

**Environmental Health Fact Sheet**

Obesity and the Environment

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The Community Outreach and Engagement Core (COEC) increases awareness and understanding of environmental health research.

Stakeholder Advisory Board members include:

- Community Health and Social Services Center, Inc.
- Detroit Hispanic Development Corporation
- Detroiters Working for Environmental Justice
- Institute for Population Health
- Green Door Initiative
- Henry Ford Health System
- Eastside Community Network
- Michigan Department of Community Health
- University of Michigan School of Public Health

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Why is Obesity an Important Issue?

Obesity is a significant health problem. In 2010, 27.5% of adult Americans were obese, as were 31.7% of adults in Michigan¹ and 39.2% of adults in Detroit.² Obesity is also affecting youth. In 2009, 12% of high school students in both the U.S.³ and Michigan were obese,⁴ and 21% of high school students in Detroit were obese.⁵ This is cause for concern, as obesity is linked to many health conditions, including diabetes, high blood pressure, heart disease, stroke and certain cancers.⁶

How is Obesity Linked to the Environment?

Good nutrition is important to maintaining a healthy weight. There are many factors in our environment that can help us to access good nutrition, such as stores in our neighborhoods that sell high quality, affordable food. There are also many other factors in the environment that are less visible to the naked eye that also contribute to weight. Researchers are currently studying factors in three such areas: *epigenetics*, *endocrine disruptors*, and *oxidative stress*.

Obesity and Epigenetics

Epigenetics is the study of our epigenome, an instruction book that tells our genes how to regulate our bodies' functions. There is some evidence to suggest that poor access to nutrition can contribute to changes in the epigenome that may, in turn, increase the risk of obesity in humans.^{7,8}

Changes to the epigenome can occur throughout our lives, but our epigenome is most vulnerable even before we are born. For example, a baby in the womb receives signals about the mother's environment, such as poor nutritional quality, so that it will be prepared to live there as well. If the child, however, goes on to live in an environment with plenty of food, there may be a mismatch between what the child's body expects and what is available. This mismatch can potentially contribute to obesity via changes to the epigenome.^{9,10,11,12}



Endocrine disruptors are chemicals that may contribute to obesity by mimicking or blocking hormones that are essential to maintaining a healthy weight.¹³ Ways in which we may be exposed to them include:

- Consuming foods or beverages from certain plastic containers, bottles or metal cans made with a common endocrine disruptor called *bisphenol A* (BPA)
- Eating foods sprayed with insecticides, herbicides, and fungicides^{14,15}
- Using personal care products made with a class of endocrine disrupting chemicals called *phthalates*; one study found phthalates in about 70% of shampoos, cosmetics and soaps¹⁶



Obesity and Oxidative Stress

Obesity can lead to **oxidative stress**, which occurs when there is an imbalance in our cells that can injure body tissues. Oxidative stress is associated with many health outcomes, such as increased risk of cardiovascular disease and diabetes. Weight loss and eating foods rich in antioxidants can reduce the chance that obese individuals will develop these poor health outcomes.¹⁷ Therefore, availability of foods rich in anti-oxidants and opportunities to exercise can help to counter obesity-related diseases. Foods with anti-oxidants include fruits, vegetables, nuts, beans, dark chocolate, tea, coffee, and spices.



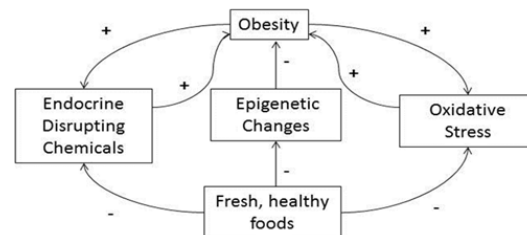
What Does this Mean for Me and My Community?

To reduce obesity in Detroit and Southeast Michigan, you can take the following steps:

- Consume lots of fruits and vegetables and exercise regularly
- Work with others to promote access to healthy, affordable foods
- Advocate for regulations that decrease exposure to endocrine disrupting chemicals.



For additional information on actions you can take, or to read more about epigenetics, endocrine disruptors, or oxidative stress, please visit ehscc.umich.edu.



The University of Michigan Environmental Health Science Core Center promotes collaboration among UM environmental health researchers and communities. Researchers work together to advance knowledge of environmental health issues that affect community members in Detroit and Southeast Michigan.

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