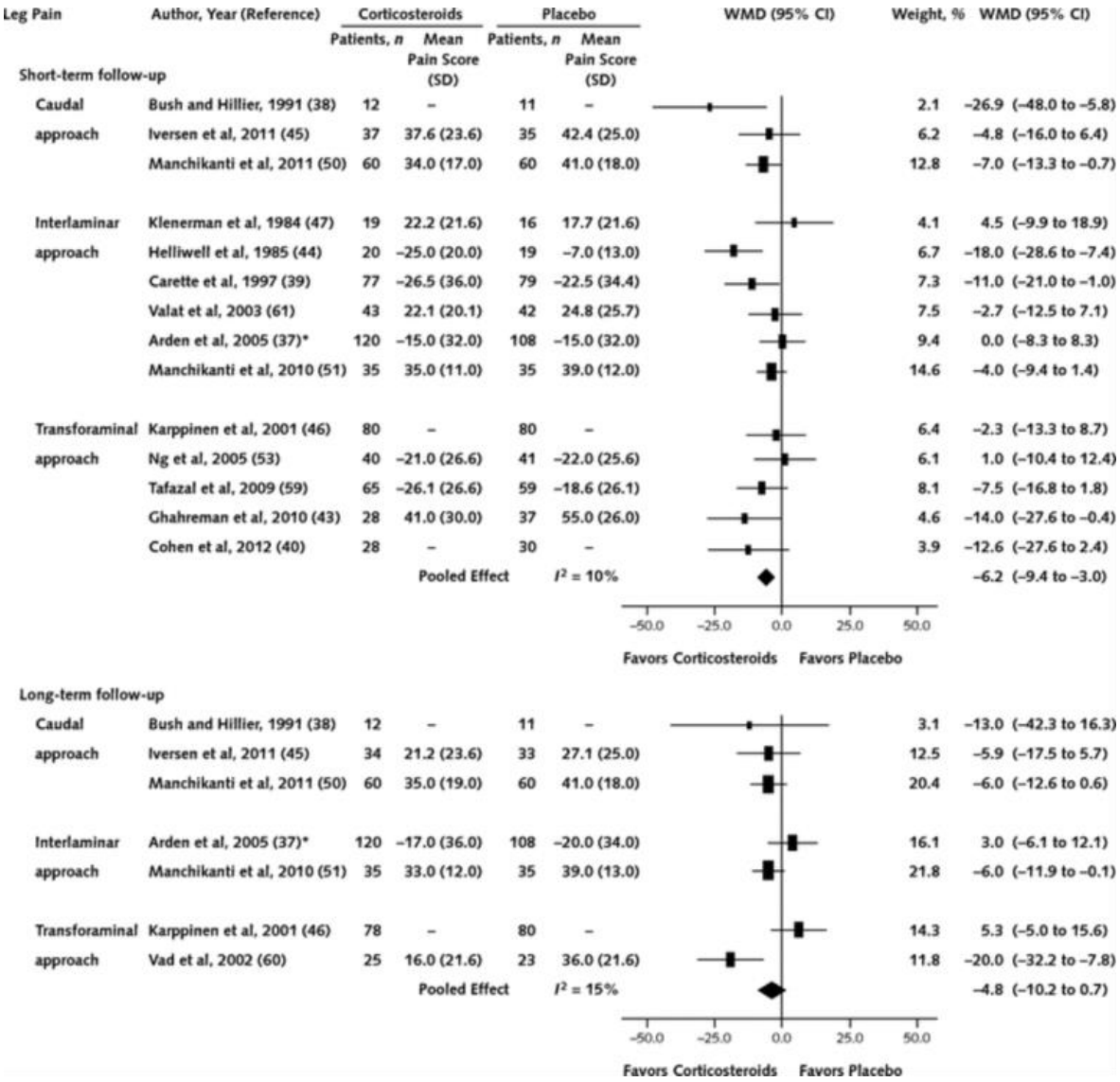

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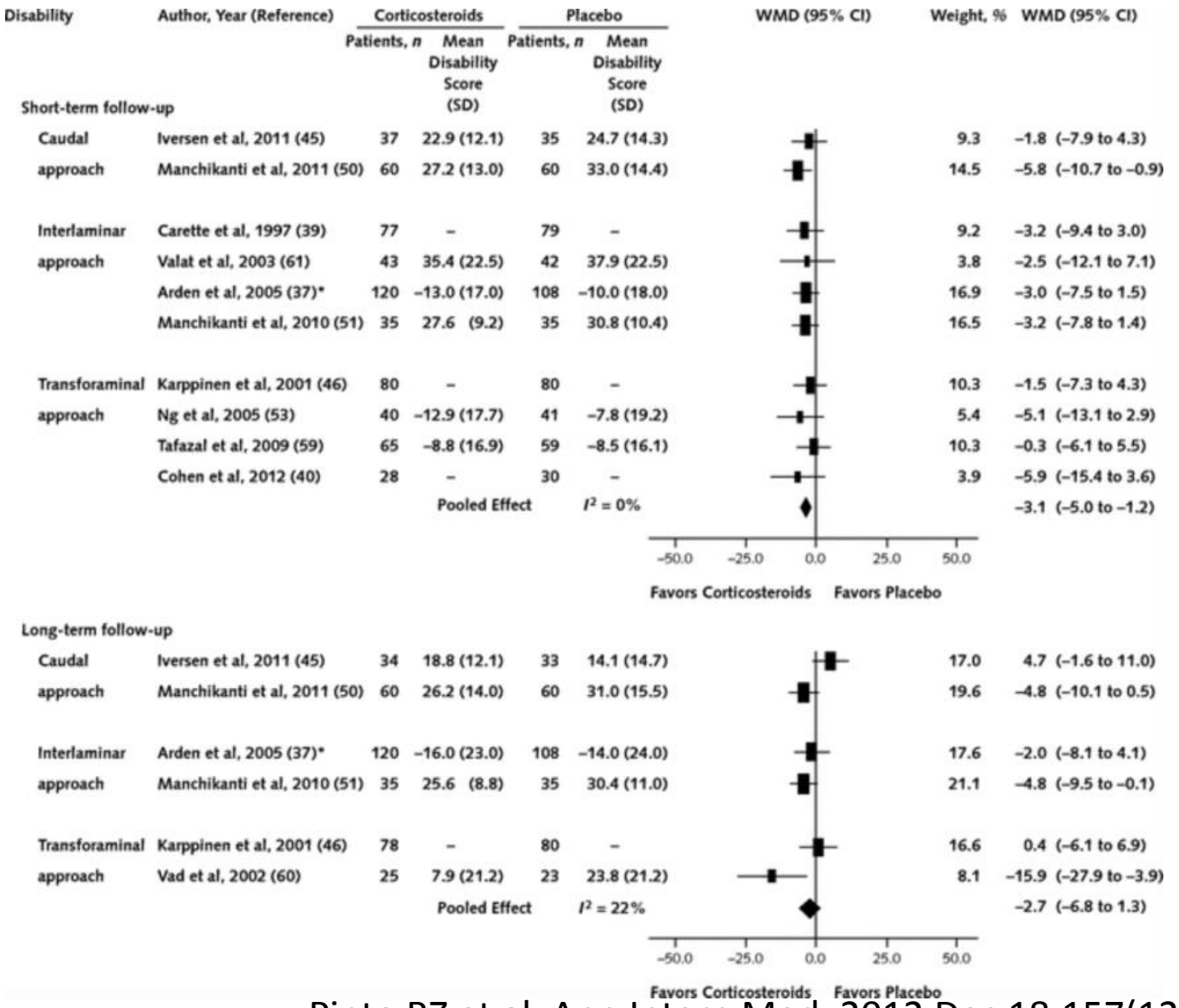

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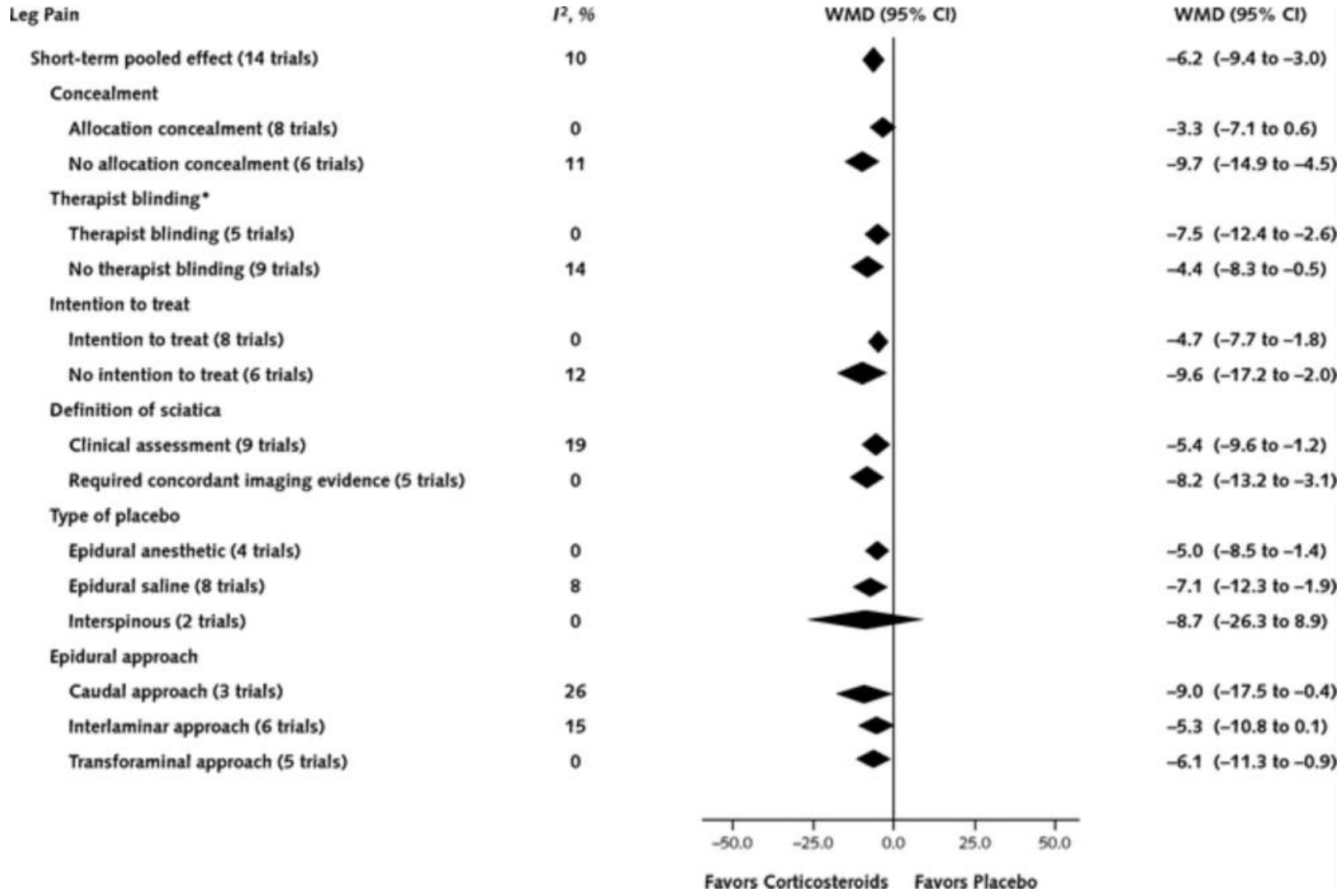

Pinto RZ et al. Ann Intern Med. 2012 Dec 18;157(12):865-77.

Epidural injections in Sciatica

- **Short-term effects are small and not likely to be clinically meaningful**.
  - Clinically important change: 10 to 30 points on a scale of 0 to 100
  - Between-group effects of 6 and 3 points observed, respectively, for pain and disability (on a scale of 0 to 100)
- The available evidence suggests that epidural corticosteroid injections offer only short-term relief of leg pain and disability for patients with sciatica.
- The small size of the treatment effects, however, raises questions about the clinical utility of this procedure in the target population.

Pinto RZ et al. Ann Intern Med. 2012 Dec 18;157(12):865-77.

Conclusions

- The evidence base behind most injections is weak
- Effects are generally short term (about 4-8 weeks) if present
- Consider alternatives
- However, anecdotally in individual patients can be very helpful!