

« HOW TO INCREASE F&V INTAKE IN ADULTS ? »

Editorial

Several strategies are important for increasing fruit and vegetable (F&V) consumption among adults, ranging from access to marketing in stores, worksites, restaurants, the internet, and more. This newsletter highlights a few approaches.

Some strategies require new local policies. The successful implementation of local policies that offer greater access to F&V, however, requires consumer support before legislators will move forward such policies. The degree of support for local or state policy changes to help increase F&V consumption had not previously been assessed. To provide insight into the level of consumer support for four different state or local policy changes, Grimm et al. analyzed data from the 2008 HealthStyles survey of United States adults in which participants were asked how likely they would be willing to support those changes. The four policies included creating local farmer's markets, access to F&V through small food stores, community gardens, or requiring city/county governments to purchase locally grown F&V in cafeterias/meetings. They found almost half of respondents supporting each of these policy changes that would help increase access to F&V.

Another policy change strategy that provided federal funding to state departments of agriculture for state-level efforts to support F&V marketing and consumption has also been evaluated. As reported here by Howlett *et al.*, in states with a F&V marketing campaign between 2000-2005, F&V consumption remained stable or increased. Conversely, in states where a F&V marketing campaign was absent, there was a significant decrease in F&V consumption during this time.

Finally, another marketing strategy that promotes F&V in supermarkets, on packaging, and through media has been in place in the U.S. since 1991. It was promoted first as the 5 A Day for Better Health message, which transitioned to the Fruits & Veggies—More Matters message in 2007 after the US Dietary Guidelines increased the recommended F&V to as many as 13 servings per day. Rather than providing information about how many F&V to eat, which many consumers felt was overwhelming and thus unattainable, the new Fruits & Veggies—More Matters campaign seeks to provide an emotional driver that encourages Moms (the primary target audience), to feed her family F&V's. Erinosh et al. reported that in 2007, only 2% of 3,000 consumers (men and women) could rightly name the current campaign, while 29% of consumers still thought the campaign was 5 A Day. The 5 A Day campaign had been in effect nationally for 16 years, and Fruits & Veggies—More Matters had been in effect for 5 months at the time of Erinosh et al's analysis. This author is happy to report that as of January 2013, six years into the campaign, awareness of Fruits & Veggies—More Matters is at 26% among mothers, up from 11% in 2007.

In summary, a variety of simultaneous approaches will be needed to increase F&V consumption among adults.

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For more about the 2013 research: pbhfoundation.org/about/res/pbh_res/



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Strategies to Increase Fruit and Vegetable Consumption

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The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Higher intake of fruits and vegetables (F&V) may reduce the risk of many chronic diseases¹ including heart disease², stroke³, diabetes⁴, and some cancers⁵. In addition, replacing higher caloric foods with F&V may aid in a healthy weight management^{1,6,7}. Policy and environmental changes that improve community access to and promotion of a wide variety of affordable, high quality F&V may make it easier for adults and children to choose and consume more F&V⁸.

The US Centers for Disease Control and Prevention (CDC) provided guidance on strategies that may increase F&V access and availability and ultimately consumption among Americans in The CDC Guide to Strategies to Increase the Consumption of Fruits and Vegetables⁹ summarized below.

Promote food policy councils:

Food policy councils and related coalitions provide support for improved food environments as a way to encourage healthy eating by bringing diverse stakeholders together to examine and develop recommendations for improvements to food systems.

Improve access to retail stores:

Access to retailers, including supermarkets, grocery stores, convenience stores, corner stores, specialty food stores, and mobile vending, may be improved through a variety of ways, including attracting new stores to underserved areas through financial incentives, improving transportation to these stores, and upgrading the facilities at existing stores.

Start or expand farm-to-institution programs:

Farm-to-institution programs and policies allow regional farms to sell F&V directly to community institutions such as schools, universities, medical centers, faith-based organizations, and government and non-government workplaces to facilitate access to fresh produce.

Start or expand farmers markets in all settings:

Farmers markets are a venue for selling products from regional farms and can augment access to F&V from typical retail stores or provide a retail venue for F&V in areas lacking such stores.

Start or expand community supported agriculture programs in all settings:

Community supported agriculture is a partnership between a farm and individuals in the community in which individuals generally pay a membership fee in return for a share of a farmer's harvest.

Ensure access to F&V in workplace cafeterias and other food service venues:

Workplaces, including medical centers, universities, and other community and business establishments, can ensure that F&V are available at cafeterias and other on-site dining facilities and can implement strategies to promote F&V, such as preferential pricing and providing point-of-sale information.

Ensure access to F&V at workplace meetings and events:

Employers can ensure that F&V are available at all meetings, conferences, and other workplace events and gatherings.

Support and promote community and home gardens:

Community gardens are collaborative projects created by community members in which participants share the maintenance and products of the garden. A home garden also yields produce to be eaten by individuals, and their families, neighbors, and friends.

Incorporate F&V activities into schools:

Schools can promote F&V consumption among students by incorporating activities such as gardening, farm to school, farm visits, F&V preparation, and tasting demonstrations into curricula.

Include F&V in emergency food programs:

Emergency food programs can improve client access to F&V by partnering with local grocery retailers, farmers markets and other venues to supply these foods and by getting donations of surplus F&V from individual farmers.

Elaboration of these strategies and examples are available in The CDC Guide to Strategies to Increase the Consumption of Fruits and Vegetables⁹. Additional resources and research provide more detail on interventions, strategies and best practices that may increase F&V access and availability¹⁰⁻¹³. The combined efforts of interventions spanning multiple sectors and across settings may be necessary to facilitate healthier choices among both children and adults¹⁴.

REFERENCES:

1. United States Department of Agriculture, United States Department of Health and Human Services. Dietary Guidelines for Americans 2010. Washington, D.C.: U.S. Government Printing Office, December 2010.
2. He FJ, Nowson CA, Lucas M, MacGregor GA. Increased consumption of fruit and vegetables is related to a reduced risk of coronary heart disease: meta-analysis of cohort studies. *J Hum Hypertens.* 2007;21(9):717-728.
3. He FJ, Nowson CA, MacGregor GA. Fruit and vegetable consumption and stroke: meta-analysis of cohort studies. *Lancet.* Jan 28 2006;367(9507):320-326.
4. Montonen J, Knekt P, Jarvinen R, Reunanen A. Dietary antioxidant intake and risk of type 2 diabetes. *Diabetes care.* Feb 2004;27(2):362-366.
5. World Cancer Research Fund. Food, nutrition, physical activity, and the prevention of cancer: a global perspective. Washington DC: American Institute for Cancer Research 2007.
6. Rolls BJ, Ello-Martin JA, Tohill BC. What can intervention studies tell us about the relationship between fruit and vegetable consumption and weight management? *Nutrition reviews.* Jan 2004;62(1):1-17.
7. Tohill BC, Seymour J, Serdula M, Kettel-Khan L, Rolls BJ. What epidemiologic studies tell us about the relationship between fruit and vegetable consumption and body weight. *Nutrition reviews.* Oct 2004;62(10):365-374.
8. Story MT, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating

environments: policy and environmental approaches. *Annu Rev Public Health* 2008;29(1):253-72.

9. Centers for Disease Control and Prevention. Strategies to Prevent Obesity and Other Chronic Diseases: The CDC Guide to Strategies to Increase the Consumption of Fruits and Vegetables. Atlanta: U.S. Department of Health and Human Services; 2011.

10. Kim SA, Grimm KA, May AL, Harris DM, Kimmons J, Foltz JL. Strategies for pediatric practitioners to increase fruit and vegetable consumption in children. *Pediatr Clin North Am.* 2011;58(6):1439-53.

11. Centers for Disease Control and Prevention. Recommended Community Strategies and Measurements to Prevent Obesity in the United States. *Morbidity and Mortality Weekly Report.* 2009; 58(RR07):1-26. Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5807a1.htm>.

12. Foltz JL, May AL, Belay B, Nihiser AJ, Dooyema CA, Blanck HM. Population-Level Intervention Strategies and Examples for Obesity Prevention in Children. *Annu. Rev. Nutr.* 2012; 32:391-415.

13. Foltz JL, Harris DM, Blanck HM. Support Among U.S. Adults for Local and State Policies to Increase Fruit and Vegetable Access. *Am J Prev Med* 2012;43(3S2):S102-S108.

14. IOM (Institute of Medicine). 2012. Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation. Washington, DC: The National Academics Press.

The Influence of State Agricultural Branding Programs on Fruit and Vegetable Consumption

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A diet high in fruits and vegetables (F&V) is clearly associated with a lower risk of several different chronic diseases including cardiovascular disease, cancer, and diabetes. Given these benefits, a critical question for health policy concerns whether or not state-sponsored programs promoting the consumption of F&V grown in-state has a favorable impact on consumers' dietary consumption. Examples of such programs include Something Special from Wisconsin, Buy Missouri, and Pride of Dakota. Funding for these state branding programs has been provided primarily by state legislature initiatives, but from an outcome perspective, information regarding the effectiveness of such programs has been limited and inconclusive.

Impact of F&V consumption in states with and without marketing programs

The purpose of our research was to examine how F&V consumption in states with state-sponsored branding programs compares to consumption in states without such initiatives. Our research used a quasi-experimental methodology to specifically examine the effectiveness of marketing-oriented, promotional campaigns that encourage the consumption of local F&V. Although the financial costs associated with state-sponsored branding programs may not be offset by increases in revenue, they may potentially have some positive effect on overall F&V consumption.

This research used data from the Behavioral Risk Factor Surveillance System

(BRFSS), a continuous ongoing, state-based survey of the United States population aged 18 and older. The data included 80,192 adults aged 18 and older from the 2000 survey and 157,128 adults from the 2005 survey with complete consumption and demographic data. Data from the 2000 and 2005 surveys were selected because it allows us to compare consumption before and after the initiation of marketing programs in states with and without these programs. In 2000, there were 26 states without programs. Between 2001 and 2004, 17 states initiated marketing programs to specifically promote the consumption of in-state F&V. Nine states remained without programs in 2005. Analyses were performed for these 26 states.

A better F&V consumption in states with marketing programs, and particularly women

Results of the analyses indicate that across states, weekly consumption was greater in states with marketing programs than in states without marketing programs ($p < .0001$). Consumption decreased between 2000 and 2005 ($p < .0001$), and women consumed more F&V than men ($p < .0001$). More importantly, and consistent with our primary research question, the joint effect of the marketing campaign and time (the interaction) was significant ($p < .0001$). F&V consumption in 2000 (i.e., prior to the marketing campaigns) was similar across states. However, in the absence of a marketing campaign, there was a significant decrease in the number of F&V servings consumed per week between 2000 and 2005 ($p < .05$). In states

initiating campaigns, consumption remained unchanged ($p > .10$).

While men in states with marketing campaigns consumed somewhat more F&V than men in states without these programs ($p < .05$), the difference was more striking for women. Consumption among women was higher in states with marketing programs than in states without campaigns. In sum, in contrast to the significant drop in consumption in states without state-sponsored branding, the weekly number of servings of F&V in states with marketing campaigns remained relatively stable over time.

Positive influence of state-sponsored agricultural marketing programs on adult consumers' F&V consumption

The results of this research provide evidence that these programs can increase overall consumption. The national decline in F&V consumption was stemmed in states with marketing campaigns. In contrast, in states without campaigns, consumers ate 1.7 fewer servings of F&V. In addition, females seem to benefit somewhat more from the campaigns than males. While F&V consumption by both males and females increased in states with campaigns, the increase was greater for women. Females have been shown to be more nutrition conscious than males, which supports the conclusion that they responded more favorably to the promotional campaign. This suggests that marketing campaigns may be somewhat widening the F&V consumption.



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Adults who are knowledgeable of the daily fruit and vegetable recommendation and are aware of the United States fruit and vegetable campaign eat more F&V

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The U.S. Dietary Guidelines recommend that adults eat 7-13 servings of fruits and vegetables (F&V) daily to reduce the risk of chronic diseases such as cardiovascular disease and cancer¹. Most American adults, however, consume less than this daily recommendation². One possible factor that may be contributing to the low intake of F&V is lack of knowledge of the F&V recommendation. Research shows that adults are more likely to eat higher amounts of F&V if they know the daily F&V recommendation^{3,4}.

A national panel survey of non-Hispanic White and African-Americans adults

We conducted a study to assess the knowledge of the F&V recommendation, awareness of the Fruits and Veggies—More Matters campaign (formerly known as 5 A Day for Better Health)⁵, and F&V intake among U.S. adults. Data was taken from a national sample of 3,021 non-Hispanic White and African-American adults that participated in the 2007 U.S. National Cancer Institute's (NCI) Food Attitudes and Behaviors (FAB) survey. Adults responded to questions that asked about knowledge of the F&V recommendation, as well as the name of the current national F&V campaign. Adults also completed an eight item F&V screener that asked about how often they consumed fruit, 100% fruit juice, green leafy vegetables/salads, non-fried potatoes, cooked dried beans, other vegetables, and tomato sauce, as well as the amounts consumed.

Few adults know the servings of F&V recommended and are aware of the current F&V campaign

The results, weighted to give U.S. population estimates, showed that about one-third of adults (39%) said they consumed five or more servings of F&V per day. Six percent of adults correctly responded that the current F&V recommendation is for adults to consume 7-13 servings per day while 30% responded the recommendation was the former "5 A Day" recommendation to consume five or more servings of F&V per day. Two-percent correctly responded that the name of the current F&V campaign is Fruits and Veggies—More Matters, whereas more adults (29%) were aware of the former 5 A Day for Better Health campaign. Because few adults knew the 7-13 F&V recommendation, we used the 5 A Day recommendation, and regarded five or more daily servings of F&V as correct responses. Similarly, few adults were aware of the current Fruits and Veggies—More Matters campaign,

therefore, we combined 5 A Day for Better Health and Fruits and Veggies—More Matters and regarded these responses as correct.

Knowledge of the F&V recommendation and awareness of the F&V campaign differ by adults' characteristics

More women, Non-Hispanic Whites, adults with a college education, those residing in the western part of the U.S, and those with a child under the age of 18 years in their household responded correctly about the servings of FV recommended or adults to consume and the name of the F&V campaign. Additionally, more 35-54 year olds correctly responded that the recommendation for adults was to consume five or more servings of F&V per day, whereas more 18-34 year olds correctly responded that the F&V campaign was 5 A Day/Fruits and Veggies—More Matters.

Adults who know the F&V recommendation and are aware of the F&V campaign are more likely to eat more F&V

Fruit and vegetable intake was associated with knowledge of the F&V recommendation and awareness of the F&V campaign. Adults were more likely to consume five or more servings of F&V per day if they knew that the recommendation for adults is to consume five or more servings of F&V per day, and were aware of the 5 A Day/Fruits and Veggies – More Matters campaign.

Need to increase awareness of F&V campaign and recommendation to promote high intake of F&V

The Fruits and Veggies—More Matters campaign was launched in March 2007. This study was conducted about five months after the campaign was launched, which may not have been long enough to promote the campaign and increase its awareness among the general public. Nevertheless, a recent survey of mothers with children under 18 years of age indicates that awareness of the Fruits and Veggies—More Matters campaign is still very low, increasing from 12% of mothers being aware of the campaign in 2007, to 18% in 2010⁵. The current study underscores the need to promote the current F&V campaign and recommendations widely, and target specific subgroups of the population that demonstrate low levels of awareness and knowledge, to ensure that adults meet their daily F&V requirement.

REFERENCES:

1. U.S. Department of Health and Human Services (USDHHS), U.S. Department of Agriculture. Dietary Guidelines for Americans, 2010. <http://www.cnpp.usda.gov/DGAs2010-PolicyDocument.htm>. Accessed April 2, 2013.
2. Grimm KA, Scanlon KS, Moore LC, Grummer-Strawn LM. State-specific trends in fruit and vegetable consumption among adults—United States, 2000-2009. *MMWR*. 2010; 59: 1126-1130.
3. Watters JL, Satia JA, Galanko JA. Associations of psychosocial factors with fruit and vegetable intake among African-Americans. *Public Health Nutr*. 2007; 10: 710-711.

4. Wolf RL, Lepore SJ, Vandergrift JL, Wetmore-Arkader L, McGinty E, Pietrzak G, Yaroch AL. Knowledge, barriers, and stage of change as correlates of fruit and vegetable consumption among urban and mostly immigrant black men. *J Am Diet Assoc*. 2008; 108: 1315-1322.

5. Produce for Better Health Foundation. State of the plate: 2010 study on America's consumption of fruits and vegetables, 2010. <http://www.pbhfoundation.org>. Accessed April 2, 2013.