

Chapter 1

Understanding COPD

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Chronic obstructive pulmonary disease, or COPD, is the fourth leading cause of death in the United States and the second leading cause of disability. The costs associated with COPD are enormous — more than \$37 billion a year, including \$20 billion a year just in direct healthcare costs. Some 12 million American adults have been diagnosed with COPD, and another 12 million may have it but don't know it.

How can there be so many undiagnosed cases of a life-threatening illness? For the same reason that many diabetics and people with high blood pressure go undiagnosed: The symptoms, especially early on, are so vague that they're easy to ignore. And when COPD symptoms do appear, they can be mistaken for other conditions, like asthma.

In fact, until fairly recently, most people outside the health profession had never heard of COPD, and those who had heard of it very often dismissed it as a “smoker's disease.” Smoking is the number-one risk factor for COPD, but it is by no means the only one. Long-term exposure to dust, chemical fumes, secondhand smoke, and other pollutants can lead to COPD, and there's even a genetic condition that, though rare, can cause the disease.

COPD also was long considered a man's disease. But since 2003, more women than men have died every year from COPD. Many experts attribute this shift to the fact that, while smoking rates among men have dropped over the past two or three decades, the smoking rates for women have crept upward. Women also seem to suffer more than men from many of the health-sapping effects of COPD, so it tends to progress faster in women than it does in men.

That's the insidious thing about COPD: It's a progressive disease. New treatments and better understanding have improved management of its symptoms, but there is no cure, and the average life expectancy after diagnosis is about five years, depending on the severity of the COPD and other health factors.

Faced with these sobering facts, many people feel overwhelmed, even discouraged or depressed, when they first learn they have COPD. But you aren't completely powerless. There are all kinds of steps you can take to manage your COPD symptoms and improve your quality of life. The first step is understanding COPD and how it affects your body.

What COPD Is and Isn't

COPD is an umbrella term covering any long-term, irreversible damage to the lungs that interferes with breathing, specifically with getting air out of the lungs.

If you break the term down into its four parts, here's what *chronic obstructive pulmonary disease* means:

- ✓ *Chronic* means “always present” (as opposed to *acute*, which refers to a short-term condition that disappears after treatment).
- ✓ *Obstructive* means “blocking.”
- ✓ *Pulmonary* refers to the lungs, including the airways and tissues that allow your body to pull in oxygen and push out carbon dioxide and other gases.
- ✓ *Disease* is a condition that harms a specific bodily function and/or your overall health.

So *chronic obstructive pulmonary disease* is a condition in which you have trouble getting air out of your lungs because your airways are continually blocked.

Not being able to get air out is a problem because, when that air is trapped in your lungs, you can't inhale enough air to supply your body with oxygen. (Chapter 2 describes the gas exchange process in detail.) Your body senses that you aren't getting enough oxygen and sends signals telling you to breathe faster to correct the problem. This process is what makes you feel like you can't catch your breath.

Smoking just adds to the problem. Smoking increases mucous production in your lungs and paralyzes the *cilia* — the little “brooms” whose job it is to sweep mucus and particles up your airways so they can be coughed out. Too much mucus clogs the gas-exchange function of your air sacs, so you feel short of breath.

When you can't cough out mucus and particles, you have a higher risk of developing lung infections like pneumonia — a serious problem for COPD patients.



Coughing is one of your respiratory system's most important defense mechanisms. But smoking can interfere with your ability to cough effectively. You may not be able to cough out as much air, and you may not be able to put enough force behind your cough to expel mucus and irritants. The smoker's hack, though more frequent than a nonsmoker's cough, isn't nearly as effective.

What COPD is: The deadly combo

In the vast majority of patients, at least in the United States, COPD refers to a combination of chronic bronchitis and emphysema. (Other countries have higher incidences of other lung diseases that can fall under the definition of COPD.) Most COPD patients have both conditions, although one may be more advanced than the other.

Chronic bronchitis

Bronchitis is a condition in which the airways in your lungs are inflamed, making them narrower. Inflammation is usually a response to an irritant, like cigarette smoke, dust, or pollen. When your airways are irritated, they create more mucus in an effort to rid your lungs of the irritants. But this extra mucus, combined with the narrowing of the airways themselves, can end up blocking your airways. Air then gets trapped in your lungs, and you feel short of breath.

In chronic bronchitis, your airways become scarred and the partial blockage is permanent. Extra mucus is produced all the time, which can make you feel congested and prompt continual coughing. You become more susceptible to respiratory infections because the extra mucus in your airways provides an admirable breeding ground for bacteria and viruses. Figure 1-1 shows how chronic bronchitis affects your airways.

Chronic bronchitis develops over several years. It can affect people of any age, but it is most common in smokers who are in their 40s or older. About 9 million Americans have been diagnosed with chronic bronchitis; two-thirds of them are female.

Symptoms include chronic coughing and throat clearing, increased mucus, and shortness of breath. To meet the clinical definition of chronic bronchitis, you must cough up mucus most days for at least three months of the year for two consecutive years.



Many people ignore their chronic bronchitis symptoms because they mistakenly believe it isn't serious. The earlier you see your doctor, the better your chances of preventing serious damage to your lungs.

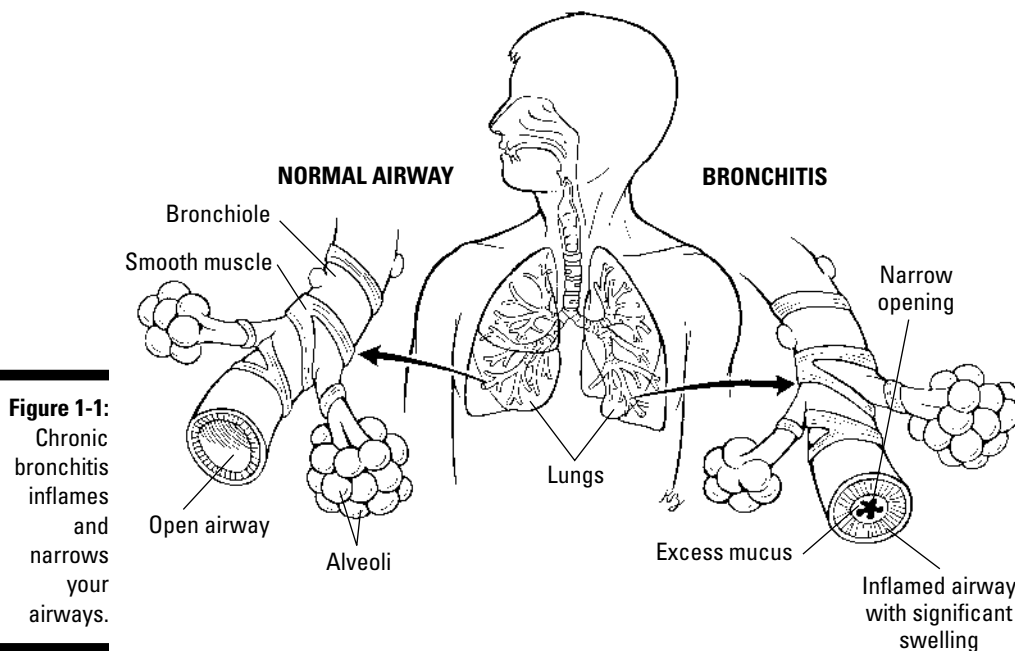


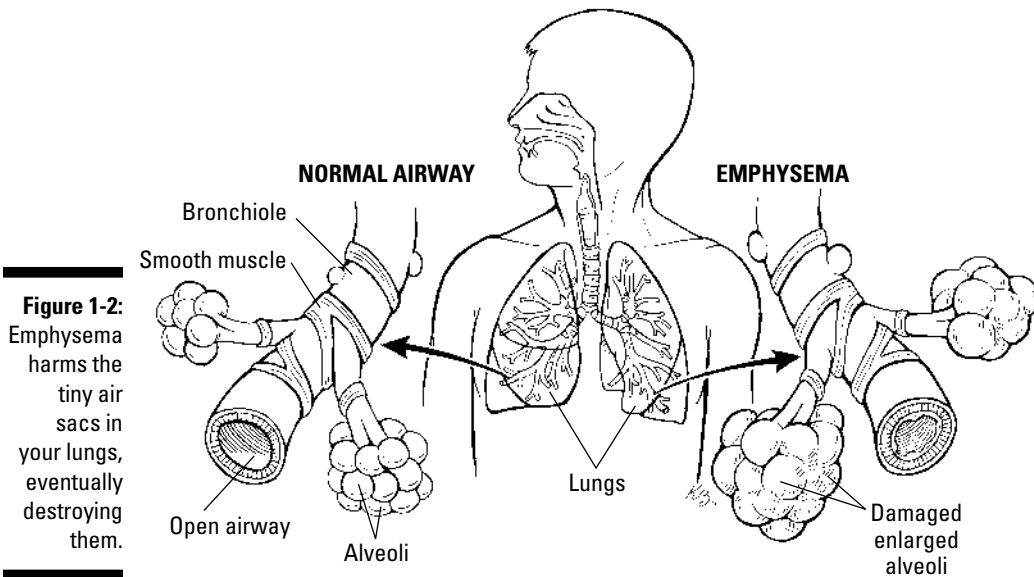
Figure 1-1:
Chronic
bronchitis
inflames
and
narrows
your
airways.

Emphysema

Chronic bronchitis affects your airways, the tubes that branch out into your lungs. Emphysema affects the tiny air sacs at the ends of your airways. This is where the oxygen in the air you inhale is exchanged for carbon dioxide and other waste material in your blood. To facilitate this exchange, the walls of your air sacs naturally are quite thin and fragile. In emphysema, the walls of the air sacs are stretched, distended, and eventually destroyed, leaving permanent holes in your lungs. The fewer air sacs there are, the more difficult the *gas exchange* — trading oxygen from inhaled air for carbon dioxide in your blood — becomes, and this can contribute to you feeling short of breath. Figure 1-2 shows how emphysema affects your lungs.

Emphysema takes time to develop; nine out of ten people diagnosed with it are 45 or older. In the past, men have been slightly more likely than women to be diagnosed with emphysema, but the balance is beginning to shift as smoking rates for women rise while those for men decline.

Early symptoms of emphysema are vague and often attributed to age rather than to any lung problem. Most people figure their cough is from smoking and their shortness of breath is from the infamous “middle-age spread,” so they don’t consider it worth mentioning to their doctors. By the time symptoms begin to cause concern — like feeling short of breath even while sitting or lying down — emphysema has caused quite a bit of damage.



Emphysema also robs your lungs of their elasticity, which can cause smaller airways to collapse, thus trapping more air in the lower lungs. This can make it difficult to bring in new air for gas exchanges, which worsens the function of your respiratory muscles, which makes you work harder at breathing, which makes you feel short of breath.

What COPD isn't: Other lung ailments

COPD is easily mistaken for other lung diseases because the symptoms of so many different ailments are similar. In particular, COPD is often misdiagnosed — and treated — as asthma. (See Chapter 4 for information on diagnosing COPD and ruling out other lung diseases.) And, because mild COPD can so easily be ignored or taken for an acute illness like a cold or acute bronchitis, patients often overlook the early signs of COPD.

In the following sections, we cover other lung ailments that COPD is often mistaken for.

Asthma

Asthma is similar to COPD in that it blocks the flow of air out of the lungs. But that's only true when you have an asthma attack. In between attacks, lung function is usually good. In COPD, lung function is always impaired to some extent.

Asthma patients have what doctors call *reversible airway obstruction*. COPD patients typically have irreversible or minimally reversible airway obstruction.

Medicines called *bronchodilators* open up the airways during an asthma attack and restore normal air flow. Those same medications are used to treat COPD and are effective at partially reversing the airflow obstruction. As COPD progresses, however, bronchodilators become less effective.



In some cases, people with asthma can develop permanent airway obstruction, so their lung function doesn't return to normal in between attacks. They lose the reversible quality of their obstruction to the effects of chronic inflammation. When that happens, these asthma sufferers have lung disease that is indistinguishable from COPD, so it's sometimes referred to as *asthmatic COPD*.

Asthma usually develops early in life, while COPD is rare in people under age 40. COPD is strongly linked to smoking, while asthma is not uncommon in nonsmokers. And although both conditions include the possibility of sudden attacks, asthma attacks usually are sparked by identifiable triggers like allergens and often end when the trigger is removed. In COPD, suddenly worse symptoms may take weeks to resolve.

Respiratory infections

Pneumonia, tuberculosis, and pleurisy are all acute infections — that is, short-term illnesses that go away with proper treatment. They usually produce symptoms that are rare with COPD, including fever, headaches or muscle aches, and chills. However, even though these illnesses aren't the same as COPD, people who have COPD are more susceptible to respiratory infections.

Pneumonia can occur in one or both lungs, and it can be caused by bacteria, viruses, or fungi. The organisms that cause pneumonia normally settle in the air sacs in the lower lungs, which fill with fluid and pus in reaction to the invasion. In some cases, pneumonia can cause permanent lung damage.

Tuberculosis, or TB, can look similar to COPD, but, like pneumonia, it's really a respiratory infection caused by bacteria, not a result of damage over a period of years.



Pneumonia and pulmonary TB are contagious; COPD is *not*. You can't "catch" COPD except through long-term exposure to lung-damaging substances like tobacco smoke.

Lung cancer

Smoking is a risk factor for both COPD and lung cancer, and COPD itself is a risk factor for lung cancer. But COPD is *not* cancer, and being diagnosed with COPD doesn't mean you'll automatically develop lung cancer.

How COPD Affects Your Body

COPD steals your energy, which has a cascade effect through the rest of your body. It's a gradual loss, which is why early COPD symptoms are so often ignored — if they're noticed at all. Many people with mild COPD don't have any symptoms beyond a vague tendency to get tired more quickly than they used to. But, as the disease progresses, the lack of energy becomes far more pronounced, overall physical weakness increases, and COPD sufferers find that even the smallest of tasks drains them of whatever energy they have.

Loss of energy

In people with healthy lungs, normal breathing doesn't take a lot of energy. In fact, healthy people only use energy to breathe when they inhale, to inflate the lungs; exhaling is more or less a passive activity because healthy lungs are elastic and push air out on their own when they spring back to their normal position.

With COPD, the lungs lose that elastic quality, so you have to use extra energy to force air out of your lungs. You use twice the energy just to breathe.

You also have to breathe more often when you have COPD, because the air that's trapped in your lungs reduces the volume of air you can take in with your next breath. The gas exchange is less efficient, so your body doesn't have as much oxygen to fuel itself.

COPD patients use more calories to breathe, and that leaves fewer calories to nourish the muscles. On top of that, many COPD patients find that they're too tired to prepare or eat meals, so their caloric intake drops even as their bodies use up more of the calories they do take in to do the job of breathing. This energy drain is so significant that some COPD patients may use as much as ten times more calories than healthy people.

Unfortunately, the energy drain also makes it harder for people with COPD to get the nutrition they need. The digestion process itself takes a great deal of energy, so people with COPD often don't feel like eating. Medications used to treat COPD can affect appetite, as well. And preparing food can be tiring, so when people with COPD do feel like eating, they're more likely to go for prepackaged convenience foods, which can contain sodium and other ingredients that aren't good for either their lungs or their overall health.

Loss of muscle strength

The lack of oxygen and sufficient calorie intake leads to loss of muscle mass and strength. This is why exercise is such a critical component of a comprehensive treatment plan for COPD. Aerobic exercise like walking or riding a stationary bike helps bring more oxygen into your body and tone your muscles, including the muscles involved in breathing. This kind of conditioning has been shown to reduce symptoms of being short of breath and improve overall quality of life for COPD patients, no matter how far their illness has progressed.

Exercise has other benefits of particular importance to COPD patients, too. COPD is often accompanied by heart disease or circulatory problems, and exercise can help make your heart and circulatory system stronger; exercise is known to help control blood pressure and improve the heart's ability to pump blood efficiently. A regular exercise regimen improves sleep quality, which helps you feel more energetic, and it promotes better posture, balance, and flexibility.

Exercise also is effective in counteracting many of the emotional effects of the disease. Forced inactivity can lead to a sense of isolation and depression; exercise is a proven mood brightener and self-confidence booster.

Working harder for fewer results

As COPD progresses, patients find that it takes more energy to do less. Even relatively passive activities like reaching for something on a shelf or bending over to pick up something from the floor can leave people with severe COPD feeling exhausted. So much of the body's resources are diverted to the task of breathing that, eventually, there's next to nothing left over for other activities.



The goal of virtually every COPD treatment plan is to fend off this stage of the disease for as long as possible. The right combination of medications, nutrition, exercise, and emotional and social support is far more effective in achieving this goal than any individual element can be.

How COPD Affects Your Life

The impact COPD has on your life depends on how far it has progressed and how severe your symptoms are. Many people with mild COPD find that it doesn't affect their daily routine much at all, beyond perhaps an occasional

cough and a tendency to tire a little more quickly. Moderate COPD may dictate changes in routines and adjustments to both the number and intensity of activities you can engage in.

Severe COPD has the most dramatic impact on your daily life. At this stage, you may no longer have the energy to do even simple tasks like bathing and getting dressed, much less more demanding things like mowing the lawn or shopping for groceries.

Missing work

COPD is the second-leading cause of disability in the United States, behind only arthritis. Mild COPD may prompt you to take more sick days than you used to because you tire more easily. Moderate COPD can force you to change from a physically demanding job to a more sedentary one; many people with moderate COPD leave their full-time jobs in favor of part-time ones because their symptoms don't leave enough energy for a full-time job. By the time COPD reaches the severe stage, very few people are able to continue working at all; they just don't have enough energy to do it.

Aside from issues of fatigue, there are risks in continuing to work while you have COPD. Your immune system isn't as strong, so you're more susceptible to whatever bug may be making the rounds at your workplace. If your job involves a lot of physical exertion or exposure to dust, fumes, or other irritants, continuing to work may do more harm to your health. And overexertion can lead to sudden worsening of your symptoms, which can become life-threatening episodes.

Skipping social activities

The continual fatigue associated with COPD prompts most patients to cut back on their social and recreational activities — sometimes without even realizing how much they've cut back. One of the challenges of living with COPD is figuring out how to use limited stores of energy; without forethought and planning, many COPD patients find themselves dropping out of the things they used to find most enjoyable in their lives.

Unfortunately, social isolation can make COPD — and any other chronic illness — even worse, because it's a key factor in depression. Recent research has shown that depression actually is harder on your general health than many chronic illnesses like diabetes and arthritis, and when depression accompanies a chronic illness, the illness itself is worse.

Doing less at home

Eventually, COPD interferes with your ability to do any activities, even mundane household chores. You can't carry as much as you used to, and pushing the vacuum across the carpet is a lot harder now. Standing up and bending over can trigger bouts of dizziness, and just walking across the room can leave you short of breath. Errands become bigger productions, too. Just getting ready to go to the grocery store can sap your energy, and fighting crowds makes it worse.

Many people with COPD rely on family members and friends to take over responsibility for most household chores. Eventually, you may need a personal aide to help you with basic activities like bathing and grooming, or even a home health aide to help you with medications and exercises.

Losing it emotionally

The progressive nature of COPD and the continually shrinking limits on your activity put a huge burden on your emotional and mental reserves. Depression and anxiety disorders are much more common in COPD patients than in the general population: Whereas less than a third of the general population suffers from these disorders, nearly half of all COPD patients do.

Men and women both can develop depression and other mood or emotional problems, but women seem to be more vulnerable to them. Studies have found that women have a more pessimistic attitude toward being able to control their COPD symptoms and are more likely to report that their COPD has lowered their quality of life.

A number of factors contribute to the emotional effects of COPD. If you're a smoker or former smoker, you may feel guilty about "bringing this on yourself," or you may find that others are less sympathetic or understanding of your symptoms because they believe it's your own doing.

Having to give up work can inflict its own emotional torture. So many people wrap their sense of self and value around their occupations that the withdrawal from the working world can leave them feeling empty and even worthless.

Having to rely on family and friends to do the routine household tasks you can no longer do may spark resentment and make feelings of worthlessness more intense. Most people don't want to become a burden to their loved ones and will grapple with guilt and other negative feelings as they become more dependent on others.

Finally, fear is a formidable force when you have COPD. You may worry about what will happen when your disease progresses to the point where you can no longer take care of yourself. You may fear having a sudden attack and worry about how it will affect your overall health and quality of life. The list of potential fears and worries is virtually endless, and so is the potential for these fears and worries to cause extreme stress, another risk factor for worsening COPD symptoms.



Living with COPD is challenging both physically and mentally. Newly diagnosed patients often are overwhelmed and even confused about what their disease is and what can be done about it. The good news is that millions of Americans are living enjoyable, productive lives with COPD, and more attention is being paid to the treatments and effects of this once little-known and little-understood disease. With the ever-increasing wealth of resources available to you, including this book, you can manage your COPD so you can continue to enjoy life.

