

**IMPACT OF INTERNAL AND EXTERNAL FACTORS ON EBC-PH AND FENO CHANGES IN HUMANS FOLLOWING CHALLENGE WITH ETHYL ACRYLATE**

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Acute effects of ethyl acrylate exposure at 5 ppm for 4 hours include changes of pH in exhaled breath condensate (EBC-pH) and exhaled nitric oxide (FeNO). So far, few data have been reported for atopic persons or the impact of the exposure conditions on biomarkers e.g. constant versus variable application of irritants.

Nine atopic and eighteen healthy volunteers without bronchial hyperresponsiveness were exposed for 4 hours to ethyl acrylate concentrations of 0.05 ppm (sham), 5 ppm (constant concentration) and 0 to 10 ppm (variable, mean concentration of 5 ppm) in an exposure chamber. A positive atopic status was defined according to specific IgE concentrations to common inhalant allergens ( $sx1 \geq 0.35$  kU/L). Biomarker levels were assessed before and after challenge and adjusted for levels after sham exposure (net response).

Ethyl acrylate at a constant but not at variable concentration induced a significant change in the net response of EBC-pH and FeNO, respectively. The changes of biomarker levels were related to their baseline values. Concerning FeNO, this could be observed only for atopic persons.

Biomarker responses to challenge with ethyl acrylate may be influenced by the patterns of application as well as baseline airway inflammation and atopic status of the volunteers.