The edition of the Nutrition Research Update focuses on recent publications pertaining to risk factors for chronic diseases.

In this issue, Dr. Mark Kern, Professor at the School of Exercise and Nutritional Sciences at San Diego State University, shares research results from his laboratory on the impact of daily egg-based breakfasts on cardiovascular risk markers. The Egg Nutrition Center’s activities at The Obesity Society’s Annual Scientific Meeting, in Boston, MA, are also highlighted.

We are committed to featuring new and exciting research findings in the Nutrition Research Update on topics relevant to optimal health and disease prevention, and hope the findings of the research presented here will continue to bolster further research grant applications and development in the field of nutrition and disease prevention. Please feel free to contact us at info@eggnutrition.org regarding the content of this edition of the Nutrition Research Update.

Nutrition Research Update
December 2014, Issue 11

Egg Consumption at The Ears

Tia M. Baran, PhD
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The Egg Nutrition Center (ENC) sponsors and organizes a satellite symposium "Protein in Diabetes and Related Disorders" in conjunction with the American Society for Nutrition’s 2013 DIABETES MANAGEMENT: A RANDOMIZED TRIAL (HARING ET AL. PLOS ONE. 2014;9(10):E109552) chaired by Mitch Kanter, PhD, Executive Director, ENC, held on October 18-21, 2014, at The Obesity Society’s Annual Scientific Meeting, in Boston, MA. This symposium is sponsored by The American Egg Board and the National Dairy Council. It will feature over 22 scientific presentations on topics relevant to diabetes and obesity, and to keeping the medical community and public informed of new advances and controversies in clinical nutrition and practice. More information is available at www.eggnutritioncenter.org/Teach/ENC/DIABETES.

Protein in Diabetes and Related Disorders

John H. Kruskall, PhD, RDN; Kara Kasarda, RDN, and team members had the opportunity to share credible science and valuable nutrition solutions with members of the Academy by way of a 75-minute preconference symposium (P5) on "Dietary Protein and Bacterial Infection" and an educational session and egg-based product demonstration, both part of a satellite symposium on "Protein in Diabetes and Related Disorders," held on October 18-21, 2014, at The Obesity Society’s Annual Scientific Meeting, in Boston, MA. To receive future ENC notifications about our upcoming programs, sign up here.

The Controversy of the Role of Dietary Protein in Diabetes and Related Disorders

In 2013, ENC sponsored and organized a satellite symposium "The Controversy of the Role of Dietary Protein in Diabetes and Related Disorders" held on March 31 - April 3, 2015, at the Academy of Nutrition & Dietetics held in Atlanta, GA, and ObesityWeek 2014, The Obesity Society’s Annual Scientific Meeting, in Phoenix, AZ. This symposium is sponsored by The American Egg Board and the National Dairy Council. It will feature over 22 scientific presentations on topics relevant to diabetes and obesity, and to keeping the medical community and public informed of new advances. More information is available at www.eggnutritioncenter.org/Teach/ENC/DIABETES.

Nutrition Research Update

Egg Nutrition Center
Senior Director of Nutrition Research and Communications
Egg Nutrition Center

Look for ENC at these upcoming health professional events:

Environmental Microbiology 2015, April 21-23, Boston, MA
The American College of Sports Medicine (ACSM) Health & Fitness Summit & Expo 2015, April 2-4, Nashville, TN
American College of Sports Medicine (ACSM) Conference (May 1-3, 2015), Philadelphia, PA
Annual Sports, Cardiovascular, and Metabolic Nutrition (SCAN) Symposium: Energy Balance and Weight Management 2015, June 4-6, 2015, Orlando, FL
Society for Nutrition Education and Behavior (SNEB) Conference & Expo (December 5-7, 2015), New Orleans, LA
2015 Sports, Cardiovascular, and Metabolic Nutrition (SCAN) Symposium: Protein in Diabetes and Related Disorders, March 31 - April 3, 2015, Atlanta, GA
To learn more about egg nutrition, the latest research and to download patient education materials, please visit the Egg Nutrition Center at www.eggnutritioncenter.org.

The Egg Nutrition Center
Senior Director of Nutrition Research and Communications
Egg Nutrition Center

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To see some of the latest research we’re reading.

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References:
Partnerships in Nutrition: Egg Nutrition Center at FNCE

The Egg Nutrition Center (ENC) had a robust, engaging presence at the 2014 Academy of Nutrition & Dietetics’ Food & Nutrition Conference & Expo (FNCE), the world’s largest gathering of registered dietitian nutritionists (RDNs), dietitians, and dietetic technicians, registered dietitians (DTRs), and allied health professionals. RDN team members had the opportunity to share credible science and valuable nutrition solutions with members of the academy by sponsoring the Weight Management (WN) Didactic Practice Group (DPG) member break. Attendees filled the educational session to learn about the benefits of incorporating eggs into daily diets, including Healthy Aging, Diabetes Care and Education, Nutrition Education for the Public, Women’s Health and Medical Nutrition Practice Group. Renowned obesity researcher, Nishiil Dhurandhar, PhD, Professor at Pennington Biomedical Research Center (now Chairman of the Department of Nutritional Sciences at Texas Tech University) and President-Elect of the American Society for Nutrition (ASN) provided an overview of a series of studies that have tested the satiating properties of a number of different protein sources under acute conditions, and suggested that high quality protein sources like eggs may uniquely promote body weight management. Some key takeaways from his presentation were:

1. Obesity is not caused by just eating one big meal, nor is it combated by just one small meal; long term voluntary control of food intake to prevent or reverse obesity is challenging for most individuals.
2. A higher protein to carbohydrate ratio has been shown to have positive effects on body composition, blood lipids, glucose homeostasis and satiety during weight loss.
3. For high protein diets to succeed in the long term, it may be important to eat a higher protein breakfast (containing 3 to 5 grams of protein from eggs and beef) to reduce ghrelin (hunger-stimulating) and satiety-stimulating hormones, including peptide YY (PYY).
4. When the satiating properties of a number of different protein sources have been tested under acute conditions, current evidence suggests that the quality of the protein is important. Including a higher quality protein source like eggs (versus a cereal-based breakfast) was found to prolong satiety and decrease energy intake (by 450 calories) throughout the day (6).
5. Supporting the above findings, results from additional studies that examined the effect of protein on postprandial satiety and energy intake throughout the day, suggest that meals high in protein decreased postprandial ghrelin concentrations and reduced gastric emptying, thereby reducing secretion of cholecystokinin and suppressing appetite. The egg breakfast (containing 35 grams of protein from eggs and beef) was found to decrease total 24-hour energy intake, reduce waist circumference and percent body fat by 6% (7).
6. The egg breakfast also beneficially impacts proliferation of gastrointestinal hormones, PYY and GLP-1, revealing a potential mechanism whereby eggs may influence satiety (8).

Thus, current evidence suggests that the satiating effect of proteins may be maximized by including protein as part of a reduced energy diet for weight loss, particularly when consumed at breakfast, and use of higher quality protein sources like eggs may decrease the need for greater amounts of dietary protein.

References:
ENC Hosts Breakfast Event and Networking Session at ObesityWeek 2014

In its second year, in collaboration with The Obesity Society (TOS), ENC was proud to support a one year research grant award for a TOS member. TOS is the leading scientific society dedicated to the study of obesity. Since 1982, TOS has been committed to encouraging research on the causes and treatment of obesity, and to keeping the medical community and public informed of new advances.

Nick Bellissimo, PhD, Assistant Professor and Director, Food Intake Regulation & Satiety Testing Lab, at Ryerson University, Toronto, Canada, was the first award recipient for his proposal, *Role of Dietary Protein in a Familiar Breakfast Meal on Subjective Satiety, Food Intake and Thermic Effect of Food in Normal Weight and Overweight/Obese Children*.

Drs. Mitch Kanter and Nikhil Dhurandhar, Professor at Pennington Biomedical Research (now Chairman of the Department of Nutritional Sciences at Texas Tech University) and President-Elect of The Obesity Society, teamed up at a breakfast event and networking opportunity in Boston during Obesity Week 2014, November 2-7, to showcase the ENC research grant program and ENC-funded research. Dr. Dhurandhar’s work on “Strategic Use of Protein Quality and Quantity to Enhance Satiety and Weight Management” has been supported in part, by the ENC Research Grant Program, which administers over $2 million annually in research grants and student fellowships to extend the understanding of nutrition for optimal health.

Drs. Kanter and Dhurandhar also acknowledged the 2014 winner of TOS-ENC Research Grant, Dexi Liu, PhD. Dr. Liu, Panoz Professor of Pharmacy and Head, Department of Pharmaceutical and Biomedical Sciences at the University of Georgia College of Pharmacy, was selected by The Obesity Society’s Scientific Review Committee (SRC) to receive the 2014 grant for his proposal titled *Reversing Obesity-related Nonalcoholic Fatty Liver Disease by Protein-enriched Diet*.

Next Article >> The Controversial Role of Dietary Protein in Diabetes and Related Disorders.
The Controversial Role of Dietary Protein in Diabetes and Related Disorders

In 2013, ENC sponsored and organized a satellite symposium "The Controversial Role of Dietary Protein in Diabetes and Related Disorders" chaired by Mitch Kanter, PhD, Executive Director, ENC, held in conjunction with the American Society for Nutrition's 2013 Advances and Controversies in Clinical Nutrition Conference (December 5-7, 2013) in Washington, DC.

The program featured presentations which provided an overview of the available evidence on macronutrient composition and specifically, dietary protein, in the prevention and management of diabetes and diabetes-related risk factors. Coordinated by Tia Raines, PhD, Senior Director, Nutrition Research & Communications, ENC, proceedings were recently published in a supplement within Journal of Nutrition titled: The Controversial Role of Macronutrient Composition in Diabetes and Related Disorders of the Journal of Nutrition.

- Kevin C Maki and Alyssa K Phillips. Dietary Substitutions for Refined Carbohydrate That Show Promise for Reducing Risk of Type 2 Diabetes in Men and Women.
- Amy P Cantrell and Tia M Raines. Dietary Protein Is Important in the Practical Management of Prediabetes and Type 2 Diabetes.
- Barbara A Gower and Amy M Goss. A Lower-Carbohydrate, Higher-Fat Diet Reduces Abdominal and Intermuscular Fat and Increases Insulin Sensitivity in Adults at Risk of Type 2 Diabetes.

Next Article >> Research We’re Reading
Research We’re Reading

- Probiotics/Macronutrient Interaction
  - Effects of low-carbohydrate and low-fat diets: a randomized trial
  - Dietary Protein Intake and Coronary Heart Disease in a Large Community-Based Cohort: Results from the Atherosclerosis Risk in Communities (ARIC) Study
  - Effects of high-protein vs. high-fat snacks on appetite control, satiety, and eating in healthy women
    (Orfitini et al. Nutr J. 2014;13:97)
- A brief review of higher dietary protein diets in weight loss with a focus on athletes
- Weight loss maintenance in overweight subjects on ad libitum diets with optimal macronutrient distribution and glycemic index: a 12-month randomized

- Cardiometabolic Health
  - Association of plant and animal protein intake with S- 1
    Soluble Luminal Oxidized LDL: A Randomized Study
    (Tranahns et al. Nutr Metab Cardiovasc Dis. 2014;24:1228-1323)
  - A Very Low-Carbohydrate, Low-Saturated Fat Diet for Type 2 Diabetes Management: A Randomized Trial
    (Dy et al. JAMA. Care. 2014;5:2009-2010)
  - The potential of a high-protein-low carbohydrate diet to reverse intestinal fatty liver disease in healthy men
  - Dietary Intake of Saturated Fat Is Not Associated with Carotid Artery Disease Mortality in Patients with Established Coronary Artery Disease
    (Dunner et al. J Am Coll Cardiol. 2014;65:1476-1485)
  - Randomization to a low-carbohydrate diet advice increases health related quality of life compared with a low-fat diet at similar weight loss in Type 2 diabetes patients
    (Goldfrad et al. Diabet Res Clin Pract. 2014;106:221-7)
  - Advice to follow a low-carbohydrate diet has a favourable impact on the risk factors and mortality in type 2 diabetes patients
    (Goddard et al. J Am Coll Cardiol. 2014;63:2211-22)

- Breakfast
  - Higher breakfast glycemic load is associated with increased small intestinal permeability, short term exposures, and increased TAG
    concentrations in overweight adults
    (Techel et al. Br J Nutr. 2014; E-pub ahead of print)
  - Nutrient intake, diet quality, and weight/apathy in prediabetic youth

- Nutrient Density
  - Meta-analysis of all-cause mortality according to serum Zn-homocysteine levels
  - The role of vitamin D3 in inflammatory bowel disease
  - Role of 1,25-dihydroxyvitamin D3 in the development of colon and breast cancer
    (Johnson. Ann Rev Nutr. 2015;7:245-12)
  - Other
    - Dietary patterns differently associate with inflammation and serum biomarkers of oxidative stress and endotoxin barrier efficiency
      in colorectal cancer patients
      (Trost et al. J Intern Med. 2014; E-pub ahead of print)
    - Increase in obesity is associated with higher trimethylamine-N-oxide concentration
      in patients with IBS
      (Tsoul et al. J Intern Med. 2014; E-pub ahead of print)

Next Article >> Research Program

To learn more about egg nutrition, the latest research and to download patient education materials, please visit the Egg Nutrition Center at www.eggnutritioncenter.org
The Egg Nutrition Center (ENC) administers an annual research program with over $2 million dollars provided by America's egg farmers through the USDA and the American Egg Board. Information regarding the 2015 grant program will be posted January 1, with pre-proposals due by January 23. Additional information is available at the ENC website.

Look for ENC at these upcoming health professional events:

- **Experimental Biology 2015**
  - March 28 - April 1, 2015, Boston, MA
  - ENC-sponsored symposium on Sunday, March 29, 2015, 8:00 am-10:00 am, on "Determinants of Disease Risk in the Postprandial Period"

- **American College of Sports Medicine (ACSM) Health & Fitness Summit & Exposition**
  - March 31 - April 3, 2015, Phoenix, AZ
  - ENC-sponsored preconference symposium by Mitch Kanter, PhD; Laura Krasnik, PhD, RDN; Kara Mohr, PhD; Amy Bidwell, PhD on Tuesday, March 31, 8:30 am – 2:30 pm, "Energy Balance and Weight Management"

- **31st Annual Sports, Cardiovascular, and Wellness Nutrition (SCAN) Symposium: Nutritional Dogma versus Data**
  - May 1 - 3, 2015, Colorado Springs, CO
  - ENC, National Dairy Council, and Beef Checkoff-sponsored symposium on Saturday, May 2, 2015, 8:00 am-10:00 am, on "Protein Science, Controversies and Contemporary Applications for Practitioners"

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