

# Nutrition In Medicine NEWS

Nutrition Education for  
Healthcare Professionals

June 2015

## Inside this issue:

Timing of energy intake affects fertility	2
Practical Nutrition: Breakfast skipping	2
Weight management: Resistance exercise	2
Clinical assessment: Red meat allergy	3
Nutrient highlight : Omega-3 fatty acids	3
Inside Story: DHA	3
Q&A: Low GI, clear skin	4

## Special points of interest:

- ◆ Is a large breakfast a good idea when you have PCOS?
- ◆ What exercise supports weight management?
- ◆ How beneficial is high omega-3 fatty acid intake?
- ◆ Could my patient be allergic to meat?
- ◆ ...and more...

## What is the NIM team up to?

We are completing another busy academic year and everyone has been working hard.



OK, so sometimes we are socializing, too (like here at a reunion of current and former staff) for good reason as we will soon be reaching our 24th year since the start of the project! We are serving more institutions and learners than ever, updating current materials, and adding more modules.

Very importantly, **we now offer continuing education credits!** Many of our modules are approved for AMA PRA Category 1 Credit™ as well as continuing education credits for RNs and NPs. Dietitians can claim credit as a “self-study program” because ACCME is an accrediting organization recognized by the Commission on Dietetic Registration.

Go to [nutritioninmedicine.org/CME/](http://nutritioninmedicine.org/CME/) All of this would not have been possible without the dedicated help of our team members and much thanks is owed to them!

The bad news is we have lost sponsorship support. With some emergency contributions from several users and other donors, lay-offs, and significant belt tightening we are able to hang on and continue to provide you with the online nutrition instruction materials. However, we are still very much in need of further support.

**We will therefore need to ask for payment to support NIM services starting this summer.**

We have to request a contribution for each learner. Ideally, you will be able to get this from donors as a tax-deductible gift through <http://www.uncnri.org/NEP>. Donations through the University of North Carolina’s Nutrition Research Institute will directly and completely benefit our nutrition instruction work. The UNC Nutrition Research Institute can also invoice your institution for the support of educational development, setting up the materials, and sending performance reports. Please contact us about specific arrangements.

## EB Satellite Symposium on Nutrition Education

The American Society for Nutrition (ASN) convened in Boston as a satellite symposium of Experimental Biology on March 28, 2015 at the New England and Mid-Atlantic Regional Nutrition Educators’ Meeting. The sessions were organized by Dr. Kohlmeier and chaired by Drs. Walker, Seidner, Saltzman, and Ray. Many of our colleagues reported on the state of nutrition education and shared their experiences as nutrition educators for the health professions. A key element of the

meeting was having attendees seated around tables with time to introduce themselves to their colleagues at the same table. Seating was mixed up with each session to ensure that everybody met everybody else. The short presentations of the 15 speakers were all followed by very lively discussions. Plans are in the works to repeat this format in the near future. Let us know if you want to be part of another meeting of this kind. The slides from the symposium are available on request.

## Practical Nutrition: A simple way to aid fertility

### Does the timing of caloric intake impact fertility?

Eating more calories in the morning, rather than in the evening, seems to help fertility in women with PCOS (polycystic ovary syndrome). PCOS affects 6-10% of women of reproductive age. In women with this condition, hyperinsulinemia stimulates ovarian cytochrome activity, which then increases ovarian androgen production. A feeding study by researchers at the Hebrew University

of Jerusalem and Tel Aviv University examined whether the timing of caloric intake from meals would influence insulin resistance and hyperandrogenism. Researchers found that in lean women with PCOS, eating a 980 kcal breakfast, plus a 640 kcal lunch and a 190 kcal dinner produced favorable effects on glucose and androgen levels, insulin resistance, and ovulation when compared with the group that had a 190 kcal breakfast and a 980 kcal dinner.

The authors concluded that adjustments in the timing of meals and distribution of calories could be a therapeutic option for women with PCOS.

Source: Jakubowicz D, Barnea M, Wainstein J, Froy O. Clin Sci (Lond). 2013 Nov;125(9):423-32.

A brief aside: Women with unexplained infertility may have celiac disease and should be tested for this gluten-responsive condition.



*Consuming more calories in the morning might help women with PCOS to become pregnant.*

### TIP:

**Make a smoothie with low-fat milk, frozen berries, and a banana for breakfast**

## Breakfast-skipping does not improve weight control

A week-long investigation studied adolescent girls who regularly skipped breakfast. They ate a normal protein (13 g) breakfast, high protein (35 g) breakfast, or no breakfast. Eating any breakfast was associated with less cravings for sweet and savory foods, and increased

HVA (homovanillic acid, a dopamine metabolite), compared to skipping breakfast. Eating a medium or high protein breakfast may help to reduce food cravings and restore responsiveness to food rewards in obese or overweight patients. Many American adolescents

skip breakfast. Encouraging a regular, protein-containing morning meal is an easy, low-cost lifestyle intervention that could have substantial impact on the health of young people struggling with obesity and overweight.

Source: Hoertel HA, Will MJ, Leidy HJ. Nutr J. 2014;13:80.

## Resistance training boosts energy expenditure

Initial weight loss is difficult to sustain because the body usually needs less energy as the weight drops. A recent study of overweight women now shows that resistance exercise three times a week makes a big difference.

At the end of the study, intake restriction alone was associated with 7% lower energy expenditure than initially, while energy restriction plus resistance exercise maintained expenditure levels (+3%, n.s.). The resistance training program was done 3 times a week and used 2 times 10 repetitions at 80% one repetition maximum with squats, leg extensions, leg curls, elbow flexions, triceps extensions, lateral pull-downs, bench presses, military presses, lower back extensions, and bent leg sit-ups.

This study demonstrates impressively how resistance training just a few times a week keeps up the expenditure side of the energy balance. It does so by favorable effects on expenditure during rest, active exercise and regular activities during the day.

Source: Hunter GR, Fisher G, Neumeier WH, Carter SJ, Plaisance EP. Exercise Training and Energy Expenditure following Weight Loss. Med Sci Sports Exerc. 2015 Jan 20.



*Slowly lowering a dumbbell is an eccentric resistance exercise that helps maintain muscle mass during and after energy restriction and weight loss.*



*For some people even small amounts of mammalian meat trigger asthma, hypotension, urticaria, angioedema, and other systemic symptoms.*

## Red Meat Allergy

Acute anaphylactic reactions to foods are of great concern for the affected individuals. Symptoms can include sudden drop of blood pressure, dizziness, wheezing, nausea, vomiting, diarrhea, wheals and hives (urticaria), swelling of the throat, tongue, or face (angioedema). The offending foods are not always the usual suspects (egg, milk, peanuts, tree nuts, fish, shellfish, soy, and wheat account for 90% of all cases). Beef, pork, lamb and other mammalian meat can trigger acute IgE-mediated anaphylaxis, particularly in very young children. Sufferers have no problem with bird, reptile, or fish meat. The offending allergens are most often galactose- $\alpha$ -1,3-galactose epitopes of glycoproteins. Children usually grow out of the susceptibility. Red meat allergies in adults can develop after infections with parasites (ask about tick bites, cat ownership, malaria).

Proper identification of the offending foods is important to help susceptible individuals maintain an otherwise balanced intake pattern without unhealthy restrictions. Patients need to avoid even small amounts of mammalian meat, including inadvertent cross-contamination in restaurant food or ready meals. They need a written emergency plan, just like others at risk of acute anaphylaxis, and must be trained to self-inject adrenaline, prednisolone and cetirizine when needed.

Source: Carrapatoso I, Bartolomé Zavala B, Ribeiro F, Martínez Quesada J, Segorbe Luis A. Allergy to red meat in adulthood: a case report. *J Investig Allergol Clin Immunol* 2014;24:206-208.

## Nutrient Highlight: Omega-3 Fatty Acids

Omega-3 fatty acids contain double bonds starting at the third carbon counting from the acyl tail end (the farthest away from the carboxyl head group, hence the omega designation). Mammals cannot make omega-3 fatty acids from omega-6 fatty acids, the ones with double bonds starting at the sixth carbon counting from the tail end. We also cannot make omega-3

from saturated or from mono-unsaturated fatty acids. Only some species of plants, plankton, algae and bacteria can make omega-3 fatty acids. Adequate intake protects the vascular endothelium in coronary and peripheral arteries. Use of several grams per day often lowers high triglyceride levels in fasted blood, slows atherosclerosis progression,

and reduces the risk of cardiovascular disease. Supplements are usually not very effective to lower blood pressure. Providing enough omega-3 with a low ratio of omega-6 to omega-3 fatty acids low works better.

Source: Kohlmeier M. *Nutrient Metabolism: Structures, functions, and genes*. 2<sup>nd</sup> Edition. Academic Press, San Diego, 2015, 898 pp. ISBN 9-7801-2387-7-840.

**A walnut contains about 90 mg ALA.**

**A small sardine contains 175 mg DHA and EPA.**



*DHA is a long-chain omega-3 fatty acid in cold-water ocean fish and lean game meats.*

## Inside Story: Docosahexaenoic acid (DHA)

DHA is a long-chain omega-3 fatty acid with six double bonds. The building and maintenance of myelin sheaths in brain and nerves as well as the cell membranes in all tissues depend on adequate DHA supplies from foods. Most humans can make only limited DHA (and eicosapentaenoic acid, EPA) amounts from the plant-derived alpha-linolenic acid (ALA), which comes mostly from vegetable oils, nuts and seeds. DHA in foods comes almost exclusively with cold-water ocean fish, such as salmon, herring, mackerels and sardines, to a much lesser extent from very lean game meats.

DHA is also the essential starting material for the synthesis of resolvins, a newly recognized group of lipid mediators that temper down inflammation and complete the immune response to infections. Resolvins also tend to promote skin healing and tissue regeneration.

Source: Serhan CN. Pro-resolving lipid mediators are leads for resolution physiology. *Nature* 2014;510(7503):92-101.

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## ABOUT US

We are a team of nationally acclaimed educators and researchers who develop and maintain the NIM online curriculum for medical students, physicians and other healthcare professionals.

The NIM curriculum aims to teach evidence-based elements of nutrition physiology and clinical practice. Help us make it better!



*Whole-grain bread is a good foundation for a meal or snack with low-glycemic index.*

## Your Students May Be Asking...

**Q: Will a change in diet help with acne?**

A: It might. The evidence is still considered preliminary, but there are dietary changes that seem to make a difference. A 2013 review in the *Journal of the Academy of Nutrition and Dietetics* concluded that some diet changes may aggravate acne.

**The research is most convincing for diets with high glycemic loads.** This is consistent with the evidence-based recommendations published in May 2013 by the American Acne and Rosacea Society.

Further research will have to show whether dairy products actually promote acne and omega-3 fatty acids inhibit.

Until we know more, it is still prudent to act on the limited evidence. A low-glycemic diet in particular is a generally healthy way to eat because it is usually also low in saturated fat and rich in bioactive compounds from whole grains, fruits, vegetables, legumes and other little processed foods.

