Pulmonary Rehabilitation in COPD
LEARN, BREATH AND SLEEP BETTER

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Pulmonary rehabilitation

- A multidisciplinary programme of care
- Individually tailored
- Designed to optimise
  - physical and social performance
  - autonomy.

ERS-ATS COPD *guidlines*

Pulmonary rehabilitation should be considered

in patients with COPD

- who have dyspnoea or other respiratory symptoms
- reduced exercise tolerance
- restriction in activities because of their disease, or impaired health status.

- Pulmonary rehabilitation programmes include:
  - exercise training
  - education
  - psychosocial/behavioural intervention
  - nutritional therapy
  - outcome assessment
  - promotion of long-term adherence to the rehabilitation recommendations

Benefits of Pulmonary Rehabilitation

- Break out of the “emotional straightjacket”

NICE:

- Improved exercise capacity (A)
- Improved health-related quality of life (A)
- Reduced hospitalisations and length of stay (A)
- Reduced anxiety and depression associated with COPD (A)

- ? Increased survival (ACCP)

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- ? Increased survival (ACCP)
- Benefits probably extend well beyond the period of rehab, especially if exercise training is maintained at home. (GOLD)

In what settings?

- Inpatient
- outpatient
- community settings
- possibly at home.

- Should be held at times that suit patients
- in buildings that are easy to access with appropriate access for those with disabilities.

Who is it for?

- All disease severities
  - but may not benefit if unable to walk
- Where SYMPTOMS AND DISABILITY are present (usually MRC grade 3)
- No justification for selection on basis of age, impairment, disability, smoking status or oxygen use

Who is it for?

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- No justification for selection on basis of age, impairment, disability, smoking status or oxygen use
- Enrolment on a smoking cessation programme a pre-requisite for inclusion?
- Continuing smokers may be less likely to complete
- Contra-indicated if recent MI/ unstable angina

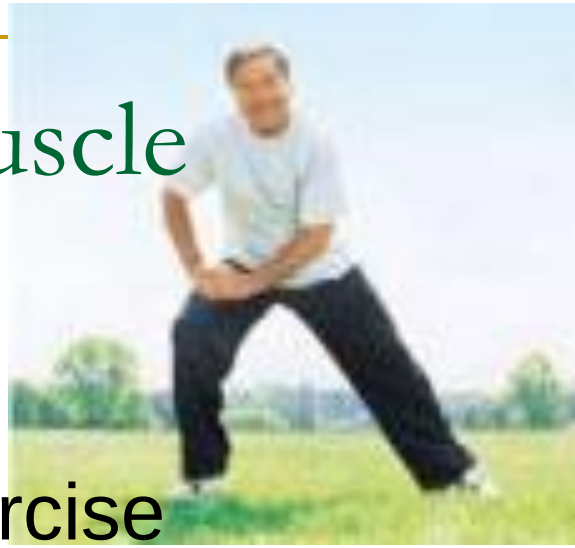
Course Content and Duration

- The longer the better usually 6-12 weeks (NICE). Effective length 8 weeks (GOLD)
- Diagnostic assessment
- Baseline and outcome assessments
  - exercise capacity (shuttle walk)
  - disability/health status (questionnaire)
- Interventions
  - Exercise training
  - Educational
  - Psychological
  - Nutritional

Exercise Training: Frequency, Intensity and Duration

- Daily to weekly (x3/week)
- 10-45 mins (? < 20 mins insufficient to elicit a training effect)
- 50% intensity (50% peak oxygen consumption) upto maximum
- Optimum duration not determined (longer courses show greater effects)

Exercise Training: Which muscle groups?



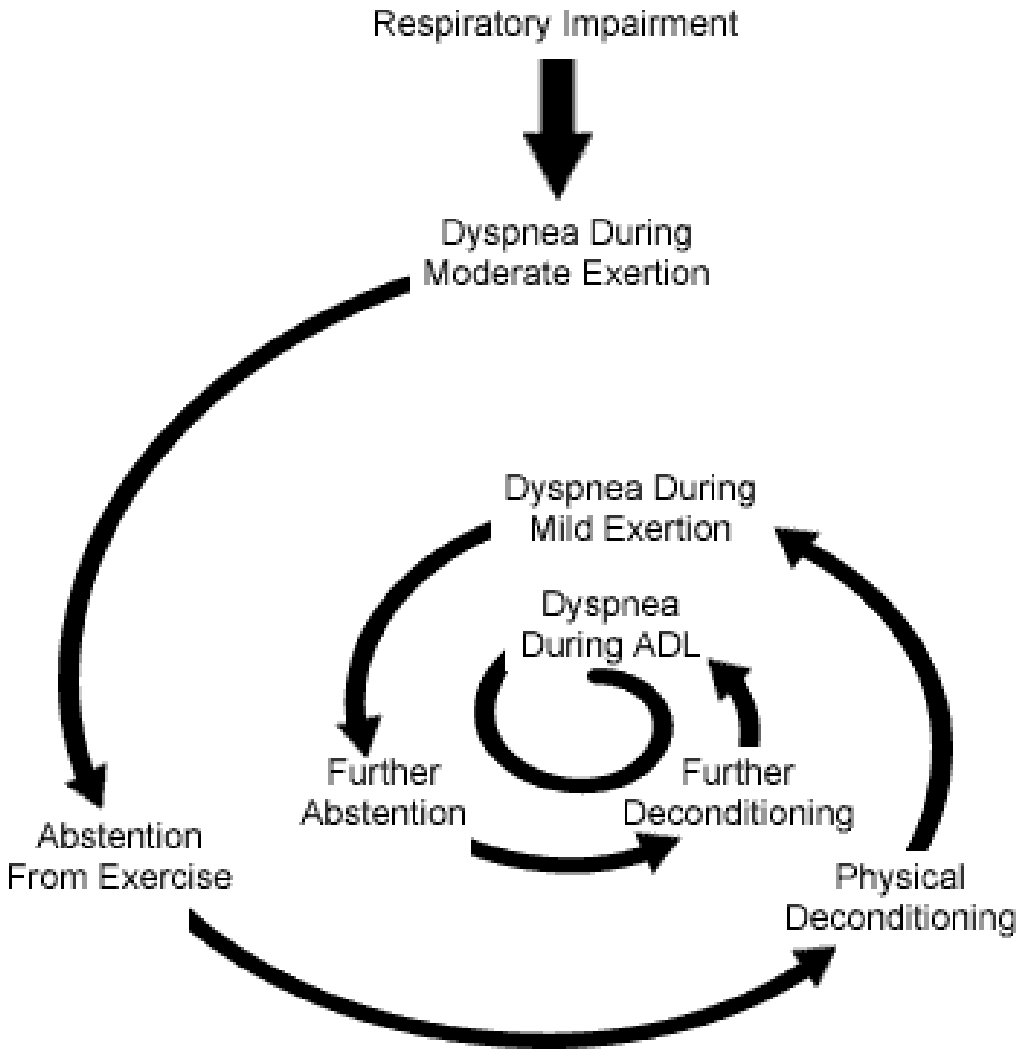
- Lower limb training improves exercise tolerance though no effect on measured lung function
- DOESN'T HAVE TO BE HI TECH- corridor training common
- Upper limb training improves arm strength and reduces ventilatory demand

Breathing Retraining

- **Diaphragmatic Breathing:**
  - consciously expand their abdominal wall during inspiratory diaphragm descent.
  - relax their abdominal wall during inspiration, and with one hand on the abdomen and the other hand on the chest.
  - Practice this technique for one-half to one hour, two to three times daily.
- **Pursed-Lip Breathing:**
  - breathing in through the nose and then blowing against partially closed lips.
  - to reduce shortness of breath, especially during exercise.
- **Psychological Effects of Breathing Retraining:**
  - affects the distress component of shortness of breath
  - improves ventilation function
  - Anxiety and panic can be reduced

Airway Clearance

- Controlled cough or a forced expiratory technique (huff coughing)
- **Chest Physiotherapy** with postural drainage, and/or chest percussion and/or vibration,



ADL = activities of daily living

Psychological components

- Associated with anxiety and depressive symptoms
  - may interfere with activities of daily living (ADL's)
- Evidence lacking for short term psychological interventions as a single therapeutic modality
  - longer term interventions may be beneficial
- Expert opinion supports the use of educational and psychological interventions in pulmonary rehab. programmes

Psychological components

Typical goals

- address depression/anxiety
- teach relaxation skills
- discuss relevant issues such as sexuality, family and work relationships

- Positive evidence relates to adherence intervention and cognitive modification

Education

- Usually in group classes
- Evidence lacking for educational interventions in isolation
- benefits as part of a multidisciplinary approach widely accepted

Education

- A+P
- Pathology
- Breathing retraining
- Nutrition
- Medication regimens and mechanisms
- Importance of exercise
- Managing dyspnoea/ self-management
- Travel advice
- Safe oxygen use
- Advance directives and end of life decisions where appropriate

Smoking Cessation

- Critical part of program
- Avoiding exposure to involuntary smoke should also be encouraged
- Group smoking cessation clinics
- Offer strategies and support to patients who attempt to quit
  - Behavioral therapy
  - Counseling
  - Medication treatment.

Nutritional counselling

- Overweight and underweight are problems
- 25% of patients with moderate to severe COPD show a reduction in BMI
  - independent risk factor for mortality in COPD
- Reasons for difficulty eating
  - poor dentition
  - dyspnoea whilst eating
- Advise frequent small meals

Is Pulmonary rehab. a practical modality of treatment in SL?

Mr. N. A. 75yrs

- Progressive worsening breathlessness over the last 5 years, worse over the last 3 months
- Breathless at rest, sleeps seated down on arm chair.
- Is on a combination inhaler
- O/E B/l Wheezes
- O_2 sats at rest 88%

Mr. N. A. 75yrs
Management

- Optimise drug treatment
  - Combination inhaker Flutica/ Salmet
  - Add tiotropium inhaler
  - Long acting Theophylloines
  - Oral steroids
  - Antibiotics

- Improved clinically SaO2 93%

Mr. N. A. 75yrs
Education

- Cause of COPD and pathophysiology in brief
- Importance of keeping well clear of smoking
- Advice on nutrition
- Physical exercise and breathing exercises

Keep active

Be as normal as possible

Review visits

- Remains well
- Comes on a bicycle, although breathless at rest
- Appetite and ADL good. Autonomous life
- Had exacerbation of symptoms after stopping treatment for 2 days as he felt normal over the last 2 years
  - Treatment
  - Repeat counselling and support offered

Summary

- Pulmonary rehabilitation includes
  - Patient education
  - Exercise and rebreathing training
  - Advice on nutrition
  - Psychological support

- Pulmonary rehabilitation has been shown to
  - Improve exercise capacity
  - Reduce breathlessness
  - Improve health-related quality of life
  - Decrease healthcare utilisation

References

- NICE: National clinical guidelines on management of COPD in adults in primary and secondary care

- GOLD: Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease

- Pulmonary Rehabilitation Joint ACCP/AACVPR Evidence-Based Guidelines. Chest/ 112 / 5 / November 1997