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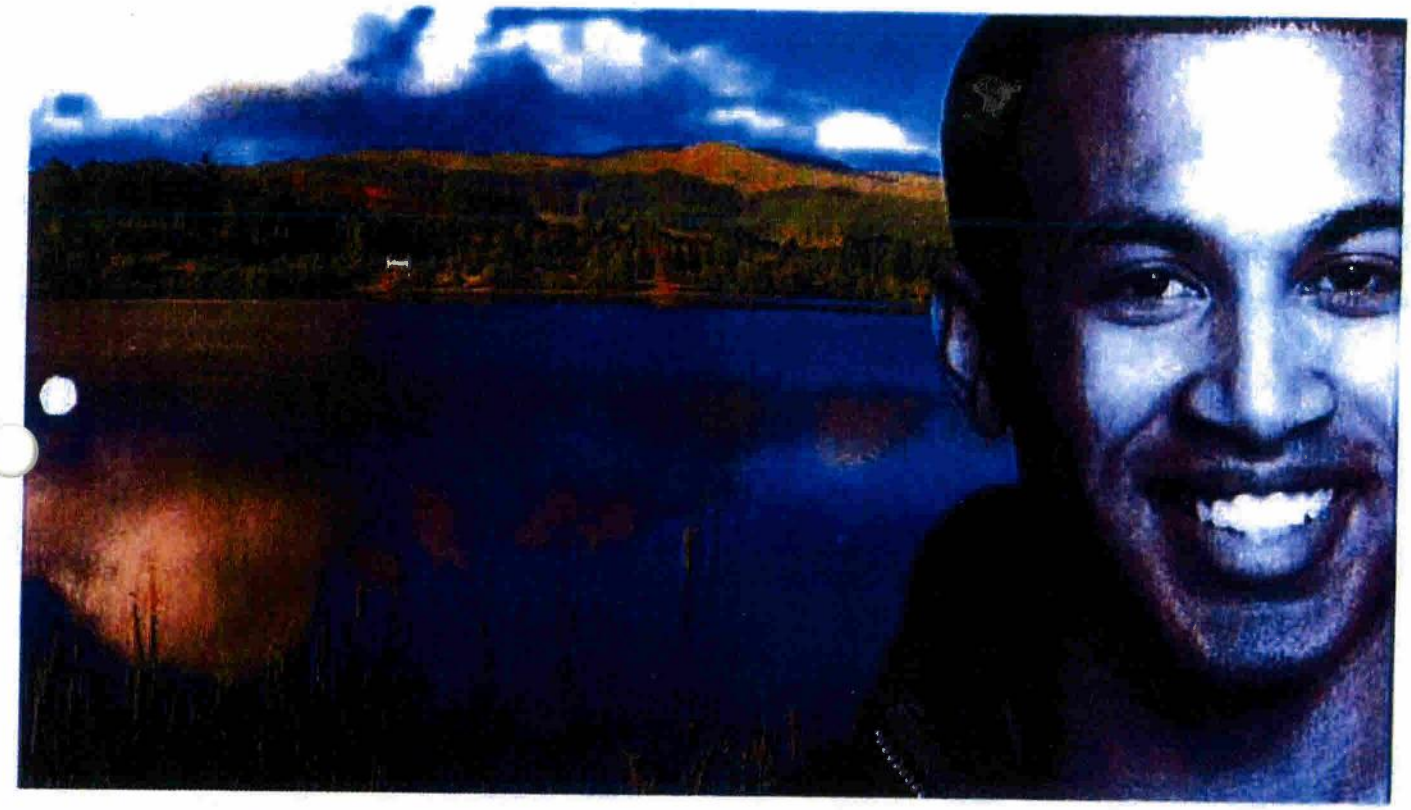
THE LUNG ASSOCIATION®

ASTHMA HANDBOOK

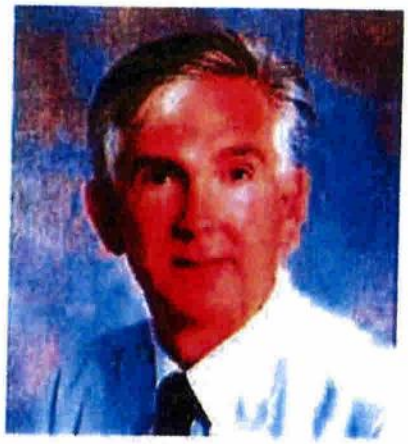


www.lung.ca

Asthma Educator's Note

The Lung Association's Asthma Handbook is a comprehensive guide that's written in a clear, easy-to-understand style. People with asthma and their caregivers will benefit from the handbook's up-to-date information on the diagnosis and management of asthma, the most common chronic lung condition in Canada. The Asthma Handbook will help you to become an active member of your health-care team, together with your physician and certified respiratory educator.

Jan Haffner, BPT
Certified Respiratory Educator and member of the Canadian Respiratory Health Professionals, The Lung Association



Doctor's Note

Asthma is a common disorder of both children and adults. This asthma handbook has been put together to meet the educational needs of those newly diagnosed with asthma.

This handbook is an excellent and timely resource which should be made available as a reference guide to people with asthma and their families. The important, positive message here is that asthma can be managed.

Together in partnership with your health-care team, this handbook will provide you with latest information and resources on asthma management, allowing you to lead a normal, active lifestyle.

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Professor of Medicine, McMaster University
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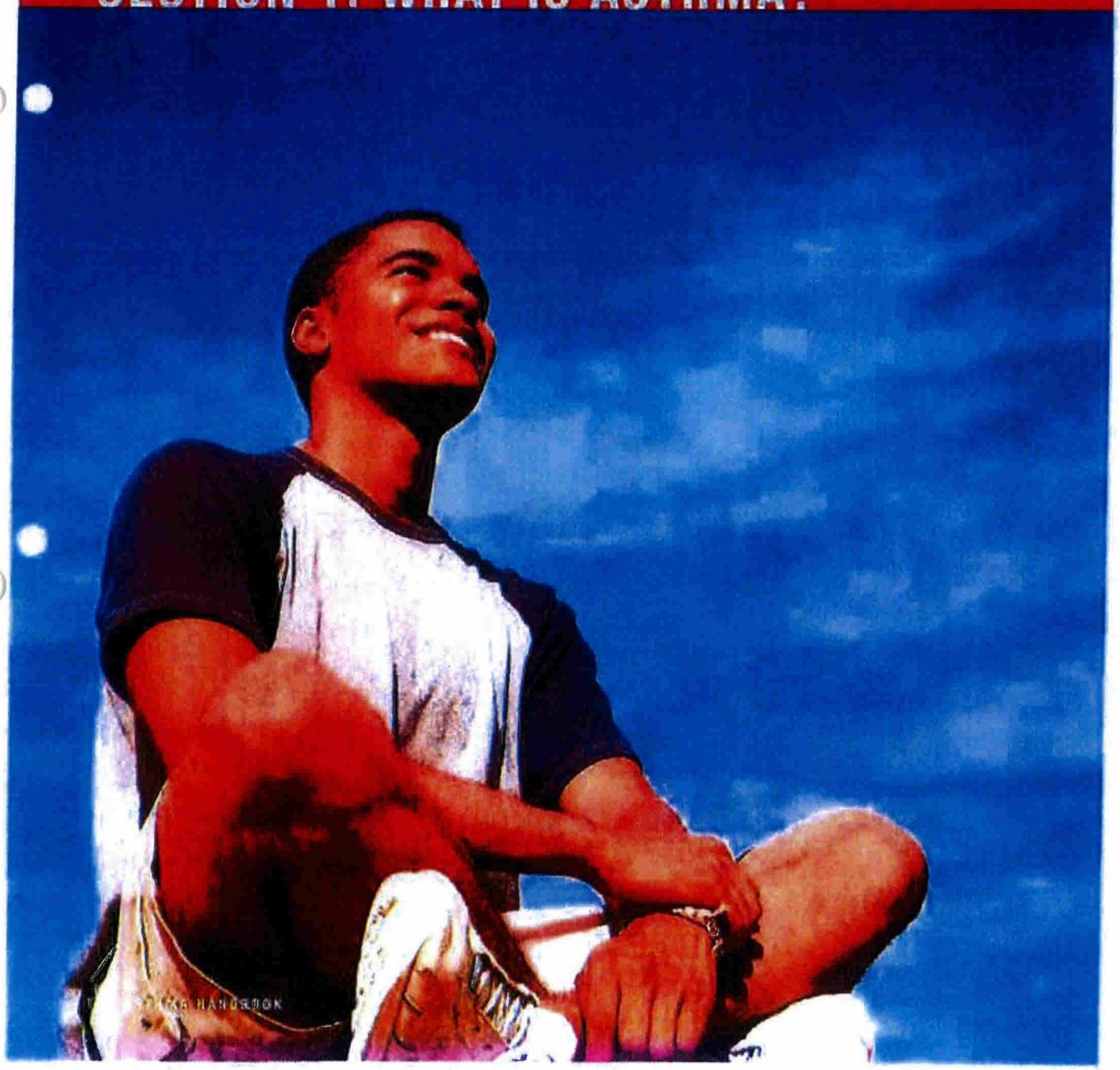
SECTION 1: WHAT IS ASTHMA?



Asthma is a serious lung disease that makes breathing difficult. Asthma is a chronic disease — you have it all the time, even when you are not having breathing problems. Asthma affects almost 3 million children and adults in Canada.

Everyone's asthma is different. Asthma can be mild or severe and even fatal. However, people with asthma can live well when they include lifestyle changes to manage their asthma.

If you have asthma, your airways (breathing passages) are very sensitive. When you are near your triggers, or things that make your asthma worse, your sensitive airways react by becoming red and swollen or inflamed.

- Inflammation or swelling of the airways happens if airways are exposed to triggers. Constant exposure to triggers will cause further swelling of the airways and healing cannot occur.
- Mucus is produced and gathers in the airways; it takes up space and causes further narrowing.
- Bronchoconstriction, or tightening of the muscles around the airways, causes further narrowing.

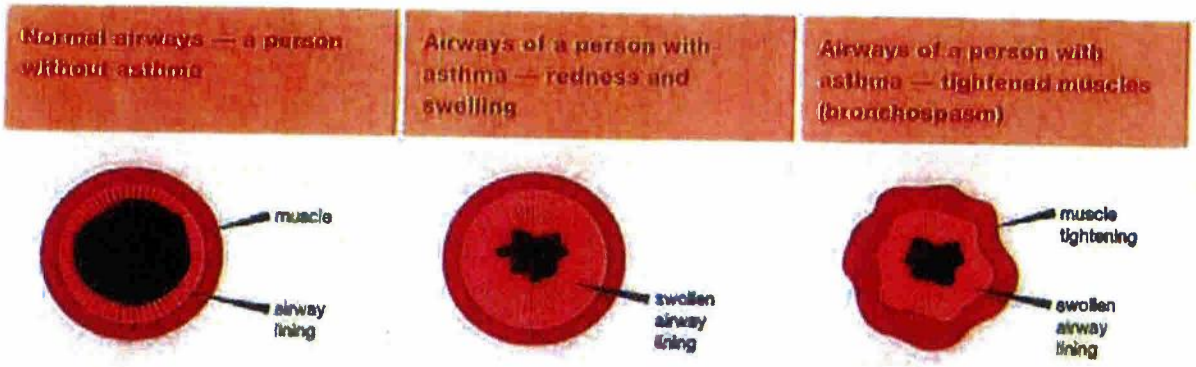
This narrowing of the airways makes it harder for the air to pass through. When your airways become more red and swollen, they become highly sensitized (may be called "twitchier" or hyperresponsive.)

ASTHMA SYMPTOMS

Asthma signs and symptoms can change over time or depending on the situation.

People with asthma often have one or more of these symptoms:

- Wheezing
- Chest tightness
- Coughing
- Feeling short of breath



In people without asthma, the muscles around the airways are relaxed and open. There is no swelling and little mucus inside the airways.

In people with asthma, the inside of the airways can get red, swollen and filled with mucus.

In people with asthma, the muscles around the airways can spasm and squeeze tighter. This leaves less room for air to pass through.

What are symptoms of asthma?

Common symptoms of asthma are coughing, wheezing (or whistling in the chest), chest tightness (feels like someone is sitting on your chest) and shortness of breath. People with asthma often have one or more of these symptoms.

How is asthma diagnosed?

Only your doctor can decide if your breathing problems are due to asthma. Your doctor will:

- **Take a detailed medical history.** You will be asked detailed questions about you and your family's medical histories and your breathing problems.
- **Do a physical examination.** This may include listening to your lungs and checking inside your nose.
- **Test your breathing by using spirometry.** Spirometry is a quick, simple breathing test that measures how much air you can blow out of your lungs. For this test, you'll be asked to blow long and hard through a tube attached to a small machine. The machine will show how much air you can push out of your lungs and how fast. Because spirometry takes some coordination, children under five years old are not usually asked to do this test.

Your doctor may order other tests:

- **a chest x-ray** and lab tests
- **allergy tests:** Your doctor may refer you to an allergist, who will test for specific allergies and ask what your symptoms are and when you notice them. Usually allergists use a "skin prick" test. This may help to find out what allergies make your asthma worse.
- **challenge tests:** These tests are done in a hospital. They help to tell the doctor how "twitchy" or hyperresponsive your airways are.

Your doctor may also give you asthma medications to try. If these medications make your symptoms go away, this may help to make the diagnosis of asthma.

With a proper diagnosis, your doctor and asthma health-care team can help you manage your asthma.

How do your lungs work?

Your lungs bring oxygen into your body and remove the carbon dioxide and other waste gases that your body doesn't need.

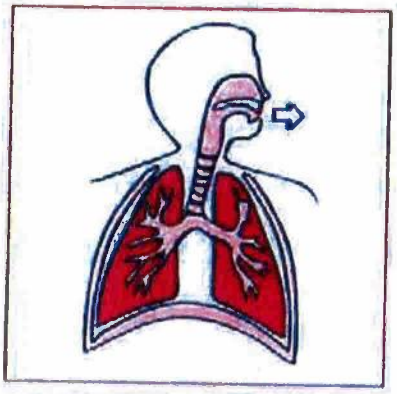
When you breathe in (inhale), you use the muscles of your rib cage — especially the major muscle, the diaphragm. Your diaphragm tightens and flattens, allowing you to suck air into your lungs. To breathe out (exhale), your diaphragm and rib cage muscles relax. This naturally lets the air out of your lungs.

To get the oxygen your body needs, you inhale air through your mouth and nose. The mucus membranes in your mouth and nose warm and moisten the air and trap particles of foreign matter (like dirt and dust). The air then passes through the throat into the trachea (windpipe).

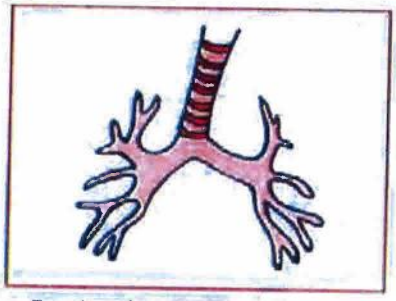
The **trachea** divides into the left and right bronchi. Like a branch, each bronchus divides again and again, becoming narrower and narrower.

Your smallest airways end in the **alveoli**, the small, thin air sacs that are arranged in clusters like bunches of balloons. When you breathe in by enlarging the chest cage, the alveoli expand as air rushes in to fill the vacuum. When you breathe out, the alveoli relax and air moves out of the lungs.

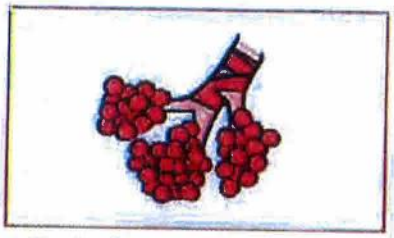
Tiny blood vessels surround each of the 300 million alveoli in the lungs. Oxygen moves across the walls of the air sacs, is picked up by the blood, and is carried to the rest of the body. Carbon dioxide or waste gas passes into the air sacs from the blood and is breathed out.



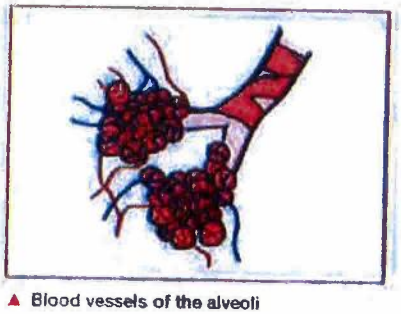
▲ Breathing



▲ Branches of the trachea

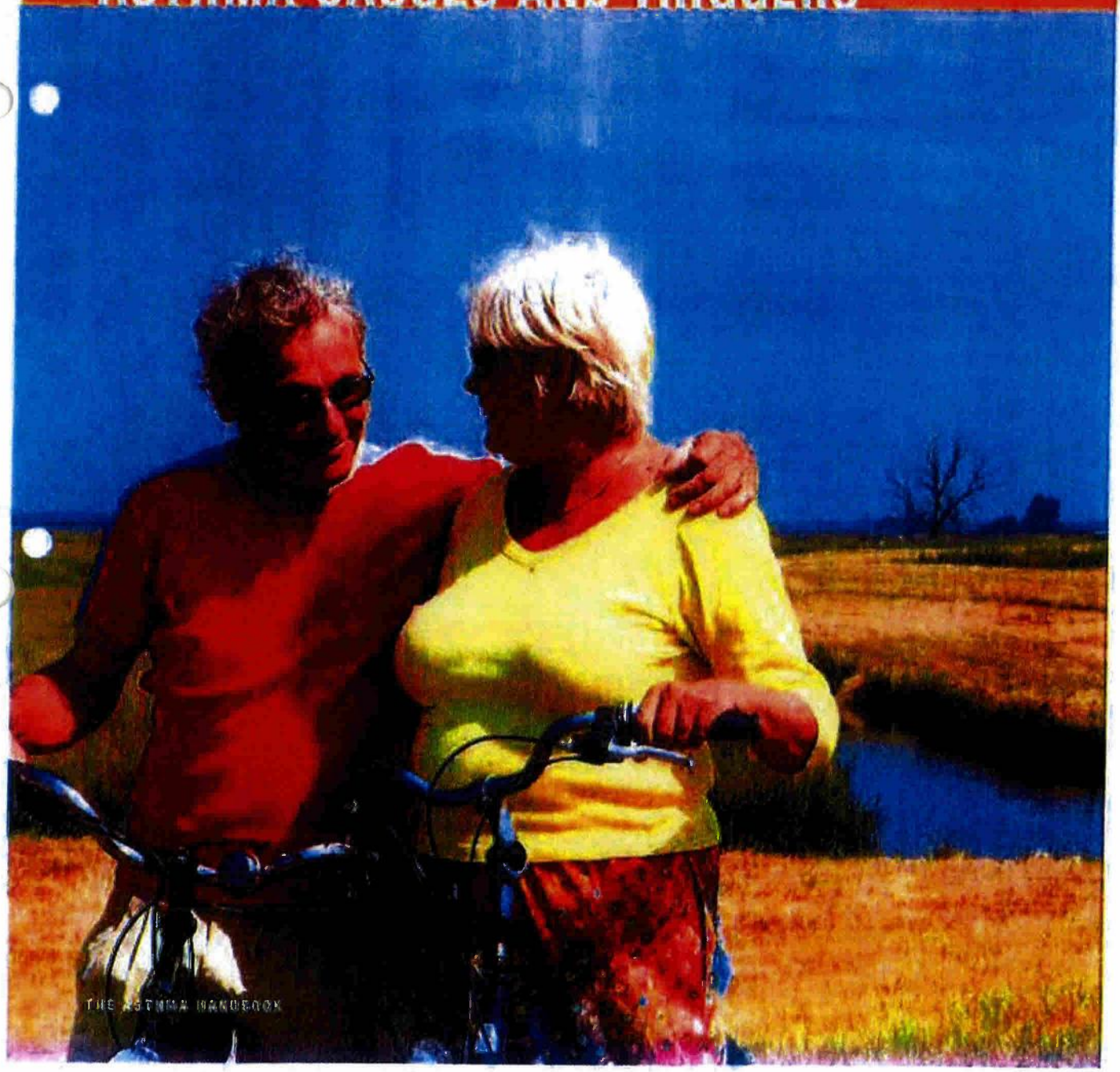


▲ The alveoli



▲ Blood vessels of the alveoli

SECTION 2:
ASTHMA CAUSES AND TRIGGERS



Asthma can't be cured but it can be managed. With good asthma management, you should be almost symptom-free and enjoy an active life.

What causes asthma?

The exact cause of asthma is not known. However, experts know that there are some things that make a person more likely to get asthma:

Family history

Asthma tends to run in families. If you or people in your family have allergic diseases such as asthma, hay fever, or eczema, there is a higher chance you will have asthma.

Air pollution indoors and out

Kids whose mothers smoked while pregnant, who grow up in a smoky house, or whose grandmothers smoked, are all more likely to get asthma. Mould in your home may also increase your chances of developing asthma. Some research shows that people who live near major highways and other polluted places are more likely to get asthma.

Work-related (or occupational) asthma

If you work in a place with polluted air, there is a greater chance you will have asthma. If your symptoms improve when you aren't at work or are away from work for an extended period of time, then talk to your doctor. People who work in certain types of jobs can get asthma from things they work with (for example, latex, certain types of dust, spray paints, metals and fumes.)

Viral infections

Sometimes your breathing problems may get worse if you have a cold or flu. Asthma symptoms may last up to six weeks after an infection. For some children, a viral infection can sometimes lead to the development of asthma.

Other possible factors

Sinusitis is an inflammation of the sinuses. Many people with asthma also have sinusitis. If you have both, you may notice that when your sinusitis flares up, your breathing problems from asthma also increase.

Rhinitis or hay fever is an inflammation of the tissue in the nose usually due to an allergy. Treatment of the rhinitis often improves the asthma.

SECOND-HAND SMOKE

Second-hand smoke hurts everyone's lungs. For people with asthma, exposure to second-hand smoke may cause:

- a worsening of symptoms
- increased medication use
- more emergency room visits

Gastro-esophageal reflux disease (GERD), better known as heartburn, is inflammation due to stomach acid backing up into the esophagus (the main tube leading from the mouth to the stomach). The stomach acid may cause breathing problems when it comes in contact with the lining of the throat and airways.

Excessive cleanliness in homes may account for the increase in asthma rates. This theory suggests that when infants and toddlers are raised in very clean homes, their immune systems don't learn how to handle common germs and irritants. When they are exposed to these germs later in life, their immune systems over-react and the result is asthma.

What are asthma triggers?

A trigger is something that makes your asthma worse by irritating your airways. This makes it hard for you to breathe. By knowing what triggers your asthma and by avoiding those things, you can help to control your asthma.

Asthma triggers cause symptoms that:

- usually come on suddenly
- may not last very long
- may be easy to relieve with rescue medication (blue puffer)

Each person will have her or his own set of asthma triggers. Common asthma triggers include smoke, fumes, certain weather conditions, air pollution, strong emotions, exercise, allergies, workplace factors, and viral infections. The following table offers more information on asthma triggers.

COMMON ASTHMA TRIGGERS AND HOW TO AVOID THEM

Exercise

People with asthma should exercise.

However, exercise is a trigger for many people if asthma is not under good control.

- Make sure you have good asthma control before exercising.
- Warm up slowly before exercising and cool down afterwards.
- Keep your blue puffer close by.
- Follow your asthma action plan; take your blue puffer before or during exercise.
- Gradually exercise for longer and longer to get in better shape.

Emotional upsets, anxiety

Feeling fear, stress, excitement, worry or anger can make asthma worse.

Feeling anxious about getting an asthma attack can also make your asthma worse.

If you know what to do if you are having breathing problems, you can feel more in control and less anxious.

- Take your blue puffer as directed.
- Try some relaxation and breathing techniques.
- Ask a certified asthma educator for help in dealing with anxiety about asthma. A certified asthma educator can help you understand your asthma, what to expect, and what to do if you feel symptoms coming on.
- See your doctor for more advice on how to cope if you have a lot of stress and your asthma is getting worse. People who learn how to relax and control their stress can have fewer asthma symptoms.

Scents

Strong smells from perfume and cologne, fabric softener, air fresheners and many other products can make breathing worse.

- Avoid using perfumes. Ask the people you live or work with to avoid them as well.
- Make sure your soap, body lotion, shampoo and cleaning detergents are scent free.

Hormones

Some women notice more breathing problems at the time of their period.

Pregnancy also can affect asthma symptoms.

- Follow your asthma action plan (see page 17 for a sample plan) if you're having trouble.
- Pay special attention to your asthma during pregnancy.
- For more information, see **Section 6: Asthma and Pregnancy**.

Fumes and pollution

There are many sources of fumes, indoors or outdoors: Smoke from fireplaces, grills and wood heaters contains many harmful chemicals. Wood smoke can cause breathing problems right away and make asthma worse over time.

Exhaust fumes from cars and trucks can also trigger asthma symptoms and cause long-term damage to lungs.

Household chemicals with strong fumes (for example, cleaning products, glue and paint) can trigger symptoms.

- If at all possible, do not heat your home with wood. If you must heat with wood, visit our website (www.lung.ca) for tips on how to improve the safety and efficiency of your wood-burning appliance.
- Avoid outdoor bonfires and other open burning.
- If possible, avoid spending a lot of time in places that are less than 150 meters (500 feet) from a busy road or near a road used by diesel trucks.
- Use safe, environmentally-friendly cleaning products, such as vinegar and baking soda.
- Wear a protective mask when dealing with chemicals.

Cold air

Outdoors or at an ice rink

- Drape a scarf loosely over your nose and mouth to warm and humidify the air before you breathe it in. You can also buy a cold-weather face mask made for this purpose.
- Breathe through your nose. Your nose can warm and moisten the air.
- If your doctor recommends it, take a puff of your blue puffer before you go outside.

Hot, humid air

- Stay indoors in an air-conditioned room, especially on days that are smoggy or have a high pollen count.

Smoke and second-hand smoke

from cigarettes, cigars, pipes and marijuana.

Smoke hangs around long after the cigarette is out. Smoke stays in your clothes, hair, curtains, furniture, walls and stuffed animals.

Smoke that's trapped in all these places continues to make asthma worse.

- Don't smoke. If you do smoke, ask your doctor for help to quit.
- If you live with a smoker, be supportive of his or her efforts to quit. But be firm about your need for a smoke-free home.
- Ask your family and friends to smoke outside your home and car.
- Talk to your employer about ways to make your workplace smoke-free.
- Stay away from smoky places, such as bars and clubs. Ask for smoke-free rooms when travelling.

Most people's triggers are inhaled (breathed in). But asthma symptoms may also be triggered by things you eat, drink, or swallow. For example:

- sulphites (used to preserve some food, such as dried fruit and red wine)
- monosodium glutamate (MSG is a flavour enhancer in some foods)
- Aspirin (never let a child or teen take aspirin)

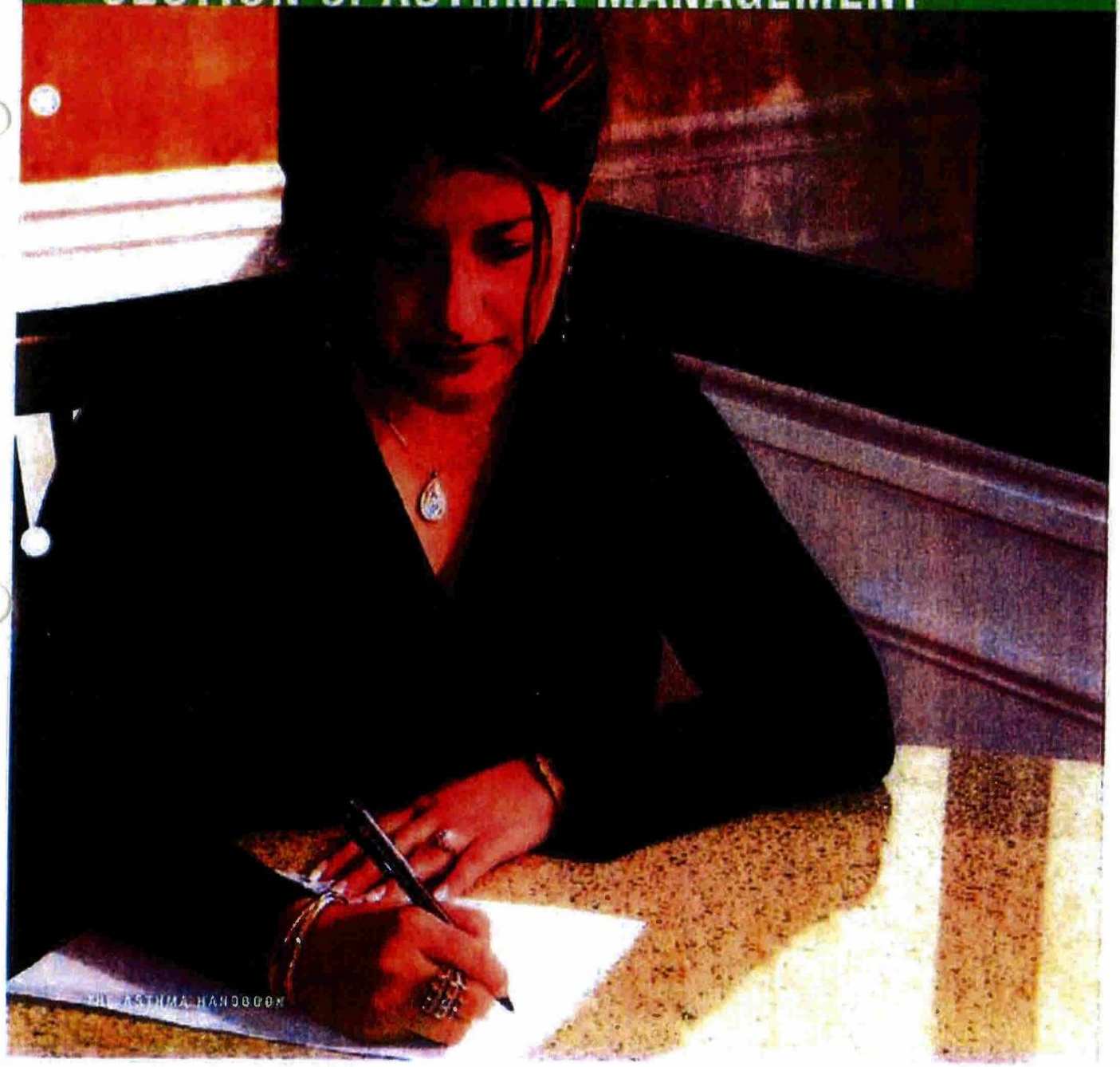
Some people with asthma also have food allergies. People with any allergy that causes severe symptoms that could be life-threatening (anaphylactic shock) should keep their Epipen with them at all times.

Although triggers bring on the symptoms of asthma in someone who already has the disease, they do not cause asthma. Things that cause asthma are called inducers. Inducers, such as cold and allergies, can make your airways swollen, red and filled with mucus. If you avoid your asthma inducers, you'll have fewer asthma symptoms.

Common asthma inducers include:

- viral infections (colds and the flu.)
- allergies (Read more about allergies in Section 5.)

SECTION 3: ASTHMA MANAGEMENT



Because asthma is a chronic disease, you must manage it at all times, even when you feel fine. When you manage your asthma well, you can:

- lead a normal life
- sleep well without interruptions
- exercise
- do the activities you want to do
- attend work or school without interruption

If you have a lot of symptoms or asthma attacks, your asthma is not under proper control. Ask your doctor or certified asthma educator for help.

How do you know if your asthma is well managed?

Take the 30 Second Asthma Test®:		
Do you cough, wheeze, or have a tight chest because of your asthma? (4 or more days a week)	☐ YES	☐ NO
Does coughing, wheezing, or chest tightness wake you at night? (1 or more times a week)	☐ YES	☐ NO
Do you stop exercising because of your asthma? (In the past 3 months)	☐ YES	☐ NO
Do you ever miss work or school or social activities because of your asthma? (In the past 3 months)	☐ YES	☐ NO
Do you use your rescue medication (blue puffer) 4 or more times a week? (Except 1 dose per day for exercise)	☐ YES	☐ NO

If you answer YES to one or more questions, talk to your doctor or certified asthma educator about how you can better manage your asthma.

The 30 Second Asthma Test® is a registered trademark, used under license by GlaxoSmithKline Inc.

How to manage your asthma

1. **Educate yourself about asthma.**
2. **Use your asthma action plan when you have breathing problems.**
3. **Use a diary form to record your symptoms.**
4. **Avoid triggers.**
5. **Take your medications as directed by your doctor.**
6. **Use your medication delivery device properly.**
7. **Avoid getting the flu, colds and viral infections.**
8. **Exercise regularly.**

1. Educate yourself about asthma.

The information found in this handbook is based on current Canadian guidelines for the management of asthma. These guidelines were developed by a group of family doctors and lung specialists from across Canada. To learn more about asthma, you can also talk to a certified asthma educator, who has special training in asthma management. To find a certified educator, call The Lung Association nearest you (1-888-566-LUNG).

2. Use your action plan when you begin to have breathing problems.

Your asthma action plan is a written set of instructions developed with your doctor. It explains what medication you should be taking on a regular basis when you are feeling well and how to increase your medication if you start to have breathing problems. Your asthma action plan takes the guesswork out of what your symptoms mean. Studies show that people who use their asthma action plan have better asthma control.

Ask your doctor or health-care provider to fill out the asthma action plan on the next page with you. Make sure you understand what the plan means. If you have any questions, ask your doctor. You can also discuss your action plan with a certified asthma educator.

An asthma action plan can be used with or without a **peak flow meter** to help you manage your asthma. A peak flow meter is a handheld tool that measures how fast you can blow air out of your

My Asthma Action Plan

Name _____ Doctor _____

Date _____ Doctor's Phone Number _____

GREEN LEVEL My asthma is under control.

SYMPTOMS

- My breathing is normal.
- I have no trouble sleeping.
- I'm not coughing or wheezing.
- I can do all my normal activities.

PEAK FLOW

_____ to _____ (80% to 100% of your personal best)

WHAT SHOULD I DO?

I should continue using my normal medications as directed by my doctor, and re-measure my peak flow every _____ weeks / months.

Medication	Dose	Take it when?

YELLOW LEVEL My asthma is getting worse.

SYMPTOMS

- I have symptoms, like wheezing or coughing, with activity or at night. They go away when I use my reliever.
- I'm using my reliever more than ___ times a week/day.
- I can't do many of my usual activities.

PEAK FLOW

_____ to _____ (60% to 80% of your personal best)

WHAT SHOULD I DO?

A problem is beginning. I should increase my medication as specified below until I am in the green level for _____ days or more. **If my symptoms do not improve within 4 days, I will call my doctor.**

Medication	Dose	Take it when?

RED LEVEL I am having an asthma emergency.

SYMPTOMS

- My breathing is difficult.
- I'm wheezing often when resting.
- I'm having difficulty walking and/or talking.
- My lips and/or fingernails are blue or grey.
- My reliever does not help in 10 minutes OR is needed every 4 hours or more.

PEAK FLOW

_____ to _____ (less than 60% of your personal best)

WHAT SHOULD I DO?

I NEED TO GO TO THE HOSPITAL EMERGENCY RIGHT AWAY.

I SHOULD USE MY RELIEVER AS MUCH AS I NEED TO ON THE WAY THERE.

lungs. This measurement is called your peak flow rate. The more open the airways are (the easier it is to move air in to and out of the lungs), the higher the peak flow number will be.

A peak flow meter is useful for tracking whether your asthma is under control. However, a peak flow meter is not for everyone. Talk to your doctor to see if a peak flow meter can help you manage your asthma.

3. Use a diary form to record your symptoms.

A diary form can help you keep track of your symptoms on a daily basis. Working with your doctor (or certified asthma educator), you can use your diary form to see if there is a pattern to your asthma symptoms (for example, are there certain days or times when you asthma is worse?). The diary form can show if changes to your asthma medications are relieving your breathing problems. If you use a peak flow meter, a diary form can also show trends in your peak flow rates and warning signs for worsening asthma (shortness of breath, coughing, wheezing and chest tightness), which can help you to manage your asthma.

How should I use a diary form?
To help track your symptoms or breathing problems, use numbers from 1 to 3 (where 1 means symptoms are barely present, 2 means symptoms are obvious, 3 means symptoms interfere with normal activity). Place the number in the time of day when you have the breathing difficulty. For example, if you have some shortness of breath while awake on Thursday, you would put a 1 in the box under Thursday day.

You should also list the asthma medications that you take in the asthma medications section. Record when you take each medication. For example, if you take your anti-inflammatory while awake on Thursday, you would put one check in the box under Thursday day. If you take it two times while awake on Thursday, you would put two checks in the box under Thursday day.

HAVE YOUR SYMPTOMS DISAPPEARED?

If you are symptom-free, talk to your doctor. Your doctor may slowly reduce your medication (according to your asthma action plan) and you may eventually not have to take it. However, you should always carry a rescue inhaler just in case.

4. Avoid your triggers.

Each person has specific triggers. Know your triggers so you can avoid them. Follow the suggestions listed in **Section 2: Asthma management.**

5. Take your medications as directed by your doctor.

It is important to take your asthma medications exactly as prescribed by your doctor. You should always have a filled prescription. You always have asthma, even if you are feeling okay and you aren't having breathing problems. That's why it is important to keep taking your medication.

THE LUNG ASSOCIATION

My Asthma Diary Form

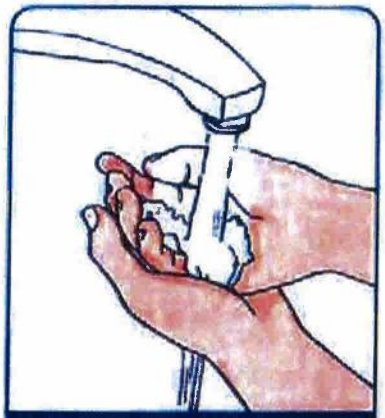
Name _____ Doctor _____

Date _____ Doctor's Phone Number _____

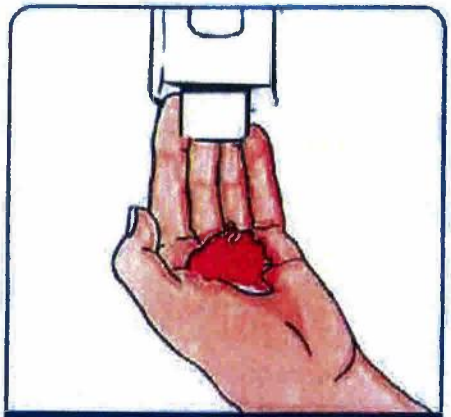
	SUNDAY		MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY	
SYMPTOMS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Shortness of breath														
Coughing														
Wheezing														
Chest tightness														
OTHER	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Missed work due to asthma														
Saw a doctor for asthma symptoms														
Went to emergency because of asthma														
PEAK FLOW READINGS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
500														
400														
300														
200														
100														
0														
ASTHMA MEDICATIONS	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night

LEGEND **1** Symptoms are barely present **2** Symptoms are obvious **3** Symptoms interfere with normal activity

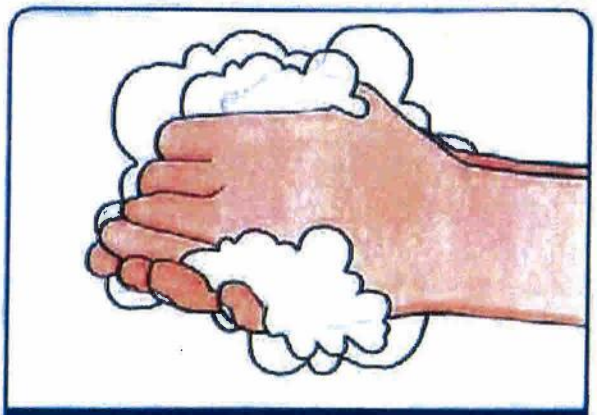
FIGHT GERMS BY WASHING YOUR HANDS!



1 Wet your hands



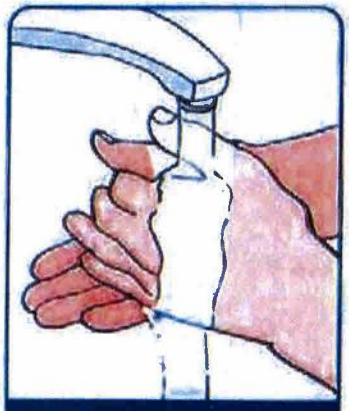
2 Soap



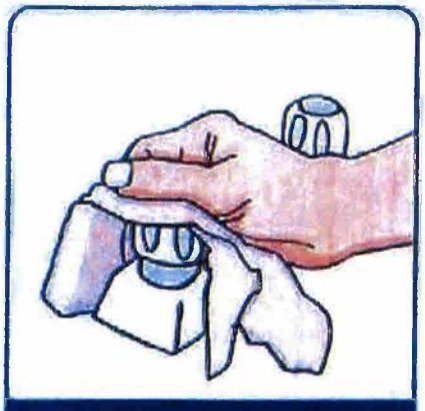
3 Lather and scrub - 20 sec

DON'T FORGET TO WASH:

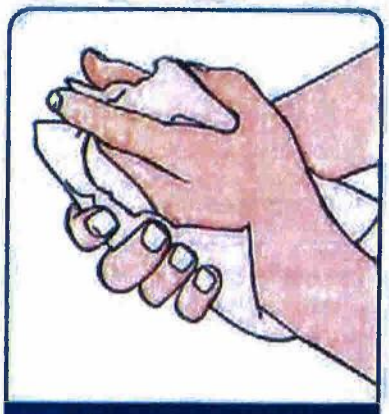
- between your fingers
- under your nails
- the tops of your hands



4 Rinse - 10 sec



5 Turn off tap



6 Dry your hands

If you have questions about the medications or how to take them properly, talk to your doctor. Taking your medication regularly means you can avoid asthma emergencies. You can find more information about **asthma medications** in **Section 4.**

6. Use your medication device properly.

If all the asthma medication is not getting to where it is needed in the airways, it is not helping you manage your asthma. Ask your doctor or certified asthma educator to watch you take a puff of your medication. They may offer suggestions on how to improve your technique so that the medication is delivered more effectively to your lungs.

7. Avoid getting the flu, colds and viral infections.

Viruses, such as the cold and the flu, can infect your airways and lungs. Viral infections can produce asthma symptoms, especially in children. If you have a runny nose or cough up mucus from your lungs, you may have a virus. If you have a virus, pay attention to your symptoms. If your symptoms get worse, follow the directions in your asthma action plan.

Here are some ways to prevent viral infections:

Get a flu shot each fall. Flu shots provide some protection against influenza (the flu) that is caused by viruses. (Note: if you have an allergy to eggs, you should not get the flu shot because eggs are used to make the flu vaccine. Ask your doctor about your options.)

Wash your hands. Proper hand washing can help reduce the spread of infection, including the flu. Always wash your hands:

- before eating or preparing meals
- before breastfeeding
- after using the toilet
- after helping your child use the toilet or changing a diaper
- after blowing your nose or wiping your child's nose

8. Exercise regularly.

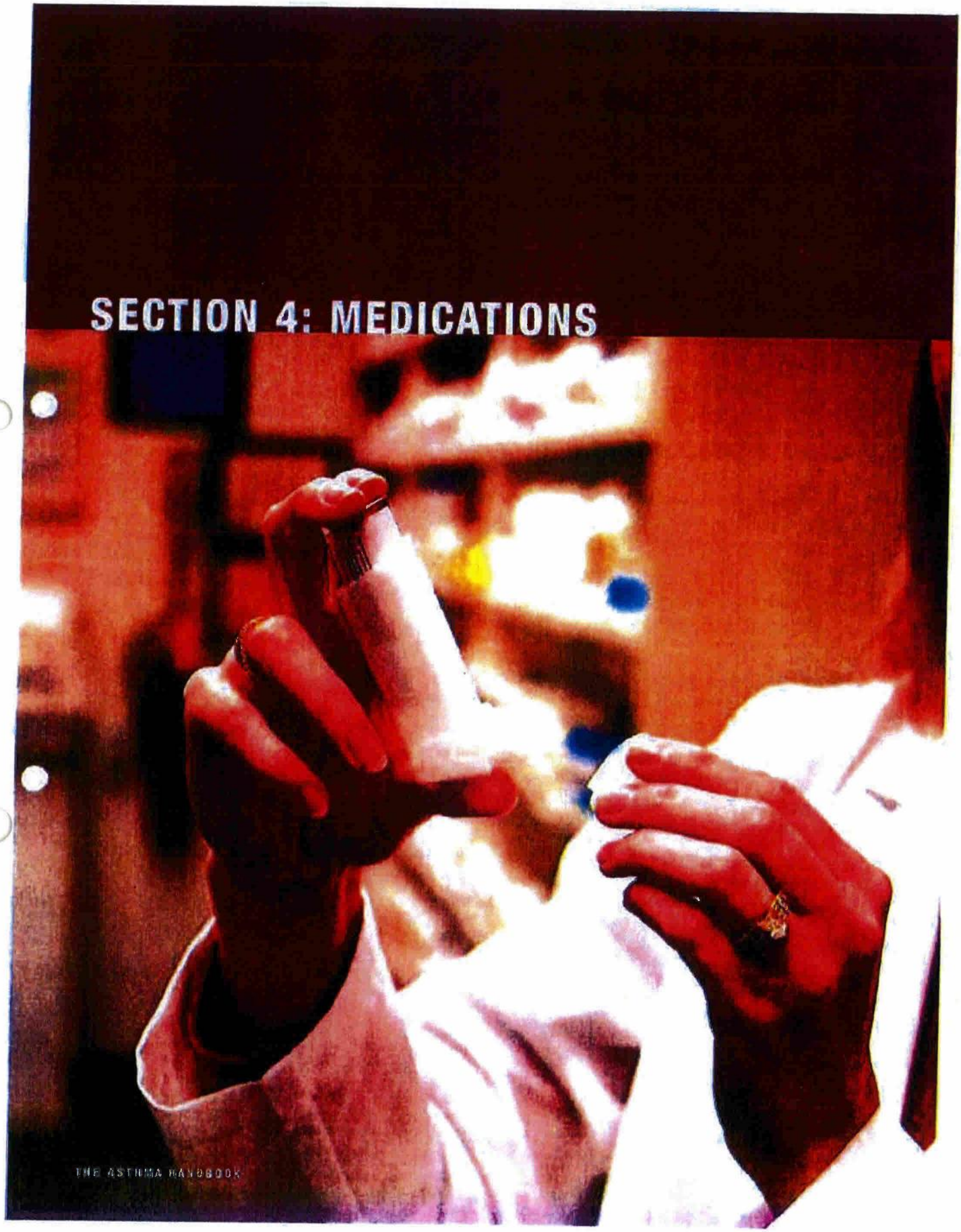
People with asthma can exercise safely. In fact, regular exercise can strengthen your immune system and help you fight off colds and infections. Exercise should not be avoided due to the asthma. For more information on **Exercise and Asthma**, see **Section 7.**

SHOULD YOU SEE A SPECIALIST?

Talk to your doctor about a referral to a specialist if:

- You are taking asthma medications and avoiding triggers but your asthma is not getting better.
- You think your work environment may be making your asthma worse.
- You have been admitted to the hospital or gone to the emergency room because of your asthma.

SECTION 4: MEDICATIONS



There are many safe, effective medications that can help you manage your asthma. You need a doctor's prescription for these medications. You also need special advice on when and how to use each kind of medication.

Because asthma symptoms may change — for better or worse — you need to know how to adjust your medications accordingly. An asthma action plan will describe how to adjust your medication depending on your symptoms.

Some asthma medication can be inhaled (breathed into your lungs) or swallowed. The preferred route is inhaled because the medication goes directly in to the lungs and there are fewer side effects.

Preventer and rescue medications work together

There are two main kinds of asthma medications: preventer medication and rescue medication. Each medication is important. Each medication does a different thing for your lungs. For most people with asthma, the doctor will prescribe both kinds of medication:

Asthma preventer medication: Take your preventer medication every day, even if you have no symptoms, to prevent redness, mucus and swelling.

Asthma rescue medication: Keep your rescue medication on hand and take it only when you need it — during an asthma attack, if your breathing gets bad, or before exercising.

Some people think they can skip the preventer medication and only use the rescue medication. This is dangerous. If you've been prescribed a preventer medication, use it. The rescue medication alone won't control your asthma over the long term.

To make sure you get all your medication into your lungs, be sure you know how to properly use your inhalation device (metered-dose inhaler, spacing chamber, Turbuhaler, Diskus, etc.).

HOW DOCTORS AND CERTIFIED ASTHMA EDUCATOR CAN HELP.

Your doctor, pharmacist or certified asthma educator can also:

- explain how each of your asthma medications works
- answer your questions
- show you how to use your medication inhalation device (your metered-dose inhaler, spacing chamber, Turbuhaler, Diskus etc.)
- teach you how to use a peak flow meter to monitor your breathing, if needed.

Asthma preventer medications

It's really important to take your preventer medication as directed, even when you don't have symptoms. Without your preventer medication, you'll be more sensitive to your triggers and more likely to have an asthma attack.

If you take your preventer medication as directed:

- Your asthma will be better controlled.
- You will help prevent asthma attacks.
- You won't need to use your rescue medication (blue puffer) as often.
- Your rescue medication will work better and faster because your lungs will be in better shape.

Preventer medication:

- needs to be taken regularly every day to be effective
- will not help right away in an asthma attack
- usually acts slowly
- works over the long term
- reduces swelling and mucus in your lungs

There are different kinds of preventer medications:

- inhaled corticosteroids
- corticosteroid pills
- long-acting bronchodilators
- leukotriene receptor antagonists
- theophylline

Inhaled corticosteroids

Inhaled corticosteroids are the most common and effective type of asthma preventer. They reduce swelling in the airways. They are inhaled, not swallowed, so they go straight to your lungs and give you fewer side effects than pills. To get the most out of your medication, it's important that you know how to use your inhaler device.

Corticosteroids for asthma are not the same as the muscle-building steroids that are banned by some sports organizations. Inhaled corticosteroids are similar to the steroids that are naturally produced in your body. You need more of these steroids to reduce and prevent swelling in the lungs. Inhaled corticosteroids don't have the same risks or effects as the muscle-building steroids.

Examples of inhaled corticosteroids: budesonide (**Pulmicort®**), fluticasone (**Flovent®**), ciclesonide (**Alvesco®**).

What inhaled corticosteroids do: Reduce the inflammation (swelling, redness) and mucus in your airways.

Side effects of inhaled corticosteroids: For a full list, see your doctor, pharmacist or certified asthma educator. In most cases, inhaled corticosteroids have few side effects and are considered to be safe with the dose needed to control asthma.

Some side effects include:

- hoarseness and sore throat.
- thrush or yeast infection (looks like a whitish layer on your tongue).

PREVENTING THRUSH

You can easily prevent thrush by rinsing your mouth, gargling and spitting out the water after using your puffer. Your doctor can adjust your dose so you get the best asthma control using the least amount of medication.

Corticosteroid pills

Sometimes the swelling and mucus in your airways is severe — this may be caused by a chest infection or for some other reason. In cases of severe airway swelling, your doctor may prescribe corticosteroid pills. Corticosteroid pills basically do the same thing as inhaled corticosteroids but they are more powerful. Doctors often prescribe these pills for a short time to get the swelling and mucus under control quickly. Keep taking your regular asthma medication in addition to these pills unless your doctor tells you otherwise. Tell your doctor if you have taken corticosteroid pills in the last two years.

Examples: Prednisone, Prednisolone (**PediaPred®**), and Dexamethasone (**Decadron®**).

What corticosteroid pills do: Reduce the swelling, redness and mucus in the airways.

Side effects: For a full list, see your doctor, pharmacist or certified asthma educator.

For prescriptions lasting three to seven days, side effects may include:

- increased appetite
- mood changes
- water retention
- hyperactivity in children

For prescriptions lasting longer, side effects may include:

- increased appetite
- weight gain
- stomach irritation
- bone thinning

Note: Because your body can go into withdrawal if you suddenly stop taking prednisone, your doctor will tell you to slowly decrease your dose.

If your asthma is not controlled by using only inhaled corticosteroids, your doctor may add another preventer medication, such as a long-acting bronchodilator or leukotrine receptor antagonist. These preventers also need to be taken regularly.

Long-acting bronchodilators

Long-acting bronchodilators are inhaled medications. They are always prescribed with inhaled corticosteroids and should not be taken alone. Because long-acting bronchodilators take many hours to open your airways, they should not be used as rescue medication. You should keep taking your inhaled corticosteroids while taking long-acting bronchodilators.

Examples: salmeterol (**Serevent®**), formoterol (**Foradil®**, **Oxeze®**).

What long-acting bronchodilators do: Help keep airways open and muscles relaxed, preventing asthma attacks. Long-acting bronchodilators work slowly, over a 12-hour period.

Combined inhaled corticosteroids and long-acting bronchodilators
If you need to have both a corticosteroid and a long-acting bronchodilator, your doctor may prescribe one inhalation device that has both of these medications in it. This makes it easier to take both your medications on a regular basis.

Examples of combination asthma medications

- **Symbicort®:** made of a corticosteroid (budesonide / Pulmicort®) plus a long-acting bronchodilator (formoterol / Oxeze®)
- **Advair®:** made of a corticosteroid (fluticasone / Flovent®) plus a long-acting bronchodilator (salmeteral / Serevent®).

Leukotriene receptor antagonists

If you are already taking inhaled corticosteroids, your doctor may also prescribe a leukotriene receptor antagonist to relieve your asthma symptoms. By adding this medication, your doctor may be able to slowly reduce your dose of corticosteroids and still keep your asthma under control.

Leukotriene receptor antagonists come in pill form. Not everyone will respond to leukotriene receptor antagonists. Your doctor will monitor your response for the first six to eight weeks of treatment.

Examples: zafirlukast (**Accolate®**), montelukast (**Singulair®**).

What leukotriene receptor antagonists do: Help reduce inflammation or swelling in airways and keep airways muscles relaxed. In some people, they have been shown to reduce asthma symptoms triggered by cold air, exercise, allergens and Aspirin.

Side effects: For a full list, see your doctor, pharmacist or certified asthma educator. In general, side effects are very rare. Occasionally, people may notice these side effects from leukotriene receptor antagonists:

- headache
- dizziness
- heartburn
- upset stomach
- fatigue

Theophylline

Theophylline, a bronchodilator in pill form, is not commonly used in the treatment of asthma. It is taken in the evening if shortness of breath disturbs sleep or regularly if asthma is severe. Theophylline levels can be affected by other medications — make sure that your doctor is aware of all the medications you are taking, including over-the-counter drugs.

Examples: TheoDur®, Uniphyll®, Phyllocontin®, TheoLair®.

What theophylline does: Works directly on the airway muscle to relax it, making it easier for you to breathe.

Side effects: For a full list, see your doctor, pharmacist or certified asthma educator.

Some common side effects include:

- diarrhea
- nausea
- heartburn
- loss of appetite
- headaches
- nervousness
- rapid heart beat
- upset stomach

The right dose must be determined and monitored regularly by your doctor. Do not increase the dose on your own.

Antibody Neutralizers

Antibody neutralizers are used in specific cases when moderate to severe asthma is triggered by allergies and inhaled steroids are not helping. Antibody neutralizers work by decreasing the amount of the antibody (the substance in your body that causes airways to become swollen when you have an allergic reaction).

Example: Xolair®.

Asthma Rescue Medications

Usually, you take rescue medication only when you need them (when you have symptoms or before exposure to a trigger). You may also take some before exercising. It's important you keep your rescue medication close by so it's there when you need it.

If your asthma is under control, you won't need to take rescue medication more than three times a week (except once a day before exercise). If you use your rescue medication more than three times a week, tell your doctor.

Rescue medication:

- helps during asthma attacks — take it right away
- is usually in a blue puffer
- acts quickly
- reduces the effects of asthma triggers, such as exercise and cold air
- makes your tight airway muscles relax

Fast-acting bronchodilators

You take fast-acting bronchodilators only as needed:

- for quick relief during an asthma attack (you should feel relief within five to 10 minutes)
- for relief of symptoms, such as cough, chest tightness, wheezing and shortness of breath
- fifteen minutes before exercising, as prescribed by your doctor

Examples: salbutamol (**Ventolin®, Apo-Salvent®, Novo Salmol®, Gen-salbutamol®, Alti-Salbutamol®, Airomir®**) fenoterol hydrobromide, terbutaline sulfate (**Bricanyl® inhaler**).

Side effects: For a full list, ask your doctor, pharmacist or certified asthma educator. Some common side effects include:

- trembling
- nervousness
- flushing
- increased heart rate

If you are using your fast-acting bronchodilators too often (more than three times a week except for once a day with exercise), your airways are inflamed (swollen and red) and need treatment. Use your asthma action plan and follow the instructions. You may need to increase your asthma preventer medication or add another medication until your asthma is under good control.

REMEMBER...

- Keep taking your asthma medication as instructed by your doctor. This medication is necessary and scientifically proven to keep you healthy.
- Always tell your doctor if you are considering taking or are taking any other medication or alternative remedies of any sort. You have to make sure that these medications or remedies do not interfere with your asthma medication.

COMMONLY ASKED QUESTIONS ABOUT ASTHMA MEDICATIONS

What are the different devices I can use to take my asthma medication?

Many medications are inhaled through a specific device. A device is a tool or instrument that is used to deliver medication to your lungs (for example, a puffer). There are two classes of devices available today:

- MDI (metered-dose inhaler or puffer), used with a spacer
- Dry powder inhalers (Turbuhaler, Diskus, or Aerolyzer)

Your doctor or a certified asthma educator can discuss which device best suits your needs. You should regularly review how to use your device with your doctor or certified asthma educator or pharmacist to ensure the medication is getting where it is needed — to your airways.

Should I use a nebulizer to take my medication?

Inhalers are the most common method of getting medication into your lungs. When an inhaler cannot be used, a nebulizer or compressor is another way in which you can take medications. A liquid form of the medication is placed in a container attached to a tube. The nebulizer changes the medication from a liquid to a mist. It can take up to 20 minutes of breathing mist from a nebulizer to get the same dose of medication as you would receive from one or two puffs from an inhaler.

What other drugs can affect my asthma?

Make sure your doctor knows all of the medications you are taking, even over-the-counter drugs and alternative remedies. Check with either your doctor or certified asthma educator or respiratory educator before you start any new treatment.

Drugs that could affect your asthma include:

- Medications containing Aspirin or acetylsalicylic acid (ASA), such as cold remedies, painkillers and medications used for arthritis and muscle pain, may make asthma symptoms worse for some people.
- Beta-blocking medications, which are used to treat high blood pressure, angina, glaucoma and other conditions, can cause severe asthma attacks.
- ACE inhibitors, which are used to treat high blood pressure, heart disease and other conditions, can cause an increase

of twitchiness in airways. Examples of these medications are **Captopril** and **Lisinopril**.

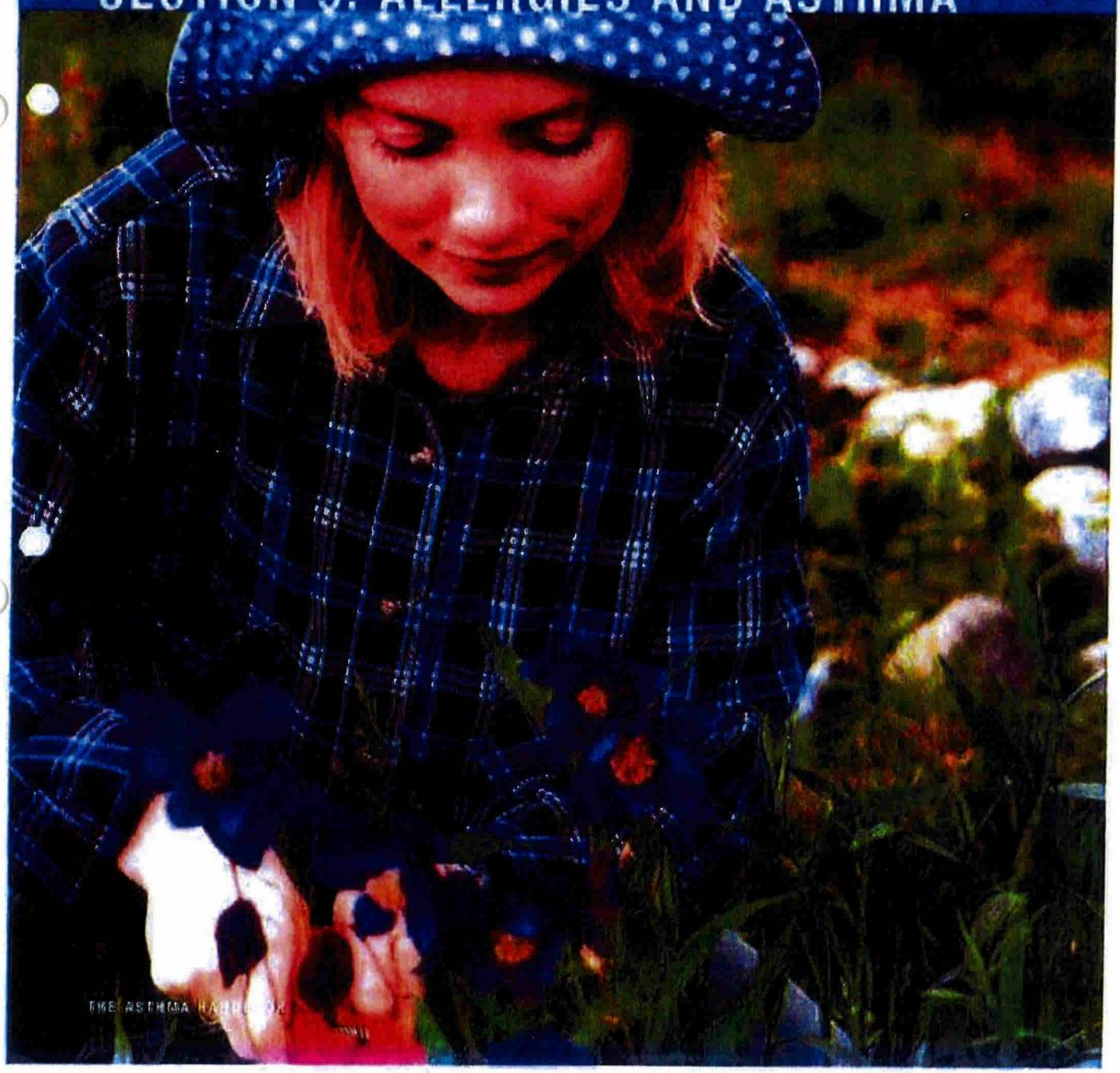
What are alternative therapies and can they manage my asthma?

Alternative therapies are ways to deal with an illness that are not usually provided by your doctor or other conventionally trained health-care providers. Some examples of alternative therapies are acupuncture, chiropractics, homeopathy, naturopathy, osteopathy, herbal remedies, tai chi, yoga, reflexology, relaxation therapy and aromatherapy. Alternative remedies may be advertised to treat asthma, but most claims are based on testimonials and not scientifically proven.

What is bronchial thermoplasty and can it manage my asthma?

Bronchial thermoplasty is a new procedure being developed as a potential treatment for asthma in adults. It involves use of thermal energy, or heat, to reduce the amount of the muscle surrounding the airway, thereby reducing tightening of the airway muscle that makes breathing difficult. This method has the potential to provide asthma relief to people who do not respond adequately to conventional asthma treatment. However, people who have had bronchial thermoplasty still need to take asthma medications. Bronchial thermoplasty has only been done in adults and is not proposed for use in children under age 18. Presently, this new treatment is only available in research studies.

SECTION 5: ALLERGIES AND ASTHMA



Many people with asthma have allergies that make their asthma worse. If you have allergies and asthma, it's important to:

- know what you're allergic to
- avoid things you're allergic to
- take any prescribed allergy medications
- know what to do if your asthma is getting worse by following your asthma action plan

An allergy is an abnormal reaction by your body when exposed to things that you are sensitive to. The thing that causes this reaction is called an allergen. Allergens can be inhaled, injected, swallowed or touched. There are different levels of allergies. You may be severely allergic to one thing but only mildly allergic to something else.

ALLERGIC REACTIONS IN PEOPLE WITH ASTHMA

Anybody can get allergies, even people who do not have asthma. If you have asthma, allergens can make your airways red, swollen and filled with sticky mucus. Your airways can react as soon as you're near the allergen as well as a few hours later.

Right away, you can have symptoms such as wheezing and shortness of breath. Your airways are extra-sensitive and they can tighten as soon as you start breathing in allergens. These first symptoms can usually be relieved by rescue medication (blue puffer).

A few hours after you breathe in the allergen, you can feel a second wave of symptoms. These symptoms are caused by your airways gradually swelling (inflammation). Because there's a delay before people feel this kind of symptom, it can be hard to recognize what brought on the reaction. Taking a preventer medication on a regular basis will help prevent this reaction from happening and treat the inflammation when it does happen.

What am I allergic to?

Each person has their own set of allergens. They can be allergic to one or to many things. You might be really allergic to cats, but feel fine around pollens. Another person may be really allergic to pollen and mould, but feel fine around cats.

See your doctor to find out what you are allergic to. Your doctor may refer you to an allergist (a specialist doctor who is an expert on allergies.) The allergist will ask you many questions about your medical history, and your home and work environments (where you live and work, what substances you handle, what floor

ALLERGY SYMPTOMS

Allergies can cause many different symptoms. You may have one or more of these symptoms:

- itchy, watery eyes
- itchy, runny nose
- itchy skin
- eczema (rough, red skin)
- hives (swollen mounds on your skin)
- dark circles under and around the eyes
- recurring headaches
- shortness of breath
- wheeze
- cough
- diarrhea
- stomach cramps

coverings, pets, or plants are in your home, and when you notice your symptoms getting worse). The allergist will also do a skin prick or scratch test to see exactly what you're allergic to.

Skin prick or scratch testing. This test usually takes about 20 minutes. The allergist will put tiny drops of possible allergens on the skin on your arm or back. You may be tested for many allergens at once, so you may have rows of tiny drops on your skin. The allergist will then scratch or prick your skin underneath each drop of allergen, so it can get under your skin. The allergist will watch closely to see how your skin reacts to each scratch. There may be redness and swelling in some spots. Based on your skin's reaction and your medical history, the allergist can tell you what you're allergic to.

You can be mildly or severely allergic to something. You may have a small reaction when you're near one of your allergens, but a more serious reaction when you're near another. For example, you may sneeze a bit when you're cutting the lawn, but you're generally okay. However, when you're near a dog, you cough, wheeze and feel awful. Your allergist can tell you which of your allergies are the strongest.

Common allergens and how to avoid them

Animal proteins (secretions) Oils from the skin, dander, saliva, urine and feces (poop). Pet dander is the flakes of skin, hair or feathers of all warm-blooded animals, including dogs, cats, birds, and rodents (mice, hamsters and gerbils). The length of hair doesn't matter.	• Find a loving home for your pet. • If you keep your pet, keep it out of your bedroom and off the furniture. Have someone else feed and care for your pet. • Have someone wash and brush your pet every week.
Dust mites Tiny bugs that feed on skin particles shed by humans. Dust mites like to gather in warm, moist places such as mattresses, pillows, carpet and bedding. People with dust allergies are allergic to the droppings (feces) of dust mites.	• Cover your mattress and pillow with specially made dust-mite covers or with plastic or vinyl covers. Tape the zipper for a complete seal. • Wash your bedding in hot water and dry it in a hot dryer every week. Wash stuffed toys in the same way. • Keep the humidity in your house below 50%. Dust mites don't like to live in a place with low humidity. • Keep your bedroom free of clutter. Books, boxes and clothes lying around can all collect dust.

To get rid of the allergy-causing droppings, you must wash out the existing droppings and kill the mites.

- If you can, remove carpets, rugs, and heavy curtains from your bedroom.
- Vacuum rugs and carpets at least once a week (the person with a dust allergy should not do the vacuuming).
- Avoid giving stuffed toys to children with asthma because they can collect dust.
- Get someone else to dust every week with a damp cloth. If you must dust, wear a N95 respirator (you can purchase one at a hardware store for about $2.00) or a strip of damp, clean cotton over your face as you dust.

Pollen

Spores produced by grasses, weeds, flowers, trees and other plants.

- Close your windows to keep pollen out.
- Avoid hanging clothes outside to dry as pollen will cling to clothing and be carried inside.
- In hot weather, spend more time indoors where there is an air conditioner.
- Avoid being outside in humid weather, especially when pollen counts are highest.
- Check the pollen counts in your area to see when the pollen you're allergic to is at its worst.
- If you've been outside at a time of high pollen counts, take a shower to wash the pollen off of your skin and hair, and change into clean clothes.

Mould

Spores produced by fungus. Mould exists indoor and outdoors. It usually exists in hot and humid places. It can live year-round on plants and animals.

Outdoor mould:

- Keep windows closed during times of high humidity.
- Avoid outdoor activities, like cutting grass, raking or handling hay. If you can't avoid these activities, wear a mask.

Indoor mould:

- Avoid using a humidifier. If you must, then make sure that the indoor humidity is less than 50%.
- Use an air conditioner or dehumidifier in the summer.
- Ventilate your home properly.
- Heat all rooms in cold weather.
- Get rid of mouldy food.
- Avoid carpeting in bedrooms and bathrooms.
- Use exhaust fans when cooking and showering.
- Avoid sleeping in the basement if possible.

Food and drink that can cause allergies

Food is not a common asthma trigger. Food allergies mostly affect children. Food reactions can be mild or severe. Common foods that cause allergies are peanuts, tree nuts, fish and shellfish, milk and eggs.

What to do if you have food allergies

- Know what you are allergic to and avoid it.
- If you have a severe allergy, carry an emergency kit that includes medication and an Epipen. Make sure you know how to use them.
- With a severe reaction, use your Epipen immediately (if you have one), call 911 and go to a hospital immediately.
- Wear a Medic Alert bracelet.
- Avoid cutting boards, cutlery, plates and anything that has come into contact with the food you are allergic to. Even small amounts of the food can cause a severe reaction.
- Use caution when eating anything that has not been prepared by you.
- Ask questions about ingredients and how the food was cooked.
- Always check ingredient lists. Some allergic reactions can result from eating foods with preservatives (beer, wine, dried fruit, frozen seafood, some salad bars and frozen French fries).

Medication to treat allergies

The best way to treat allergies is to stay away from the things that you are allergic to. No treatment will work as well as simply avoiding the allergen in the first place. If you can't avoid an allergen, you may need medication specific to the symptoms and, in some cases, allergy shots.

Nasal allergy treatment

Nasal corticosteroids:

- require a prescription from your doctor
- work by spraying the medication in your nose
- reduce the swelling inside your nose

Antihistamines

- don't require a prescription (can be bought over-the-counter)

- counteracts the histamine released in the body, which causes many symptoms
- may cause drowsiness and may make stuffiness worse

Decongestants

- do not require a prescription (can be bought over-the-counter)
- reduces congestion (plugged up feeling in your nose and head)
- may not work very well
- should not be taken by people with high blood pressure and heart problems

Always read the label to find out the complete list of ingredients when buying over-the-counter drugs. You can ask your pharmacist for help in understanding what the labels say.

Allergy shots

Allergy shots are a less common way to treat allergies. The idea is that if you inject an allergic person with a little bit of the thing they're allergic to and then their body might learn to be less sensitive to it. Allergy shots don't work for every kind of allergy and they can take a while to start making a difference. Your doctor or allergist can tell you if allergy shots are right for you.

Commonly asked questions about asthma and allergies

Should I get rid of everything in our house that could possibly cause allergies?

No. It is expensive and time-consuming to get rid of all possible triggers from your home. You only need to identify and remove the triggers that affect you.

Should allergy shots be used to treat my asthma?

Allergy shots are not used to treat asthma. They are used to manage specific allergies. You should avoid your triggers and take your regular asthma medication. If you have allergies, and you are thinking about allergy shots, you should speak to your doctor.

What is anaphylaxis?

Anaphylaxis is an extreme reaction of the body's immune system to a particular trigger, such as food, insect stings and medications. Anaphylactic reactions can be mild to

life threatening. The most common food products that cause reactions are peanuts, tree nuts, sesame, soy, fish, wheat, eggs, milk and seafood. The most common insect stings that cause reactions are yellow jackets, hornets, wasps and bees. Some people have severe anaphylactic reactions to natural latex rubber.

Signs and symptoms of anaphylaxis:

- itching of skin and a raised rash (hives)
- flushing, swelling of the tissues of the lips, throat, tongue, hands and/or feet
- wheezing, shortness of breath, coughing, hoarseness
- headache, nausea, vomiting, abdominal cramps
- sense of impending doom, loss of consciousness

Here are some suggestions on how to protect yourself:

- Once you have had an anaphylactic reaction to something, you must avoid it.
- Find out from your doctor, pharmacist or certified asthma educator how to use an Epipen.
- Always carry an emergency kit containing your rescue inhaler, an antihistamine and an Epipen.
- You should carry an extra Epipen for every 15 to 20 minutes you are from the nearest emergency services. (For example, if you are one hour away from the nearest hospital, you should have at least three Epipens with you). The medication in your Epipen will wear off in 15 to 20 minutes and you may still be in a life-threatening situation.
- Wear a Medic Alert bracelet that says "ANAPHYLAXIS: CARRIES EPIPEN" so others can help you in an emergency.

WHAT TO DO IF YOU EXPERIENCE SYMPTOMS OF ANAPHYLAXIS

If you experience symptoms, such as swelling of the throat or hives all over your body and/or feeling faint, do the following:

1. **Use your Epipen immediately.**
2. **Tell someone.**
3. **Go immediately to a hospital emergency room. DO NOT DRIVE YOURSELF.**

How to improve the air quality in your home

Here are some tips on improving the indoor air quality in your home.

When cleaning

- Target items that trap a lot of dust, such as shelves, drapes, and furniture. Don't forget about the dust that collects underneath chairs and other large objects.
- Use a damp cloth (dry dusting just sends most dust back into the air) and work from the top down.
- Regularly replace furnace filters (high efficiency, one-inch pleated filters are preferred).
- If you want to keep magazines and newspapers for a while, store them in a cabinet where they can't collect dust. If you have too many lying around, recycle them.
- If possible, use a central vacuum system. It removes dirt without stirring up microscopic dust particles. The vacuum receptacle is vented outside of the home, keeping the air inside cleaner. If you can't afford a central vacuum system, use a vacuum that uses a high-efficiency vacuum filter bag.

When doing laundry

- Use unscented laundry soap marked with the Canadian Ecologo.
- Instead of using fabric softener, use a half cup of vinegar in the rinse water.
- Make sure that your dryer is vented to the outside and the hose is not blocked.

To control pests

- Clean up promptly after cooking and cover up leftover food.
- Regularly remove your kitchen garbage.
- Identify cracks and other openings that act as entry points for insects into your home, and seal these areas with caulking. If you have trouble with rodents, stuff some steel wool into the cracks where they get in (rodents can't chew through steel wool), or place traps where they enter your home.
- If ants are a problem, try sprinkling cayenne pepper at their point of entry.
- Use pesticide-free glue traps to catch crawling insects. Never use pest strips or other pesticides inside your house.

SECTION 6: ASTHMA AND PREGNANCY

Pregnant women are breathing for two. When asthma is controlled, pregnant women with asthma have no more problems during pregnancy and giving birth than women who do not have asthma. However, uncontrolled asthma during pregnancy can lead to serious problems for both mother and baby. If you have asthma and you're pregnant, or are planning to become pregnant, see your doctor or certified asthma educator.

When you are pregnant, it is especially important to have your asthma under good control. Breathing problems in the mother can limit the oxygen supply to the baby.

How your asthma changes when you're pregnant

In general, one third of pregnant women with asthma notice that their asthma symptoms improve during pregnancy, one third of women have asthma symptoms that stay the same, and one third of women have asthma symptoms that get worse. Also, each pregnancy may affect your asthma differently.

If you have uncontrolled asthma, there is a higher risk of:

- premature birth
- low birth weight
- maternal blood pressure changes (preeclampsia)

Managing asthma while you're pregnant

Acute asthma attacks endanger your baby by reducing the oxygen she or he receives. It is important to prevent an asthma episode during pregnancy, labour and delivery.

Here are some ways to manage your asthma while pregnant:

- Avoid your asthma triggers.
- Continue taking your asthma medications (as prescribed by your doctor) during pregnancy, labour and delivery.
- Get your flu shot if you have not already had it this year. A flu shot can be taken after the first three months of pregnancy. (Note: flu shots are not recommended for anyone with an egg allergy.)
- Exercise carefully as advised by your doctor.
- Don't smoke. A pregnant woman who smokes has a greater risk of having a severe asthma attack at some time during the pregnancy. This could seriously reduce the oxygen supply to your baby, especially if your baby's blood already contains a large amount of carbon monoxide gas from

YOUR ASTHMA IS WELL-CONTROLLED IF YOU HAVE:

- daytime symptoms less than four days a week
- nighttime symptoms less than one night every two weeks
- normal physical activity
- mild and infrequent symptom flare-ups
- not missed school or work
- used your rescue medication (blue puffer) less than four doses a week (except one dose per day prior to exercise)
- a peak flow rate that is 80% or greater of personal best

cigarette smoke. Infants are three times more likely to die of Sudden Infant Death Syndrome (SIDS) if their mothers smoked during or after pregnancy.

- Avoid second-hand smoke. Both you and your baby can be affected by second-hand smoke. Ask friends and family not to smoke.

Monitoring asthma control

When you are pregnant, your body goes through many changes. Some of these changes are due to asthma. You and your doctor need to monitor your asthma symptoms so that your medications can be adjusted accordingly.

Your doctor can monitor your asthma by using:

- **Spirometry:** This is a simple breathing test that measures how much air you can push out of your lungs and how fast.
- **A peak flow meter:** This is a handheld device to measure the rate you can blow air out of your lungs. The goal is to try to maintain normal or near normal rates.
- **Ultrasound:** This test uses sound waves to create images that provide an indication of your baby's growth. A gel is put on your abdomen and a handheld sensor projects an image of your baby onto a computer screen.

Your doctor will assess the health of your baby by using:

- **Electronic fetal heart-rate monitoring:** A Doppler is a small device that is pressed against your abdomen and allows you to hear your baby's heartbeat.
- **Non-stress test:** This test monitors your baby's heart rate over a period of time.
- **Daily kick charts:** These charts are used to monitor your baby's activity. You can keep a record of when you feel your baby kick or move. The charts can be compared over a period of time to see your baby's activity pattern.

Asthma medications and pregnancy

The risks of uncontrolled asthma are far greater than the risks to the mother or baby from the medications used to control asthma. If you are pregnant or plan to become pregnant, tell your doctor. Taking care of your asthma needs to be addressed at the same time as taking care of your pregnancy. If possible, use the same doctor for both your asthma care and pregnancy. However if this is not possible, all doctors need to work together.

Drugs to avoid during pregnancy

Take your asthma medications as directed by your doctor. Be careful about taking any other medications. There are many over-the-counter, prescription, and herbal medications that should not be taken during pregnancy. Check with your doctor or pharmacist before taking any non-prescribed medication when you are pregnant.

If you have any questions about medication use during pregnancy, please speak with your doctor, pharmacist or certified asthma educator.

What can you expect when you go into labour

Monitoring during labour and delivery

When you are admitted to the hospital, your baby will be monitored electronically. During the course of labour, monitoring of you and your baby will continue. If your asthma is under control or you are considered low risk, continuous monitoring may not be necessary.

You may have your peak flow rate taken when you are admitted to the labour and delivery unit and every 12 hours after that. If asthma symptoms develop, peak flow rates may be measured after treatments. An intravenous, or IV, may be necessary to ensure you are well hydrated. Painkillers will help limit the risk of asthma symptoms.

Medications during labour and delivery

- Your regularly scheduled asthma medications should be continued during labour and delivery.
- If your asthma improved during pregnancy and your medications were appropriately reduced, you may need more medication immediately following delivery.
- If your asthma has not been under good control, your doctor may give you specific instructions to go to the hospital early in your labour.
- Do not hesitate to ask for a painkiller. This will help limit your risk of asthma symptoms.

WHAT TO DO IF YOU HAVE AN ASTHMA ATTACK WHILE PREGNANT

1. **Stop all activity.**
2. **Take your rescue medication (blue puffer) right away, as directed by your doctor.**
3. **Sit down.**
4. **Tell someone.**
5. **Call 911 right away if any of these things happen:**
   - **The rescue medication (blue puffer) does not begin to help within 10 minutes.**
   - **The rescue medication wears off and your symptoms return.**
   - **Your symptoms keep getting worse.**
   - **You feel extremely anxious.**

What you can expect after your baby is born

After the baby is born, it may be necessary to change your asthma medications and doses. Because some women experience changes in their asthma during pregnancy, their asthma may change again following delivery. For this reason, you and your doctor should monitor your asthma very closely to make sure it stays well controlled.

Breastfeeding

- Keep taking your medications as prescribed by your doctor. Inhaled bronchodilators and anti-inflammatories do not appear to cause side effects (except for theophylline, which gets into breast milk and can make the baby irritable.) If you take theophylline, talk to your doctor about other options.
- Don't smoke. Infants are twice as likely to die of Sudden Infant Death Syndrome (SIDS) if their mother starts smoking again after giving birth.
- Avoid second-hand smoke. To keep your baby healthy, don't let anyone smoke around your child or in your home.
- Avoid antihistamines because they can cause sleeplessness and irritability in infants. They can also reduce or prevent production of breast milk.

Commonly asked questions about pregnancy and asthma

I'm pregnant and I smoke. Why should I quit?

Mothers who don't smoke are healthier. They have easier pregnancies and deliveries and recover faster after giving birth with fewer complications. Babies whose mothers are smoke-free are more likely to be born full-term, be healthy at birth and stay healthier as they grow.

When should I quit?

Quitting before you get pregnant is the best choice. If you are already pregnant, quitting as soon as possible is best for you and your baby. Some women actually find it easier to quit while pregnant because they may already feel nauseated from morning sickness. Talk to your doctor or certified asthma educator about getting help to quit.

Will it be too hard on the baby for me to quit when I'm pregnant?

No. Quitting smoking is the best thing you can do for you and your baby. Many of the 4,000 chemicals found in tobacco smoke cross into your baby's blood, slowing growth and development. Babies born to mothers who smoke are more likely to be premature, have a low birth weight and have more problems at birth than babies whose mothers are smoke-free. As your body begins to heal from the stress of smoking, so does your baby.

What if my partner smokes?

Your partner should also try to quit because second-hand smoke can seriously harm the baby while you're pregnant and after the baby is born. Second-hand smoke puts your baby at risk for Sudden Infant Death Syndrome (SIDS), allergies, asthma, ear infections and other illnesses. It is important for your child to live in a smoke-free home.

Be supportive of your partner's efforts to quit. If your partner isn't ready or willing to quit, you can still insist on a smoke-free home. Never allow smoking in your home or car. It's not enough to ban smoking near your baby either. The chemicals in tobacco smoke get trapped in your clothing, carpet, furniture and curtains. These chemicals stay in your house and can make your baby sick. Don't take your baby to places where people are smoking or have been smoking.

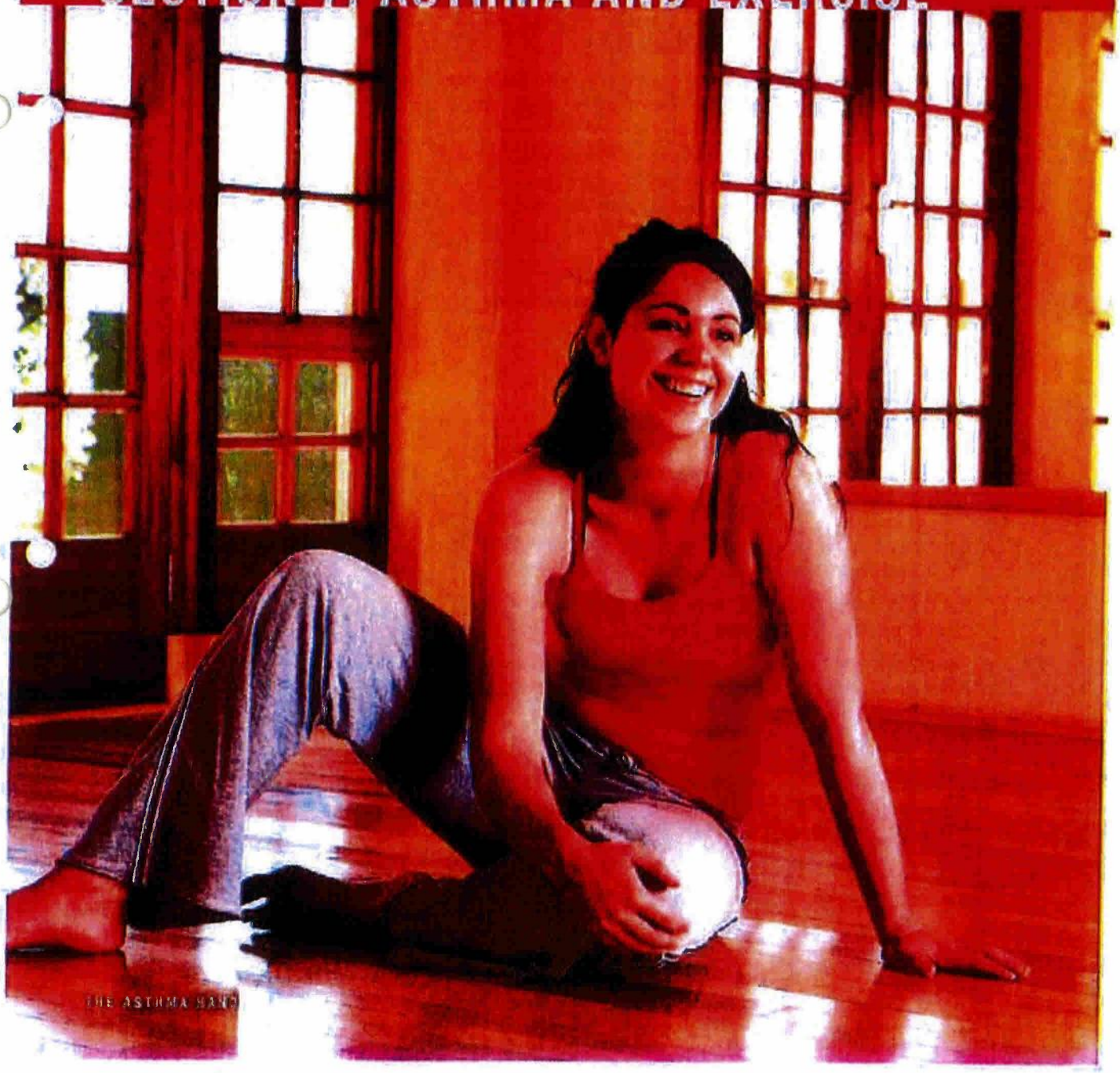
Will my baby have asthma?

Maybe. There is a genetic link to asthma. The exact cause is not known. A family history for asthma or any associated conditions (eczema, hay fever) increases the chance of the baby having asthma. Asthma can develop at any age, but is more common in children.

You can help reduce your baby's chances of developing asthma by:

- not smoking, especially during pregnancy.
- not allowing smoking in your house or car.
- breastfeeding exclusively (breast milk only) for a period of at least four months.
- not having cats or dogs in the house if either parent has allergies.

SECTION 7: ASTHMA AND EXERCISE



If you have asthma, you can still exercise regularly. As long as your asthma is under control, exercising is recommended to keep your lungs and body in good shape. Before starting a new exercise program, discuss it with your health-care team since changes in your medications may be needed.

Exercise does not cause asthma. However, exercise can be a trigger for people with asthma (known as exercised-induced bronchospasm).

Why does exercise sometimes trigger asthma symptoms?

Normally, people breathe through their noses. The nose acts as an air filter. It controls the temperature and humidity of the air before it reaches the lungs. When you exercise, your body needs more air and you breathe faster. You start breathing through your mouth. Air that comes through your mouth has not been filtered, warmed, or moistened by your nose. This means the air that gets to your airways is cooler and drier than usual.

If you have asthma, your extra-sensitive airways react to the cool, dry air. The muscles around the airways twitch and squeeze tighter. Tighter airways mean there is less space for the air to pass through. This makes you wheeze, cough and feel short of breath.

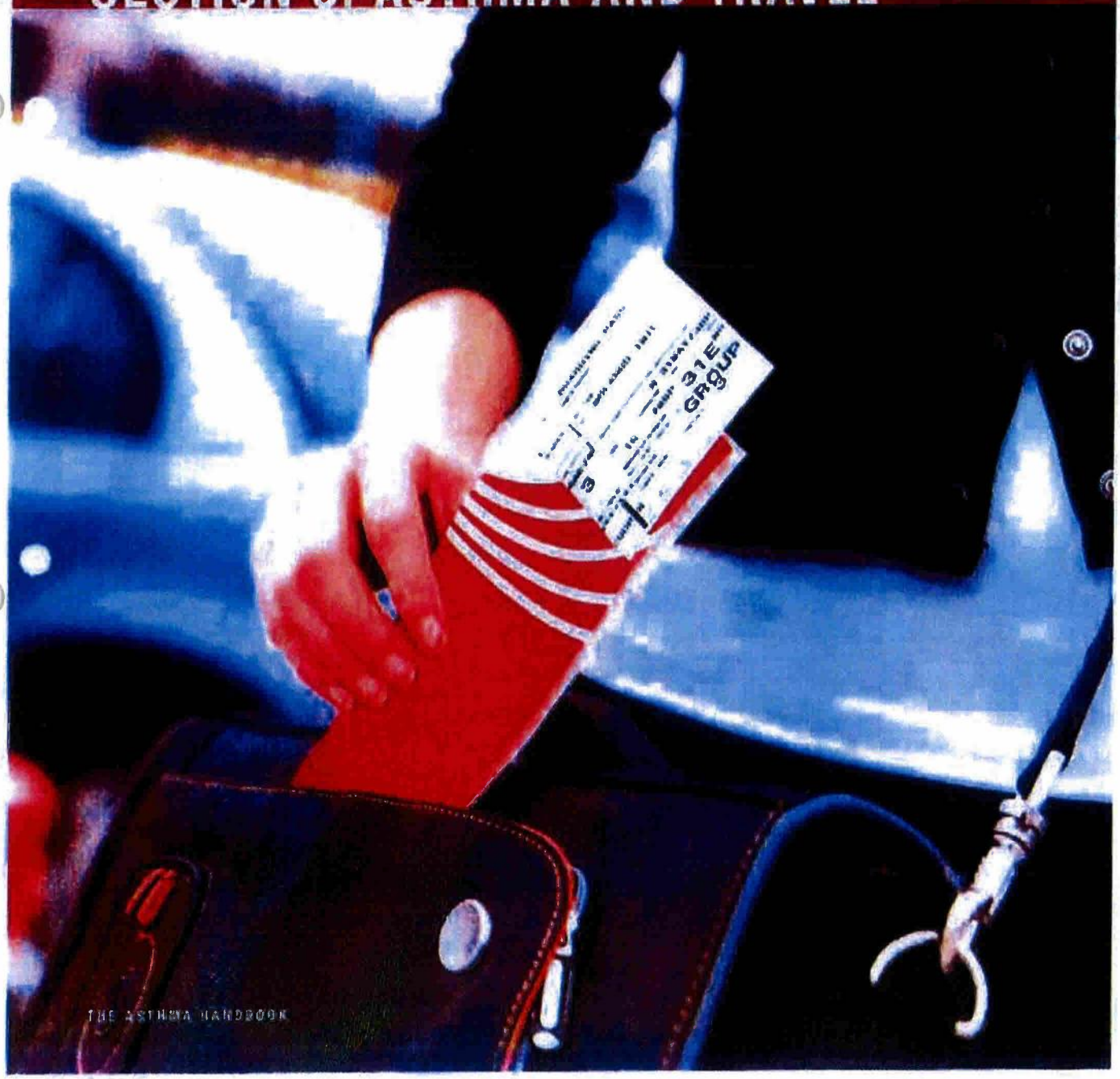
Tips for Exercising

- Talk to your doctor about using your rescue medication (blue puffer) 15-20 minutes before exercising.
- Warm up slowly before exercising by walking.
- Cool down slowly for at least 10 minutes after exercising. Don't stop suddenly.
- Avoid exercising outside on days when pollution or pollen counts are high. Exercise indoors instead.
- Cover your nose and mouth with a scarf or a special asthma mask when exercising outdoors in cold weather. You may want to exercise indoors.
- Always carry your blue puffer with you.
- If you are running, biking or cross-country skiing alone, tell someone where you will be going and when to expect you back.

WHAT TO DO WHEN YOU HAVE ASTHMA SYMPTOMS WHILE EXERCISING

1. Stop exercising immediately.
2. Take your blue puffer.
3. Relax in a resting position (sitting up or standing against a wall) and wait a few minutes to see if your symptoms get better.
4. If your symptoms really improve, warm up again and slowly start exercising.
5. If your symptoms aren't getting any better, call for help and keep using your blue puffer until help arrives.
6. If you are very short of breath, call 911.

SECTION 8: ASTHMA AND TRAVEL



If you travel and you have asthma, these suggestions may be helpful:

Take enough medication to last the entire time you are away and allow for increases due to flare-ups and travel delays. Take an extra prescription's worth in case of loss or theft.

If you travel on a plane, keep your rescue medication (blue puffer) close at hand in case you need it. Airplanes contain many things that can trigger breathing problems, such as perfume and other strong smells. Don't store it in the overhead bin!

Keep medication in the original containers with your name on the prescription label. Sometimes pharmacists put the medication label on the outside of the puffer's box, instead of on the puffer itself. If your puffer is not labelled, ask your pharmacist for a label before you travel.

Make sure you are booked on smoke-free transport (plane, train, rental car, bus or boat) and always ask for a smoke-free room where you are staying.

If you are traveling outside of Canada, ask your pharmacist for a printout of your medications and/or ask your doctor for a letter identifying your prescriptions.

If you travel outside of your province, make sure you have enough medical insurance in case of an emergency.

If you are using a nebulizer to take your medications, make sure that the country that you are visiting has the same electrical voltage as Canada. If not, speak to the supplier where you bought the nebulizer. They can give you an adaptor or you can rent a suitable nebulizer.

If you don't already have one, ask your doctor for an asthma action plan in case you have problems while you are away.

Never stop taking your medication, even when you feel better.

If you have lost or finished your medication while away, go to the nearest reputable health-care centre as advised by your travel agency, insurance company or doctor.

WHAT YOU SHOULD KNOW ABOUT BRINGING MEDICATIONS ON PLANES

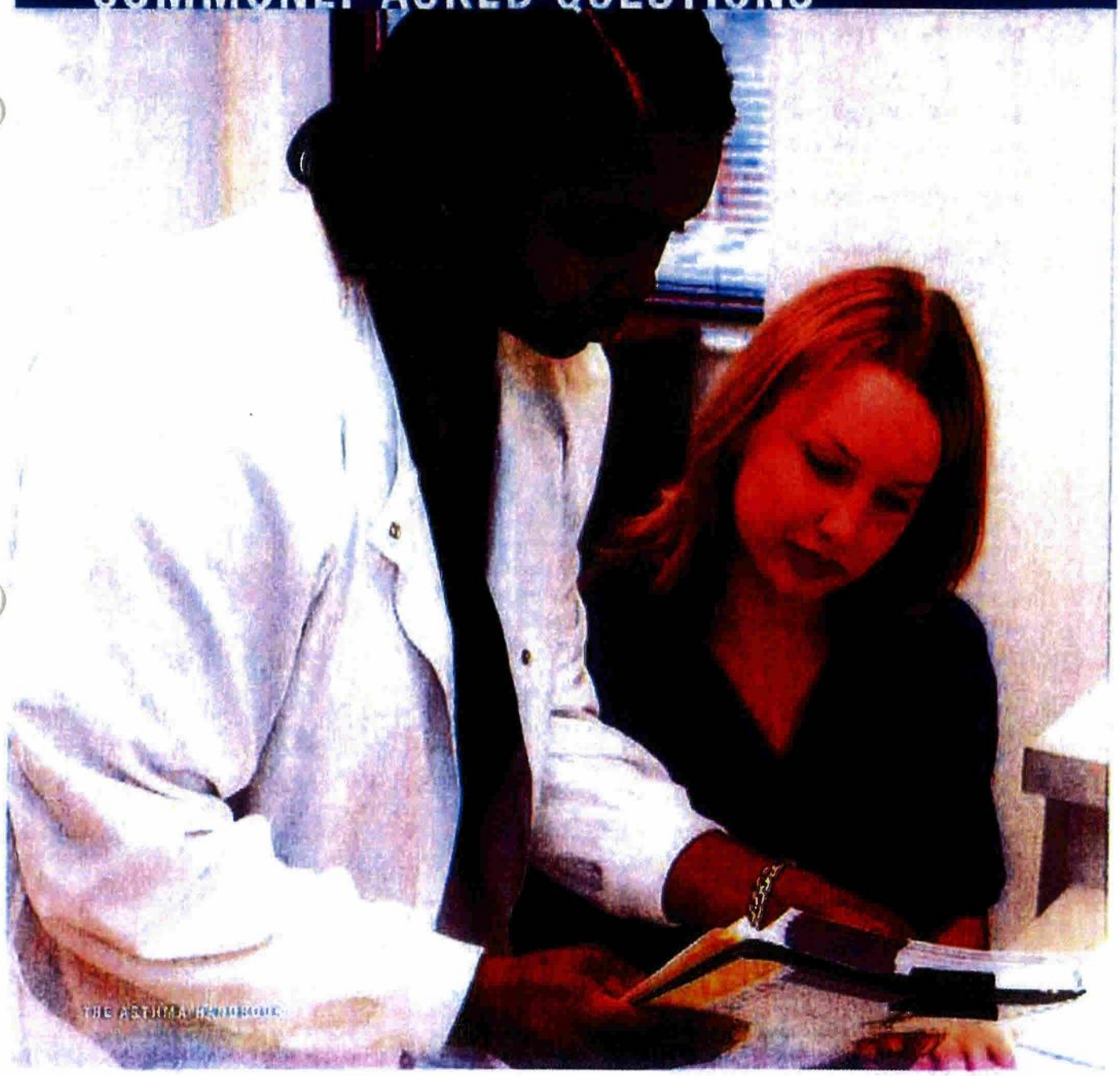
New carry-on baggage rules affect inhaled and liquid medications. If you use inhalers and liquid medication, you need to pay special attention to the new rules for carry-on baggage.

According to the Canadian Air Transport Security Authority (CATSA):

- **Liquid prescription medicine is allowed as long as it is clearly labelled with a name that matches the passenger's ticket/ boarding pass.**
- **Other essential non-prescription liquid medicines are also allowed and are exempt from the container size restrictions. In addition, they are not required to be in a plastic bag.**

Check the CATSA website (www.catsa-acsta.gc.ca) before you leave, in case the rules change.

SECTION 9:
COMMONLY ASKED QUESTIONS



Is there a cure for asthma?

Currently there is no cure for asthma. However, in the majority of cases, asthma can be managed.

Does asthma go away?

Asthma is a chronic disease, which means that it never goes away. In a situation where asthma is caused by something in the workplace, removing the allergen can help minimize asthma. Many children seem to "outgrow" their asthma by puberty. Some of them remain symptom-free but for others symptoms may reappear in adult life.

Can I die from asthma?

Yes, but it is very rare. About 300 Canadians die each year from asthma. In most cases, asthma deaths can be prevented by proper asthma education and management.

Who gets asthma?

Canadian children have a 20 per cent chance of being diagnosed with asthma by age 12. There is a further 20 per cent chance of being diagnosed with asthma between the ages of 12 and 40 years. Under age 12, boys are about twice as likely as girls to develop asthma. After age 12, girls are more likely than boys to develop asthma.

Will my asthma get better if I move to a different climate?

While some symptoms may improve in a different climate, moving may expose you to new triggers that can cause breathing problems. For example, a warmer climate may have more air pollution and higher humidity. To avoid replacing one trigger with a different one when you move, it's a good idea to spend a trial period of several weeks to months in the new location. Don't move until you are sure there's a real improvement in your asthma symptoms. Consider also that your improvement might be due to leaving a pet at home, being away from a workplace trigger, or having less stress on holiday — factors that have nothing to do with climate at all.

What are the risks of not avoiding asthma triggers?

If you do not avoid your triggers, you will experience constant breathing problems. You risk having a severe asthma attack requiring a hospital visit.

Will an air cleaner help my asthma?

Indoor air quality is an important issue, particularly for those at high-risk including children, the elderly, pregnant women and people with a chronic lung condition.

You can improve indoor air quality by doing the following:

- Identify and eliminate the source of the problem, such as mould and cigarette smoke. See Section 5: Allergies and asthma for tips on eliminating mould.
- Increasing the amount of ventilation within the home to help ensure air is fresh.
- As a last resort, the use of a high efficiency particulate air (HEPA) filter with activated charcoal may provide some benefit. There must be a large amount of air going through the filter to provide this benefit. (Note: Electronic air cleaners or purifiers that produce ozone are not recommended as the ozone can make asthma worse.)

For more information about what you can do to improve the quality of the air in your home, speak to a certified asthma educator or respiratory educator or contact The Lung Association office nearest you.

Can having a pet at home reduce childhood asthma?

Maybe. Some studies suggest that there is some protective effect of having a pet. However, if a child develops asthma, continued exposure can lead to ongoing asthma.

Is taking steroids for asthma dangerous?

No. Corticosteroids for asthma are not the same as the muscle-building steroids that are banned by some sports organizations. The corticosteroids used to treat asthma are similar to the steroids produced naturally by the body. However, like most medications, corticosteroids can have unwanted side effects, especially when used in high doses for long periods of time. Talk to your doctor, pharmacist or certified asthma educator if you have questions about side effects.

Should I see an asthma specialist?

Talk to your doctor about seeing an asthma specialist if:

- Your asthma is not getting better even though you are avoiding your triggers and taking your medication.
- You have had to be admitted to the hospital or gone to the emergency department because of your asthma.

- There may be factors that require more in-depth assessment, such as a trigger in your workplace.

What is the difference between COPD and asthma? Can you have both?

Asthma is a chronic disease of the airways that is characterized by swelling, mucus production and tightening of the airway muscles. These symptoms can be treated and managed through education, environmental control and proper use of medications. Chronic obstructive pulmonary disease (COPD) is a disease that makes it difficult to move air into and out of the lungs due to permanent damage caused by breathing in harmful materials, such as tobacco smoke, over time. In COPD, there is also swelling of the airways and excessive mucus production but these symptoms are only partially reduced by medications. A person can have both asthma and COPD at the same time.

What are some other diseases and conditions that can affect asthma?

Gastroesophageal reflux disease is sometimes called GERD or acid reflux. It is a chronic condition in which acid from the stomach backs up into your throat. The stomach acid may cause breathing problems when it comes in contact with the lining of your throat and airways. The exact connection between GERD and asthma is not completely understood yet, but studies have shown that GERD can cause asthma.

Heart disease is a condition that affects the heart muscle or the blood vessels of the heart. A person with heart disease may be taking a medication that decreases blood pressure. This group of drugs (known as non-specific beta-blockers) should not be used by people who also have asthma because these drugs increase the risk of having a severe asthma attack.

Glaucoma is an eye disease in which the normal pressure of the fluid inside the eyes slowly rises, leading to vision loss or even blindness. There is a very low risk of developing glaucoma from using inhaled steroids to manage asthma. People aged 65 years or older who are receiving unusually high doses of inhaled steroids (greater than 1500 µg per day) should have their eye fluid pressure monitored during their annual eye examination to detect glaucoma.

Arthritis is an inflammatory disorder of the joints that may produce pain and swelling. Arthritis can be treated using drugs called non-steroidal anti-inflammatory drugs (NSAIDS). People with both arthritis and asthma should be aware of the possibility that they may also be sensitive to Aspirin.

Aspirin triad is a condition in which people have asthma, an Aspirin sensitivity and nasal polyps (soft, non-cancerous growths that develop on the lining of your nose). Talk to your doctor or certified asthma educator for more information on this condition.

Osteoporosis is a disease in which bones become fragile and more likely to break. One cause of osteoporosis is the continued use of high doses of steroids, a type of medication used to treat swelling and inflammation. The risk of developing osteoporosis from using inhaled steroids to manage asthma is very low.

How should I prepare for a visit with my doctor?

1. Always prepare a list of the questions you want your doctor to answer. At the doctor's office, it's easy to forget things.
2. Keep a list of all the symptoms you are experiencing. Be honest. If you don't tell the doctor all the details of your health, you won't get the treatment you need.
3. Bring along all the medications you are taking for your asthma and for any other conditions. If you're not sure you're taking your medications correctly, now is the time to ask.
4. Bring a pad of paper to record what the doctor tells you about your asthma and about any tests or medications you may need.
5. Bring along a relative or friend to your appointment. If you miss some information or forget something, someone is there to back you up.
6. Listen carefully. If you don't understand what the doctor says, ask for an explanation. Keep asking until you do understand.
7. Ask your doctor for an asthma action plan if you don't already have one.
8. Ask your doctor whether there are resources in your community that could benefit and support you.
9. If you get home from your doctor's visit and realize you missed a question or don't understand something the doctor told you, phone back immediately and ask for more information.

QUESTIONS FOR MY DOCTOR

NOTES

CONTACT THE LUNG ASSOCIATION

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WHAT TO DO IN AN EMERGENCY

When you have asthma, you need to know what to do in an emergency. Your asthma action plan will tell you exactly what to do when you start to have breathing problems. If you don't have a plan, ask your doctor for one.

If you start to have breathing problems, follow the instructions at the right. You may even want to make a copy of this page and post it somewhere handy.

What can I expect when I arrive at the hospital?

You will be given medications that will help open your airways so you can breathe easier. Hospital staff may ask you questions about your asthma, including how much rescue medication (blue puffer) you have taken on the way to the hospital.

In the emergency room:

- your pulse and blood pressure will be taken
- oxygen may be given using a mask
- an attachment may be placed on one of your fingers to measure the oxygen content of your blood
- an intravenous, or IV, may be started to give you medication that will open your airways

What happens after I go home from the emergency room?

Within 48-72 hours of visiting the emergency room, you should call your doctor for an appointment. You will need to review the reason why you ended up in the emergency room so that you can prevent it from happening again. Your doctor may want you to see a certified asthma educator or respiratory educator to help you regain control of your asthma.

If you have been given a prescription for additional or increased medication, be sure to tell your doctor about it. Ask how long you should take the additional medication before returning to your usual asthma medications.

IF YOU START TO HAVE BREATHING PROBLEMS:

- Stop all activity.
- If possible, remove yourself from exposure to the trigger.
- Sit in a relaxed position.
- Take your rescue medication (blue puffer).
- Repeat your rescue medication if you do not start to feel relief within 10 minutes.
- If you have come in contact with one of your allergy triggers, take a shower or bath when feeling better.

If you do not feel relief from your blue puffer, you need to take action RIGHT NOW.

SIGNS OF WORSENING ASTHMA:

- Breathing is very difficult
- Continued wheezing or coughing at rest
- Difficulty walking or talking
- Lips and/or fingernails are blue
- Blue puffer does not help in 10 minutes or does not last three hours

You need to call for help NOW. Ask another adult or neighbour to drive you to the nearest emergency room, or call an ambulance.

Use your blue puffer on the way to the hospital as much as needed.

THE LUNG ASSOCIATION®

When you can't breathe, nothing else matters.

1-888-566-LUNG (5864)

info@lung.ca

www.lung.ca