SNS COLLEGE OF PHYSIOTHERAPY
COIMBATORE-35

COURSE NAME : BPT., Physiotherapy IV Year
SUBJECT : Exercise Therapy II
UNIT : III
TOPIC : Breathing Exercises
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INTRODUCTION

Breathing exercises are a group of **therapeutic exercises designed to improve ventilation, oxygenation, chest mobility, respiratory muscle strength, and breathing efficiency**.

They are an integral part of **cardio-respiratory physiotherapy** and are used in both **preventive and rehabilitative care**.

AIMS AND OBJECTIVES OF BREATHING EXERCISES

Aims

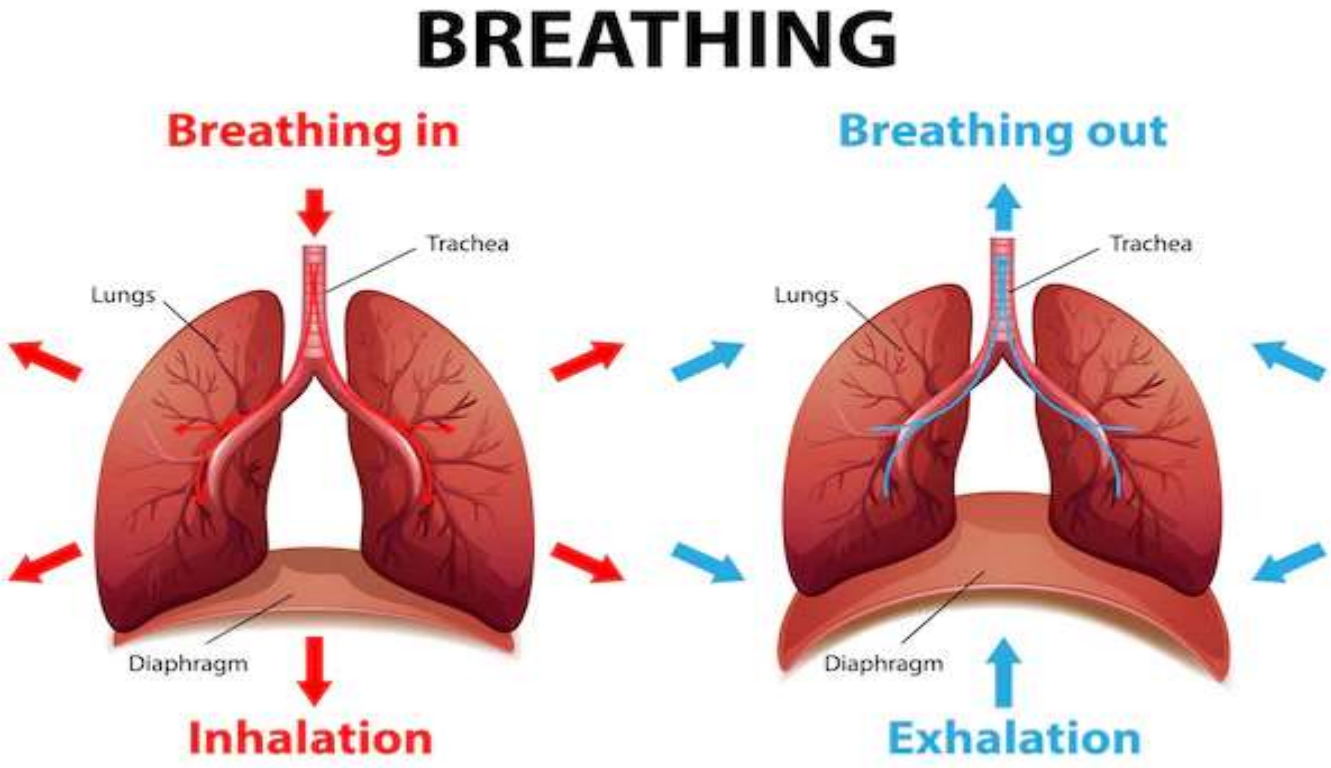
- To improve **pulmonary ventilation**
- To prevent **pulmonary complications**
- To promote **efficient breathing patterns**

Objectives

- Improve **lung expansion**
- Reduce **work of breathing**
- Strengthen **respiratory muscles**
- Enhance **oxygen exchange**
- Facilitate **secretion clearance**
- Promote **relaxation**

PHYSIOLOGY OF NORMAL BREATHING

- **Inspiration**: Active process
- Diaphragm contracts and descends
- External intercostals elevate ribs
- **Expiration**: Passive at rest
- Elastic recoil of lungs and chest wall
- Controlled by:
- **Medullary respiratory centers**
- **Chemoreceptors (CO_2, O_2, pH)**



TYPES OF BREATHING EXERCISES

Diaphragmatic Breathing (Abdominal Breathing)

Definition:
A breathing technique that emphasizes the use of the **diaphragm** rather than accessory muscles.

Procedure:
- Patient in crook lying / sitting
- One hand on chest, one on abdomen
- Inhale through nose → abdomen rises
- Exhale through mouth → abdomen falls

Advantages:
- Reduces accessory muscle activity
- Improves ventilation in basal lung regions
- Decreases work of breathing

Indications:
- COPD
- Asthma
- Post-operative patients
- Anxiety disorders

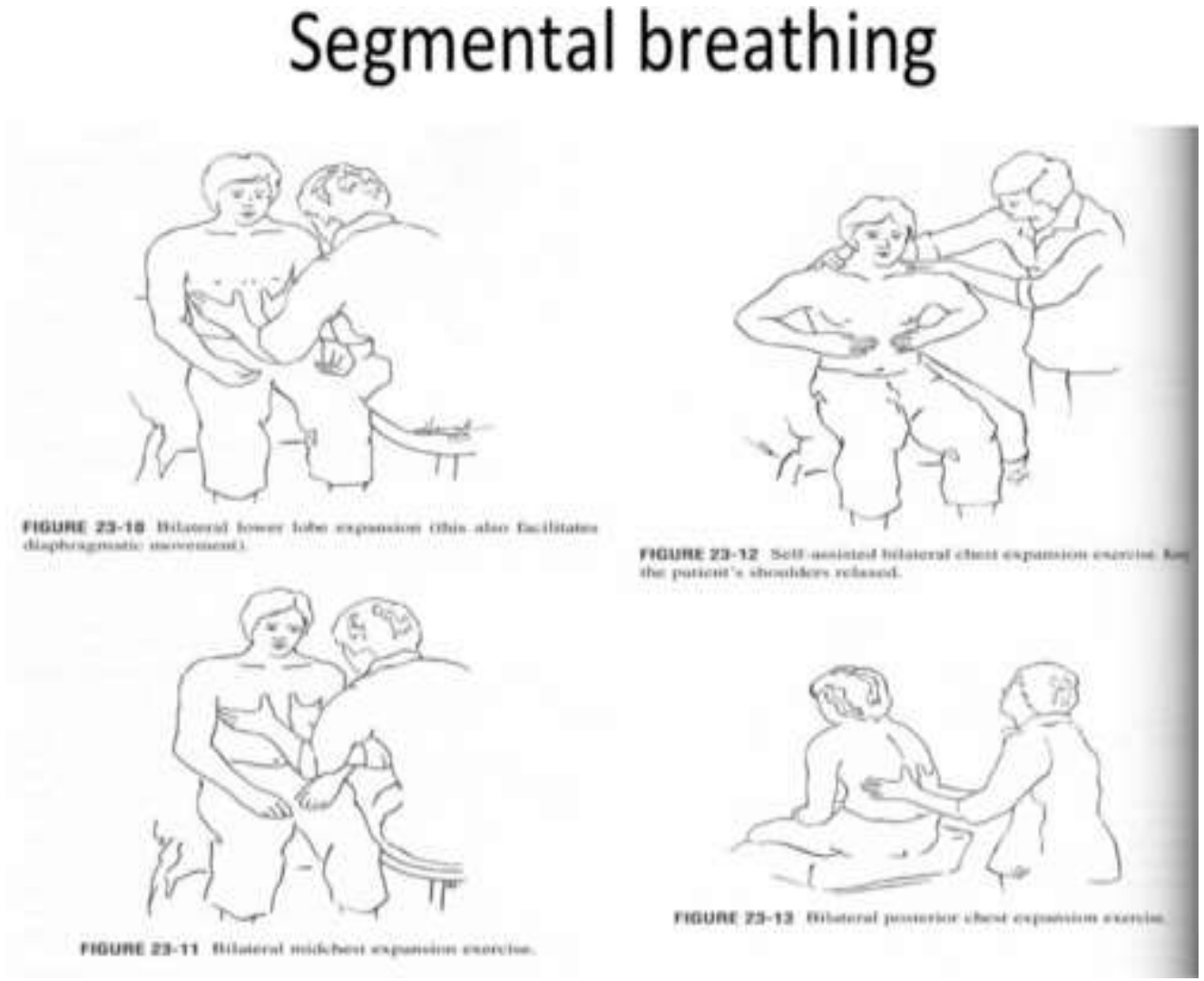
Segmental Breathing

Definition:
Breathing directed to specific segments of the lungs using **manual facilitation**.

Types:
- Upper costal
- Lower costal
- Lateral costal
- Posterior basal breathing

Procedure:
- Therapist places hands over targeted segment
- Gentle pressure during expiration
- Resistance during inspiration

Benefits:
- Improves localized lung expansion
- Enhances chest wall mobility

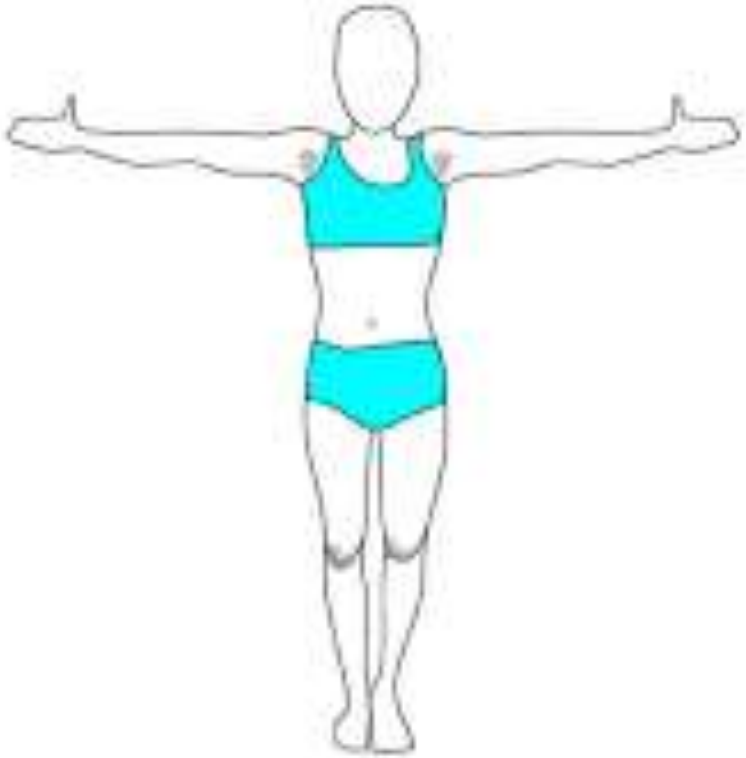


Thoracic Expansion Exercises

Definition:
Deep inspiration followed by relaxed expiration to increase **lung volumes**.

Technique:
- Slow deep inspiration
- Hold for 2–3 seconds
- Relaxed expiration

Physiological Effects:
- Increases tidal volume
- Prevents atelectasis
- Improves collateral ventilation



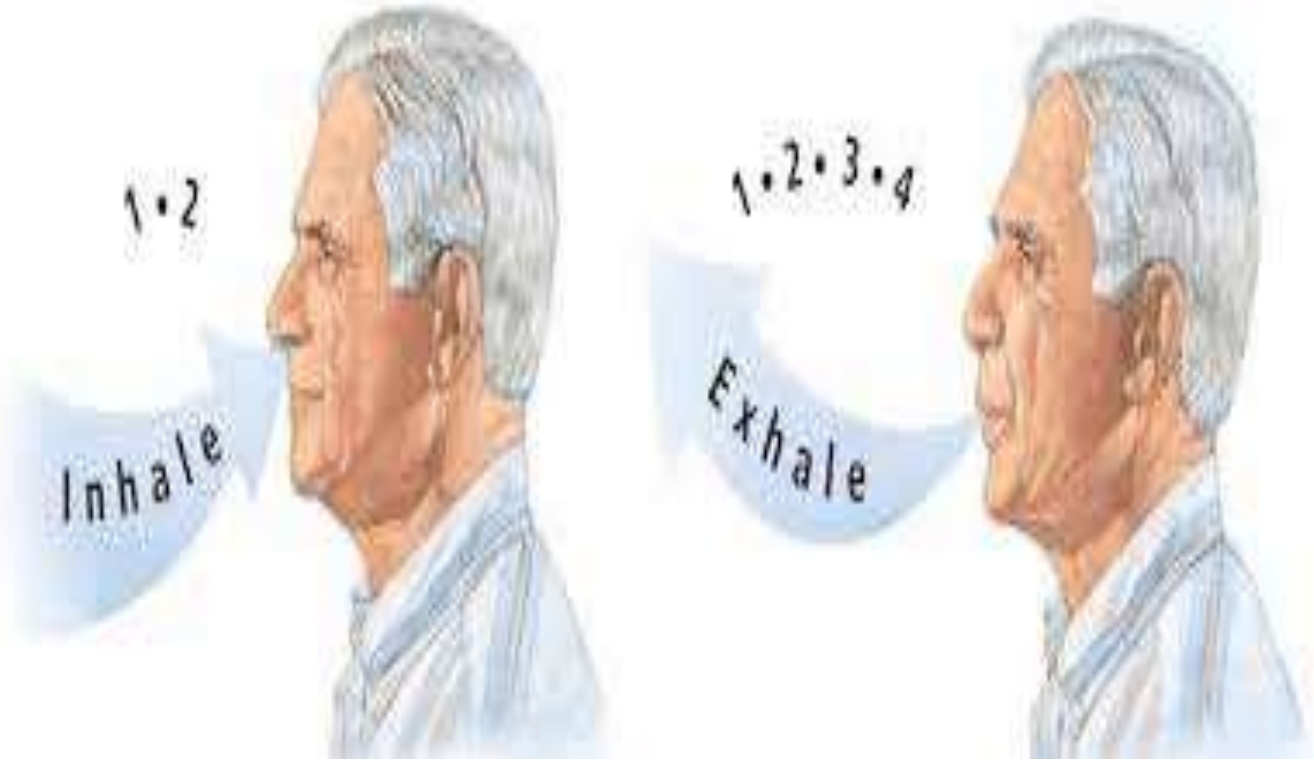
Pursed Lip Breathing

Definition:
A controlled expiratory technique to maintain **positive airway pressure**.

Procedure:
- Inhale through nose
- Exhale slowly through pursed lips

Advantages:
- Prevents airway collapse
- Improves expiration
- Reduces dyspnea

Indications:
- COPD
- Emphysema
- Bronchial asthma



Paced Breathing

Definition:
Synchronization of breathing with physical activity.

Examples:

- Inhale for 2 steps, exhale for 4 steps
- Used during walking or stair climbing

Benefits:

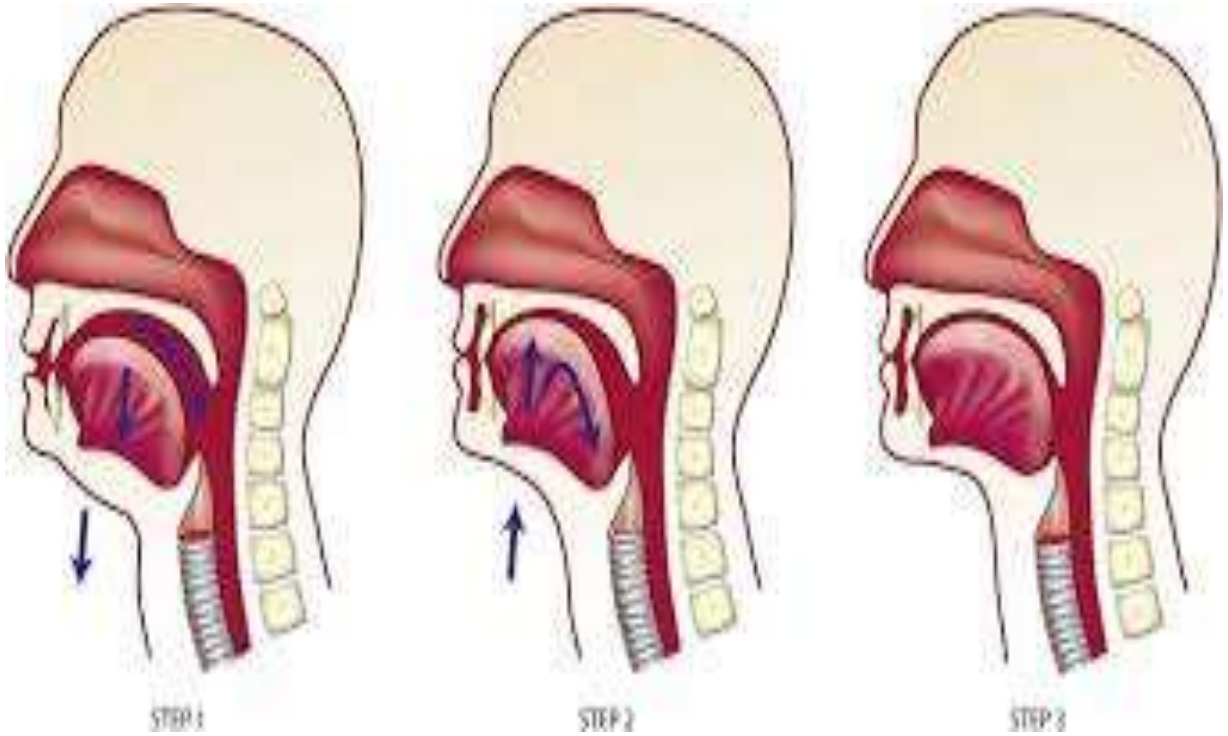
- Reduces breathlessness
- Improves exercise tolerance

Glossopharyngeal Breathing

Glossopharyngeal Breathing (Frog Breathing)

Definition:
Air is forced into lungs using tongue and pharyngeal muscles.

Indications:
- High spinal cord injury
- Respiratory muscle paralysis



GENERAL PRINCIPLES OF BREATHING EXERCISES

- Comfortable position
- Relaxed environment
- Avoid fatigue
- Proper therapist instruction
- Monitor vital signs
- Progress gradually

INDICATIONS & CONTRAINDICATIONS

Indication

- Post-operative thoracic/abdominal surgery
- COPD
- Asthma
- Pneumonia
- Restrictive lung disorders
- Neurological conditions
- Anxiety and stress-related disorders

Contra Indication

- Severe respiratory distress
- Unstable cardiac conditions
- Acute pulmonary embolism
- Untreated pneumothorax
- Recent hemoptysis

ADVANTAGES OF BREATHING EXERCISES

- Improves oxygenation
- Reduces dyspnea
- Prevents respiratory complications
- Enhances functional capacity
- Improves quality of life

In Class Assessment

1. Diaphragmatic breathing primarily helps in:

A. Increasing accessory muscle activity
B. Improving basal lung ventilation
C. Reducing chest wall mobility
D. Increasing respiratory rate

2. Pursed lip breathing is mainly indicated in patients with:

A. Restrictive lung disease
B. Pneumothorax
C. Chronic obstructive pulmonary disease
D. Pulmonary embolism

3. The main physiological benefit of thoracic expansion exercises is:

A. Decrease in tidal volume
B. Prevention of atelectasis
C. Reduction in oxygen diffusion
D. Increase in airway resistance