The American Journal of Clinical Nutrition
March 2018 Media Alert

The following articles are being published in the March 2018 issue of *The American Journal of Clinical Nutrition (AJCN)*, a publication of the American Society for Nutrition. Full summaries and analyses are available on the ASN website. Links to the articles are below. Articles published in *AJCN* are embargoed until the article appears online either as in press (Advance Articles) or as a final version. The embargoes for the following articles have expired.

How sweet it is! But does eating sweets affect your desire for eating more of them?

Evaluation of all studies published to date provides no evidence that consuming sweet foods or beverages (regardless of whether they are artificially or naturally sweetened) influences desire for more sweets.

Appleton KM, Tuorila H, Bertenshaw EJ, de Graaf C, Mela DJ. Sweet taste exposure and the subsequent acceptance and preference for sweet taste in the diet: systematic review of the published literature. *American Journal of Clinical Nutrition* 2018;107:405–19.

Garbage in, garbage out: what can researchers do with errors in electronic medical data?

Painstaking analysis of individual body weights in electronic medical databases suggests that 1 in 100 values is likely incorrect. Removing these erroneous data is critical for accurate interpretation of relations between body weight and health.

Chen S, Banks WA, Sheffrin M, Bryson W, Black M, Thielke SM. Identifying and categorizing spurious weight data in electronic medical records. *American Journal of Clinical Nutrition* 2018;107:420–6.

Tekwe CD. Addressing inaccurate measures of body weights in epidemiologic and clinical surveillance data involving older adults. *American Journal of Clinical Nutrition* 2018;107:301–2.

Do teenage girls with anorexia nervosa recover muscle mass after treatment?

Anorexia nervosa, a serious consequence of inappropriate body weight perception, can lead to life-threatening loss of muscle. New research finds that this deficit is not necessarily reversed with rehabilitation.

Haas V, Kent D, Kohn MR, Madden S, Clarke S, Briody J, Fischer F, Műller MJ, Gaskin K. Incomplete total body protein recovery in adolescent patients with anorexia nervosa. *American Journal of Clinical Nutrition* 2018;107:303–12.

Trade-offs: is mother's employment good or bad for infant and young child nutrition in developing nations?

Whereas women's employment has myriad benefits to families worldwide, some worry that it might negatively affect breastfeeding and child nutrition in low-income nations. New findings should quell these concerns.

Oddo VM, Ickes SB. Maternal employment in low- and middle-income countries is associated with improved infant and young child feeding. *American Journal of Clinical Nutrition* 2018;107:335–44.

How sweet it is! But does eating sweets affect your desire for eating more of them?

Background Experts agree that humans innately like sweet foods. However, with today's skyrocketing obesity rates and the presence of sugars in many of the foods and beverages we consume, most health recommendations suggest substantially lowering the amount of sugar we eat—a goal easier said than done. Indeed, chronic consumption of sweet foods might make some of us want even more—the veritable "sweet tooth" phenomenon. Conversely, eating sweet foods (whether they contain real sugar or low-calorie substitutes) might suppress the desire to consume additional sweet foods in some people. Despite today's focus on understanding ways to help people eat less sugar, the verdict is still out as to whether increasing or decreasing the sweetness of a food, beverage, or meal affects our desire to seek out more sweets. Responding to this knowledge gap, Katherine Appleton (Bournemouth University, United Kingdom) and colleagues scoured the literature for all previously published studies on the topic and then combined the data in a process that scientists call a *meta-analysis*. Their findings are described briefly here and published in full in the March 2018 issue of *The American Journal of Clinical Nutrition*.

Study Design To test their hypotheses, Appleton and colleagues screened over 17,000 studies to identify any that appeared to involve a comparison of groups consuming different amounts of sweet foods or some sort of sweet-food intervention, with appropriately measured responses. Despite the vast number of studies published, they found that only 21 studies met the criteria for addressing their research question. Nonetheless, they combined the data from these studies for further analysis.

Results Findings from the various studies were notably inconsistent, and when combined provided little to no evidence for a consistent or predictable effect of consuming sweetness on subsequent consumption of sweet foods. Although eating sweet foods tended to reduce acute preferences for sweetness, no clear relations were apparent in the long term.

Conclusions The authors concluded that there is inconclusive evidence pointing to an impact of varying exposure to sweet taste on subsequent generalized sweet taste preferences. They urge future research to involve substantially more participants, better defined interventions, and sufficiently long durations to confidently address the complexities of this topic.

Reference

Appleton KM, Tuorila H, Bertenshaw EJ, de Graaf C, Mela DJ. Sweet taste exposure and the subsequent acceptance and preference for sweet taste in the diet: systematic review of the published literature. *American Journal of Clinical Nutrition* 2018;107:405–19.

For more information

For the complete article, please go to the following URL:

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Garbage in, garbage out: what can researchers do with errors in electronic medical data?

Background Analyzing large, electronic medical databases has become a mainstay for clinicians, researchers, and public health experts interested in studying almost every aspect of human health and wellbeing. This is particularly true when it comes to understanding relations between body weight and risk of a variety of conditions such as cardiovascular disease and cancer. However, there are inevitably mistakes in these databases, and inclusion of erroneous data can have substantial impacts on conclusions drawn from them. For instance, if a person's weight is 185 pounds but is entered into the database as 18.5 pounds, this could bias results obtained. Removing inaccurate values from large databases is exceedingly difficult for a variety of reasons, and researchers continue to grapple with ways to do this efficiently. In the March 2018 issue of *The American Journal of Clinical Nutrition,* Stephen Thielke (University of Washington) and colleagues report one possible solution to this enduring scientific challenge.

Study Design The researchers' primary goal was to estimate how frequently errors in body weight are found in large electronic medical records and to determine the likely causes of these mistakes. From this information, they then sought to develop user-friendly mathematical equations (algorithms) to identify erroneous data points so they could be removed. To do this, they used data from 10,000 randomly selected patients at US Veteran's Administration facilities. Importantly, each patient's records contained a minimum of 10 weight measurements over a period of ~10 years. Average body weight changes over time were graphed, mathematically modeled, and characterized. Then the researchers painstakingly reviewed each record to identify spurious values and likely reasons for the mistakes.

Results Using their algorithms, the researchers were able to identify an impressive number of likely mistakes. In fact, they estimated that ~1 in 100 weights in the electronic records were spurious and should be removed. They also identified a variety of reasons why these mistakes were made. About 40% were due to a single digit error (for instance entering 117 when the true value was 177), and another 13% were due to entering a person's weight in kilograms rather than pounds or incorrectly converting pounds to kilograms.

Conclusions The researchers concluded that mistakes are common in electronic medical records, at least when it comes to body weight, and recommend others use algorithms to identify and remove these data. Equations for identifying spurious values can be applied easily using a spreadsheet or computer code. The algorithms could also be used to screen data when they are entered into the electronic medical record and to alert the person entering the data to the error. This approach should lead to greater accuracy in the dataset and therefore more robust findings when the data are used in research.

References

Chen S, Banks WA, Sheffrin M, Bryson W, Black M, Thielke SM. Identifying and categorizing spurious weight data in electronic medical records. *American Journal of Clinical Nutrition* 2018;107:420–6.

Tekwe CD. Addressing inaccurate measures of body weights in epidemiologic and clinical surveillance data involving older adults. *American Journal of Clinical Nutrition* 2018;107:301–2.

For more information

For the complete article, please go to the following URL:

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For the complete editorial, please go to the following URL:

To contact the corresponding author, Carmen Tekwe, please send an e-mail to cdtekwe@sph.tamhsc.edu.

Do teenage girls with anorexia nervosa recover muscle mass after treatment?

Background Anorexia nervosa is an eating disorder driven by an intense fear of gaining weight. People with anorexia suffer from distorted perceptions of their body weight, feeling as if they are overweight even as they become dangerously thin. To maintain what they perceive as "healthy" body weight, people with anorexia severely limit their food intake and often follow extreme exercise programs. Together, this can lead to critically low lean body mass with serious, long-term detrimental effects on physical health such as loss of muscle mass. These unhealthy outcomes are of particular concern during adolescence, when dietary protein requirements increase to support growth and development associated with puberty. Little is known, however, about whether deficits in lean body mass are corrected after successful treatment. To help fill this knowledge gap, Verena Haas and colleagues assessed total body protein in teens with anorexia nervosa before and 7 months after they were treated. Their results can be found in the March 2018 issue of *The American Journal of Clinical Nutrition*.

Study Design This study, conducted in Australia, included 103 girls (12–19 years old) with anorexia nervosa and 51 healthy control subjects. All the subjects with anorexia underwent highly supervised, hospital-based rehabilitation, beginning with tube feeding and progressing to oral meal plans when appropriate. To investigate if protein status and other less technical measures of health (for instance, body mass index) might be used to predict which girls had the greatest protein deficits, body composition was measured using state-of-the-science methods at hospital admission; some of the girls were also assessed 7 months later.

Results As anticipated, total body nitrogen (an indicator of nitrogen status) in the girls with anorexia was substantially lower than that of healthy girls. About 1 in 3 of the girls with anorexia were diagnosed as having protein depletion, and body mass index was not a good indicator of which girls were categorized as such. Interestingly, patients classified as "exercisers" maintained better protein status than did more sedentary patients. Despite increases in body weight over the course of treatment, protein status did not improve in the girls with anorexia.

Conclusions The authors concluded that weight rehabilitation for individuals with anorexia does not necessarily result in re-establishment of healthy levels of muscle mass. Because protein depletion has been linked to growth deficits and weak bones, more research is warranted—first to understand better the origin of incomplete protein recovery and ultimately to improve treatment strategies for patients with anorexia nervosa.

Reference

Haas V, Kent D, Kohn MR, Madden S, Clarke S, Briody J, Fischer F, Műller MJ, Gaskin K. Incomplete total body protein recovery in adolescent patients with anorexia nervosa. *American Journal of Clinical Nutrition* 2018;107:303–12.

For more information

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Trade-offs: is mother's employment good or bad for infant and young child nutrition in developing nations?

Background In 2016, the United Nations adopted 17 broad-ranging objectives, referred to as the Sustainable Development Goals, that collectively call for global action to promote prosperity of all people. One of these goals is to achieve gender equality and empower women and girls. This includes encouraging employment outside the home. Although women's employment has many benefits (for instance, improving household financial security and ability to purchase nutritious food), there is some concern that increased time spent at work might have negative trade-offs, such as lowering breastfeeding rates or having less time to prepare meals. To help understand whether there might be these sorts of unintended negative consequences of women's employment, Vanessa Oddo and Scott Ickes (University of Washington) analyzed an extensive dataset collected previously in 50 low- and middle-income countries. Their findings, briefly described here, are published in detail in the March 2018 issue of *The American Journal of Clinical Nutrition*.

Study Design Oddo and Ickes leveraged data from the Demographic and Health Surveys, administered by the US Agency for International Development (USAID) between 2010 and 2017. From these data, they investigated relations between maternal employment and indicators of infant and child feeding. These included exclusive breastfeeding, diversity of meals consumed, and how often children were fed. In total, data obtained from 137,208 mothers and their children were included.

Results Employment status did not appear to influence rates of exclusive breastfeeding in the first few months of life. However, women who were employed were less likely than those who were not to still be breastfeeding when their infants were 1 year old. Nonetheless, maternal employment was a predictor of better dietary diversity and increased meal frequency for young children.

Conclusions The research team concluded that efforts to promote employment among mothers may be an effective method for improving infant and child nutrition in low- and middle-income countries. However, these mothers and their infants may benefit from enhanced societal and employer support to enable continued breastfeeding through the first year of life.

Reference
Oddo VM, Ickes SB. Maternal employment in low- and middle-income countries is associated with improved infant and young child feeding. *American Journal of Clinical Nutrition* 2018;107:335–44.

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