

Diagnosis in children with exercise-induced respiratory symptoms:**A multi-centre study****Eva S. L. Pedersen et al. Pediatric Pulmonology. 2021;56:217-225.**

Objective: Exercise-induced respiratory symptoms (EIS) are common in childhood and reflect different diseases that can be difficult to diagnose. In children referred to respiratory outpatient clinics for EIS, the authors compared the diagnosis proposed by the primary care physician with the final diagnosis from the outpatient clinic and described diagnostic tests and treatments.

Study Design: An observational study of respiratory outpatients aged 0-16 years nested in the Swiss Paediatric Airway Cohort (SPAC).

Study Population: 214 children (mean age 12 years, range 2-17, 54% males) with EIS were included who were referred to the clinic. Information about diagnosis from primary physician, diagnostic investigations, final diagnosis & treatment prescribed was recorded. The classification of causes of EIS used in the study is shown in the figure below.

Investigations: Spirometry, body plethysmography, and exhaled nitric oxide were performed in almost all, exercise-challenge tests in a third, and laryngoscopy in none.

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



EXERCISE INDUCED RESPIRATORY SYMPTOMS: AN ENIGMA?

Results:

The final diagnosis that was reached is shown in the Table below. Final diagnosis differed from referral diagnosis in 115 (54%, 95%-CI 46%-60%). 91% of the children with a final diagnosis of asthma were prescribed inhaled medication and 50% of children with DB were referred to physiotherapy.

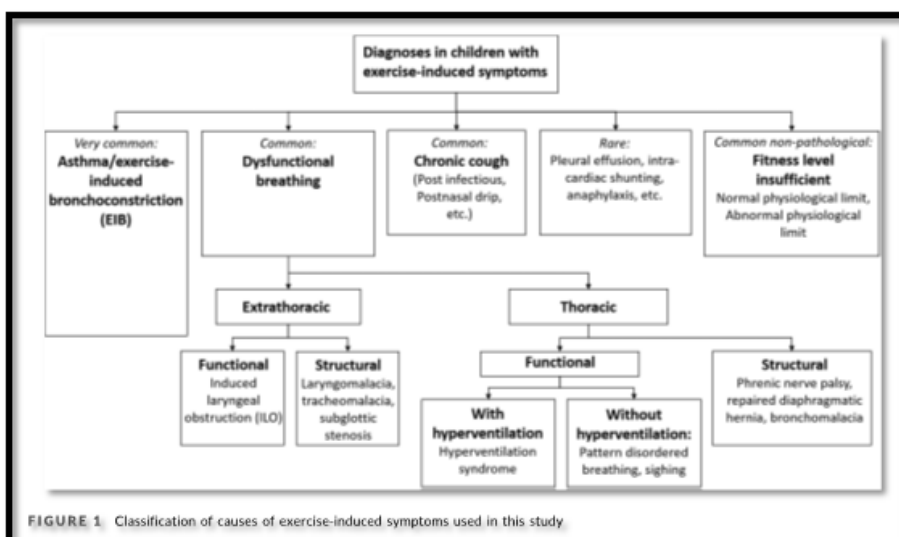


FIGURE 1. Classification of causes of exercise-induced symptoms used in this study.

Final Diagnosis	N (%)
Asthma/Exercise induced bronchoconstriction	115 (54)
Extrathoracic Dysfunctional Breathing	
Functional [Inducible Laryngeal Obstruction (ILO)]	1
Structural (Laryngomalacia, Tracheomalacia, Adenoid Hypertrophy)	1 each
Thoracic Dysfunctional Breathing	
Pattern disordered breathing (PDB)	16
Hyperventilation	2
Sighing tics	3
Asthma + ILO	19 (9)
Asthma + PDB	4 (2)
Insufficient fitness level	10 (5)
Chronic cough unknown etiology	4 (2)
Post-infectious chronic cough	2 (1)

Conclusions and Key Messages:

- The final diagnosis given at the outpatient clinic differed in half of the children from the suspected referral diagnosis highlighting the importance of specialist evaluations.
- Extrathoracic and thoracic dysfunctional breathing [DB] were common diagnoses in children with EIS but had rarely been suspected by the referring physician and were also not well followed up.
- Increased awareness both among primary care physicians and among respiratory specialists of how common DB are in children with EIS might lead to faster referral to specialized clinics and better treatment.

EXPERT COMMENT



“Exercise-induced symptoms in children have a varied differential diagnosis. Not all exercise induced symptoms are secondary to asthma. Dysfunctional breathing and insufficient fitness level are important causes. Children with exercise induced symptoms require a specialist referral for proper evaluation.”

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