

THE CRITICAL ROLE OF HOUSE DUST IN UNDERSTANDING THE HAZARDS POSED BY CONTAMINATED SOILS

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The health risks posed by soil pollutants are generally thought to be due to soil ingestion and have often resulted in massive regulatory efforts to remedy such contamination. The contribution of this route to the actual human health hazard has been questioned, however, as soil removal alone seems to have little influence on the body burdens of soil contaminants in exposed individuals. Ongoing research also has repeatedly and substantially reduced the estimates of soil ingested daily. Because comparatively little time is spent outdoors by most individuals, exposure to soil brought indoors, present as house dust, is now thought to be nearly as important as the direct ingestion of soil. Exposure via house dust has not been studied specifically, but several observations suggest that it may be important. Dust is largely composed of fine particles of tracked-in soil. The smaller dust particles cling to surfaces better than soil, and contaminant concentrations are often higher in house dust. Fine particles are likely to be more bioavailable, and degradation is slower indoors. Contaminants thus may be concentrated and more readily available in the areas most frequented. In some studies, contaminant levels in dust are correlated more closely with body burdens of contaminants than other sources, suggesting that this route should be considered when assessing risks from soil. Until more research addressing exposure to dust is conducted, recommendations for assessing potential health risks from this pathway are provided.

Keywords contaminated soil, environmental risk, exposure assessment, house dust, soil ingestion

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