

Indoor molds and asthma in adults

The [original paper](#) contains 8 sections, with 10 passages identified by our machine learning algorithms as central to this paper.

Paper Summary

SUMMARY PASSAGE 1

Cross-Sectional Studies In Adults: Home Exposure

The first studies on indoor mold and dampness problems and asthma or wheezing including adults focused on home exposure and were reported from the United Kingdom and the Netherlands in the late 1980s (Hyndman, 1990;Martin et al., 1987;Platt et al., 1989;Waegemaekers et al., 1989). These studies had small sample sizes, and the results were sometimes inconclusive, but two studies suggested an increased risk of asthma in relation to reported visible mold or dampness (Hyndman, 1990;Waegemaekers et al., 1989). Since then several cross-sectional studies focusing on home exposures in adults have been reported.

SUMMARY PASSAGE 2

Prevalent Case-Control Studies In Adults: Home Exposure

The other Swedish study made an attempt to ensure a meaningful temporal relation between the mold exposure and the onset of asthma by retrospectively assessing exposures that had taken place the year asthma was diagnosed or before it (Thorn et al., 2001). Only asthmatics diagnosed during the period 1980-94 were included to reduce potential recall bias because of the long recall period. The OR of asthma related to visible mold was 2.2 and to dampness problems was 1.3 in this study.

SUMMARY PASSAGE 3

Cross-Sectional Studies In Adults: Workplace Exposure

Only a few studies have evaluated the relations between workplace exposure to indoor mold and dampness problems and asthma or asthma-like symptoms. The first ones were reported in the mid-1990s and investigated asthma-like symptoms, including wheezing, as the outcome of interest (Li et al., 1997;Ruotsalainen et al., 1995). These are summarized in Table III.

SUMMARY PASSAGE 4

Incident Case-Control Study In Adults: Workplace Exposure

Table VII presents the ORs of asthma in relation to different dampness and mold exposure indicators adjusted for potential confounders. Occurrence of visible mold and/or mold odor in the workplace was related to a significant increase in the risk of asthma with an OR of 1.54, while dampness problems alone did not increase the risk of asthma. None of the exposure indicators at home were related to increased risk of asthma.

SUMMARY PASSAGE 5

Workplace Exposure

Surprisingly few studies have evaluated the effects of repair measures of dampness or mold problems on symptoms and signs of asthma in adult populations. A study from Sweden investigated 14 daycare center nurses before and 2 years after renovation of indoor mold problems in their workplace (Rylander, 1997). Cultures of microbes had demonstrated growth of *Penicillium*, *Aspergillus*, and *Actinomycetes* on the surfaces and in the insulation material.

SUMMARY PASSAGE 6

A. Exposure Assessment

Thus assessment of exposure at any one point in time may not reflect precisely the exposure conditions at the time of induction of the disease. Another difficulty is related to the fact that, at the moment, it is not well known what mold species are most relevant to the health effects or what components or products of fungi are responsible for development of asthma. With questionnaires, past exposures can be characterized, but it is not possible to get more detailed information about species retrospectively.

SUMMARY PASSAGE 7

B. Study Design And Assessment Of Asthma

After the onset of asthma it becomes difficult to separate the effects of past and current exposure on the causation on one hand and on the severity of the symptoms and signs of asthma on the other hand. This is true particularly in the case of exposures, such as mold, which are likely to influence both etiology of asthma and symptoms after the onset of asthma. All of the studies on adult populations published before our incident case-control study were cross-sectional or prevalent case-control studies in design, so they were not able to separate potential effects of dampness and mold-related exposures on development of new asthma from aggravation of asthmatic symptoms among those with an already established disease.

SUMMARY PASSAGE 8

C. Confounding

In studies of the relation between exposure to dampness and mold problems and the risk of asthma, any determinant of asthma is a potential confounder. A potential confounder will cause confounding (i.e., becomes an actual confounder) when it is associated with exposure to dampness and molds. A large number of indoor environmental factors—such as ETS (Jaakkola et al., 2003b), pets (Jaakkola et al., 2002), chemical emissions from materials, and INDOOR MOLDS AND ASTHMA IN ADULTS occupational exposures (Jaakkola et al., 2003c)—may increase the risk of asthma in adulthood and at the same time be associated with dampness problems.

SUMMARY PASSAGE 9

Vii. Conclusions

There is increasing evidence that indoor molds increase the severity of an existing asthma. 5. There is some evidence that repair of indoor mold problems relieves or eliminates symptoms and signs of asthma.

SUMMARY PASSAGE 10

Viii. Future Directions

Indoor molds could play a role in determining the prognosis of an already established asthma, but only a few studies have investigated the relation of dampness and mold problems with asthma severity. In addition, there is a need for controlled intervention studies evaluating the effects of repair measures on symptoms and/or lung function among asthmatics.