

# Efficacy of Telephysiotherapy in People with Asthma: An Interventional Study

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**Abstract:** ***Background:** Asthma is Respiratory disease in which airways becomes swell & narrow. Person having difficulty in breathing, wheezing and coughing. Telephysiotherapy is emerging method of delivering physiotherapy services that uses technology to serve clients by minimizing the barrier of distance, time, and cost. Therefore this study aimed to check the efficacy of Telephysiotherapy in people with Asthma. **Method:** 30 Asthmatic patients aged between 30 to 60 years were selected based on set criteria. Telephonic consent taken prior to the treatment. All the participants were allocated in one group. Intervention using Interval training program was given by online video meet for 4 weeks of intervention. 30sec sit to stand test and SF-12Scale have been assessed prior and after to the intervention. **Result:** The study showed significant improvement in outcome measures 30sec sit to stand test  $p>0.05$ , and SF12Scale  $p>0.05$ . **Conclusion:** The study concluded Telephysiotherapy has a significant effect to improve exercise tolerance and Quality of life in people with Asthma.*

**Keywords:** Asthma, Interval training program, pulmonary rehabilitation, Telephysiotherapy

## 1. Introduction

Telephysiotherapy is an emerging method of delivering rehabilitation services that use technology to serve clients, clinicians, and the systems by minimizing the barriers of time, distance, and cost. (1) Telephysiotherapy is evolving healthcare delivery system that employs various technology modalities to overcome the barriers that people face in accessing services. Telephysiotherapy is defined as the delivery of physiotherapy services via telecommunication and video conference technologies. (2) Pulmonary rehabilitation is an essential component of the long-term management of a pulmonary disease. Benefits of Pulmonary rehabilitation include reduce patient's symptoms as well as improve patient exercise capacity. (3) Pulmonary rehabilitation programs tend to be located in an urban areas. People who live in rural and remote centers have limited access of PR. So, that Telephysiotherapy allows for distribution of healthcare services and exchange of information between the healthcare provider and a patient in different geographical locations. (3) Asthma is a respiratory disease in which the airways become swell & narrow. It will lead to too many problems like breathing difficulties, exertion induce dyspnea, diminished physical and functional performance to manage it physical training program in a patient with asthma induce significant improvement in exercise tolerance and quality of life. (4) Traditional clinic-based pulmonary rehabilitation having certain challenges like cost- effective, transportation issue, day to day variation but on the other hand, Telephysiotherapy does not having such type of barrier in day- to -day practice. To enhance the scope of improvement in day- to -day practice

## 2. Method

### 2.1 Study design

This study was an Interventional study. It was approved by Ethical committee of School of physiotherapy, RK

University, Rajkot. CTRI (Clinical trial registry-India) registration number also obtained for this study. Telephonic consent of each participants was taken before starting of the study.

### 2.2 Participants

Thirty Participants with Asthma, aged 30-60 years were recruited in this study. Patients were included in the study according to following criteria. (1) Individual diagnosed with Asthma, (2) Active user of smart phone, (3) willing to use Telephysiotherapy, (4) does not having history of hospitalization in last 6 months. All Participants allocated in one group.

### 2.3 Intervention

All the participants were recommended to perform 10 min of Purse lip breathing exercise, 4 min of Thoracic expansion exercise and 18 min of Interval training program for 4 weeks of intervention. Interval training program includes 3 min of warm up phase, 12 min of main exercise, and 3 min of cool-down phase.

### 2.4 Outcome measures

The main measure of the study was a 30sec sit to stand test, while secondary measure was SF-12Scale. Both the outcome measures were assessed pre- and post- intervention of the study. 30 Sec sit to stand test: the test was used to check physical and functional performance before and after the intervention. SF- 12 Scale: Scale was used to check health-related quality of life. The scale includes 12 questions about physical health and mental health. SF-12 Scale higher the score indicate lesser disability and lesser the score indicate higher disability.

## 2.5 Statistical Analysis

The statistical analysis was done by the statistical package for the social science (SPSS) statistical software version 20 was used. The level of significance was 0.05 and the confidence interval (CI) 95%. Microsoft Word and Excel were used to generate graphs and tables. Normal distribution of data was checked by primary outcome measure 30sec sit to stand test Skewness, Kurtosis and Shapiro-wilk test values and Histogram presentation. The Parametric paired-test was used to analyze both the outcome measures (1) 30 sec sit to stand test and (2) SF-12 Scale Pre and Post data difference.

## 3. Results

30 Patients with Asthma were included in this study. Significant difference were observed pre and post data outcome measures. Pre and post average mean of 30 sec sit to stand test was 9.4 sit to stand/ minutes and 14.7 (p>0.05) sit to stand/minutes. Pre and Post average mean of SF-12 Scale component pre-PCS (physical component summary) 35.53 Score post-PCS 81.33 Score pre-MCS (mental component summary) 33.81 and post -MCS 76.33 (p>0.05).

## 4. Discussion

This study was aimed to check the efficacy of Telephysiotherapy in People with Asthma. 30 sec sit to stand test and SF- 12 scale were taken to assess Exercise tolerance and health-related quality of life. Purse lip breathing exercise provide resistance to expiration it maintains reverse pressure and prevents early closing of alveoli. Provide central level gaseous exchange and washing out the carbon dioxide. Which will use full to provide oxygenation to working muscles and enhance physical and functional performance. Thoracic expansion exercise by dupatta expiration is assisted by tightening of dupatta. More exhalation promotes more inhalation. It activates stretch reflex which will improve vital capacity ultimate leads to more gaseous exchange. Interval training program at PRE-13 submaximal workload extends anaerobic threshold. Improve the peripheral gaseous exchange leads to improve physical and functional performance. The finding suggests that there is clinically and statistical improvement seen in outcome measures. So, on basis of the analysis of result, the study null hypothesis is rejected and the alternative hypothesis is accepted which suggests that there is the significant effect of Telephysiotherapy in people with Asthma.

## 5. Conclusion

The Present study concluded that Telephysiotherapy for Asthmatic People shown significant improvement in 30Sec Sit to Stand Test and SF-12 Scale in Statistical Analysis, which suggest that there is significant improvement in Exercise tolerance and Quality of Life in Asthmatic People. Improvement suggests an increase in the anaerobic threshold at PRE-13, Provide information on extending anaerobic threshold which must be taken into consideration while practicing an Interval training program.

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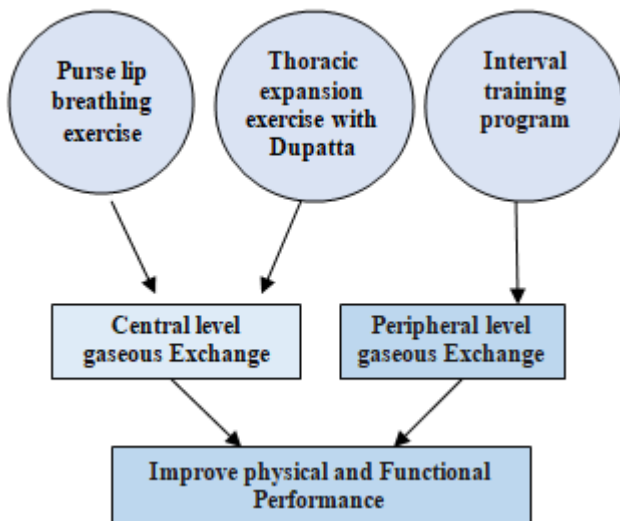


Figure 1: Effect of exercise

Table 1: Normal distribution of data

| Skweness | Kurtosis | Shapiro-wilk test |
|----------|----------|-------------------|
| 1.07     | -0.40    | .181              |

Table 2: Paired sample-t test for 30sec sit to stand test

| Outcome Measure          | Mean   | Std. deviation | T-value | Sig. |
|--------------------------|--------|----------------|---------|------|
| 30 Sec sit to stand test | -5.333 | 1.269          | -23.028 | .000 |

Table 3: Paired sample t-test for SF-12 Scale

| Outcome measure | Mean    | Std. deviation | T- value | Sig. |
|-----------------|---------|----------------|----------|------|
| PCS Pre Post    | -45.800 | 9.604          | -26.120  | .000 |
| MCS pre post    | -42.533 | 9.475          | -24.587  | .000 |