



Rigid sternal fixation can be useful to improve/accelerate sternal healing and reduce mediastinal wound complications.

Class (Strength) of Recommendation	Class IIa (Moderate)
Level (Quality) of Evidence	Level B-R (Randomized)

Main Points

- Most surgical disciplines managing fractures/osteotomies adhere to the principles of approximation, compression, and stabilization of the bone using rigid fixation.
- The majority of cardiac surgeons continue to use wire cerclage for sternotomy closure because of the perceived low rate of sternal wound complications and the low cost of wires.
- Concern of inadequate bone healing lead to most cardiac surgery patients recovering under “sternal precautions”, which limits their ability to mobilize.
- In a randomized multicenter trial, sternotomy closure with rigid plate fixation vs. wire cerclage resulted in significantly better sternal healing, fewer sternal complications, improved patient reported outcomes, and no additional cost at 6 months after surgery.
- Rigid sternal fixation should be considered in high-risk individuals such as those with a high BMI, previous chest wall radiation, severe COPD, or steroid use.

Key References

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2. Cahalin LP, Lapier TK, Shaw DK. Sternal Precautions: Is It Time for Change? Precautions versus Restrictions - A Review of Literature and Recommendations for Revision. *Cardiopulm Phys Ther J*. 2011;22:5-15.
3. Park JS, Kuo JH, Young JN, Wong MS. Rigid Sternal Fixation Versus Modified Wire Technique for Poststernotomy Closures: A Retrospective Cost Analysis. *Annals of plastic surgery*. 2017;78:537-542.

4. Allen KB, Thourani VH, Naka Y, et al. Rigid Plate Fixation Versus Wire Cerclage: Patient-Reported and Economic Outcomes From a Randomized Trial. *The Annals of thoracic surgery*. 2018.
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6. Raman J. Rigid plate fixation promotes better bone healing after sternotomy. *Seminars in thoracic and cardiovascular surgery*. 2012;24:147-150.

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