



## PREVENTING RESPIRATORY DISEASE KEEPING THE LUNGS HEALTHY

### Smoking

- Smoking is a significant cause of respiratory disease. It is important to encourage people not to start smoking and to support existing smokers to stop
- Cigarette smoke contains a large number of different substances which can damage the lungs. The smoke has two parts:
  - the particulate phase, tiny portions of solid matter which contain the tar
  - the gas phase which contains carbon monoxide and nitrogen oxides
- These toxic substances are drawn directly into smokers' lungs in mainstream smoke. The filters in most cigarettes reduce the amount of large particles and allow some dilution with air, but let most of the harmful chemicals into the lungs
- The tar content of cigarette smoke damages the cells in the airways of the lung. Eventually this damage can produce cells that grow uncontrollably leading to cancer of the lung or voice box (larynx)
- The body's protective cells detect other harmful substances from the smoke. These cells move to the lung and try to defend it but are destroyed by the cigarette smoke. The dead cells release substances that damage the structure of the lung, leading to chronic bronchitis and emphysema or COPD (Chronic Obstructive Pulmonary Disease)

### Passive smoking

- Inhaling other people's second-hand smoke poses a risk to the lungs of people of all ages. In the UK it is estimated that 17,000 under five-year olds are hospitalized each year as a result of passive smoking and that 1000 people die every year from exposure to other people's tobacco smoke
- A non-smoker living or working in a very smoky environment over a prolonged period is a third more likely to develop lung cancer than a non-smoker who does not live or work with a smoker
- Avoid sharing confined spaces such as cars, homes or offices with a smoker, and by sitting in non-smoking areas in pubs and restaurants where possible

### Environment and pollution

#### Be aware of outdoor air pollution

- Power stations, factories, offices, traffic fumes and dust all help pollute the air we breathe and can irritate and damage the lungs when inhaled. Motor vehicles are a major source of air pollution, both in towns and in the country

- Protect the lungs by limiting exposure to harmful pollutants to the least time possible - for example cyclists or couriers should wear a mask
- Avoid areas of high pollution in hot weather - in summer, pollution levels are higher when there is more sunlight to interact with a mixture of pollutants, especially on still days where there is insufficient wind to disperse them. The interactions between sunlight and pollutants and between different pollutants may produce more harmful substances such as ozone or oxides of nitrogen. Pollutants may also be deposited on the surface of the particulates and be carried into the lung that way
- People with lung disease, children and the elderly are particularly at risk from outdoor pollution and should take extra care, particularly during hot weather

#### Avoid indoor air pollutants

- Tobacco smoke - The smoke inhaled from another person's cigarette or pipe contains a number of pollutants including carbon monoxide, formaldehyde and other gases and particles, some of which cause cancer. No non-smoker should be expected to work in a room where others are smoking. Parents should take care to avoid exposing babies and children to secondhand tobacco smoke. The risks of developing wheezing, asthma, influenza and breathing difficulties are increased for babies who inhale smoke passively
- Animal dusts - The minute particles of fur and skin from household pets are a major cause of allergy in some people. The most effective solution is not to keep pets in the home. Alternatively, regular and thorough vacuuming can reduce levels of animal dusts. It is important to keep animals out of bedrooms
- Mould, mildew and bacteria - These may come from improperly cleaned air conditioners or from a source of damp in the building. It is important to ensure that rooms such as bathrooms and kitchens are well ventilated to prevent condensation causing mildew
- Formaldehyde gas - This can be released by some adhesives, carpets, upholstery fabrics and ply and particle board used in building. If it is not possible to remove a source of formaldehyde gas, it should be covered and the area well ventilated
- Cooking and heating appliances - Heaters and stoves fuelled by gas or propane can produce harmful amounts of nitrogen dioxide and/or carbon monoxide if they are not properly installed and vented. All appliances should be professionally installed and have a vent to the outside
- House dust mites - House dust mites are found in every home, mainly in bedding. Where the atmosphere is warm and moist, it is virtually impossible to eradicate them as they breed very fast. Some relief can be gained from the frequent washing of bedding, or from using mattress and pillow coverings through which the mites cannot pass. Putting fluffy toys in a polythene bag in the freezer for about half an hour will usually kill off house mites on them.
- Toxic chemicals - Some household products such as cleaning agents, pesticides, personal care products, paints and solvents can cause dizziness, nausea, allergic reactions and respiratory tract infections. All of these products should be used in well ventilated areas and disposed of carefully

- Asbestos - Asbestos fibres can cause several different lung diseases. Pipe, tank and boiler lagging which is more than about 25 years old may contain asbestos. If it is crumbling or in poor repair, it may create a hazard and should be removed by specialists. Asbestos may also be incorporated in roofing, flooring and insulation. If it is in good condition and sealed, the risks of removing it are greater than the (almost zero) risk of leaving it in place - but it should not be drilled, sawn or sanded

#### Take care during hot or cold weather

- Excessive heat exacerbates many respiratory conditions, including asthma and COPD
- People living with a lung disease should try to stay as cool as possible during the hot weather and drink plenty of water
- Admissions to hospital for COPD increase after a cold snap
- During cold weather people living with a lung disease should keep their house warm (21 degrees centigrade in lounge, 18 degrees centigrade in bedroom) and the bedroom windows closed. It is important to monitor symptoms of the condition and report any deterioration to the GP or health professional

## Lifestyle

### Diet

- What we eat and drink can affect our health - and this includes our lungs. People should eat sensibly, monitor their weight and ensure they take regular exercise, even if it is only a brisk walk for 20 minutes a day
- If a person is overweight, their heart and lungs have to work much harder to supply oxygen to the body. Increased weight limits the ability of the lungs to expand, resulting in an increase in the work of breathing
- Excess weight also results in poor lung expansion and poor lung clearance leading to atelectasis (postural lung collapse) at the bases of the lungs, causing the lungs to be less effective
- Some researchers have found a connection between the diet of a pregnant woman and her baby's chances of developing wheezing, allergy and asthma. A maternal diet low in vitamins gives the baby little protection against sensitisation to allergens, a frequent cause of lung problems. Research in Scotland and Saudi Arabia showed a similar link between asthma and a low-vitamin diet
- People with lung disease may experience loss of appetite when they are feeling unwell, if they are producing a lot of mucus or when they are feeling breathless. At these times it is important that people maintain a healthy diet, and particularly to continue to take their medication with food so as to avoid a stomach upset
- When people with lung disease are unwell or feeling breathless, they will take less exercise which will result in a weakening of their muscles. Again a well balanced diet is needed with more high protein foods such as meat, fish, poultry and dairy products

- A full stomach will put pressure on the diaphragm, which can cause discomfort and lead to breathlessness. Gas-forming foods such as sprouts, cabbage, beans, beer and sweets can also have this effect. People with lung disease may find it easier to eat 6-8 small meals a day as opposed to two or three large ones. It will also help to eat meals slowly and in a relaxed atmosphere
- It is also advisable for people with respiratory conditions to eat their main meal early in the day as this will provide energy throughout the day and avoids trying to sleep on a full stomach.
- People with lung disease often produce secretions/mucus which they need to cough-up. It is important to drink enough to loosen mucus and keep it thin and easy to cough up. If a person with lung disease does not drink enough, their secretions will be thick and sticky and their chances of an infection will be increased. At least four pints of liquid should be consumed a day, preferably water. This will also help with digesting food and avoiding constipation. During an infection and during hot weather, people with respiratory disease should increase their fluid intake

### Exercise

- As a person moves, muscles need more oxygen. The diaphragm and muscles between the ribs then shorten and relax more frequently, causing the person to take more breaths. More oxygen is then absorbed from the lungs into the blood stream where it is carried to the muscles
- Muscles need more oxygen during exercise to break down glucose from food to turn it into energy
- Athletes train so that their lungs and muscles become more efficient, this means that their muscles can work harder. Everyone can benefit from exercise to strengthen their lungs and muscles
- People with long-term lung problems such as COPD (Chronic obstructive pulmonary disease) may find their lungs are unable to provide enough oxygen for their muscles to perform even simple activities
- Through exercise a person can train his/her body so that more oxygen is delivered to the muscles
- Unfortunately, many people with long-term lung problems are afraid to exercise. This is partly because they are worried that being breathless may be harming them. This is incorrect. By gradually building up the exercise they do, a person can improve his/her breathing and feel better
- Pulmonary rehabilitation is designed to help people with a serious lung conditions, particularly COPD, cope with breathlessness and feel stronger and fitter. Trained health professionals, physiotherapists, nurses, occupational therapists, doctors etc teach patients how to increase their activity carefully, cope with breathlessness and manage their condition
- A typical pulmonary rehabilitation course includes a gentle physical exercise programme, carefully tailored to each individual, advice on lung health and coping with breathlessness and a friendly, supportive atmosphere

## Avoid infections

- People with lung disease should avoid infections as they can further damage the lungs. People living with lung disease should act quickly if they think they are getting a chest infection so if treatment is necessary it can be started early
- Parents should be aware of simple steps that can help protect their baby's lungs and significantly reduce the risk of them developing respiratory illness in later life
  - Disposing of used tissues promptly: viruses are proven to grow and live on used tissues
  - Keeping siblings with cold symptoms away from your baby: brothers and sisters with suspected colds and flu should not have direct contact
  - Washing your toys regularly: viruses including respiratory syncytial virus (RSV), which can be very serious in children under the age of two, can live from four to seven hours on a contaminated surface

## Travel

- Infectious diseases have always been a risk for the traveller. A new respiratory disease called SARS (Severe Acute Respiratory Syndrome) infected more than 8,500 people worldwide in 2003 and led to 800 deaths in a few weeks. Follow the advice of the Foreign Office about any outbreaks of respiratory conditions such as SARS
- Tuberculosis can be contracted by visits abroad to developing countries, particularly Asia, South America and Africa. Travellers should ensure where possible that they have received the BCG vaccination either as a baby or during secondary school
- Deep vein thrombosis (DVT) from long haul travel occurs when a blood clot develops in the legs as a result of inactivity and dehydration, exacerbated by alcohol consumption. The clot may then travel to the lungs - this is a pulmonary embolism. Stay active when on a flight by walking about, moving the feet when seated, drinking plenty of water and wearing special support socks which encourage circulation in the legs

The British Lung Foundation has invested about £2 million looking into various aspects of impact of lifestyle on lung health.

For further information, please contact:  
British Lung Foundation  
Telephone: 020 7688 5555  
Email: [parliamentary@blf-uk.org](mailto:parliamentary@blf-uk.org)