

## What is Aspergillus?

*Aspergillus* is a common mould (a fungus). It is made up of narrow threads called hyphae. Hyphae grow and develop branches, to form a mesh called the mycelium. The mycelium develops structures called spores, which contain cells that can reproduce. These spores are so tiny that they are dispersed by the slightest draught, and normally cannot be seen. The fungi require dead organic matter for food and a damp environment to grow. They commonly grow on fallen leaves, compost heaps, air conditioning units, household dust, animal hairs and in damp housing. *Aspergillus* is found all over the world. There are many different species of *Aspergillus*, only some of which are associated with human disease.

## Allergic Bronchopulmonary Aspergillosis (ABPA)

The small spores produced by the *Aspergillus* fungus can be easily inhaled into the lungs. *Aspergillus*, in particular *Aspergillus fumigatus*, can 'live' in the lungs of some people to cause allergic bronchopulmonary aspergillosis (ABPA). The body reacts to the *Aspergillus* by producing a long term allergic reaction and inflammation.

ABPA occurs when the fungal hyphae & spores colonise the alveoli (air sacs) deep in the lungs. The hyphae & spores evade the immune mechanisms normally used by the lungs to clear foreign organisms, so they can persist and cause an inflammatory response by cells called eosinophils. Normally these cells arrive quickly and then disappear once the infection is cleared up, but in ABPA the infection doesn't clear up. This damages the airways, causing difficulty in breathing, cough, wheeze and fever.

Diagnosis of ABPA is made with blood tests, sputum tests, chest x-ray and CT scan.

A bronchoscopy may also be carried out. Once diagnosed, treatment is usually with antifungal drugs and steroids. Unfortunately at the moment there is no cure, and sufferers can sometimes develop complications.

A guide to

## Complications of Allergic Bronchopulmonary Aspergillosis (ABPA): Bronchiectasis and Bacterial super-infections



Pseudomonas bacterium



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## DISCLAIMER

Nothing contained in this leaflet is intended to be any form of medical advice and must not be taken or relied upon, as such.

Individuals must seek all such advice personally in relation to their particular circumstances.

**Medical knowledge and opinion varies according to the extent and availability of research and differing assessments of such research by different practitioners. Whilst the information contained in this leaflet has been compiled by the Fungal Research Trust from sources believed to be reliable, the Trust cannot guarantee the accuracy or completeness of such information and cannot accept any responsibility for any use of such information.**



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## Who gets ABPA?

ABPA was first recognised in the United Kingdom in 1952. Not everyone exposed to *Aspergillus* develops the disease. Those who are susceptible to ABPA are mainly people with asthma and cystic fibrosis.

1-2% of adults with asthma develop ABPA and 10-15% of patients with cystic fibrosis develop ABPA.

Other people at risk include those who have a tendency to develop allergies, and those who are frequently exposed to *Aspergillus*, such as farm workers.

## Complications

Once you have been diagnosed with ABPA you are likely to be treated by your GP and a specialist in the hospital. The damage to your airways (bronchiectasis) and the use of steroids suppress your immune system and increase the likelihood of developing bacterial infections like *Pseudomonas*, *Klebsiella* and *MRSA*.

## Bronchiectasis

Damage to your airways (bronchi) includes widening and thickening of the wall. It develops gradually and results in airways that are permanently dilated and scarred. It can occur in patients with chronic obstructive pulmonary disease (COPD), asthma or cystic fibrosis

Symptoms to look out for are; chronic productive cough, sputum may be difficult to clear, shortness of breath, chest pain, sometimes fever and wheeze. Occasionally people may cough up blood; if this happens you must let your doctor know.

## Bacterial Infections

These include *Pseudomonas* and *Klebsiella*. The signs and symptoms of these are similar to those of bronchiectasis but develop over a shorter period of time. It is important to be aware of these e.g feeling unwell, weakness, increase in breathlessness and cough, worsening chest pain, high temperature and a change in sputum colour and amount. You should contact your doctor if you develop signs of infection; they will

normally want to test a sputum sample to find out what is causing the infection and the best way to treat it. Several antibiotics are available for treatment, some oral and some that will need to be given in hospital as they can only be given intravenously (via a drip in your arm)

## How is ABPA treated?

Good management of your asthma/COPD is important. Treatment also includes chest physiotherapy to help clear the mucus, antibiotics, bronchodilators (to open your airways), steroids, immunisation against other infections such as influenza and pneumococcus and advice to stop smoking. The antifungal drug (Itraconazole) is also given. This is taken twice a day for at least 6 months and can be taken for several years. Antifungal drugs are not suitable for everybody and can cause side-effects e.g stomach upsets and can irritate your liver. Regular blood tests are needed to monitor your liver and the anti-fungal drug levels. Doing your best to avoid fungi and reduce your exposure to areas with lots of fungal spores is also important.

Antifungal nebulisers (amphotericin) may be used if you cannot tolerate itraconazole. This is given under supervision of the physiotherapist at the hospital initially as it can make you wheezy.

If the condition has progressed too far, a lung transplant may sometimes be considered.

## Useful websites

<http://www.aspergillus.org.uk>

The Aspergillus Website

<http://www.nacpatients.org.uk>

A site developed for patients.

[uk.groups.yahoo.com/group/AspergillusSupport](http://uk.groups.yahoo.com/group/AspergillusSupport)

An email discussion group for sufferers.

[www.fungalinfectiontrust.org](http://www.fungalinfectiontrust.org)

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[www.nationalaspergillosiscentre.org.uk](http://www.nationalaspergillosiscentre.org.uk)

National Aspergillosis Centre

Thanks go to Suchitra Chinthapalli of Imperial College Medical School, London, for drafting this leaflet for the Aspergillus Trust.

The Aspergillus Trust merged with the Fungal Research Trust in 2008. It now forms the patient's arm of the Fungal Research Trust ([www.fungalinfectiontrust.org](http://www.fungalinfectiontrust.org)).

The Fungal Infection Trust is one of the UK's most consistent providers of funds for fungal research, in particular Aspergillosis. Since 1990 it has raised and distributed over £3.75 million and as a direct result over 180 scientific papers have been written, each one representing a step towards finding better diagnosis or treatment for fungal diseases.

The Fungal Infection Trust also funds the Aspergillus website, the Aspergillosis Patients website, the Aspergillus Patient Community and other support materials such as this leaflet (one of a set of nine at the last count).

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