The following articles are being published in the February 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](http://www.asnmicronutrition.org). Links to the articles are below. Articles published in AJCN are embargoed until the article appears online either as in press (Articles in Press) or as a final version. The embargoes for the following articles have expired.

**Meal-replacement beverages and bars coupled with behavioral counseling may help reduce excessive weight gain in pregnancy**

Newly published results from randomized dietary intervention study suggests that combining specialized meal-replacement foods with counseling regarding diet and exercise might help women gain appropriate amounts of weight while pregnant.


**New research focuses on understanding dietary impacts on malnutrition of older individuals**

Two independently conducted studies provide additional evidence for the importance of dietary protein on nutritional status of older individuals.


**New study highlights difficulty in successfully following a gluten-free diet**

New research suggests that “gluten-free” diets are far from gluten free.


**Synthetic folate: new evidence that more might not be better for patients with bladder cancer**

Higher consumption of synthetic folic acid found in fortified foods and supplements, but not naturally occurring folate, may be linked to recurrence of bladder cancer.
Meal-replacement beverages and bars coupled with behavioral counseling may help reduce excessive weight gain in pregnancy

Background With global obesity rates skyrocketing, researchers and clinicians continue to explore ways to prevent and treat excessive weight gain. Pregnancy represents a potentially important window of opportunity in this regard because not only is gaining too much weight bad for the baby, it also substantially increases a mother’s chance of becoming obese and developing related conditions such as type 2 diabetes. Experts estimate that most women in the United States gain too much weight while pregnant, with obese women being particularly prone to excessive weight gain. However, previous attempts to thwart unhealthy weight gain during pregnancy have been largely unsuccessful. In an article published in the February 2018 issue of The American Journal of Clinical Nutrition, however, researchers report their findings that coupling behavioral counseling with partial meal replacements might prove successful.

Study Design This study, which was conducted in both California and Rhode Island, involved 257 pregnant overweight or obese women, 42% of whom were Hispanic. Half the women were randomly assigned to receive usual prenatal care and additional mailings regarding healthy habits during pregnancy. The other half received usual care plus behavioral counseling and meal replacements. More specifically, they were provided customized beverages and bars designed to replace up to 2 of their daily meals; they were also given pedometers and urged to progressively increase their activity to 10,000 steps each day. During the course of the study, the women were also weighed and evaluated for cardiovascular disease risk.

Results As hypothesized, compared with those receiving usual care, the women receiving behavioral counseling and meal replacements gained less weight and were less likely to have gained amounts in excess of current recommendations. In addition, behavioral counseling coupled with meal replacements lowered triglycerides and tended to decrease fasting glucose concentrations and systolic blood pressure.

Conclusions The researchers concluded, “The intervention offers an alternative to current guidelines, which recommend general healthy eating and activity for pregnant women yet have little evidence for reducing pregnancy weight gain in women with obesity.”


For more information For the complete article, please go to the following URL: To contact the corresponding author, Suzanne Phelan, please send an e-mail to sphelan@calpoly.edu.
New research focuses on understanding dietary impacts on malnutrition of older individuals

Background Consuming adequate protein, or more accurately its amino acid building blocks, is critical throughout the lifespan. Despite the year-round availability of affordable, high-quality, protein-rich foods such as meat, dairy, and eggs in industrialized societies, protein deficiency is a major health concern in older adults. The February 2018 issue of The American Journal of Clinical Nutrition highlights 2 recently conducted studies designed to shed important light on dietary factors predisposing older individuals to protein (and energy) malnutrition and a possible solution via increasing consumption of leucine, an essential amino acid.

Study Designs The primary objective of one of the studies, led by Linda Hengeveld (Vrije University, Netherlands), was to determine whether poor diet quality is related to protein-energy malnutrition in older individuals living at home. Leveraging data collected previously as part of the Health, Aging, and Body Composition Study, the research team documented whether particular dietary factors, including low protein intake, were associated with onset of protein-energy malnutrition. After providing baseline dietary information, the participants were followed for 3 or 4 years. In the other study, Stuart Phillips (McMaster University, Canada) studied what happens to the body’s ability to build muscle when consumption of leucine is increased. In this study, 11 older women agreed to consume, for 6 days, beverages with low or high leucine content. The researchers hypothesized that consumption of the leucine-enriched beverage would enhance muscle synthesis both after a meal and after exercise.

Results and Conclusions Not surprisingly, Hengeveld and colleagues found that nearly 80% of their study participants consumed diets that could be classified as “poor quality” or “needs improvement,” and 25% were diagnosed with protein-energy malnutrition. However, neither overall diet quality nor low protein consumption preceded this diagnosis. The researchers urge others to replicate their study in other populations of home-living older adults. The hypothesis of Phillips and coworkers was supported by their study’s results, suggesting that increasing leucine consumption might be beneficial in this population. Together, these studies provide much-needed information as to how diet is linked to health of older individuals, particularly as it relates to protein-energy malnutrition and muscle synthesis. As life expectancies continue to increase, understanding dietary factors associated with optimal health should continue to be an important focus for nutrition researchers.

References
Volpi E. Is leucine content in dietary protein the key to muscle preservation in older women? 

**For more information**

For the complete article by Hengeveld et al, please go to the following URL: 
To contact the corresponding author, Linda Hengeveld, please send an e-mail to linda.hengeveld@vu.nl.

For the complete article by Devries et al, please go to the following URL: 
To contact the corresponding author, Stuart Phillips, please send an e-mail to phillis@mcmaster.ca.
New study highlights difficulty in successfully following a gluten-free diet

**Background** Celiac disease is a digestive disorder that can damage the small intestine, lead to impaired nutrient absorption and other life-long health issues, and even cause psychological concerns. The disease is triggered by eating foods containing gluten, a protein found naturally in wheat, barley, and rye and therefore common in bread, pasta, cookies, and cakes. Many prepackaged foods, lip balms and lipsticks, hair and skin products, toothpastes, and supplements and medicines also contain gluten. Celiac disease is thought to affect as many as one in every 141 Americans, although most do not know they have it, and many others (gluten intolerant) respond less severely when they eat gluten-containing foods. There is currently no way to prevent or treat celiac disease and gluten intolerance other than to completely avoid gluten. However, for a variety of reasons, this can be difficult to impossible unless one knows exactly what ingredients have gone into everything he or she eats and drinks. Indeed, in a study published in the February 2018 issue of *The American Journal of Clinical Nutrition* and briefly described here, a research team led by Jack Syage (ImmunogenX, Newport Beach, CA) provide evidence that celiac disease patients attempting to eat a completely gluten-free diet may still be consuming high enough amounts of gluten to trigger symptoms affecting quality of life and cause substantial intestinal damage.

**Study Design** To estimate inadvertent gluten consumption by celiac disease patients, Syage and colleagues first evaluated previously published studies quantifying how much gluten is excreted in the urine and stools when people following a gluten-free diet consume known amounts of gluten. The researchers then combined this information with previously published values for urine and stool gluten concentrations in both healthy individuals eating regular foods and celiac disease patients following gluten-free diets.

**Results and Conclusions** Syage and coworkers estimate that gluten consumption by celiac disease individuals following gluten-free diets averages anywhere from 100 to 400 mg/day. As a comparison, nonceliac disease healthy individuals consume an average of ~10,000 mg gluten each day. Given that as little as 50 mg gluten can be harmful to some celiac disease patients, the researchers urge consideration of how the gluten content of foods can be more accurately labeled and food preparation and processing better controlled. In addition, understanding measures, above and beyond gluten avoidance, that can help treat this disease is clearly warranted.

**Reference**

**For more information**
For the complete article, please go to the following URL:
To contact the corresponding author, Jack Syage, please send an e-mail to jsyage@immunogenx.com.
**Synthetic folate: new evidence that more might not be better for patients with bladder cancer**

**Background** Folate is a B vitamin naturally found in many fruits and vegetables. Folate is used by the body to make a new complement of deoxyribonucleic acid (DNA, which encodes our genetic material) every time a cell divides; thus, the vitamin is critical for growth and development. A synthetic and slightly different form, referred to as *folic acid*, is found in dietary supplements and used to fortify certain foods. Because research has provided convincing evidence that consuming a substantial amount of folic acid in addition to that found naturally in our foods can reduce the risk of some birth defects, women are urged to consume folic acid–containing supplements. In addition, in the United States and several other nations, foods labeled as being “enriched” are now required to be fortified with folic acid. Consequently, folic acid intake has significantly increased over the past couple of decades. There is substantial controversy, however, about potential unintended negative consequences of these initiatives. This is because some studies suggest that too much folic acid might increase risk of some forms of cancer—an outcome consistent with its role in cell division. To investigate this possibility, Xifeng Wu (MD Anderson Cancer Center, Houston, TX) and colleagues studied relations between recurrence of bladder cancer and folate/folic acid intake over a period of ~5 years. Their findings, published in the February 2018 issue of *The American Journal of Clinical Nutrition*, suggest higher recurrence in patients with the highest intakes of folic acid (but not naturally occurring folate).

**Study Design** Wu and his research team followed 619 adults who had been diagnosed and treated for non–muscle-invasive bladder cancer, which has an impressive 5-year survival rate of 89–99% but also a 50% chance of recurrence. Intakes of folate and folic acid from foods, beverages, and supplements were estimated using dietary questionnaires.

**Results** After mathematically adjusting for calorie intake and other variables known to be associated with bladder cancer risk (e.g., age and smoking), study participants consuming the highest amounts of synthetic folic acid were 80% more likely than those consuming the least to have experienced cancer recurrence. Conversely, those consuming the most naturally occurring folic acid tended to have lower risk of recurrence than subjects consuming the least.

**Conclusions** The research team concluded that consuming folic acid may be unsafe for individuals with bladder cancer and that targeted nutritional advice to this effect might be warranted.

**References**


**For more information**

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