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E. C. Anyanwu St Peter's Middle College House : The validity of the environmental neurotoxic effects of toxigenic molds and mycotoxins . The Internet Journal of Toxicology. 2008 Volume 5 Number 2

The problems and controversies about the validity of environmental neurotoxic health effects of toxigenic mold and mycotoxin exposures have taken a center stage in scientific, legal, social, and political discourse to which important **basic scientific truth has been misrepresented by subjective "double talk" in recent years**. Fortunately, the scientific truth is characterized by objectivity and systematic organization based on compelling pieces of evidence. This paper reviews the relevant, most recent peer reviewed literatures that support the validity of the environmental risks and adverse neurotoxic health effects of chronic exposures to toxigenic molds and mycotoxins. The structures of typical mycotoxins are cited to show the relevance of functional groups, and how their biochemical activities may contribute to adverse health effects in relation to signs, symptoms, and mechanisms. The proven interactions between the biological system and the molecular functional groups of mycotoxins are evaluated to explain how they may lead to neurotoxic health effects in terms of carcinogenic, biochemical, immunological, neurophysiological and behavioral properties. Based on all the relevant affect factors, there are huge compelling pieces of evidence derived by exposure conditions, clinical presentations, scientific laboratory investigations, and the development of science of nanotoxicology, that support the validity of adverse environmental neurotoxic health effects of toxigenic mold and mycotoxins.

No safe dose level of mycotoxin in humans has been effectively determined as to establish the **suggestion put forward by Hardin et al.**[1].

1. Hardin BD, Kelman BJ, Saxon A. Adverse human health effects associated with molds in the indoor environment. J Occup Environ Med. 2003 May;45(5):470-8. (s)

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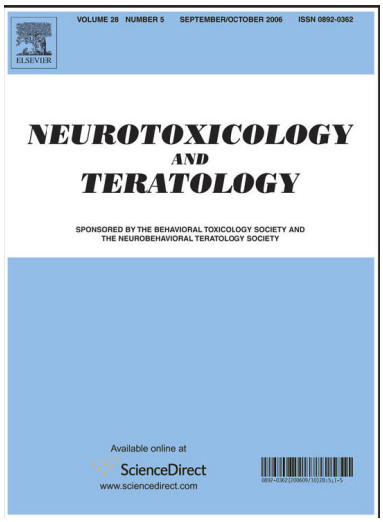

Sick building syndrome (SBS) and exposure to water-damaged buildings: Time series study, clinical trial and mechanisms

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Because of the potential for interactions between mixture components, **it is inappropriate to conclude that chronic exposure to the indoor air of WDBs cannot cause toxicity in humans** because the dose of a single mixture component is unlikely to reach a toxic level. **The position paper by the American College of Occupational and Environmental Medicine** stated "that delivery by the inhalation route of a toxic dose of mycotoxins in the indoor environment is highly unlikely at best, even for the hypothetically most vulnerable subpopulations" [2]. This conclusion was based on the observation of pulmonary inflammation in mice following subchronic exposure to a cumulative dose of 2.8×105 s. 72 S. chartarum spores/kg body weight administered over a 3-week period [79], estimated to correspond to 9.4×103 spores/m3 for infants, and the report that concentration of S. chartarum reached only 118 CFU/m3 in a survey of buildings whose occupants did not report SBS

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Hormesis is central to toxicology, pharmacology and risk assessment

These studies have documented that the threshold dose response very poorly predicts responses below the estimated threshold, a performance that was broadly generalizable. This failure of the threshold model to make accurate predictions of responses below the threshold in the above published data was also consistent with the publication of a large number of studies within the hormesis database 10,11 that are supportive of the hormesis dose response and not the threshold model. These findings point to a critical and ongoing failure of the scientific and regulatory communities to properly validate models, especially ones that are directly used to affect public health and medical practices.

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