

Evidence Discussion (CH 23)

- Measurements of the chest, such as the Haller Index, aid in the pre-operative assessment of pectus deformities. Chest CT is commonly used for pre-operative planning^{1,2,3}. Chest CT can also be utilized to assess cardiac compression or the presence of concomitant thoracic anomalies^{1,2,3,4} and allows for 3D reconstruction of the chest wall⁴. However, CT does carry with it the risk of ionizing radiation^{1,2,3,4,5}. MRI can also be utilized for preoperative planning and does not carry the risk of ionizing radiation^{3,4,5} and allows for possible real-time imaging⁴. However, MRI has a longer acquisition time⁵, can be complicated by motion artifacts⁵ and is incompatible with some implanted devices and metallic objects. Chest x-ray has also been used for the pre-operative calculation of pectus indices^{2,4} and has the benefit of reduced radiation exposure as compared to CT. Studies have shown, however, that it had decreased measurement accuracy in cases of unbalanced asymmetry as compared to CT⁴.
- For individuals with cardiac symptoms further workup with ECC and echocardiography is warranted³.
- For individuals with pulmonary dysfunction further work up with spirometry is warranted³.

1. Abid I, Ewais MM, Marranca J, Jaroszewski DE. Pectus Excavatum: A Review of Diagnosis and Current Treatment Options. *J Am Osteopath Assoc*. 2017;117(2):106-113. doi:10.7556/jaoa.2017.021
2. Scalise PN, Demehri FR. The management of pectus excavatum in pediatric patients: a narrative review. *Transl Pediatr*. 2023;12(2):208-220. doi:10.21037/tp-22-361
3. Janssen N, Daemen JHT, van Polen EJ, et al. Pectus Excavatum: Consensus and Controversies in Clinical Practice. *Ann Thorac Surg*. 2023;116(1):191-199. doi:10.1016/j.athoracsur.2023.02.059
4. Coorens NA, Janssen N, Daemen JHT, et al. Advancements in preoperative imaging of pectus excavatum: a comprehensive review. *J Thorac Dis*. 2024;16(1):696-707. doi:10.21037/jtd-23-662
5. Sun J, Chen C, Peng Y, et al. Comparison of magnetic resonance imaging and computed tomography to measure preoperative parameters of children with pectus excavatum. *Pediatr Investig*. 2019;3(2):102-109. Published 2019 Jun 25. doi:10.1002/ped4.12132