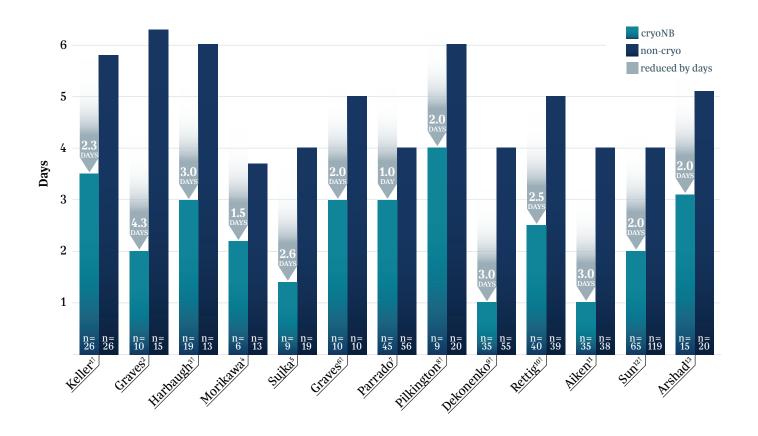
Cryo Nerve Block Therapy

A Review of Current Literature

Post-Operative Length of Stay: Pectus Excavatum Repair

Across 13 peer-reviewed publications, patients treated with cryoNB had a reduced length of stay between 1 and 4 days.



†Study primary outcome was post-operative length of stay.

- 1. DiFore, J. et al; was a single arm study where 92.5% (37/40) patients were discharged same day.
- 2. Fraser, J. et al; was a single arm study where the median LOS was 25.6 hours (IQR 22.4, 31.7).
- 3. Mehl, S. et al; cryoablation was associated with decreased length of stay (-1.94, 95% CI [-2.30- -1.57]).



^{*}Three studies published between 2019-2022 reported LOS outcomes differently.

References:

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- 2. Graves, C. et al. (2017). Intraoperative cryoanalgesia for managing pain after the Nuss procedure. J Pediatr Surg, 52:920-4.
- 3. Harbaugh, C.M. et al.(2018). Comparing outcomes with thoracic epidural and intercostal nerve cryoablation after Nuss procedure. J Surg Res, 231:217-23.
- 4. Morikawa, N. et al. (2018). Cryoanalgesia in Patients Undergoing Nuss Repair of Pectus Excavatum: Technique Modification and Early Results. J Laparoendosc Adv Surg Tech A, 28:1148-51.
- 5. Sujka, J. et al. (2018). Outcomes Using Cryoablation for Postoperative Pain Control in Children Following Minimally Invasive Pectus Excavatum Repair. J Laparoendosc Adv Surg Tech A, 28:1383-6.
- 6. Graves, C.E. et al. (2019). Intraoperative intercostal nerve cryoablation during the Nuss procedure reduces length of stay and opioid requirement: A randomized clinical trial. J Pediatr Surg.
- 7. Parrado, R. et al.(2019). The Use of Cryoanalgesia in Minimally Invasive Repair of Pectus Excavatum: Lessons Learned. J Laparoendosc Adv Surg Tech A, 29:1244-51.
- 8. Pilkington, M. et al. (2019). Use of Cryoanalgesia for Pain Management for the Modified Ravitch Procedure in Children. J Pediatr Surg.
- 9. Dekonenko, C. et al. (2019). Post-Operative Pain Control Modalities for Pectus Excavatum Repair: a Prospective Observational Study of Cryoablation Compared to Results of a Randomized Trial of Epidural Vs Patient-Controlled Analgesia. J Pediatr Surg.
- 10. Rettig, R.L. et al. (2021). Cryoablation is associated with shorter length of stay and reduced opioid use in pectus excavatum repair. Pediatr Surg Int, 37(1):67-75. doi: 10.1007/s00383-020-04778-x. Epub 2020 Nov 18. PMID: 33210165.
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- 12. Sun, R.C. et al. (2021). Intercostal cryoablation during Nuss procedure: A large volume single surgeon's experience and outcomes. J Pediatr Surg, 56(12):2229-34. doi: 10.1016/j.jpedsurg.2021.03.006. Epub 2021 Mar 17. PMID: 33853732.
- 13. Arshad, S.A. et al.(2022). Cryoanalgesia is Associated With Decreased Postoperative Opioid Use in Minimally Invasive Repair of Pectus Excavatum. J Surg Res, 271:1-6. doi: 10.1016/j.jss.2021.10.011. Epub 2021 Nov 20. PMID: 34814047.

cryoSPHERE

EU Indications: AtriCure's cryoICE cryoSPHERE cryoablation probes are sterile, single use devices intended for use in blocking pain by temporarily ablating intercostal peripheral nerves.

Please review the Instructions for Use for a complete listing of contraindications, warnings, precautions and potential adverse events prior to using these devices.

¹Direct visualization, in this context, requires that the surgeon is able to see the targeted tissue for cryoablation directly or with assistance from a camera, endoscope or other similar optical technology.

