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The Food Environment, Eating Out, and Body Weight: A Review of the Evidence

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BACKGROUND

The environment in which people live can affect the food and beverages they consume, which can ultimately impact body weight. While individuals choose the food they eat, their choices are influenced by what is available in their environment (e.g., stores, restaurants, schools, worksites).

There have been major changes in the food supply over the past 40 years; the total number of calories and size of food portions available in the marketplace have increased dramatically. Also, the number of fast food restaurants has more than doubled, and the number of calories consumed away from home has increased. Many Americans consume more calories than they need and are not physically active enough—a combination that can lead to weight gain (Spahn, Lyon, Altman et al., 2011).

This *Nutrition Insight* provides an overview of the systematic evidence-based reviews on the relationship between the food environment, eating out, and body weight conducted by the 2010 Dietary Guidelines Advisory Committee (DGAC) and the USDA Nutrition Evidence Library (NEL) to support the development of the *Dietary Guidelines for Americans, 2010*.

REVIEW OF THE EVIDENCE

The 2010 DGAC conducted a series of three systematic reviews to examine the relationship between the food environment, eating out, and body weight, using a rigorous, transparent, and reproducible methodology (Spahn, Lyon, Altman et al., 2011). The DGAC 2010 report can be accessed at www.dietaryguidelines.gov, and information on search terms, databases queried, evidence abstraction and analysis, and criteria for study quality can be accessed at www.nutritionevidencelibrary.gov.

The food environment, body weight, and fruit/vegetable consumption

This NEL systematic review included only systematic reviews and meta-analyses published from 2000 to 2009. Ten systematic reviews were included in the review; eight received a positive quality rating, and two received a neutral quality rating.

USDA NUTRITION EVIDENCE LIBRARY

The USDA Nutrition Evidence Library (NEL) specializes in conducting systematic reviews to inform Federal nutrition policy and programs. The Library is a key resource for making food and nutrition research accessible to all Americans.

www.NEL.gov

All 10 systematic reviews found associations between the environment and body weight and dietary intake. Two reviews found that those who live in neighborhoods with a higher number of fast food restaurants and convenience stores had higher rates of obesity. Eight reviews found that weight and vegetable and fruit intake were associated with the availability of healthy food, or lack thereof, via supermarkets and distance to a supermarket. For example, lack of supermarkets and long distances to supermarkets were associated with higher body mass index (BMI). Three reviews found that those living in economically disadvantaged neighborhoods had higher rates of obesity and poor dietary intake. It is important to note that all 10 of the reviews indicated that these associations are based on emerging research, and that more research is needed to better understand these linkages.

Eating out and body weight

Two NEL systematic reviews were conducted to assess the relationship between eating out and body weight; one in children and one in adults. Both reviews included studies published between 2000 and 2009. The search included various terms for eating out. However, most studies identified only assessed eating out at fast food restaurants; only one study assessed eating out at other restaurants.

The review of research among children included one systematic review and five cohort studies; all received a positive quality rating and were from the United States and Canada; sample sizes ranged from 101 to 14,355 subjects, and the systematic review included 16 studies (6 cross-sectional, 7 cohort, 3 experimental). The studies looked at fast food intake and did not examine other types of restaurants. Five studies, including the systematic review,

found that fast food intake was associated with higher weight in children, and two of these showed that weight increased the most when fast food was consumed more than once a week. One study found no relationship between fast food intake and weight in boys, and a negative association in girls.

The review of research among adults included a systematic review and five cohort studies; all received a positive quality rating and were from the United States; sample sizes ranged from 891 to 9,919 subjects and the systematic review included 16 studies (6 cross-sectional, 7 cohort, 3 experimental). All six studies looked at fast food intake, and one of the studies also looked at other restaurant food intake. All six studies found a significant association between fast food intake and higher weight in adults, and more than one fast food meal consumed per week was associated with increases in BMI. One cohort study examined intake of restaurant food (other than fast food) and found no relationship with weight.

CONCLUSIONS AND FUTURE RESEARCH

The 2010 DGAC concluded that moderately strong evidence indicates that the food environment is associated with dietary intake, especially less consumption of vegetables and fruits, and higher body weight. The presence of supermarkets in local neighborhoods and other sources of vegetables and fruits is associated with lower BMI, especially for low-income Americans, while lack of supermarkets and long distances to supermarkets are associated with higher BMI. Finally, limited but consistent evidence suggests that increased geographic density of fast food restaurants is also related to increased BMI.

The 2010 DGAC also concluded that strong and consistent evidence indicates that children and adults who eat fast food are at increased risk of weight gain, overweight, and obesity. The strongest documented relationship between fast food and obesity is when one or more fast food meals are consumed per week. There is not enough evidence at this time to evaluate eating out at other types of restaurants and risk of weight gain, overweight, and obesity.

The 2010 DGAC recommended that research be conducted to clarify the positive and negative environmental influences that affect weight to further document how changing the environment affects dietary intake and energy balance. In addition, they recommended that research is needed on the effect of local and national food systems to clarify the impact of different sectors of society on dietary intake.

FROM RESEARCH TO RECOMMENDATIONS

The *Dietary Guidelines for Americans, 2010* (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2010) acknowledges that many Americans make choices about eating and physical activity in an environment that promotes overconsumption

of calories and discourages physical activity. The 2010 DGA also recognizes that to reverse these trends, a coordinated system-wide approach is needed that engages all sectors of society to:

- 1. Ensure that all Americans have access to nutritious foods and opportunities for physical activity.**
- 2. Facilitate individual behavior change through environmental strategies.**
- 3. Set the stage for lifelong healthy eating, physical activity, and weight management behaviors.**

Creating an environment that supports healthy behavior changes can be done in many ways, including:

- Initiating partnerships with food producers, suppliers, and retailers to promote the development and availability of appropriate portions of affordable, nutritious food products in food retail and foodservice establishments.
- Developing legislation, policies, and systems in key sectors such as public health, health care, retail, school foodservice, recreation/fitness, transportation, and nonprofit/volunteer to prevent and reduce obesity.
- Supporting future research that will further examine the individual, community, and system factors that contribute to the adoption of healthy eating and physical activity behaviors; identifying best practices and facilitating adoption of those practices.

The restaurant industry is encouraged to continue its ongoing efforts to offer appropriate portion sizes of foods that are low in added sugars, refined grains, sodium, and solid fat. Individuals are encouraged to choose foods and beverages away from home that are lower in calories: order a smaller size; share or take home part of a meal; review the calorie content of menu items (available on menus or food wrappers, in pamphlets, or online) to choose lower calorie options; cook and eat more meals at home.

REFERENCES

Spahn, J.M., Lyon, J.M.G., Altman, J.M. et al. (2011). The systematic review methodology used to support the 2010 Dietary Guidelines Advisory Committee. *J Am Diet Assoc.* 111(4):520-523.

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