

Endocrine disruptors and obesity, diabetes and heart disease: What does epidemiological research tell us?

Judy S. LaKind, Ph.D.

LaKind Associates, LLC

University of Maryland School of Medicine

Pennsylvania State University College of Medicine

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1. Background

2. Bisphenol A (BPA)

3. Phthalates (results only)

4. Conclusions

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Michael Goodman, MD, MPH

Associate Professor

Dept of Epidemiology

Rollins School of Public Health

Emory University

Donald R. Mattison, MD

Chief Medical Officer

Senior Vice President

Risk Sciences International

Studies based on cross-sectional datasets have been used to draw causal inferences regarding environmental chemical exposures and adverse health outcomes.

BPA, phthalates tied to kids' weight, diabetes risk

Reuters Health; Aug 19, 2013;

<http://uk.reuters.com/article/2013/08/19/us-bpa-kids-weight-idUKBRE97I02E20130819>

BPA, Phthalates Linked With Teen Obesity, Insulin Resistance

HuffPost Healthy Living

http://www.huffingtonpost.com/2013/08/19/bpa-teen-obesity-insulin-resistance-phthalates_n_3781248.html

Bisphenol A and indicators of obesity, glucose
metabolism/type 2 diabetes and
cardiovascular disease: A systematic review
of epidemiologic research

Methods:

Followed the current methodological guidelines for systematic reviews

Particular attention paid to study design and exposure assessment: cited as main areas of weakness in BPA epidemiologic research

Study results were categorized qualitatively as **positive**, **negative**, **null**, or **mixed**

Results:

For all outcomes, results across studies were inconsistent.

Some studies used the same data and the same or similar statistical methods: when the methods varied slightly, even studies that used the same data produced different results.

Why?

Nearly all studies used cross-sectional design

Single measure of BPA exposure – exposure misclassification

Conclusions:

Study design issues severely limit our understanding of potential health effects associated with BPA exposure.

Considering the methodological limitations of the existing body of epidemiology literature, current epi data **neither support nor refute** the hypothesis that BPA causes obesity, CVD or diabetes.

Do phthalates act as obesogens in humans?
A systematic review of the epidemiology
literature

Results:

26 epidemiology publications; 18 independent data sources.

No inter- or intra-study consistency for any phthalate metabolite for any of the indicators of overweight/obesity, DM or CVD.

Most reported associations were not statistically significantly different from the **null**, some were **positive**, and others were **inverse**.

Conclusion:

Considering the methodological limitations of the existing body of epidemiology literature, the current epidemiological data **neither support nor refute** the hypothesis that phthalates cause obesity, CVD or diabetes.

Not drawing conclusions as to whether or not BPA/phthalates are risk factors for obesity, heart disease or diabetes.

Stating the opposite: using cross-sectional datasets like NHANES to draw conclusions about exposure to short-lived environmental chemicals and chronic complex diseases is inappropriate.

Need more resources for appropriately designed epidemiologic studies and toxicological explorations to understand whether these types of chemicals play a causal role in chronic diseases.