

studies. Such withdrawals seem unavoidable in long-term clinical trials. Fifth, patients in the trials were mostly men with cardiovascular risk (men only in two trials), thus, no conclusions can be made about women and patients with no cardiovascular risk. The mechanisms of colon carcinogenesis might differ between cardiovascular and other patients—eg, because of increased tobacco consumption. Finally, after completion of the randomised periods of the trials, all patients were exposed to aspirin, which would have underestimated its benefits.

No randomised trial is currently exploring the effect of aspirin on colorectal cancer. In a prospective cohort study of 1279 men and women, regular aspirin use after colorectal cancer diagnosis was associated with a reduced risk of cancer-specific and overall mortality, specifically in patients whose initial tumour overexpressed COX-2.³³

This interesting study could incite clinicians to turn to primary prevention of colorectal cancer by aspirin, at least in high risk-populations. Specific guidelines for aspirin chemoprevention would be the next logical step.

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Corticosteroids: short-term gain for long-term pain?

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Although the 1949 discovery of cortisone was a medical landmark, it is still unclear whether this widely used treatment benefits patients with tendon pain. In *The Lancet* today, Brooke Coombes and colleagues¹ evaluate whether corticosteroid injection helps or harms patients with tendinopathies. This question is relevant not only for physicians, but also for other health professionals such as those physiotherapists whose extended scope of practice includes corticosteroid injection. Coombes and colleagues' systematic review examines the outcome of patients with tendinopathy at 4 weeks, 6 months, and 12 months after corticosteroid injections. These important long-term outcomes have been largely overlooked in reports of the efficacy and safety of corticosteroid injections.

Coombes and colleagues show that tendons behave differently at various anatomical sites. Importantly, today's review might discourage clinicians from

using corticosteroids in patients who are seeking medium-term and long-term cures. For lateral elbow tendinopathy (tennis elbow), there was a 21% reduction in the relative risk of overall improvement 1 year after corticosteroid injection compared with patients allocated to wait and see (relative risk 0.79, 95% CI 0.69–0.90). When considered alongside the higher absolute risk of recurrence of 63%,² this discovery is crucial because it alerts clinicians to the potential deleterious effect of corticosteroid injections that are unrelated to complications of the injection itself.

Conventional dogma has been that as long as corticosteroid injection did not cause an acute complication (eg, subcutaneous atrophy, tendon rupture), it was not harmful.³ Thus clinicians and patients often considered injection to be worth a shot. For lateral elbow tendinopathy, Coombes and colleagues' analysis implies

that corticosteroid treatment might delay the recovery that would come with wait and see or other treatments. In the meta-analysis, for patients who, on average, had four repeat corticosteroid injections for elbow pain, there was a 57% reduction in success rate at 18 months (0.43, 0.25–0.75) compared with those who had no intervention. Nevertheless, the clinical implication is that one corticosteroid injection is not helpful for elbow pain at 6 or 12 months, and that multiple injections do not improve outcome. For patients with rotator cuff tendon pain, Coombes and colleagues reported no benefit at 6 or 12 months after corticosteroid treatment. This finding is consistent with the 2009 Cochrane review of subacromial corticosteroid injection for shoulder pain.⁴ Whilst corticosteroid injection does not impair recovery of shoulder tendinopathy, patients should be advised that evidence for even short-term benefits at the shoulder is limited.⁴

Is Coombes and colleagues' review a nail in the corticosteroid coffin? Not at all. Corticosteroids provide short-term relief for tendon pain at the elbow. In one study in Coombes and colleagues' analysis, patients with patellar tendinopathy responded to corticosteroid injection in the short term. Only one randomised trial of corticosteroid injection at the Achilles tendon was assessed (likely ineffective). As the investigators alert us to the apparent deleterious medium-term and long-term effects of corticosteroids in elbow tendinopathy, they also provide reassurance that corticosteroid injections are rarely associated with acute tendon rupture. This comprehensive meta-analysis highlights that patients who agree to receive other injection treatments, such as plasma-rich protein, prolotherapy, or sodium hyaluronate injections, should do so in the spirit of research volunteerism. The meta-analysis could not find good-quality trials of these alternative therapies. Participation in clinical trials is laudable, and additional data will eventually clarify best practice; however, as yet there is no compelling evidence that any injection for tendinopathy is a magic bullet.

So where does that leave the clinician? Non-steroidal anti-inflammatory drugs have no randomised trial evidence,⁵ expert opinion support,⁶ or a plausible mechanism to promote tendon healing, and might inhibit tendon healing.⁷ The evidence for specific exercise therapy is more encouraging than the evidence for corticosteroid injection,^{2,8–10} and exercise therapy is likely to promote protein synthesis via cell signalling (mechanotransduction).¹¹ Specific exercise therapy might



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produce more cures at 6 and 12 months than one or more corticosteroid injections, and such was the case in Coombes and colleagues' analysis.

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