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COPD: Obstructive Chronic Bronchitis and/or Emphysema

Obstructive chronic bronchitis and emphysema are major breathing diseases that cause airways to become “obstructed” or blocked. They often occur together but they can also occur separately. They are also known as COPD (chronic obstructive pulmonary diseases).¹

Obstructive Chronic Bronchitis

Definition:
• When your airways are constantly attacked by pollutants, such as those found in cigarette smoke, they become inflamed and swollen.
• Your bronchi become filled with thick, sticky mucous. You cough and produce mucous or sputum every day.
• Later, your bronchi may become obstructed (limited airflow). Because of an airway obstruction, your lungs do not fully empty and air is trapped.
• You have obstructive chronic bronchitis.

Signs and symptoms:
• Sputum every day
• Frequent coughing
• Wheezing
• Shortness of breath when exercising or during daily activities
• Your spirometry test confirms that you have an airflow obstruction

Emphysema

Definition:
• Your bronchial tubes branch into smaller and smaller tubes, which end in millions of tiny air sacs called alveoli.
• The exchange of oxygen (O₂) and carbon dioxide (CO₂) takes place in the alveoli.
• When your alveoli are damaged: there is a loss of lung elasticity, your lungs do not fully empty and air is trapped exchange of oxygen (O₂) and carbon dioxide (CO₂) becomes more difficult, less oxygen gets into your body
• You have emphysema.

Signs and symptoms:
• Shortness of breath when exercising or during daily activities
• Your spirometry test confirms that you have an airflow obstruction

Obstructive chronic bronchitis and emphysema are major breathing diseases that cause airways to become “obstructed” or blocked. They often occur together but they can also occur separately. They are also known as COPD (chronic obstructive pulmonary diseases).
Cigarette smoke is the primary pollutant that can damage your lungs and is the leading cause of COPD.\textsuperscript{1}

The self-cleaning mechanism of your airways is less efficient if you smoke or are exposed to cigarette smoke.

Cigarettes contain over 7,000 chemicals. Most of these are toxic and can cause pulmonary disease and/or cancer.\textsuperscript{2}

Smokers who are vulnerable will experience a much more rapid decrease of their lung function. This will result in shortness of breath initially, then disability and ultimately death.\textsuperscript{3}

However, it is never too late to stop smoking.

If you stop smoking, you will have a reduction of cough and sputum and the annual decline of your lung function will tend to return to normal. This means that you may slow or stop the deterioration and avoid disability.\textsuperscript{4}

If you stop smoking, you also reduce the risk of heart attack and cancer.

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\textsuperscript{2} Green CR, Rodgman A. The tobacco chemists’ research conference: A half-century of advances in analytical methodology of tobacco and its products. Recent advances in tobacco science, 1996; 22: 131-304.

\textsuperscript{3} Global Initiative for COPD – 2013 update. http://www.goldcopd.org/ access 20130814

The leading cause of COPD


Your lung function needs to be measured to make a diagnosis of COPD.
Suggestions to reduce or avoid exposure to those factors

**Indoor and Outdoor Pollutants**
- Quit smoking and avoid second-hand smoke. Ask people around you not to smoke.
- Avoid strong odours. Make sure to use household cleaning products, paint or varnish in well-ventilated areas.
- Avoid smog. Listen to your local weather station. If the quality of air is not good, try to stay indoors.
- Avoid exhaust and gas fumes. For example, avoid using underground parking as well as travelling through high-traffic and industrial areas.

**Emotions**
- Having to cope with the changes COPD brings to your life can be stressful. Do not hesitate to talk to your friends and family about your feelings. Let them know the things that are bothering you, and suggest ways that they can help.
- Learn to decrease your levels of stress and anxiety by keeping calm and practicing breathing and relaxation techniques.

**Changes in Temperature**

A) When it is cold:
- Dress warmly and cover your nose with a scarf, especially when it is windy. If it is extremely cold, just stay inside.

B) When it is hot:
- Try to stay in an air-conditioned environment.
- If there are no medical contraindications, drink plenty of water; do not wait to be thirsty before doing so.
- Avoid strenuous activities and exercises.
- Protect yourself from the sun; wear light clothing, preferably in light colours, and a hat.

**Respiratory Infections**
- Avoid people who have a respiratory infection such as a cold or the flu. Wash your hands if you are in contact with them.
- You and the people you are living with should get a flu shot every fall. Ask your doctor about the pneumonia vaccine (pneumococcal vaccine).
Factors that can make your symptoms worse (COPD exacerbation)

Here are the most common ones:

**Indoor pollutants**
- cigarette smoke, household cleaning products, strong odours, dust

**Outdoor pollutants**
- exhaust fumes, gas fumes, smog

**Emotions**
- anger, anxiety, stress

**Changes in temperature**
- extreme heat or cold, wind, humidity

**Respiratory infections**
- cold, flu, bronchitis, pneumonia

Discuss with your health care provider (e.g. physician or resource person) about the use of a Plan of Action to better prevent and manage your symptoms earlier.
Pursed-lip Breathing

Goal:
- With this technique, you breathe out slowly, which allows you to exhale more air, thus leaving less air trapped inside your lungs.

Benefits:
1. Reduces breathing frequency and shortness of breath.
2. Helps you return to your normal breathing pattern after exercise.
3. Improves your ability to perform different activities.
4. Increases your sense of control over your own breathing.

Points to remember:
- The focus should be on expiration.
- Expiration should be made longer than inspiration, but not forced.
- First master this breathing technique while at rest. Then you will be able to use it with activities requiring effort.

Practice pursed-lip breathing with the patient in different situations such as walking, climbing stairs and/or carrying parcels.
Breathing technique to reduce shortness of breath

Pursed-lip Breathing

Steps to follow

Step 1
Inhale slowly through your nose until you feel that your lungs are filled with air.

Step 2
Purse your lips as you would if you were whistling or about to kiss someone.

Step 3
Exhale slowly while keeping your lips pursed. Make sure to take longer to breathe out than you would to breathe in. Remember to keep your lips pursed.

Do not force your lungs to empty.
Body positions to reduce shortness of breath

Poor posture - with shoulders tensed or hunched over - can also lead to increased shortness of breath, because your chest cannot expand to its full capacity. Changing your body position while sitting or standing can help you breathe better.

Goal:
- To offer relief to accessory muscles and improve diaphragm function.

Benefits:
1. Help the diaphragm to move easier.
2. Help reduce shortness of breath.

Points to remember:
- Use pursed-lip breathing with the different body positions.
- Lean your chest forward slightly. This will lessen pressure against your diaphragm, allowing it to relax more.

<table>
<thead>
<tr>
<th>Sitting position A</th>
<th>Sitting position B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place both feet on the ground.</td>
<td>Place both feet on the ground.</td>
</tr>
<tr>
<td>Lean your chest forward slightly.</td>
<td>Lean your chest forward slightly.</td>
</tr>
<tr>
<td>Rest your elbows on your knees.</td>
<td>Rest your arms on a table.</td>
</tr>
<tr>
<td>Rest your chin on your hands.</td>
<td>Rest your head on a pillow.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standing position A</th>
<th>Standing position B</th>
<th>Standing position C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean your chest forward slightly.</td>
<td>Rest your elbows on a piece of furniture.</td>
<td>Rest your hands on a piece of furniture.</td>
</tr>
<tr>
<td>Rest your hands on your thighs.</td>
<td>Rest your head on your forearms.</td>
<td>Avoid “grabbing the table” while using this position.</td>
</tr>
<tr>
<td></td>
<td>Relax your neck and shoulders.</td>
<td>This can overwork some of your accessory breathing muscles and cause, breathlessness if you hold the position too long.</td>
</tr>
</tbody>
</table>

Practice body positions with the patient in different situations such as sitting or standing.
Body positions to reduce shortness of breath

**Sitting Positions**

A

B

**Standing Positions**

A

B

C
Coughing Techniques

When you have COPD, your airways can be blocked with thick, sticky mucous or sputum. Not only does this make it harder for you to breathe, it also provides a breeding ground for infections. Coughing, therefore, is important because it helps to remove sputum from your lungs. A regular, hacking cough, however, will not do the job. There is a proper way of coughing, just as there is a proper way of breathing.

### Controlled coughing technique

**Goal:**
- To remove sputum from your lungs while using less effort.

**Benefits:**
1. Prevents infections caused by increased sputum in your lungs.
2. Reduces shortness of breath caused by sputum blocking your airways.

**Points to remember:**
- Avoid coughing in small fits.
- It is important to save energy.

### “Huffing” technique

**Goals:**
- To remove sputum from the lungs while using less effort.
- To save energy.

**Benefits:**
1. Conserves your energy by helping remove sputum with an efficient technique.
2. Prevents infections caused by an increase of sputum in your lungs.

**Points to remember:**
- Avoid forceful expiration.

Here are some more suggestions to help you remove sputum

1. Sputum can accumulate in your airways overnight. You should try to do these coughing techniques each morning at least 10 minutes after using your short-acting bronchodilator.
2. Repeat these coughing techniques as needed throughout the day, e.g. before going out.
3. Avoid bursts of coughing. This wastes energy and causes shortness of breath.
4. If you have a greater amount of sputum production, single “huffs” may be coordinated with your controlled coughing techniques.
5. If there is little or no sputum, do not keep trying to cough. You will not get any benefit.

Practice some coughing techniques with the patient.
**Controlled Coughing Technique**

**Steps:**
1. Seat yourself in a comfortable position.
2. Lean your head slightly forward.
3. Place both feet firmly on the ground.
4. **Inhale** deeply through your nose.
5. **Cough twice** while keeping your mouth slightly open. The first cough will loosen your sputum. The second cough will move the sputum up into your throat. Spit the sputum into a tissue.
6. Take a break and repeat once or twice if there are no immediate results.
7. Wash your hands thoroughly.

**“Huffing” Technique**

**Steps:**
1. Seat yourself in a comfortable position.
2. Lean your head slightly forward.
3. Place both feet firmly on the ground.
4. **Inhale** deeply through your nose.
5. **Exhale in short, non-forceful bursts** while keeping your mouth open, as if you were trying to make mist on a window.
6. Repeat once or twice.

**Note:** Avoid forceful expiration.

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Remember: If there are changes in your sputum colour, follow your Plan of Action recommendations.
Energy Conservation Principles

Prioritize your activities
- Evaluate what you have to do and what you would love to do.
- Eliminate activities that are not necessary.

Plan your schedule within your limits
- Stay active within your limits.
- Plan a realistic schedule for the day, week or month.
- Try to schedule the activities that require more energy (e.g. grocery shopping, medical appointments, vacuuming), at the time of day you have the most energy.

Pace yourself
- Understand your limits and respect them.
- Slow down your rhythm: a slower and regular rhythm uses up less energy. Slow down when you speak, laugh, eat or cough, since these actions can interrupt your regular breathing rhythm, causing shortness of breath.
- Alternate heavy and light tasks, e.g. don’t go grocery shopping the same day you’re vacuuming.
- Sub-divide difficult tasks into smaller steps.
- Include relaxation breaks in your schedule.
- Get a good night’s sleep.

Positioning
- Be aware of what movements (e.g. bending or reaching) cause you most shortness of breath or fatigue.
- Re-organize the storage spaces in your house to reduce the need for reaching and bending.
- Try to work with your elbows and/or forearms supported.
- Avoid carrying heavy objects. Pushing, pulling or sliding objects is less demanding.
- When you must carry something heavy, hold it as close to your body as possible.
- Work at a height that allows you to keep a good posture.
- If you feel tired, perform most of your activities while sitting (you will use less energy sitting than standing).

Pursed-lip breathing to reduce shortness of breath
- Use pursed-lip breathing when doing activities requiring effort.
- Exhale when an effort is required (e.g. when opening a heavy door: inhale, then exhale as you pull the door open).

Positive attitude
- Try to be patient and tolerant towards yourself and your family and friends.
- Keep your sense of humour.
- Visualize yourself as a person who makes the most of what you have, rather than as a victim of your disease.

Goal:
- To better perform the daily activities that cause fatigue and shortness of breath.

Benefits:
1. Minimize fatigue and shortness of breath.
2. Better perform daily activities according to your level of energy.
Energy Conservation Principles

- Prioritize your activities
- Plan your schedule within your limits
- Pace yourself
- Position your body and arrange your environment to reduce shortness of breath
- Use Pursed-lip breathing when doing activities requiring effort
- Keep a Positive attitude
The Anxiety-Breathlessness Cycle

- The main symptom of COPD is shortness of breath.
- Shortness of breath can cause anxiety and even panic attacks.
- Anxiety makes you breathe faster, which increases your shortness of breath and as a result, you become more anxious.
- Many COPD sufferers choose to stop doing activities because of their fear of dying from breathlessness.
- The less you do, the less you are in shape. You will experience more fatigue, shortness of breath and anxiety.
- This is the Anxiety-Breathlessness cycle.

However, regularly practicing the techniques that you will learn with "Living Well with COPD" will help you to cope better with your anxiety and shortness of breath.

How to break the Anxiety-Breathlessness cycle

- Recognize and examine your fears. Do not hesitate to consult a health professional.
- Do not worry about future events.
- Instead of worrying, plan your actions in advance.
- Do things you enjoy.
- Try to solve one problem at a time.
- Maintain a positive attitude.
- Learn to relax.
- If you feel uneasy, ask questions and find answers.
- Be more assertive about stating your needs.
Stress Management

The Anxiety-Breathlessness Cycle

- COPD-induced shortness of breath
- Increased shortness of breath and anxiety
- Reduced activity, fatigue
- Anxiety, panic attacks
Relaxation Techniques

Positive Thinking

Goal:
• To relax your body and quiet your mind.

Benefits:
1. Help you feel more in control of your emotions.
2. Slow down your breathing.
3. Decrease muscle tension.
4. Reduce stress and anxiety.

Points to remember:
• Your attitude is important.
• Optimists tend to seek solutions to problems, whereas pessimists tend to dwell on their worries and fears.

Deep breathing (diaphragmatic breathing) technique

Goal:
• To relax your body and quiet your mind.

Benefits:
1. Help you feel more in control of your emotions.
2. Slow down your breathing.
3. Decrease muscle tension.
4. Reduce stress and anxiety.

Points to remember:
• Take your time.
• Practice is the key to putting yourself in a more relaxed state.
Positive Thinking

1. Concentrate on a positive image.
2. Begin to relax.
3. Use all your senses (sight, sound, touch, taste, and smell) to make your image seem more real. For example, if you are visualizing yourself on a cruise, see the clear blue sky, the sparkling water and the wonderful scenery.
4. End this visualization exercise by retaining your image.
5. Do this exercise once a day.

Deep breathing (diaphragmatic breathing) technique

1. Put your hand on your abdomen.
2. Breathe in deeply.
3. Feel your abdomen inflate. Push your abdomen out as much as possible when you are inhaling. This will help your lungs fill up with air.
4. Exhale through your mouth while keeping your lips pursed (as if you were about to whistle).
5. Feel your abdomen returning to its normal position.
6. Wait after each exhalation until you are ready to take another deep breath.
7. After a few times, you will find your own rhythm. For example: 1 deep breath for 5 normal breaths.

If you start feeling dizzy, take a few normal breaths before starting again.
Healthy and Fulfilling Lifestyle

Living well with COPD means doing more of the things you like, adopting and maintaining healthy life habits and behaviours in order to maximize your quality of life.

Quitting smoking
The single most important thing you can do to slow down the progression of COPD is to quit smoking.

Complying with your medications
Taking your medications as prescribed by your doctor, and using the proper technique, is an essential part of living with COPD.

Adopting a healthy diet
- A healthy diet is a matter of balance and variety.
- Use the Canada Food Guide.
- Drink enough water (if you have no medical restrictions) and eat foods high in protein.
- Eat 5-6 small meals a day.

Exercising regularly
Exercise is one of the most important treatments in COPD. Regular exercise is essential for your physical and mental well-being. Even doing a small amount of exercise can help – as long as it is done on a regular basis.

Getting a good night’s sleep
Rest increases your energy and reduces your anxiety.

Having a satisfying sex life
Sexuality is a very important part of one’s life. Being able to respond to your needs and those of your partner can lead to improved feelings of well-being.

Planning for leisure activities and trips
Getting involved in leisure activities and trips can help you stay physically, intellectually and socially active.
Healthy and Fulfilling lifestyle

- Quitting smoking
- Exercising regularly
- Complying with your medications
- Getting a good night’s sleep
- Adopting a healthy diet
- Having a satisfying sex life
- Planning for leisure activities and trips

Flipchart - Part 2 - March 2014
Physical Activity

Be active!
It is recommended that you do **30 minutes of physical activity per day**.
- walking indoors or outdoors
- pedaling a stationary bicycle with low to moderate resistance
- walking up stairs, taking time to rest when needed (3 or 4 steps at a time)
- participating in leisure activities or engaging in daily life activities.

Time spent on physical activities can be spread out according to what is convenient for you: three 10-minute periods are just as good as a single 30-minute session.

How can you tell if the intensity of your physical activity is adequate?
Use the Scale of perceived exertion (Borg, G. Perceived exertion and pain scales. Human Kinetics, Champaign (1998)). Looking at the scale, evaluate your level of breathlessness between 0-10. Then again, using the same scale, evaluate the intensity of your muscular fatigue. It is recommended that you perform physical activity at a level of breathlessness and fatigue between 3 and 6 on a scale of 10.

What are the normal and abnormal symptoms that can be present during physical activity?

**Normal symptoms**
- Light to moderate breathlessness
- Sweating
- Feeling of heat or fatigue in the legs
- Light muscular or joint pain

**Abnormal symptoms**
- Chest pain
- Intense joint pain
- Dizziness or vertigo
- Heart palpitations
- Severe and prolonged respiratory problems
- Headache

If you present any of these symptoms, you should stop physical activity temporarily and contact your doctor and/or health professional.

Here are a few ways to help you increase your level of physical activity and monitor your progress.

A) Use a pedometer.
B) Register at a gym or community centre, or join an aqua-fitness program.
C) Participate in a pulmonary rehabilitation program, where you would be supervised by a team of healthcare professionals who would guide you in the practice of exercises adapted to your health condition. Discuss this with your healthcare provider (e.g. your physician or resource person).
Be active!
It is recommended that you do 30 minutes of physical activity per day.

How can you tell if the intensity of your physical activity is adequate?

<table>
<thead>
<tr>
<th>Scale of perceived exertion</th>
<th>Intensity of the sensation (breathlessness, fatigue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Nothing at all</td>
</tr>
<tr>
<td>1</td>
<td>Very light</td>
</tr>
<tr>
<td>2</td>
<td>Light</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td>4</td>
<td>Somewhat severe</td>
</tr>
<tr>
<td>5</td>
<td>Severe</td>
</tr>
<tr>
<td>6</td>
<td>More severe</td>
</tr>
<tr>
<td>7</td>
<td>Very severe</td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Very, very severe</td>
</tr>
<tr>
<td>10</td>
<td>Maximal</td>
</tr>
</tbody>
</table>

Adapted from the Borg scale

Start at a comfortable pace. It is normal to experience a light degree of breathlessness. It is recommended that you perform physical activity at a level of breathlessness and fatigue between 3 and 6 on a scale of 10.
Your Plan of Action plays an important part in your life as it will help you make key decisions in managing COPD especially when your symptoms get worse. This is a plan of action for life.

Your Plan of Action will help you to:

- Better recognize your everyday symptoms
- List what you are doing every day to remain well, including taking your medication as prescribed
- Recognize a worsening of your symptoms and the situations that can trigger it
- Know what to do to prevent a worsening of your symptoms and start treatment early if that happens
- Know when and whom to call if your symptoms do not improve or they continue to get worse

Remember

- If you use your Plan of Action properly, you will become more independent and feel more in control when your symptoms get worse
- Your Plan of Action may make the difference between a trip to the hospital and a treatment at home
Your Plan of Action

1. Contact names and phone numbers

2. Regular treatment of your COPD: symptoms and actions

3. Medications and strategies you will use for early treatment of symptoms worsening (exacerbations)
Acknowledgements

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