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**Title:** Exhaled nitrogen oxide (FeNO) and nasal patency in adults in relation to levels of airborne fungal DNA in dwellings in Lund, Sweden

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**Body:** Background: Questionnaire studies have reported associations between indoor moulds and dampness, asthma and rhinitis. We investigated if levels of fungal DNA in dwellings were associated with nasal patency, tear film stability, and levels of exhaled NO. Methods: Totally 49 adults from 42 homes, randomly selected from a larger population survey in the city of Lund, Scania, Sweden. Exhaled NO was measured by NIOX MINO (50 ml/min). Nasal patency was measured by acoustic rhinometry. Tear film break up time (BUT) was monitored as a sign of eye irritation. FeNO was log-transformed and associations were analysed by multiple linear regression, adjusting for age, gender, pollen/furry pet allergy and smoking. Fungal DNA in airborne settled dust was measured in the living room for one week by Petri dish method and levels of five fungal DNA-sequences were analysed by QPCR. Results: Three types of fungal DNA was commonly found in the homes. Exhaled NO was higher at higher concentrations of total fungal DNA ( $p=0.04$ ). Mean cross-sectional area in the front part of the nasal cavity was decreased at higher levels of *Aspergillus/Penicillium* DNA ( $p=0.05$ ), and posterior cross-sectional area was decreased at higher levels of *Aspergillus versicolor* DNA ( $p=0.05$ ). No associations were found between BUT and fungal DNA. Conclusion: Fungal DNA in settled dust in random selected ordinary homes can be a risk factor for nasal inflammation, measured as decreased nasal patency, and lower airway inflammation measured as exhaled NO.