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FEATURES OF CHEST DEVELOPMENT IN PRESCHOOL CHILDREN WITH CHRONIC RESPIRATORY DISEASES

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Introduction

Chronic respiratory diseases in preschool children affect not only respiratory function but also overall physical development. The chest, as a key component of the respiratory system, is particularly sensitive to these changes. With prolonged disease duration, alterations in its size, shape, and mobility may develop, which subsequently impact the general condition of the child's organism.

Materials and Methods

The study included 80 children aged 3–6 years. The main group consisted of 40 children with chronic respiratory diseases (chronic bronchitis, bronchial asthma), while the control group included 40 practically healthy children.

Anthropometric measurements were performed, including chest circumference and chest index. The evaluation was carried out using standard deviation (σ), centile tables, and Z-score. Statistical significance was determined at $p < 0.05$.

Results

In children with respiratory diseases, the chest circumference was 51.2 ± 2.1 cm, which was significantly lower compared to the control group (53.8 ± 1.9 cm, $p < 0.05$).

The mean Z-score was -0.9 ± 0.3 , indicating a moderate delay compared to age norms. Centile analysis showed that 65% of children had values below the 25th percentile, and 18% were below the 10th percentile.

The sigma deviation was -1σ , reflecting reduced growth rates of the chest.

The chest index was decreased (0.72 ± 0.04 vs 0.78 ± 0.03 in controls), indicating a tendency toward flattening. Additionally, chest excursion decreased by 18–22%, reflecting reduced respiratory mobility.

Conclusion

Preschool children with chronic respiratory diseases demonstrate a significant delay in chest development, manifested by reduced size, altered configuration, and decreased respiratory mobility.

The findings confirm the systemic impact of respiratory pathology on morphological development and highlight the importance of early detection of such changes.

The use of modern assessment methods, including Z-score, centile scales, and sigma analysis, ensures objective diagnosis and enables timely preventive and



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rehabilitation measures aimed at improving physical development and functional status in children.

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