The American Journal of Clinical Nutrition

Media Alerts

The following articles have been published in the December 2018 issue of The American Journal of Clinical Nutrition (AJCN), a publication of the American Society for Nutrition. Summaries of the selected articles appear below; the full text of each article is available by clicking on the links listed. Manuscripts 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:

- Precision nutrition: a new approach to optimizing nutrient intervention
- Vitamin D and kidney function: is there a connection?
- Screening tools for malnutrition, sarcopenia, and cachexia: casting a wide net
- Increasing intake of whole-grain wheat may help reduce liver fat

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**Precision nutrition: a new approach to optimizing nutrient intervention**

*Magnesium supplementation optimizes vitamin D status.*

Although nutrition guidelines often focus on single nutrients, it is important to recognize that nutrients do not function in isolation. In a recent study published in the December 2018 issue of *The American Journal of Clinical Nutrition*, Qi Dai (Vanderbilt University) and colleagues test the hypothesis that magnesium supplementation differentially affects vitamin D metabolism dependent on baseline vitamin D concentration. Subjects between 40 and 85 years old took part in the randomized controlled trial. Doses for both magnesium and placebo were customized based on baseline dietary intakes of calcium and magnesium as well as their calcium-to-magnesium intake ratio. After measuring changes in plasma vitamin D metabolite concentrations over the course of the study, the authors found that magnesium supplementation increased vitamin D concentration when baseline concentrations were close to 30 ng/mL, but decreased when baseline levels were approximately 30–50 ng/mL. This study provides the first evidence that adequate magnesium status could potentially prevent vitamin D-related adverse events, and is important for optimizing vitamin D status.


**For more information:** To contact the corresponding author, Qi Dai, please send an e-mail to qi.dai@vanderbilt.edu. To contact the corresponding author for the editorial, Simin Liu, please send an e-mail to simin_liu@brown.edu.

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Vitamin D and kidney function: is there a connection?
Severe vitamin D deficiency can increase risk of impaired kidney function even in healthy adults. Numerous studies support the role of vitamin D in disease prevention, especially when it comes to maintaining healthy bones. However, a lesser-known fact is that vitamin D can also impact kidney function. Not only does vitamin D deficiency accelerate the progression of chronic kidney disease, vitamin D supplementation has been found to improve clinical outcomes. A study published in the December 2018 issue of The American Journal of Clinical Nutrition by Jong Hyun Jhee (Inha University College of Medicine, Korea) and colleagues provides important insights into the association between vitamin D status and renal function within a large community-based cohort of reasonably healthy adults. The study utilized data from a nationwide Korean population-based cross-sectional study conducted between 2008 and 2015. The authors found that estimated glomerular filtration rate was negatively associated with vitamin D concentrations. The findings provide evidence of an association between severe vitamin D deficiency and increased risk of impaired kidney function.


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Screening tools for malnutrition, sarcopenia, and cachexia: casting a wide net

No single screening assessment tool differentiates causes related to unintentional weight loss.

Unintentional weight loss occurs during aging and is also associated with chronic disease and cancer. It can be categorized into 3 primary syndromes: cachexia (weight loss caused by chronic disease and cancer), age-related sarcopenia (muscle loss associated with the aging process), and malnutrition (weight loss caused by lack of appetite and dietary intake decline). These all present similarly but the underlying mechanisms differ substantially. Therefore, the ability to differentiate between these 3 conditions would improve targeted treatment options for patients. In a recent study published in the December 2018 issue of The American Journal of Clinical Nutrition, Janice Miller (University of Edinburgh, United Kingdom) and colleagues systematically reviewed validated screening tools for cachexia, sarcopenia, and malnutrition in adults in order to make suggestions for the generation of a novel screening tool. Although no single validated screening tool can be implemented for the simultaneous assessment of cachexia, sarcopenia, and malnutrition, the authors propose that the creation of a new tool should incorporate a stepwise assessment of nutritional status, oral intake, disease status, age, muscle mass, and function and metabolic derangement.


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Increasing intake of whole-grain wheat may help reduce liver fat

Whole-grain wheat intervention exerts a protective effect against accumulation of fat in the liver.

Inclusion of whole-grain wheat products in the diet in lieu of refined wheat is encouraged globally. Whereas whole-grain wheat products are associated with reduced risk of obesity, cardiovascular disease, type 2 diabetes, and certain cancers, refined wheat shows inverse associations. In addition, diets rich in whole-grain wheat products may also help reduce the risk of developing nonalcoholic fatty liver disease, a condition characterized by the
accumulation of fat in the liver. In a recent study published in the December 2018 issue of *The American Journal of Clinical Nutrition*, Lydia Afman (Wageningen University, The Netherlands) and colleagues investigated the potential benefits of whole-grain wheat consumption compared with refined-wheat consumption on liver health and associated metabolic parameters. After a 4-week run-in period to reduce variation of whole-grain wheat intake, subjects consumed either 98 g of whole-grain or refined flour per day. Products included bread and ready-to-eat cereals. At the end of the intervention period, data showed the refined wheat intervention increased liver fat, whereas whole-grain wheat had a protective effect against lipid accumulation in the liver.


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