Effect of Strelnikova Breathing Technique on Respiratory Parameters in Children with Lower Respiratory Tract Infections **in Smch**

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ABSTRACT

Introduction India has the highest child mortality <5 years, mostly due to RTI (LRTI). These infections are broadly divided into upper RTI and lower RTI. Breathing exercises are designed to increase your lung capacity and maintain your daily breathing rhythm. OBJECTIVES

1. Assess the values of respiratory parameters before using the Strelnikova breathing technique in children with lower respiratory tract infections.
2. Evaluation of respiratory parameter values after strelnikova breathing technique in children with lower respiratory tract infections
3. Evaluation of Strelnikova respiration effect on respiratory parameters in both experimental and control groups.
4. Associations of respiratory parameters with selected demographic variables in children with lower respiratory tract infections

Methodology A quasi-experimental design was used with convenient sampling techniques. A sample size of 60 children aged 6 to 12 years with lower respiratory infections was selected. Of these, 30 children belonged to the experimental group and 30 children to the control group. The study environment was in SMCH pediatric ward. Data were collected using demographic variables and a pretest parameter checklist. Strelnikova exercised her for 5 days in her usual care, 3 times a day, and in the experimental group after the test she did for 5 days. It has been shown to be done by eye. The control group received a preliminary examination, no intervention, and only regular observations after 5 days. Post-test on day 5. Result The mean SPO 2 score before the test was 92.0 ± 1.84 and the mean score after the test was 98.87 ± 0.94. The mean pre-test score was 17.13 ± 1.46 and the mean post-test score was 23.27 ± 1.17. Conclusio This study shows that the Strelnikova breathing technique plays a key role in maintaining a range of respiratory parameters such as Spo², vital signs and breath sounds.

Keyword: Strelnikova Breathing Technique, Respiratory Parameters, Children, Lower Respiratory Tract Infections

1. Introduction

Acute lower respiratory infections can affect children of all ages. It seems to affect mainly young children. Asthma, bronchitis, and pneumonia are common childhood respiratory diseases. Breathing exercises are designed to increase your lung capacity and maintain your daily breathing rhythm. The most common types of LRTIs in children are pneumonia and bronchiolitis. Pneumonia is the leading cause of death in children under the age of five. [1] Children with LRTIs tend to be overly sensitive and unable to participate in normal activities, so they may be anxious and restless. They had to be hospitalized regularly, which could disrupt family life and cause educational problems. [2] Lower respiratory tract infections (RTIs) develop when the lungs, especially the lower respiratory tract, become infected. Viruses are the most common cause of this infection, but it can actually be caused by bacteria and other less common types. [3] Common RTI declines in neonates and young children include: Symptoms can range from mild to severe enough to require hospitalization. [4] Exercise is a problem for people with asthma of all severities because it induces attacks. In contrast, physical inactivity exacerbates asthma by increasing the frequency of respiratory infections. The answer to the current conundrum is exercise that develops the muscles and blood vessels, especially those associated with the respiratory system (and heart), that (!) do not cause sustained attacks, and even stop them by preventing hyperventilation. I can do it. Increased air resistance due to rapid inhalation or "sniffing" of the lungs on inhalation and strictly the nose. Clinical studies have shown that regular exercise can reduce the frequency of asthma attacks and even eliminate chronic infection-related asthma. [5]

It also helps allergy sufferers with asthma by strengthening their respiratory apparatus, keeping their noses clear, and developing strong nasal breathing habits that triple their exposure

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to allergen. This is especially useful for young people because it is easy to understand. [6] Due to its constant contact with ambient air particles, chemicals and infectious organisms, the lung is the organ most at risk of infection and damage from the external environment. [7]

At least 2 billion people worldwide are covered in toxic smoke. Biomass fuels generally do not burn efficiently in poorly ventilated areas. Stove and fireplace for indoor use. One billion people breathe dirty air indoors. [8] Cigarette smoke is inhaled by his billion people. ARI is not just for the lungs. They are also distributed throughout the body. Toxins, inflammation, and decreased lung function are factors that contribute to decreased lung function. Bronchitis and pneumonia are the most common LRIs in adolescents. RTI usually presents with rhinitis, cough, pharyngitis, wheezing, and fever. [9] The overwhelming majority of these infections in children are treated in medical facilities, with a few exceptions. Only a few had to be hospitalized. Acute RTI is one of them. One of the leading causes of death in children. In addition, children with acute lower respiratory infections are at increased risk of developing bronchitis. Breathing problems occur in old age. The International Forum on the International Federation of Respiratory Societies (FIRS) argues that reducing the burden of respiratory disease should be a major focus of the Sustainable Development Goals. [10] Nurses also play an important role in helping struggling parents. Also, by ensuring that there are appropriate onsite aftercare arrangements that are provided and understood with written and verbal safety net statements on what to do if the child becomes symptomatic upon admission. Nurses also play a very important role in promoting vaccination, which has been shown to play a preventive role in the development of more RTIs. [11] The nature of hyperventilation and hypercapnia of A.N. Strelnikova technique, exercise with active inhalation without holding your breath, performing vigorous exercises. Strelnikova's breathing exercises restore the voice, relieve symptoms of chronic diseases such as asthma and bronchitis, and can even give voice to those who cannot sing. Inhalation should be done quickly and forcefully by pinching the nostrils. However, it is flat. Exhalation can be a passive process that occurs on its own. These are some of the exercises that are easy to perform and at a heart rate of 100 beats per minute he only needs about 8 breaths in 6 seconds at 100 beats per minute [12].

The Strelnikova breathing method is a new treatment established in Japan in the late 1930s. Alexandra Strelnikova is an opera singer who, after losing her vocal ability, developed with her mother a practice to regain her vocal ability. Short, sharp nasal breathing with chest compressions is the muse of Strelnikova's gymnastics (13). This series of exercises affects many organs and is useful in treating many conditions, including respiratory disease, high blood pressure, VVD, stuttering, etc. Use of this activity helps patients reduce nasal reflux from the mouth. The employment of this activity is additionally that it is wont to restore nasal inhaling cases where the patient has developed a respiratory problem within the lack of any obstruction within the nose reflux through the mouth. [14]

2. Materials and Methods

A quasi-experimental design using convenient sampling techniques was employed. A sample size of 60 children aged 6 to 12 years with lower respiratory tract infections was selected. Of these, 30 children belonged to the experimental group and 30 children to the control group. The study environment was the SMCH pediatric ward. Data were collected using demographic variables and a pre-test airway parameter checklist, and the experimental group performed her Sterlinkova exercise 3 times a day with regular care for 5 days and shown to perform a posttest. The control group received a preliminary examination, no intervention, and only regular observations after 5 days. Post-test on day 5. Anyone who wants to participate can use it for data collection. Individuals who did not wish to participate in the study were excluded. Information about the study and informed consent were obtained. Data were collected using a structured questionnaire. Confidentiality was maintained throughout the study. We did a pre-test, practiced with videos, and did a post-test. The project was approved by the institutional ethics committee [16]

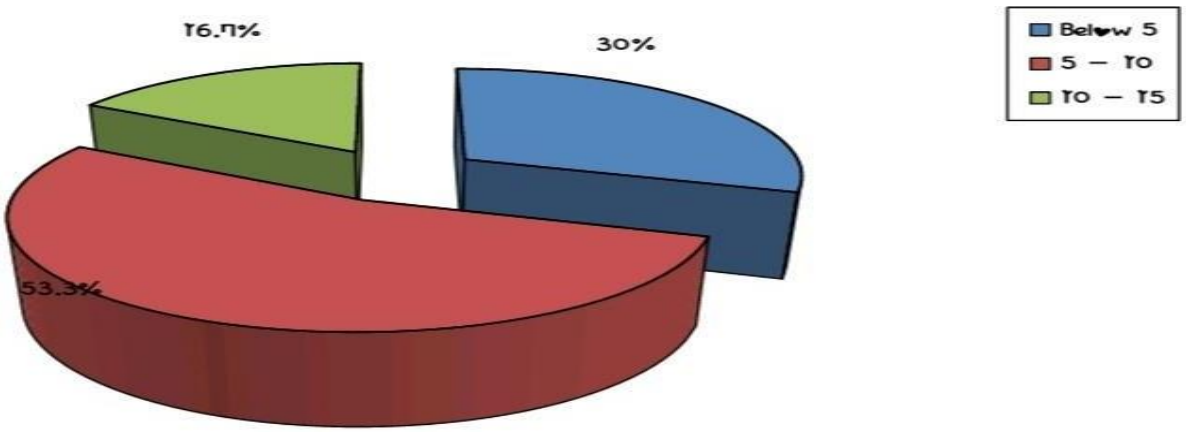
3. Results and Discussion

Section A: Description of The Demographic Variables of Children with Lower Respiratory Infection

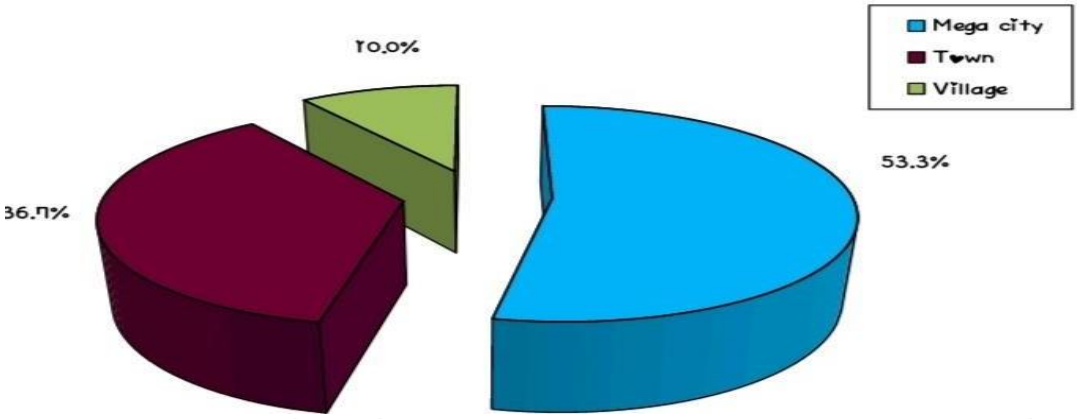
Description of Sample Characteristics

The majority of young people were 16 (53.3%) between the ages of 5 and 10, 16 (53.3%) male, 21 (70%) Hindu, 19 (63.3%) students, 13 (43.3%) were middle-aged. 30 (100%) are Indian, 24 (80%) exercise twice a week, 16 (53.3%) currently have a normal breathing pattern of 20-24 breaths per minute, 23 (76.7%) was an Indian. Sixteen (53.3%) of her close relatives lived in large cities, and 21 (70%) had her SPO2 area percentage less than her 90.

Section B: Assessment of Level of Respiratory Parameters Among Children with Lower Respiratory Infection.



Percentage distribution of age of the children with lower respiratory infection



Percentage distribution of type of the environment among children with lower respiratory infection

Table 2: Assessment of pretest and posttest oxygen saturation and respiratory rate among children with lower respiratory tract infection. N = 30

Respiratory Parameters	Pretest		Post Test	
	Mean	S. D	Mean	S. D
SPO2	92.0	1.84	98.87	0.94
Respiratory parameters	17.13	1.46	23.27	1.17

Table 2 above shows that the mean pre-test score for SPO2 was 92.0 ± 1.84 and the mean post-test score was 98.87 ± 0.94. The table shows that the pre-test mean respiratory rate was 17.13 ± 1.46 and the post-test mean was 23.27 ± 1.17.

Section C: Effect of Strelnikova Breathing Technique on Respiratory Parameters Among Children with Lower Respiratory Infection.

Table 3: Comparison of arm and hand function among stroke patients within and between the experimental and control group. N = 30

Respiratory Parameters	Pretest		Post Test		Mean Difference Score	Paired 't' test value
	Mean	S.D	Mean	S.D		
SPO2	92.0	1.84	98.87	0.94	6.87	
Respiratory rate	17.13	1.46	23.27	1.17	6.14	

***p<0.001, S – Significant

A comparison of the pre-test and post-test respiratory parameter SPO2 in the table above revealed that the calculated paired't' test value of t = 18.849 was statistically significant with p<1. 0.001 level, clearly showing that there was improvement within the range of oxygen saturation levels. This suggests that the strelnikova breathing technique on respiratory parameters administered to children with lower respiratory tract infections has been shown to be effective in improving oxygen saturation post-test. A comparison of pre-test and post-test respiration rates in the table above reveals that the calculated paired "t" test value of t = 19.802 was found to be statistically significant with p < became. 0.001, clearly indicating that the adolescent's vital signs level had improved. This suggests that the strelnikova breathing technique for respiratory parameters administered to children with lower respiratory tract infections has been shown to be effective in improving post-test vital signs.

These findings were supported by a similar study conducted by Ranjita Jena (2020). This study evaluated the effects of strelnikova exercise on respiratory parameters in children with his LRTI at a selected hospital in Bhubaneswar. Post-test results were obtained in experimental and control groups: respiratory rate (t58 = 9.50, p 0.23), breath sounds (t29 = 0.36, p > 0.71), and oxygen saturation. This was not statistically significant. [15]

Section D: Associations of Respiratory

Parameters with Selected Demographic Variables In Children With Lower Respiratory Infections N= 30

Demographic Variables	F	SPO2	Respiratory Rate
Age in years		χ^2=0.144 d.f=2 p=0.931 N.S	χ^2=6.489 d.f=2 p=0.039 S*
Below 5	9		
5 – 10	16		
10 – 15	5		
Gender		χ^2=0.433 d.f=1 p=0.510 N.S	χ^2=2.010 d.f=1 p=0.156 N.S
Male	16		
Female	14		
Religion		χ^2=2.686 d.f=2 p=0.261 N.S	χ^2=2.686 d.f=2 p=0.261 N.S
Hindu	21		
Christian	5		
Muslim	4		
Others	-		
Age group		χ^2=0.053 d.f=2 p=0.974 N.S	χ^2=0.053 d.f=2 p=0.974 N.S
Infant	5		
Toddler	6		
Pre-schooler	-		
Schooler	19		
Economic status		χ^2=1.292 d.f=3 p=0.731 N.S	χ^2=3.279 d.f=3 p=0.351 N.S
Risk	3		
Middle class	13		
Poor	13		
Very poor	1		
Frequency of exercise		χ^2=0.036 d.f=1 p=0.850 N.S	χ^2=0.574 d.f=1 p=0.449 N.S
Twice a day	6		
Twice a week	24		
Present normal breathing pattern (beats/min)		χ^2=0.072 d.f=2 p=0.965 N.S	χ^2=0.461 d.f=2 p=0.794 N.S
Below 16	-		
16 – 20	9		
20 – 24	16		
Above 24	5		
Family Type		χ^2=1.648 d.f=1 p=0.199 N.S	χ^2=0.258 d.f=1 p=0.612 N.S
Nuclear family	23		
Joint family	7		
No family	-		
Type of the environment		χ^2=5.998 d.f=2 p=0.050 S*	χ^2=2.083 d.f=2 p=0.353 N.S
Mega city	16		
Town	11		
Village	3		
Present SPO2 range percentage		χ N.S	χ N.S
Below 90	21		
90 – 95	9		
95 – 100	-		
*p<0.05, S – Significant, N.S – Not Significant			

Table 4 shows that environmental demographic variable type (χ2 = 5.998, p = 0.050) was statistically significantly associated with posttest SPO2 levels in children with lower respiratory tract infections at p < 1. is shown. It was showing 0.05. No other demographic variable showed a statistically significant association with her SPO2 levels after testing in children with lower respiratory tract infections.

Table 4 shows that the demographic variable age (χ2=6.489, p=0.039) was statistically significantly associated with post-test respiratory rate in children with lower respiratory tract infections at the p<0.05 level. Indicates that No other demographic variable showed a statistically significant association with post-test airway levels in children with lower respiratory tract infections. Conclusion

In this study, we found that the effect of strelnikova respiratory exercise on respiratory parameters in children with LRTI positively influenced breathing patterns. Based on the results, it was clear that strelnikova exercise significantly reduced the level of respiratory symptoms and improved respiratoryparameters.

4. Acknowledgement

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5. Authors Contribution

All the authors actively participate in the work of study. All the authors read and approved the final manuscript.

6. Conflict Of Interest

The authors declare no conflict of interest.

References

1. Achamyelesh Geberetsadik, Alemayehu Worku, et al., "Factors associated with acute respiratory

infection in children under the age of 5 years" Pediatric Health, Medicine and Therapeutics.2015 (6). 9–13
2. Alexandra Tsitsiklis, et al., "Lower respiratory tract infections in children requiring mechanical ventilation" The Lancet; 2002.vol (3).987-983
3. AnjaliK V, Sreedevi T R. "Effectiveness of Respiratory Therapy on Respiratory Parameters and Behavioural Response of children with Lower Respiratory Tract Infection". International Journal of Science and Research (IJSR).2018:9(5).253-259
4. Francis BV, Abhilash TG."Study of acute respiratory tract infections in children" Journal of Respiratory tract infection in children.2016; 5(9)1791–1792.
5. Gahlot A, Kumar S, Som Nath M, et al.,"ARI in under five children with associated risk factors" Journal of Medical Sciences; 2015; 1(1):1–5.
6. Ghimire P, Gachhadar,et al.,"Prevalence and factors associated with acute respiratory infection among under-five children".PLoS ONE 17(4):2002(5)3;287-290
7. Jasmine Hilta, Brema.S, A.et al., "Effectiveness of Breathing Exercises as a Play Way Method in Terms of Improving Clinical Parameters of Pneumonia among Children". RGUHS Journal of Nursing Sciences, 2018(8) 12-15
8. Karamjeet Kaur., "A study to assess the effectiveness of breathing exercises as a play way method on respiratory signs and pulmonary parameters among children with lower repiratory tract infections". International Journal of Scientific & Engineering Research Volume 2018:9(11) 1938.
9. Krishnan D, Omprakash A, et al., "Prevalence of acute respiratory infection in children less than 2 years in rural and urban population". Natl J Physiol Pharm Pharmacol 2019; 9(8):804- 808.
10. Kumari Swati1, Yogeshwarpuri Goswami."Effectiveness of strelnikova breathing exercise on dyspnea among school age children with lower respiratory tract infection". IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2021, 10(5) 33-38
11. Little P et al.,"Antibiotics for lower respiratory tract infection in children". Clinical Microbiology and Infection, 2022; 2(3) 1-5
12. Mohammadreza Mirkarimi, et al.,"Clinical and Epidemiological Determinants of Lower Respiratory Tract Infections in Hospitalized Pediatric Patients".Journal of pediatrics. 2020:20(7)172-183
13. Radhika.M. A study to assess the prevalence of respiratory tract infection among underfive children in selected village at Nellore District.Journal of prevalence of RTI.2013; 5(9)21863.
14. Ramesh T., Naveen Kanth N, et al.,"A study on pattern of lower respiratory tract infections in children below 12 years". International Journal of Pediatric Research.2021: 8(1).01.
15. Ranjita Jena, M.,"Effect of Strelnikova Exercise on Respiratory Parameters Among Children With LRTI". European Journal of Molecular & Clinical Medicine, 2020:7(11) 12-15.
16. Dai X, Zhao Q, Li J, Pan C. The prevalence and risk factors for anxiety in frontline nurses under COVID-19 pandemic based on a large cross-sectional study using the propensity score-matched method. Archives of Clinical Psychiatry. 2022;48(5):221-8. https://doi.org/10.15761/0101-60830000000311