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The Effect of Slow Alternate Nostril Breathing on Respiratory Efficiency and Saturation of Peripheral Oxygen (SpO2) in Asthma Patients.

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Introduction :

Asthma is a chronic lung disease caused by inflammation and muscle tightening around the airways making it harder to breathe. Alternate nostril breathing has been reported to improve cardiovascular, respiratory, mental, and physical health; and this research aims to prove the benefit of alternate nostril breathing in increasing respiratory efficiency and SpO2 in asthma patients.

Aim and objectives :

To measure the effect of 3 weeks of slow alternate nostril breathing on respiratory efficiency and SpO2 in asthma patients. To compare the outcomes with the results of the control group.

Methods and materials:

Study Design : Interventional study
Study place : Velammal Medical Hospital
Sample Size : 40 Asthma patients (20 Patients for test and control groups each)
Study duration : 3 weeks
Study population : Asthma patients

Inclusion criteria:

1. Both genders
2. Age : 20 to 40 years
3. Patients with controlled asthma

Exclusion criteria:

1. Patients with COPD
2. Patients with diabetes mellitus and hypertension

Procedure:

The following parameters are assessed in Test and control groups :

1.Breath holding time.
2.Airway patency by peak expiratory flow rate.
3. SpO2 by using a pulse oximeter.

Patients in the test group are made to practice slow alternate nostril breathing daily, while no intervention is done for the control group. Outcomes of both the groups are compared on re-evaluation after 3 weeks and results are analysed using SPSS software.

Result:

Breath holding after normal inspiration				Breath holding after normal expiration			
Mean		Std.Dev		Mean		Std.Dev	
Pre - Test	Post - Test	Pre - Test	Post - Test	Pre - Test	Post - Test	Pre - Test	Post - Test
11.95	13.4	1.791	1.667	5.65	6.55	1.387	1.356
P value		0.00069		P value		0.02008	

SpO2				PEFR			
Mean		Std.Dev		Mean		Std.Dev	
Pre - Test	Post - Test	Pre - Test	Post - Test	Pre - Test	Post - Test	Pre - Test	Post - Test
93.35	96.50	1.424	0.319	333.25	375.50	24.402	21.879
P value		0.0032		P value		0.0011	

The data was entered into MS Excel and Mean, standard deviation and p- values were found for the test group. All the results are statistically significant. On comparing with the control group, there was no significant change. (p = 0.0603)

Discussion:

Slow alternate nostril breathing →

1. Decreases alveolar dead space
2. Increases alveolar ventilation
3. Strengthens the respiratory muscles
4. Increases perfusion of the lungs

→ Increased PEFR Breath holding time and SpO2

Conclusion:

Alternate nostril breathing has an advantageous effect in asthma patients by increasing their overall respiratory efficiency and SpO2 and improving airway patency in the asthmatic group.

References:

Dinesh T, Gaur GS, Sharma VK, Madanmohan T, Kumar KH, Bhavanani AB. Comparative effect of 12 weeks of slow and fast pranayama training on pulmonary function in young, healthy volunteers: A
randomized controlled trial. International journal of yoga. 2015 Jan;8(1):22.