



The Effects of Pectus Excavatum Corrective Surgeries on Inspiratory Capacity of Adults: Comparing Preoperative and Postoperative Results

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Abstract

PURPOSE: The purpose of this study is to perform specific tests and measurements before and after pectus corrective surgeries to find differences in lung volumes of individuals affected by pectus excavatum.

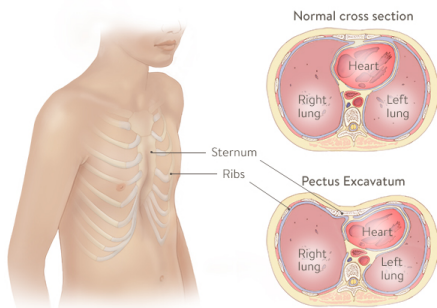
METHODS: Participants (N= 300) were 240 men and 60 women who were recruited from the Cardiovascular and Thoracic Surgery center in Carolinas Medical Center. Patients were recruited based on the need for the pectus corrective surgery using the Nuss procedure between January 2010 and December 2020. All participants were 18 years of age or older ranging from 18-38 years. Mean age for this population was 23 (\pm 3.4) years. The physician took each patient through X-rays involving two sections, several lung volume capacity tests, a quality of life test, and a self-appearance test. The lung volumes were assessed using spirometry tests. There were three separate intervals where all test were completed. One physician conducted all tests. All results were kept anonymous.

RESULTS: It was predicted that the Nuss corrective procedure increased lung volumes in over 60% of the participants. It is also expected that participants reported greater quality of life post operatively. Participants would also report a greater self appearance rating.

CONCLUSIONS: The Nuss procedure is effective at increasing lung volumes, creating better quality of life, and improving the self appearance rating of the majority of affected individuals.

Introduction

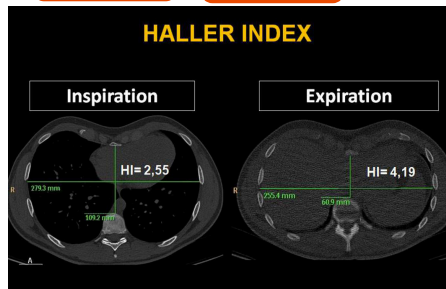
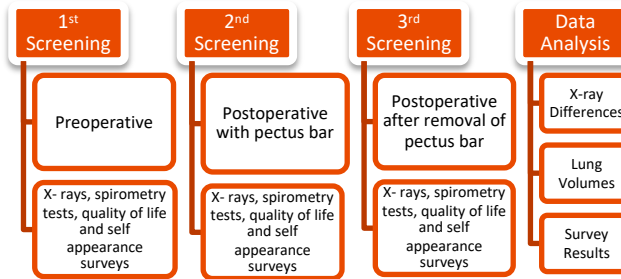
- ❖ Pectus Excavatum is a common chest wall deformity
- ❖ The aim is to bring more awareness to physical limitations caused by this disease
- ❖ Found predominately in males with a male to female ratio of 3:1
- ❖ Affecting 1 in every 400 live births, it is the most found chest deformity by physicians.
- ❖ Asymmetries in the chest wall are common
- ❖ Commonly found during adolescent years
- ❖ Symptoms are commonly not associated with less severe cases



Methodology

Participants:

- 300 – Male N=240, Female N=60 (due to predominance in males)
- Recruited for study by applying for Nuss procedure at surgery location
- All participants agreed to inform consent materials and associated risks



Severity Based on
Haller Index Values

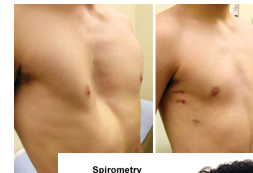
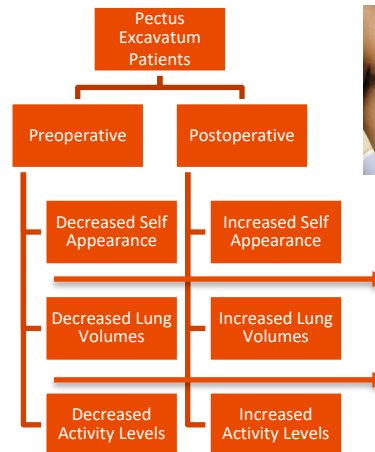
Normal: ≤ 2

Mild: 2 – 3.2

Moderate: 3.2 – 3.5

Severe: 3.5 \leq

Results

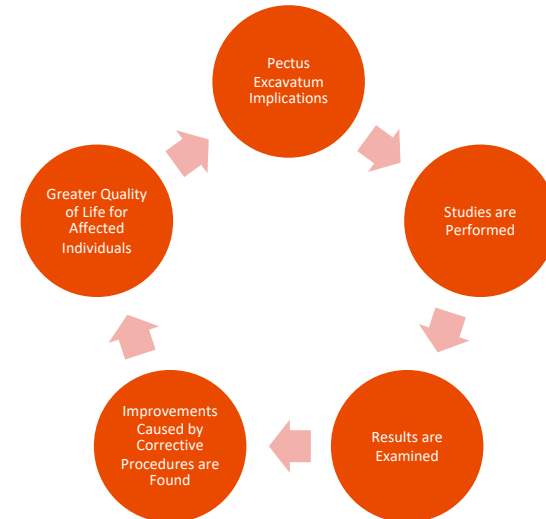


Spirometry



Discussion

- Further studies are in urgent need to find solutions to greater amount of implications caused by pectus excavatum



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Acknowledgements

- ❖ Gardner-Webb University Library Staff and Resources
- ❖ Dr. Hartman & Dr. Granniss
- ❖ Exercise Science Department Resources