WILL ROGERS INSTITUTE

Education for Today
Research for Tomorrow

Managing Your Chronic Obstructive Pulmonary Disease (COPD)

UPDATED EDITION






Sources of Help

CHRONIC LUNG DISEASE ■ DISEASE MANAGEMENT ■ SURGICAL APPROACHES

SMOKING CESSATION ■ PULMONARY REHABILITATION ■ STAYING HEALTHY

LIVING WITH COPD ■ CURRENT TRENDS IN RESEARCH ■ RESOURCES

www.wrinstitute.org
(877) 957-7575

Managing Your Chronic Obstructive Pulmonary Disease (COPD)

2013 UPDATED EDITION




WILL ROGERS INSTITUTE

Education for Today
Research for Tomorrow

www.wrinstitute.org

(877) 957-7575

YouTube

10045 RIVERSIDE DRIVE, THIRD FLOOR, TOLUCA LAKE, CA 91602

Acknowledgment

Our mission at the Center for Lung Science and Health at the University of Minnesota is to facilitate interdisciplinary research, education and outreach activities in order to promote lung health and improve care of patients with lung disease. This booklet was created in collaboration with the Will Rogers Institute to provide a valuable educational resource to individuals with COPD and their families.

The goal of this booklet is to provide a knowledge base for individuals with lung disease, thereby providing them with the information they need to be active participants and advocates in their disease management.

The author would like to thank Dr. Ron Reilkoff for his invaluable insight, expertise and direction.

Cheryl Edin Stibbe, RN, MA, CCRC
Center for Lung Science and Health
University of Minnesota

Table of Contents

"You have COPD," says the physician. Now the shortness of breath, cough, sputum production, chest tightness and wheezing you have been experiencing begin to makes sense. In one way, a definitive diagnosis makes you feel better, because now there is an explanation for how you have been feeling. However, the diagnosis of chronic lung disease is hard to accept. You start thinking, now what? Where do I go from here? When you leave the physician's office the questions that are in your mind are just beginning. This booklet is designed to assist you in understanding COPD and its impact on your life. Hopefully, it will answer some questions and bring up new ones to discuss with your healthcare team. Working with your healthcare team you can improve your health. You are in control of your health, and it starts with being informed about your disease, the treatment options that are available and your commitment to the process.

How the Lungs Work

COPD Is a Chronic Lung Disease

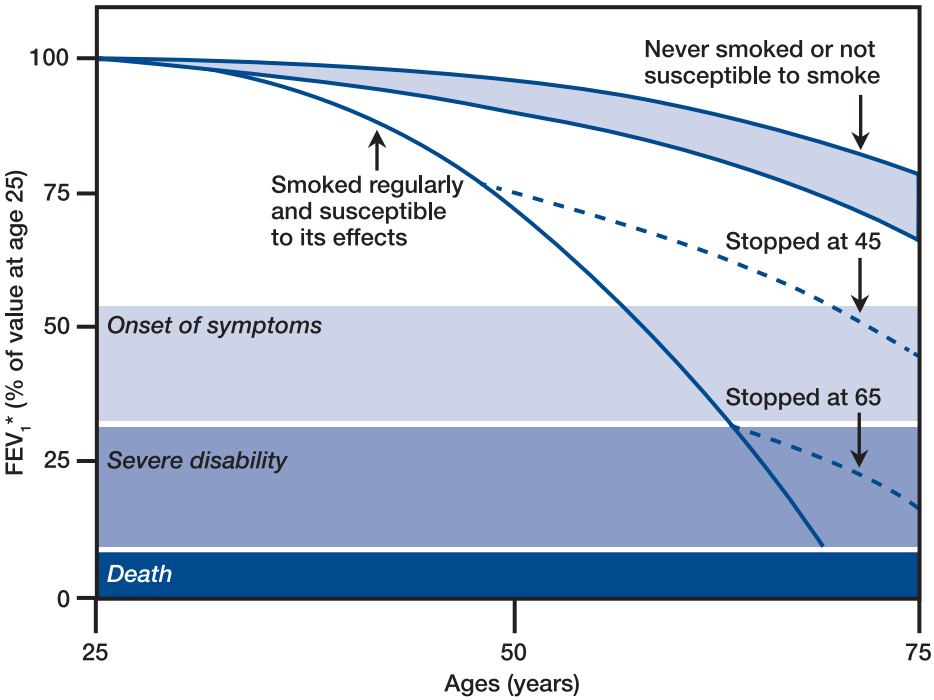
COPD, or chronic obstructive pulmonary disease, is a treatable, but more importantly, preventable lung disease. COPD is a major public health problem. It is estimated that COPD affects more than one in every 10 persons over the age of 40 worldwide. It is currently the third-leading cause of death in the United States and is estimated to become the third-leading cause of death in the world by 2020. There is no known cure for COPD presently, but with appropriate treatment individuals with COPD can live full, productive lives.

The term COPD actually refers to a group of different lung diseases that share in common two important features: 1) difficulty moving air in and out of your lungs, otherwise known as airflow limitation, and 2) abnormal inflammation in the lungs. It is caused by the long-term inhalation of noxious gases and particles (the most common is tobacco smoke) that promotes ongoing inflammation in the lungs. The most common forms of COPD are chronic bronchitis, emphysema and asthma/small airways disease.

How Is COPD Diagnosed?

The diagnosis of COPD is based on a combination of exposures to known risk factors (inhalation of tobacco smoke, indoor-outdoor pollution, etc.), appropriate symptoms (cough, mucus production and shortness of breath) and the demonstration of airflow limitation on a breathing test (a pulmonary function test, or PFT). Airflow limitation is demonstrated on a PFT as a decreased ability to move air effectively in and out of one's lungs. This difficulty is more pronounced with exhalation, or when one empties his or her lungs. As a result of this airflow limitation, people with COPD develop shortness of breath (particularly when they have to breathe fast) and a reduced ability to exercise and do their daily routines.

The initial signs and symptoms of COPD are subtle and often do not develop until a certain degree of lung function is lost. (See the Fletcher Peto Curve chart on the opposite page.) Most people begin to feel the symptoms of the disease between 50 and 70 years of age after years of accumulated injury to their lungs. We lose lung function as a normal part of aging. This loss of lung function and the rate at which our lung function declines is accelerated in COPD and factors into the onset of symptoms. Unfortunately, once lung function is lost, we cannot get it back. Thus it is very important to preserve and optimize what lung function you have with COPD.



*Forced expired volume in one second

COPD and Its Impact

Individuals with chronic obstructive pulmonary disease may experience shortness of breath and a reduced ability to exercise and work. Other symptoms may include increased sputum production, episodes of coughing and airway spasms, a tendency to get frequent colds or infections, an accumulation of fluid in the body (especially in the feet and ankles), a loss of energy, and feelings of fatigue. It is also common for individuals to experience anxiety and/or panic attacks when they have difficulty breathing. Claustrophobia is also a common feeling, especially when in small spaces or crowded areas.

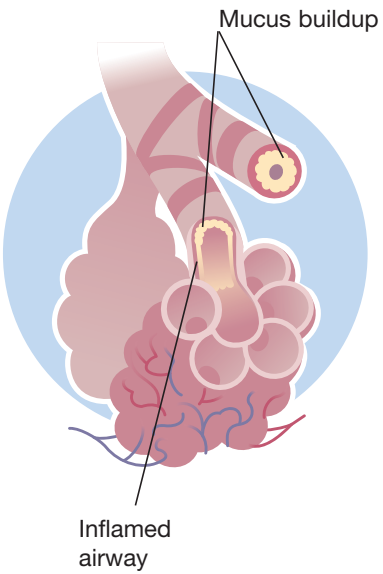
The severity of COPD and how it impacts your overall health depends upon multiple factors, including your daily symptoms, the degree of airflow limitation on your breathing tests (PFT) and the frequency of exacerbations you experience (an exacerbation is an episode of increased symptoms or worsening breathing). In addition, conditions such as heart disease, lung cancer, diabetes, osteoporosis, anxiety and others can impact the burden of COPD on your health. Treating COPD involves ensuring that other coexisting medical issues (comorbidities) are also appropriately treated.



Types of COPD

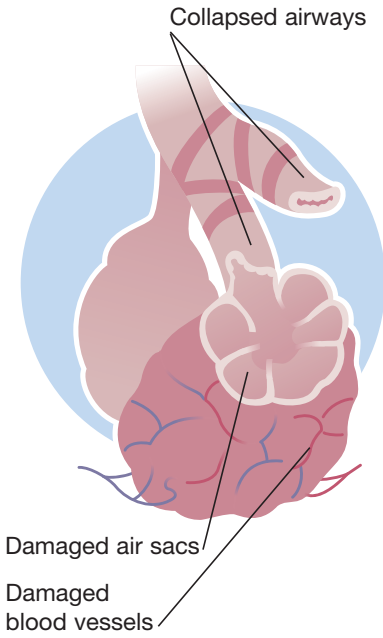
CHRONIC BRONCHITIS

Chronic bronchitis involves a long-term cough with mucus production. It is an inflammation of the bronchial tubes (airways) causing them to be irritated and produce large amounts of mucus/sputum. With the increased production of mucus, a persistent cough usually develops. This cough can be worse in the morning. The airways can be easily infected, because it is difficult to cough out the excess mucus. When there is an infection, sputum production can increase even more and turn yellow-green in color. Chronic bronchitis can coexist with emphysema.



EMPHYSEMA

In emphysema the air sacs (alveoli) and small airways (bronchioles) are damaged, resulting in permanent enlarged airspaces, or holes, within the lung. Once the air sacs and small airways are damaged, it makes it difficult to inhale and exhale. When you breathe out, the air becomes trapped inside the air sacs, which in turn makes it more difficult for fresh air carrying oxygen to come in. This makes the lung act like a balloon that has been stretched out and is unable to return to its original shape. Damage to the air sacs happens over time and is not reversible. Emphysema and chronic bronchitis are often associated with cigarette smoking.



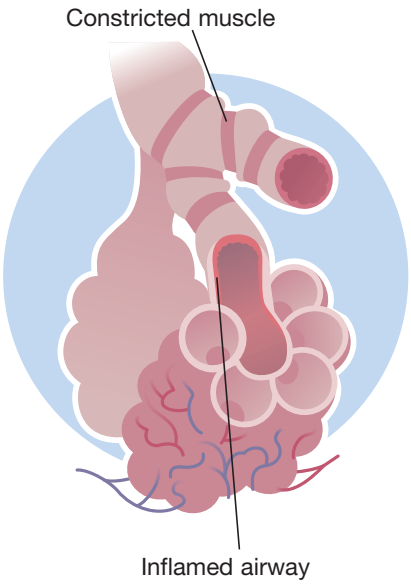
ALPHA–1 ANTITRYPSIN DEFICIENCY

Alpha-1 antitrypsin (AAT) deficiency is an inherited genetic form of emphysema and COPD. People born with AAT have a lack or low levels of the alpha-1 antitrypsin protein in their blood. This protein helps protect the lungs from tissue damage from neutrophil elastase, a substance released by white blood cells in response to inflammation or infection.

When an individual with normal levels of AAT in his or her blood gets a lung infection or, more commonly, is exposed to smoke or other lung irritants, the white blood cells go to the lungs and become activated, releasing chemicals that normally would help fight infection but also can damage the lungs. In a person who has AAT deficiency, the white blood cells damage the healthy lung tissue because there is a lack of AAT protein to protect the lungs. When this damage to the lungs occurs in someone with AAT deficiency, it is likely to result in emphysema.

An individual with AAT deficiency who has never smoked has a good chance of avoiding a serious decline in lung function. However, it is of utmost importance that upon the diagnosis of AAT deficiency a current smoker stop smoking. The most dramatic loss of lung function is seen in smokers and former smokers.

ASTHMA



Although it is often identified as a childhood disease, asthma can occur in adults. Asthma is a condition in which small airways in the lungs become narrowed by inflammation. This decreases the airflow in and out of the lungs and causes what is termed bronchospasm, bringing on shortness of breath, coughing and wheezing. In between episodes, an individual with asthma does not experience symptoms and has normal lung function. The inflammation and narrowing of the airways can occur as a reaction to infection, allergens such as animal dander or plant pollens, exercise, cold air, environmental exposures, medications or emotional stress. Episodes can be mild or severe. Asthma is often associated with other allergic symptoms such as atopy (which is a genetic tendency to develop allergic reactions), seasonal allergies and eczema. Individuals with COPD may have some features of asthma as well as other features of chronic bronchitis and/or emphysema.

IMPORTANT DIFFERENCES BETWEEN COPD AND ASTHMA

It is important to note that even though the symptoms of COPD and asthma are similar, they are different diseases. Both COPD and asthma are caused by abnormal inflammation, but the type of inflammation and the part of the lung they affect are different. Most important, COPD is a disease in which the lungs have been damaged by some external factor such as smoking. The damage to the air sacs and airways is permanent and cannot be reversed, whereas in asthma the symptoms can be managed with the correct medications and lifestyle changes.

Understanding your therapy plan is extremely important.

Disease Management

The overall goal of treatment for COPD is to improve symptoms and exercise tolerance, decrease risk of exacerbations, and decrease risk of disease progression. Specific therapies for COPD can be divided into two categories: 1) medication therapies or prescribed medications that include inhalers and pills, and 2) non-medication therapies including smoking cessation, vaccines, change in activities, education, surgery and oxygen use. Understanding your therapy plan is extremely important in the treatment and management of chronic bronchitis, emphysema and asthma.

Medication Therapy

Medication therapy is aimed toward two key components of COPD: 1) improving airflow limitation and 2) decreasing lung inflammation.

BRONCHODILATORS

Bronchodilators are the main group of medications used to treat COPD. They work by relaxing the smooth muscle around the airways, allowing the lungs to empty more effectively. Most bronchodilators are inhaled, so they go directly to the lungs. They act quickly to help open the airways and make breathing easier. There are two different categories of bronchodilators: long-acting and short-acting inhalers.

- Long-acting bronchodilators last between 12 and 24 hours and are taken either once or twice a day. They are used for everyday management in the prevention of symptoms and, often, your physician will describe these as maintenance inhalers. They should be taken everyday whether your breathing feels good or bad.
- Short-acting bronchodilators last about four to six hours and are usually used only on an as-needed basis. They are used for the management of acute symptoms or sometimes prior to a strenuous activity to minimize exertional symptoms. Your provider may describe these as your rescue inhalers. Often, once you are started on a maintenance inhaler, you may not need to use your short-acting inhaler as frequently; however, you should always carry your rescue inhaler with you wherever you go, just in case your breathing gets worse.

Some of the side effects of bronchodilators are hand tremors, dizziness, stomach upset and fast/racing heartbeat. These side effects are often dose related or related to the brand. Notify your physician if you experience any of these side effects. Your doctor will recommend the type of bronchodilator you will need. Some individuals, depending on the severity of their lung disease, may need to use both types of bronchodilators.

STEROIDS

Steroids are also called corticosteroids. This group of medications decreases lung inflammation. Inflammation in the lung is somewhat like a smoldering fire and steroids act like water to extinguish or control that fire. Steroids can be prescribed either as inhalers or as pills.

Prednisone and prednisolone (Medrol) are the most commonly prescribed corticosteroids that are taken in pill form. The pill form of steroids is not recommended as a regular maintenance medication because side effects may include anxiety, sleeplessness, weight gain, high blood pressure and increased blood sugar in diabetics.

The most common form of steroid prescribed for COPD is a steroid inhaler. Oral medications contain higher levels of steroids and need to pass through other parts of the body where they are not needed, which is why inhaled steroids are preferred, because they work directly on the lungs and allow for a much lower dose to be given, minimizing unwanted side effects. Often, inhaled steroids are combined with a long-acting bronchodilator as a preventive or maintenance medication for people with COPD. When an inhaled steroid is combined with a bronchodilator inhaler, the two together are more effective in decreasing your symptoms. The side effects from corticosteroid inhalers are minimal. The most common is thrush (a yeast infection of the tongue or throat) that can be prevented by simply rinsing your mouth with water after using your inhaler. In a small percentage of individuals, inhaled steroids may increase the risk of pneumonia or upper respiratory tract infection, but for the majority of individuals this is not a problem.

It is important to note that inhaled corticosteroids will not be helpful during an acute breathing attack or exacerbation. This is why you should carry your rescue inhaler with you at all times. It is extremely important when taking corticosteroids to take them as prescribed by your physician. Do not stop taking them without talking with your doctor.

ANTIBIOTICS

Antibiotics are used when there are signs of an infection, or in some cases they are used to prevent infection or an exacerbation. There are many different types of antibiotics. It is important to take the antibiotics as prescribed by your physician. Do not stop taking the antibiotics when you start feeling better. Finish taking the entire course of the medication. Notify your physician of any side effects you may experience from the antibiotics.

EXPECTORANTS/MUCOLYTICS

These medications are used to thin secretions and mucus and help you cough up and clear the mucus from your lungs.

PHOSPHODIESTERASE INHIBITORS

Phosphodiesterase inhibitors are relatively new medications that are added to inhalers to improve symptoms when individuals have severe forms of COPD and symptoms of chronic bronchitis. They work by decreasing certain aspects of inflammation.

LEUKOTRIENE MODIFIERS

Leukotriene modifiers are a class of medications that decrease pulmonary inflammation in people with asthma.

CARDIAC MEDICATIONS

Individuals with COPD who also have heart problems use cardiac medications. It is important to let your provider know about both your heart and lung conditions and the medications you take. Appropriate treatment of your heart condition makes less work for the lungs and improves your symptoms, making it easier for you to breathe.

DIURETICS

Diuretics are used to prevent excess fluid accumulation in the body. Ankles and feet are often the first places to show the swelling that is an indication of excess fluid accumulation. Diuretics are often called water pills and are prescribed to decrease fluid levels. One of the most commonly used diuretics is Lasix (furosemide).

ANXIOLYTICS AND ANTIDEPRESSANTS

Anxiolytics and antidepressant medications are used to treat anxiety. These medications work by helping you relax. They are helpful when anxiety is making it more difficult to breathe.

ANTIPROTEASE INHIBITORS

Antiprotease inhibitor is a medication given to some individuals with a genetic form of COPD called alpha 1-antitrypsin deficiency (AAT). Weekly injections of alpha 1-antitrypsin can restore levels to protect the lungs. This medication is not a cure for AAT or hereditary emphysema. It also cannot repair damage that has already occurred in the lungs; however it is thought to help prevent further progression of damage to the lungs. This treatment option is not appropriate for all individuals with AAT. If the damage to the lungs is extensive, the antiprotease inhibitor is not a viable option.

Let your healthcare provider know your complete medical history and all the medications you are taking.

Non-Medication Therapy

Out of all the therapies for COPD, non-medication therapies have been shown to have the most positive impact on patients with COPD and are the therapies that have been shown to decrease the risk of death in such individuals.

OXYGEN THERAPY

Technically considered a medication, oxygen is prescribed as a treatment for COPD when oxygen levels in the blood are inadequate. Typically this is indicated by a sustained oxygen level in the blood of 88 percent or less. Sustained low levels of oxygen in the blood can result in damage to other organs of the body as well as worsen symptoms of COPD. Patients are prescribed oxygen to reduce shortness of breath, improve thinking and mental alertness, improve mobility, and increase patient comfort and quality of life. Not all patients require oxygen. Different people need it at different times and in different amounts. Some individuals require oxygen 24 hours a day, seven days a week, while others may only require it at certain times, typically either at night or with strenuous exertion. Oxygen should be used only when it is prescribed by your physician. Several studies have shown that using oxygen will extend the lives of people with COPD.

There are rules when using oxygen to keep you and others safe.

Safety:

Oxygen is NOT an explosive gas, but high levels of oxygen can make ordinary things flammable. There are rules when using oxygen to keep you and others safe.

TIPS:

- **Store oxygen equipment in well-ventilated areas, not near heat sources or open flames (hot water heaters, furnaces, stoves.)**
- **Do not smoke within 10 feet of an oxygen source.**
- **Never use oil-, grease- or alcohol-based products on oxygen equipment.**
- **Do not use petroleum-based products (Vaseline, Vicks, A&D ointment) on your face when using oxygen. Use water-based products instead.**

Oxygen delivery devices:

There are many different ways to deliver oxygen therapy, with both portable and home devices. Examples include compressed gas (green tanks), liquid oxygen, concentrators (which extract and concentrate oxygen from the air) or combinations of these. Your doctors and home oxygen service will work with you to find the best fit for your lifestyle and needs.

Conserving devices versus continuous flow:

Many different conserving devices have been developed to make your oxygen last longer. Conserving devices limit the flow of supplemental oxygen to only when you inhale, while a continuous flow device delivers oxygen continuously. A conserving device has the advantage of making storage containers smaller, lighter and longer lasting.

Smoking Cessation

Tobacco smoke, either first- or second-hand is the leading risk factor for developing COPD. It is of the utmost importance for all individuals with asthma or COPD to stop smoking. There are many support groups and new options available to help people stop. Many individuals who have gone back to smoking after previous attempts to stop can still stop for good. It is never too late to stop.

Quitting smoking is the most important way to keep COPD from progressing. It is reported that as soon as 20 minutes after an individual has stopped smoking, the body experiences changes. These benefits continue long term.
The American Lung Association states:

At 20 minutes after quitting:

- Blood pressure decreases
- Pulse rate drops
- Body temperature of hands and feet increases

At 24 hours:

- Chance of a heart attack decreases

At 48 hours:

- Nerve endings start to regenerate
- Ability to smell and taste is enhanced

In the first year after quitting:

- Circulation improves
- Walking becomes easier
- Lung function increases
- Coughing, sinus congestion, fatigue and shortness of breath decrease
- Excess risk of coronary heart disease is decreased to half that of a smoker

After an individual stops smoking, the body experiences changes within 20 minutes.

Long-term benefits:

- From five to 15 years after quitting, stroke risk is reduced to that of people who have never smoked.
- At 10 years, the risk of lung cancer drops to as little as one-half that of continuing smokers.
- At 15 years, the risk of coronary heart disease is similar to that of people who have never smoked.
- The risk of smoking-releated cancer decreases.
- The risk of death returns to nearly the level of people who have never smoked.

Options available to assist in smoking cessation are nicotine replacement therapy, non-nicotine medications and behavior modification.

At 10 years, the risk of lung cancer drops to as little as one-half that of continuing smokers.

NICOTINE REPLACEMENT THERAPY

Nicotine replacement therapy helps relieve some of the symptoms that are related to smoking cessation. There are several nicotine replacement options available. Nicotine patches, nicotine lozenges and nicotine gum are all available over the counter.

Nicotine patch:

The nicotine patch releases a constant amount of nicotine into the body. Most patch products are to be applied once a day. The patch must be worn all day and cannot be taken on and off to replace the need for a cigarette. The patch is designed like a big adhesive bandage. Size and the amount of nicotine vary. If the patch is larger, more nicotine is delivered into the skin. The nicotine in the patch takes up to three hours to make its way through the skin into the bloodstream. The patch assists in smoking cessation by providing a constant level of nicotine in the body to help lessen withdrawal symptoms.

It is never too late to stop smoking.

Nicotine gum:

Nicotine gum delivers nicotine to the body more quickly than the patch. The nicotine in the gum takes only minutes to reach the brain. Therefore, the "hit" feeling of nicotine is stronger with the gum. Nicotine gum is not meant to be chewed like regular gum. Instead, the individual should chew the gum a few times and then "park" it between the gums and teeth. This method allows the nicotine to enter the bloodstream through the blood vessels in the mouth. Nicotine gum contains enough nicotine to reduce the urge to smoke; it helps to take the edge off the craving for a cigarette.

Nicotine lozenge:

Nicotine lozenges come in the form of hard candy. They are meant to be dissolved slowly in the mouth. Do not bite or chew them. If chewed, the nicotine will be released in the stomach instead of the mouth, resulting in stomach upset.

There are also several prescription treatments available. These include nicotine nasal spray, nicotine inhalers and medications in pill form.

Nicotine nasal spray:

The nicotine nasal spray is useful for individuals who are highly dependent smokers. This is because the nicotine is absorbed through the nasal membranes and offers the fastest "hit" of nicotine into the bloodstream. The nicotine is delivered by a spray pump into each nostril.

Nicotine inhaler:

In using a nicotine inhaler, the nicotine is absorbed through the mouth, esophagus and stomach.

ORAL MEDICATIONS

Bupropion hydrochloride is also known as Zyban and Wellbutrin. Treatment begins one week prior to the individual quitting smoking. The length of treatment is individualized, but on average the treatment is seven to 12 weeks. It is unknown how this medication helps in smoking cessation.

Varenicline tartrate, known as Chantix, is a new medication on the market for smoking cessation. Chantix works by blocking the main nicotine receptor in the brain. It is this receptor that nicotine attaches to, which in turn gives the smoker pleasure.

ELECTRONIC CIGARETTES

Electronic cigarettes are NOT a means for smoking cessation nor are they safer than regular cigarettes. While they are a new phenomenon, initial reports have demonstrated that smoking an e-cigarette can also trigger inflammation in the lungs, and other research has detected the presence of compounds in electronic cigarettes that are known to cause cancer.

BEHAVIOR MODIFICATION

Behavior modification is a key factor in any smoking-cessation program. To stop smoking, the individual must be ready to make the commitment to stop. All the medications and interventions will be useless if the individual is not truly ready in his or her own mind. The urge to smoke lasts for only a few minutes, so if you can divert your attention, the urge will pass. The following suggestions have been found helpful by people who are in the process of quitting:

- Have a plan.
- Identify a support person or attend a support group.
- Get rid of cigarettes, ashtrays, lighters (all things associated with the habit).
- Drink a lot of water.
- Stay away from the things that trigger the desire to have a cigarette.
- Take a walk.
- Suck on hard candy or chew gum.
- Go to the gym.
- Eat low-fat, crunchy snacks such as apples, carrots and celery sticks.

Let others know of your quitting plan. They can help you be accountable. Also, let them know that you might be irritable or edgy. If you do not let others know of your plan, it is hard to ask for support. Some symptoms of nicotine withdrawal include dizziness, fatigue, difficulty concentrating and cravings. It is important to take one day at a time. This is just a brief example of ways to assist in smoking cessation. There are many resources available to help.

Remember that the goal in using the above-stated smoking-cessation aids is to stop smoking. If you continue to struggle with quitting smoking, contact your physician for additional support.

… restore the individual to the highest possible level of function.

Pulmonary Rehabilitation

Pulmonary rehabilitation is a physician-prescribed program for individuals with chronic lung disease. Pulmonary rehabilitation programs include many healthcare providers. This healthcare team includes specialized doctors, nurses, rehabilitation therapists, dietitians and psychosocial staff to assist with emotional issues. The primary goal of a pulmonary rehab program is to restore the individual to the highest possible level of function. Pulmonary rehab includes education in lung disease, self-care management and specific exercises aimed at conditioning large muscle groups. Pulmonary rehab programs are run on an outpatient basis and provide a structured, monitored environment.

The role of pulmonary rehabilitation in improving an individual's overall health and exercise tolerance cannot be understated! It is of the utmost importance for individuals with COPD to maintain or increase their activity levels at the highest levels possible.

Vaccinations

Staying up to date on vaccines is an effective means of staying healthy with COPD. Small studies suggest that it also can extend the life of someone with COPD. Vaccines work by readying your immune system for a potential infection. Thus, by having circulating antibodies available when exposed to a virus or bacteria, the immune system can either prevent an infection from taking hold or lessen the severity of the infection and decrease the toll it takes on the lungs. The most common vaccines recommended for individuals with lung disease include a yearly influenza vaccine as well as a pneumonia vaccine every five to 10 years. More recent recommendations have been made for repeat or "booster" immunizations for whooping cough (*Bordetella pertussis*) because there has been a resurgence in people becoming infected.

Most vaccines are inactive or dead vaccines. This means that "parts" of a dead virus or bacteria are injected via the vaccine. Your immune system recognizes these parts as they would in a live virus or vaccine and develops immunity to the virus or bacteria.

Surgical Approaches

Surgery may be an option for some individuals with severe COPD. These individuals have had little or no improvement from medications and must meet strict criteria for surgical intervention.

BULLECTOMY

A bullectomy is performed when an individual has a severe type of COPD in which they develop large holes called bulla in one of the lungs. A bulla is a large air sac that compresses areas of the lung. If areas of good lung are being compressed, then the lung cannot function correctly. A bullectomy is a surgery that removes the bulla from the lung. Following a bullectomy it may make it easier for the lung to function because it is now getting improved blood flow and has more room to expand.

LUNG VOLUME REDUCTION SURGERY

In lung volume reduction surgery, areas of emphysematous lung are removed. Individuals who are candidates for this surgery and will benefit from it have disease present only in the upper lobes of their lungs and have poor exercise capacity. Removing the upper area of the lung in these individuals provides more space for expansion of the rest of the lung, which is relatively healthy.

LUNG TRANSPLANTATION

Lung transplantation is reserved only for individuals with severe lung disease that cannot be managed through more conservative treatments. Lung transplantation involves removing one COPD lung and replacing it with a healthy lung from a donor. Multiple complications can arise following lung transplantation, so lifelong medical care is essential to ensure the best possible outcome.

COPD Exacerbations

COPD exacerbations are a major cause of increased symptoms and disability, and can contribute to a quicker decline in your lung function and overall health. Therefore, preventing or limiting the severity of exacerbations is important in maintaining your health. An exacerbation, or flare, of COPD is a sudden event that causes an increase and worsening of your baseline symptoms that requires you to change or increase your COPD therapies. Exacerbations are typically triggered by an infection with either a virus or bacteria, but can also be triggered by inhalation of a noxious chemical, heart disease and even anxiety.

Exacerbations can be mild, where you may need to use your rescue inhaler more frequently for a day or to, or they can be severe, requiring you to go to the emergency room or hospital for treatment. Early recognition and treatment of an exacerbation is essential to minimize the negative impact it can have on your health and lung function.

Self-Management

An extremely important piece of disease management is taking your medications as prescribed and knowing when to call your doctor. Many people find it helpful to make a chart to help them keep track of their medications and when to take them. Simply write down the name of the medication, the dose and the times it needs to be taken. Mark a check when you have taken it. Others find it helpful to use a weekly pill box. If you have any questions or concerns regarding your medications, you need to call your health care team.

… use a weekly pill box.
If you have any questions or concerns,
call your healthcare team.

You also need to call your doctor when you experience any of the following symptoms:

- Increased shortness of breath, labored breathing
- Increased coughing
- Change in the color or amount of sputum
- Presence of a fever >101
- Swelling of the abdomen, ankles or feet
- Increased fatigue or weakness

It is helpful to have your physician's contact information by your telephone. The physician will want answers to such questions as:

- When did the change in symptoms first occur?
- How are the current symptoms a change from your baseline?
- Is there anything that makes the symptoms better or worse?
- What medications are you currently taking?
- Have you recently started any new medications?

Having this information written down in an organized manner will assist you in talking with your doctor or nurse, so that he or she is able to more efficiently help you with what you need.

Staying Healthy

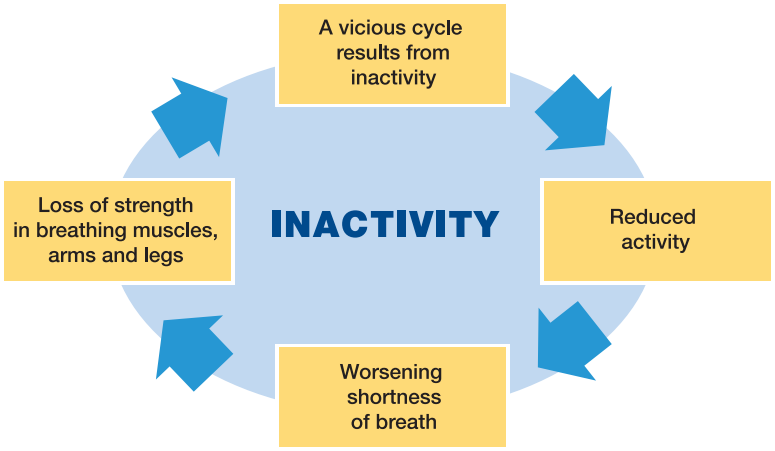
Staying healthy with COPD is extremely important. Getting enough sleep and rest is essential to good health. If you are not sleeping adequately and getting enough rest, you will be more susceptible to becoming ill. Getting a cold or the flu can be more serious when you have lung disease and may exacerbate and worsen your COPD symptoms. For individuals who do not have chronic lung disease a cold is an inconvenience, but a cold for someone with COPD can mean hospitalization.

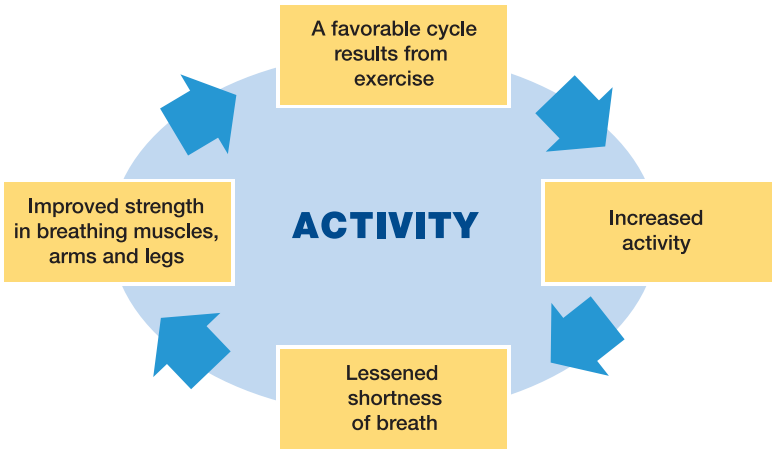
Hand washing is your best defense against getting sick. Wash long and wash often. Use hand sanitizer when you are away from soap and water. If possible, stay away from people with colds or the flu. Avoid large crowds during cold and flu season. Shaking hands is another extremely easy way to spread germs. Try to avoid shaking hands, especially with someone who is obviously sick (coughing, sneezing). Germs are found everywhere and it is impossible to avoid them, but common sense, along with hand washing, is a great defense.

EXERCISE

Exercise is an essential part of daily life and important for staying healthy. Staying active is the best way to maintain your lung function and overall health. It is well documented that exercise is not only helpful from a physical perspective, but it also helps promote a general sense of well-being. An exercise program does not need to be complicated or expensive. One of the most important factors of exercise is that it is done on a regular basis.

Regular exercise keeps your heart and muscles strong, which in turn helps you to utilize oxygen more efficiently. Using oxygen more efficiently will help make the workload of breathing easier.





Exercise helps maintain strength and vigor and has many benefits:

- Improved sleep
- Weight management
- Improved quality of life
- Relaxation, stress management
- Higher energy levels
- Lower blood pressure
- Increased physical endurance

It is important that you consult your physician before beginning any exercise program.

Questions to ask:

- What kind of exercise would you recommend?
- How often and for how long should I exercise?
- Are there specific exercises I should avoid?
- Should I take my medications before I exercise?

Start a new exercise routine slowly. It is easy to do too much too soon. Set realistic goals. Find a form of exercise that works for you and stick with it!

TIPS:

- Inhale while seated, exhale as you begin to stand.
- Inhale while standing, exhale as you begin to sit.
- Inhale before bending, exhale as you bend.
- Inhale as you reach for an object, exhale as you grasp it and bring it toward you.
- Always exhale twice as long as you inhale.
- When climbing stairs, inhale while standing on the step, exhale as you step up.
- The same holds true for descending the stairs: inhale while standing, exhale as you step down.

NUTRITION

Nutrition and proper eating habits are essential to staying healthy. Good nutrition affects how the lungs function in many ways. A well-balanced diet of carbohydrates, proteins and fats provides your body with the energy it needs to function effectively. The work of breathing requires more energy in a person with COPD. The muscles used for breathing may work up to 10 times harder than in a person who does not have COPD. Proper nutrition is also necessary to maintain a healthy weight. If you are overweight, your lungs have to work harder. If you are underweight, you will feel weak and tired. A dietitian is an invaluable resource in helping develop a diet plan to meet individual needs.

A well-balanced diet … provides your body with the energy it needs to function effectively.

Living With COPD

COPD affects many areas of your life. You may not be able to do what you are used to doing. With chronic lung disease it will take more energy to accomplish your daily tasks. You will need to learn to use your body more efficiently. The best approach to learning to conserve energy is to plan, prioritize and pace yourself. Here are some energy-saving tips:

Plan:

- Plan your activities for the time of day that you are usually feeling the best.
- Allow time between tasks or activities to rest.

Prioritize:

- Simplify.
- Decide what really needs to be done and what can wait.
- Ask for help.

The best approach is … to plan, prioritize and pace yourself.

Pace yourself:

- Break everyday tasks into small steps; accept that you do not need to do things the way you have always done them.
- If needed, use tools and devices that can assist you.
- Sit down when you dry your hair or shave.
- Avoid strenuous activity.
- Rest when needed.

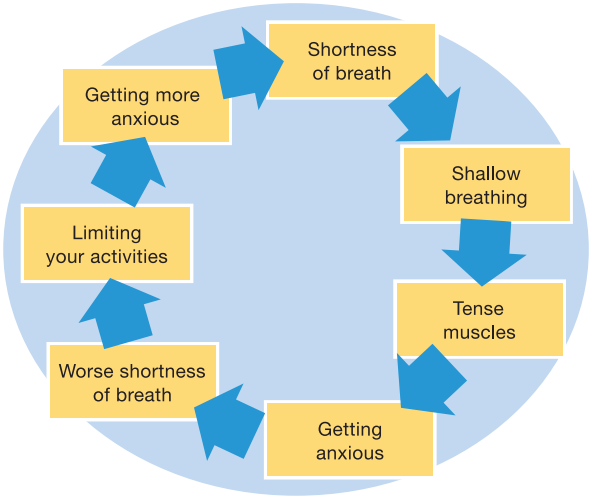
EMOTIONAL HEALTH

Emotional health is also affected by COPD. COPD is often called the "invisible illness." Outwardly the person who is affected seems fine, even though their energy and strength can vary from day to day. Often there are no symptoms and everything appears okay. But other times there is a period of not feeling well.

It is common to feel anxious when you are short of breath and cannot breathe. When you experience shortness of breath you become anxious, your muscles tense up, which in turn makes it harder to take a deep breath. You experience increased anxiety because you worry you are not getting enough air. You respond to this anxiety by breathing faster, which makes the shortness of breath worse. You may even start to panic. This then creates increased shortness of breath and the cycle repeats itself.

DYSPNEA CYCLE

This cycle is known as the dyspnea cycle. To cope with this some people choose to stay home and avoid activities. This can be very isolating, leading to depression. Feelings like these are very common in people who have lung disease. Discuss your feelings with your healthcare team. They can assist you in developing a plan to help you break the dyspnea cycle and also offer suggestions of medications or other treatment options.



With practice it is possible to learn a relaxed rhythmic pattern of inhaling and exhaling that takes less effort, reduces anxiety about being short of breath and helps increase endurance. The pattern includes diaphragmatic breathing and pursed lip breathing. In time you will use this new technique spontaneously while walking, climbing stairs, working or whenever you feel short of breath.

Discuss your feelings with your healthcare team.

… a relaxed rhythmic pattern of inhaling and exhaling reduces anxiety about being short of breath …

DIAPHRAGMATIC BREATHING

Diaphragmatic breathing makes use of the diaphragm, which lies beneath the lungs. It tightens as you inhale and relaxes as you exhale. As the lungs fill with air, the abdomen gets pushed out. Upon exhaling the abdomen returns to its original position. Diaphragmatic breathing does not include using the abdominal (stomach) muscles. Do not tighten the abdominal muscles when breathing out. Exhaling is a passive activity.

PURSED LIP BREATHING

Pursed lip breathing is used to empty the lungs of trapped air inside. Inhale through the nose with the mouth closed, purse the lips as though whistling, then allow the air to flow out slowly. Try to exhale twice as long as you inhale. Remember that exhaling is a relaxed activity; don't push or force the air out.

When short of breath, try to assume a position that keeps your abdominal and shoulder muscles relaxed so that the diaphragm is free to move. To use controlled breathing effectively, make sure you inhale before you move, then exhale when you begin to move.

FAMILY LIFE

Whenever chronic disease becomes a factor in family life, the emotions, responsibilities and expectations of all those involved undergo change. A gradual shift in relationships and attitudes takes place as family members adapt to new circumstances. Families of individuals with COPD experience their own sets of problems. These can include financial worries, the need to assume duties that have been the other's responsibility, a restricted personal and social life, plus the responsibility of caring for a chronically ill individual. Resentment at changes like these can evoke feelings of frustration and fear.

This anxiety on the part of both the patient and the family is often the underlying cause for an atmosphere of friction within the home. In order to maintain the dignity of the whole family, everyone involved needs to make an effort to keep in mind the outlook of the others. From this perspective it will be possible to control the illness, not let it control the individuals. The concept of working through it together is the most helpful way to manage it. A social worker is a very helpful resource to assist in helping work through some of these issues.

Families of individuals with COPD experience their own sets of problems.

RELAXATION

Learning to relax is important for the individual with COPD. Anxiety is very common in individuals with lung disease and can be a major contributor to daily symptoms as well as potentially trigger an exacerbation. It is important to recognize this anxiety and discuss with your physician whether a specific treatment is appropriate.

In general, an emotionally and physically relaxed person needs less oxygen than does one who is tense and anxious. Stress, which can be brought on by multiple factors, can affect the heart, lungs and other systems of the body. At times of stress, blood pressure may rise, the heart may work harder; the rate of breathing may increase.

Individuals with COPD should try to avoid stressful situations whenever possible. They can also learn to counteract the symptoms of stress that inevitably occur in day-to-day life. Learning relaxation techniques such as meditation, progressive relaxation and yoga may be beneficial in helping relieve stress. Controlled breathing is also an effective tool to help alleviate stress.

INTIMACY AND SEXUAL HEALTH

Intimacy is closely tied to emotional health. When you are feeling anxious and short of breath, it may be difficult to think about your sexual health. However, it is important to remember that the need to feel loved and experience intimacy is not diminished with the diagnosis of COPD. It is not unusual for the person with COPD and his or her partner to feel nervous and unsure with regard to sex. The person with COPD may experience shortness of breath during sexual activity. This can be very disconcerting. However, with planning and communication between partners, sexual intimacy can be maintained. Here are some points to keep in mind to help manage the shortness of breath during sexual activity:

- Use your bronchodilator prior to sexual activity.
- Clear bronchial secretions prior to sexual activity.
- Make sure you are rested and plan sexual activity for the time of day you are feeling your best.
- If you use supplemental oxygen, use your oxygen during sex.
- Choose sexual positions that require less energy, e.g., side-to-side positioning.
- Keep in mind that simply holding and touching is an important aspect of intimacy.

Hopefully, these points will be helpful. Your healthcare team will answer additional questions and concerns you and your partner may have.

… the need to feel loved and experience intimacy is not diminished with the diagnosis of COPD.

… with advance travel planning, things can go smoothly.

TRAVEL

Travel with COPD can be challenging. But with advance planning things can go smoothly. No matter what mode of transportation you plan to take, here are a few helpful tips:

- Discuss with your physician/healthcare team your plans to travel.
- Have your physician write a letter containing a brief medical history and the medications you are taking to show an unfamiliar physician if you should need medical attention while you are away. Consider asking your physician for emergency medications to have on hand when you travel in case of an exacerbation.
- If you require oxygen while on your trip, your physician needs to write a prescription and your oxygen supplier can assist you with arranging for oxygen at your point of destination. There will be different considerations for the oxygen depending on the mode of travel.
- Remember to include time in your daily travel activities to rest and pace yourself.
- Always take your medications with you on the plane in their appropriately labeled prescription bottles. Do not check them in your suitcase, in case your luggage gets lost. Make sure you have enough medication for the trip, plus extra for an unexpected emergency or delay in returning home.

- Check your health insurance coverage in case you are hospitalized out of state or when you are traveling abroad so you know what your coverage would be. Consider purchasing travel insurance to cover unanticipated medical costs.
- If necessary, arrange for a wheelchair at the airport or other point of destination.

A recent FAA ruling states that individuals can now take oxygen concentrators on airplanes. You need to tell the airline you will be using the device when you book your flight. For information, go to www.faa.gov/about/initiatives/cabin_safety/portable_oxygen/.

In light of how quickly flying regulations can change, it is always a good idea to check with the airlines prior to flying for any change in or new regulations. Visit the websites listed below to check on specific regulations before you prepare to travel:

Delta Airlines: www.delta.com
American Airlines: www.aa.com
United Airlines: www.united.com
JetBlue Airlines: www.jetblue.com
Southwest Airlines: www.southwest.com
US Airways: www.usairways.com
Alaska Air: www.alaskaair.com
AirTran Airways: www.airtran.com
Frontier Airlines: www.flyfrontier.com

Current Trends in Research

Research into COPD is ongoing, with numerous research studies in progress throughout the United States and around the world attempting to discover the process or processes that lead to chronic obstructive pulmonary disease. Researchers are seeking means of preventing the progression of pulmonary disability and restoring some degree of lost function. Other efforts are aimed at preventing secondary disease. Promising avenues of research include drug therapy and potentially gene therapy.

… a new way of looking at lung disease.

Glossary

Asthma

Asthma is a recurrent episodic lung disease in which the air passages narrow from a variety of causes (allergies, infection, cold weather). This may cause difficulty in breathing, chest tightness, wheezing and coughing.

Bronchiectasis

Bronchiectasis is a chronic dilation and irregularity of bronchial tubes. The structural abnormalities lead to frequent infections and produce large amounts of sputum. It is very important to clear out secretions.

Bronchospasm

Bronchospasm is a temporary narrowing of the bronchi due to violent involuntary contractions of the muscles of the bronchi. It is common in asthma but may also happen in chronic bronchitis and emphysema.

Chronic Bronchitis

Chronic bronchitis is caused by long-term inflammation of the bronchial mucus membranes with resultant cough and sputum. This is often worse in the morning and may progress to shortness of breath.

COPD (Chronic Obstructive Pulmonary Disease)

This term encompasses chronic bronchitis, emphysema and asthma. The first symptom is difficulty breathing while exercising.

Diaphragmatic Breathing

This involves using the diaphragm (the dome-shaped muscle under your lungs) to do the main work when breathing.

Emphysema

Emphysema is a lung condition in which some air sacs are destroyed and others become enlarged, lose their shape and trap air.

Expiration (Exhalation)

Expiration (exhalation) is breathing out.

Inspiration (Inhalation)

Inspiration (inhalation) is breathing in.

Peak Flow Meter

A peak flow meter is a small, inexpensive device that allows people with asthma to check the degree of narrowing of their airways as often as they need to. Use of the peak flow meter helps customize asthma management.

Pulmonary Function Tests

These tests allow your doctor to determine whether you have pure emphysema, bronchitis, asthma, lung fibrosis or a combination of more than one of these. They can also indicate the extent of the lung disease.

Spirometry is a pulmonary function test that measures the amount of air a person can breathe out and the amount of time taken to do so. The two parts of spirometry are:

- FVC (forced vital capacity): How much—the maximum volume of air that can be exhaled during a forced maneuver.
- FEV_1 (forced expired volume in one second): How fast—volume of air expired in the first second of maximal expiration. This is a measure of how quickly the lungs can be emptied. FEV_1 is the main measure used to determine the severity of airflow obstruction.

Respiration

Respiration is the act of breathing in air, taking in the oxygen to the tissues and giving off carbon dioxide as you breathe out.

Resources

ONLINE RESOURCES

American Association
for Respiratory Care
www.aarc.org

American Lung Association
www.lungusa.com

Centers for Disease Control
and Prevention
www.cdc.gov/index.htm

Global Initiative for Chronic
Obstructive Lung Disease
www.goldcopd.org

MedlinePlus National Library
of Medicine
www.nlm.nih.gov/medlineplus

National Lung Health
Education Program
(prevention of lung disease
and promotion of lung health)
www.nlhep.org

National Heart, Lung
and Blood Institute
(a good resource for clinical trials)
www.nhlbi.nih.gov

U.S. COPD Coalition
www.uscopd.com

IF YOU DO NOT HAVE INTERNET ACCESS

The American Lung Association
61 Broadway, 6th Floor
New York, NY 10006

To contact the American Lung
Association location closest to you:
(800) LUNGUSA
(800) 586-4872
To speak to a lung health
professional at the American
Lung Association HelpLine:
(800) 548-8252

National Heart, Lung and
Blood Institute
NHLBI Health Information Center
ATTN: Website
P.O. Box 30105
Bethesda, MD 20824-0105
Phone: (301) 592-8573

My Questions About COPD

You are likely to have questions you want to ask a member of your health-care or pulmonary rehab team. Use the space below to help you remember and keep track of them.

Questions about chronic lung disease:

_____

_____

_____

Questions about daily activities:

_____

_____

_____

Questions about medication or oxygen use:

_____

_____

_____

Questions about breathing or airway clearance:

_____

_____

_____

Additional questions:

_____

_____

_____

_____

_____

_____

WILL ROGERS INSTITUTE

Education for Today
Research for Tomorrow

www.wrinstitute.org
(877) 957-7575

FOLLOW US ON

10045 RIVERSIDE DRIVE, THIRD FLOOR, TOLUCA LAKE, CA 91602