Lead Prevention and Healthy Housing Newsletter

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The "Skinny" on Transdermal Exposures

Inevitably, once someone acquires a basic understanding of lead poisoning, the question arises as to the potential for transdermal exposure. That is to say: Can lead content be absorbed through the skin? The short answer is "No."**

Ingestion and inhalation, of course, are the exposure mechanisms responsible for elevated blood lead levels. This holds true for children, adults, and domesticated animals, such as cows and dogs, the two most frequent victims in the animal kingdom. Bovine livestock generally succumb to lead poisoning through ingestion of lead content from the leaking batteries of aging farm machinery; dogs face the identical household inhalation dangers from the vestiges of lead-based paint that imperil children.

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The exception to the "short answer" is organic lead (such as the tetrahydryl lead once found in automobile gasoline).

The general public is generally exposed only to inorganic lead, which does not pose a dermal risk.

Additional Cultural Cosmetics of Concern:

Kajal
Kwalli
Surma
Tiro
Tozali

(As cited by the FDA)

U.S. FOOD & DRUG ADMINISTRATION

Very few *commonly encountered* substances present a transdermal risk. Those that do are generally associated with industrial chemicals in an occupational setting. In fact, most research related to dermal incursion originates in the pesticide industry.[1] Even among those who work with chemicals definitively linked to transdermal exposure, there are a number of factors that can influence chemical uptake.[2]

The concern over dermal-associated exposures is entirely understandable, given that skin is the body's largest organ, as well as its heaviest, responsible for fully one seventh of total body weight.[3] And skin is an indefatigable sentinel, standing watch between environmental hazards and toxins and entrée to the body's *internal* organs and systems.

The two lead-related exposures that account for the concern over transdermal issues are old bathtubs with lead-based paint or glaze and cultural cosmetics. Elevated blood lead levels are, indeed, identified with both of these sources, although the risks for each are classic: ingestion and/or inhalation.

Aging porcelain or cast iron tubs can result in lead shed while bathing. If a young child swallows bath water or places a bath toy in his or her mouth, lead content can be ingested in that manner. There is also a possibility, remote though it may be, that bathtubs repurposed as reading nests [not entirely uncommon among preschool and elementary classrooms] can present a lead inhalation hazard if the tub's glaze is deteriorating.

Certain cosmetics, kohl, in particular, are used on the eyes of infants and children in parts of the Middle East, Asia, and Africa.[4] This kohl eyeliner, in addition to being perceived as beautiful, is thought to ward off the sun and, perhaps, evil spirits, as well.[5] Kohl and similar substances have been identfied with lead content between 20 and 70 percent. The skin around the eyes is especially thin, leading to a misconception that the many children found with affiliated EBLLs have suffered from transdermal exposure.

Recent Lead RECALLS:

Tienda Children's Desks

June 16, 2022

Freeze-Dried Blueberries
(from BrandStorm, Inc.)

July 14, 2022

To learn more about **product** recalls, visit the Recalls section at **cpsc.gov**

To learn more about food recalls, visit the Recalls section at **fda.gov**

Research has concluded that the exposure is, however, via ingestion. There is some minor discomfort associated with the substances, causing children to rub their eyes and transfer kohl to their hands. If they consume anything without cleansing their hands first, they can actually ingest lead content.[6]

About Skin Cells and the Home

Skin cells are one of humankind's most renewable substances. In only one hour, the average person sheds 30,000 – 40,000 dead cells (!), which are constantly being replaced. This process is known as desquamation.[7]

Desquamation is a huge contributor to human allergies, in that one of a home's most common allergens is the microscopic dust mite, a tiny creature whose nutritional source is – those discarded cells. Dust mites are found in greatest proliferation in a home's bedroom, where sleeping bodies slough off the day's cell death.

Ridding a home of these tiny mites is best accomplished by regular, thorough cleaning using a HEPA vacuum.

Tennesseans are among those with higher dust mite populations because of the southeast's dreaded humidity levels. Unlike most other living organisms, dust mites do not drink water, rather they *absorb* it from the air, meaning that humdity levels encourage their residency.

Skinteresting . . .

"Health is the greatest gift, contentment the greatest wealth, faithfulness the best relationship."

– Buddha

Conference and Health Fair Season will be here soon!

To order free literature or for educational support, contact:

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[2] Ibid.

[3] InformedHealth.org [Internet]. Cologne, Germany: Institute for Quality and Efficiency in Health Care (IQWiG); 2006-. How does skin work? 2009 Sep 28 [Updated 2019 Apr 11]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK279255/

4 Perry, Carol and Eaton, Joseph. "Kohl: A Lead-Dangerous Eye Makeup from the Third World to the First World. *Environmental Health Perspectives*, 1991, vol. 94: 121-123.

[5] Ibid.

[6] Ibid.

[7] Palmer, Angela. "Desquamation Process and the Outer Layer of Skin." March 2022. Accessed online at: https://www.verywellhealth.com/desquamation-15561