

Air pollution increases the risk of allergies and asthma

March 14 2017, by Johannes Angerer

This year, the pollen season started later but more abruptly, which caused greater problems in some cases. At a press conference of MedUni Vienna's Pollen Monitoring Service, allergy experts, together with the IGAV (special interest group for allergen prevention) information platform, presented a forecast of this year's pollen count and unveiled a new service that is the only one of its kind in the world: you can now use the popular Pollen App to call up a 3-day forecast for environmental pollutants, which have an impact upon the development of allergic conditions. You can then combine the pollution level with the current pollen count in the air to find the allergy risk. This service is the only one of its kind in the world and is testament to the innovative capability of the Austrian research and service facility at MedUni Vienna's Department of Ear, Nose and Throat Diseases.

Because we have had a cold January, this year's pollen season started approximately three weeks later than usual. "However, the unusually mild temperatures in February then meant that alder and hazel suddenly started to flower quite vigorously. Many allergy sufferers therefore experienced a particularly difficult start to the pollen season," reports Katharina Bastl of the Austrian Pollen Monitoring Service at MedUni Vienna. According to the forecast, ash trees will start to flower in the next few days, perhaps more prolifically this year; birch trees are expected to flower towards the end of March, depending upon how the weather develops, probably less vigorously than last year. The release of [grass pollen](#) will depend upon the weather conditions in April and ragweed will mark the end of the season in the autumn. Pollen allergy

sufferers can then have a breather before the winter-resistant Moreton Bay alder starts to release its pollen onto the wind towards Christmas time. "Those people who are allergic to several different plants will hardly have any break," says the MedUni Vienna biologist.

Climate change and environmental pollution impact pollen and allergy sufferers

One factor behind changes in the pollen season is global climate change. But greenhouse gases and air pollution affect pollen and people alike. "It is now generally accepted that, alongside genetic factors, environmental influences also play a major role," says basic researcher Claudia Traidl-Hoffmann, Professor and Institute Director of the Chair and Institute of Environmental Medicine (UNIKA-T), Technical University of Munich (TUM) and Helmholtz Center Munich (HMGU) and senior doctor at the Environmental Medicine outpatient department of Augsburg Hospital. "Firstly, plants develop defence mechanisms and form more allergens designed to guarantee survival of the plants. Secondly, irritant gases such as ozone, nitrogen dioxide and sulphur dioxide have a direct impact upon the body. They damage mucous membranes in the respiratory tract, making them more susceptible to inhaled allergens, which can then have a much more direct impact. The immune system responds much more violently."

Air pollution is now part of the Pollen App

Based on its own research and on findings from internationally recognised research institutes, such as the Institute for Environmental Medicine in Munich, the Austrian Pollen Monitoring Service has created a new service. "From the start of this year's [pollen season](#) it is now possible to call up the fine dust burden, ozone level, nitrogen and sulphur dioxide concentrations in the air for a 3-day period on the Pollen App. If

you combine the pollution level with the current pollen count in the air, that gives you the allergy risk," says the Head of the Pollen Monitoring Service, Uwe E. Berger, outlining the new service. Thus, in addition to their own personalised pollen forecast, allergy sufferers will now be able to see what impact the major airborne particles could have on their health. This service is the only one of its kind in the world and, in a first phase, is being made available to Austria, Germany, Switzerland and Sweden and then gradually rolled out to other countries in collaboration with their respective [pollen](#) monitoring services.

Polluted air increases asthma risk

Airborne pollutants promote allergic diseases and increase the risk of asthma. Children are particularly at risk. "Some fine dust particles are so small that they can find their way deep into the lungs, where they irritate the airways and cause inflammation. The greater their concentration, the greater the risk to health," explains Felix Wantke, Head of the Florisdorf Allergy Center in Vienna, offering an example that has been confirmed by several studies: "If you live on a street where there is heavy traffic, you can expect a higher incidence of respiratory tract problems."

The most effective method of avoiding asthma symptoms, but sadly one that is not always realistic, is to minimise your exposure to the factors that trigger them. The Austrian Pollen Monitoring Service can provide valuable help with this. Specific immunotherapy (SIT, allergy vaccination) is the only method of treatment that has any real potential for thwarting or preventing asthma.

Provided by Medical University of Vienna

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