

Featured Research Studies

Low home ventilation rate in combination with moldy odor from the building structure increase the risk for allergic symptoms in children.

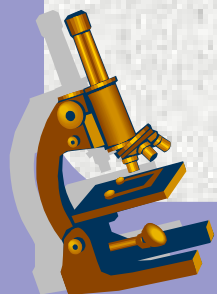
Hägerhed-Engman L, Sigsgaard T, Samuelson I, Sundell J, Janson S, Bornehag CG.
Indoor Air. 2009 Jun;19(3):184-92. Epub 2009 Mar 9.

Department of Building Physics and Indoor Environment, SP Technical Research Institute of Sweden, Borås, Sweden. linda.hagerhed-engman@sp.se

There are consistent findings on associations between asthma and allergy symptoms and residential mold and moisture. However, definitions of 'dampness' in studies are diverse because of differences in climate and building construction. Few studies have estimated mold problems inside the building structure by odor assessments. In a nested case-control study of 400 Swedish children, observations and measurements were performed in their homes by inspectors, and the children were examined by physicians for diagnoses of asthma, eczema, and rhinitis. In conclusion, we found an association between moldy odor along the skirting board and allergic symptoms among children, mainly rhinitis. No associations with any of the allergic symptoms were found for discoloured stains, 'floor dampness' or a general mold odor in the room. A moldy odor along the skirting board can be a proxy for hidden moisture problem inside the outer wall construction or in the foundation construction. There are indications that such dampness problems increase the risk for sensitization but the interpretation of data in respect of sensitization is difficult as about 80% of the children with rhinitis were sensitized. Furthermore, low ventilation rate in combination with moldy odor along the skirting board further increased the risk for three out of four studied outcomes, indicating that the ventilation rate is an effect modifier for indoor pollutants.

PRACTICAL IMPLICATIONS: This study showed that mold odor at the skirting board level is strongly associated with allergic symptoms among children. Such odor at that specific place can be seen as a proxy for some kind of hidden moisture or mold problem in the building structure, such as the foundation or wooden ground beam. In houses with odor along the skirting board, dismantling of the structure is required for an investigation of possible moisture damage, measurements, and choice of actions. In homes with low ventilation in combination with mold odor along the skirting board, there was even a higher risk of health effects. This emphasizes the need for the appropriate remediation as this is an ever increasing problem in poorly ventilated houses that are damp.

PMID: 19298228 [PubMed - indexed for MEDLINE]



Elevated insular glutamate in fibromyalgia is associated with experimental pain.

Arthritis Rheum. 2009 Sep 29;60(10):3146-3152.

Harris RE, Sundgren PC, Craig AD, Kirshenbaum E, Sen A, Napadow V, Clauw DJ.
University of Michigan, Ann Arbor.

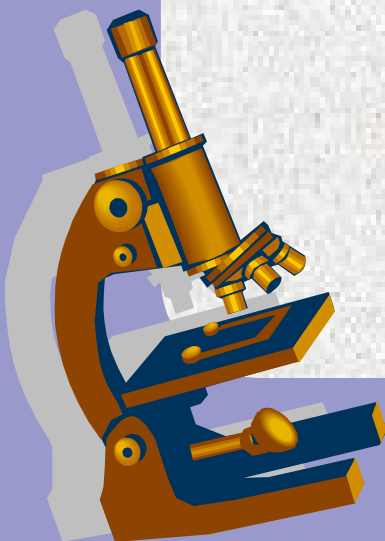
OBJECTIVE: Central pain augmentation resulting from enhanced excitatory and/or decreased inhibitory neurotransmission is a proposed mechanism underlying the pathophysiology of functional pain syndromes such as fibromyalgia (FM). Multiple functional magnetic resonance imaging studies implicate the insula as a region of heightened neuronal activity in this condition. Since glutamate (Glu) is a major cortical excitatory neurotransmitter that functions in pain neurotransmission, we undertook this study to test our hypothesis that increased levels of insular Glu would be present in FM patients and that the concentration of this molecule would be correlated with pain report.

METHODS: Nineteen FM patients and 14 age- and sex-matched pain-free controls underwent pressure pain testing and a proton magnetic resonance spectroscopy session in which the right anterior insula and right posterior insula were examined at rest.

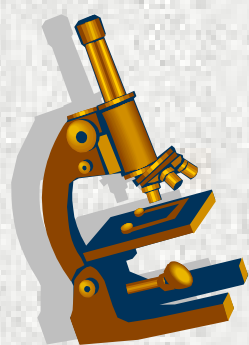
RESULTS: Compared with healthy controls, FM patients had significantly higher levels of Glu (mean \pm SD 8.09 \pm 0.72 arbitrary institutional units versus 6.86 \pm 1.29 arbitrary institutional units; $P = 0.009$) and combined glutamine and Glu (i.e., Glx) (mean \pm SD 12.38 \pm 0.94 arbitrary institutional units versus 10.59 \pm 1.48 arbitrary institutional units; $P = 0.001$) within the right posterior insula. No significant differences between groups were detected in any of the other major metabolites within this region ($P > 0.05$ for all comparisons), and no group differences were detected for any metabolite within the right anterior insula ($P > 0.11$ for all comparisons). Within the right posterior insula, higher levels of Glu and Glx were associated with lower pressure pain thresholds across both groups for medium pain (for Glu, $r = -0.43$, $P = 0.012$; for Glx, $r = -0.50$, $P = 0.003$).

CONCLUSION: Enhanced glutamatergic neurotransmission resulting from higher concentrations of Glu within the posterior insula may play a role in the pathophysiology of FM and other central pain augmentation syndromes.

PMID: 19790053 [PubMed - as supplied by publisher]



Quantitative volatile metabolite profiling of common indoor fungi: relevancy for indoor air analysis.



Schuchardt S, Kruse H.
J Basic Microbiol. 2009 Aug;49(4):350-62.

Institute of Toxicology and Pharmacology for Natural Scientists, University Medical School Schleswig-Holstein, Kiel, Germany.
sven.schuchardt@item.fraunhofer.de

Microorganisms such as bacteria and molds produce an enormous variety of volatile metabolites. To determine whether typical microbial volatile metabolites can be used as indicator compounds for the detection of hidden mold in indoor environments, we examined 14 typical indoor fungal strains for their growth rates and their capability to produce volatile organic compounds (VOC) on standard clinical media and on agar medium made from building materials. Air samples from Headspace Chambers (HSC) were adsorbed daily on Tenax TA tubes and analyzed by thermal desorption gas chromatography and mass spectrometry. In parallel, metabolic activity was measured by determining oxygen demand, the microbial biomass was assessed by dry weighing. Profiling of the volatile metabolites showed that VOC production depended greatly on fungal strain, culture medium, biological activity, and time. The laboratory-derived maximum emission rates were extrapolated to approximate indoor air concentrations in a hypothetical mold-infested room. The extrapolated indoor air data suggest that most of the microbial-produced VOC concentrations were below the analytical detection limit for conventional indoor air analysis. Additionally, conducted indoor air analysis in mold homes confirmed these findings for the most part. The present findings raise doubts about the utility of indicator VOC for the detection of hidden mold growth in indoor environments. 2009 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

PMID: 19219900 [PubMed - indexed for MEDLINE]

This newsletter is for informational purposes and is not intended to replace the examination, diagnosis and treatment of a licensed physician and no such claims are inferred. Articles are not necessarily the opinion of MCS America and printing of others' opinions does not constitute endorsement. MCS America, Lourdes Salvador, Directors, and associate members of MCS America will not be responsible for misuse of this information. We welcome appropriate submissions for articles, letters-to-the-editor, poetry, artwork, jokes, cartoons, photos, and whatever else is physically printable. Submissions may be sent to publisher@mcs-america.org. We attempt to publish monthly.



Contact Us: admin@mcs-america.org

To subscribe to this free newsletter, send an email to: subscriptions@mcs-america.org