

This edition of the Nutrition Research Update highlights new research on a very controversial topic of late, breakfast. Dr. Heather Leidy and graduate student, Ammar Alwattar, from the University of Missouri discuss highlights of their recent publication comparing postprandial glucose responses in breakfast skippers versus breakfast consumers following high or normal protein breakfasts. Results were surprisingly different than their initial hypothesis, adding further complexity to understanding the role of the first meal of the day.

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 facilitate further research and development in health and nutrition. If any questions or comments regarding the present content, or suggestions for future feature articles, please feel free to contact us at info@eggnutrition.org.

Regards,



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

ENC Research Program

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. Additional information is available at the ENC [website](#).



SPECIAL FEATURE

Breakfast Type and Frequency Influences Glycemic Response

Over the past 50 years, there has been an increase in the prevalence of skipping breakfast which has mirrored the rise in obesity (1). In fact, as many as 30% of young people skip breakfast every day and up to 60% skip breakfast 3-4 times/week (2-4). Although skipping breakfast is associated with obesity, it is also correlated with poor glucose control and an increased risk for developing type 2 diabetes (5-7). However, it is currently unclear whether the addition of breakfast...[read full article](#).

HOT OFF THE PRESSES!

Cholesterol is Not a Nutrient of Concern for Overconsumption

On February 19, 2015, the Dietary Guidelines Advisory Committee (DGAC), comprised of nationally recognized experts in nutrition and public health, released its Advisory Report. The DGAC examines the scientific evidence on diet and lifestyle and optimal health and develops recommendations with supporting rationales to assist the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) in developing the next edition of the *Dietary Guidelines for Americans*...[read full article](#).

WHAT WE'RE READING

Research We're Reading

• Eggs

["The effect of a high-egg diet on cardiovascular risk factors in people with type 2 diabetes: the Diabetes and Egg \(DIABEGG\) study—a 3-mo randomized controlled trial."](#)

Fuller NR, Caterson ID, Sainsbury A, Denyer G, Fong M, Gerofi J, Baqleh K, Williams KH, Lau NS, Markovic TP. *Am J Clin Nutr*. 2015 [Epub ahead of print]

["Egg Yolks Inhibit Activation of NF-κB and Expression of Its Target Genes in Adipocytes after Partial Delipidation."](#)

Shen Q, Riedl KM, Cole RM, Lehman C, Xu L, Alder H, Belury M, Schwartz SJ, Ziouzenkova O. *J Agric Food Chem*. 2015 [Epub ahead of print]

["Egg and Egg-Derived Foods: Effects on Human Health and Use as Functional Foods."](#)

Miranda JM, Anton X, Redondo-Valbuena C, Roca-Saavedra P, Rodriguez JA, Lamas A, Franco CM, Cepeda A. *Nutrients*. 2015;7:706-729.

• Protein/Macronutrient Composition

["Effect of protein overfeeding on energy expenditure measured in a metabolic chamber."](#)

Bray GA, Redman L, de Jonge L, Covington J, Rood J, Brock C, Mancuso S, Martin CK, Smith SR. *Am J Clin Nutr*. 2015 [Epub ahead of print]

["Higher-Protein Diets Are Associated with Higher HDL Cholesterol and Lower BMI and Waist Circumference in US Adults."](#)

Pasiakos SM, Lieberman HR, Fulgoni III VL. *J Nutr*. 2015 [Epub ahead of print]

["Effects of protein intake on blood pressure, insulin sensitivity and blood lipids in children: a systematic review."](#)

Voortman T, Vitezova A, Bramer WM, Ars CL, Bautista PK, Buitrago-Lopez A, Felix F, Leermakers ET, Sajjad A, Sedaghat S, Tharner A, Franco OH, van den Hooven EH. *Br J Nutr*. 2015;113:383-402.

• Cardiometabolic Health

["Evidence from randomised controlled trials did not support the introduction of dietary fat guidelines in 1977 and 1983: a systematic review and meta-analysis."](#)

Harcombe Z, Baker JS, Cooper SM, Davies B, Sculthorpe N, DiNicolantonio JJ, Grace F. *Open Heart*. 2015;2(1).

["Dietary carbohydrates and intestinal lipoprotein production."](#)

Morgantini C, Xiao C, Dash S, Lewis GF. *Curr Opin Clin Nutr Metab Care*. 2014;17:355-9.

• Breakfast

["Skipping Breakfast is Correlated with Obesity."](#)

Watanabe Y, Saito I, Henmi I, Yoshimura K, Maruyama K, Yamauchi K, Matsuo T, Kato T, Tanigawa T, Kishida T, Asada Y. *J Rural Med*. 2014;9:51-8.

["Relationships between bullying victimization, psychological distress and breakfast skipping among boys and girls."](#)

Sampasa-Kanyinga H, Willmore J. *Appetite*. 2015 [Epub ahead of print]

["The role of breakfast in health: definition and criteria for a quality breakfast."](#)

O'Neil CE, Byrd-Bredbenner C, Hayes D, Jana L, Klinger SE, Stephenson-Martin S. *J Acad Nutr Diet*. 2014;114:S8-S26.

[View All](#)

See ENC

Look for ENC at these upcoming health professional events:

Experimental Biology 2015

March 28 - April 1, 2015, Boston, MA

"Determinants of Disease Risk in the Postprandial Period" on Sunday, March, 29, 2015, 8:00 am-10:00 am.

Presenters: Elizabeth J. Parks, PhD; Gary F. Lewis, MD; Richard S. Bruno, PhD, RD; Esra Tasali, MD

American College of Sports Medicine (ACSM) Health & Fitness Summit & Exposition

March 31 - April 3, 2015, Phoenix, AZ

ENC-sponsored preconference symposium: "Energy Balance and Weight Management" on Tuesday, March 31, 8:30 am - 2:30 pm.

Presenters: Mitch Kanter, PhD; Laura Kruskall, PhD, RDN; Kara Mohr, PhD; Amy Bidwell, PhD

31st Annual Sports, Cardiovascular, and Wellness Nutrition (SCAN) Symposium: Nutritional Dogma versus Data

May 1 - 3, 2015, Colorado Springs, CO

"Advanced Practice Protein Summit: Protein Science, Controversies and Contemporary Applications for Practitioners"

Saturday, May 2, 2015, 8:00 am-10:00 am.

Sponsored by ENC, National Dairy Council, and Beef Checkoff

Presenters: Nancy R. Rodriguez, PhD, RD; G. Harvey Anderson, PhD; Stuart M. Phillips, PhD

ENC Research Program

Sign up [here](#) to receive notifications about our upcoming grant and fellowship program.

Research We're Reading

Click [here](#) to see some of the latest research we're reading.

ENC Online

EggNutritionCenter.org

[Nutrition Unscrambled Blog](#)

On Twitter:

[@IncredibleEggs](#)

On LinkedIn:

[Egg Nutrition Center](#)

Subscribe

To receive future ENC newsletters & information [Click here](#)



SPECIAL FEATURE

Breakfast Type and Frequency Influences Glycemic Response

By:
[Heather J. Leidy, PhD](#)
 Assistant Professor
 Department of Nutrition &



Exercise Physiology
 School of Medicine

Ammar Alwattar, MS
 Graduate Student
 Department of Nutrition &



Exercise Physiology
 University of Missouri

Over the past 50 years, there has been an increase in the prevalence of skipping breakfast which has mirrored the rise in obesity (1). In fact, as many as 30% of young people skip breakfast every day and up to 60% skip breakfast 3-4 times/week (2-4). Although skipping breakfast is associated with obesity, it is also correlated with poor glucose control and an increased risk for developing type 2 diabetes (5-7). However, it is currently unclear whether the *addition* of breakfast improves glycemic control in those who habitually skip the morning meal. Further, it's unknown if the type of breakfast consumed plays a role, although some data suggest that the consumption of increased dietary protein improves glycemic control (8-14).

We recently published a [study](#) that aimed to examine the effects of consuming normal-protein vs. higher-protein breakfasts on daily glucose and insulin responses in overweight adolescents who habitually skip breakfast. In addition, although the prevalence of breakfast skipping is quite high, many young people also consume high carbohydrate/high sugar foods which may also negatively impact glycemic control. Thus, we also examined the effects of consuming normal-protein vs. higher-protein breakfasts in those who habitually consume a high-carbohydrate breakfast.

Thirty-five late-adolescent young women participated in the study. The habitual breakfast skippers either continued to skip breakfast or consumed a 350 kcal normal-protein breakfast containing 12 g protein/59 g carbohydrates/8 g fat or an isocaloric higher-protein breakfast containing 32 g protein (primarily as lean beef and eggs)/38 g carbohydrates/8 g fat for 3 days. The habitual breakfast consumers consumed the same meals as above. On day 4 of each pattern, an 8-hr testing day was completed. The respective breakfast and a 500 kcal high-carbohydrate (17 g protein/83 g carbohydrates/11 g fat) lunch meal were provided, and blood was collected to assess glucose and insulin responses throughout the day.

In the habitual breakfast skippers, the *addition* of breakfast did not improve the glycemic response throughout the day. In fact, the higher-protein breakfast actually led to greater glucose responses throughout the day, particularly after the high-carbohydrate lunch, compared to skipping breakfast, whereas the normal-protein breakfast did not. Alternately, in the habitual breakfast consumers, the higher-protein breakfast led to greater reductions in daily glucose vs. the normal-protein breakfast. When comparing these responses between the groups, the breakfast skippers experienced elevated glucose concentrations throughout the day following the higher-protein breakfast, whereas the breakfast consumers experienced blunted glucose concentrations following the higher-protein breakfast.

These data illustrate unique differences in the glycemic response to protein at breakfast, which was influenced by the frequency of habitual breakfast consumption. One possible reason for these differences may be due to the inability to optimally metabolize or utilize a large quantity of protein at breakfast in those who do not typically eat the morning meal, whereas those who are accustomed to eating breakfast appear to appropriately metabolize and utilize the larger protein load.

This project, under the direction of Dr. Heather Leidy, Department of Nutrition and Exercise Physiology at the University of Missouri, was Mr. Ammar Alwattar's Masters' thesis which he completed and successfully defended in April, 2014. When asked about the study findings Mr. Alwattar stated, *"Initially, I was expecting both the habitual breakfast skippers and habitual breakfast consumers to have lower total glucose and insulin responses when they consumed the higher protein breakfast compared to the normal protein breakfast. I was a bit surprised that the habitual breakfast skippers responded better to the normal protein breakfast than the higher protein breakfast. However, the habitual breakfast consumers responded better to the higher protein breakfast, as I suspected."* Dr. Leidy and Mr. Alwattar also indicated that, *"The take home message from this study is to make an effort to consume breakfast. If you are a habitual breakfast skipper, then eating a typical breakfast may be helpful (at first). If you are a habitual breakfast consumer (or perhaps transitioning away from skipping breakfast), then a higher protein breakfast may be more beneficial. Ultimately, breakfast consumption should help lower your glucose response at the next meal which has long-term health implications concerning the prevention of elevated post-prandial glucose excursions and the onset of type 2 diabetes."*

References:

- Siega-Riz, A.M., B.M. Popkin, and T. Carson, *Trends in breakfast consumption for children in the United States from 1965-1991*. Am J Clin Nutr, 1998. 67(4): p. 748S-756S.
- Deshmukh-Taskar, P.R., et al., *The relationship of breakfast skipping and type of breakfast consumption with nutrient intake and weight status in children and adolescents: the National Health and Nutrition Examination Survey 1999-2006*. J Am Diet Assoc, 2010. 110(6): p. 869-78.
- Moag-Stahlberg, A. 2010 ADAF *Family nutrition and physical activity survey background data*. 2010; Available from: www.Eatright.org.
- B, W. *Breakfast habits by the numbers (Hint: It isn't good for breakfast)*. 2013; Available from: <http://www.fooddive.com/news/breakfast-habits-by-the-numbers-hint-it-isnt-good-for-breakfast/175630/>.
- Deshmukh-Taskar, P., et al., *The relationship of breakfast skipping and type of breakfast consumed with overweight/obesity, abdominal obesity, other cardiometabolic risk factors and the metabolic syndrome in young adults. The National Health and Nutrition Examination Survey (NHANES): 1999-2006*. Public Health Nutr, 2012: p. 1-10.
- Mekary, R.A., et al., *Eating patterns and type 2 diabetes risk in men: breakfast omission, eating frequency, and snacking*. Am J Clin Nutr, 2012. 95(5): p. 1182-9.
- Jovanovic, A., J. Gerrard, and R. Taylor, *The second-meal phenomenon in type 2 diabetes*. Diabetes Care, 2009. 32(7): p. 1199-201.
- Veldhorst, M.A., et al., *Comparison of the effects of a high- and normal-casein breakfast on satiety, 'satiety' hormones, plasma amino acids and subsequent energy intake*. Br J Nutr, 2009. 101(2): p. 295-303.
- Belza, A., et al., *Contribution of gastroenteropancreatic appetite hormones to protein-induced satiety*. Am J Clin Nutr, 2013. 97(5): p. 980-9.
- Blom, W.A., et al., *Effect of a high-protein breakfast on the postprandial ghrelin response*. Am J Clin Nutr, 2006. 83(2): p. 211-20.
- Acheson, K.J., et al., *Protein choices targeting thermogenesis and metabolism*. Am J Clin Nutr, 2011. 93(3): p. 525-34.
- Al Awar, R., et al., *Postprandial acylated ghrelin status following fat and protein manipulation of meals in healthy young women*. Clin Sci (Lond), 2005. 109(4): p. 405-11.
- Ratliff, J., et al., *Consuming eggs for breakfast influences plasma glucose and ghrelin, while reducing energy intake during the next 24 hours in adult men*. Nutr Res, 2010. 30(2): p. 96-103.
- Agus, M.S., et al., *Dietary composition and physiologic adaptations to energy restriction*. Am J Clin Nutr, 2000. 71(4): p. 901-7.

Next Article >> [Cholesterol is Not a Nutrient of Concern for Overconsumption](#)

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.

 See ENC

Look for ENC at these upcoming health professional events:

Experimental Biology 2015
 March 28 - April 1, 2015, Boston, MA
"Determinants of Disease Risk in the Postprandial Period" on Sunday, March 29, 2015, 8:00 am-10:00 am.
Presenters: Elizabeth J. Parks, PhD; Gary F. Lewis, MD; Richard S. Bruno, PhD, RD; Esra Tasali, MD

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

31st Annual Sports, Cardiovascular, and Wellness Nutrition (SCAN) Symposium: Nutritional Dogma versus Data
 May 1 - 3, 2015, Colorado Springs, CO
"Advanced Practice Protein Summit: Protein Science, Controversies and Contemporary Applications for Practitioners"
 Saturday, May 2, 2015, 8:00 am-10:00 am.
 Sponsored by ENC, National Dairy Council, and Beef Checkoff
Presenters: Nancy R. Rodriguez, PhD, RD; G. Harvey Anderson, PhD; Stuart M. Phillips, PhD

 ENC Research Program

Sign up [here](#) to receive notifications about our upcoming grant and fellowship program.

 Research We're Reading

Click [here](#) to see some of the latest research we're reading.

 ENC Online

EggNutritionCenter.org

[Nutrition Unscrambled Blog](#)

On Twitter:

[@IncredibleEggs](#)

On LinkedIn:

[Egg Nutrition Center](#)

 Subscribe

To receive future ENC newsletters & information [Click here](#)



HOT OFF THE PRESSES!

Cholesterol is Not a Nutrient of Concern for Overconsumption

On February 19, 2015, the Dietary Guidelines Advisory Committee (DGAC), comprised of nationally recognized experts in nutrition and public health, released its Advisory Report. The DGAC examines the scientific evidence on diet and lifestyle and optimal health and develops recommendations with supporting rationales to assist the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) in developing the next edition of the *Dietary Guidelines for Americans*.

The Committee's report, in contrast to earlier guidance, makes no specific cholesterol recommendation and states that cholesterol is not a nutrient of concern for overconsumption – a stance that is consistent with recent recommendations of other expert groups like the American Heart Association and the American College of Cardiology. Saturated fat remains a nutrient to consume in limited quantities, as do sodium and added sugars. Moreover, the DGAC outlined several dietary patterns that have been shown to reduce chronic disease risk, including the Mediterranean Diet, vegetarian diet, and healthy United States-style diet. Such findings are particularly relevant for eggs, an affordable, accessible, nutrient-rich source of high-quality protein that fit within these aforementioned dietary patterns.

Whether these recommendations are adopted as the 2015 Dietary Guidelines for Americans remains to be determined. The final report is expected later in 2015.

Next Article >> [Research We're Reading](#)


See ENC

Look for ENC at these upcoming health professional events:

Experimental Biology 2015

March 28 - April 1, 2015, Boston, MA
"Determinants of Disease Risk in the Postprandial Period" on Sunday, March 29, 2015, 8:00 am-10:00 am.

Presenters: Elizabeth J. Parks, PhD; Gary F. Lewis, MD; Richard S. Bruno, PhD, RD; Esra Tasali, MD

American College of Sports Medicine (ACSM) Health & Fitness Summit & Exposition

March 31 - April 3, 2015, Phoenix, AZ

ENC-sponsored preconference symposium: *"Energy Balance and Weight Management"* on Tuesday, March 31, 8:30 am – 2:30 pm.

Presenters: Mitch Kanter, PhD; Laura Kruskall, PhD, RDN; Kara Mohr, PhD; Amy Bidwell, PhD

31st Annual Sports, Cardiovascular, and Wellness Nutrition (SCAN) Symposium: Nutritional Dogma versus Data

May 1 - 3, 2015, Colorado Springs, CO
"Advanced Practice Protein Summit: Protein Science, Controversies and Contemporary Applications for Practitioners"

Saturday, May 2, 2015, 8:00 am-10:00 am.

Sponsored by ENC, National Dairy Council, and Beef Checkoff

Presenters: Nancy R. Rodriguez, PhD, RD; G. Harvey Anderson, PhD; Stuart M. Phillips, PhD


ENC Research Program

Sign up [here](#) to receive notifications about our upcoming grant and fellowship program.


Research We're Reading

Click [here](#) to see some of the latest research we're reading.


ENC Online

[EggNutritionCenter.org](#)

[Nutrition Unscrambled Blog](#)

On Twitter:

[@IncredibleEggs](#)

On LinkedIn:

[Egg Nutrition Center](#)


Subscribe

To receive future ENC newsletters & information [Click here](#)



WHAT WE'RE READING

Research We're Reading

- Eggs**
["The effect of a high-egg diet on cardiovascular risk factors in people with type 2 diabetes: the Diabetes and Egg \(DIABEGG\) study—a 3-mo randomized controlled trial"](#)
 Fuller NR, Caterson ID, Sainsbury A, Denyer G, Fong M, Gerofi J, Baqleh K, Williams KH, Lau NS, Markovic TP. *Am J Clin Nutr.* 2015 [Epub ahead of print]
- ["Egg Yolks Inhibit Activation of NF-κB and Expression of Its Target Genes in Adipocytes after Partial Delipidation"](#)
 Shen Q, Riedl KM, Cole RM, Lehman C, Xu L, Alder H, Belury M, Schwartz SJ, Ziouzenkova O. *J Agric Food Chem.* 2015 [Epub ahead of print]
- ["Egg and Egg-Derived Foods: Effects on Human Health and Use as Functional Foods"](#)
 Miranda JM, Anton X, Redondo-Valbuena C, Roca-Saavedra P, Rodriguez JA, Lamas A, Franco CM, Cepeda A. *Nutrients.* 2015;7:706-729.
- ["Egg proteins as allergens and the effects of the food matrix and processing"](#)
 Benedé S, López-Expósito I, Molina E, López-Fandiño R. *Food Funct.* 2015 [Epub ahead of print]
- Protein/Macronutrient Composition**
["Effect of protein overfeeding on energy expenditure measured in a metabolic chamber."](#)
 Bray GA, Redman L, de Jonge L, Covington J, Rood J, Brock C, Mancuso S, Martin CK, Smith SR. *Am J Clin Nutr.* 2015 [Epub ahead of print]
- ["Higher-Protein Diets Are Associated with Higher HDL Cholesterol and Lower BMI and Waist Circumference in US Adults."](#)
 Pasiakos SM, Lieberman HR, Fulgoni III VL. *J Nutr.* 2015 [Epub ahead of print]
- ["Effects of protein intake on blood pressure, insulin sensitivity and blood lipids in children: a systematic review."](#)
 Voortman T, Vitezova A, Bramer WM, Ars CL, Bautista PK, Buitrago-Lopez A, Felix F, Leermakers ET, Sajjad A, Sedaghat S, Tharner A, Franco OH, van den Hooven EH. *Br J Nutr.* 2015;113:383-402.
- ["Protein requirements of healthy pregnant women during early and late gestation are higher than current recommendations."](#)
 Stephens TV, Payne M, Ball RO, Pencharz PB, Elango R. *J Nutr.* 2015;145:73-8.
- ["The importance of dietary protein for muscle health in inactive, hospitalized older adults."](#)
 Thalacker-Mercer AE, Drummond MJ. *Ann N Y Acad Sci.* 2014;1328:1-9.
- ["Fast proteins" with a unique essential amino acid content as an optimal nutrition in the elderly: growing evidence."](#)
 Gryson C, Walrand S, Giraudet C, Rousset P, Migné C, Bonhomme C, Le Ruyet P, Boirie Y. *Clin Nutr.* 2014;33:642-8.
- ["Protein-Leucine Fed Dose Effects on Muscle Protein Synthesis after Endurance Exercise."](#)
 Rowlands DS, Nelson AR, Phillips SM, Faulkner JA, Clarke J, Burd NA, Moore D, Stellingwerff T. *Med Sci Sports Exerc.* 2015;47:547-55.
- ["When and why carbohydrate restriction can be a viable option."](#)
 Liebman M. *Nutrition.* 2014;30:748-54.
- ["Quantity of dietary protein intake, but not pattern of intake, affects net protein balance primarily through differences in protein synthesis in older adults."](#)
 Kim IY, Schutzler S, Schrader A, Spencer H, Kortebein P, Deutz NE, Wolfe RR, Ferrando AA. *Am J Physiol Endocrinol Metab.* 2015;308:E21-8.
- Cardiometabolic Health**
["Evidence from randomised controlled trials did not support the introduction of dietary fat guidelines in 1977 and 1983: a systematic review and meta-analysis."](#)
 Harcombe Z, Baker JS, Cooper SM, Davies B, Sculthorpe N, DiNicolantonio JJ, Grace F. *Open Heart.* 2015;2(1).
- ["Dietary carbohydrates and intestinal lipoprotein production."](#)
 Morgantini C, Xiao C, Dash S, Lewis GF. *Curr Opin Clin Nutr Metab Care.* 2014;17:355-9.
- Breakfast**
["Skipping Breakfast is Correlated with Obesity."](#)
 Watanabe Y, Saito I, Henmi I, Yoshimura K, Maruyama K, Yamauchi K, Matsuo T, Kato T, Tanigawa T, Kishida T, Asada Y. *J Rural Med.* 2014;9:51-8.
- ["Relationships between bullying victimization, psychological distress and breakfast skipping among boys and girls."](#)
 Sampasa-Kanyinga H, Willmore J. *Appetite.* 2015 [Epub ahead of print]
- ["The role of breakfast in health: definition and criteria for a quality breakfast."](#)
 O'Neil CE, Byrd-Bredbenner C, Hayes D, Jana L, Klinger SE, Stephenson-Martin S. *J Acad Nutr Diet.* 2014;114:S8-S26.
- ["Breakfast skipping and the risk of type 2 diabetes: a meta-analysis of observational studies."](#)
 Bi H, Gan Y, Yang C, Chen Y, Tong X, Lu Z. *Public Health Nutr.* 2015 [Epub ahead of print]
- ["Breakfast frequency, adiposity, and cardiovascular risk factors as markers in adolescents."](#)
 Cayres SU, Júnior IF, Barbosa MF, Christofaro DG, Fernandes RA. *Cardiol Young.* 2015 [Epub ahead of print]
- ["A High-Protein Breakfast Induces Greater Insulin and Glucose-Dependent Insulinotropic Peptide Responses to a Subsequent Lunch Meal in Individuals with Type 2 Diabetes."](#)
 Park Y-M, Heden TD, Liu Y, Nyhoff LM, Thyfault JP, Leidy HJ, Kanaley JA. *J Nutr.* 2015 [Epub ahead of print]
- Nutrient Density**
["Plasma choline metabolites and colorectal cancer risk in the Women's Health Initiative Observational Study."](#)
 Bae S, Ulrich CM, Neuhauser ML, Malysheva O, Bailey LB, Xiao L, Brown EC, Cushing-Haugen KL, Zheng Y, Cheng TY, Miller JW, Green R, Lane DS, Beresford SA, Caudill MA. *Cancer Res.* 2014;74:7442-52.
- ["Vitamin D supplementation to reduce depression in adults: Meta-analysis of randomized controlled trials."](#)
 Gowda U, Mutowo MP, Smith BJ, Wluka AE, Renzaho AM. *Nutrition.* 2015;31:421-429.
- Other**
["Considering the value of dietary assessment data in informing nutrition-related health policy."](#)
 Hébert JR, Hurley TG, Steck SE, Miller DR, Tabung FK, Peterson KE, Kushi LH, Frongillo EA. *Adv Nutr.* 2014;5:447-55.
- ["Toward a new philosophy of preventive nutrition: from a reductionist to a holistic paradigm to improve nutritional recommendations."](#)
 Fardet A, Rock E. *Adv Nutr.* 2014;5:430-46.

See ENC

Look for ENC at these upcoming health professional events:

Experimental Biology 2015
 March 28 - April 1, 2015, Boston, MA
 "Determinants of Disease Risk in the Postprandial Period" on Sunday, March 29, 2015, 8:00 am-10:00 am.
Presenters: Elizabeth J. Parks, PhD; Gary F. Lewis, MD; Richard S. Bruno, PhD, RD; Esra Tasali, MD

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

31st Annual Sports, Cardiovascular, and Wellness Nutrition (SCAN) Symposium: Nutritional Dogma versus Data
 May 1 - 3, 2015, Colorado Springs, CO
 "Advanced Practice Protein Summit: Protein Science, Controversies and Contemporary Applications for Practitioners"
 Saturday, May 2, 2015, 8:00 am-10:00 am.
 Sponsored by ENC, National Dairy Council, and Beef Checkoff
Presenters: Nancy R. Rodriguez, PhD, RD; G. Harvey Anderson, PhD; Stuart M. Phillips, PhD

ENC Research Program

Sign up [here](#) to receive notifications about our upcoming grant and fellowship program.

Research We're Reading

Click [here](#) to see some of the latest research we're reading.

ENC Online

[EggNutritionCenter.org](#)
[Nutrition Unscrambled Blog](#)

On Twitter:

[@IncredibleEggs](#)

On LinkedIn:

[Egg Nutrition Center](#)

Subscribe

To receive future ENC newsletters & information [Click here](#)



ENC Research Program

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. Additional information is available at the ENC [website](#).



See ENC

Look for ENC at these upcoming health professional events:

Experimental Biology 2015

March 28 - April 1, 2015, Boston, MA

"Determinants of Disease Risk in the Postprandial Period" on Sunday, March 29, 2015, 8:00 am-10:00 am.

Presenters: Elizabeth J. Parks, PhD; Gary F. Lewis, MD; Richard S. Bruno, PhD, RD; Esra Tasali, MD

American College of Sports Medicine (ACSM) Health & Fitness Summit & Exposition

March 31 - April 3, 2015, Phoenix, AZ

ENC-sponsored preconference symposium: "Energy Balance and Weight Management" on Tuesday, March 31, 8:30 am - 2:30 pm.

Presenters: Mitch Kanter, PhD; Laura Kruskall, PhD, RDN; Kara Mohr, PhD; Amy Bidwell, PhD

31st Annual Sports, Cardiovascular, and Wellness Nutrition (SCAN) Symposium: Nutritional Dogma versus Data

May 1 - 3, 2015, Colorado Springs, CO

"Advanced Practice Protein Summit: Protein Science, Controversies and Contemporary Applications for Practitioners"

Saturday, May 2, 2015, 8:00 am-10:00 am.

Sponsored by ENC, National Dairy Council, and Beef Checkoff

Presenters: Nancy R. Rodriguez, PhD, RD; G. Harvey Anderson, PhD; Stuart M. Phillips, PhD

ENC Research Program

Sign up [here](#) to receive notifications about our upcoming grant and fellowship program.

Research We're Reading

Click [here](#) to see some of the latest research we're reading.

ENC Online

[EggNutritionCenter.org](#)

[Nutrition Unscrambled Blog](#)

On Twitter:

[@IncredibleEggs](#)

On LinkedIn:

[Egg Nutrition Center](#)

Subscribe

To receive future ENC newsletters & information [Click here](#)

