

Pollution in People:

Measuring Environmental Contaminants in the Body

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Biomonitoring

- The direct measurement of chemicals in the human body.
- Can be measured in blood, urine, fat, saliva, hair, bone, cord blood, semen, nail clippings, meconium, and breast milk.
- Results are often referred to as a “body burden.”



Why is biomonitoring important?

- Closes gaps in exposure data and establishes chemical exposure trends, including among specific populations.
- Helps assess whether regulations are working, and how they might be modified.
- It's the ultimate proof we are exposed to multiple chemicals, not just one at a time.



Department of Health and Human Services

Centers for Disease Control and Prevention

CDC's National Reports on Human Exposure to Environmental Chemicals

- Data drawn from NHANES.
- 1st report, March 2001, 27 chemicals.
- 2nd report, Jan. 2003, 116 chemicals.
- 3rd report, ~March 2005, ~150 chemicals.

Findings from 2003 CDC Report

- Children have twice the level of the pesticide Dursban than adults.
- Mexican-Americans have 3 times the level of the DDT metabolite as whites or blacks.
- Virtually across the board, phthalate levels are higher in women than men.



World Wildlife Fund, 11/03

- 156 people in study in the UK and Belgium, including some elected officials.
- Tested for 77 chemicals grouped by PBDEs, PCBs, and organochlorine pesticides.
- 28 chemicals were detected in Margot Wallström, European Commissioner for Environment.



Environmental Working Group, 9/03 Brominated Flame Retardants in Breast Milk

- Found in every breast milk sample.
- Average level in first-time mothers was 75 times higher than Europe.
- Study samples included highest levels ever reported in U.S., and among the highest ever reported worldwide.



Mt. Sinai School of Medicine w/ EWG and Commonweal, released 1/03

- Nine volunteers in cohort.
- Tested for 210 chemicals.
- A total of 167 chemicals detected.
- An average of 91 chemicals per participant.

Davis Bantz Superfund Site

(not prioritized for cleanup by Bush Administration)



- 106 total chemicals detected
- 15 dioxins and furans
- 41 PCBs
- 2 metals - lead and mercury
- 4 organochlorine pesticides
- 6 organophosphate pesticides
- 5 phthalates
- 33 volatile/semi-volatile organic compounds

Persistent Bioaccumulative Toxic Substances (PBTs)

- Persistent in the environment.
- Bioaccumulate (or build up) in the fatty tissue of wildlife and humans; and biomagnify in the food chain.
- Toxic in very small doses.

3 key messages

- Everyone on earth is exposed.
- Most chemicals are untested before being marketed.
- There is a growing body of scientific literature linking health impacts with environmental exposures.

Resources

- www.bodyburden.org

(Mt. Sinai study, found on EWG site)

- www.ProtectingOurHealth.org

(Collaborative on Health and the Environment)

- www.□EnvironmentalHealthNews.org

(Environmental Health News)

- www.chemicalbodyburden.org

(Coming Clean Campaign)