Volume 42 Issue 4, October – December 2017

Nutrition Perspectives

UC Davis Department of Nutrition, UC Agriculture and Natural Resources, and Center for Nutrition in Schools

USDA Publishes School Meals Rule, Expands Options, Eases Challenges

The U.S. Department of Agriculture (USDA) recently published a new interim rule that would provide school nutrition programs flexibility in a few areas of the National School Lunch Program (NSLP) and School Breakfast Program (SBP). The new School Meal Flexibility Rule makes targeted changes to standards for meals with regards to sodium, milk choices, and whole grains served in the NSLP and SBP. While the interim rule is due go into effect July 1, 2018, the USDA is accepting comments on the regulations in preparation of the final rule.

Image credit: USDA/ Flickr. Used under Creative Commons 2.0 https://creativecommons.org/licenses/by/2.0/

U.S. Secretary of Agriculture Sonny Perdue said the rule reflects USDA's commitment, made in a May proclamation, to work with program operators, school nutrition professionals, industry, and other stakeholders to develop forward-txshinking strategies to ensure school nutrition standards are both healthful and practical.

"Schools need flexibility in menu planning so they can serve nutritious and appealing meals," Perdue said. "Based on the feedback we've gotten from students, schools, and food service professionals in local schools across America, it's clear that many still face challenges incorporating some of the meal pattern requirements. Schools want to offer food that students actually want to eat. It doesn't do any good to serve nutritious meals if they wind up in the trash can. These flexibilities give schools the local control they need to

School Meals *continued on page 2*

Table of Contents

School Meals (Continued from page 1)

provide nutritious meals that school children find appetizing."

The interim final rule gives schools the option to serve low-fat (1 percent) flavored milk. Currently, schools are permitted to serve low-fat and non-fat unflavored milk as well as non-fat flavored milk. The rule also would provide this milk flexibility to the Special Milk Program and Child and Adult Care Food Program operators serving children ages 6 and older. States will also be allowed to continue to grant exemptions to schools experiencing hardship in obtaining whole grain-rich products acceptable to students during School Year (SY) 2018-2019. States have had the option to grant whole grain waivers since 2015.

The interim rule will allow low-fat flavored milk to be served, states to continue to grant waivers to the whole grain requirement, and for meals to maintain the current sodium restrictions.

Schools and industry also need more time to reduce sodium levels in school meals, Perdue said. So instead of further restricting sodium levels for SY 2018-2019, schools that meet the current – "Target 1" – limit will be considered compliant with USDA's sodium requirements. The more restrictive "Target 2" sodium requirement was scheduled to go into effect July 1, 2017.

Perdue again lauded the efforts of school food professionals in serving healthful, appealing meals and underscored USDA's commitment to helping them overcome remaining challenges they face in meeting the nutrition standards.

"We salute the efforts of America's school food professionals," Perdue said. "And we will continue to support them as they work to run successful school meals programs and feed our nation's children."

This rule will be in effect for SY 2018-2019. USDA will accept public comments on these flexibilities via www.regulations.gov to inform the development of a final rule, which will address the availability of these three flexibilities in the long term.

Adapted from: USDA Press Releases; Nov. 29,2017; https://www.usda.gov/media/press-releases/2017/11/29/usda-publishes-school-meals-rule-expands-options-eases-challenges

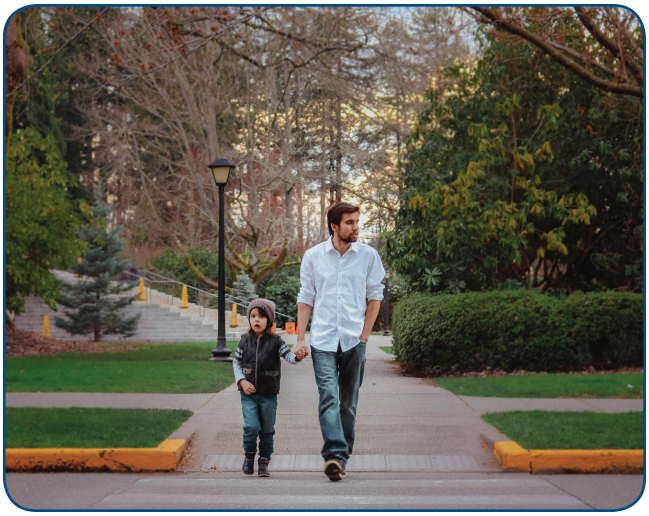
Editor
Sheri Zidenberg-Cherr, Ph.D.
Nutrition Specialist

Managing Editor
Anna M. Jones, Ph.D.

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 Nutrition in Schools, the University of California Agriculture and Natural Resources 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.

Can Gamification Increase Physical Activity?

With the majority of Americans falling short on physical activity recommendations, effective interventions to increase physical activity are needed. One potential avenue is to gamify activity to provide an extra incentive. Gamification involves the inclusion of game design elements like points and levels in areas of life where they aren't typically found. However, results have been mixed on the effectiveness of gamification in changing behavior. A recent study published in *JAMA Internal Medicine* explored whether the addition of behavioral economics principles to gamification of physical activity would result in an effective intervention (1).



Participants set a goal to increase their step counts by at least 1000 steps.

Participants (n=200) enrolled with at least one family member so that the intervention could capitalize on social incentive aspects of behavioral economics, such as collaboration, accountability, and peer support. Both the intervention (n=98) and comparison (n=102) groups tracked step counts either with a smartphone app or with a wearable fitness-tracking device and set a goal to increase step counts by at least 1000 steps. All participants received a daily text message or email that informed the participant if they had achieved their step goal the previous day. Participants in the comparison group received no intervention beyond this.

In the intervention group, participants signed a commitment pledge to motivate behavior change. Every Monday for 12 weeks, each family group started with 70 points total. Each day, a family member was randomly selected to represent the group. If this individual achieved their step goal the previous day, the group kept all their points for the day. If they didn't reach their goal, the group lost 10 points. At the end of the week, if the group had at least 50 points they advanced a level (bronze, silver, gold, platinum), otherwise they lost a level.

The study utilized social aspects of behavioral economics to increase the effectiveness of the intervention.

By designing the intervention this way, the study takes advantage of the tendency for individuals to be more motivated by loses (through the loss of points and levels), and by random rather than consistent reinforcement (through the random selection of a member to represent the team).

The intervention lasted 12 weeks, with a 12-week follow-up period. While both groups increased their step counts, when they compared

Gamification *Continued on Page 4*

Gamification (Continued from page 3)

the two groups, the gamification group reached their step goals on more days during both the intervention and follow-up periods. Taking into account baseline step counts, the calendar month, and other factors, the researchers found that the intervention group reached their daily step goal 27 percent more often than the control group during the intervention ($p<.001$), and 12 percent more often during the follow-up period ($p<.001$). The average increase in the intervention group was almost an additional mile per day compared to their baseline number of steps.

The gamification group reached their daily step goal 27 percent more often than the comparison group.

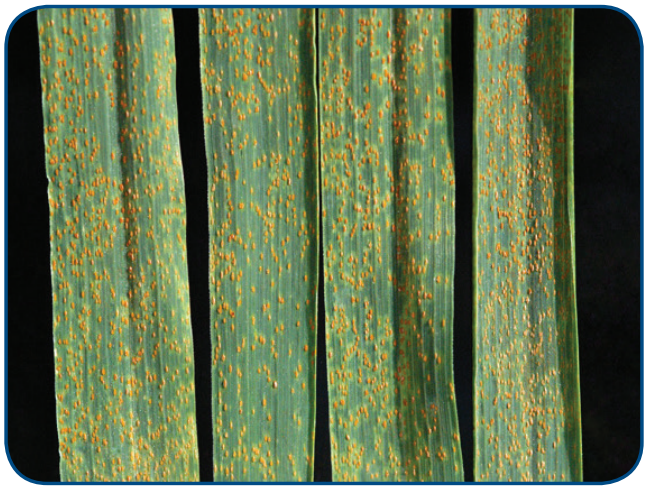
This study demonstrates that incorporating gamification and social aspects of behavioral economics into an intervention is an effective way to increase physical activity. However, physical activity did begin to decline during the follow-up period; the researchers suggest that future studies should evaluate ways to increase sustainability.

Reference:

1. Patel MS, Benjamin E, Volpp KG, et al. Effect of a Game-Based Intervention Designed to Enhance Social Incentives to Increase Physical Activity Among Families: The BE FIT Randomized Clinical Trial. JAMA Intern Med. 2017 Nov 1;177(11):1586-1593. doi: 10.1001/jamainternmed.2017.3458.

By Anna M. Jones, Department of Nutrition, University of California, Davis.

Gene Discovery May Halt Worldwide Wheat Epidemic



Stem rust is a fungal disease that hampers wheat production and has destroyed up to 40 percent of the world's wheat crop.

University of California, Davis, researchers have identified a gene that enables resistance to a new devastating strain of stem rust, a fungal disease that is hampering wheat production throughout Africa and Asia and threatening food security worldwide (1).

The discovery by UC Davis wheat geneticist Jorge Dubcovsky and his team will help breeders more quickly develop varieties that can fend off the deadly pathogens and halt a worldwide wheat epidemic. The findings were recently published in the journal *Proceedings of the National Academy of Sciences*.

Wheat *Continued on Page 5*

Wheat (Continued from page 4)

Wheat and stem rust have been in an evolutionary arms race for more than 10,000 years. In the 1950s, a major epidemic of the disease spread through North America and destroyed up to 40 percent of the wheat crop, the world's second most important grain next to rice.

A new strain of stem rust called Ug99 has been spreading through Africa and the Middle East.

Since then, scientists have developed rust-resistant varieties to boost wheat's immunity to stem rust. But the pathogens are making a comeback. A new strain of the stem rust — called Ug99 after it was discovered in Uganda in 1999 — is spreading throughout the region. About 90 percent of the wheat varieties grown worldwide are susceptible to Ug99.

"Ug99 has expanded to most of the wheat-growing regions in Africa and has crossed the Red Sea to Yemen and Iran," said Dubcovsky, a professor with the UC Davis Department of Plant Sciences and a Howard Hughes Medical Institute investigator. "Ug99 is now at the door of the Punjab region — the bread basket of Asia — and identification and deployment of effective resistance genes are critical to mitigate this threat."

Two genes have been discovered that impart resistance to Ug99; the research team is close to identifying a third gene that also confers protection.

Dubcovsky and his team identified three different resistance forms of Sr13, a gene from pasta wheat that is effective against Ug99 and another group of virulent stem-rust strains from Yemen and Ethiopia. In 2013, Dubcovsky and fellow researchers discovered another gene called Sr35 that also provides resistance to Ug99. The team is close to identifying a third gene that confers protection from the virulent strain.

Why genetics matter

To develop better varieties, breeders cross plants with desired traits and select the best offspring over multiple generations. Once stem-rust resistant genes have been identified, breeders can use molecular markers (specific regions of DNA) to select for the genes at the

Wheat *Continued on Page 6*

Wheat (Continued from page 5)

seed or seedling stage. This accelerates the crop-improvement process.

These molecular markers allow breeders to pyramid multiple stem-rust-resistant genes in the same plant to extend the durability of resistance.

"Wheat provides a substantial amount of calories and proteins consumed by humans," Dubcovsky said. "We hope that a better understanding of the wheat-rust pathosystem will speed the development of new strategies to control this devastating pathogen."

These molecular markers allow breeders to pyramid multiple stem-rust-resistant genes in the same plant to extend the durability of resistance.

Reference:

1. Zhang W, Chen S, Abate Z, et al. Identification and characterization of Sr13, a tetraploid wheat gene that confers resistance to the Ug99 stem rust race group. Proc Natl Acad Sci U S A. 2017 Nov 7;114(45):E9483-E9492. doi: 10.1073/pnas.1706277114. Epub 2017 Oct 23.

Source: Diane Nelson. UC Davis News; Nov 16, 2017; https://www.ucdavis.edu/news/gene-discovery-may-halt-worldwide-wheat-epidemic-0

Review Points to Long-Term Negative Impact of High Protein Diets

Among those with kidney disease, high protein diets may lead to long-term kidney damage.

High protein diets may lead to long-term kidney damage among those suffering from chronic chronic kidney disease, according to research led by nephrologist Kamyar Kalantar-Zadeh, MD, MPH, PhD, of the University of California, Irvine (1).

The review article, "Nutritional Management of Chronic Kidney Disease," was published in the *New England Journal of Medicine* and examines the role nutrition plays in managing chronic kidney disease, a condition that affects approximately 10 percent of the world's adult population.

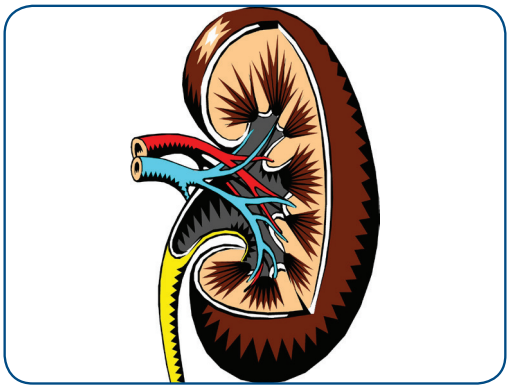
"The high protein diet that has been used increasingly in recent years to control weight gain and obesity may have deleterious impacts on kidney health in the long term," said Kalantar-Zadeh, director of the Harold Simmons Center of Kidney Disease Research and Epidemiology, and chief of the Division of Nephrology and Hypertension, UC Irvine School of

High Protein *Continued on page 7*

High Protein (Continued from page 6)

Medicine. Colleague Denis Fouque, MD, PhD of the University Claude Bernard Lyon, France, also contributed to this work.

Chronic kidney disease is defined as evidence of structural or functional renal impairment for three or more months and is generally progressive and irreversible. Applying the potential benefits of nutritional management of the condition have remained underutilized in the U.S. and many other countries, said Kalantar-Zadeh.



A low protein, low salt diet slows the progression of chronic kidney disease.

"There is an exceptionally high cost and burden of maintenance dialysis therapy and kidney transplantation," he said. "Thus, dietary interventions and nutritional therapy may be increasingly chosen as a management strategy for CKD, helping to increase longevity and delaying the need for the onset of dialysis for millions of people worldwide."

The research also indicates that a low protein, low salt diet may not only slow the progression of CKD as an effective adjunct therapy, but it can also be used for the management of uremia, or high levels of urea and other uremic toxins in the blood, in late-stage or advanced CKD and help patients defer the need to initiate dialysis.

Reference:

1. Kalantar-Zadeh K and Fouque D1. Nutritional Management of Chronic Kidney Disease. N Engl J Med. 2017 Nov 2;377(18):1765-1776. doi: 10.1056/NEJMra1700312.

Adapted from: UC Irvine Health News; Nov 2, 2017; http://www.ucirvinehealth.org/news/2017/10/uci-review-points-to-long-term-negative-impact-of-high-protein-diets

People in Four States May Be Drinking Contaminated Raw Milk

For the second time in three months, the Centers for Disease Control and Prevention is warning people who might have consumed contaminated raw milk and milk products to visit their doctor. People who bought and drank raw milk from a company called Udder Milk may have been infected with a rare but potentially serious germ called Brucella abortus RB51. While Brucella can cause anyone to become sick, women may suffer miscarriage and other pregnancy complications making it critical for pregnant women who may have consumed the raw milk from Udder Milk to seek medical care

Raw Milk*Continued on page 8*

Raw Milk (Continued from page 7)

immediately.

In late September, a New Jersey woman became ill after drinking raw milk from the company. CDC confirmed her illness was Brucella RB51 in late October. Because Udder Milk has not provided information about the farms that supply their milk, it has not been possible to trace the source of the woman's infection. CDC scientists have been collaborating with state health officials on the investigation. The U.S. Department of Agriculture and the U.S. Food and Drug Administration are working with state health and agriculture officials to trace the source of the contaminated raw milk and raw milk products.

RB51 is a weakened strain of Brucella abortus bacteria used to vaccinate young female cattle. In rare cases, vaccinated cows can shed RB51 in their milk.

Until more information is available about which farms may be supplying contaminated milk or until officials can test milk from the farms, CDC recommends that anyone who drank raw milk or consumed raw milk products from Udder Milk in the past six months visit their doctor for antibiotics to prevent illness. Information suggests that the company delivers milk in Connecticut, New Jersey, New York and Rhode Island.

"Because health officials have no direct way to let people know they may have drunk contaminated milk, everyone who consumed milk from Udder Milk in the past 6 months should receive antibiotics now to avoid having long-term health effects from the bacteria," said William Bower, M.D., team lead for the CDC group that investigates brucellosis, the illness caused by RB51.

The New Jersey patient is the second known domestically acquired illness caused by Brucella RB51 in raw milk in the United States this year; the other was in Texas in July. The Texas and New Jersey incidents are not connected.

The locations of the farms supplying Udder Milk are not known. Neither are the places where the company sells and distributes raw milk and other products. Online information about Udder Milk points to members-only websites through which people purchase raw milk online and delivery sites that shift to avoid detection by public health officials. Selling and distributing raw milk and raw dairy products is illegal in New Jersey and selling it outside of the farm that produces it is illegal in New York. Farms that sell raw milk in New York also must have a permit to sell it.

People Who Drank Udder Milk Raw Milk Need Antibiotics

All people who consumed raw milk and raw milk products from Udder Milk should seek medical care and start antibiotics to prevent

Raw Milk *Continued on page 9*

Raw Milk (Continued from page 8)

future chronic disease from RB51. The Brucella RB51 strain is resistant to some antibiotics that would normally be used to prevent or treat brucellosis. Therefore, people who consumed raw milk from Udder Milk should tell their doctor that they may have been exposed to this particular Brucella strain. Doctors can learn more about testing patients for RB51 and which antibiotics to prevent or cure infection at https://www.cdc.gov/brucellosis/clinicians/rb51-raw-milk.html.

The locations of the farms supplying Udder Milk are not known, making is difficult to trace the source of the infection.

People who have consumed the milk and other products made from Udder Milk raw milk should check themselves daily for fever for one month after they last drank the milk and watch for other brucellosis symptoms for six months. These symptoms include muscle pain, lasting fatigue, arthritis, depression, and swelling of the testicles. Untreated Brucella RB51 infection can result in long-term health problems like arthritis; heart problems; enlargement of the spleen or liver; and, in rare cases, nervous system problems like meningitis. RB51 can cause severe illness in people with weakened immune systems and miscarriages in pregnant women.

Brucella RB51 infection can result in long-term health problems as well as cause miscarriages in pregnant women.

About Brucella

RB51 is a weakened strain of Brucella abortus bacteria used to vaccinate young female cattle. Intensive vaccination campaigns have nearly eradicated B. abortus, which can cause abortions in cattle. The bovine vaccine reduces the risk of people contracting brucellosis from infected cows. However, in rare cases, vaccinated cows can shed RB51 in their milk. The only way to avoid this potential exposure to RB51 is to drink pasteurized milk. The heat of pasteurization kills RB51, other types of Brucella, and a variety of other disease-causing bacteria.

Human brucellosis cases in the

Raw Milk *Continued on page 10*

Raw Milk (Continued from page 9)

United States have fallen from about 3,000 per year in the 1950s to 100-150 –per year in recent years. Most cases of brucellosis in the U.S. are caused by strains other than B. abortus and occur in people who traveled to countries where Brucella is more common and drank contaminated milk or had contact with infected animals. Among cases who acquired brucellosis in the U.S., infections occur from contact with feral swine or, more rarely, dogs, or because of accidental exposures among lab workers testing samples from ill people.

More info on raw milk: https://www.cdc.gov/foodsafety/rawmilk/raw-milk-index.html.

The only way to avoid potential exposure to RB51 is to drink pasteurized milk.

Source: CDC Newsroom Releases; Nov 21, 2017; https://www.cdc.gov/media/releases/2017/p1121-contaminated-raw-milk.html

Only 1 in 10 Adults Get Enough Fruits or Vegetables

Just 1 in 10 adults meet the federal fruit or vegetable recommendations, according to a new study published in CDC's *Morbidity and Mortality Weekly Report* (1).

Depending on their age and sex federal guidelines recommend that adults eat at least 1½ to 2 cups per day of fruit and 2 to 3 cups per day of vegetables as part of a healthy eating pattern. Yet in 2015, just 9 percent of adults met the intake recommendations for vegetables, ranging from 6 percent in West Virginia to 12 percent in Alaska. Only 12 percent of adults met the recommendations for fruit, ranging from 7 percent in West Virginia to 16 percent in Washington, D.C. Results showed that consumption was lower among men, young adults, and adults living in poverty.

In 2015, just 9 percent of adults met the intake recommendations for vegetables, ranging from 6 percent in West Virginia to 12 percent in Alaska.

"This report highlights that very few Americans eat the recommended amount of fruits and vegetables every day, putting them at risk for chronic diseases like diabetes and heart disease," said Seung Hee Lee Kwan, Ph.D., of CDC's Division

Fruits and Vegetables *Continued on page 11*

Fruits and Vegetables (Continued from page 10)

Eating a diet rich in fruits and vegetables daily can help reduce the risk of many leading causes of illness and death, including heart disease, type 2 diabetes, and some cancers.

of Nutrition, Physical Activity and Obesity, lead author of the study. "As a result, we're missing out on the essential vitamins, minerals, and fiber that fruits and vegetables provide."

Seven of the top 10 leading causes of death in the United States are from chronic diseases. Eating a diet rich in fruits and vegetables daily can help reduce the risk of many leading causes of illness and death, including heart disease, type 2 diabetes, some cancers, and obesity.

The findings indicate a need to identify and address barriers to fruit and vegetable consumption. Previous studies have found that high cost, limited availability and access, and perceived lack of cooking/preparation time can be barriers to fruit and vegetable consumption.

The CDC Guide to Strategies to Increase the Consumption of Fruits and Vegetables suggests 10 strategies to increase access to fruits and vegetables, including these:

- Start or expand farm-to-institution programs in childcare, schools, hospitals, workplaces, and other institutions.
- Improve access to retail stores and markets that sell high quality fruits and vegetables.
- Ensure access to fruits and vegetables in cafeterias and other food service venues in worksites, hospitals, and universities.

To address other barriers, families can save time and money by chopping extra fruit or vegetables at one time and freezing the extra or choosing frozen or canned fruits and vegetables at the store. For more tips on convenient and affordable ways to eat a healthy diet, please visit www.choosemyplate.gov.

"Families can benefit from having healthy foods available wherever they live, learn, work, and play," said Ruth Petersen, M.D., director of

Previous studies have found that high cost, limited availability and access, and perceived lack of cooking/preparation time can be barriers to fruit and vegetable consumption.

Fruits and Vegetables *Continued on page 12*

Fruits and Vegetables (Continued from page 11)

CDC's Division of Nutrition, Physical Activity, and Obesity. "Communities, worksites, schools, hospitals, and other institutions can work together to support healthy eating for all Americans."

CDC researchers analyzed data from the 2015 Behavioral Risk Factor Surveillance System to estimate the percentage of each state's population meeting the intake recommendations by age, sex, race/ethnicity, and poverty-income ratio for the 50 states and District of Columbia (DC).

To learn more about how CDC works to make healthy eating and active living accessible for all Americans, visit the Division of Nutrition, Physical Activity and Obesity at https://www.cdc.gov/nccdphp/dnpao/index.html.

"Families can benefit from having healthy foods available wherever they live, learn, work, and play," said Ruth Petersen, M.D., director of CDC's Division of Nutrition, Physical Activity, and Obesity.

Reference:

1. Lee-Kwan SH, Moore LV, Blanck HM, et al. Disparities in State-Specific Adult Fruit and Vegetable Consumption - United States, 2015. MMWR Morb Mortal Wkly Rep. 2017 Nov 17;66(45):1241-1247. doi: 10.15585/mmwr.mm6645a1.

Source: CDC Newsroom Releases; Nov 14, 2017; https://www.cdc.gov/media/releases/2017/p1116-fruit-vegetable-consumption.html

Food Safety Tips for Healthy Holidays

Parties, family dinners, and other gatherings where food is served are all part of the holiday cheer. But the merriment can change to misery if food makes you or others ill.

Typical symptoms of foodborne illness are vomiting, diarrhea, and flu-like symptoms, which can start anywhere from hours to days after contaminated food or drinks are consumed.

The symptoms usually are not long-lasting in healthy people—a few hours or a few

Healthy Holidays *Continued on page 13*

Healthy Holidays (Continued from Page 12)

days—and usually go away without medical treatment. But foodborne illness can be severe and even life-threatening to anyone, especially those most at risk:

- older adults
- infants and young children
- pregnant women
- people with HIV/AIDS, cancer, or any condition that weakens their immune system
- people who take medicines that suppress the immune system; for example, some medicines for rheumatoid arthritis

Combating bacteria, viruses, parasites, and other contaminants in our food supply is a high priority for the Food and Drug Administration. But consumers have a role to play, too, especially when it comes to safe food-handling practices in the home.

"The good news is that practicing four basic food safety measures can help prevent foodborne illness," says Marjorie Davidson, a consumer educator at FDA.

1. Clean:

The first rule of safe food preparation in the home is to keep everything clean.

- Wash hands with warm water and soap for 20 seconds before and after handling any food. "For children, this means the time it takes to sing 'Happy Birthday' twice," says Davidson.
- Wash food-contact surfaces (cutting boards, dishes, utensils, countertops) with hot, soapy water after preparing each food item and before going on to the next item.
- Rinse fruits and vegetables thoroughly under cool running water and use a produce brush to remove surface dirt.
- Do not rinse raw meat and poultry before cooking. "Washing these foods makes it more likely for bacteria to spread to areas around the sink and countertops," says Davidson.

Healthy Holidays *Continued on page 13*

Healthy Holidays (Continued from page 14)

2. Separate:

Don't give bacteria the opportunity to spread from one food to another (cross-contamination).

This is an example of what NOT to do.

- Keep raw eggs, meat, poultry, seafood, and their juices away from foods that won't be cooked. Take this precaution while shopping in the store, when storing in the refrigerator at home, and while preparing meals.
- Consider using one cutting board only for foods that will be cooked (such as raw meat, poultry, and seafood) and another one for those that will not (such as raw fruits and vegetables).
- Keep fruits and vegetables that will be eaten raw separate from other foods such as raw meat, poultry or seafood—and from kitchen utensils used for those products.
- Do not put cooked meat or other food that is ready to eat on an unwashed plate that has held any raw eggs, meat, poultry, seafood, or their juices.

3. Cook:

Food is safely cooked when it reaches a high enough internal temperature to kill harmful bacteria.

- "Color is not a reliable indicator of doneness," says Davidson. Use a food thermometer to make sure meat, poultry, and fish are cooked to a safe internal temperature. To check a turkey for safety, insert a food thermometer into the innermost part of the thigh and wing and the thickest part of the breast. The turkey is safe when the temperature reaches 165°F. If the turkey is stuffed, the temperature of the stuffing should be 165°F. (Please read on for more pointers on stuffing.)
- Bring sauces, soups, and gravies to a rolling boil when reheating.
- Cook eggs until the yolk and white are firm. When making your own eggnog or other recipe calling for raw eggs, use pasteurized shell eggs, liquid or frozen pasteurized egg products, or powdered egg whites.
- Don't eat uncooked cookie dough, which may contain raw eggs.

Healthy Holidays *Continued on page 15*

Healthy Holidays (Continued from page 14)

4. Chill:


Image credit: Rubbermaid Products / Flickr, Used under Creative Commons 2.0 https://creativecommons.org/licenses/by/2.0/

Refrigerate foods quickly because harmful bacteria grow rapidly at room temperature.

- Refrigerate leftovers and takeout foods—and any type of food that should be refrigerated—within two hours. That includes pumpkin pie!
- Set your refrigerator at or below 40ºF and the freezer at 0ºF. Check both periodically with an appliance thermometer.
- Never defrost food at room temperature. Food can be defrosted safely in the refrigerator, under cold running water, or in the microwave. Food thawed in cold water or in the microwave should be cooked immediately.
- Allow the correct amount of time to properly thaw food. For example, a 20-pound turkey needs four to five days to thaw completely when thawed in the refrigerator.
- Don't taste food that looks or smells questionable. Davidson says, "A good rule to follow is, when in doubt, throw it out."
- Leftovers should be used within three to four days.

Bonus Tip: Use Care with Stuffing!

Whether it is cooked inside or outside the bird, all stuffing and dressing must be cooked to a minimum temperature of 165ºF. For optimum safety, cooking your stuffing in a casserole dish is recommended.

- Stuffing should be prepared and stuffed into the turkey immediately before it's placed in the oven.
- Mix wet and dry ingredients for the stuffing separately and combine just before using.
- The turkey should be stuffed loosely, about 3/4 cup stuffing per pound of turkey.
- Any extra stuffing should be baked in a greased casserole dish.

Information on food safety is also available by phone at:

The FDA Food Information Line
1-888-SAFEFOOD (1-888-723-3366)

The USDA Meat and Poultry Hotline
1-888-MPHotline (1-888-674-6854)
TTY 1-800-256-7072

Source: FDA Consumer Updates; Nov 21, 2017; https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm092815.htm

The University of California prohibits discrimination against or harassment of any person employed by or seeking employment with the University on the basis of race, color, national origin, religion, sex, gender, gender expression, gender identity, pregnancy, physical or mental disability, medical condition (cancer-related or genetic characteristics), genetic information (including family medical history), ancestry, marital status, age, sexual orientation, citizenship, status as a protected veteran or service in the uniformed services.

University policy prohibits retaliation against any employee or person seeking employment for bringing a complaint of discrimination or harassment. University policy also prohibits retaliation against a person who assists someone with a complaint of discrimination or harassment, or participates in any manner in an investigation or resolution of a complaint of discrimination or harassment. Retaliation includes threats, intimidation, reprisals, and/or adverse actions related to employment.

The University of California is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability, age or protected veteran status.

University policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University's equal employment opportunity policies may be directed to:

Academic: Susan Carlson, Ph.D., Vice Provost – Academic Personnel, UC Office of the President. (510) 987-9479. E-mail: susan.carlson@ucop.edu

Staff and Management: Dwaine B. Duckett, VP – Human Resources, UC Office of the President. (510) 987-0301. E-mail: dwaine.duckett@ucop.edu

UCDAVIS

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