

## Effectiveness of Strelnikova Breathing Exercises on Respiratory Sign and Parameters among Children with Lower Respiratory Tract Infection (LRTI)

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### ABSTRACT

The study was done to evaluate the effectiveness of Strelnikova breathing exercises on respiratory sign and parameters among children with Lower respiratory tract infection (LRTI). There search design used for this study was quasi experimental non equivalent control group pre-test and post-test design. The research approach used for the study was evaluative approach which was conducted in selected Masonic at Coimbatore. The sample size was 60 children with LRTI, 30 for experimental group and 30 for control group.

**Keywords:** Strelnikova, Breathing Exercises, Lower respiratory tract infection

### INTRODUCTION

Respiratory sign are essential indicators for diagnosing and monitoring LRTIs. Common sign include cough, wheezing, stridor, and dyspnea. These symptoms often vary depending on the causative pathogen and the severity of the infection. For instance, wheezing and prolonged expiratory phase are frequently associated with viral bronchiolitis, while a productive cough and fever are more common in bacterial pneumonia. Understanding these signs in the context of LRTIs can guide clinicians in distinguishing between different types of infection and tailoring treatment strategies.

Children of all ages may be diagnosed with acute infections of the lower respiratory tract. It renders to occur mostly in younger children. Childhood respiratory infection are included asthma, bronchitis, and pneumonia. It is believed that breathing exercises strengthen the lung capacity and maintain normal breathing pattern. Pneumonia and bronchiolitis are the most common types of LRTI in children. Infection and inflammation of the lungs is particularly troublesome and is seen in many different forms in children. Other illnesses that occur in the lower respiratory tract, such as wheezing associated lower respiratory infection, asthma and pneumonia.

Breathing exercises helps to strengthen the child's lungs and control their breathing. Following various breathing exercises, helps to reduce the severity of respiratory sign and symptoms. Learn deep breathing-Correct deep breathing regularly. Learn the correct techniques. Practicing breathing exercise permits to strengthen lungs, digestive system and circulatory system.

### Statement of the Problem

Effectiveness of Strelnikova breathing exercises on respiratory sign and parameters among children with Lower respiratory tract infection (LRTI).

### OBJECTIVES

- To assess the pre-test and post-test level of respiratory sign and parameters among children with Lower respiratory tract infection in the experimental group and control group.
- To evaluate the effectiveness of Strelnikova breathing exercises on respiratory sign and parameters among children with Lower respiratory tract infection in experimental group and control group.
- To compare the effectiveness of Strelnikova breathing exercises on respiratory sign and parameters among children with Lower respiratory tract infection in experimental and control group.
- To find out the association between the post-test level of respiratory sign and parameters among children with Lower respiratory

tract infection with the selected demographic variables in experimental group and control group.

### Hypothesis

**H<sub>1</sub>** –The mean post-test scores of respiratory sign is significantly lower than the mean pre-test Scores among children with Lower respiratory tract infection in experimental group.

**H<sub>2</sub>**- The mean post-test scores of respiratory parameters is significantly higher than the mean pre-test scores among children with Lower respiratory tract infection in experimental group.

**H<sub>3</sub>**- There will be a significant association between post-test scores of respiratory sign among Children with Lower respiratory tract infection with their selected demographic variables in the Experimental group.

### Research Methodology

quasi experimental nonequivalent control group pre-test and post-test design to assess the effectiveness of Strelnikova breathing exercise on respiratory sign and parameters among children with Lower respiratory tract infection (LRTI). After getting permission from the ethical committee, children with Lower respiratory tract infection (LRTI) between the age group of 6 to 15 years in the masonic hospital were selected using purposive sampling technique. The study setting was masonic hospital Coimbatore. After getting the consent from the participants, the demographic variables and the self structured questionnaire on Lower respiratory tract infection, assess respiratory sign measured by Severity and exacerbation grade scale and parameters measured by peak flow meter and oxy-meter in both experimental and control group. The data were collected and analyzed by using descriptive and inferential statistics.

### Results and Discussion

The findings were analysis based on the objectives of the study.

#### Demographic variables

Regarding age, in experimental group, majority of children 18(60%) belongs to the age of 6-8 years, 10(33.3%) belongs to the age of 9-12 years and least 2(6.7%) belongs to age of 13-15 Years. In control group, majority of children 20(66.7%) belongs to the age of 6-8 years, 9(30%) belongs to the age of 9-12 years and least 1(3.3%) belongs to age of 13-15 Years.

Regarding sex, in experimental group, 15(50%) children were male and 15(50%) were female. In control group, majority of the children 20(66.7%) were male and 10(33.3%) were female.

With regard to education, in experimental group, majority of children 18(60%) belongs to I-III std, 10(33.3%) belongs to IV-VII std and least 2(6.7%) belongs to VIII-X std. In control group, majority of children 20(66.7%) belongs to I-III std, 9(30%) belongs to IV-VII std and least 1(3.3%) belongs to VIII-X std.

Regarding residence, in experimental group, majority of the children 19(63.3%) were in urban area and least 11(36.7%) were in rural area. In control group, majority of the children 17(56.7%) were in urban area and least 13(43.3%) were in rural area.

#### **The first objective was assess the pre test and post test score of respiratory sign and parameters among children with lower respiratory tract infection in experimental group and control group.**

In experimental group in Severity and exacerbation grade, in pre-test, 16(53.3%) children had severe grade and 14(46.7%) children had moderate grade. In post-test, 28(93.3%) children had mild grade and 2(6.7%) children had moderate grade. Peak flow rate, in pre-test, 30(100%) children had severe grade. In post-test, 18(60%) children had moderate grade and 12(40%) children had mild grade.

In control group in Severity and exacerbation grade, in pre-test, 20 (66.7%) children had moderate grade and 10 (33.3%) children had severe grade. In post-test, 18 (60%) children had mild grade and 12 (40%) children had moderate grade.

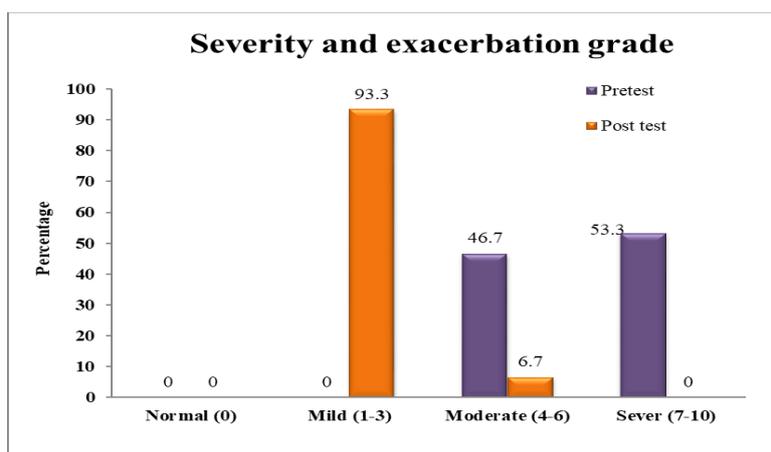


Fig 1: percentage distribution of severity and exacerbation grade in experimental group

The second objective to evaluate the effectiveness of strelnikova breathing exercises on respiratory sign and parameters among children with respiratory tract infection in experimental group.

The mean score, Standard deviation and paired ‘t’ value in experimental group. The post-test mean score 68.6 (SD±5.14) higher than the pre-test mean score 38.63 (SD±4.08) and mean difference was (29.97). The paired ‘t’ value of Peak flow rate was 38.96 (table value= 2.045) which is significant at P< 0.05 level. The finding revealed that there is a significant improvement in Peak flow rate in post-test in experimental group. ( n=30)

Table 1: Comparison of Mean, standard deviation and in dependent ‘t’ value of post-test score of Peak flow rate among children with LRTI between experimental group and control group

Group	Mean	SD	Mean difference	Independent „t” value	Table value
Experimental group	68.6	5.14	21	16	2.0017
Control group	47.6	5.2			

The third objective to compare the pretest and post-test of respiratory sign and parameters among children with respiratory tract infection in experimental and control group.

Among both group, the mean post-test score of peak flow rate in the experimental group 68.6 (SD±5.14) was significantly higher than the mean post-test scored of peak flow rate in control group 47.6 (SD±5.2) and the mean difference was(21). In dependent ‘t’ value 16 (table value= 2.0017) which is significant at P< 0.05 level. The finding revealed that there is a significant improvement in peak flow rate between experimental group and control group, which showed that Strelnikova breathing exercises is effective for children with Lower respiratory tract infection.

The fourth objective to find out the association between the post-test level of respiratory sign and parameters among children with respiratory tract infection with the selected demographic variables in experimental group.

The study findings shows that, there was significant association was found between respiratory sign in relation to pet animals” in house ( $\chi^2 = 3.88$ ) and type of allergy ( $\chi^2 = 9.432$ ) at (P < 0.05) level. No significant association in respiratory sign where found when compared to age, sex, education, residence, religion, order of birth, family history of lower respiratory tract infection, frequency of attack in last year and duration of illness at (P < 0.05) level in significance.

### Nursing implications

- Self instructional module regarding breathing exercises given by the health personnel will help the children to improve their knowledge on exercises.
- Nursing service department can arrange health education programmes in the outpatient department for teaching the children on breathing exercises.

- Nurses as a change agent can introduce various breathing measures to reduce respiratory sign and improve lung function among children with lower respiratory tract infection.

### Limitations

- Since it is an exercise programme to the children, the researcher found difficulty in making them to understand and to co-operate to do the exercises.

### Conclusion

The present study assessed the effectiveness of strelnikova breathing exercises on selected respiratory sign and parameters among children with Lower respiratory tract infection (LRTI) Based on statistical findings, it is evident that strelnikova breathing exercises given among children with Lower respiratory tract infection significantly reduced the level of respiratory sign (in dependent 't' value=5.2),and increased the peak flow rate (in dependent't' value=16), oxygen saturation level (independent 't' value = 5.27). There fore the investigator felt that, Strelnikova breathing exercises for children with Lower respiratory tract infection was reduce the respiratory sign and improve the respiratory parameters.

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Conflict of Interest Statement: All authors have nothing else to disclose.

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