

Nutrition Perspectives

University of California at Davis, Department of Nutrition, Cooperative Extension, and Center for Health and Nutrition Research

Community-Wide Cardiovascular Disease Prevention Programs Associated with Reductions in Hospitalizations, Deaths, Over a 40 Year Period

In a rural Maine county, sustained, community-wide programs targeting cardiovascular risk factors and behavior changes were associated with reductions in hospitalization and death rates over a 40 year period (1970-2010) compared with the rest of the state, with substantial improvements seen for hypertension and cholesterol control and smoking cessation, according to a study in the January 13 issue of *JAMA* (1).

Reducing the burden of cardiovascular disease (CVD) has been a public health priority for more than 50 years and will continue to be in

the foreseeable future. Few comprehensive cardiovascular risk reduction programs, particularly those in rural, low-income

communities, have sustained community-wide interventions for more than 10 years and demonstrated improvements in known risk factors and reductions in illness and death, according to background information in the article.

N. Burgess Record, M.D., of Franklin Memorial Hospital, Farmington, Maine, and colleagues studied health outcomes associated

with a comprehensive cardiovascular risk reduction program in Franklin County,

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Among those with hypertension, the proportion of those with their blood pressure under control increased from 18 to over 40 percent.

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Maine, a low-income rural community. In the late 1960s, local community groups in Franklin County identified CVD prevention as a priority. A new Community Action Agency (CAA), a new nonprofit medical group practice (Rural Health Associates [RHA]), and later the community's hospital initiated and coordinated their efforts. With hospital medical staff sponsorship, RHA established the community-wide Franklin Cardiovascular Health Program (FCHP) in 1974.

The programs targeted hypertension, cholesterol, and smoking, as well as diet and physical activity. The current analysis included residents of Franklin County (population, 22,444 in 1970), and used the preceding decade as a baseline and compared Franklin County with other Maine counties and state averages.

In its first 4 years, FCHP screened about 50 percent of county adults. Individuals with hypertension showed significant movement from detection to treatment and blood pressure control; the proportion in control increased from 18.3 percent to 43.0 percent from 1975 to 1978, an

absolute increase of 24.7 percent. After introducing cholesterol screening in 1986, FCHP reached 40 percent of county adults within 5 years, half of whom had elevated cholesterols. Over subsequent decades, cholesterol control had an absolute increase of 28.5 percent, from 0.4 percent to 28.9 percent, from 1986 to 2010. Similarly, after initiation of multiple community smoking cessation projects, community-wide smoking quit rates improved significantly, from 48.5 percent to 69.5 percent, and became significantly higher than that for the rest of Maine; these differences later disappeared when Maine's overall quit rate increased.

Franklin County hospitalizations per capita were less than expected for the period 1994-2006. The lower overall hospitalization rates were associated with \$5,450,362 reductions in total in- and out-of-area hospital charges for Franklin County residents per year.

After being at or above overall Maine mortality rates in the 1960s, Franklin County rates decreased below Maine rates for almost the entire period 1970-2010. Cardiovascular-specific mortality



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Editor

Sheri Zidenberg-Cherr, Ph.D.
Nutrition Specialist

Managing Editor

Anna Jones, Ph.D.

Sheri Zidenberg-Cherr, Ph.D., Nutrition Specialist, Anna Jones, Ph.D., and staff prepare NUTRITION PERSPECTIVES. This newsletter is designed to provide research-based information on ongoing nutrition and food-related programs. It is published quarterly (four times annually) as a service of the UC Davis Center for Health and Nutrition Research, the University of California Cooperative Extension and the United States Department of Agriculture. NUTRITION PERSPECTIVES is available online, free of charge, at <http://nutrition.ucdavis.edu/perspectives>. Questions or comments on articles may be addressed to: NUTRITION PERSPECTIVES, Department of Nutrition, University of California, Davis, CA 95616-8669. Phone:(530) 752-3387; FAX: (530) 752-8905.

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rates decreased similarly. The greatest differences coincided with periods of peak efforts to improve health care access, detect and control hypertension and hypercholesterolemia, and reduce smoking.

“The experience in Franklin County suggests that community health improvement programs may be both feasible and effective. This may be especially true in socio-economically disadvantaged communities where the needs are the greatest, as the increasing association of lower household income with higher mortality in Maine suggests,” the authors write.



“The Franklin County program demonstrates that with an integrated concerted effort based on good evidence, the cardiovascular health of a community can be improved.”

“Further studies are needed to assess the generalizability of such programs to other U.S. county populations, especially rural ones, and to other parts of the world.”

Darwin R. Labarthe, M.D., M.P.H., Ph.D., and Jeremiah Stamler, M.D., of the Northwestern University Feinberg School of Medicine, Chicago, comment on the findings of this study in an accompanying editorial (2).

“This report by Record et al in this issue of *JAMA* should reinforce the importance of

cardiovascular health promotion and disease prevention policies and practices at the community level; stimulate efforts in communities to document and publish their past experience in this area to

inform related ongoing work; and foster wider application of program evaluation and implementation research, exploiting new data sources and technologies to accelerate replication and scaling-up of community-based prevention. Intervening developments—not least among them the Affordable Care Act—have made this task more clearly achievable today than in 1970, when the Franklin

County program began. At

a time when population health is increasingly important, the Franklin County program demonstrates that with an integrated concerted effort based on good evidence, the cardiovascular health of a community can be improved.”

“The Franklin County, Maine, program demonstrates significant accomplishments in one northern U.S. rural community that have made a difference in cardiovascular outcomes. The experience deserves consideration as a model for other communities to emulate, adapt, and implement.”

References:

1. Record NB, Onion DK, Prior RE, et al. Community-wide cardiovascular disease prevention programs and health outcomes in a rural county, 1970-2010. *JAMA*. 2015 Jan 13;313(2):147-55. doi: 10.1001/jama.2014.16969.
2. Labarthe DR and Stamler J. Improving cardiovascular health in a rural population: can other communities do the same? *JAMA*. 2015 Jan 13;313(2):139-40. doi: 10.1001/jama.2014.16963.

Source: *JAMA* For the Media; Jan. 19, 2015; <http://media.jamanetwork.com/news-item/community-wide-cardiovascular-disease-prevention-programs-associated-with-reductions-in-hospitalizations-deaths-over-a-40-year-period/>

From Soda Bans to Bike Lanes: Which “Natural Experiments” Really Reduce Obesity?

Banning sodas from school vending machines, building walking paths and playgrounds, adding supermarkets to food deserts and requiring nutritional labels on restaurant menus: Such changes to the environments where people live and work are among the growing number of solutions that have been proposed and attempted in efforts to stem the rising obesity epidemic with viable, population-based solutions. But which of these changes actually make an impact?

To answer that question, many public health researchers take advantage of “natural experiments”—looking at people’s calorie consumption or physical activity levels, either comparing before and after a policy or environmental change, or comparing against a similar group of people not affected by that change. But not all natural experiments are created equal.

“Rigorous science is needed to evaluate these natural or quasi-experiments,” said Amy Auchincloss, PhD, an associate professor at the Drexel University School of Public Health who was a member of a research team that authored a new study published in *Obesity Reviews*: “Impact of policy and built environment changes on obesity-related outcomes: a systematic review of naturally occurring experiments.” The review was led by Stephanie Mayne, a doctoral student supervised by Auchincloss, and also co-authored by Yvonne Michael, ScD, an associate professor and associate dean for academic and faculty affairs in the Drexel

University School of Public Health.

The Drexel team reviewed the state of the science on this topic, evaluating the results and methods of all previous such studies published in the medical literature, in particular:

Which policies and built environment changes have been evaluated via natural- or quasi-experiments and what are the results from these studies?

Are there issues of concern with the studies’ design, including methods of assessment?

What are the limitations of these studies and areas where additional science is needed?

This is the first review that has examined the use of natural- or quasi-experiments to evaluate the efficacy of policy and built environment changes on obesity-related outcomes (body mass index, diet or physical activity). The review included PubMed (Medline) articles published 2005–2013; 1,175 abstracts and 115 papers were reviewed and ultimately 37 studies were included in the review.

The review identified certain types of interventions that are more successful than others in improving obesity-related outcomes, and identified areas where more research is needed to draw conclusions about obesity-related outcomes:



Changes with the strongest impacts included trans fat bans, and limits on the availability of sugary foods and beverages and higher fat foods.

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Diet & Food Policy Changes

Changes with strong impacts were ones that improved the nutritional quality of foods:

- Trans-fat bans
- Sugary food and beverage availability limits
- Higher-fat food availability limits

Changes that had smaller or no impacts in the research to date included:

- Nutritional information requirements
- Supermarkets built in underserved areas



Physical Activity Focused Changes

Changes with stronger impacts included:

- Active transportation infrastructure improvements
- Changes studied after longer-term follow-up periods

More research is needed to look at physical activity effects (not just use of amenities) for built environment changes including:

- Park improvements
- Trails
- Active transportation infrastructure

The researchers noted that a common shortcoming in many studies is that they only measured process outcomes such as food purchases or use of bike/transit infrastructure, rather than measuring the desired health outcomes, such as weight loss.

“Research suggests that people will use new amenities like bike shares, and limit purchases of unhealthy foods in specific contexts like schools,” said Mayne. “But it is less clear whether these changes translate into overall improvements in diet and physical activity.”

Likewise, only a few studies directly assessed impacts on BMI or weight; thus, the authors concluded that evidence is lacking on whether

Some of the changes that had smaller or no impacts were nutritional information requirements, supermarkets in underserved areas, park improvements, trails, and active transportation infrastructure.

environmental and policy modifications are successful in maintaining healthy weight or reducing excess weight.

The authors concluded that more natural experiments are needed to strengthen the evidence base about obesity-related policies and interventions. They also recommend more natural experiments to explore whether the timing of a change or repeated exposure to the changed condition enhances or reduces impacts on obesity-related outcomes.

The authors generally found stronger results in studies that had longer follow-up periods after a policy change or other intervention.

Reference:

1. Mayne SL, Auchincloss AH, Michael YL. Impact of policy and built environment changes on obesity-related outcomes: a systematic review of naturally occurring experiments. *Obes Rev.* 2015 May;16(5):362-75. doi: 10.1111/obr.12269.

Source: Rachel Ewing. *Drexel Now*; Mar. 20, 2015; <http://drexel.edu/now/archive/2015/March/Which-Natural-Experiments-Reduce->

AAP Recommends Whole Diet Approach to Children's Nutrition

In a new policy statement, the American Academy of Pediatrics urges schools and families to take a broader approach to nutrition, considering children's whole diet pattern – rather than the amount of sugar, fat or specific nutrients in individual foods (1).

"A good diet is built on highly nutritious foods from each of the main food groups," said Robert Murray, M.D., FAAP, lead author of the policy statement, "Snacks, Sweetened Beverages, Added Sugars, and Schools," published in the March 2015 Pediatrics. "No ingredient should be banned. A small amount of sugar or fat is ok if it means a child is more likely to eat foods that are highly nutritious."

Since 1995, steady improvements have been made in school meal programs. Schools are serving meals with more lean meats, lower fat milks, and more fruits, vegetables and whole grains. National standards now limit the type of foods and drinks that are sold in schools. As of 2014, 92 percent of school districts reported meeting U.S. Department of Agriculture school meal standards released in 2012.

There remains an opportunity, however, to

improve the nutritional quality of food brought from home, which is often lower in nutrition and higher in calories, according to the policy statement. The AAP recommends a five-step approach parents and schools can take in selecting food for packed lunches and social events:

- Select a mix of foods from the five food groups: vegetables, fruits, grains, low-fat dairy, and quality protein sources, including lean meats, fish, nuts, seeds and eggs.
 - Offer a variety of food experiences.
 - Avoid highly processed foods.
 - Use small amounts of sugar, salt, fats and oils with highly nutritious foods to enhance enjoyment and consumption.
 - Offer appropriate portions.



In a new policy statement, the American Academy of Pediatrics urges schools and families to take a broader approach to nutrition, considering children's whole diet pattern – rather than the amount of sugar, fat or specific nutrients in individual foods.

"Children, like adults, often want their own preferred flavors and textures during meals and snacks," Dr. Murray said. "It's no secret that brown sugar on oatmeal, or salad dressing with cut vegetables, can make these healthy foods more palatable to children, and increase their consumption. This is not a

license to give kids anything they want; we just need to use sugar, fat and sodium strategically."

Reference:

1. Council on School Health; Committee on Nutrition. Snacks, sweetened beverages, added sugars, and schools. Pediatrics. 2015 Mar;135(3):575-83. doi: 10.1542/peds.2014-3902.

Source: AAP Press Room; Feb. 23, 2015; <https://www.aap.org/en-us/about-the-aap/aap-press-room/Pages/AAP-Recommends-Whole-Diet-Approach-to-Children%27s-Nutrition.aspx>

Study Finds Peanut Consumption in Infancy Prevents Peanut Allergy

Introduction of peanut products into the diets of infants at high risk of developing peanut allergy was safe and led to an 81 percent reduction in the subsequent development of the allergy, a clinical trial has found (1). The study was supported by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, and was conducted by the NIAID-funded Immune Tolerance Network (ITN). The results appear in the *New England Journal of Medicine* and were presented at the annual meeting of the American Academy of Allergy, Asthma and Immunology.



“Prior to 2008, clinical practice guidelines recommended avoidance of potentially allergenic foods in the diets of young children at heightened risk for development of food allergies.”

Researchers led by Gideon Lack, M.D., of King’s College London, designed a study called Learning Early About Peanut Allergy (LEAP), based on observations that Israeli children have lower rates of peanut allergy compared to Jewish children of similar ancestry residing in the United Kingdom. Unlike children in the UK, Israeli children begin consuming peanut-containing foods early in life. The study tested the hypothesis that the very low rates of peanut allergy in Israeli children were a result of high levels of peanut consumption beginning in infancy.

“Food allergies are a growing concern, not just in the United States but around the world,” said NIAID Director Anthony S. Fauci, M.D. “For a study to show a benefit of this magnitude in the prevention of peanut allergy is without precedent.

The results have the potential to transform how we approach food allergy prevention.”

LEAP compared two strategies to prevent peanut allergy—consumption or avoidance of dietary peanut—in infants who were at high risk of developing peanut allergy because they already had egg allergy and/or severe eczema, an inflammatory skin disorder.

“The study also excluded infants showing early strong signs of having already developed peanut allergy. The safety and effectiveness of early peanut consumption in this group remains unknown and requires further study,” said

Dr. Lack. “Parents of infants and young children with eczema or egg allergy should consult with an allergist, pediatrician, or their general practitioner prior to feeding them peanut products.”

More than 600 high-risk infants between 4 and 11 months of age were assigned randomly either to avoid peanut entirely or to regularly include at least 6 grams of peanut protein per week in their diets. The avoidance and consumption regimens were continued until 5 years of age. Participants were monitored throughout this period with recurring visits with health care professionals, in addition to completing dietary surveys by telephone.

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The researchers assessed peanut allergy at 5 years of age with a supervised, oral food challenge with peanut. They found an overall 81 percent reduction of peanut allergy in children who began early, continuous consumption of peanut compared to those who avoided peanut.

“Prior to 2008, clinical practice guidelines recommended avoidance of potentially allergenic foods in the diets of young children at heightened risk for development of food allergies,” said Daniel Rotrosen, M.D., director of NIAID’s Division of

Allergy, Immunology and Transplantation. “While recent studies showed no benefit from allergen avoidance, the LEAP study is the first to show that early introduction of dietary peanut is actually beneficial and identifies an effective approach to manage a serious public health problem.”

A follow-up study called LEAP-On will ask all LEAP study participants to avoid peanut consumption for one year. These results will determine whether continuous peanut consumption is required to maintain a child’s tolerance to peanut.

Reference:

1. Du Toit G, Roberts G, Sayre PH, et al. Randomized trial of peanut consumption in infants at risk for peanut allergy. *N Engl J Med.* 2015 Feb 26;372(9):803-13. doi: 10.1056/NEJMoa1414850. Epub 2015 Feb 23.

Source: NIH News; Feb. 23, 2015; <http://www.niaid.nih.gov/news/newsreleases/2015/Pages/LEAP.aspx>

Little or No Benefit from Nutrient Additions to Vitamin Waters and Energy Drinks



Most of the nutrients commonly added to these beverages were ones that Canadians are unlikely to be deficient in, such as vitamins B6, B12, and niacin.

A new study by researchers working at the University of Toronto and Ryerson University investigated the nutritional benefits of novel beverages (vitamin waters, energy drinks, and novel juices) sold in Canadian supermarkets by assessing their micronutrient compositions (1). The findings were published in the journal *Applied Physiology, Nutrition, and Metabolism*.

According to the study novel beverages sold in Canadian supermarkets revealed extensive nutrient enrichment. On-package marketing highlighted nutritional attributes such as immune support and antioxidant properties, and some made claims related to specific nutrients. In addition, nutrients were often juxtaposed with messages related to performance and emotional well-being, benefits that go beyond conventional nutritional science.

The study found extensive micronutrient additions at levels often well in excess of nutrient requirements. The most commonly found nutrients

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were vitamins B6, B12, C and niacin. With the exception of vitamin of C, young Canadian adults – the likely target group for these products – are already consuming enough of these nutrients to meet their needs.

Naomi Dachner, a researcher in Nutritional Science at the University of Toronto said, “While our findings suggest that consumers stand to reap little or no benefit from the nutrient additions in novel beverages, most products were being marketed as if they provided a unique benefit to the consumer through the nutrient additions.”

After novel beverages began being regulated as foods instead of Natural Health Products, their labels changed to meet food labeling requirements, but there was relatively little change in their nutrient composition or marketing.

Reference:

1. Dachner N, Mendelson R, Sacco J, and Tarasuk V. An examination of the nutrient content and on-package marketing of novel beverages. *Appl Physiol Nutr Metab*. 2015 Feb;40(2):191-8. doi: 10.1139/apnm-2014-0252. Epub 2015 Jan 12.

Source: Canadian Science Publishing News and Events; Jan. 12, 2015; <http://www.cdnsciencepub.com/news-and-events/press-releases/PR-APNM-2014-0252.aspx>

Dachner explained, “Most of the nutrients permitted for addition are allowable at levels well above nutrient requirements, and, the new guidance is not designed to steer manufacturers towards the addition of nutrients that would address existing nutrient inadequacies in the population.”

“Novel beverages are now required to display Nutrition Facts tables which may facilitate comparisons between products, but this information will not enable consumers to differentiate potentially beneficial nutrient additions from others.”

The study raises questions about what measures need to be taken to ensure that consumers of novel beverages are not misled or exposed to unnecessarily high nutrient loads with no potential benefit.

Lack of Exercise Responsible for Twice as Many Deaths as Obesity

A brisk 20 minute walk each day could be enough to reduce an individual’s risk of early death, according to new research (1). The study of over 334,000 European men and women found that twice as many deaths may be attributable to lack of physical activity compared with the number of deaths attributable to obesity, but that just a modest increase in physical activity could have significant health benefits. Physical inactivity has been consistently associated with an increased risk of early death, as well as being associated with a greater risk of diseases such as heart disease and cancer. Although it may also contribute to an increased body mass index (BMI) and obesity, the association with early death is independent of an individual’s BMI.

To measure the link between physical inactivity and

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“A brisk 20 minute walk each day could be enough to reduce an individual’s risk of early death.”

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premature death, and its interaction with obesity, researchers analyzed data from 334,161 men and women across Europe participating in the European Prospective Investigation into Cancer and Nutrition (EPIC) Study. Between 1992 and 2000, the researchers measured height, weight and waist circumference, and used self-assessment to measure levels of physical activity. The participants were then followed up over 12 years, during which 21,438 participants died. The results are published in the *American Journal of Clinical Exercise*.

The researchers found that the greatest reduction in risk of premature death occurred in the comparison between inactive and moderately inactive groups, judged by combining activity at work with recreational activity; just under a quarter (22.7 percent) of participants were categorized as inactive, reporting no recreational activity in combination with a sedentary occupation. The authors estimate that doing exercise equivalent to just a 20 minute brisk walk each day – burning between 90 and 110 kcal ('calories') – would take an individual from the inactive to moderately inactive group and reduce their risk of premature death by between 16-30 percent. The impact was greatest amongst normal weight individuals, but even those with higher BMI saw a

benefit.

Using the most recent available data on deaths in Europe the researchers estimate that 337,000 of the 9.2 million deaths amongst European men and women were attributable to obesity (classed as a BMI greater than 30); however, double this number of deaths (676,000) could be attributed to physical inactivity.



The authors estimate that burning between 90 and 110 calories reduce risk of premature death by between 16-30 percent.

Professor Ulf Ekelund from the Medical Research Council (MRC) Epidemiology Unit at the University of Cambridge, who led the study, says: "This is a simple message: just a small amount of physical activity each day could have substantial health benefits for people who are physically inactive. Although we found that just 20 minutes would make a difference, we should really be looking to do more than this – physical activity has many proven health benefits and should be an important part of our daily life."

Professor Nick Wareham, Director of the MRC Unit, adds:

"Helping people to lose weight can be a real challenge, and whilst we should continue to aim at reducing population levels of obesity, public health interventions that encourage people to make small but achievable changes in physical activity can have significant health benefits and may be easier to achieve and maintain."

Reference:

1. Ekelund U, Ward HA, Norat T, et al. Physical activity and all-cause mortality across levels of overall and abdominal adiposity in European men and women: the European Prospective Investigation into Cancer and Nutrition Study (EPIC). *Am J Clin Nutr*. 2015 Mar;101(3):613-21. doi: 10.3945/ajcn.114.100065. Epub 2015 Jan 14.

Source: University of Cambridge Research News; Jan. 14, 2015; <http://www.cam.ac.uk/research/news/lack-of-exercise-responsible-for-twice-as-many-deaths-as-obesity>

Health Consciousness: Do Consumers Believe Healthy Food Always Tastes Bad?

Why are health awareness campaigns failing to reduce skyrocketing obesity rates? According to a new study in the *Journal of Public Policy & Marketing*, consumers continue to make their eating decisions based on taste alone (1).

"Despite a recent trend toward healthy eating behaviors, many consumers still tend to overconsume unhealthy foods because of two facts that work in combination," write authors Robert Mai and Stefan Hoffmann (Kiel University, Germany). "Unhealthy is widely associated with being tasty, and taste is the main driver of food decisions. There is little research on the conflict between healthiness and tastiness."

Study participants were given a variety of yogurts that differed in sugar and fat quantity. Even when they were given better information about the ingredients, this was not sufficient to encourage choosing the healthier yogurt. The strategy was especially ineffective for those eaters who needed it most, because the least health-conscious eaters were also the least likely to take any new health information into consideration.

Reference:

1. Mai R and Hoffmann S. How to Combat the Unhealthy = Tasty Intuition: The Influencing Role of Health Consciousness. *J Public Policy Marketing*; Jan. 2015 DOI: <http://dx.doi.org/10.1509/jppm.14.006>

Source: American Marketing Association; Jan. 21, 2015; <https://www.ama.org/publications/JournalOfPublicPolicyAndMarketing/Documents/pr-jppm.14.006-combat-unhealthy-intuition.pdf>



"It was this tastiness factor that, in the end, drove the decision-making for both healthy and unhealthy eaters, and it could not be overcome simply by raising health consciousness."

Even though some health-conscious eaters modified their behavior slightly when given better information on the product, both the informed and uninformed unhealthy eaters expressed firm opinions that the less healthy yogurts were tastier. It was this tastiness factor that, in the end, drove the decision-making for both healthy and unhealthy eaters, and it could not be overcome simply by raising health consciousness.

"Policy planners must instead find ways to make healthy foods more appealing, by improving the actual taste as well as the packaging and marketing, and by investing in social campaigns which work on consumer's emotions and

encourage a sense that healthy eating is 'cool' and prestigious. Overall, a holistic approach is urgently needed in which food companies, consumers, and policy makers, instead of working against one another, manage to find mutually beneficial strategies to combat the world's alarming obesity epidemic," the authors conclude.

Smartphone Applications, Wearable Devices Appear to be Accurate in Tracking Step Counts

The testing of 10 smartphone applications and wearable devices intended to track physical activity found that most were accurate in tracking step counts, according to a study in the February 10 issue of *JAMA* (1).

Despite the potential of pedometers to increase physical activity and improve health, there is little evidence of broad adoption by the general population. In contrast, nearly two-thirds of adults in the United States own a smartphone and technology advancements have enabled these devices to track health behaviors such as physical activity and provide convenient feedback. New wearable devices that may have more consumer appeal have also been developed. Even though these devices and applications might better engage individuals in their health, there has been little evaluation of their use, according to background information in the article.

Mitesh S. Patel, M.D., M.B.A., M.S., of the University of Pennsylvania, Philadelphia, and colleagues recruited healthy adults at a university to evaluate the accuracy of smartphone applications and wearable devices compared with direct observation of step counts. Participants walked on a treadmill set at 3.0 mph for 500 and 1,500 steps, each twice. An observer counted steps using a tally counter. At the end of each trial, step counts from each device were

recorded.

The participants used applications and devices that were selected from among the top sellers in the U.S.: the Digi-Walker SW-200 pedometer (Yamax); the Zip and One (Fitbit) accelerometers; the wearable devices Flex (Fitbit), the UP24 (Jawbone), and the Fuelband (Nike); an iPhone 5s (Apple) simultaneously running 3 iOS applications, Fitbit (Fitbit), Health Mate (Withings), and Moves (ProtoGeo Oy); and a Galaxy S4 (Samsung Electronics) running 1 Android application, Moves (ProtoGeo Oy).

Across all devices, 552 step count observations were recorded from 14 participants in 56 walking trials. Participants were 71 percent female, with an average age of 28 years. The researchers found that compared with direct observation, the relative difference in average step count ranged from -0.3 percent to 1.0 percent for the pedometer and accelerometers, -22.7 percent to -1.5 percent for the wearable devices, and -6.7 percent to 6.2 percent for smartphone applications. Findings were mostly consistent between the 500 and 1,500 step trials.

“Data from smartphones were only slightly different than observed step counts, but could be higher or lower. Wearable devices differed more and one device reported step counts more than 20 percent lower than observed. Step counts are often



“Data from smartphones were only slightly different than observed step counts, but could be higher or lower. Wearable devices differed more and one device reported step counts more than 20 percent lower than observed.”

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used to derive other measures of physical activity, such as distance or calories burned. Underlying differences in device accuracy may be compounded in these measures,” the authors write.

“Increased physical activity facilitated by these devices could lead to clinical benefits not realized by

low adoption of pedometers. Our findings may help reinforce individuals’ trust in using smartphone applications and wearable devices to track health behaviors, which could have important implications for strategies to improve population health.”

Reference:

1. Case MA, Burwick HA, Volpp KG, and Patel MS. Accuracy of smartphone applications and wearable devices for tracking physical activity data. JAMA. 2015 Feb 10;313(6):625-6. doi: 10.1001/jama.2014.17841.

Source: JAMA For the Media; Feb. 10, 2015; <http://media.jamanetwork.com/news-item/smartphone-applications-wearable-devices-appear-to-be-accurate-in-tracking-step-counts/>

Diet and Nutrition Essential for Mental Health

Evidence is rapidly growing showing vital relationships between both diet quality and potential nutritional deficiencies and mental health, a new international collaboration led by the University of Melbourne and Deakin University has revealed (1).

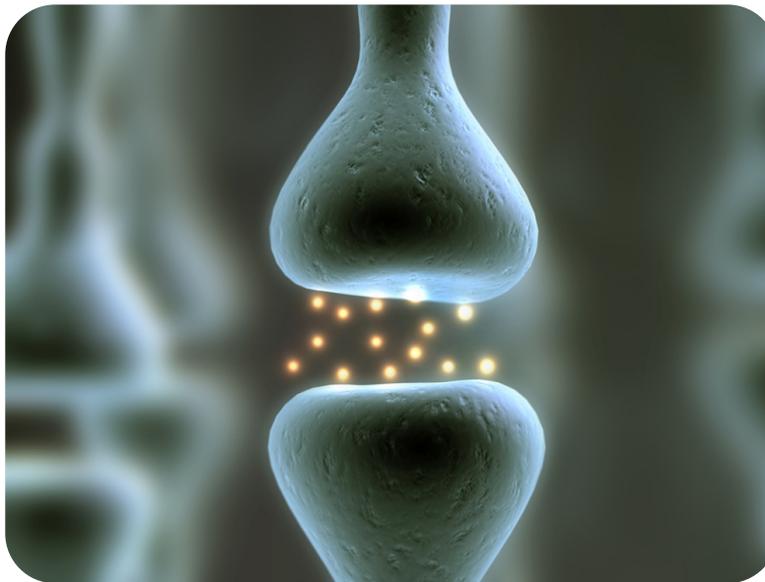
Published in *The Lancet Psychiatry*, leading academics state that as with a range of medical conditions, psychiatry and public health should now recognize and embrace diet and nutrition as key determinants of mental health.

Lead author, Dr. Jerome Sarris from the University of Melbourne and a member of the

International Society for Nutritional Psychiatry Research (ISNPR), said psychiatry is at a critical stage, with the current medically-focused model having achieved only modest benefits in addressing the global burden of poor mental health.

“While the determinants of mental health are complex, the emerging and compelling evidence for nutrition as a key factor in the high prevalence and incidence of mental disorders suggests that nutrition is as important to psychiatry as it is to cardiology,

endocrinology and gastroenterology,” Dr. Sarris said.



“The emerging and compelling evidence for nutrition as a key factor in the high prevalence and incidence of mental disorders suggests that nutrition is as important to psychiatry as it is to cardiology, endocrinology and gastroenterology.”

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“In the last few years, significant links have been established between nutritional quality and mental health. Scientifically rigorous studies have made important contributions to our understanding of the role of nutrition in mental health,” he said.

Findings of the review revealed that in addition to dietary improvement, evidence now supports the contention that nutrient-based prescription has the potential to assist in the management of mental disorders at the individual and population level.

Studies show that many of these nutrients have a clear link to brain health, including omega-3s, B vitamins (particularly folate and B12), choline, iron, zinc, magnesium, S-adenosyl methionine (SAMe), vitamin D, and amino acids.

“While we advocate for these to be consumed in the diet where possible, additional select prescription of these as nutraceuticals (nutrient supplements) may also be justified,” Dr. Sarris said.

Associate Professor Felice Jacka, a Principal Research Fellow from Deakin University and president of the ISNPR noted that many studies have shown associations between healthy dietary patterns

Reference:

1. Sarris J, Logan AC, Akbaraly TN, et al. Nutritional medicine as mainstream in psychiatry. *Lancet Psychiatry*; Mar 2015; 2(3): 271-274.

Source: The Melbourne Newsroom; Jan. 28, 2015; <http://newsroom.melbourne.edu/news/diet-and-nutrition-essential-mental-health>

and a reduced prevalence of and risk for depression and suicide across cultures and age groups.

“Maternal and early-life nutrition is also emerging as a factor in mental health outcomes in children, while severe deficiencies in some essential



nutrients during critical developmental periods have long been implicated in the development of both depressive and psychotic disorders,” she said.

A systematic review published in late 2014 has also confirmed a relationship between ‘unhealthy’ dietary patterns and poorer mental health in children

and adolescents. Given the early age of onset for depression and anxiety, these data point to dietary improvement as a way of preventing the initial incidence of common mental disorders.

Dr. Sarris, an executive member of the ISNPR, believes that it is time to advocate for a more integrative approach to psychiatry, with diet and nutrition as key elements.

“It is time for clinicians to consider diet and additional nutrients as part of the treating package to manage the enormous burden of mental ill health,” he said.

“Maternal and early-life nutrition is also emerging as a factor in mental health outcomes in children.”

Partners Can Help Each Other Make Positive Health Behavior Changes

Women and men were more likely to quit smoking, become physically active and lose weight if their partner joined them in the new healthy behavior, according to a study published online by *JAMA Internal Medicine* (1).

Modifiable lifestyles and health-related behaviors are the leading causes of morbidity and mortality worldwide. Evidence suggests people tend to exhibit the health behaviors of people around them and that partners can influence each other's behavior, according to the study background.

Sarah E. Jackson, Ph.D., of University College London, England, and coauthors examined the influence of a partner's behavior on making positive health behavior changes. The authors used data from 3,722 married couples and those living together who participated in the English Longitudinal Study of Ageing. Smoking cessation, increased physical activity and a 5 percent or greater weight loss were measured.

The authors found that when one partner changed to a healthier behavior the other partner was more likely to make a positive behavior change than if their partner remained unhealthy [(smoking: men 48 percent vs. 8 percent; women 50 percent vs. 8 percent), (increased physical activity: men 67 percent vs. 26 percent; women 66 percent vs. 24 percent) and (weight loss: men 26 percent vs. 10

percent; women 36 percent vs. 15 percent)].

Smokers with consistently nonsmoking partners and physically inactive people with consistently active partners had higher odds of quitting smoking and becoming physically active. Having an unhealthy partner in either of these cases who became newly healthy made the odds even higher for making a positive change, according to the results.

However, the results indicate that for overweight individuals, having partners whose body-mass index (BMI) was consistently in the normal range did not

increase the odds of losing weight, but having an overweight partner who lost weight too was associated with three times the odds of weight loss.

For each health behavior, men and women were significantly more likely to make positive changes if their partner also changed their health behavior over the same period than if their partner was consistently healthy, according to the study.

"The present findings have implications for the design and delivery of interventions aimed at reducing the risk of morbidity and mortality. Given that partners have a mutual influence on one another's behavior, behavior change interventions could be more effective if they targeted couples as opposed to individuals," the study concludes.



"Having an overweight partner who lost weight too was associated with three times the odds of weight loss."

Reference:

1. Jackson SE, Steptoe A. and Wardle J. The Influence of Partner's Behavior on Health Behavior Change: The English Longitudinal Study of Ageing. *JAMA Intern Med.* 2015 Mar 1;175(3):385-92. doi: 10.1001/jamainternmed.2014.7554.

Source: *JAMA Internal Medicine For the Media*; Jan. 19, 2015; <http://media.jamanetwork.com/news-item/partners-can-help-each-other-make-positive-health-behavior-changes/>

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University of California, Davis

Nutrition Perspectives
Nutrition Department
One Shields Ave.
Davis, CA 95616

Phone:
530.752.3387

Fax:
530.752.8905

Nutrition Perspectives
University of California, Davis
Nutrition Department
One Shields Ave
Davis, CA 95616
