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Allergy and Asthma Relief



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Taking control

of allergies and asthma

Controlling the symptoms of asthma and allergies might sound straightforward, particularly to anyone who has never experienced them. Yet, in surveys of people receiving treatment, 75 per cent wish that their disease was better controlled and say that it affects their quality of life. A sixth of people with severe asthma report weekly attacks so severe that they cannot speak.

Asthma costs the NHS nearly £900 million annually, but it has been estimated that up to 75 per cent of hospital admissions for asthma are avoidable. Each year over 12 million working days are lost to asthma and on average 1,400 people die (that is one person every 6 hours). It is a disease that affects so many families. In the UK around 5.2 million people are currently receiving asthma treatment – that is, someone living in one in five households.

The situation with allergic diseases is no less disturbing. Severe hay fever causes more lost days at work and school than asthma and is the commonest chronic debilitating disease in the UK. Many sufferers don't know about the value of proper allergy diagnosis and treatment and put up with unnecessary symptoms, which have a major and distressing impact on aspects of their life including sleep, exercise tolerance, performance in

examinations and at work or school, playing sport, a good sex life, and many others. Disease caused by asthma and allergies is a major sociological and economic problem worldwide.

Given the statistics, it is hard to believe – but true – that most sufferers do not consider their condition serious, and many do not consult their doctors for help. But it is also true that there is a poorly developed network of NHS care for allergy sufferers and little government funding for asthma research. The British Society for Allergy and Clinical Immunology, the professional association of allergists in the UK, is working hard to persuade the Department of Health to rectify this, while charitable organizations such as Asthma UK, Allergy UK and The British Lung Foundation campaign to raise awareness.

Fortunately, there is much you can do to help yourself and *Allergy and Asthma Relief* – featuring the Breathe Easy Plan – has some practical solutions that can make an immediate difference. The book tells you how to evaluate the severity of your disorder, what questions to ask doctors and when it is important to seek more specialist advice from an allergist. It explains the causes of asthma and other allergic diseases, discusses which specific allergens might be involved, how changes to lifestyle and environment can help and the different types of medicine available.

Armed with this knowledge, allergy and asthma sufferers can talk more knowledgeably to their doctors and embark on the book's Breathe Easy Plan. The instructions are specific and clear, though some of the changes may be easier than others to implement. It takes a lot of motivation to modify your eating habits, home environment, reactions to stress and attitudes towards taking medicines. But for asthma and allergy sufferers who feel trapped by their disease, a better quality of life is a powerful incentive.

There are no deadlines and while many of the steps are best taken sequentially, readers can accomplish them at their own pace. Sit back, read, learn and enjoy the book. The knowledge it contains is the first step to allergy and asthma relief: the rest is up to you.



Dr Chris Corrigan

PART ONE

The
problem

Is *epidemic* too strong a word to describe the rise of allergies and asthma in our modern world? Probably not. An astounding number of people today struggle with the sneezing, wheezing and discomfort of allergies and asthma. The reasons are complex and conflicting, but also fascinating.





An epidemic in the air

Augustus Caesar. Peter the Great. Ludwig van Beethoven. Charles Dickens. John F. Kennedy. Leonard Bernstein. Liza Minnelli. Paula Radcliffe. All famous people whom you probably never knew were afflicted with asthma, allergies, or both.

Of course, you don't have to be a great leader, a creative genius or a world class athlete to suffer from these disorders; you just need to be human. These days, asthma and allergies are reaching epidemic proportions in the UK and other countries, burdening already overloaded health care systems, putting children's long-term health at risk and costing employers billions in lost work days and productivity.

The diseases themselves are not new. More than 1,000 years ago, the Persian physician Ali Razi wrote 'An Article on the Reason Why Abou Zayd Balkhi Suffers from Rhinitis When Smelling Roses in Spring'. In it, he reported on his philosophy teacher, who complained annually of sinus pain and inflammation 'when the smell of flowers amplifies the illness'. The treatment recommended in those days is unlikely to be considered acceptable now: in cases of severe nasal pressure, Ali Razi wrote, the patient's hair should be cut and his head covered with mustard.

In the early 1800s, London physician John Bostock, who studied his own affliction, provided the first detailed account of seasonal allergies. He coined the phrase 'hay fever' because his condition typically worsened during the hay-making season. At that time the condition was so rare that Bostock wrote, 'I have not heard of a single unequivocal case among the poor.'

Now, of course, the condition is the opposite of rare. Although accurate statistics are hard to come by, professional estimates maintain that allergies and asthma together affect roughly 20 million adults, making them the most common chronic health problems in the UK (high blood pressure is number two). Asthma and other respiratory diseases (including allergic rhinitis, or hay fever) are the most common chronic conditions among children, with asthma alone affecting about 1.1 million children, or one child in every 10.

Given those statistics, the chances are that you or someone you know suffers from the itchy eyes, sneezing, wheezing, runny nose and general misery of allergies or from the choking, can't-get-a-breath suffocation of asthma. That is why you're reading this book. You know how miserable it is to live your life dependent on an inhaler and stuck indoors on beautiful summer days.

What you probably don't know is how simple it is to live a complete and active life even if you have allergies or asthma. That's what this book and our Breathe Easy Plan will show you.

A pervasive problem

Look around you. One in four people in the UK now has an allergy-related problem at some time during their life and the number of allergy sufferers is increasing by almost 5 per cent a year. The figures include those with skin, food, insect and medication allergies as well as respiratory allergies.

Asthma is one of the main reasons that children undergo hospital treatment, with pre-school children three times more likely than older children and six times more likely than adults to be hospitalized.

Asthma-related GP consultations increased almost five-fold between 1976 and 1994. There are now around 74,000 emergency hospital admissions a year due to asthma, a quarter of which are children under the age of four.

asthma by numbers

- Asthma now costs the NHS an average of £890 million per year.
- More than 12.7 million working days are lost to asthma each year.
- Each week 14,500 first or new episodes of asthma are presented to GPs in the UK. Respiratory disease is the most common illness responsible for an emergency admission to hospital.
- Around 1,500 people die from asthma in the UK each year – that's equivalent to more than four a day.

Thirty or forty years ago, few if any hospitals or medical centres employed allergists and far fewer people were admitted to hospital suffering from asthma. Cases of food anaphylaxis (severe, life-threatening allergic reactions to food) were extremely rare; now most casualty departments have admitted patients suffering from anaphylaxis related to food, latex, drugs or insect allergies.

The past five decades have seen a surge in the incidence of all immune-based diseases. For instance, in the UK potentially life-threatening, but previously rare allergies such as peanut allergy, now affect as many as one in 70 children. Atopic dermatitis (itchy rash, or eczema) is the most common skin condition in children aged under 11, with 20 per cent of children now living with the condition compared to just 7 per cent in the 1970s.

According to the Royal College of Physicians, one in three 13 to 14-year-old children report symptoms of asthma, 9 per cent have eczema and 40 per cent have allergic rhinitis. Between 1990 and 2001 in England hospital admission rates for anaphylaxis rose sevenfold and there was a 500 per cent increase in food allergies. Cases of skin rashes (urticaria) doubled and hospital admissions for allergic swelling (angio-oedema) rose by 70 per cent.

As for asthma, a recent survey by the European Commission showed that the UK has the highest rate of asthma in the EU. According to an Asthma UK report in 2005, Wales, with 260,000 asthmatics, is top of the world league.

Top five allergy and asthma myths

1 Some dog breeds, such as Chihuahuas, are better for people with asthma and allergies

REALITY: it's the protein in the pet's saliva, dander and urine that causes allergies, not the hair. Since all dogs have dander, saliva and urine, there are no particular breeds that are better for people with asthma and allergies.

2 Asthma can be cured

REALITY: there is no cure for asthma. However, with the proper diagnosis and treatment, people with asthma can lead normal, active lives with little disturbance to quality of life.

3 Moving to a different area will cure asthma and allergies

REALITY: moving to the coast or an upland area may relieve allergies for a few months but new allergies – to new local plants, for instance – can develop within a short period. Moving house does not offer an escape from allergies and asthma.

4 Children outgrow asthma

REALITY: asthma is a chronic state of hyper-responsiveness. Some children have asthma symptoms that clear up during adolescence, while others worsen, but the tendency towards over-sensitive airways remains. Unfortunately, there is no way to predict a child's clinical progress.

5 Allergies are a harmless problem

REALITY: allergies are serious and should be treated effectively. Left untreated, they may lead to poorer quality of life, including impaired sleep and learning ability and absences from school and work. Untreated allergies may also result in chronic respiratory problems, such as asthma and sinusitis, and skin disorders such as eczema and urticaria (hives). Some allergies, such as those to foods, drugs and insect stings, may even lead to life-threatening anaphylaxis – an allergic reaction affecting major body systems that can be fatal.

Compared with 30 years ago, the weekly incidence of asthma episodes in the UK is now three to four times higher in adults and six times higher in children. Death rates from asthma in the UK have not fallen greatly over the past 20 years and the decline in the death rate appears to be slowing despite medical advances during this time that have improved the management and treatment of asthma.



The worrying thing about this boom in allergies and asthma is that no one really knows why it is happening. There are plenty of theories. Some blame it on genetics, but while genetics play a role in asthma and allergies, our genetic traits change far too slowly to account for such a sudden increase. And some allergic reactions, such as those produced by plants, dyes, metals and chemicals, have no genetic basis. Other theories include:

If airborne waste from car exhausts boosts allergic responses, as Japanese research suggests, the UK's bid to cut emissions could have a very positive effect.

- We are spending more time indoors and are thus exposed to more indoor allergens and air pollutants.
- Our world is too clean, preventing our immune systems from doing their jobs properly (see 'Are we too clean?' on page 18).
- An epidemic increase in obesity rates, coupled with a dramatic drop in fruit and vegetable consumption, is playing havoc with our immune systems.
- Airborne waste materials from fossil fuel combustion (for example, exhaust fumes from cars and other vehicles, or smoke from factories and power plants) could be affecting the mucous membranes in the lungs and nose, boosting allergic responses, Japanese research suggests.
- Complications during pregnancy, particularly those related to the uterus, such as pre-eclampsia, haemorrhage after birth or pre-term contractions, could be resulting in a higher risk of allergies and asthma for the children born of those pregnancies.
- Immune system defects resulting in allergies and asthma are set early in life, probably in the foetal stage, and are locked into one's 'immunological memory', researchers say. In recent years, scientists have mapped several allergy-asthma genes, finding that genes do play a role in determining who will develop asthma but also how severe the disease will be once it develops.

Yet despite decades of research and data, a report issued in March 2002 found that researchers were no closer to understanding the roots of the asthma epidemic than they were when it first began 20 years earlier. They are hampered by the absence of a standardized system for monitoring trends, as well as flawed and inconclusive data.

The very complexity of diseases such as asthma and allergies also makes it difficult to identify a cause or causes. In fact, it's quite likely that there is no single disease called 'asthma' but rather multiple diseases that fall within the realm of asthma, just as there are multiple forms of headache. Also, as with any complex chronic disease, such as heart disease, diabetes or arthritis, there will never be a single cause or only one treatment. Instead, as we learn more about the genetics of individuals, it's likely that treatments will become more individualized.

Defining allergies and asthma

Whether it's a pollen, dust mite or pet dander allergy, a life-threatening food allergy, disfiguring and endlessly itching eczema, or chest-tightening asthma, these are all real diseases, not simply irritating annoyances that will go away if you stop thinking about them. Yet that is how they were once viewed; in the past, some doctors believed that allergies and asthma were conditions of the mind caused by anxiety or even hysteria. Today we know they are the result of biochemical changes involving your immune system, the environment and your genes. We will cover that in more detail in later chapters.

Allergies and asthma are two different diseases but they are often linked, and asthma may have a strong allergic component. The name for the close connection between the two is allergic airway syndrome, or rhinobronchitis. Although allergies may contribute to asthma (about 80 per cent of people with asthma also have allergies, and people with allergies are three times more likely than those without to develop asthma), asthma doesn't cause, or even contribute to, allergies. Often, people with allergies have no symptoms of asthma, but if they are exposed to cold air, exercise or infection, they show significant bronchial 'hyper-responsiveness', or asthma-like symptoms. They don't have asthma per se, but their lungs do have a greater tendency to react to these situations in an asthma-like manner than those of someone who has no allergies.

Researchers suspect several reasons for the close relationship between allergies and asthma.

■ **Similar anatomy** The microscopic anatomy of the tissues in the nose and lungs are almost identical, with very similar cells. Both are exposed to the same allergens and irritants, and they respond similarly.

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How the respiratory system works

While the process of respiration sounds simple – provide your body with oxygen and rid your body of carbon dioxide – it is quite complex. Here are the key elements of the respiratory system and what they do.

We know books

NASAL CAVITY

TRACHEA

This large windpipe is the passageway for all the gases entering and leaving the lungs.

INTERCOSTAL MUSCLES

These muscles connect rib to rib and help to open and close the rib cage when you breathe.



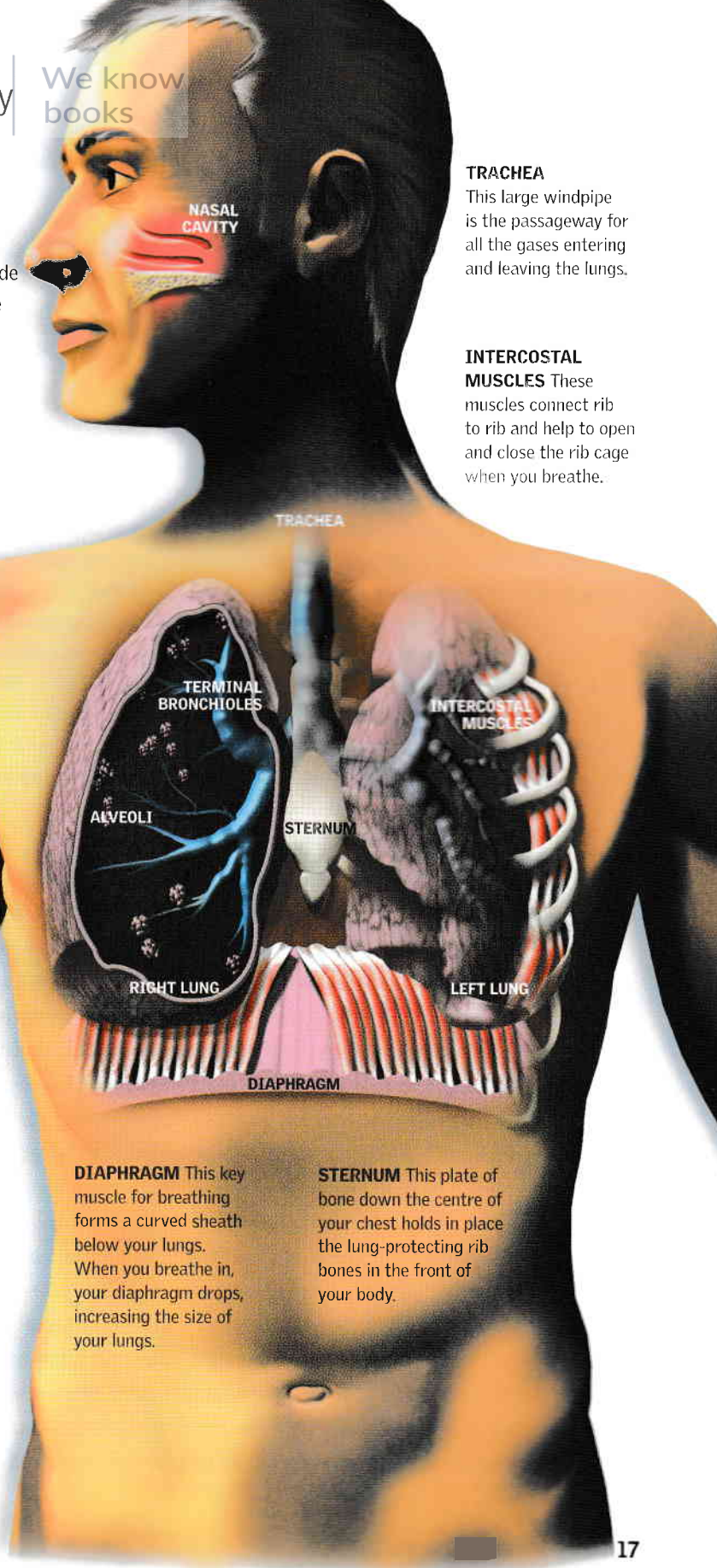
TERMINAL BRONCHIOLES Like the tiny twigs that provide nourishment to the leaves of a giant tree, these ultra-thin branches are the last in a line of bronchial tubes that transport gases to and from the alveoli.



ALVEOLI These clusters of hollow sacs are where oxygen and carbon dioxide are exchanged between the lungs and the bloodstream.



CILIA Millions of these tiny hairs line the respiratory tract. Beating at between 12 and 16 strokes per second, they create waves that move germ-catching mucus up and out of the lungs.



DIAPHRAGM This key muscle for breathing forms a curved sheath below your lungs. When you breathe in, your diaphragm drops, increasing the size of your lungs.

STERNUM This plate of bone down the centre of your chest holds in place the lung-protecting rib bones in the front of your body.

Although no one knows why the incidence of allergies and asthma is skyrocketing, a leading theory holds that our world (at least the Western world) is simply too clean. Some researchers call this the hygiene hypothesis. One researcher, Dr Marc E. Rothenberg PhD, section chief of allergy and clinical immunology at the Children's Hospital Medical Center of Cincinnati, calls it the delinquency theory, based on the notion that the immune system has so little to do that it turns into a kind of physiological juvenile delinquent, itching to get into trouble.

It is a much-studied hypothesis. Since 1997, scientists have published more than 6,000 research reports examining the apparent links between civilized living and allergies and asthma.

The problem stems from the tremendous advances we have made in the past 50 years in combating infectious diseases, parasites and other pathogens. With vaccines eliminating many previously common childhood diseases, antibiotics



vanquishing others, and our enthusiasm for cleanliness (just think about the tremendous explosion in sales of antibacterial wipes, soaps and lotions), a germ doesn't stand a chance.

This means that the immune system is left twiddling its virtual thumbs. Its entire function is to recognize the difference between 'self' and foreign bodies. Self is fine, and some foreign bodies (such as HIV and the common cold virus) are bad. Yet many foreign bodies you come in contact with (such as the hundreds of food proteins you eat and

- **The nasal-bronchial reflex** Nerve fibres originating in the upper airway connect to the lungs, allowing allergic reactions in the nose to cause a reflex in the lungs.
- **Nasal blockage resulting in increased mouth breathing** This, in turn, means that air taken in is not warmed or filtered as it is when it's breathed through the nose, possibly triggering spasms as it moves into the lungs.
- **Postnasal drip of inflammatory material** Inflammatory chemicals commonly found in the noses of people with allergic rhinitis drip into the lungs while they sleep, causing asthma to worsen.

As we said, however, allergies and asthma are two different conditions. So let's start with allergies. Simply put, if you have allergies, you have a hyper-sensitive immune system, one that responds entirely inappropriately to things such as plant pollen, other grasses and weeds, certain foods, latex, insect bites or certain drugs, all of which are known as allergens.

The most common of these allergic conditions is allergic rhinitis, which is an inflammation of mucous membranes that occurs when allergens touch the lining of the nose. Allergic rhinitis is characterized by sneezing, congestion,

the thousands of molecules you breathe in daily) are also fine. The immune system has to learn at an early age how to distinguish the good foreign bodies from the bad, just as a toddler has to learn what 'hot' means. One way in which the immune system does this is through its encounters with endotoxins, molecules that occur naturally in every bacterium's outer envelope and are released into the environment whenever bacteria die.

The fewer endotoxins your immune system encounters in childhood, the less likely it will learn that important distinction. Instead, it may simply start attacking *all* foreign bodies – as well as your own body. The result is diseases ranging from allergies and asthma to autoimmune conditions such as multiple sclerosis and rheumatoid arthritis.

Some evidence supporting this theory can be found in the disparate rates of allergy and asthma within a country. In studies in Europe and the USA people living in rural and farm homes tended to have far less atopy (genetic risk of allergies) and asthma, even though they had much higher

exposure to endotoxins from living near animals. For instance, a study in Basel, Switzerland showed that children of part-time farmers had a 76 per cent higher risk of hay fever and other allergies than those of full-time farmers, suggesting that greater exposure to the farm environment can be more protective. Another study of asthma prevalence in children living on the Pacific atolls of Tokelau and in Tokelauan children living in New Zealand, a more modern environment, found that only 11 per cent of the children living on the atolls had asthma, compared with 25 per cent of Tokelauan children in New Zealand.

Several recent studies showing that children who have pets when they're young are less likely to develop allergies when they're older lends credence to the theory.

Obviously, this doesn't mean you should send your children out to the woods and let them fend for themselves, but maybe you could consider allowing them a pet (see page 45). Remember, a little dirt won't kill them – and it may even help.

itching and dripping of the nose, and itchy, watery eyes. It can be seasonal; this condition affects up to 25 per cent of adults and up to 40 per cent of children in the UK – or it may be perennial, meaning that it never goes away.

Not sure if you have allergies? Well, if you're constantly sneezing, sniffing and clearing your throat, if your head feels stuffed full, if the skin under your eyes looks as if you've been in a brawl, or if the sight of peanuts can make your skin break out in hives, you probably do. Allergies are rarely fatal, and the handful of deaths that occur each year are from food, medication or insect allergies, not from the most common type of allergic rhinitis. You'll learn much more about rhinitis and find a questionnaire to help you to diagnose the condition, in chapter 3.

Asthma, on the other hand, can make you really ill extremely quickly. A chronic – meaning long-term – disease of the pulmonary system, or lungs, it is made worse by that overactive immune system. Symptoms include coughing, wheezing and shortness of breath. During an asthma attack, the airways (bronchial tubes) in your lungs react to some stimulus, or trigger. They become inflamed and produce more mucus than usual. At the same time, the muscles around the airways tighten, making it difficult to breathe. People with asthma