WHAT YOUR LOCAL LUNG ASSOCIATION IS DOING

The ***Lung Association*** promotes lung health and is working towards cleaner air by:

- educating school children about the dangers of smoking, teaching them in particular that not starting the habit is the key to not getting addicted
- helping those who smoke to quit by making them understand the effects of smoking on their health and on others
- supporting the work of scientists and researchers toward learning more about how the lungs work and how respiratory diseases can be detected much earlier and treated more effectively
- working closely with government agencies and other non-profit organizations to continuously improve BC's air quality and to prevent the harmful effects of air pollution on the health of British Columbians

Contact us to find out more:
2675 Oak St., Vancouver, BC V6H 2K2
604-731-5864 • Call toll free 1-800-665-5864
Fax: 604-731-5810
www.bc.lung.ca / info@bc.lung.ca

- ☐ Please send me details on making a regular donation to help fight lung disease.
- ☐ I wish to make a donation of $ _____
- ☐ I want information on other lung diseases. Please specify which disease/s:

  _____

  _____
- ☐ Please send me details on how I can join the Better Breathers' Club support group for people with breathing problems.

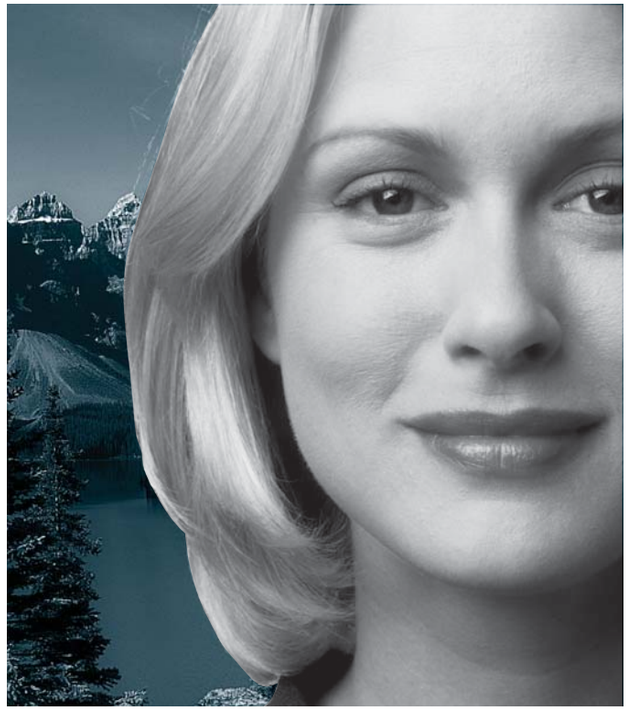
After filling in your details on the reverse side, return to:

THE LUNG ASSOCIATION™ British Columbia
2675 Oak St., Vancouver, BC V6H 2K2

THE LUNG ASSOCIATION™ British Columbia

THE LUNGS

What you need to know.



www.bc.lung.ca

THE FACTS

- People will die within minutes if oxygen supply to the body is cut
- When resting, we breathe 15-20 times a minute on average
- The right lung has three lobes while the left has two
- There are over 300 million air sacs in each lung
- Tiny hairs called cilia sway back and forth more than 1,000 times per minute to clear the airways of mucus and dirt

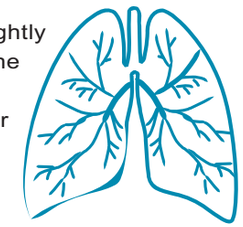
THE LUNGS

Pink in color and looking like sponges, the lungs are found on either side of the heart, surrounded and protected by the rib cage. The left lung is smaller than the right because it shares the left side of the chest with the heart.

Each lung is divided into sections known as lobes. The right lung has three sections or lobes, namely:

- the right upper lobe, which takes up the top third portion of the right lung
- the right middle lobe, which is triangular in shape and is the smallest of the three lobes
- the right lower lobe, which is the largest of the three

The left lung has a slightly different shape from the right. It has only two sections: the left upper lobe and the left lower lobe.



HOW OUR LUNGS WORK

The lungs start working from the moment air is breathed in through the nose or mouth. Air goes down the *trachea* or windpipe, a tiny tube with a diameter not much wider than a pencil's. From there, air rushes into the left and right *bronchi*, then further into the left and right lungs. The bronchi branch out into 16 smaller air passages called *bronchioles*. At the end of each bronchiole are clusters of tiny air sacs called alveoli, which are surrounded by tiny blood vessels known as *capillaries*. Between the *alveoli* and the blood vessels is an extremely thin membrane that allows oxygen and carbon dioxide to be exchanged freely. Oxygen from the air sacs passes into the blood as carbon dioxide from the blood passes into the air sacs. Oxygen is then carried to different parts of the body while carbon dioxide waste is exhaled.

HOW WE BREATHE

The respiratory centre located at the base of the brain automatically controls all breathing functions. Whether awake, sleeping, or even in an unconscious state, we breathe an average of 15 times every minute. In the simple process of inhaling, we use several parts of our body, including the nose, mouth, chest muscles and diaphragm, which is a broad, flat muscle separating the abdomen from the chest. Lining the nose is a mucus membrane that not only keeps the air we inhale warm and moist but also traps particles such as dust and pollen.

At rest, we breathe without even trying. Every breath we take brings six to 10 litres of air into the body—or approximately 20,000 litres of air per day. With each breath, approximately 0.3 of a litre of oxygen passes through the air sacs

as an equivalent amount of carbon dioxide is exhaled.

On the other hand, during vigorous activities or in the presence of a lung condition like asthma or COPD, we breathe in as much as 100 litres of air per minute, putting more strain on our lungs and chest muscles.

Breathing becomes a conscious chore and every breath can be a struggle, especially for people with lung disease.

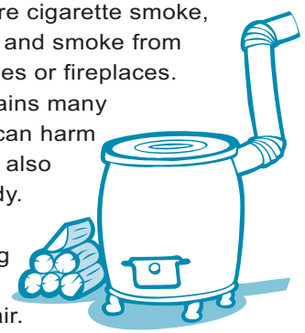
THREATS TO OUR LUNGS

Air Pollution

What we breathe in has a direct effect on our lungs. Inhaling germs, viruses or bacteria that cause colds, flu or pneumonia can irritate the tubes through which we breathe, making them swollen. When inhaled, mould spores can cause serious lung problems or trigger an allergic reaction in people with asthma.

Outdoors, among the main types of pollutants found are *fine particulate matter* (solid or liquid particles like dust, dirt, soot and smoke that are suspended in the air), *nitrogen dioxide* (an odorous and highly corrosive gas produced by burning fuel), *sulphur dioxide* (a pungent-smelling gas released when fuel containing sulphur is burned) and *ozone* (an extremely reactive gas that results when volatile organic compounds and nitrogen oxides react with each other).

Indoors, on the other hand, some of the more common pollutants are cigarette smoke, second hand smoke, and smoke from residential wood stoves or fireplaces. Tobacco smoke contains many toxic chemicals that can harm not just the lungs but also other parts of the body. (More on this later.) Like smoking, burning wood releases toxic substances into the air.



Lung diseases can also be easily contracted in the workplace. Without the necessary precautions, people who work in factories, mills, construction and other related jobs can breathe in such harmful substances as cotton fibers, coal dust, asbestos, and paint fumes.

Air pollutants can have a wide range of effects--from eye, nose and throat irritation, to coughing and shortness of breath, to reduced lung function, to heart and lung diseases and even premature deaths. The elderly, the very young and those with a pre-existing heart or lung condition are at a greater risk.

Cigarette Smoke

Cigarette smoke contains 4,000 different chemicals that may harm the lungs and other parts of the body. Fifty of these chemicals are known to cause cancer of the lung, throat, pancreas, bladder, and stomach. Cigarette smokers have a higher risk of contracting heart disease, COPD and lung cancer. People exposed to second hand smoke are at a higher risk of developing COPD and lung cancer than those who are not exposed.

Children exposed to second hand smoke during pregnancy, at birth or early childhood are at an increased risk of being born prematurely, having low birth weight, dying from Sudden Infant Death Syndrome, and for developing asthma, respiratory and ear infection.

Cigarette smoking is the major cause of Chronic Obstructive Pulmonary Disease.

Chronic Lung Disease

Chronic Obstructive Pulmonary Disease (COPD) is a disease characterized by the obstruction of airflow into the lungs. While preventable and treatable, COPD can worsen over time if left untreated and lead to disability. Most people with COPD have chronic bronchitis or emphysema. Quitting smoking and proper medical treatment can control symptoms and improve a person's quality of life.

Asthma is a chronic disease of the airways characterized by reversible airflow limitation. Asthma sufferers experience attacks or episodes wherein their airways become inflamed and constricted, which leads to coughing or wheezing, shortness of breath, and a feeling of tightness in the chest. Airborne irritants like dust, smoke, animal dander, and pollen often trigger asthma. With proper medication, asthma symptoms can be controlled.

HOW THE LUNG PROTECTS ITSELF

Air passages like the nose, windpipe, and bronchi are lined with tiny hairs known as cilia, which are the lungs' first line of defense.

These tiny hairs move back and forth about 12 times per second, sweeping away dirt, germs, and other impurities in the air breathed in before they get any further into the lungs. However, even one puff of a cigarette slows them down. In fact, years of smoking and exposure to air pollution can paralyze and destroy the cilia, making the lungs vulnerable to all kinds of infection.

Macrophages or scavenger cells are another defense mechanism in the lungs. These special cells surround and ingest bacteria, toxins, particles, and germs that reach the lower part of the airways. White blood cells that kill or fight off germs, dirt and fine particle likewise provide protection.

Outside of the lungs' own internal mechanisms, seeing a doctor when one first experiences breathing problems and getting early treatment can prevent further problems later.

DOES LUNG DISEASE AFFECT YOUR FAMILY?

If you are concerned about lung disease, please fill in your details below. Then, turn over to tick the boxes before returning this coupon to us.

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