

Nutrition Perspectives

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

Paleo Diet: The Importance Of Dietary Carbohydrate In Human Evolution

Understanding how and why we evolved such large brains is one of the most puzzling issues in the study of human evolution. It is widely accepted that brain size increase is partly linked to changes in diet over the last 3 million years, and increases in meat consumption and the development of cooking have received particular attention from the scientific community. In a new study published in *The Quarterly Review of Biology*, Dr. Karen Hardy and her team bring together archaeological, anthropological, genetic, physiological and anatomical data to argue that carbohydrate consumption, particularly in the form of starch, was critical for the accelerated expansion of the human brain over the last million years, and coevolved both with copy number variation of the salivary amylase genes and controlled fire use for cooking (1).

With global increase in obesity and diet-related metabolic



Grains, including whole grains, are often eliminated from "paleo" diets.

diseases, interest has intensified in ancestral or 'Palaeolithic' diets, not least because – to a first order of approximation – human physiology should be optimized for the nutritional profiles we have experienced during our evolution. Up until now, there has been a heavy focus on the role of animal protein and cooking in the development of the human brain over the last 2 million years, and the importance of carbohydrate, particularly in the form of starch-rich plant foods, has been largely overlooked.

Hardy's team highlights the following observations to build a case for dietary carbohydrate being essential for the evolution of modern big-brained humans:

- The human brain uses up to 25 percent of the body's energy budget and up to 60 percent of blood glucose. While synthesis of glucose

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from other sources is possible, it is not the most efficient way, and these high glucose demands are unlikely to have been met on a low carbohydrate diet;

- Human pregnancy and lactation place additional demands on the body's glucose budget and low maternal blood glucose levels compromise the health of both the mother and her offspring;
- Starches would have been readily available to ancestral human populations in the form of tubers, as well as in seeds and some fruits and nuts;
- While raw starches are often only poorly digested in humans, when cooked they lose their crystalline structure and become far more easily digested;
- Salivary amylase genes are usually present in many copies (average ~6) in humans, but in only



"Eating meat may have kick-started the evolution of bigger brains, but cooked starchy foods together with more salivary amylase genes made us smarter still."

2 copies in other primates. This increases the amount of salivary amylase produced and so increases the ability to digest starch. The exact

date when salivary amylase genes multiplied remains uncertain, but genetic evidence suggests it was at some point in the last 1 million years.

Hardy proposes that after cooking became widespread, the co-evolution of cooking and higher copy number of the salivary amylase (and possibly pancreatic amylase) genes increased the availability of pre-

formed dietary glucose to the brain and fetus, which in turn, permitted the acceleration in brain size increase which occurred from around 800,000 years ago onwards.

Eating meat may have kick-started the evolution of bigger brains, but cooked starchy foods together with more salivary amylase genes made us smarter still.

Reference:

1. Hardy K, Brand-Miller J, Brown KD, et al. The Importance of Dietary Carbohydrate in Human Evolution. *Q Rev Biol*; Sep. 2015; 90(3): 251-268

Source: University of Chicago Press News Releases; Aug. 6, 2015;
http://www.press.uchicago.edu/pressReleases/2015/August/150806_qrb_hardy_et_al_paleo_diet.html

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Sheri Zidenberg-Cherr, Ph.D., Nutrition Specialist, Anna M. 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.

Parents' Health Literacy Affects Child Weight-Loss Tactics, Study Finds

Parents who have low health literacy are less likely to choose government-recommended weight-loss strategies, such as increasing physical activity or serving more fruits and vegetables, to help their children control their weight than parents who are better able to understand basic health-related information, a new study suggests (1).

About one in six – or 16 percent – of the nearly 500 parents in the study had low health literacy, which the U.S. Dept. of Health and Human Services defines as a limited ability to understand, communicate and apply basic health information in improving one's health.

Parents' level of health literacy was determined by their ability to correctly interpret the nutrition information on an ice cream container label. They also were asked about their preferred sources of weight-control information and the methods they would consider using to help an overweight child lose weight. A paper on the study was published in the journal *Appetite*.

The data used in the project were drawn from the STRONG Kids Study, a Midwest panel survey of parents of preschool-aged children conducted by a multidisciplinary team of researchers from the University of Illinois and the University of Michigan.

When presented with a 15-item list of

recommended, neutral and unsafe weight control strategies, nearly a third of the parents with low health literacy did not select any of the practices recommended on governmental websites, such as the U.S. Centers for Disease Control and Prevention, the researchers found.

“Parents with higher health literacy were more likely to check the recommended weight-control strategies, and it's concerning that parents with lower health literacy were significantly less likely to do so,” said lead investigator Janet Liechty, a professor of social work and of medicine at Illinois. “About 3 percent of the parents with lower health literacy also indicated that they would consider using unsafe tactics, such as having their child take laxatives or diet pills.”

Parents who had higher levels of health literacy selected a greater number of weight-control strategies overall, including more neutral strategies, such as counting calories or reducing consumption of carbohydrates which, while not considered unsafe, are not necessarily recommended for children, Liechty said.

The majority of parents indicated that health care professionals, such as doctors, nurses and nutritionists, were their primary sources for weight-control information. However, parents with higher



About one in six – or 16 percent – of the nearly 500 parents in the study had low health literacy, which is defined as a limited ability to understand, communicate and apply basic health information in improving one's health.

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health literacy were more likely to consult books and websites, while other parents were significantly more likely to consult members of the clergy, the researchers found.

The associations between health literacy and the number and types of resources and strategies chosen remained significant even when the researchers controlled for factors such as parents' age, race and level of education, Liechty said.

"Just like the rest of us, these parents already have ideas about dieting and what they would do to help a child control their weight, and unless we take the time to understand their thinking and offer education, they may be operating on common dieting myths," Liechty said. "If health care practitioners are parents' preferred resource, then we can find ways to help practitioners more effectively communicate with patients and clients about ways to help kids build healthy habits."

"If a health care provider counsels parents that their child is overweight or obese and some behavior changes are needed, we need to do a more careful job of monitoring what the parent actually hears and does with that recommendation," Liechty said. "If parents tend toward unhealthy or

ineffective methods, we need to make it easier for them to learn about recommended strategies that are safe and effective, and provide access to user-friendly resources."



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While governmental health agencies' websites provide an abundance of weight-control information, the study's findings suggest that they may not be reaching the parents who need it most, either because they lack Internet access or they prefer to consult other sources that may not be as credible, Liechty said.

"How accessible is this information to parents in general, and especially to those struggling with lower health literacy?" Liechty said. "How do we, as health care social workers and interdisciplinary health care teams, create some bridges between the great information that's available and the ways parents want to obtain it?"

While the ideal approach for helping families of children with weight problems would be to refer them to comprehensive, multidisciplinary treatment programs that include medical oversight and counseling, many families don't have access to these programs because they're unavailable or unaffordable, Liechty said.

Reference:

1. Liechty JM, Saltzman JA, MUSAAD SM; STRONG Kids Team. Health literacy and parent attitudes about weight control for children. *Appetite*. 2015 Aug;91:200-8. doi: 10.1016/j.appet.2015.04.010

Source: Sharita Forrest. University of Illinois News Bureau; Jul. 28, 2015; <https://news.illinois.edu/blog/view/6367/233052>

AAP Updates Recommendations on Obesity Prevention: It's Never Too Early to Begin Living a Healthy Lifestyle

In updated recommendations, the American Academy of Pediatrics (AAP) offers practical steps families can take to help children maintain a healthy weight.

The advice comes as part of an AAP clinical report published in the journal *Pediatrics*. The report, “The Role of the Pediatrician in Primary Prevention of Obesity,” offers guidance to pediatricians and families on how to include healthy habits into daily life, including a well-balanced diet, increased physical activity and reduced sedentary behaviors.

“It is never too early for a family to make changes that will help a child keep or achieve a healthy weight,” said Sandra Hassink, MD, FAAP, president of the AAP and co-author of the report. “Families can improve their eating habits in a variety of ways, but it is important for healthy eating and physical activity to be tailored to the child’s developmental stage and family characteristics.”

The prevalence of pediatric obesity has increased significantly in the past few decades, and is now recognized as a public health priority. Parents and families are encouraged to model healthy behaviors for children, and pediatricians are in a good position to help families find ways to do this together.

Families can take simple steps to eat healthier. Changing the food parents bring into the home – and how they store and serve it -- can help children make healthful choices. The AAP

recommends:

- Buy fewer sugar-sweetened beverages, high-calorie snacks and sweets.
- If you want to have these foods for a special celebration, buy them shortly before the event, and remove them immediately afterward.
 - Healthy foods and beverages (water, fruits, vegetables and other low-calorie snacks) should be readily available and in plain sight on the kitchen table or counter, or in the front of the shelf in the refrigerator.
 - High-calorie foods should be less visible – wrapped in foil rather than clear wrap, and placed in the back of the fridge or pantry.
- Encourage children to eat five or more servings of fruits and vegetables each day.



“Families can improve their eating habits in a variety of ways, but it is important for healthy eating and physical activity to be tailored to the child’s developmental stage and family characteristics.”

The AAP also recommends reducing sedentary behaviors. One way to achieve this is to have fewer TV sets in the home and to remove the TV and other media from the bedroom and the kitchen. Children who sleep less than 9 hours a night are more likely to be overweight or obese; focusing on bedtime, and understanding how much sleep children need at various ages can help improve a child’s overall health and well-being.

Along with diet modifications and reducing screen time, the AAP encourages pediatricians to work with families to identify opportunities for

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physical activity.

Families can enjoy physical activities together to meet the recommended 60 minutes of activity a day. This can include participating in team sports, going to a park, playground or walking/bicycle trails, bowling, dog walking, using the stairs or walking to a destination rather than driving. The AAP offers a physical activity “prescription” that pediatricians can use to serve as a reminder to families and patients about the goals they have set for physical activity.

“Even when families have knowledge of healthy behaviors, they may need help from pediatricians to motivate them to implement behavior changes,” said Stephen Daniels, MD, FAAP, chair of the AAP Committee on Nutrition. “Parents and other family members are strongly encouraged to adopt the same fitness and lifestyle changes as the child. Pediatricians can educate families, provide support, and help them stay on track.”

Reference:

1. Daniels SR, Hassink SG; Committee on Nutrition. The Role of the Pediatrician in Primary Prevention of Obesity. *Pediatrics*. 2015 Jul;136(1):e275-92. doi: 10.1542/peds.2015-1558. Epub 2015 Jun 29.

Source: AAP Press Room; Jun. 29, 2016; <https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/AAP-Updates-Recommendations-on-Obesity-Prevention-It's-Never-Too-Early-to-Begin-Living-a-Healthy-Lifestyle.aspx>



The AAP recommends walking to a destination rather than driving as a way to increase physical activity.

UC Davis Study Identifies Tools, Strategies for Enhancing Obesity Prevention in Rural Communities



Researchers at UC Davis have reviewed a successful telemedicine intervention against pediatric obesity to better understand what worked (or didn't) and how similar programs can be improved (1).

Interviewing staff, clinicians and parents at clinics that participated in the Healthy Eating Active Living TeleHealth Community of Practice (HEALTH COP) program, the team identified four factors that helped clinicians successfully address obesity. These included strong clinic management support, experienced physician champions, parental involvement in the design of programs and cross-communication between clinics. The research was published in the journal *Quality Management in Health Care*.

“We wanted to build capacity in clinics to help them

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prevent and manage childhood obesity,” said first author Ulfat Shaikh, pediatrician and director of Healthcare Quality at the UC Davis School of Medicine. “Now we understand how important it is to carefully select clinician champions, partner with parents on program design and make sure our counseling fits the cultural context.”

Excessive weight and obesity is a huge problem in the United States, affecting as many as 30 percent of children. It’s even more of a concern in rural areas, where poverty, culture and poor access to healthy foods can compound the issue, Shaikh said.

To address the problem, UC Davis created HEALTH COP, a virtual learning network that provides rural physicians education and peer support. Clinicians were encouraged to track each patient’s weight and BMI, discuss diet and exercise and propose simple lifestyle changes. An earlier study showed that the program improved obesity assessments, counseling and children’s nutrition and activity.

In the current study, researchers interviewed staff, physicians, nurses and parents at the seven participating rural California clinics to better understand how the program worked.

There were a number of significant barriers, such as a lack of resources and getting families to come back for follow-up visits. In addition, clinicians in busy clinics had trouble making extra time to thoroughly discuss obesity. Success often hinged on

whether clinic management fully supported the program.

“A critical factor was whether clinic leadership genuinely valued these efforts,” noted Shaikh. “Did they provide resources and visibly support the program? In this case, a top-down approach really made a big difference.”



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Strong commitment from physician champions also played an important role. In particular, physicians who had previous experience with obesity care were better suited to advance the program’s goals. In one case, a physician champion in a mostly Hispanic area took extra time to learn the nutritional differences between corn and white flour tortillas. Encouraging families to make the simple switch from white flour to corn, paid health dividends within the all-important cultural context.

In addition, responses from parents underscored HEALTH COP’s ability to help kids, and entire families, make significant lifestyle changes.

“The parent comments were very poignant,” said Shaikh. “Though the program was directed at children, it influenced lifestyle changes in the whole family.”

Armed with data from this study, the researchers have recommendations for similar programs: select physician champions carefully, involve parents more deeply in program design, and make sure clinic leadership is totally and genuinely on board.

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Reference:

1. Shaikh U, Romano P, Paterniti DA. Organizing for Quality Improvement in Health Care: An Example From Childhood Obesity Prevention. *Qual Manag Health Care*. 2015 Jul-Sep;24(3):121-8.

Source: UC Davis Health System News Room; July 7, 2015 <http://www.ucdmc.ucdavis.edu/publish/news/newsroom/10140>.

Summer Break Opens Door to Soda and TV

Regardless of family income, children on summer break consume more sugar, watch more television, and eat fewer vegetables than the rest of the year, according to researchers at Columbia University's Mailman School of Public Health. Findings are published online in the *Journal of School Health* (1).

The research was based on data from U.S. children in grades 1-12 in the National Health and Nutrition Examination Survey 2003-2008. The sample consisted of 6453 children and adolescents, some surveyed during the school year and others during a school break.

The researchers selected three main dietary measures: total calories consumed per day, number of cups of vegetables consumed, and teaspoons of added sugar, to estimate consumption of calories. They also compared student exercise patterns and screen time and any changes over the summer vacation. Data were compared for households above and below 185 percent of poverty, the eligibility criteria for receiving free or reduced price school lunch.

"Although obesity-promoting behaviors are generally more common during the summer break,

the differences in obesity behaviors between income groups were not exacerbated during the summer break, said Y. Claire Wang, MD, ScD, associate professor of Health Policy and Management and co-director of the Mailman School's Obesity Prevention Initiative.



"Regardless of family income, children on summer break consume more sugar, watch more television, and eat fewer vegetables than the rest of the year."

Using the U.S. Department of Agriculture's recommended guidelines, overall, students at all grade and income levels throughout the year routinely did not meet the recommended levels of vegetable intake, consumption of sugary sweetened beverages, and exercise, and exceeded the recommended amount for screen time.

In the summer, youth watched an average 20 minutes more television a day and consumed an average three ounces more sugar-sweetened beverages during summer break than during the school year. Overall, exercise was basically unchanged: students were physically active five minutes more on average than they were in school.

High school students, however, exercised significantly more during the summer than during the

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school year, but still did not meet standard government recommendations. In particular, those from higher-income families participated in more moderate-to-vigorous activities over the break. Lower-income teenage girls exercised less over the summer, with significantly less moderate-to-vigorous exercise.

“The school environment remains essential for shaping healthy eating and active living behaviors, and schools can play a leadership role in fostering a healthy transition from the school year to summer breaks,” suggested Dr. Wang. “We see from our results a need for school-based obesity prevention efforts to go beyond the school day and the school year.”

Reference:

1. Wang YC, Vine S, Hsiao A, et al. Weight-related behaviors when children are in school versus on summer breaks: does income matter? *J Sch Health*. 2015 Jul;85(7):458-66.

Source: Columbia University Mailman School of Public Health News; July 15; <https://www.mailman.columbia.edu/public-health-now/news/summer-break-opens-door-soda-and-tv>



“The school environment remains essential for shaping healthy eating and active living behaviors.”

Is the Prevalence of Childhood Food Allergies in the United States Increasing?

School nutrition program professionals have suggested that additional training on special diets and food safety is necessary to better accommodate increasing food allergies (1). This desire for additional training was reported by Lee, Kwon, and Sauer as a result of focus groups with child nutrition professionals. Focus group participants expressed a concern that prevalence and variation of food allergies in children have increased in recent years. This summary reviews data on food allergy reporting and examines whether prevalence (occurrence at a single point in time) and incidence (the rate of new cases in a specific population during a certain timeframe) of childhood food allergies in the United States have increased.

According to Boyce et al., consumers often have trouble distinguishing between nonallergic food reactions, such as gastrointestinal distress caused by lactose intolerance, and food allergies, which has been defined in the



Peanut allergy is among the most common childhood food allergies in the U.S.

Photo credit: USDA (<http://www.flickr.com/photos/usdagov>). Image modified from original.

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Guidelines for the Diagnosis and Management of Food Allergy in the United States as “an adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food” (2). The National Institute of Allergy and Infectious Diseases assembled and led an expert panel in the development of the Guidelines to help resolve this misunderstanding.

Among other details, the Guidelines include criteria for diagnosing food allergies versus food intolerances, or other nonallergic reactions, and help identify areas needing future research.

Prior to the Guidelines, there was neither a consensus on the definition of food allergy nor well-accepted criteria for diagnosis (3,4). As a result, there is a paucity of studies on the incidence, prevalence, and epidemiology of true childhood food allergy in the United States (2). This may be due to limitations causing inaccuracy in comparing data collected before use of the Guidelines.

Previously conducted studies show that true prevalence is less than reported prevalence. Many studies performed analyses using self-reported data collected via phone interviews (2). Although there are clinical tests that can be utilized in diagnosing food allergy, widespread use of these tests for research is limited due to need for specialized staff, time, and expense among other factors (3). However when comparing overall prevalence of food allergy, a meta-analysis by Rona et al. (5) found drastically different values for self-reported food allergy and food allergy diagnosed with one of three clinical tests. The researchers stated an overall

prevalence of self-reported food allergy to be 12 percent for children and 13 percent for adults (5). Self-reported values were much higher than the overall prevalence of 3 percent for all ages when using diagnostic tests such as a skin prick test, checking for serum IgE markers, or by double-blind, placebo-controlled food challenge (5). These results show that food allergies tend to be over-reported when relying on self-reported data alone.



“Self-reported values were much higher than the overall prevalence of 3 percent for all ages when using diagnostic tests such as a skin prick test, checking for serum IgE markers, or by double-blind, placebo-controlled food challenge”

In contrast to studies that rely on self-reported data, Branum and Lukacs (6) utilized the National Ambulatory Medical Care Survey, the National Hospital Ambulatory Medical Care Survey, and the National Hospital Discharge Survey to estimate food allergy prevalence in American children.

Overall, data analyzed using these surveys found an approximate tripling in food allergy prevalence; however the researchers acknowledge that this apparent increase could be due to better coding and reporting of food allergies rather than a true increase in disease (6).

Clearly there is a need for better studies that include clinical measurements of food allergies. Although several studies claim an increased prevalence of food allergy; these are often based on self-reported data. Thus, based on current literature, it is not possible to determine whether food allergy prevalence in children has increased. It is anticipated that with increased usage of the Guidelines a more accurate figure for prevalence of childhood food allergy in the United States may be determined in the near future.

Food Allergies continued with references on page 11

Food Allergies (Continued from page 10)

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1. Lee YM, Kwon J, and Sauer K. A focus group study of child nutrition professionals' attitudes about food allergies and current training practices. *J Child Nutr Manage*; 2014; 38(1).
2. Boyce JA, Assa'ad A, Burks AW, et al. Guidelines for the diagnosis and management of food allergy in the United States: Report of the NIAID-sponsored expert panel. *J Allergy Clin Immunol*. 2010 Dec;126(6 Suppl):S1-58. doi: 10.1016/j.jaci.2010.10.007.
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5. Rona RJ, Keil T, Summers C, et al. The prevalence of food allergy: a meta-analysis. *J Allergy Clin Immunol*. 2007 Sep;120(3):638-46. Epub 2007 Jul 12.
6. Branum AM, Lukacs SL. Food allergy among children in the United States. *Pediatrics*. 2009 Dec;124(6):1549-55. doi: 10.1542/peds.2009-1210. Epub 2009 Nov 16.

By: Lyndsey Ruiz. University of California, Davis, Department of Nutrition.

High-Dose Vitamin D Supplementation Not Associated with Benefits for Postmenopausal Women

High-dose vitamin D supplementation in postmenopausal women was not associated with beneficial effects on bone mineral density, muscle function, muscle mass or falls, according to the results of a randomized clinical trial published by *JAMA Internal Medicine* (1).

Low levels of vitamin D contribute to osteoporosis because of decreased total fractional calcium absorption (TFCA) and nearly half of postmenopausal women sustain an osteoporotic fracture. However, experts disagree on the optimal vitamin D level for skeletal health. Some experts contend that optimal serum 25-hydroxyvitamin D levels are 30 ng/mL or greater, while the Institute of Medicine recommends levels of 20 ng/mL or greater, according to study background.

Karen E. Hansen, M.D., M.S., of the University of Wisconsin School of Medicine and Public Health, Madison, and colleagues compared the effects of placebo, low-dose cholecalciferol (a form of vitamin D) and high-dose cholecalciferol on one-year changes on total TFCA, bone mineral density, sit-to-

stand tests and muscle mass in 230 postmenopausal women (75 years of age or younger) with vitamin D insufficiency.



The authors found no difference between the study groups in measures of bone density.

Trial participants were divided into three groups: daily placebo with a twice monthly placebo, daily 800 IU vitamin D3 (low dose) with twice monthly placebo, and daily placebo with twice monthly 50,000 IU vitamin D3 (high dose). The high-dose regimen vitamin D regimen achieved and maintained 25-hydroxyvitamin D levels at greater than or equal to 30 ng/mL.

Results indicate that calcium absorption increased 1 percent in the high-dose group but decreased 2 percent in the low-dose group and 1.3 percent in the placebo group. The small increase in the high-dose group did not translate into beneficial effects because authors found no difference between the three study groups for changes in spine, average total-hip, average femoral neck or total-body bone mineral density, trabecular bone score, muscle mass or sit-to-stand

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tests. There also were no differences between the groups for numbers of falls, number of fallers, physical activity or functional status.

The authors note few African-American women participated in the study, which limits its ability to detect differential responses to cholecalciferol based on race. The study results also cannot be used to guide cholecalciferol therapy for young adults, men, or women older than 75, according to the authors. They point out individuals only participated for one year and perhaps longer exposure to high-dose cholecalciferol might yield greater effects on bone mineral density.

“Study results do not justify the common and frequently touted practice of administering high-dose cholecalciferol to older adults to maintain serum 25(OH)D [25-hydroxyvitamin D] levels of 30 ng/mL or greater,” the study concludes.

In a related Editor’s Note, Deborah Grady, M.D., M.P.H., a deputy editor of JAMA Internal Medicine, writes: “It is possible that treatment beyond one year would result in better outcomes, but these data provide no support for use of higher-dose cholecalciferol replacement therapy or indeed any dose of cholecalciferol compared with placebo” (2).

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1. Hansen KE, Johnson RE, Chambers KR, et al. Treatment of Vitamin D Insufficiency in Postmenopausal Women: A Randomized Clinical Trial. JAMA Intern Med. 2015 Aug 3. doi: 10.1001/jamainternmed.2015.3874. Epub ahead of print.
2. Grady D. How Much Vitamin D Is Enough? JAMA Intern Med. 2015 Aug 3. doi: 10.1001/jamainternmed.2015.3937. Epub ahead of print.

Source: JAMA News Releases; Aug.3, 2015; <http://media.jamanetwork.com/news-item/high-dose-vitamin-d-supplementation-not-associated-with-benefits-for-postmenopausal-women/>



“It is possible that treatment beyond one year would result in better outcomes, but these data provide no support for use of higher-dose cholecalciferol replacement”

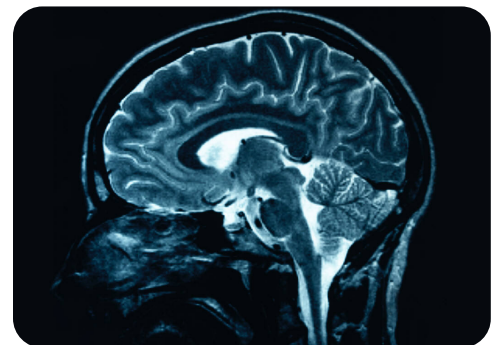
Tetris Can Block Cravings, New Study Reveals

Playing Tetris for as little as three minutes at a time can weaken cravings for drugs, food and activities such as sex and sleeping by approximately one fifth, according to new research published in the journal *Addictive Behaviors* (1).

In the first test of its kind to study people in natural settings outside of a laboratory, participants were monitored for levels of craving and prompted to play the block-shifting puzzle game at random intervals during the day.

Psychologists from Plymouth University and Queensland

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“Craving involves imagining the experience of consuming a particular substance or indulging in a particular activity.”

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University of Technology, Australia, found that playing Tetris interfered with desires not only for food, but also for drugs, including cigarettes, alcohol and coffee, and other activities. The benefits of playing Tetris were maintained over the seven-day study period.

The authors say playing the game could help people to manage their cravings, and they have recommended further research, including testing people dependent on drugs. Professor Jackie Andrade, from the School of Psychology and the Cognition Institute at Plymouth University, said “Playing Tetris decreased craving strength for drugs, food, and activities from 70 to 56 percent. This is the first demonstration that cognitive interference can be used outside the lab to reduce cravings for substances and activities other than eating. We think the Tetris effect happens because craving involves imagining the experience of consuming a particular substance or indulging in a particular activity. Playing a visually interesting game like Tetris occupies the mental processes that support that imagery; it is hard to imagine something vividly and play Tetris at the same time.”

During the experiment, 31 undergraduates, aged 18-27, were prompted seven times a day via text message to report on any cravings they were

Reference:

1. Skorka-Brown J, Andrade J, Whalley B, and May J. Playing Tetris decreases drug and other cravings in real world settings. *Addict Behav.* 2015 Dec; 51:165-70. doi: 10.1016/j.addbeh.2015.07.020. Epub 2015 Jul 26.

Source: Andrew Merrington. Plymouth University Press Office; Aug. 13, 2015; <https://www.plymouth.ac.uk/news/new-study-reveals-tetris-can-block-cravings>

feeling. They were also encouraged to report cravings proactively, independently of the prompts. Fifteen members of the group were required to play Tetris on an iPod for three minutes, before reporting their craving levels again.

Craving was recorded in 30 percent of occasions, most commonly for food and non-alcoholic drinks, which were reported on nearly two-thirds of those occasions. Twenty-one percent of cravings were for substances categorized as drugs – including coffee, cigarettes, wine and beer – and 16 percent were for miscellaneous activities such as sleeping, playing video games, and socializing with friends. Food cravings tended to be slightly weaker than those in the other categories.



“Craving was recorded in 30 percent of occasions, most commonly for food and non-alcoholic drinks, which were reported on nearly two-thirds of those occasions.”

“The impact of Tetris on craving was consistent across the week and on all craving types,” said Professor Jon May, also of Plymouth University. “People played the game 40 times on average but the effect did not seem to wear off. This finding is potentially important because an intervention that worked solely because it was novel and unusual would have diminishing benefits over time as participants became familiar with it.”

“As a support tool, Tetris could help people manage their cravings in their daily lives and over extended time periods,” added Professor Andrade.

Light to Moderate Drinking Linked to Increased Risk of Certain Cancers in Women and Male Smokers

Even light and moderate drinking (up to one drink a day for women and up to two drinks a day for men) is associated with an increased risk of certain alcohol related cancers in women and male smokers, suggests a large study published by *The BMJ* today (1). Overall, light to moderate drinking was associated with minimally increased risk of total cancer in both men and women.

However, among women, light to moderate drinking (up to one drink per day) was associated with an increased risk of alcohol related cancer, mainly breast cancer. Risk of alcohol-related cancers was also higher among light and moderate drinking men (up to two drinks per day), but only in those who had ever smoked. No association was found in men who had never smoked.

Heavy alcohol consumption has been linked to increased risk of several cancers. However, the association between light to moderate drinking and overall cancer risk is less clear. The role of alcohol independent of smoking has also not been settled.

A team of US researchers based at Harvard T.H. Chan School of Public Health and Brigham and Women's Hospital in Boston, set out to determine whether light to moderate drinking is associated with an increased risk of cancer. They used data from two large US studies that tracked the health of 88,084 women and 47,881 men for up to 30 years.

They assessed risk of total cancer as well as known alcohol related cancers including cancer of the colorectum, female breast, liver, oral cavity, pharynx, larynx and esophagus.

Light to moderate drinking was defined as up to one standard drink or 15g alcohol per day for women and up to two standard drinks or 30g

alcohol per day for men. One standard drink is roughly equivalent to a small (118ml) glass of wine or a 355ml bottle of beer. Influential factors, such as age, ethnicity, body mass index, family history of cancer, history of cancer screening, smoking, physical activity and diet were also taken into account.



Even small light to moderate drinking was associated with an increased risk of cancer.

During the follow-up period, a total of 19,269 and 7,571 cancers were diagnosed in women and men, respectively. The researchers found that overall, light to moderate drinking was associated with a small but non-significant increased risk of total cancer in both men and women, regardless of smoking history.

For alcohol-related cancers, risk was increased among light and moderate drinking men who had ever smoked, but not among men who never smoked. However, even in never smoking women, risk of alcohol-related cancers, mainly breast cancer, increased even within the range of up to one drink a day.

This large study sheds further light on the relationship between light to moderate drinking and cancer, says Dr Jürgen Rehm at the Centre for Addiction and Mental Health in Toronto, in an accompanying editorial. More research is needed to explore the interaction between smoking and drinking on risk of cancer, he says. But, roughly speaking, women should not exceed one standard drink a day and men should not exceed two standard drinks a day.

Finally, people with a family history of cancer "should consider reducing their intake to below recommended limits or even abstaining altogether, given the now well established link between moderate drinking and alcohol-related cancers," he concludes.

Cancer continued on page 15

Cancer (Continued from page 14)

Reference:

1. Cao Y, Willett WC, Rimm EB, et al. Light to moderate intake of alcohol, drinking patterns, and risk of cancer: results from two prospective US cohort studies. *BMJ*. 2015 Aug 18;351:h4238.

Source: BMJ Newsroom; Aug. 19, 2015; <http://bmjcom.c.presscdn.com/company/wp-content/uploads/2014/07/alcohol-cancer.pdf>.

Lifestyle Focused Text Messaging Results in Improvement in LDL Cholesterol and Other Cardiovascular Risk Factors

A simple, low-cost automated program of semi-personalized mobile phone text messages supporting lifestyle change led to improvement in low-density lipoprotein cholesterol (LDL-C) levels, blood pressure, body mass index, and smoking status in patients with coronary heart disease, according to a study in *JAMA* (1).

Globally, cardiovascular disease is the leading cause of death and disease burden. Cardiovascular disease prevention, including lifestyle modification, is important but underutilized. Mobile phone text messages to remind, encourage, and motivate patients regarding the adoption of healthy lifestyles might be useful, but there has been limited scientific evaluation of these interventions, according to background information in the article.

Clara K. Chow, M.B.B.S., Ph.D., of the George Institute for Global Health, University of Sydney, Australia, and colleagues randomly assigned patients with proven coronary heart disease to receive 4 text messages per week for 6 months in addition to usual care (intervention group; n = 352) or usual care (control group; n=358). Text messages provided advice, motivational reminders, and support to change lifestyle behaviors. Messages for each participant were selected from a bank of messages

according to baseline characteristics (e.g., smoking) and delivered via an automated computerized message management system. The average age of the patients was 58 years; 53 percent were current smokers.

At six months, levels of LDL-C were lower in intervention participants (79 mg/dL vs 84 mg/dL), as was systolic blood pressure (128 mm Hg vs 136 mm Hg) and body mass index. After six months, there was also a lower percentage of smokers in the intervention group compared to control. (26 percent vs 43 percent) The intervention group also reported an increase in physical activity. The proportion of patients achieving 3 of 5 guideline target levels of risk factors were substantially higher in the intervention group vs the control group (63 percent vs. 34 percent).

The majority of participants reported the text messages to be useful (91 percent), easy to understand (97 percent), and appropriate in frequency (86 percent).

“The duration of these effects and hence whether they result in improved clinical outcomes remain to be determined,” the authors conclude.

References:

1. Chow CK, Redfern J, Hillis GS, et al. Effect of Lifestyle-Focused Text Messaging on Risk Factor Modification in Patients With Coronary Heart Disease: A Randomized Clinical Trial. *JAMA*. 2015 Sep 22-29;314(12):1255-63.

Source: JAMA News Releases; Sep. 22, 2015; <http://media.jamanetwork.com/news-item/lifestyle-focused-text-messaging-results-in-improvement-in-ldl-cholesterol-and-other-cardiovascular-risk-factors/>

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