

# Enhanced recovery after cervical spine surgery

see [Enhanced recovery after cervical laminoplasty](#).

[Enhanced recovery after surgery](#) (ERAS) [pathways](#) are associated with improved [outcomes](#), lower [morbidity](#) and [complications](#), and higher patient [satisfaction](#) in multiple surgical subspecialties. Despite these gains, there are few data to guide the application of ERAS concepts to [spine surgery](#).

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Elsarrag et al., conducted a [systematic review](#) of the PubMed and MEDLINE databases up to November 20, 2018.

Twenty full-text articles were included in the qualitative analysis. The majority of studies were retrospective reviews of nonrandomized data sets or qualitative investigations lacking formal control groups; there was 1 protocol for a future randomized controlled trial. Most studies demonstrated reduced lengths of stay and no increase in rates of readmissions or complications after introduction of an ERAS pathway.

These introductory studies demonstrate the potential of ERAS protocols, when applied to spine procedures, to reduce lengths of stay, accelerate return of function, minimize postoperative pain, and save costs <sup>1)</sup>.

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The introduction of the ERAS approach at Debono et al., institution for spinal fusion for three studied conditions resulted in a significant decrease in LOS without causing increased postoperative complications. Patient satisfaction with overall management, upstream organization of hospitalization, and the use of e-health was high. According to the study results, which are consistent with those in other studies, the whole concept of ERAS (primarily reducing complications and pain, and then reducing LOS) seems applicable to spinal surgery <sup>2)</sup>.

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Soffin et al., report the development and implementation of the first ERAS pathway for patients undergoing [anterior cervical discectomy and fusion](#) (ACDF) and [cervical disc arthroplasty](#) (CDA).

This was a retrospective cohort study of prospectively collected data. The authors created a multidisciplinary pathway based on best available evidence for interventions that positively influence outcomes after anterior cervical spine surgery. Patients were followed prospectively up to postoperative day 90. Patient data were collected via [electronic medical record review](#) and included demographics, comorbidities, [baseline](#) and perioperative [opioid](#) use, [postoperative complications](#), and hospital [length of stay](#) (LOS). ERAS process measures and compliance with pathway elements were also tracked.

Thirty-three patients were cared for under the pathway (n = 25 ACDF; n = 8 CDA). The median LOS was 416 minutes (interquartile range [IQR] 210-1643 minutes). Eight patients required an extended stay-longer than 23 hours. Reasons for extended admission included [pain](#) (n = 4), [dyspnea](#) (n = 1),

hypoxia (n = 1), hypertension (n = 1), and dysphagia (n = 1). The median LOS for the 8 patients who required extended monitoring prior to discharge was 1585 minutes (IQR 1423-1713 minutes). Overall pathway compliance with included process measures was 85.6%. The median number of ERAS process elements delivered to each patient was 18. There was no strong association between LOS and number of ERAS process elements provided (Pearson's  $r = -0.20$ ). Twelve percent of the cohort was opioid tolerant on the day of surgery. There were no significant differences between total intraoperatively or postanesthesia care unit-administered opioid, or LOS, between opioid-tolerant and opioid-naïve patients. There were no complications requiring readmission.

An ERAS pathway for anterior cervical spine surgery facilitates safe, prompt discharge. The ERAS pathway was associated with minimal complications, and no readmissions within 90 days of surgery. Pain and respiratory compromise were both linked with extended LOS in this cohort. Further prospective studies are needed to confirm the potential benefits of ERAS for anterior cervical spine surgery, including longer-term complications, cost, and functional outcomes <sup>3)</sup>.

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Last update: **2024/06/07 02:55**

