

Cortisone and Corticosteroid Injections

Overview

- Response to intra-articular corticosteroid injection was not associated with differences in 10-year patient-reported outcomes, achievement of clinically significant outcomes, or reoperation rates for patients undergoing hip arthroscopy for femoroacetabular impingement syndrome [1].
- The combination of corticosteroid and hyaluronic acid injection is more effective than corticosteroid alone in relieving pain in ankle osteoarthritis [2].
- Preoperative corticosteroid injection at all studied timepoints was not associated with an increased risk of postoperative deep infection after carpal tunnel release [3].
- There is a statistically significant difference in pain during and shortly after injection when using a steroid with lidocaine versus steroid alone for trigger finger, but that difference may not be clinically relevant [4].
- Intraoperative corticosteroid pillar injection is not an effective option for preventing pillar pain symptoms after carpal tunnel release surgery [5].
- High-dose triamcinolone injections outperformed low-dose injections across most metrics including estimated time of relief, rate of repeat injection, and rate of surgery for soft tissue pathology of the hand [6].
- Timing of a single preoperative corticosteroid injection within 1 year of rotator cuff repair did not significantly affect failure rates, patient-reported outcomes, range of motion, or strength [7].
- Both surgical procedures are indicated for painful thumb carpometacarpal osteoarthritis after steroid injections [8].
- Repeated corticosteroid injections were found to be safe in the treatment of carpal tunnel syndrome and did not affect the morbidity of subsequent release [9].

How It Works

- Response to intra-articular corticosteroid injection is not associated with differences in 10-year patient-reported outcomes, achievement of clinically significant outcomes, or reoperation rates in patients undergoing hip arthroscopy for femoroacetabular impingement syndrome [1].

- Combination of corticosteroid and hyaluronic acid injection is more effective than corticosteroid alone in relieving pain in ankle osteoarthritis [2].
- Preoperative corticosteroid injection at all studied timepoints is not associated with an increased risk of postoperative deep infection after carpal tunnel release [3].
- There is a statistically significant difference in pain during and shortly after injection when using a steroid with lidocaine versus steroid alone, but that difference may not be clinically relevant [4].
- Intraoperative corticosteroid pillar injection is not an effective option for preventing pillar pain symptoms after carpal tunnel release surgery [5].
- High-dose triamcinolone injections outperformed low-dose injections across most metrics including estimated time of relief, rate of repeat injection, and rate of surgery for soft tissue pathology of the hand [6].
- Timing of a single preoperative corticosteroid injection within 1 year of rotator cuff repair did not significantly affect failure rates, patient-reported outcomes, range of motion, or strength [7].
- Both surgical procedures are indicated for painful thumb carpometacarpal osteoarthritis after steroid injections [8].
- Repeated corticosteroid injections are safe in the treatment of carpal tunnel syndrome and do not affect the morbidity of subsequent release [9].
- Risks of intra-articular hip corticosteroid injections include rapidly progressive osteoarthritis, osteonecrosis, femoral head collapse, insufficiency fracture, and worsening osteoarthritis [11].
- Both corticosteroid injections and conservative treatments are effective in treating heel spurs, with corticosteroid injections recommended as the preferred option due to higher patient satisfaction [12].
- Patients who experienced temporary improvement after local corticosteroid injection had better clinical outcomes following endoscopic plantar fascia release [15].
- Posterior approach, women, and history of preoperative corticosteroid injection are identified as the strongest risk factors for postoperative greater trochanter bursitis injection or postoperative soft tissue injection in total hip arthroplasty [18].
- A dose-dependent relationship exists between pre-operative corticosteroid injections and post-operative complications following total shoulder arthroplasty, with increasing numbers of injections correlated with higher risks of prosthetic loosening, stiffness, revision surgery, and new rotator cuff disease [19].

What the Evidence Shows

PREOPERATIVE INJECTIONS AND SURGICAL OUTCOMES

- Response to preoperative intra-articular corticosteroid injection for hip arthroscopy in femoroacetabular impingement syndrome was not associated with differences in 10-year patient-reported outcomes, achievement of clinically significant outcomes, or reoperation rates [1].
- Preoperative corticosteroid injection at all studied timepoints was not associated with an increased risk of postoperative deep infection after carpal tunnel release [3].

- Timing of a single preoperative corticosteroid injection within 1 year prior to rotator cuff repair was not associated with increased risk of repair failure, nor did it significantly affect patient-reported outcomes, range of motion, or strength [7].
- Both surgical procedures are indicated for painful thumb carpometacarpal osteoarthritis after steroid injections [8].
- Patients who experienced temporary improvement after local corticosteroid injection had better clinical outcomes following endoscopic plantar fascia release for chronic plantar fasciopathy [15].

COMPARATIVE EFFICACY AND TREATMENT ALTERNATIVES

- The combination of corticosteroid and hyaluronic acid injection is more effective than corticosteroid alone in relieving pain in ankle osteoarthritis [2].
- High-dose triamcinolone injections outperformed low-dose injections across most metrics, including estimated time of relief, rate of repeat injection, and rate of surgery, for soft tissue pathology of the hand [6].
- Platelet-rich plasma (PRP) has superior midterm efficacy compared to corticosteroids for improving pain and functional impairment in tendinopathy [20].
- In patients with adhesive capsulitis, suprascapular nerve blocks provide greater pain relief at 3-4, 6-7, and 12 weeks, greater improvements in shoulder function at 12 weeks, and greater active abduction at 12 weeks compared to intra-articular corticosteroid injections [21].
- Corticosteroid injections are recommended as the preferred option over conservative treatments for heel spurs due to higher patient satisfaction, although both are effective [12].

INJECTION TECHNIQUE AND SAFETY

- There is a statistically significant difference in pain during and shortly after injection when using a steroid with lidocaine versus steroid alone for trigger finger, but that difference may not be clinically relevant [4].
- Intraoperative corticosteroid pillar injection is not an effective option for preventing pillar pain symptoms after carpal tunnel release surgery [5].
- Repeated corticosteroid injections for carpal tunnel syndrome are safe and do not affect the morbidity of subsequent release [9].
- Postoperative corticosteroid injection is a viable treatment for postoperative stiffness after rotator cuff repair and may serve as a safer alternative to arthroscopic capsular release, particularly in high-risk patients such as those with osteoporosis or at risk of axillary nerve injury [16].

RISKS AND ADVERSE EVENTS

- Risks of intra-articular hip corticosteroid injections include rapidly progressive osteoarthritis, osteonecrosis, femoral head collapse, insufficiency fracture, and worsening osteoarthritis, although the incidence rates of these outcomes vary notably [11].

HEALTH DISPARITIES

- Minority demographics have lower odds of receiving corticosteroid injections for the treatment of hand osteoarthritis [13].
- Minority demographics were less likely to receive a corticosteroid injection or undergo surgical repair for rotator cuff disease despite matching on medical comorbidities and smoking status [14].

METHODOLOGICAL NOTES

- Methodological concerns regarding a trial comparing platelet-rich plasma to corticosteroid injections include the lack of ultrasound examination to assess inflammation and degeneration, the absence of Kellgren-Lawrence grade distribution data, and the potential confounding effect of lidocaine in corticosteroid preparations [10].

Practical Considerations

- Response to preoperative intra-articular corticosteroid injection is not associated with differences in 10-year patient-reported outcomes, achievement of clinically significant outcomes, or reoperation rates in patients undergoing hip arthroscopy for femoroacetabular impingement syndrome [1].
- Dual intra-articular injections of corticosteroid and hyaluronic acid are more effective than single corticosteroid injection alone in relieving pain in ankle osteoarthritis [2].
- Preoperative corticosteroid injection at all studied timepoints is not associated with an increased risk of postoperative deep infection after carpal tunnel release [3].
- There is a statistically significant difference in pain during and shortly after injection when using a steroid with lidocaine versus steroid alone for trigger finger, but that difference may not be clinically relevant [4].
- Intraoperative corticosteroid pillar injection is not an effective option for preventing pillar pain symptoms after carpal tunnel release surgery [5].
- High-dose triamcinolone injections outperform low-dose injections across most metrics, including estimated time of relief, rate of repeat injection, and rate of surgery, for soft tissue pathology of the hand [6].
- Timing of a single preoperative corticosteroid injection within 1 year of rotator cuff repair does not significantly affect failure rates, patient-reported outcomes, range of motion, or strength [7].
- Both surgical procedures are indicated for painful thumb carpometacarpal osteoarthritis after steroid injections [8].
- Repeated corticosteroid injections are safe in the treatment of carpal tunnel syndrome and do not affect the morbidity of subsequent release [9].
- Methodological concerns regarding a trial comparing platelet-rich plasma to corticosteroid injections include the lack of ultrasound examination to assess inflammation and degeneration, the absence of Kellgren-Lawrence grade distribution data, and the potential confounding effect of lidocaine in corticosteroid preparations [10].

- Risks of intra-articular hip corticosteroid injections include rapidly progressive osteoarthritis, osteonecrosis, femoral head collapse, insufficiency fracture, and worsening osteoarthritis, although the incidence rates of these outcomes vary notably [11].
- Both corticosteroid injections and conservative treatments are effective in treating heel spurs, but corticosteroid injections are recommended as the preferred option due to higher patient satisfaction [12].
- Minority demographics have lower odds of receiving corticosteroid injections for the treatment of hand osteoarthritis [13].
- Minority demographics are less likely to receive a corticosteroid injection or undergo surgical repair for rotator cuff disease despite matching on medical comorbidities and smoking status [14].
- Postoperative corticosteroid injection is a viable treatment for postoperative stiffness after rotator cuff repair and may serve as a safer alternative to arthroscopic capsular release, particularly in high-risk patients such as those with osteoporosis or at risk of axillary nerve injury [16].
- Platelet-rich plasma injections are inferior to corticosteroid injections for short-term pain relief, suggesting that expectations regarding the clinical utility of PRP should be tempered [17].

Key Evidence

- [L2] Response to intra-articular corticosteroid injection was not associated with differences in 10-year patient-reported outcomes, achievement of clinically significant outcomes, or reoperation rates. [1] ([10.1016/j.arthro.2025.07.013](https://doi.org/10.1016/j.arthro.2025.07.013))
- [L1] The combination of corticosteroid and HA injection is more effective than corticosteroid alone in relieving pain in ankle OA. [2] ([10.1186/s12891-025-08488-0](https://doi.org/10.1186/s12891-025-08488-0))
- [L3] Preoperative corticosteroid injection at all studied timepoints was not associated with an increased risk of postoperative deep infection, a divergence from existing literature. [3] ([10.5435/jaaos-d-25-00317](https://doi.org/10.5435/jaaos-d-25-00317))
- [L2] There is a statistically significant difference in pain during and shortly after injection when using a steroid with lidocaine versus steroid alone, but that difference may not be clinically relevant. [4] ([10.1016/j.jhsa.2024.05.016](https://doi.org/10.1016/j.jhsa.2024.05.016))
- [L1] Intraoperative corticosteroid pillar injection is not an effective option for preventing pillar pain symptoms. [5] ([10.1186/s12891-025-09393-2](https://doi.org/10.1186/s12891-025-09393-2))
- [L4] High-dose triamcinolone injections outperformed low-dose injections across most metrics including estimated time of relief, rate of repeat injection, and rate of surgery. [6] ([10.1016/j.jhsa.2025.09.014](https://doi.org/10.1016/j.jhsa.2025.09.014))
- [L2] Timing of a single preoperative corticosteroid injection within 1 year of rotator cuff repair did not significantly affect failure rates, patient-reported outcomes, range of motion, or strength, suggesting that one injection before repair does not strongly influence outcomes. [7] ([10.1016/j.jseint.2026.101632](https://doi.org/10.1016/j.jseint.2026.101632))
- [L4] Both procedures are indicated for painful thumb carpometacarpal osteoarthritis after steroid injections. [8] ([10.1016/j.jhsa.2026.01.024](https://doi.org/10.1016/j.jhsa.2026.01.024))
- [L3] Repeated injections were found to be safe in the treatment of carpal tunnel syndrome and did not affect the morbidity of subsequent release. [9] ([10.1177/17531934251396629](https://doi.org/10.1177/17531934251396629))

- [L5] The letter highlights methodological concerns regarding the original trial, specifically the lack of ultrasound examination to assess inflammation and degeneration, the absence of Kellgren-Lawrence grade distribution data, and the potential confounding effect of lidocaine in corticosteroid preparations. [10] ([10.1016/j.arth.2025.05.006](#))
- [L5] Risks of intra-articular hip corticosteroid injections include rapidly progressive osteoarthritis, osteonecrosis, femoral head collapse, insufficiency fracture, and worsening osteoarthritis, although the incidence rates of these outcomes vary notably. [11] ([10.1016/j.asmr.2025.101169](#))
- [L3] Both corticosteroid injections and conservative treatments were effective in treating heel spurs; however, corticosteroid injections are recommended as the preferred option due to higher patient satisfaction. [12] ([10.1186/s12891-025-08648-2](#))
- [L3] Minority demographics have lower odds of receiving corticosteroid injections for the treatment of hand osteoarthritis. [13] ([10.1016/j.jhsg.2025.100837](#))
- [L3] Minority demographics were less likely to receive a corticosteroid injection or undergo surgical repair for rotator cuff disease despite matching on medical comorbidities and smoking status. [14] ([10.1016/j.jse.2026.01.015](#))
- [L3] Patients who experienced temporary improvement after local corticosteroid injection had better clinical outcomes following endoscopic plantar fascia release. [15] ([10.1186/s12891-025-08816-4](#))
- [L5] Current findings suggest that corticosteroid injections may serve as a safer alternative to arthroscopic capsular release, particularly in high-risk patients such as those with osteoporosis or at risk of axillary nerve injury. [16] ([10.1016/j.arthro.2025.04.021](#))
- [L1] Based on these findings, expectations regarding the clinical utility of PRP should be tempered. [17] ([10.1016/j.arth.2025.03.013](#))
- [L3] Posterior approach, women, and history of preoperative corticosteroid injection were identified as the strongest risk factors for postoperative greater trochanter bursitis injection or postoperative soft tissue injection. [18] ([10.1016/j.arth.2025.03.045](#))
- [L2] A dose-dependent relationship exists between pre-operative corticosteroid injections and post-operative complications following total shoulder arthroplasty, with increasing numbers of injections correlated with higher risks of prosthetic loosening, stiffness, revision surgery, and new rotator cuff disease. [19] ([10.1016/j.jse.2026.01.024](#))
- [L1] PRP can effectively improve pain and functional impairment in patients with tendinopathy, and its midterm efficacy is superior to that of corticosteroids. [20] ([10.1186/s12891-025-08566-3](#))
- [L1] In patients with adhesive capsulitis, suprascapular nerve blocks provide greater pain relief at 3-4, 6-7, and 12 weeks, greater improvements in shoulder function at 12 weeks, and greater active abduction at 12 weeks, compared to intra-articular corticosteroid injections. [21] ([10.1016/j.jse.2025.05.037](#))

References

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