

This edition of the Nutrition Research Update focuses on recent publications pertaining to macronutrient composition and various indices of health and disease.

In this issue, [Dr. Barbara Gower](#), Professor at the University of Alabama-Birmingham and co-author of the recently published, *Dietary carbohydrate restriction as the first approach in diabetes management. Critical review and evidence base*, shares key conclusions from this paper on the management of diabetes. In particular, the paper provides evidence to support that low-carbohydrate diets are an effective approach for reducing blood glucose levels in those with diabetes, and that replacement of carbohydrates with protein is generally beneficial in this regard.

As always, we are committed to advancing new research findings and hope you find these topics thought provoking and relevant to your professional work. If you have any questions, concerns or comments regarding the content in this edition of the Nutrition Research Update, please do not hesitate to contact us at [info@eggnutrition.org](mailto:info@eggnutrition.org).

Regards,



Tia M. Rains, PhD  
Senior Director of Nutrition Research and Communications  
Egg Nutrition Center

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### Low Carbohydrate Diets for Treatment of Diabetes

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"[Effects of dietary supplementation with \*Gynura procumbens\* \(Merr.\) on egg yolk cholesterol, excreta microflora and laying hen performance](#)"

(Lokhande et al. Br Poult Sci. 2014; E-pub ahead of print)

• "[Consuming a Buttermilk Drink Containing Lutein-Enriched Egg Yolk Daily for 1 Year Increased Plasma Lutein but Did Not Affect Serum Lipid or Lipoprotein Concentrations in Adults with Early Signs of Age-Related Macular Degeneration](#)"

(van der Made et al. J Nutr. 2014; E-pub ahead of print)

#### • Protein/Macronutrient Composition

"[Dietary Protein Intake in Elderly Women: Association With Muscle and Bone Mass](#)"

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## SPECIAL FEATURE

## Low Carbohydrate Diets for Treatment of Diabetes



[Barbara A. Gower, PhD](#)

Professor

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Type 1 and type 2 diabetes are both diseases of carbohydrate (CHO) intolerance. People with type 1 do not produce insulin, the hormone that controls blood glucose, while people with type 2 respond poorly to the insulin they produce ("insulin resistance"), and lose the ability to produce sufficient insulin to compensate. Hyperglycemia (high blood sugar) is the obvious feature of both forms of diabetes causing both symptoms and complications. A remarkable paper, with 26 authors, titled "[Dietary carbohydrate restriction as the first approach in diabetes management. Critical review and evidence base](#)" in press at the journal *Nutrition*, presents the following twelve points of evidence to support the use of low-carbohydrate diets (LCDs) in the treatment of diabetes (1).

1. "Hyperglycemia is the most salient feature of diabetes. Dietary carbohydrate restriction has the greatest effect on decreasing blood glucose levels
2. During the epidemics of obesity and type 2 diabetes, caloric increases have been due almost entirely to increased carbohydrate
3. Benefits of dietary carbohydrate restriction do not require weight loss
4. Although weight loss is not required for benefit, no dietary intervention is better than carbohydrate restriction for weight loss
5. Adherence to low-carbohydrate diets in people with type 2 diabetes is at least as good as adherence to any other dietary interventions and is frequently significantly better
6. Replacement of carbohydrate with protein is generally beneficial
7. Dietary total and saturated fat do not correlate with risk of CVD
8. Plasma saturated fatty acids are controlled by dietary carbohydrate more than by dietary lipids
9. The best predictor of microvascular and, to a lesser extent, macro-vascular complications in patients with type 2 diabetes, is glycemic control (HbA1c)
10. Dietary carbohydrate restriction is the most effective method (other than starvation) of reducing serum triglycerides and increasing high-density lipoprotein (HDL)
11. Patients with type 2 diabetes on carbohydrate-restricted diets reduce and frequently eliminate medication. People with type 1 usually require lower insulin
12. Intensive glucose lowering by dietary carbohydrate restriction has no side effects comparable to the effects of intensive pharmacologic treatment"

The article is notable because the twelve points are not particularly radical and, in some ways, are common sense. Reducing dietary sugar and other carbohydrates treats the hyperglycemia of both forms of diabetes, and thereby reduces complications (**Points 1 and 9**). This was observed as far back as the 19th century, and well-controlled research studies have consistently reproduced these findings. At the same time, CHO restriction permits reduction and often elimination of medications, including insulin (**Point 11**). Drug therapy, however, remains the standard of care for diabetes. Lifestyle changes frequently emphasize weight loss.

Feinman et al documents that no strategy for weight loss is better than CHO restriction (**Point 4**). In trial after trial, LCDs outperform other diets. In addition, **Point 3** clarifies that, remarkably, improvement in diabetes with LCDs does not require weight loss. LCDs, when paired head-to-head with low-fat diets, have other benefits. Contrary to expectations, LCDs improve almost all of the risk factors for cardiovascular disease (CVD); they lower triglycerides (fat in the blood), increase HDL-cholesterol (HDL-C; "good cholesterol"), and reduce the most atherogenic fraction of LDL-C (**Point 10**). Although fat intake increases with LCDs, CVD risk is tied to circulating lipids, which are determined by dietary CHO, not dietary total or saturated fat (**Point 7**). Therefore, LCDs reduce circulating saturated fatty acids (**Point 8**). Blood pressure declines due to changes in renal sodium reabsorption due to decreased insulin. Treatment of T2D with LCD, thus, addresses all of the major concerns of diabetes management, with virtually no side effects (**Point 12**).

LCDs are more palatable than conventional low-fat diets, and are easier to follow (**Point 5**). In LCDs, CHO is commonly replaced with fat and, to a lesser extent, protein. Although protein must be limited to ~100g/day to minimize hepatic glucose production, inclusion of adequate protein has beneficial effects (**Point 6**), including retention of lean body mass and increased satiety (2). Popular foods on a LCD include eggs, cheese, avocados, olives, nuts, meat, fowl, fish, salads, and non-starchy vegetables prepared with fat. Butter, olive oil, or coconut oil, considered "healthful fats," are emphasized, further contributing to satiety, reduced hunger, and enhanced enjoyment. Current nutrition guidelines recommend higher CHO, but humans are still better adapted to an ancestral diet that included minimal CHO, and mostly fibrous and unprocessed. Foods formulated with highly processed sugars and starches are relatively recent and their availability parallels the onset and increase in the epidemics of both T2D and obesity (**Point 2**).

## References:

<sup>1</sup> Feinman R, Wendy K Pogozelski WK, Astrup A, Bernstein RK, Fine EJ, Westman EC, Accurso A, Gower BA, McFarlane S, Nielsen JV, Krarup T, Saslow L, Roth KS, Vernon MC, Volek JS, Wilshire GB, Dahlqvist A, Sundberg R, Childers A, Morrison K, Manninen AH, Dashti H, Wood RJ, Wortman J, Worm N. Dietary carbohydrate restriction as the first approach in diabetes management. Critical review and evidence base. *Nutrition*. 2014 (ePub ahead of print)

<sup>2</sup> Martens EA, Westerterp-Plantenga MS. Protein diets, body weight loss and weight maintenance. *Curr Opin Clin Nutr Metab Care*. 2014;17:75-79.

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In May, ENC sponsored a Product Theater breakfast at the American Academy of Physician Assistants (AAPA) Conference in Boston, Massachusetts. The product theatre included an educational session, *New Directions in Macronutrient Intake & Weight Management: From Science to Solutions*, in which Dr. Tia Rains summarized the relationships between historical dietary recommendations, macronutrient intake, and subsequent health outcomes, and discussed the impact of the quality and timing of protein consumption on appetite control and satiety. In addition, Dr. Rains discussed recent findings on physiological and reward-driven eating behavior, and provided recommendations to help individuals build healthy meals reflective of new evidence on macronutrient distribution. In support, Dr. Rains presented several research studies that dispel the myth that American adults consume more protein than necessary and demonstrate the importance of protein in adult weight management.

ENC also sponsored an educational session and dinner in July at the National Nurse Practitioner Symposium (NNPS) in Keystone, Colorado. Dr. Mitch Kanter and Dixie Harms, DNP, ARNP, FNP-C, BC-ADM, FAANP co-presented, *Changing Paradigms Regarding Macronutrient Intake and Health: Translating Science into Meaningful Patient Communication*. Through this presentation, Drs. Kanter and Harms discussed the latest research about how protein can help patients with weight management, defined common carbohydrate-restrictive diets' consequent effects on health, and implemented appropriate intervention messages to impart change with patients. They referenced key research studies to show how protein intake relates to weight management, satiety, sustained energy, the preservation of lean body mass and how patients can recognize these benefits by consuming a nutritious diet.

Some key takeaways from both presentations include:

- Based on current dietary patterns, average protein intakes in the U.S. at breakfast and lunch are inadequate to stimulate maximal protein synthesis; a growing body of evidence suggests that at least 25 g of high quality protein per meal is necessary to stimulate muscle protein synthesis in both young and older individuals (1).
- Although protein consumption in many countries exceeds minimum recommendations for optimal health, the majority of daily protein is often consumed at an evening meal, whereas breakfast is typically carbohydrate rich and low in protein. The consumption of a moderate amount of protein at each meal can stimulate a 25% increase in the rate of 24-h muscle protein synthesis versus skewing protein intake toward the evening meal (2).
- Higher protein consumed at breakfast may induce initial and sustained feelings of fullness, and lead to significant improvements in daily hunger and satiety hormone levels, reduced food cravings prior to dinner and result in consumption of fewer high-fat evening snacks than skipping breakfast (3, 4)
- Eating an egg-containing protein breakfast as part of a reduced-calorie diet may enhance weight loss and lower BMI in overweight and obese participants, thus offering a nutritious supplement to enhance weight loss (5).

References:

<sup>1</sup> Symons TB, Sheffield-Moore M, Wolfe RR, Paddon-Jones D. A moderate serving of high-quality protein maximally stimulates skeletal muscle protein synthesis in young and elderly subjects. *J Am Diet Assoc.* 2009;109:1582-6.

<sup>2</sup> Mamerow MM et al. Dietary protein distribution positively influences 24-h muscle protein synthesis in healthy adults. *J Nutr.* 2014;144:876-80

<sup>3</sup> Leidy HJ, Bossingham MJ, Mattes RD, Campbell WW. Increased dietary protein consumed at breakfast leads to an initial and sustained feeling of fullness during energy restriction compared to other meal times. *Br J Nutr.* 2009;101:798-803.

<sup>4</sup> Leidy HJ, Ortinau LC, Douglas SM, Hoertel HA. Beneficial effects of a higher-protein breakfast on the appetitive, hormonal, and neural signals controlling energy intake regulation in overweight/obese "breakfast-skipping" late-adolescent girls. *Am J Clin Nutr.* 2013;97:677-88.

<sup>5</sup> Vander Wal JS, Gupta A, Khosla P, Dhurandhar NV. Egg breakfast enhances weight loss. *Int J Obes (Lond).* 2008;32:1545-51.

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Key highlights of Dr. Phillip's presentation include:

- The risk for developing sarcopenia increases with age and has been shown to lower quality of life in the elderly. Preventative measures for sarcopenia include physical activity (resistance training, in particular) and adequate (spaced and timed), high-quality protein in the diet. In addition, emerging data shows that the greater strength/muscular mass may be protective against premature mortality from all cause or cancer, especially in individuals over the age of 60 ([1](#), [2](#)).
- Older adults may need more protein than current recommendations, 1.0-1.1 g/kg/d to maintain muscle mass. Aging is associated with reduced food intake, exposing individuals to protein-energy undernutrition.
- Protein ingestion and loading impacts variations in muscle protein synthesis and affects muscle mass. A study by Moore DR et al showed that a dose of 20g of protein maximally stimulates muscle protein synthesis after resistance exercise in young men ([3](#)), and Res PT et al demonstrated that 40g of protein before sleep improves post-exercise overnight recovery ([4](#)). Furthermore, Yang et al found that a dose of 40g of protein maximally stimulates muscle protein synthesis after resistance exercise in elderly men ([5](#)).
- It is recommended that athletes consume four equally spaced protein containing meals/day: 0.25-0.3 g protein/kg/meal and one pre-sleep meal containing 0.6 g protein/kg. Timing and meal spacing are important for optimal protein synthesis and muscle recovery.
- Protein quality is also key. Nutrient-rich protein-containing foods of high biological value, particularly those containing high levels of leucine, promotes a greater increase in both rested and exercised muscle protein synthesis. Eggs, seafood, and fat-free/low-fat milk are all considered good-excellent sources of protein.

## References:

<sup>1</sup> Newman, A.B., Kupelian, V., Visser, M., Simonsick, E.M., Goodpaster, B.H., Kritchevsky, S.B. et al. Strength, but not muscle mass, is associated with mortality in the health, aging and body composition study cohort. *J Gerontol A Biol Sci Med Sci*. 2006;61:72-77.

<sup>2</sup> Ruiz JR, Sui X, Lobelo F, Morrow JR Jr, Jackson AW, Sjöström M, Blair SN. Association between muscular strength and mortality in men: prospective cohort study. *BMJ*. 2008;337:a439.

<sup>3</sup> Moore DR, Robinson MJ, Fry JL, Tang JE, Glover EI, Wilkinson SB, Prior T, Tarnopolsky MA, Phillips SM. Ingested protein dose response of muscle and albumin protein synthesis after resistance exercise in young men. *Am J Clin Nutr*. 2009;89:161-8.

<sup>4</sup> Res PT, Groen B, Pennings B, Beelen M, Wallis GA, Gijsen AP, Senden JM, VAN Loon LJ. Protein ingestion before sleep improves postexercise overnight recovery. *Med Sci Sports Exerc*. 2012;44:1560-9.

<sup>5</sup> Yang Y, Breen L, Burd NA, Hector AJ, Churchward-Venne TA, Josse AR, Tarnopolsky MA, Phillips SM. Resistance exercise enhances myofibrillar protein synthesis with graded intakes of whey protein in older men. *Br J Nutr*. 2012;108:1780-8

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- ["Maternal protein intake during pregnancy and offspring overweight 20 y later"](#)  
 (Maslova et al. Am J Clin Nutr. 2014; E-pub ahead of print)
- ["Whole-body protein turnover response to short-term high-protein diets during weight loss: a randomized controlled trial"](#)  
 (Pasiakos et al. Int J Obes. 2014;38:1015-8)
- ["Appetite control and biomarkers of satiety with vegetarian \(soy\) and meat-based high-protein diets for weight loss in obese men: a randomized crossover trial"](#)  
 (Neacsu et al. Am J Clin Nutr. 2014;100:548-58)
- ["Skeletal Muscle Disuse Atrophy Is Not Attenuated by Dietary Protein Supplementation in Healthy Older Men"](#)  
 (Dirks et al. J Nutr. 2014;144:1196-1203)
- Cardiometabolic Health**  
["Certain dietary patterns are beneficial for the metabolic syndrome: reviewing the evidence"](#)  
 (Calton et al. Nutr Res. 2014;34:559-568)
- ["Inflammation as a link between obesity, metabolic syndrome and type 2 diabetes"](#)  
 (Esser et al. Diab Res Clin Prac. 2014;105:141-150)
- ["Obesity: Have new guidelines overlooked the role of diet composition?"](#)  
 (Astrup & Brand-Miller. Nat Rev Endocrinol. 2014;10:132-3)
- ["Mediterranean dietary pattern, inflammation and endothelial function: A systematic review and meta-analysis of intervention trials"](#)  
 (Schwingshackl & Hoffmann. Nutr Metab Cardiovasc Dis. 2014;24:929-39)
- ["Sex and race differences in caloric intake during sleep restriction in healthy adults"](#)  
 (Spaeth et al. Am J Clin Nutr. 2014;100:559-66)
- Nutrient Density**  
["Effects of 12 weeks high dose vitamin D3 treatment on insulin sensitivity, beta cell function, and metabolic markers in patients with type 2 diabetes and vitamin D insufficiency - a double-blind, randomized, placebo-controlled trial"](#)  
 (Kampmann et al. Metabolism. 2014;63:115-124)
- ["Vitamin D intake, blood 25\(OH\)D levels, and breast cancer risk or mortality: a meta-analysis"](#)  
 (Kim & Ye. Br J Cancer. 2014;110:2772-84)
- Breakfast**  
["The type of fat ingested at breakfast influences the plasma lipid profile of postmenopausal women"](#)  
 (Morillas-Ruiz et al. Biomed Res Int. 2014; E-pub ahead of print)
- ["Psychosocial, behavioural, pedagogical, and nutritional proposals about how to encourage eating a healthy breakfast"](#)  
 (Mameli et al. Ital J Pediatr. 2014;40:73)
- ["A Mediterranean-like breakfast affects energy intake and appetite-related feelings"](#)  
 (Yannakoulia et al. Int J Food Sci Nutr. 2014; E-pub ahead of print)
- Other**  
["The Influence of Menu Labeling on Calories Selected or Consumed: A Systematic Review and Meta-Analysis"](#)  
 (Sinclair et al. J Acad Nutr Diet. 2014;114:1375-1388)
- ["Validity of Consumer-Based Physical Activity Monitors"](#)  
 (Lee et al. Med Sci Sports Exer. 2014;46:1840-48)
- ["Association of Urinary Sodium and Potassium Excretion with Blood Pressure"](#)  
 (Mente et al. N Engl J Med. 2014;371:601-11)
- ["Urinary Sodium and Potassium Excretion, Mortality, and Cardiovascular Events"](#)  
 (O'Donnell et al. N Engl J Med. 2014;371:612-23)
- ["How to read a systematic review and meta-analysis and apply the results to patient care: users' guides to the medical literature"](#)  
 (Murad et al. JAMA. 2014; 312: 171-9)



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