

# Learning to Live With



## Chronic Obstructive Pulmonary Disease

Prepared for you from...



DOCTOR'S CHOICE  
— HOME CARE —

HOME HEALTH CARE PROVIDER

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## MODULE ONE: UNDERSTANDING COPD

### COPD: Breathing Overview

All of us take breathing for granted for most of our lives. It is something we do 12-20 times a minute with little or no thought. We are all experts at breathing. Some of us, however, will develop shortness of breath, sometimes due to disease processes.

An important component of breathing air out is that the lungs “rebound” after we take a breath in. This is due to the elastic properties of the lung, and to the upward movement of the most important muscle in breathing, the diaphragm.

In COPD, the lungs lose their elasticity, and the diaphragm no longer moves upward as rapidly as it should.

The end result of these losses is that the work of breathing increases due to the extra effort needed to get the air out of the lung during exhalation.

For most of us, the diaphragm, located in the abdomen, is our most important breathing muscle. It does about 65% of the work during normal breathing. During times of exertion, we utilize the back-up breathing muscles, and most of these are located in the upper chest and shoulder areas.

People with COPD have a tendency to stop using the most efficient respiratory muscle, the diaphragm, and use the back-up muscles instead. These back-up breathing muscles are inefficient when compared to the diaphragm.

The diaphragm is also an important muscle for coughing. Because it becomes flattened in COPD, it no longer is as effective as it should be for coughing up mucus.

In order to help you overcome the shortness of breath and the difficulty in coughing up mucus you may be experiencing, there are a series of exercises and techniques to improve your ability to move air in and out of your lungs, and to assist you in making your cough more productive and efficient.

## WHAT IS EMPHYSEMA?

Emphysema can best be characterized as the progressive destruction of the grape-like air sacs (alveoli) that perform the lung's basic function of exchanging oxygen in the air for carbon dioxide in the cardiovascular system.

The small air sacs are unable to completely deflate (over inflation) and unable to fill with fresh air for adequate ventilation. Emphysema is not reversible, but the disease is manageable through medications, exercise and good nutrition.

In emphysema caused by smoking, which constitutes the majority of cases, the very small airways (bronchioles) that join the alveoli are damaged and the walls lose elasticity.

Pockets of dead air form in the damaged lung areas restricting the ability to exhale, reducing normal lung function. Inhalation is not usually impaired in the early stages, but in the late stages of the disease, oxygen and carbon dioxide levels are abnormal and breathing becomes labored.

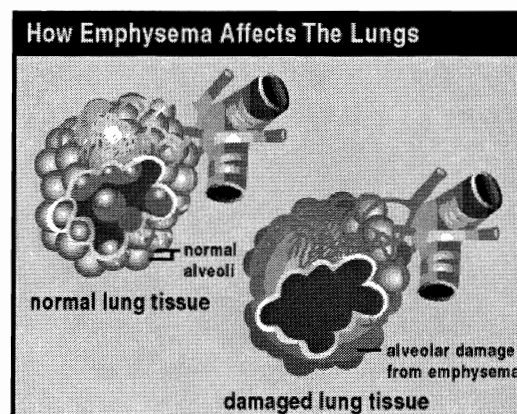
Emphysema patients have typically lost between 50% and 70% of their lung function by the time symptoms begin to appear.

Experts believe the process leading to emphysema is mostly due to an imbalance in chemicals that protect the lungs from infection and damage. Any condition that causes an imbalance in these substances may trigger emphysema.

Cigarette smoke contains irritants that inflame the air passages, setting off these biochemical events that damage cells in the lung, thus increasing the risk both for emphysema and lung cancer.

Because smoking is overwhelmingly the cause of emphysema and chronic bronchitis, they often develop together and frequently require similar treatments.

In a rare, inherited form of emphysema known as alpha-1-antitrypsin deficiency, both the walls of the bronchioles and alveoli to which they connect, usually in the lower lungs, are diseased.



## WHAT IS CHRONIC BRONCHITIS?

Chronic bronchitis is an inflammation of the main air passages (bronchi) to the lungs, which results in the production of excess mucus, a reduction in the amount of airflow in and out of the lungs and shortness of breath.

In chronic bronchitis, there is excessive bronchial mucus with a productive cough for three months or more over two consecutive years without any other disease that could account for these symptoms.

In the early stages of chronic bronchitis, a cough usually occurs in the morning. As the disease progresses, coughing persists throughout the day. This chronic cough is commonly referred to as "smoker's cough."

Also In the early stages of chronic bronchitis, only the larger airways are affected, but eventually all airways are involved. Over time the patient experiences abnormal ventilation-perfusion: insufficient oxygenation of blood (hypoxemia), labored breathing (hypoventilation) and right-sided heart failure (cor pulmonale).

Compared with acute bronchitis, which may respond quickly to medications, such as antibiotics, chronic bronchitis can be difficult to treat because many patients with chronic bronchitis are susceptible to recurring bacterial infections.

Excessive mucus production in the lungs provides a good environment for infection, which also causes inflammation and swelling of the bronchial tubes and a reduction in the amount of airflow in and out of the lungs.

Therefore, at the first signs of a lung infection, people with chronic bronchitis should seek immediate medical treatment. Waiting until an infection is well established, usually leads to hospitalization and long intensive care (ICU) stays.

In the later stages of chronic bronchitis, the patient cannot clear this thick, tenacious mucus, which then causes damage to the hair-like structures (cilia) that help sweep away fluids and/or particles in the lungs. This in turn impairs the lung's defense against air-borne irritants.

Cigarette smoking is the most common cause of chronic bronchitis. People who have been exposed for a long time to irritants, like chemical fumes, dust

and other noxious substances, can also get chronic bronchitis.

As chronic bronchitis often coincides with emphysema, it is frequently difficult for a physician to distinguish between the two. Chronic bronchitis also can have an asthmatic component.

Lying down at night can worsen the condition, so some people with advanced chronic bronchitis must sleep sitting up. In late, severe stages people who often have emphysema as well, are called "blue bloaters" because lack of oxygen causes the skin to have a blue cast (cyanosis) and because the body is swollen from fluid accumulation caused by congestive heart failure.

There is no cure for chronic bronchitis. Treatment is aimed at relieving symptoms and preventing complications.

## WHAT IS CHRONIC ASTHMA?

Not all people with COPD have asthma, but many do have an asthmatic component to either emphysema or chronic bronchitis, or even a mix of all three, while most asthma patients do not have COPD.

There remains the debate among medical professionals whether chronic asthma belongs under the umbrella term COPD because, unlike emphysema and chronic bronchitis, asthma can be reversed and responds well to various medications.

The fact remains, however, that many with already impaired lung function are highly susceptible to asthma.

The word asthma originates from an ancient Greek word meaning panting. It is a chronic inflammatory disease of the airways in the lungs. This inflammation causes the airways to narrow or constrict, which produces wheezing and breathlessness, sometimes to the point where the sufferer gasps for air.

When a healthy person inhales, the air passes into the lungs through progressively smaller airways (bronchioles). The lungs contain millions of bronchioles, all leading to air sacs (alveoli), where oxygen and carbon dioxide are exchanged. The airways in the lungs respond by constricting when exposed to allergens or irritants, but here is the major difference between people with and without asthma.

When a healthy person breathes in and out deeply, the airways relax and open in order to rid the lungs of the irritant. When asthmatics try to take deep breaths, their airways do not relax, but instead narrow and the person pants for breath. These smooth muscles in the airways of people with asthma may have a defect, perhaps a deficiency in a critical chemical that prevents the muscles from relaxing.

This obstruction of the airflow either stops spontaneously or responds to a wide range of medical treatments. Continuous inflammation makes asthmatics hyper-responsive to such stimuli as cold air, exercise, dust, pollutants in the air, stress or anxiety.

Research shows asthma has two primary stages: hyper-reactive response and the inflammatory response. In the hyper-reactive condition, the

smooth muscles in the airways constrict and narrow excessively in response to inhaled noxious irritants.

The inflammatory stage of asthma is when the immune system responds to allergens or other environmental triggers by producing white blood cells and other immune factors in the airways. These inflammatory factors cause the airways to swell and to fill with fluid, producing thick sticky mucus.

In an asthma attack, the muscle tissue in the walls of the constricted bronchi go into spasms, making it much harder to breathe.

Occupationally-related asthma is now the most frequent occupational respiratory disease diagnosis among patients visiting occupational medical clinics. Recent evidence shows that as many as 26% of adult asthma cases may be attributable to the workplace.



## MODULE TWO: COPD MANAGEMENT

### LIVING WITH DYSPNEA - Four Ways to Breathe Easier

Dyspnea (pronounced disp–NEE–uh) is a medical term for difficult or labored breathing.

Having dyspnea can be hard to live with. You may get short of breath during daily activities and become anxious when your breathing changes. Medications may help, and to get the most benefit you should take them exactly as your health care team instructs.

But along with medical treatment, there are other things you can do. Your health care team offers this information to help you breathe easier.

#### **1. Pursed-lip breathing**

This may seem awkward at first, but it eases labored breathing.

1. Breathe in through your mouth or nose.
2. Purse your lips together (as if you were whistling). Then, breathe out. Try to breathe out until all the air is gone.

One way to do this is to take twice as long to breathe out as you breathe in. For example, count "one...two," as you breathe in. Purse your lips, then count "one...two...three...four," as you breathe out.

#### **2. Positioning**

When your muscles are relaxed, breathing is easier. Positioning helps when you get short of breath while doing something, such as climbing stairs.

1. Rest against the wall and lean forward with your hands on your thighs. This position relaxes your chest and shoulders, freeing them to help you breathe. Use pursed-lip breathing.
2. If you can, sit down with your arms resting on your legs. Continue to do pursed-lip breathing. If you find it hard to relax your muscles, ask your nurse to

show you other ways to do this. Other body positions may also work for you. Try them until you find the best one.

### **3. Paced breathing**

Paced breathing prevents or decreases shortness of breath when you walk or lift light objects.

#### **For walking:**

1. Stand still and breathe in.
2. Walk a few steps and breathe out.
3. Rest, and begin again.

When walking, pace yourself and move slowly.

#### **For lifting:**

1. Hold the object, but do not lift it. Breathe in.
2. Lift the object and breathe out.

If possible, use your breathing muscles for one activity at a time: do not try to move and breathe in, or lift and breathe in. When carrying something, hold it close to your body.

This saves energy.

### **4. Desensitization**

Part of living with dyspnea is getting accustomed to it. Desensitization means that you are not so afraid when you are short of breath.

These guidelines will help you get "desensitized."

- Do pursed-lip breathing, positioning, and paced breathing. Breathing with these techniques will build your confidence. When shortness of breath occurs, you will be able to deal with it.
- Ask friends and family to understand. Let people around you know when you are short of breath. You need not feel embarrassed because you cannot join others in some activities.

By doing the techniques explained here, you will be still be able to do what you always did—you may just take a little longer, or do them differently.

- Be creative. If you find a certain activity too difficult, try doing something else that is similar. For example, if gardening is not possible, try growing houseplants. It may be just as enjoyable and easier, too.

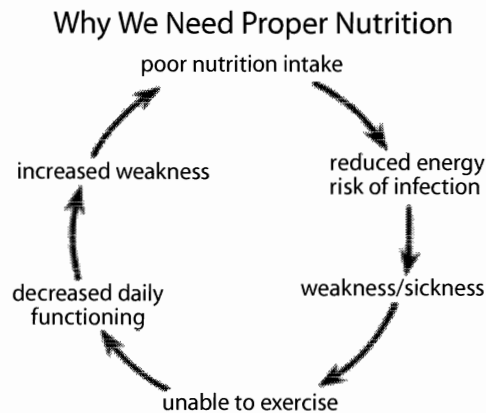
## TREAT INFECTION EARLY

When you have COPD, the defense mechanisms of your lungs are unable to function normally. Even a mild infection should be treated immediately. If you think you have an infection, see your doctor right away!

Be aware of the warning signs that indicate worsening COPD:

- ▶ An unusual increase in the amount of sputum.
- ▶ An unusual decrease in the amount of sputum.
- ▶ An unusual increase in the consistency and stickiness of the sputum.
- ▶ A change in the color of the sputum to either brown, yellow or green.
- ▶ The presence of blood in the sputum.
- ▶ An unusual increase in the severity of the breathlessness.
- ▶ The development of a feeling of general ill-health.
- ▶ The development of swelling of the ankles.
- ▶ An unaccountable increase or decrease in weight.
- ▶ The necessity to increase the number of pillows in order to sleep in comfort.
- ▶ Increasing fatigability and lack of energy with a feeling that more rest is required.
- ▶ The development of increasingly frequent morning headaches, dizzy spells, restlessness, loss of libido and insomnia.
- ▶ The development, during an acute respiratory infection, of confusion, disorientation, slurring of the speech.

## SPECIAL COPD DIETARY NEEDS



A person uses a great deal of energy in the simple act of breathing. If the body is working too hard to breathe and the person has not been eating well, the person will tire quickly and have little energy to perform all daily activities. Good nutrition can improve energy level, lung function, exercise tolerance and weight.

### General Guidelines for Healthy Eating

- ▶ Enjoy a VARIETY of foods.
- ▶ Emphasize cereals, breads, other grain products, vegetables and fruits.
- ▶ Choose low-fat dairy products, lean meats and foods prepared with little or no fat.
- ▶ Achieve and maintain a healthy body weight by enjoying regular physical activity and healthy eating.
- ▶ Limit salt, alcohol and caffeine.

If a person experiences shortness of breath at mealtimes, the person can conserve by:

- ▶ eating small frequent meals throughout the day instead of three big meals
- ▶ rest before eating
- ▶ eat slowly and chew foods well
- ▶ breathe evenly when chewing
- ▶ taking plenty of time to eat
- ▶ reduce or avoid troublesome foods

If a person experiences a general lack of appetite:

- ▶ choose foods that will maximize calories in a small volume
- ▶ reserve drinking fluids until the meal is eaten
- ▶ simplify food preparation by using convenience foods or liquid meal preparations

## STOP SMOKING

Smoking is the leading cause of COPD. **If you suffer from COPD, you must stop smoking to prevent further lung damage.** You cannot undo the damage done by smoking, but you *can* prevent further damage.



Smoking increases the likelihood of infection, cough and sputum production. The nicotine and tar contained in cigarettes hinder the lungs' cleaning mechanism. As a result, the dirt breathed in from the air settles down in the lungs, and may lead to infection. The nicotine and tar are also irritants to the air tubes. This causes excess mucus production and thickening of the walls of the airways.

As a result, the cilia that clean the respiratory airways cannot function properly, often resulting in infection. This in turn may result in permanent damage to both the bronchial tubes and the alveoli.



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"Every patient with COPD who breaks the smoking habit benefits, regardless of how severe his or her COPD may be. When smokers with COPD do give up cigarettes, they slow down the process of deterioration in lung function, they improve current lung function, they decrease the symptoms associated with COPD and they reduce the number of exacerbations."

Dr. Dick D. Briggs, Jr.  
*Emeritus Eminent Scholar Chair in Pulmonary Diseases*  
*University of Alabama at Birmingham*

## WAYS TO CONSERVE ENERGY

1. **Control Your Breathing:** Use breathing control during activities to help reduce shortness of breath and fatigue. Exhale during the strenuous part of an activity and use pursed-lip and diaphragmatic breathing.
2. **Eliminate Unnecessary Activities:** For instance, use a terry robe after showering to avoid the work of drying yourself, and allow dishes to air dry after washing. Sit for as many activities as possible. Sitting uses 25% less energy than standing.
3. **Get Assistance:** Don't be afraid to ask for assistance when necessary. Some jobs may be too difficult to do alone. Or, there may be a task that you dislike doing, and which someone else may enjoy doing for you. Asking for help does not mean you are dependent; it means you are using your energy to its best advantage.
4. **Organize Your Time:** Plan daily and weekly schedules so you are doing the most energy-consuming activities at the time of day or time of week when you have the most energy. Alternate difficult and easy tasks. Take planned rest periods. Keep your schedule flexible to allow for the unexpected.
5. **Organize Your Methods:** Repetition of new methods will allow things to become automatic, and the more proficient you are, the more energy you save.
6. **Organize Your Space:** Organize your most used items in drawers or shelves that are between waist and shoulder level, so you won't have to stoop or stretch to reach them. Keep items in the area in which they are used, in order to avoid unnecessary walking and carrying.
7. **Pace Yourself:** A slow, steady pace consumes less energy. Do one activity at a time and use slow, smooth movements. Rushing only increases discomfort. Be certain to alternate periods of work and rest. Try to plan out your activities in steps, so if you start to get short of breath you can stop and rest when necessary, instead of working faster and harder in order to finish.

8. **Maintain a Good Posture:** One of the easiest ways to save energy is to use your body properly. When the body is in proper alignment, less effort is required to maintain that posture.

Avoid bending.

Avoid lifting. Push, pull or slide instead. If you must lift and carry, lift with your legs, use both hands and carry close to your body.

Be certain to choose a work height whereby you can maintain good posture and eliminate strain from any segment of the body. Experimenting at different heights by adjusting either the height of the chair or the work surface is the best method of deciding which height is the most comfortable.

9. **Relax:** Relaxation can help restore energy. Sit in a comfortable chair with your back supported, shoulders relaxed, arms resting in your lap with elbows slightly bent and palms up and feet flat on the floor. Concentrate on relaxing your muscles and slowing down your breathing. Remember: tension only uses energy!
10. **Use Proper Equipment:** Use the right tool to do the job. For example: use long-handled equipment to avoid reaching or bending, use equipment to stabilize items in order to avoid holding, and use trolleys or bundle buggies to do your carrying.

### Hygiene: Bathing and Showering

- ▶ Sit on a chair or a stool while washing, shaving, or applying makeup. (It may help to support your elbows on the sink or table).
- ▶ Organize frequently-used equipment such as towels and shaving kits in accessible areas in the bathroom.
- ▶ Eliminate getting right into a tub or standing in the shower by using a bath stool and a hand shower. If you are unable to manage washing your hair in a shower, tub or at a sink, ask for help.
- ▶ Ensure safety with grab bars or rails that attach to the walls or bathtub. Non-skid mats also improve safety.
- ▶ Increase independence by using a long-handled bath brush and towel sling to wash your back and feet.
- ▶ Minimize shortness of breath by wearing a terry-cloth bathrobe or wrapping up in a large towel to dry off.
- ▶ Avoid using spray deodorants and aerosol shaving creams, which may irritate your lungs.
- ▶ Control your breathing when showering or bathing. Keep the water temperature warm (not hot) to minimize shortness of breath.



## **Shopping**

- ▶ Plan menus to avoid unnecessary trips to the market.
- ▶ Jot down items as you need them or as supplies get low.
- ▶ Plan your market list in keeping with the layout of the store.
- ▶ Plan to do your shopping when the store is not busy.
- ▶ Have someone assist you to reach high and low items and to lift heavy items.
- ▶ Use a shopping cart and place heavy items near the handle for better leverage.
- ▶ Transport groceries in the trunk of the car, not in the back seat.
- ▶ Use a bundle buggy to bring food home from store.
- ▶ If carrying groceries, load the bags half full.
- ▶ Use phone order service where available and/or store delivery to avoid carrying parcels.
- ▶ Use a small, wheeled cart to carry groceries inside.

## **Storage of Groceries**

- ▶ If possible, have a family member do this for you.
- ▶ Make several trips with rest periods between to carry groceries into the house. If necessary, carry one bag at a time.
- ▶ Sit on a stool and sort according to storage locations.
- ▶ Transport items on a wheeled utility cart to their storage place.
- ▶ Sort groceries at work height, not on the floor.

## **Helpful Hints**

- ▶ Shop at markets where they unload your carts and deliver groceries to your car.
- ▶ Take advantage of advertised specials so you can buy as much as you can store.
- ▶ Keep a detailed list so someone else could shop for you.
- ▶ Ask the grocery clerk to pack bags lightly so they are easier to carry.
- ▶ Consider taking handled grocery bags to the store for easy carrying.

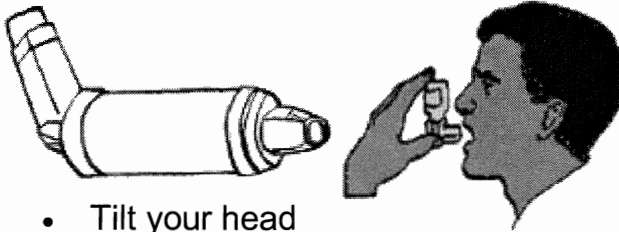
## RECOGNIZE THE WARNING SIGNS OF WORSENING COPD

If you suffer from a form of chronic respiratory disease and you notice any of these warning signals, call your home healthcare agency or doctor:

- ▶ an unusual increase in the amount of sputum
- ▶ an unusual decrease in the amount of sputum
- ▶ an unusual increase in the consistency and stickiness of the sputum
- ▶ a change in the color of the sputum to either brown, yellow or green
- ▶ the presence of blood in the sputum
- ▶ an unusual increase in the severity of the breathlessness
- ▶ the development of a feeling of general ill-health
- ▶ the development of swelling of the ankles
- ▶ an unaccountable increase or decrease in weight
- ▶ the necessity to increase the number of pillows in order to sleep in comfort
- ▶ increasing fatigability and lack of energy with a feeling that more rest is required
- ▶ the development of increasingly frequent morning headaches, dizzy spells, restlessness, loss of libido and insomnia
- ▶ the development, during an acute respiratory infection, of confusion, disorientation, slurring of the speech

## MODULE THREE: MEDICATION

### PROPER USE OF METERED INHALERS



- Tilt your head
  - Put the inhaler keeping your tongue flat; OR: Hold the inhaler upright 2-4 cm from your mouth.
  - Breathe in slowly and deeply and immediately depress the canister. Continue to breathe in slowly for 5-10 seconds.
  - Hold your breath for 10 seconds, or as long as is comfortable.
  - Breathe out slowly.
  - If more than one puff is prescribed, wait one minute and then repeat the procedure.
- Remove the cap and shake the inhaler to mix the contents.
  - Breathe out to exhale as much air as you can.

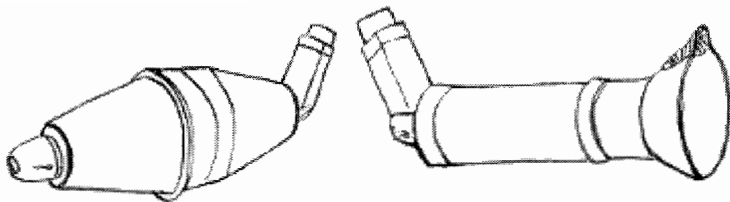
If you have trouble coordinating the routine of spraying and inhaling, your doctor may recommend a holding chamber: a hollow plastic container with a one-way valve, like an AeroChamber® or Vent-a-haler®.

#### Care of an Inhaler

Keep the inhaler clean. Once a week, remove the medication canister from the plastic casing and wash the casing in warm, soapy water. When the casing is dry, replace the medication canister in the casing and place the cap on the mouthpiece. Ensure the hole is clear. Check the expiry date. Check to see how much medication is in the inhaler.

#### AeroChamber® (without mask)

- Remove the caps from the inhaler and AeroChamber® and shake the inhaler to mix the contents.
- Put the inhaler mouthpiece into the opening on the AeroChamber®.
- Put the mouthpiece of the AeroChamber® into your mouth and close your lips around it without covering the small slots.
- Tilt your head back slightly.
- Press the canister down to spray one puff of medication into the AeroChamber®.
- Inhale slowly and deeply through your mouth.



- Breathe out.
- If you can't take a deep breath or hold your breath, keep the AeroChamber® in your mouth and breathe in and out slowly 3-4 times after depressing the canister.
- If more than one puff is prescribed, repeat the procedure (do not spray more than one puff at a time into the AeroChamber®).
- Remove the inhaler from the AeroChamber® and replace the caps.
- Hold your breath and remove the AeroChamber® from your mouth.
- Hold your breath for 5-10 seconds or as long as you can.

### **AeroChamber® (with mask)**

- Remove the cap and shake the inhaler to mix the contents.
- Place the inhaler mouthpiece in the inhaler adapter of the Aero Chamber®.
- Place the mask over your mouth and nose, making sure it is well sealed.
- Press the canister down to spray one puff of medication into the AeroChamber®.
- Breathe in and out through your mouth 3-4 times.
- If more than one puff is prescribed, repeat the procedure (do not spray more than one puff at a time into the AeroChamber®).

### *Care of an Aerochamber®*

Clean the Aerochamber® about once a week. Run warm water through the large opening in the rubber ring. Shake off excess water and leave to dry overnight. When the flap valve hardens or starts to curl, the Aerochamber® cannot work properly and must be replaced.

### **Vent-a-haler®**

- Remove the cap and shake the inhaler to mix the contents.
- Insert the inhaler mouthpiece into the Vent-a-haler® opening.
- Breathe out.
- Put the Vent-a-haler® mouthpiece into your mouth and close your lips around the mouthpiece. Tilt your head back slightly.
- Depress the canister.
- Breathe in slowly and deeply.
- Remove the Vent-a-haler® from your mouth and hold your breath for about 10 seconds or as long as you can.

- If you can't hold your breath, breathe in and out slowly 3-4 times after depressing the canister.
- If more than one puff is prescribed, wait one minute and then repeat the procedure.

## **OXYGEN**

Oxygen is a medicine that is commonly delivered as a gas from an oxygen cylinder and humidifier through a face mask or nasal cannula.

Because cylinders only contain a few hours worth of oxygen, a concentrator is sometimes useful. About the size of a tv, the oxygen concentrator extracts oxygen from the air.

If you are active, the best solution may be a liquid oxygen system and a portable liquid tank that you carry over your shoulder.

### **Benefits of Oxygen**

- ▶ It prolongs life by preventing heart strain from low levels of oxygen
- ▶ It improves the way you feel and think
- ▶ It decreases shortness of breath
- ▶ It enables you to tolerate exercise better
- ▶ It results in fewer hospitalization days

### **Oxygen Tank Safety**

- ▶ Secure the tank safely at all times
- ▶ No smoking while oxygen is in use
- ▶ Ensure oxygen tank is turned off when it is not in use

## PROPER USE OF NEBULIZER TREATMENTS



- Find a location where you can sit comfortably for 10-15 minutes. Plug in the compressor.
- It is very important to get specific written instructions if you are mixing your own nebulized treatments. Mix the medication as directed, or empty the prepared unit dose vials (UDVs) into the nebulizer. Do not mix different types of medications without permission from your doctor or pharmacist.
- Assemble the mask or mouthpiece and connect the tubing from this to the port on the compressor.
- Sit in an upright position, making sure you are comfortable. Put the mask over your nose and mouth (make sure it fits properly so the mist doesn't flow up into your eyes); OR, if you are using a mouthpiece, put it into your mouth.
- Turn on the compressor.
- Take slow, deep breaths. If possible, hold your breath for 10 seconds before slowly exhaling. Continue until the medication chamber is empty.

### Care of Nebulizer and Equipment

Wash mask with hot, soapy water. Rinse well and allow to air dry before re-use.

## ANTIBIOTICS

When you have COPD, your lungs' natural defense systems are not as effective as they normally would be. Antibiotics are necessary to protect your lungs: even a mild infection can turn out to be very serious when your lungs cannot protect themselves. Antibiotics should be taken for the full duration and as your doctor prescribed.

If you notice any of the warning signs of worsening COPD, you should call your doctor.

## THE USE OF BRONCHODILATORS

Bronchodilators open your airways. They can be administered as pills, liquids, or inhalers.

There are two main classes of bronchodilators: beta-agonists and anticholinergics. The combination of these two classes of drugs may be more effective than either of them used alone.

### **Beta-Agonists**

Beta-agonists work by relaxing the muscles surrounding the airways. Some beta-agonists are: fenoterol, metaproterenol, procaterol, salbutamol, and terbutaline.

The most common side effect of taking beta-agonists is muscle tremor. This side effect often diminishes after taking the medication for several weeks.

High doses of beta-agonists can cause adverse effects such as a change in blood pressure, increase in heart rate, restlessness, apprehension and headaches.

### **Anticholinergics**

Anticholinergic drugs block the chemical produced by our bodies that normally causes the airways to contract. They also decrease mucus secretions. A commonly prescribed anticholinergic is ipratropium bromide.

Atropine, from which ipratropium bromide is derived, is no longer used to treat COPD because it can cause increased heart rate and urinary retention. Anticholinergic drugs may not be suitable for people with urinary retention, or for those who have or are predisposed to glaucoma.

## STERIODS

Corticosteroids reduce inflammation, swelling and mucus production. They tend to work best for COPD with an asthmatic component. There is also a small subset of COPD sufferers who respond to oral or inhaled corticosteroids. A physician may initiate a short trial in patients to determine if they will respond to steroids. A typical trial lasts two to three weeks.

The most common anti-inflammatory steroidal drugs include:

- ▶ Beclomethasone (Beclovent®, Vanceril®, Becloforte®)
- ▶ Budesonide (Pulmicort®)
- ▶ Flunisolide (Bronalide®)
- ▶ Fluticasone (Flovent®)

Corticosteroids must be used regularly and DO NOT have immediate effects. This means they have NO VALUE when an effect is needed in minutes.

### **Side Effects of Corticosteroid Inhalers**

- ▶ few side effects at low doses
- ▶ hoarseness and sore throat
- ▶ thrush or yeast infection

Throat infections can be prevented by rinsing the mouth and gargling, and by using a spacer device.

Because long-term use of inhaled or oral corticosteroids suppresses the body's own production of corticosteroids, treatment lasting more than a few weeks should be slowly withdrawn to give the body time to re-adjust.

### **Corticosteroid Tablets**

#### **Corticosteroid tablets or prednisone®:**

- ▶ are used when inflammation becomes severe
- ▶ reduce inflammation, swelling & mucus, and help bronchodilators work better
- ▶ start to work within a few hours, but may take several days to have a full effect
- ▶ often are used for short periods of time to get the inflammation under control
- ▶ there are many side effects if used long-term, such as water retention, bruising, puffy face, increased appetite, weight gain and stomach irritation



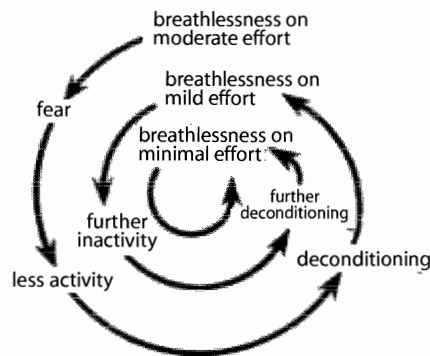
## MODULE FOUR: EXERCISE

### THE IMPORTANCE OF EXERCISE

Exercise is an important part of a healthy life. If your heart and breathing muscles are in shape, they can work with less oxygen. That means you don't have to breathe in as much air to do the same amount of work. You're stronger and can do more before you feel tired.

Avoiding exercise because of shortness of breath can lead to a dangerous spiral of inactivity.

#### Spiral of Inactivity



Before starting any type of exercise program, consult your family doctor.

#### Points to Remember

- ▶ The exercise you choose must be an endurance exercise.
- ▶ Before starting, sit and rest for 5 minutes. Take your pulse.
- ▶ Do light warm-up exercises.
- ▶ Take adequate rest periods during your exercise session.
- ▶ Practice breathing techniques during your exercise.
- ▶ Commit to a regular exercise program.
- ▶ Never exercise on a full stomach.
- ▶ Avoid sudden bursts of activity.
- ▶ Watch for warning signs.
- ▶ Exercise in a controlled environment.
- ▶ Exercise in moderation.

## **BREATHING: Walking Exercises**

### **Remember –**

If you have oxygen, check with your physician about the correct amount to use when you are walking.

Do not attempt to walk and talk while beginning your exercise program.

Inhale through your nose and exhale through pursed lips.

Exhale at least twice as long as you inhale. Don't force the air out during exhalation.

### **Walking**

1. Start with short walks. Your breathing muscles and your walking muscles need to get into shape.
2. Use "rhythmic breathing." Count the number of steps you take while inhaling and double the number of steps for exhalation. Example: 2 steps – inhale, 4 steps – exhale. Do not change the rhythm from inhalation to exhalation.
3. With practice you may find that a 3 to 1 rhythm is more comfortable than 2 to 1. Use the rhythm that is most comfortable for you.
4. Gradually increase your walking distance as you get stronger. Try to add a little more distance every week. Don't overextend yourself.
5. Set reasonable goals. Plan rest stops. Don't allow yourself to get overtired.
6. During inclement weather, or times of the year when you're most uncomfortable, you can get your exercise in climate-controlled areas like shopping malls or in a more formal environment like a hospital's rehabilitation center.
7. Remember, go slow, don't rush, get stronger and most of all, enjoy yourself.

Check with your physician before beginning this or any exercise program.

## **BREATHING: Coughing Exercises**

### **Hydration**

Thick, sticky mucus is difficult to cough up, especially with a weakened cough reflex. It is important that you drink enough fluids to keep your mucus thin and loose. Check with your physician to determine how much fluid you should drink daily to keep your cough effective.

Humidify your home or at least the room you sleep in and the room you spend most of your time in. Keep your humidifier clean as they are a possible source of infection.

Do not smoke as smoking takes moisture out of your mucus and makes the mucus thicker.

### **Cough**

Remember, control your coughing as uncontrolled coughing can make you short of breath. Discuss with your physician which type of coughing exercise is best for you.

You should perform these coughing maneuvers whenever you feel the need to cough or as instructed by your physician. A good controlled cough is especially helpful when you first get up in the morning and about an hour before bedtime. Have a cup of coffee or tea first (or other drink recommended by your physician) and relax.

Sit up straight in a chair when attempting these coughing exercises. Have a tissue handy.

### **Exercise A**

1. Sit up straight on a hard-backed, stable chair, relax.
2. Take in 2-3 deep breaths through your nose and exhale slowly through pursed lips.
3. Fold your arms across your abdomen.
4. Take in a comfortable deep breath through your nose.

5. Lean forward, pressing your arms against your abdomen and cough while leaning forward.
6. Relax, rest 5-10 minutes
7. Perform again if needed.

#### **Exercise B**

1. Sit up straight, relax.
2. Take in 2-3 breaths through your nose and exhale slowly through pursed lips.
3. Take in a moderately deep breath, hold breath, expel air while saying "H" or "K" once.
4. When you feel comfortable with this exercise, try and say the "H" or "K" 3-4 times while exhaling.

Check with your physician before beginning this or any exercise program.

## **BREATHING: Pursed Lip/Diaphragmatic Exercises**

### **1. Pursed Lip Breathing**

You have probably noticed when shortness of breath occurs to an athlete during periods of exercise, they tend to blow the air out of their mouths by puffing out their cheeks.

You may have done this as well when you have exerted yourself. This is a normal response to shortness of breath, and it provides for a quick and easy way to improve breathing patterns.

#### **What Does It Do?**

- ▶ Improves ventilation
- ▶ Decreases air trapping in the lungs
- ▶ Decreases the work of breathing
- ▶ Improves breathing patterns
- ▶ Relieves shortness of breath
- ▶ Causes general relaxation

#### **How?**

- ▶ Prolongs exhalation – slows down the breathing rate.
- ▶ Causes a slight back pressure in the lungs that keeps the airways open longer.
- ▶ Improves the movement of old air out of the lungs and allows for more new air to get into the lungs.

#### **Procedure**

REMEMBER – Exhalation must be 3-4 times longer than inhalation, so do not force the air out.

1. Sit down but sit up straight, relaxed.
2. Breath in, preferably through the nose.
3. Purse lips slightly (as if to whistle).

4. Breath out slowly through pursed lips.
5. Do not force the air out.

Practice this procedure 4-5 times a day initially to get the correct breathing pattern. You should utilize pursed lip breathing when you are experiencing shortness of breath either at rest or with exertion, or if you feel nervous or apprehensive.

IMPORTANT – You may experience a light-headed feeling while doing pursed lip breathing. This indicates that you are over ventilating yourself and you should breathe more slowly.

## **2. Diaphragm Breathing**

The most efficient breathing muscle is the diaphragm. Many people with COPD no longer use this important breathing muscle effectively. This exercise is designed to help you better utilize this muscle in the act of breathing.

IMPORTANT – You will notice an increased effort will be needed to utilize this muscle correctly. You will notice, at first, that you will get tired while doing this exercise. Keep at it, for in a short time you will begin to notice that it will require less effort to breathe, and you will be rewarded by being able to do it with less effort.

### **What Does It Do?**

- ▶ Strengthens the diaphragm.
- ▶ Coordinates diaphragm movement when breathing.
- ▶ Less effort required to breathe.
- ▶ Less energy utilized for breathing.

### **How?**

- ▶ Correctly utilizes the most effective muscle of breathing.

In the beginning, practice this procedure for 5-10 minutes, 3-4 times a day. You can gradually increase the length of your exercise periods and perhaps the effort required by placing a book on the abdomen.

After you feel comfortable with this procedure, practice while sitting in a chair or while standing.

### **Procedure**

1. Lie on your back in a bed with your knees bent.
2. Place one of your hands on your abdomen.
3. Place your other hand on your upper chest.
4. As you inhale through your nose, make your stomach move out and keep your upper chest as still as possible.
5. As you exhale through pursed lips, let your stomach fall inward. Your hand on the upper chest must remain as still as possible during the entire procedure.

Check with your physician before beginning this or any exercise program.

### **Diaphragmatic Breathing**

Breathlessness on effort is uncomfortable but not in itself harmful or dangerous.

Knowing how to control your breathing will help you to remain calm when you are short of breath. Pursed-lip breathing and diaphragmatic breathing will both help if you have COPD. These breathing methods prevent or reduce the trapped air in your lungs and allow you to inhale more fresh air.



- ▶ put one hand on your upper chest, and the other on your abdomen just above your waist
- ▶ breathe in slowly through your nose - you should be able to feel the hand on your abdomen moving out (the hand on your chest shouldn't move)
- ▶ breathe out slowly through your pursed lips - you should be able to feel the hand on your abdomen moving in as you exhale

## BREATHING: Relaxation Exercises

The following relaxation techniques can help relieve the tension and anxiety that often accompanies your respiratory difficulties. This anxiety can even make you feel worse. By learning to relax your mind and body, you may feel better, and you will be decreasing the amount of oxygen that your body needs.

- ▶ To begin, lie down on a comfortable surface and place pillows under your head and knees. If you are more comfortable on your side, use pillows under your head and between your knees.
- ▶ Relax
- ▶ Lie quietly in a comfortable position. Take a slow deep breath through your nose. Hold the breath for several seconds; purse your lips, and slowly exhale. Relax.
- ▶ Take another deep, slow breath through your nose. Hold your breath and pull your toes towards your head and tighten your leg muscles (no longer than a count to 3). Feel the tension. Purse your lips, exhale slowly and relax your legs. Relax.
- ▶ Take another deep slow breath through your nose. Hold your breath and make a fist with both hands and tighten your arm muscles. Feel the tension. Purse your lips, exhale slowly and relax your arms and hands. Relax.
- ▶ Take another slow, deep breath through your nose. Hold the breath and bite down as hard as you can and tighten your jaw muscles. Feel the tension. Purse your lips, exhale slowly, and relax your jaws. Relax.
- ▶ Take a slow deep breath through your nose. Hold your breath and lift up your head and tighten your neck muscles. Feel the tension. Purse your lips, exhale slowly, let your head rest back on the pillow, and relax your neck muscles.
- ▶ Lie still and enjoy the relaxed feeling you are experiencing. You should do this relaxation technique several times a day, even if you simply do it while sitting in a chair.



## MODULE FIVE: STRESS MANAGEMENT

### COPING WITH COPD

**You have COPD.**

**Sometimes you may feel like crying.**

Few medical professionals know, first-hand, the frustration of being so short of breath you can barely make it to the bathroom and back, or how difficult it may be to towel-off after a bath, or how it feels to be dependent upon a little plastic tube you must wear in your nose and drag behind you everywhere you go. And I bet they can't imagine how tears come to your eye when you remember the way you used to get your work done in an orderly fashion and reasonable time, or how well you bowled or played softball, or the last time you danced across the floor with your spouse or grandchild in your arms. Do they understand that you can't breathe when you lie down, so you must spend your nights in a chair; and what it's like to now need from others the help you were always the first to offer to them?

Luckily, most people have been spared the feeling that comes with the closing-off of your throat that makes you clutch your breast and gasp for breath and fumble for an inhaler, and the mounting fear that compounds the problem, as you anticipate it getting worse...so bad you may be in the Emergency Room...again.

Sometimes the deep depression may cause some patients to give up on their therapy or quit (or conveniently "forget") their medications, or to continue to smoke, because "it doesn't really matter, now that the damage has been done." There is also the problem of self-esteem (or vanity) that keeps some patients from taking needed medications, or using their oxygen units in public. There are many emotional problems a COPD patient must overcome daily, and he needs encouragement to do it. Get involved with a support group and remember to accentuate the positive and eliminate the negative whenever possible.

Dealing with negative emotions may be your greatest challenge, or it may be relatively insignificant, depending upon your individual personality, the severity of your disease, the progress you make

during treatment and the quality of the support you receive from family and friends. But if you feel you're losing ground when fighting some emotional problem, seek out a Support Group, because you will get more positive (and more meaningful) feedback from fellow-sufferers than from those who can offer only sympathy, no matter how well-meaning they are. If you find you are severely depressed, tell your doctor; there are anti-depressants that may help.

**Know that, in the successful management of your disease, your mental and emotional health is at least as important as any other facet of your Rehab Program.**

## STRESS MANAGEMENT



In this learning session, you will discover:

- ▶ how stress affects COPD
- ▶ your personal stresses
- ▶ how to modify stressful situations
- ▶ techniques to help deal with stress

### MANAGING COPD AND STRESS

Stress can be a normal part of living and a challenge for personal growth. It can be physical or mental. When stress is intense and lasts for too long, it makes your heart work harder than usual. For a person with COPD, this extra workload may cause their symptoms to worsen.

Early management of stress can prevent a hospital admission and its disruption to your daily life. Some signs of stress that you may notice include:

- ▶ changes in breathing
- ▶ tenseness in the face, neck, shoulders
- ▶ increased heart rate
- ▶ stomach upsets
- ▶ anxiety
- ▶ restlessness
- ▶ mental confusion

Physical stress can be controlled by avoiding situations that strain your heart. You can use assistive devices to do heavy work, and get help from family and friends. Plan ahead whenever possible.

When the weather is extremely hot and humid or extremely cold, your body may not be able to adjust to these conditions. Listen to the weather forecasts. Avoid exercise and prolonged activities during this time. Space your usual activities between periods of rest. Avoid outdoor activity until the weather returns to normal. Be especially cautious about drinking too much fluid during hot weather to avoid overloading your heart.

Mental stress includes dealing with unexpected events, dealing with family conflict, and general worry. You may choose to re-evaluate what things are most important in your life and give you the most pleasure. Put your energy and time into the activities you enjoy most. Some of your usual roles and activities may need to change. You may decide to seek help from a counselor, a spiritual advisor, or a close friend to help you with mental and emotional stress. It is also very important to maintain friendships and social contacts.

Relaxation should be a planned part of each day. You choose what is relaxing for you; it may be reading, listening to music or doing handicrafts, for example. Whenever your body feels tense or fatigued, it's time to relax. Here's how to begin:

- ▶ Find your position of comfort: sitting with your feet elevated slightly, lying down or lying with the head and shoulders raised slightly.
- ▶ Use progressive muscle relaxation.
  1. Starting with your toes and feet, focus your thoughts on totally relaxing them.
  2. Move up to your ankles, then to the calves of your legs, your knees, your thighs, etc. and focus on relaxing each area in turn.
  3. Spend enough time on each area to really feel the tension leave.
  4. Continue up to the head, neck, and eyes.
  5. Enjoy the feeling of total body relaxation for as long as possible.
- ▶ If you cannot take the time for progressive muscle relaxation, you can position yourself comfortably, loosen any restrictive clothing and focus on breathing slowly and deeply 4–6 times.

The Activity Sheet at the end of this module will help you identify what your stresses are and how you might make some changes.

### STRESS, RELAXATION AND ENERGY SAVING

Some of my stresses are:

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I know that I am stressed when I:

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In the past, I have handled stress by:

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When I feel stressed, I prefer to receive help from:

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My favorite ways to relax are:

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I would like to learn more about:

- ☐ ways to relax
- ☐ ways to handle stress