

# Frontier

The Quarterly Publication from the Dietetics Practice Section of the American Society for Parenteral and Enteral Nutrition

Fall 2015

## Letter from the Chair

Where did the summer go? Fall is upon us along with more hustle and bustle in our lives. Registration is open for Clinical Nutrition Week in Austin, TX, January 16-19, 2016. Take a look at the program on the A.S.P.E.N. website to see the exciting sessions prior to and during CNW. Take advantage of the corporate sponsored programs during the meeting – these often include a meal or snack in conjunction with an evidence-based program. Make those reservations! The DPS meeting during CNW will provide an opportunity to network and to hear Pam Charney, PhD, RD speak on nutrition management of mitochondrial diseases. She will also present a roundtable on the topic during CNW. Don't miss the chance to hear Dr. Charney and to interact with fellow RDNs during the DPS meeting.

If you are attending the Academy's Food & Nutrition Expo (FNCE), I hope we get a chance to catch up – or at least wave to each other as we zoom from session to session! Please do not hesitate to stop me to chat if you see me. I often appear in

a hurry, but I don't know any other way to move. Flag me down.

A.S.P.E.N. Leaders will meet in October. Share your ideas of how A.S.P.E.N. and DPS can better meet your needs so that I can share the information with other leaders.

This issue of Frontier provides a brief bio of some of the members of the DPS Leadership Council. Get to know your leadership!

Contact any one of us if you have ideas of what we should do, what topics you want to see addressed in Frontier or at CNW, and if you want to get involved with DPS. We value your input and expertise. Check out the DPS microsite on the A.S.P.E.N. website. Let us know if you want to participate in providing content for the site. We need inquiring minds to keep the site current and informative.

Let's make DPS work for all of us!



Trisha Fuhrman, MS, RDN, LD, FAND

Trisha Fuhrman, MS, RDN, LD, FAND



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# Meet the Team

We would like to introduce you to some members of the DPS Leadership Council. These volunteers are an important part of keeping our group moving forward and communicating information to our membership. Thank you to all of our hard working volunteers!

## Website Manager - Brett Baney, RD, CNSC

One of the newest members to the leadership council, Brett Baney, RDN, CNSC, has taken the position of Website Coordinator for our group. Brett has been a Registered Dietitian for five years. He obtained his CNSC certification 3 years ago. Brett works at Winchester Medical Center in Virginia. He has been an Army Reserve dietitian for five years. Fifty percent of his patients are critically ill, driving a strong interest in nutrition support.



Brett Baney, RD, CNSC

## Leadership Council Member At Large - Marsha Stieber, MSA, RD, FAND



Marsha Stieber, MSA, RD, FAND

Marsha has engaged in a variety of clinical and dietetics education positions during her 30+ years as a registered dietitian. She has been involved in the clinical nutrition arena as a specialized nutrition support clinician, an educator, a clinical nutrition manager, and a department director. Marsha is a past President of the Arizona Academy of Nutrition and Dietetics; a past Chair of the Dietitians in Nutrition Support Dietetic Practice Group (DNS DPG); a Past President of the Arizona Chapter of A.S.P.E.N. and is currently the Chapter's Treasurer. She is a Past Chair of DPS and has been a member of a variety of A.S.P.E.N. committees; presently, she is a member of the A.S.P.E.N. Chapters Affairs Subcommittee. Marsha provides a wealth of experience and knowledge in her role as DPS Leadership Council Member At Large.

## Chair - Trisha Fuhrman, MS, RDN, LD, FAND

Trisha has been focused on nutrition support throughout her career. She is currently working to help dietitians become more comfortable using nutrition-focused physical assessment to diagnose malnutrition. This is a great opportunity for dietitians to showcase their training and skills while building strong relationships with clinical and administrative teams. Trisha's outside-of-work passion is travel. Trisha shared a picture from a recent trip she and her husband took to Spain.



Trisha Fuhrman, MS, RDN, LD, FAND

## NBNSC Scholarship

Attention DPS members. If you are taking the CNSC exam for the first time in 2016, you are eligible to apply for a complimentary exam registration. One individual in each of the four discipline specific sections (nursing, dietetics, pharmacy, and medical) will be selected.

Those interested in applying for the scholarship should submit the application package – see below for details - to Trisha Fuhrman at [nutrisha50@earthlink.net](mailto:nutrisha50@earthlink.net) by December 1, 2015.

1. Write a one page double-spaced description of what the CNSC credential means to you and your projected career path. Clear, concise and grammatically correct applications will be considered.
2. Provide your resume or CV showing that you have at least two years of experience in specialized nutrition support and that you are registered with the Commission on Dietetic Registration (CDR) or the Canadian Equivalent.



Recipients will be highlighted during the DPS meeting at CNW16.



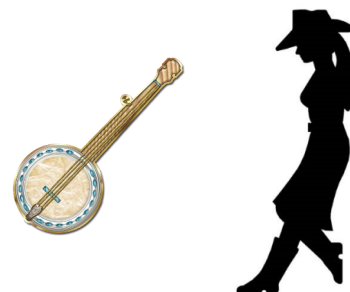
Clinical Nutrition Week 2016 is in the “Live Music Capital of the World,” Austin, Texas in January. Along with banjos and cowboy boots, CNW16 will offer educational programs on body composition in disease states, nutrition metabolomics in critical illness, ethical issues, vitamin D, and obesity. Have you looked at the details? The conference center (also serving as the home for the world famous South by Southwest Music, Film, and Interactive Festival); is in downtown Austin in a beautiful area near the river. We can’t wait to hear about all the new and exciting research in the world of nutrition support, with low key live music evenings to wind down after a long day of learning. Look for all the details on the A.S.P.E.N. website - registration is open and early bird pricing is currently in effect.

In this issue of Frontier, we are wrapping up our coverage of CNW15. Our reporters have contributed their thoughts and notes on educational sessions they attended on integrative oncology, the gut microbiome, gut dysmotility, critical illness, and lipid emulsions in parenteral nutrition. We are so grateful to our volunteer reporters who have taken the time to summarize what they've learned and share it with us in the following pages.

Let’s extend a big thank you to all of our CNW15 Volunteer Reporters:

Sandra Benton, RD, CNSC  
Wendy Phillips, MS, RD, CNSC, CLE, FAND  
Brittany Gurney, MS, RD  
Hilary Pelligra, MS, RDN, LD

Maura O'Neill, MBA, RD, CNSC  
Bailey DeBarmore, RDN, CPT  
Colene Stoernell, MS RD  
Trisha Fuhrman, MS, RDN, LD, FAND



## Integrative Oncology Myth Busting and Cancer Claims: Debating the Evidence

Monday, February 16, 2015 2:00 – 3:30 PM

Educational Level: Advanced

**Moderator:** Ryan Hurt, MD, PhD, Assistant Professor of Medicine, Departments of Endocrinology, General Internal Medicine, and Gastroenterology and Hepatology, Mayo Clinic, Rochester, MN

### Speakers:

Barry Boyd, MD, Founder, Integrative Medicine Program, Greenwich Hospital-Yale Health Systems; Director of Nutritional Oncology, Assistant Clinical Professor, Director of Curriculum – Nutrition, Director of Integrative Medicine, Yale School of Medicine, Greenwich, CT

Carolyn Lammersfeld, MS, RD, CSO, LD, CNSC, Vice President, Integrative Medicine, Cancer Treatment Centers of America, Zion, IL

Pankaj Vashi, MD, Gastroenterologist, Lead National Medical Director, National Director of Gastroenterology/Nutrition and Metabolic Support, Cancer Center Treatments of America, Zion, IL

### Submitted by:

Maura O'Neill, MBA, RD, CNSC

Nutrition Program Manager

Walgreens Infusion Services, Deerfield, Illinois

Dr. Boyd gave the integrated oncologist perspective on cancer and diet myths. He explained the integrative approach is a holistic approach that involves the patient as an active participant, and treatments which combine evidence based conventional practices with the sound integration of safe and effective complimentary approaches. A main point of his discussion was separating science from non-science. Dr. Boyd's presentation was extensive. He explored why patients often look to food as an explanation, as a cure, a deterrent, or cause for their cancer whether fact based or otherwise. He then presented scientific evidence on many topics including; dietary fat, weight, height, low calorie, low carbohydrate, plant based, insulin, glucose, physical activity, cellular replication and sugar feeding cancer. Some of the evidence is fairly conclusive and some is not. It seems our programming at the cellular level is where answers about cancer may be found.

### References:

Brown WB, Ioannidis JPA, Cope MB, Dier DB and Allison DB. Unscientific Beliefs about Scientific Topics in Nutrition. *Adv Nutr*. 2014;5:563-565.

Tomasetti C, Vogelstein B Cancer etiology. Variation in cancer risk among tissues can be explained by the

number of stem cell divisions. *Science*. 2015;347(6217):778-81.

Hursting SD, Digiovanni J, Dannenberg, AJ, Asrad M, et al. Obesity, energy balance, and cancer: new opportunities for prevention. *Cancer Pre Res (Phila)*. 2012;5(11):1260-72.

Dr. Vashi gave the gastroenterologist's perspective on the topic. He concurred with Dr. Boyd that answers related to cancer will most likely come from the study of our genetics and cellular function. Dr. Vashi highlighted the high use of supplements by the cancer patient population, and specifically spoke on curcumin, prebiotics, probiotics, resveratrol, side effect prevention, and some studies showing no impact of particular nutrients. Most of the studies presented were small and not definitive; the findings are interesting and may be reason enough for further investigation.

### References:

J Clin Oncol. 2013 Nov 20

American Cancer Society, 2012

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J Vet Sci 2013; 14(4): 387-93. Epub 2013 June 30  
J Clin Gastroenterol. 2003

Carolyn Lammersfeld gave the dietitian perspective on integrative oncology nutrition. Ms. Lammersfeld mentioned 65% of cancer patients use Complimentary Alternative Medicine (CAM) but, anywhere from 15 – 69% report this to their doctors. It is important that patients are asked about their use of CAM as treatment, as their health may be affected. Coconut oil in cancer, omega-3 fatty acids, and branch chain amino acids were discussed in this portion of the presentation. Findings show coconut oil may not be effective in cancer, there is limited evidence omega-3 fatty acids prevent prostate cancer, but are important for heart health, and branch chain amino acids in cancer treatment requires more study.

#### References:

<http://nccih.nih.gov>

Position of the Academy of Nutrition and Dietetics: Dietary Fatty Acids for Healthy Adults. *J Acad Nutr Diet.* 2014;114:136-153.

Alexander W. Prostate cancer risk and omega-3 fatty acid intake from fish oil: a closer look at media messages vs. research findings. *P&T*, 2013; Sep; 38; 561-4.

Choudry HA, Pan M, Karinch AM, Souba WW. Branched-Chain Amino Acid-Enriched Nutritional Support in Surgical and Cancer Patients. *J Nutr.* 136: 3145-3185.

## The Role of the Gut Microbiome in the Pathogenesis of Obesity

Gerard E. Mullin, MD – Johns Hopkins University School of Medicine

### Microbiota Therapies in the Treatment of Obesity

Kelly A. Tappenden, PhD, RD, FASPEN – University of Illinois at Urbana-Champaign

Sunday, February 15, 2015 10:30am – 12:00 pm

#### Submitted by:

Bailey DeBarmore, RDN, CPT

#### Background

The human microbiome may contain over 100 times more genes than our own human genome. Our microbiota communicate globally in our body through our immune system, and research shows they may play a role in autoimmune and neurological disorders in addition to metabolic conditions such as obesity and diabetes mellitus. Much of the research focuses on the dominance of one anaerobic bacterial phyla over another, and their association with body composition. However, the bigger picture is the degree of biodiversity present in an individual's microbiome. Biodiversity confers resilience to disease and promotes recovery from illness in addition to its implications for obesity and general health. This aspect of the microbiome is particularly important when thinking about immunocompromised

populations, where gut microbiota balance is often a precarious endeavor. Aging, diet, and lifestyle behaviors affect our microbiome composition just like they affect other aspects of our health. With age, the motility of the gastrointestinal (GI) tract decreases, allowing opportunistic (and detrimental) aerobes to displace beneficial commensal microbes in our gut.

#### The Science

How do we study the microbiota-health relationship? The two dominant anaerobic phyla present in the human microbiome have emerged in the research as characteristics of obese versus lean body compositions. Much of the research at this point has been done in mice

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models, particularly the ob/ob model. This mouse model has a gene mutation leading to excessive eating and significantly increased body fat percentages compared to lean, or wild type mice. These ob/ob mice also have significantly more Firmicutes compared to Bacteroidetes.

How could microbiota at the end of our gut influence our body composition?

These microbes get their energy from remnant nutrients and nondigestible carbohydrates (fiber) that make it through the rest of our GI tract. As they metabolize these nutrients, they produce short chain fatty acids, such as butyrate, that provide energy for our colon cells, keeping them healthy and relatively impermeable. Research reveals that microbiota in the obese colon may be more efficient at salvaging energy from these remnant nutrients. By measuring the calorie content of stool from ob/ob mice compared to wild type mice, researchers documented that microbes seem to be more efficient at further metabolizing the short chain fatty acids, leading to more energy harvested for the host and less energy excreted in the stool, unabsorbed.

#### Calories In, Calories Out

How do “calories in” change our microbiome, and change “calories out”?

The Western diet, as it is often called in research, is high in saturated fat and refined carbohydrates. Other diets that are lower in saturated fat and higher in fiber have been studied juxtaposed to the Western diet to study outcomes. In a study comparing West African children to their European counterparts, researchers found that West African children had more favorable ratios of Bacteroidetes to Firmicutes, and overall greater microbiota diversity. The European children had higher Firmicutes and overall less diversity.<sup>1</sup>

#### Diabetes Mellitus

There are 3 ways our gut microbiota can influence insulin sensitivity. Microbiota secrete signaling molecules that interact with our immune system in the gut lumen and via gut permeability. When the gut microbiota is detrimentally altered, the change in metabolic byproducts lead to low-grade metabolic endotoxemia via Toll-Like Receptors 4 and 5, which further exacerbates gut permeability. Secondly, a vicious cycle in the large intestine can lead to more efficient utilization of produced

short chain fatty acids, propagating dominance of the Firmicutes phyla, leading to continued efficient energy harvesting. Thirdly, gut microbiota influence our gut hormones, impacting motility and appetite. GP1, GP43, peptide YY, lipoprotein lipase inhibitor all affect energy metabolism. Specifically, a dysregulated peptide YY can lead to accelerated gastric emptying – the opposite of satiety. The reduced GI motility can lead to increased dominance of opportunistic aerobic microbes, displacing beneficial commensal bacteria.

Research shows almost immediate improvements in glycemia following bariatric surgery, before dietary changes would have any effect. For this reason, Roux-en-Y gastric bypass patients serve as interesting human models of how the body changes metabolically before energy intake, absorption, or weight changes. Immediately following surgery, we see changes in the microbiome and improvements in insulin resistance and inflammation. Is the microbiome responsible for this rapid improvement? Possible hypotheses for the microbiome role in improving diabetes mellitus in this patient population involve its effect on inflammation, changes in gut hormone secretion, and later dietary changes.

Suggested reading: Krajmalnik-Brown R. Effects of Gut Microbes on Nutrient Absorption and Energy Regulation. *Nutr Clin Pract.* 2012;27:201-214.

#### Modulating the Microbiome

##### Antibiotics

Subtherapeutic levels of antibiotics have been used to induce obesity in commercial livestock; this association is also seen in the mouse model. Researchers see changes in the short chain fatty acid metabolism, hepatic lipogenesis, and microbiome diversity of mice.

As nutrition professionals, we are aware of the role of antibiotics in the gut. An interesting finding is that the timing of antibiotics in the life course can play a role in the development of obesity. Mice given antibiotics from age 0-23 months had a higher prevalence of obesity compared to mice given antibiotics after 23 months, as

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the antibiotics may have disrupted their protective microbiome diversity, amplifying diet-induced obesity.<sup>2</sup>

*Helicobacter pylori* is a bacteria found in two-thirds of the population's stomach.<sup>3</sup> Compared to the intestines, the stomach is relatively void of microbiota. While much of the population hosts *H. pylori* without symptoms, they can lead to problems such as ulcers and stomach cancer. Treatment includes antibiotics to eradicate the strain. Research comparing those with *H. pylori* and those without symptomatic *H. pylori* shows that patients undergoing antibiotic treatment for *H. pylori* have a significantly increased BMI.<sup>4</sup>

#### Probiotics

Probiotics are living microorganisms that upon regular ingestion in certain numbers exert health benefits beyond those inherent of basic nutrition. Supplementation of *Bifidobacterium adolescentis* attenuated hepatic steatosis and visceral fat distribution in a diet-induced obese mouse model. Similar research with other probiotic supplements reached similar conclusions. A commercial probiotic, VSL#3, is a medical food geared towards patients with inflammatory bowel disease. VSL#3 has been used in obesity-related research, and was found to be protective against diet-induced obesity and diabetes in mouse models through increased butyrate-induced GLP1 hormone secretion.<sup>5</sup> With the rise in pediatric obesity, many health practitioners have seen a rise in non-alcoholic hepatic steatosis, or non-alcoholic fatty liver disease (NAFLD) in children.<sup>6</sup> A randomized control trial of VSL#3 versus placebo found significantly improved changes in fatty liver disease via ultrasound as well as BMI and GLP-1 levels.<sup>7</sup>

#### Prebiotics

Prebiotics are selectively fermented fiber that allow specific changes in both composition and/or activity of GI microbiota, conferring health benefits. Total fiber, considered nutritionally, is a combination of dietary fiber (nondigestible carbohydrate and lignin) and functional fiber (isolated nondigestible carbohydrates that have a beneficial effect in humans, i.e. oligosaccharides).<sup>8</sup> Digestible carbohydrates provide energy to the host in the small intestine, and nondigestible carbohydrate provides fermentation energy for bacterial growth and metabolite production of acetate and butyrate, short chain fatty acids that can provide additional energy to the host

in the large intestine as well as additional energy to the microbes. These short chain fatty acids play an important role in hormone signaling, such as the GLP-1 pathway mentioned previously.

A meta-analysis revealed that fiber intake reduces the risk of chronic disease by 30%.<sup>9</sup> In the Nurses' Health Study cohort, researchers saw more weight gain in women who consumed more refined grains, but consumption of whole grains was protective against weight gain. Over the 12 year period, the highest whole grain quintile gained 8 fewer pounds than the lowest quintile group per 12 grams of increased dietary fiber consumed.<sup>9</sup> A randomized trial looked at the effect of whole grain intake (beta-glucan in ready-to-eat oat cereal) at breakfast versus a control. They found significantly reduced waist circumference ( $p < 0.05$ ) at 4 weeks and at 12 weeks ( $p < 0.05$ ).<sup>10</sup>

Increased fiber intake may affect body weight through increased satiety and meal duration, its dilution effect on the food matrix, decreasing the net energy absorbed, improvements in glycemia and subsequent energy utilization, and finally its role in attenuating inflammation through microbiota metabolism.

#### Research to Watch

Keep an eye out for research on the global effects of microbiota on the liver, adipocytes, gut, brain, and the subsequent influence on appetite. Additionally, look for further characterization of fiber's effect on body weight, fat mass, and waist circumference.

#### Summary

The human gut microbiome – the genes contributed by the gut microbiota - is 100 times larger than our own genome, and plays a role with our immune system as well as metabolism.

The most important component of the gut microbiota-obesity relationship is microbiome diversity, not the prevalence of a single phyla over another.

Gut microbiota harvest energy from nondigestible carbohydrates, releasing short chain fatty acids that can

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serve as signaling molecules to the rest of our body and keep our colon cells healthy.

Obese persons may have a gut microbe distribution that is more efficient at absorbing energy from nutrition remnants, resulting in more net energy intake than their lean counterparts.

Diet impacts our microbiota diversity, where high saturated fat, low fiber diets decrease diversity and may promote obesity.

The relationship between our gut microbiome and diabetes is complex, and involves inflammation and hormone signaling.

Antibiotics in early-life (<2 years of age) may lead to the loss of protective gut microbiota and predispose the child to obesity later on.

Probiotics are living microbes that you can ingest as a supplement. Research shows beneficial effects of supplementation on insulin sensitivity, obesity, and non-alcoholic fatty liver disease.

Prebiotics, nondigestible fiber that enter the large intestine intact, are metabolized to short chain fatty acids. Increased fiber intake is associated with greater weight loss, and may be protective against age-associated weight gain when compared to refined grain consumption.

#### References

1. De Filippo C, et al. Impact of diet in shaping gut microbiota revealed by a comparative study in children from Europe and rural Africa. *Proc Natl Acad Sci U S A*. 2010. Vol 107:33. 14691-14696.
2. Cox L, et al. Altering the intestinal microbiota during a critical window has lasting metabolic consequences. *Cell*. 2015;158:4:706-721.
3. Brown, LM. Helicobacter pylori: epidemiology and routes of transmission. *Epidemiol Rev*. 2000;22(2):283-297.
4. Buza's GM. Metabolic consequences of Helicobacter pylori infection and eradication. *World J Gastroenterol*. 2014 20(18):5226-5234.
5. Yadav H, et al. Beneficial metabolic effects of a probiotic via butyrate-induced GLP-1 hormone secretion. *J Biol Chem*. 2013;288:25088-25097.
6. Chen J et al. Bifidobacterium adolescentis supplementation ameliorates visceral fat accumulation and insulin sensitivity in an experimental model of the metabolic syndrome. *Br J Nutr*. 2012;107:1429-1434.
7. Alisi A, et al. Randomised clinical trial: the benefits effect of VSL#3 on obese children with non-alcohol steatohepatitis. *Aliment Pharmacol Ther*. 2014;39:11,1276-1285.
8. Institute of Medicine. Dietary Reference Intakes: Proposed Definition of Dietary Fiber. Food and Nutrition Board. National Academy of Science. 2001.
9. Liu et al. Relation between changes in intake of dietary fiber and grain products and changes in weight and development of obesity among middle-aged women. *Am J Clin Nutr*. 2003;178:920-927.
10. Maki KC, et al. Whole-grain ready-to-eat oat cereal, as part of a dietary program for weight loss, reduces low-density lipoprotein cholesterol in adults with overweight and obesity more than a dietary program including low-fiber control foods. *J Am Diet Assoc*. 2010;110:205-214.



**CLINICAL  
NUTRITION  
WEEK 2016**

**JANUARY 16-19, 2016**

**AUSTIN CONVENTION CENTER | AUSTIN, TX**



We're looking forward to CNW16 in Austin! Registration is open and detailed information is available on the A.S.P.E.N. website at <https://www.nutritioncare.org/CNW/>



## Treating Gastrointestinal Dysmotility in the Critically Ill

Tuesday, February 17, 2015 12:30-2:00pm

Educational Level: Advanced

**Moderator:** Adam Deane, MBBS, PhD, FCICM, FRACP, Intensive Care Physician / Scientist, Centre of Research Excellence (CRE) in Translating Nutritional Science to Good Health, National Health and Medical Research Council, Adelaide, South Australia

### Speakers:

Marianne J. Chapman, PhD, FCICM, FANZCA, Senior Staff Specialist, ICU, Royal Adelaide Hospital; Clinical Associate Professor, University of Adelaide School of Medicine, Adelaide, South Australia

Adam Deane, MBBS, PhD, FCICM, FRACP, Intensive Care Physician / Scientist, Centre of Research Excellence (CRE) in Translating Nutritional Science to Good Health, National Health and Medical Research Council, Adelaide, South Australia

Stephen A. McClave, MD, FASPEN, Professor of Medicine, Division of Gastroenterology / Hepatology, University of Louisville School of Medicine, Louisville, KY

### Submitted by:

Colene Stoernell, MS RD, Scripps Green, La Jolla, CA

Main take away points from the session:

- Gastric emptying is delayed in about 50% of critically ill patients and markedly delayed due to an exaggerated feedback loop.
- Increased cholecystokinin and peptide YY appear to play an important role. Nguyen NQ, Fraser RJ, Bryant LK, Chapman MJ, Wishart J, Holloway, RH, Butler R, Horowitz M. The relationship between gastric emptying, plasma cholecystokinin and peptide YY in critically ill patients. *Crit Care*. 2007; 11:R132
- Delay in the delivery of nutrients to the small intestine is one of the mechanism by which nutrient absorption is reduced.
- Gastric residual volume has a reasonable relationship to gastric emptying, but may or may not relate to aspiration risk. Kuppinger DD, Rittler, P, Hartl Ruttinger D. Use of gastric residual volume to guide enteral nutrition in critically ill patients: A brief systematic review of clinical studies. *Nutrition*. 2013, 29(9): 1075-1079
- Small bowel feeding supports only a small reduction in pneumonia
- Current evidence supports the use of erythromycin (200mg IV BID) with metoclopramide (10mg IV QID) for feeding intolerance. Future drugs being tested include motilin agonists without antibiotic activity and ghrelin agonist. Chapman MJ, Nguyen NQ, Deane AM: Gastrointestinal dysmotility: evidence and clinical management. *Curr Opin Clin Nutr Metab Care*. 2013, 16(2):209-216
- Tolerance is altered based on the specific macronutrient contents in formula, such as type of fat (long chain versus medium chain) and type of protein (whey versus casein)

## Malnutrition Awareness Week

A.S.P.E.N.'s Malnutrition Awareness Week is scheduled for 9/28-10/1/15 with 4 daily webinar sessions scheduled for pediatric and adult practitioners. Find out more and register here:  
[http://www.nutritioncare.org/Continuing\\_Education/Live\\_Programs/Malnutrition\\_Awareness\\_Week/Malnutrition\\_Awareness\\_Week/](http://www.nutritioncare.org/Continuing_Education/Live_Programs/Malnutrition_Awareness_Week/Malnutrition_Awareness_Week/)

**Nutrition Management of Critically Ill Adults : Assessment, Intervention, Outcomes**

February 16, 2015 4:00 - 5:30

Educational Level: Intermediate

**Moderator:** Malcolm Robinson, MD, Brigham and Women's Hospital / Harvard Medical School**Speakers:** Kris Mogensen, MS, RD, LDN, CNSC, Brigham and Women's Hospital

Edward Saltzman, MD, Friedman School of Nutrition Science and Policy / Tufts University

Kenneth Christopher, MD, FCCM, Brigham and Women's Hospital / Harvard Medical School

**Submitted by:**

Renee Walker, MS, RD, LD, CNSC, FAND, Michael E. DeBakey Veteran Affairs Medical Center, Houston, TX

This presentation highlighted the challenges faced when conducting nutrition assessments in the intensive care setting (ICU). The team's lead dietitian discussed how to apply the new malnutrition characteristics in the ICU setting and provided references for some of the parameters. Challenges to feeding the Obese Critically ill were also discussed. My points of interest and "takeaways" from the presentations are consolidated in the following two tables.

Area of Nutrition Assessment	Challenge
Energy Intake (Malnutrition guidelines based intake level on Kondrup K. <i>Clin Nutr.</i> 2001)	Patient may be intubated, sedated, family unavailable In-house transfers- review foods ordered Outside hospital transfer- review records, any documentation on nutrition support
Weight (Malnutrition guidelines based on Blackburn et al. <i>JPEN.</i> 1977)	Is your ICU weight a real weight (dehydration, post-volume resuscitation)? Is weight history available? ***Search for the true dry weight**
Muscle and fat loss (Weisener RL and Morgan SL. <i>Fundamentals of Clinical Nutrition.</i> Mosby-Year Books. 993)	Ability to physically examine may be limited Fundamentals of Clinical Nutrition 1993 contains great images Until you can see your entire patient, examine what you can (i.e. temporal, clavicles, skin, nails) More training and research is needed with physical assessment
Edema	1+ to 4+, models available to train on different stages, ascertain if related to malnutrition or hydration
Functional strength	Handgrip strength not feasible in ICU Ask family if functional strength has been declining
Biochemical data	Explain to clinical team why albumin and prealbumin are not reliable nutritional indexes Obtaining CRP may be helpful

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Topic Area	Comments
Challenges	Difficult to assess loss of muscle fat, fluid and ↓functional status
Why Feed? JPEN 2013;37: 714-744	Obesity mortality risk varies If you control for nutrition support, the issue of whether obesity is protective or not goes away. <i>Crit Care Med</i> 2015;43(1):87-100.
Malnutrition	Malnutrition has an effect on outcomes in critically ill patients even in the seemingly over nourished. Nutrition support is often delayed in the critically ill obese patient. <i>Am J Clin Nutr.</i> 2014;100:859-966.
Predictive formulas	Ventilated, sedated patients – use Penn State equation ***Do not use Penn state if large chest tube leak (inaccurate) Consider using kcal/kg for BMI 30-50 Equations are not as accurate as measured energy expenditure 12% over estimate and 38% underestimate needs Tatucu, <i>JPEN.</i> 2015 Jan 20. pii: 0148607114567898) If unable to use Penn state, use Mifflin with actual body weight (Aspen 2013 Obesity Guidelines) Mifflin 19% accurate per Franklin 2013 study
Hypocaloric versus eucaloric feeding	Limited ↑ quality data Unclear if hypocaloric feeds improve outcomes May ↓ risk such as hyperglycemia You should maintain protein, as low protein intake associated with unfavorable outcomes Question if one predictive equation is appropriate across the spectrum of BMIs Existing hypocaloric predictive equations may not be valid
Special Micronutrient Needs	Gastric bypass – iron, B12, vitamin D, thiamine
Monitoring	See if you can pool existing data (i.e. nutrition assessment w/ malnutrition) into an established research database, then tease out the benefits of nutrition support Nutrition support is predictive of mortality

This program exceeded my expectations. After 21 years of practice, I still found many new pearls of wisdom, for example—not using the Penn State equation in the setting of a leaking chest tube. I organized my notes from the sessions into tables for future reference and plan to share these tables with my colleagues and interns.

## Optimizing the Use of Lipid Emulsions in Parenteral Nutrition: Biochemistry, Physiology, and Patient Selection

February 16, 2015 6:00 am

Educational Level: Intermediate

### Speakers:

Daren Heyland, MD, Professor of Medicine, Queen's University, Kingston, ON, Canada

Judy King, RD, Southlake Regional Healthcare, Newmarket Ontario, Canada

### Submitted by:

Trisha Fuhrman, MS, RDN, LD, FAND

Consultant, Malnutrition Antagonists, St Louis, Missouri

King's presentation was entitled Optimizing the Use of Lipid Emulsions in Parenteral Nutrition for Patients with Inflammation: Biochemistry, Physiology, and Patient Selection. The focus of the presentation was the impact of different lipid emulsions on immune function, particularly omega-3 (anti-inflammatory), omega-6 (pro-inflammatory) and omega-9 fatty acids (immune neutral).

Despite differences and similarities of different fatty acids, it is still unknown what combination of oils is optimal to protect immune function. Ms. King raised the issue that there could be a down side to altering the body's immune response too soon when the body needs the heightened response for survival.

Dr. Heyland's presentation, Optimizing the Use of Lipid Emulsions in Parenteral Nutrition (PN), examined the scientific literature concerning route of feeding and how much to feed. Not surprising, enteral nutrition started within 24-48 hours is the preferred regimen. Optimal nutrition is  $\geq 80\%$  of goal with more emphasis on meeting protein needs versus energy needs. However, Dr. Heyland did state that the literature supported the use of short term PN in patients unable to meet goal enterally. When giving PN, limiting the use of products high in soybean oil was recommended (2013 Canadian Clinical Guidelines).

A case study was presented by Ms. King. The purpose of the case study was to discuss the selection and effect

of alternative lipid sources on outcomes. There were members of the audience who challenged and debated the use of PN in the patient, arguing that a jejunal feeding tube should have been placed.

For more information about alternative lipids and information presented during this presentation:

- *Support Line*, 2015;36(6). The entire issue is devoted to alternative lipid solutions.
- Dietitians in Nutrition Support, a Dietetic Practice Group of the Academy of Nutrition and Dietetics has a lipid tutorial that contains 3 modules addressing the biochemistry of lipids as well as enteral and parenteral lipids in adults and pediatrics.
- A.S.P.E.N. Position Paper: Clinical role for alternative intravenous fat emulsions. Vanek VW, Seidner DL, Allen P, Bistran B, Collier S, Gura K, Miles JM, Valentine CJ, Kochevar M, Novel Nutrient Task Force, Intravenous Fat Emulsions Workgroup, and the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors. *Nutr Clin Pract*. 2012;27(2):150-192.
- Canadian Clinical Practice Guidelines 2013. Section 9.2: composition of parenteral nutrition: type of lipids. Available at: [www.criticalcarenutrition.com](http://www.criticalcarenutrition.com).

*"The food you eat can be either the safest and most powerful form of medicine or the slowest form of poison."*

*— Ann Wigmore*

# Continuing Ed

Visit the A.S.P.E.N. website for details on all of these continuing education events.

<https://www.nutritioncare.org/events/>

<b>Date</b>	<b>CE Event</b>	<b>Location</b>
10/2-10/3/15	Florida Chapter Annual Meeting	Daytona Beach, FL
10/2/15	30th Annual Mid-Atlantic Chapter Annual Meeting	Charlotte, NC
10/7/15	Peri-Procedure Feeding: When to Stop and When to Start	Webinar
10/9-10/10/15	2015 NASPGHAN Nutrition Symposium	Washington DC
10/30/15	Michigan Chapter Annual Meeting	Lansing, MI
11/2/15	Oklahoma Chapter Annual Conference	Oklahoma City, OK
11/6-11/7/15	North Texas Chapter Fall Symposium	Dallas, TX
11/11/15	Pennsylvania Chapter Annual Meeting	Philadelphia, PA
11/12/15	Ohio Chapter Annual Meeting	Youngstown, OH
11/13/15	Virginia Chapter Annual Meeting	Wintergreen, VA
1/16-1/19/16	Clinical Nutrition Week 2016	Austin, TX



## CNW 2016 Virtual Conference

If you can't make it to Austin this winter for Clinical Nutrition Week, you can still keep up to date on all the latest topics in nutrition support and earn 19 continuing education credits, online from your desk.

The main sessions are all available virtually and you can even submit questions live during the sessions.

Don't forget (attention eastern time zone folks), as you are perusing the offerings, the scheduled times listed are in Central Time.

<https://www.nutritioncare.org/CNWVirtual/>

## DIETETICS PRACTICE SECTION NEW PRACTITIONER AWARD

This award recognizes the achievements of a new practitioner of nutrition support or student member of A.S.P.E.N. who is involved in furthering the science and practice of nutrition support. The winner of this award will be recognized during the Section meeting at CNW16.

Submissions must include an abstract, poster or professional contribution to the field of nutrition support, as well as a brief statement on how involvement in A.S.P.E.N. has helped in your career thus far, and a letter of recommendation. The deadline for submissions is Monday, November 30.

Individuals may submit their application for consideration if they meet the following criteria:

1. The individual must be a current student, new practitioner (graduated within the past two years), or new to the field of nutrition support (within the past two years).
2. Basic science research, clinical research projects related to nutrition support therapy, and other contributions to the field will be accepted for consideration.
3. Research abstracts submitted must have already been accepted for presentation at a recent professional meeting as a poster or an abstract (including but not limited to CNW) and other contributions need to display a strong impact on patient care through nutrition support.
4. Current Section Leaders are not eligible for consideration.

Please contact Carolyn Woods with any questions and to submit your application: [carolynw@nutritioncare.org](mailto:carolynw@nutritioncare.org).

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