

## **Short Question:**

### **Specific Question:**

In patients presenting with acute or chronic tendinopathies, what is the incidence of harm for those receiving steroid injections compared to those receiving usual care?

### **Clinical bottom line**

The best evidence from systematic reviews, that included adverse events, suggests that post injection pain and atrophy/depigmentation are the most common adverse events (9-10% and <1%-4% respectively) (Coombes 2013, Gaujoux-Viala 2009).

Serious side effects appear to be rare. In one review tendon rupture was reported in 2% (1/48) of people following Achilles tendon injection (Coombes 2010). However, this may be an overestimate due to the type of evidence available.

Specifically for **chronic lateral epicondylitis** (6 week symptom duration and over), steroid injection may result in poorer long term outcomes and greater recurrence at 12 months (Coombes 2013).

For more detailed evidence on the effectiveness of injections for tennis elbow, please see the CAT on:

*In an adult population is a corticosteroid injection therapy a safe and effective treatment for tennis elbow compared to usual care.*

### **Why is this important?**

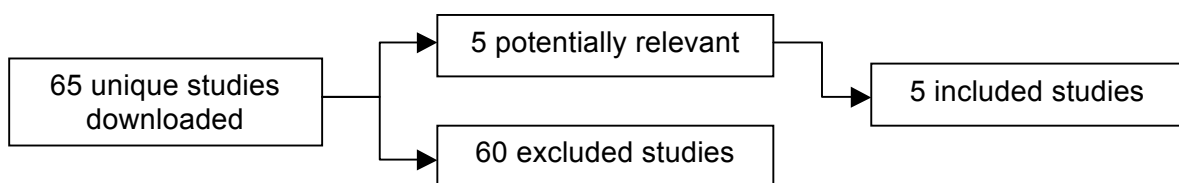
Injection therapy is a common intervention offered to patients with acute and chronic tendinopathies. The reported harm or side effects of corticosteroid injections, such as facial flushing and skin atrophy are reported in the literature. Worsening clinical outcome following this procedure should also be considered as 'harm'.

It is important that clinicians have up to date information on the evidence underpinning complications of this procedure to allow patient to make informed choices about treatment options.

## Inclusion Criteria

	Description	Search terms
<b>Population and Setting</b>	Adults with tendinopathy-symptom	Adult, tendinopathy, tendinitis, tennis elbow, lateral epicondylitis, patella ligament, tendon injuries, rotator cuff, shoulder impingement syndrome, shoulder pain, golfers elbow, medial epicondylitis, suprasin*, jumpers knee,
<b>Intervention or Exposure (ie what is being tested)</b>	Corticosteroid injection ( with or without local anaesthetic	Corticosteroid, injection, steroid, local anaesthetic
<b>Comparison, if any</b>		
<b>Outcomes of interest</b>	Tendon rupture	Rupture, tendon, adverse events, rupture, risk , safety, adverse events, complications
<b>Types of studies</b>	SR & RCTs only observational studies if no RCTs, longitudinal study	safety study

## Results



First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Coombes et al 2010 systematic review	Searched 8 databases without language or date restriction	RCTs assessing efficacy of one of more percutaneous injection with placebo or non surgical intervention for tendinopathy	<p>3824 trial identified, 41 met inclusion criteria data for 2672 participants)</p> <p>Of 991 participants included in trials reporting adverse events 0.1% had serious event (tendon rupture)</p> <p>Of 416 patients receiving steroid injection; 9% (38) cases of atrophy, 8% (31) experienced pain, 2% tendon rupture of Achilles tendon and &lt;1% (2) depigmentation</p>	Used trials that scored over 50% on modified physiotherapy evidence database scale
Bisset et al 2011 SR	Adults with lateral epicondylitis	Effective treatments for tennis elbow	80 SR, rcts and observational studies identified Corticosteroid injection may increase recurrence when compared to physio and wait and see. Repeated injections may lead to lower pain reduction and greater need for surgery than a single injection	Searched up to 2009, major databases included harms. Used GRADE to evaluate findings. Included studies had at least 20 patient per group and 80% follow up. No summary of harms data

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Date CAT completed: April 2014  
Date CAT to be reviewed: April 2016

<p>Coombes et al 2013, factorial RCT</p>	<p>Volunteers, aged 18 and over. Symptoms of lateral elbow pain for 6 week or longer . Community setting Brisbane Australia</p>	<p>4 arms 1.Cortico steroid injection 2.corticosteroid and physiotherapy 3 placebo injection 4 placebo injection and physiotherapy</p>	<p>Corticosteroid injection resulted in lower complete recovery at one year compared to placebo and resulted in greater recurrence</p>	<p>Good quality study. Blinding, appropriate outcomes, minimal loss to follow up, intention to treat analysis included</p>
<p>Gaujoux-Viala et al 2009</p>	<p>RCTs in French or English language</p>	<p>Steroid injection for shoulder or elbow tendonopathies</p>	<p>In 19 studies main side effects were transient pain after injection (10.7%) and skin atrophy or depigmentation (4.0%). No reported treatment discontinuations for toxicity</p>	<p>Good quality</p>
<p>Nicols 2005 Review including 25 RCTs, 18 case series</p>	<p>Athletic related injuries</p>	<p>Complication or risk associated with cortico steroid injection</p>	<p>22 RCTs examined efficacy, 3 retrospective or observational reports. 983 total number of subjects- only minor complications</p> <p>18 case series described complications of these tendon and fascia rupture most commonly reported</p>	<p>Only 3 data bases searched</p> <p>Narrative review</p> <p>No detail of methods used data analysis</p>

## Summary

The most commonly reported adverse events were, post injection pain, local atrophy, skin atrophy and pigmentation.

The best evidence available was from the Coombes et al review (2010) that reported rates of 9% for atrophy, less than 1% for depigmentation, 8% for pain and 2% for tendon rupture of Achilles tendon. This review's main aim was to evaluate effectiveness of injections and may not have searched as comprehensively for adverse events studies. However, other reviews and studies reported similar rates. The case series reported higher rates for tendon ruptures but this is expected due to the potential for bias leading to over-reporting in this type of study.

However, the use of corticosteroid injections specifically for lateral epicondylitis, according to evidence from one recent RCT, cannot be recommended at present (Coombes 2013). In this trial corticosteroid injection resulted in worse outcomes after 12 months than placebo, as well as a higher rate of recurrence of symptoms.

## Implications for practice

The levels of serious adverse events, following a corticosteroid injection, remain low.

A good quality systematic review that focuses on adverse effects and harm as a primary outcome is needed to provide a robust answer to this question. This is only possible if adverse events are recorded and reported in a consistently in RCTs and large cohort studies and then this is synthesised in systematic reviews.

Services that assess and manage patients with lateral epicondylitis of longer than 6 weeks duration may want to consider their pathways of care for this patient group. Corticosteroid injection is associated with recurrence and poorer recovery at 12 months for this group of patients.

## References

Bisset, L., Coombes, B., Vicenzino, B. (2011). "Tennis elbow." Clinical Evidence (Online) 2011. 1117

Coombes, B. K., Bisset, L., Brookes, P., Khan, A., Vicenzino, B. (2013). "Effect of corticosteroid injection, physiotherapy, or both on clinical outcomes in patients with unilateral lateral epicondylalgia: a randomized controlled trial." JAMA 309(5): 461-469.

Coombes, B. K., Bissett, L., Vincenzo, B. (2010). "Efficacy and safety of corticosteroid injections and other injections for management of tendinopathy: a systematic review of randomised controlled trials." Lancet 376(9754): 1751-1767.

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