

## 12: PHYSICAL ACTIVITY AND RESPIRATORY DISEASE

### Asthma

Asthma is a common condition with a variable intensity leading to a reduced physical performance in many individuals. Physical activity training does not appear to change lung function, but does improve cardiopulmonary fitness and thereby performance. Many asthmatics suffer with exercise induced broncho-spasm arising during or post exertion.

- It varies with the intensity and type of activity and the surrounding environment<sup>1</sup>
- Patients should not exercise if they are actively wheezy or if peak flows have declined
- Symptoms may be greatest in cold dry air, dusty polluted air or when pollen levels are high<sup>1</sup>
- Least symptoms are experienced in warm humid environments<sup>1</sup>
- Physical activity should take place when their condition is stable<sup>1</sup>

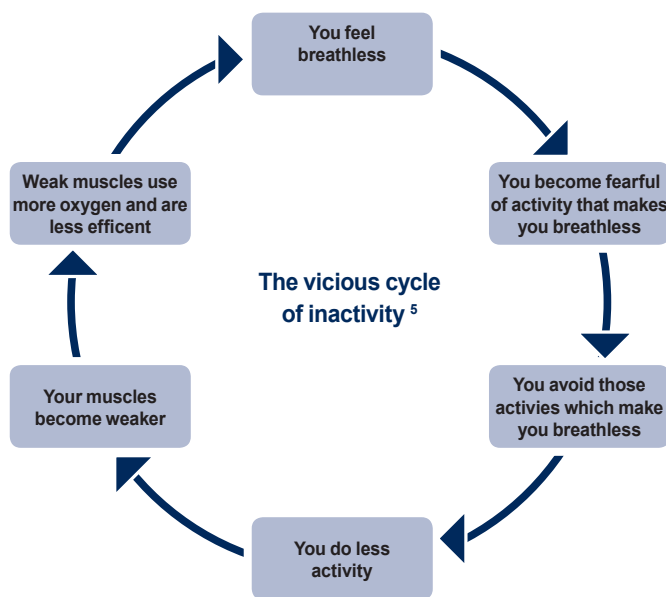
Precautions against exercise induced symptoms can be taken. Pre-medication with beta-2 agonists 15 minutes before exercise, an extended warm up and a gradual cool down has been shown to minimize or completely prevent symptoms of breathing difficulties.<sup>1,2</sup>

#### Contraindications

Unstable asthma or actively wheezing<sup>3</sup>

### Chronic Obstructive Pulmonary Disease (COPD)

COPD leads to damage of both airways and lung tissue resulting in obstruction to airflow and consequent dyspnoea. As COPD progresses, patients have increasing dyspnoea which often makes them anxious about moving and therefore become more sedentary.<sup>3</sup> This causes a decreasing cardiovascular capacity and reduced peripheral skeletal muscle strength, contributing to a worsening functional level, which exacerbates their dyspnoea,<sup>4</sup> thus creating a vicious cycle of inactivity.<sup>5</sup>



Conversely, physical exercise training programmes have clearly shown patients can become less afraid of exerting themselves and more physically active.<sup>6-9</sup> The effect is largely on muscle and mental well-being. By improving their cardio respiratory muscles and peripheral skeletal muscle, exercise programmes have shown patients can have:<sup>7-16</sup>

- a better quality of life
- increased well-being
- fewer symptoms of fatigue and dyspnoea
- an increase in exercise tolerance
- an increase in physical activity levels
- a reversal of COPD associated wasted muscles or sarcopenia in some patients
- lower morbidity with fewer hospital admissions

Physical activity programmes however, have not been shown to affect a change in lung function.<sup>7</sup>

Physical activity is important for all patients with COPD as this has been shown to be the strongest predictor of all-cause mortality<sup>17,18</sup> Thus, NICE recommendations<sup>19</sup> are for all patients with a Medical Research Council (MRC) dyspnoea grading 3-5 who are functionally breathless, to be offered outpatient pulmonary rehabilitation. The British Thoracic Society guidelines<sup>20</sup> also includes patients with a MRC grading of 2 who are functionally breathless. However, all patients with level 1-2 should also be encouraged to increase their activity to slow their decline in pulmonary function and progression of COPD<sup>21</sup> with evidence that community based programmes can also help.<sup>22</sup>

Grade	Degree of breathlessness related to activities
1	Not troubled by breathlessness except on strenuous exercise
2	Short of breath when hurrying on the level or walking up a slight hill.
3	Walks slower than most people on the level, stops after a mile or so, or stops after 15 minutes walking at own pace
4	Stops for breath after walking about 100 yards or after a few minutes on level ground
5	Too breathless to leave the house, or breathless when undressing

NICE guidelines NG115 on Chronic obstructive pulmonary disease recommend<sup>19</sup>

- Pulmonary rehabilitation should be available to all appropriate people with COPD, including those with recent hospitalisation for an acute exacerbation
- Pulmonary rehabilitation should be offered to all patients who consider themselves functionally disabled by COPD (MRC grade 3 and above)
- The rehabilitation process should incorporate a programme of physical training, disease education, nutritional, psychological and behavioral intervention

#### Contraindications

Exercise should be stopped or modified with O<sub>2</sub> saturation of 88% or less<sup>4</sup>

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### Key message:

Exercise is an important part of any treatment plan for a patient with COPD. It can increase their quality of life and lead to fewer hospital admissions.

### Consider:

1. Audit your COPD patients to see if they have been offered a pulmonary rehabilitation programme.
2. Auditing and monitoring your COPD patients to determine their present activity levels.
3. Advising on diagnosis of the importance of this lifestyle approach for their own well-being.

**Signpost** to additional support resources such as found at [The British Lung Foundation](#)

### Benefits to health professionals:

Reduced admissions, drug costs, appointments and visits

*Extracted from the Wales HEIW CPD module on physical activity [Motivate2Move](#). Now part of the RCGP Clinical Priority on physical activity and lifestyle. Review date Dec 2019.*

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