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Introduction: Pollen allergy has become a widespread disease by the end of the 20th century. The frequency of registered allergic illnesses has doubled and the number of cases of allergic asthma has become four times higher in Southern Hungary by the late 1990s over the last 40 years. The aim of the study is to detect sub-periods, i.e. “breaks”, in data sets of daily pollen concentration averages, which differ significantly from the means of the entire data sets. As a result of this, periods of highest pollen related health risk are indicated.

Methods: The database consists of daily mean pollen counts of 24 species from the five-year period between 1997 – 2001 for the pollination term between 1 February – 31 October. Calculations were performed only for the Main Pollination Periods. The applied statistical test is the Makra-test, which is considered as a new interpretation of the two-sample test. The basic question of this test is whether or not a significant difference can be found between the averages of an arbitrary sub-sample of a given data set, and the whole sample. Detection of the significant breaks was performed by the Monte Carlo method.

Results: Sub-periods of the pollen count data sets for the 24 species, averages of which are significantly higher than the means of the whole data sets are uniformly distributed in the pollination term. Periods characterized by the highest pollen loads simultaneously at least by three species are the terms 25-26 March, 27-28 April, 6-8 June and 21-27 August, respectively. Poaceae, which have the longest pollination period, show both the longest significant positive (41 days) and negative breaks (80 days), respectively. Average negative breaks are substantially longer (20.2 days) than the positive ones (14.7 days).

Discussion and Conclusions: Though the pollination period is considered to last from 1 February until 31 October, the significant positive breaks of the species are limited for the term of March – August. The most significant pollen loads that coincide at least for three species, are short. Among them 21-27 August is considered the period of most health risk in Szeged. The shorter average positive breaks are explained by their extremely high pollen release compared to that of the beginning and the end of the pollination term. Significant positive breaks are not the only parameter determining periods of highest health risk. Average pollen grain concentrations and pollen aggressivity are also important factors that need to be taken into account.