Within Integrative and Functional Nutrition (INF), much attention is focused on intestinal integrity. Because both health and disease are believed to originate in the gut, increased intestinal permeability, often referred to as “leaky gut,” is a critical component of nearly every Integrative and Functional Medical Nutrition Therapy (IFMNT) assessment and intervention. In the last several years, there has been a steady influx of information on a particular protein, zonulin, which has begun to shed light on the mechanisms by which intestinal permeability is modulated. But first, it would be best to briefly review the structure and function of the gastrointestinal tract with regard to intestinal permeability.

**Refresher: Gastrointestinal Anatomy**

As IFN RDNs are well aware, the gastrointestinal tract serves as a functional trifecta—the site of nutrient digestion and absorption; a protective barrier between the intestinal lumen and the rest of the body; and a major site of the body’s immune and nervous systems, referred to as the gut-associated lymphoid tissue (GALT) and the enteric nervous system (ENS), respectively. GALT comprises the largest mass of lymphocytes in the body, and the ENS, often referred to as the “second brain,” connects the gut and the brain.

All these functions contribute to the integrity of the digestive tract and its barrier function. The small intestine is made of a single layer of enterocyte cells, which have microvilli along the luminal side, joined together by “tight junctions.” While enterocytes regulate intracellular traffic via brush border membrane transporters, tight junctions (TJ) are protein complexes between the cells that regulate paracellular traffic, or the movement of molecules between cells. These epithelial TJs respond to a variety of stimuli, opening and closing to allow select molecules in, while keeping others out. A normal TJ allows small particles (approximately 2000 molecular weight) to pass through via a sodium dependent glucose transporter (SGLT1), but prevents larger

Zonulin: The Gateway to Leaky Gut

Robin Foroutan, MS, RDN, HHC

Robin Foroutan, MS, RD, HHC is an Integrative Nutritionist and Holistic Health Counselor practicing in New York City and Morristown, New Jersey. As an Integrative RD, she combines the basic tenets of healthy eating with the emerging science of Integrative and Functional Medicine Nutrition. She is Board Certified as a Holistic Health Counselor through the American Association of Drugless Practitioners. Robin is a public speaker on the power of whole food diets, natural healing, and childhood nutrition. She also consults for various companies and organizations on menu development, nutrition and health communications and marketing strategy, and serves as the Marketing Chair for Dietitians in Integrative and Functional Medicine (DIFM), a practice group of the Academy of Nutrition and Dietetics. Contact Robin at rforutan@mac.com.
particles from passing through.²

One can imagine a TJ functions as a drawbridge, selectively allowing only certain molecules through, keeping most out. However, various stimuli affect the TJ complexes including dietary factors, neurotransmitter signals, inflammatory mediators, mast cells, beneficial and pathogenic microbes, and viruses.² These factors can negatively affect the function of TJ proteins and the drawbridge can get “stuck,” not closing up properly and therefore allowing larger molecules to pass through. This is referred to as increased intestinal permeability or “leaky gut.” The exact mechanisms by which TJs function are not completely understood, but the discovery of zonulin was a major step in elucidating this important structure.

Zonulin:
The zonulin pathway is one of the few TJ protein pathways that have been studied to date, but much is still unknown about this structure. According to a recent review, “zonulin is the only physiological modulator of intercellular tight junctions described so far that is involved in trafficking of macromolecules and, therefore, in tolerance/immune response balance.”³ Research indicates that increased intestinal permeability, modulated by dysregulated zonulin secretion, may be the “gateway” to inflammation, autoimmune diseases and cancer. Since TJs are involved with the movement of fluid, macromolecules, and leukocytes between the intestinal lumen and blood stream, a dysfunction of this important structure can lead to immune activation and dysregulation.

Various stimuli and conditions have been identified, which trigger the secretion of zonulin by small intestinal mucosa. Zonulin is believed to interact with specific cell receptors triggering a chain reaction, which causes the rearrangement of the proteins that sit within the paracellular junction. This rearrangement results in a loosening of TJs, which is transient and returns to its normal state after the zonulin signaling is over.

There is still much to be discovered about the various stimuli that trigger zonulin secretion, though several triggers have been documented to date. Gliadin, the main protein in wheat gluten, and bacteria exposure in the small intestine, along with dysbiosis, intestinal infection and non-steroidal anti-inflammatory drugs (NSAIDS) are known triggers. Gliadin has been observed to trigger a transient increase in intestinal permeability in normal, non-celiac study participants. Furthermore, researchers have found that chronic gliadin exposure caused the down-regulation of the gene expression of two critical tight junction proteins, allowing for increases in permeability.⁴ This research suggests that any ingestion of wheat protein may trigger a transient increase in intestinal permeability in healthy people.

Zonulin Dysregulation and Disease

In autoimmune conditions, including celiac disease (CD) and Type I Diabetes (T1DM), zonulin is overexpressed in the tissue and serum, resulting in increased paracellular permeability.² It is suggested that this sustained intestinal permeability is a major component in the pathogenesis of autoimmune diseases.

Abnormal, increased permeability may in fact be a requirement for autoimmune disease expression and appears early on in the disease process.²,⁴,⁵ Increased gut permeability can allow exogenous antigens to enter systemic circulation, to which antibodies may be synthesized. If these antibodies react with the “immunologically similar” tissues of the body, the interaction can manifest as an autoimmune disease.⁶,⁷

Because zonulin is overexpressed in people affected by autoimmune diseases, including T1DM and CD, and it is known that gliadin also triggers zonulin secretion, many Integrative RDNs recommend gluten-free diets for people with autoimmune diseases beyond CD. It has been suggested that intestinal permeability triggered by excess zonulin secretion allows antigen triggers from within the lumen into the serum, against which the immune system launches a response. Therefore, a potential area of intervention for autoimmune disease may lie in gut healing protocols.

Interestingly, intestinal permeability may also play a role in obesity and metabolic syndrome. Zonulin over-secretion may be associated with obesity-related insulin resistance and Type 2 Diabetes (T2DM). Circulated zonulin levels have been reported to be increased with the following measures of obesity and insulin reactivity: body mass index, waist-to-hip ratio, fasting insulin, fasting triglycerides, uric acid and interleukin-6, an inflammatory cytokine. In fact, it appears that interleukin-6 may regulate zonulin expression by affecting gene expression.⁸

In summary, the conditions associated with an upregulation of zonulin secretion are vast and include:

- Autoimmune diseases, including T1DM, celiac disease, ankylosing spondylitis, Crohn’s Disease,
rheumatoid arthritis, thyroiditis, and systemic lupus erythematosus; T2DM, obesity, insulin resistance; certain cancers, including brain cancers (gliomas), breast cancer, lung adenocarcinoma, ovarian cancer, and pancreatic cancer; diseases of the nervous system, including chronic inflammatory demyelinating polyneuropathy, multiple sclerosis, and schizophrenia.

Beyond these conditions, numerous other maladies are associated with increased intestinal permeability, and are hypothesized to be an etiological factor in the progression of disease. These include Autism Spectrum Disorders, Irritable Bowel Syndrome (IBS), gastritis, eczema, asthma, allergic responses, delayed-type food intolerances, fibromyalgia, chronic fatigue syndrome, acne and atopic dermatitis.

Contributors to Increased Intestinal Permeability:

As indicated previously, wheat ingestion appears to be a major contributor to zonulin dysregulation and has been documented to disturb TJs, resulting in intestinal permeability. Other factors that affect intestinal permeability beyond those listed previously include:

- Antibiotic use, possibly via killing beneficial bacteria;
- Alcohol consumption;
- Corticosteroids;
- Disruption of intestinal flora, via factors like aforementioned antibiotics, psychological and physical stress and some dietary components, may also impact gut permeability;
- Other possible factors may include: radiation therapy, stress, excessive simple sugar consumption, food allergies and intolerances, premature birth and whole-food exposure before the age of 4-6 months.

It is evident that intestinal permeability or “leaky gut,” is a modifiable mediator in the development and progression of multiple conditions, which presents an important opportunity to the nutrition professional. If part of the etiology lies in gut dysregulation, then part of the solution may also lie there.

Treatments and Protocols:

Since it has been established that increased intestinal permeability and impaired intestinal barrier function may play a role in so many conditions, then a gut healing protocol can therefore be a therapeutic target for treatment.

There is no singular way to create a gut healing protocol to address increased intestinal permeability, though there are various components that are commonly used, including the “Four R Framework.”

- Remove: Address possible infection and dietary factors that burden the intestinal tract (gluten, possible food sensitivities, intestinal pathogens, dysbiosis or parasitic infections, preservatives, environmental chemicals, molds, fungi, metals, etc.);
- Replace: Assess digestive enzyme activity and stomach acid secretion to ensure adequate levels;
- Reinnoculate: Replenish beneficial bacteria and yeast to rebalance intestinal microbiome;
- Repair: Provide nutrition support to encourage regeneration and healing of the gastrointestinal mucosa through dietary changes and supplementation of key nutrients, which may include glutamine, essential fatty acids, zinc, N-acetyl cysteine, etc.

Since the intestinal tract is also linked with the neurological system and neurotransmitters, stress reduction is an important component of resetting the immune system, thus mind-body techniques may be useful.

Understanding and addressing intestinal permeability as part of nutritional interventions presents an important opportunity for nutrition professionals, especially in light of the research that supports intestinal barrier dysfunction as a factor in a multitude of diseases and disorders.

References
3. Fassano A. Zonulin and Its Regulation of Intestinal barrier function: The biological door to inflammation, autoimmunity and cancer. Physiol Rev. 2011; 91:151-175.


20. Swift KM. Digestive Healing & Elimination Diets. Presented at: Food As Medicine, Integrating Nutrition into Clinical Practice and Medical Education; November 2009; Miami, FL.
Spotlight at FNCE® 2013

Food, Water and the Environment: What’s Women’s Health Got to Do with It?

Betsy Redmond, PhD, MMSc, RD, LD
is currently Chair of DIFM. She received her master’s from Emory University, and doctorate in nutrition from the University of Georgia. She is co-author of several publications including the Standards of Practice (SOP) for Dietitians in Integrative and Functional Medicine, and the Laboratory Evaluations for Integrative and Functional Medicine (2008) textbook. Contact Dr. Redmond at 3425 Corporate Way, Duluth, GA 30096 or email eredmond@gdx.net

Research, both laboratory and epidemiologic, is finding that environmental toxins are having a significant effect on our health, specifically in children, pregnant women and the elderly. Many people are familiar with some of the most well-known, banned toxins, including the persistent organic pollutants (POPs), such as PCBs, DDT, and dioxins, to the still currently used organophosphate pesticides (OPs). OPs include insecticides, herbicides, fungicides and rodenticides.

Research has noted that diet is a primary route of exposure to many of these toxins. Additionally some emerging evidence suggests that diet and nutrition can modulate the toxicity of environmental pollutants, which may alter risks associated with toxicant exposures.

Research has demonstrated that low level exposure to OPs may have significant effects on fertility and cognitive development in children. The CHAMACOS study is a longitudinal birth cohort study of the effects of pesticides, such as OPs, in infants delivered by women residing in an agricultural community in California.

The study found that prenatal organophosphate exposure was associated with increases in pervasive developmental disorder, a decline in mental development, poor attention skills and hyperactive behavior. It also found that prenatal exposure to OPs, as noted by urine metabolites during the first and second half of pregnancy, were associated with lower cognitive scores for the children at 7 years of age. The association was most pronounced when comparing children in the highest to lowest quintiles of prenatal exposure, experiencing a full 7 point decrease in IQ scores for those children whose mothers had the highest urinary OP metabolite levels. Interestingly, the children’s own OP levels were not linked to their IQs, suggesting that prenatal exposure alone is largely responsible for the decline in IQ. In newborns, the effects of OP exposure are mainly exhibited as an increased number of abnormal reflexes, while in adolescents, the effects manifest as mental and emotional problems.

Consumption of fruits and vegetables conventionally grown with OPs has been noted as a primary source of OP in the diet.

An intake of organic produce may reduce children’s overall exposure to OPs. Though banned and not in use in this country, POPs are still in the environment and have been shown to be correlated with diabetes, endocrine disorders, cancer, altered neurodevelopment, thyroid and immune dysfunction. The greatest source of POPs are food items of animal origin since they bioaccumulate and biomagnify as they move through the food chain. Vegans and vegetarians have lower levels of POPs. Thus eating more vegetables, fruits, whole grains, nuts, seeds, beans and wild-caught young fish, and less animal fats, meats and meat products has been recommended. In an ongoing German birth cohort study of the influence of POPs on child development, data indicated that PCB exposure in infancy may influence DHEA-S levels in prepubertal children, which can indicate accelerated adrenal maturation.

These epidemiologic findings are significant because much of the research has been done with nationally representative sample populations, they are not concentrating on those with occupational exposure. Biomonitoring data of human exposure to environmental contaminants, which have become increasingly available over the last several years, complement the monitoring of pollutants in air, food, and drinking water.

Nutrition can make a difference, we just need to be aware of the problem.

To hear more about this and other environmental issues related to women’s health come to the Health and Environmental Nutrition (HEN) and DIFM Spotlight Session at FNCE®, 2013. Food, Water and the Environment: What’s Women’s Health Got to Do with It? Speakers: Kim Robien, PhD, RD and Elizabeth Redmond, PhD, MMSc, RD on Monday, October 21, 2013 from 1:30 PM - 3:00 PM. Read more: http://fnce.eatright.org/fnce/SessionDetails.aspx?SessionID=31606

References


3. Bouchard MF, Chevrier J, Harley


California Walnuts are a heart-healthy whole food and the only nut rich in the essential omega-3 fatty acid ALA. A one ounce serving of walnuts is also a source of antioxidants and contains protein and fiber. Help your clients defend their bodies naturally with the nutrient-dense goodness of California Walnuts.

For complete nutritional information, educational resources and more, visit walnuts.org

Natural Defenders of the Human Body™

California Walnuts are a heart-healthy whole food and the only nut rich in the essential omega-3 fatty acid ALA. A one ounce serving of walnuts is also a source of antioxidants and contains protein and fiber. Help your clients defend their bodies naturally with the nutrient-dense goodness of California Walnuts.

For complete nutritional information, educational resources and more, visit walnuts.org

* A one ounce serving of walnuts contains 18g of total fat - 2.5g of monounsaturated fat, 13g of polyunsaturated fat, including 2.5g of plant-based omega-3 ALA. It also provides 4g of protein, 2g of fiber, and 3,721 mmol antioxidants.

“Supportive but not conclusive research shows that eating 1.5 ounces of walnuts per day, as part of a low saturated fat and low cholesterol diet and not resulting in increased caloric intake, may reduce the risk of coronary heart disease.” U.S. Food and Drug Administration, March 2004.
The Science, Art, and Practice of Dietary Supplementation: A Review

MaryBeth Augustine, RD, CDN provided a very informative lecture on the science, art and practice of dietary supplementation at the Integrative Healthcare Symposium in February 2013.

Augustine began with some eye-opening statistics on the current use of dietary supplementation in both the general public and via recommendation of integrative practitioners.

- Half of all American adults use supplements (NCHS Data Brief, 2011);
- According to the 2012 Bravewell Collaborative Integrative Medicine in America mapping survey of 29 academic integrative medicine centers, supplements were the 2nd most common intervention in the treatment of 20 different conditions surveyed (food/nutrition was #1);
- Supplements were used in 19 of the 20 conditions surveyed (except pre-operative care).

Because of the chronic use of supplements in this country it is crucial that integrative practitioners/dietetic professionals are informed on safety and efficacy of dietary supplementation for their patients.

Augustine stated that one of the most reliable sources for information on the use of dietary supplements is the Natural Medicines Comprehensive database. The database offers a full monograph of information on each supplement including the safety and effectiveness for certain conditions; food, nutrient and drug interactions; mechanism of action; dosage and administration; and much more.

Another reliable source is the Natural Standard, the Authority on Integrative Medicine, which offers similar resources as the Natural Medicines Comprehensive Database. These are both accessible to practitioners for an annual fee. The Natural Medicine Comprehensive Database is a DIFM member benefit.

Augustine also covered in detail the safety measures that are used to determine whether dietary supplements are up to standards. The FDA’s Current Good Manufacturing Practices (CGMPs) set standards for the following: personnel, physical plant, equipment and utensils, manufacturing records, batch production records, laboratory operations, manufacturing operations, packaging and labeling, holding and distributing, returned dietary supplements, product complaints, records and housekeeping.

Augustine thoroughly reviewed the role of the integrative practitioner regarding the sale of dietary supplements from both a legal and ethical standpoint, covering the position of both the Academy of Nutrition and Dietetics and the American Medical Association.


The American Medical Association (AMA) opinion of the sales of health related products may be found on the AMA’s website at http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/opinion8063.page.

Augustine covered some important and well thought out points for the integrative practitioner to consider when choosing to offer dietary supplements to their patients:

1. Consider Evidence Based Medicine (EBM), a systematic approach to gathering, evaluating and using research findings, when available to make a clinical decision;
2. Incorporate Risk Assessment and Benefit Analysis, where the patient and clinician evaluate risks and benefits and discuss if evidence is convincing, probable and possible, or if there is limited evidence to reject or support judgment;
3. Utilize Informed Shared Medical Decision Making (ISMDM), a critical tool used by integrative practitioners and sought out by patients looking for alternative care. This includes building a partnership with the patient and integrative practitioner upon the following principles:
   - Information giving: Address patient worries and expectations and present evidence of possible benefit and risk for treatment options;
   - Negotiation/Communication: Help patient clarify preferences and negotiate with patient on best option for them, and;
   - Agreement on treatment plan and follow up options.

For determining whether or not to prescribe a supplement to a patient, Augustine suggested the following should be discussed:

Nicole Eckman, RD earned a Bachelor’s Degree in Human Nutrition from Colorado State University and completed post-graduate work and dietetic internship through the University of Medicine and Dentistry of NJ. She uses a patient centered approach in her Colorado based practice of integrative nutrition. Contact Nicole at nicoleeckmanrd@mac.com.

Nicole Eckman
Nicole Eckman, RD earned a Bachelor’s Degree in Human Nutrition from Colorado State University and completed post-graduate work and dietetic internship through the University of Medicine and Dentistry of NJ. She uses a patient centered approach in her Colorado based practice of integrative nutrition. Contact Nicole at nicoleeckmanrd@mac.com.

The Science, Art, and Practice of Dietary Supplementation: A Review

Nicole Eckman, RD earned a Bachelor’s Degree in Human Nutrition from Colorado State University and completed post-graduate work and dietetic internship through the University of Medicine and Dentistry of NJ. She uses a patient centered approach in her Colorado based practice of integrative nutrition. Contact Nicole at nicoleeckmanrd@mac.com.
Augustine also made some important points for the dietetics professional to consider when developing patient education materials regarding dietary supplementation. Terminology is imperative and the proper wording can make the difference in the legal aspect as well as the patient’s interpretation of information and protocols. For evaluating and discussing safety with a patient, Augustine suggested using phrases such as Likely safe, Possibly safe, Possibly unsafe, Likely unsafe, Limited data to support or reject a judgment. Certain key points in evaluating and discussing safety are:

### To Be Discussed With Patient
- Assumption of risk
- Risk-benefit analysis
- Scientific names
- Uses
- Where found/made
- Mechanism of action
- **KNOWN** safety
- **KNOWN** efficacy
- **KNOWN** side effects
- **KNOWN** drug interactions
- Medical contraindications
- At-risk populations
- Drug/food/plant allergies and interactions

### Evaluating & Discussing Safety
- Different doses affect safety
- Different uses, or routes of administration, affect safety
- A product may be effective, but unsafe
- No product is safe for ALL people ALL of the time
- Potential medical contraindications: kidney disease, liver disease, prescription medication users, immunocompromised
- At risk populations: infants, children, pregnant, lactating, elderly

Augustine provided an overview of the keys to introduction of supplements, dose escalation and tapering during her informative and captivating lecture, which included the following key points:
Augustine clearly articulated the importance of concise documentation when recommending dietary supplementation. Examples were reviewed so as not to imply treatment or diagnosis of disease or to be perceived by the public as practicing medicine. For example, Augustine recommended that RD/RDNs do not use health claims or medical claims such as saying or documenting that glucomannan treats hyperglycemia. Alternatively, RD/RDNs should use structure and function claims, such as saying and documenting the recommendation of fenugreek to enhance, optimize, promote, aid or maximize carbohydrate metabolism; 5-HTP to support sleep and mood; or glutamine to promote a healthy digestive tract. There is a need for formal, written, stated and signed policies including but not limited to dietary supplementation, informed consent, anesthesia, financial disclosure, and formulary policies with brand inclusion/exclusion criteria.

Augustine's years of expertise as an integrative practitioner are evident and she did a remarkable job covering fundamental and critical information for the integrative practitioner using or considering the use of dietary supplements in practice today.

Reference:
Food, Water, And The Environment: What’s Women’s Health Got To Do With It?
Monday, October 21, 2013
1:30 PM-3 PM
Kim Robien, PhD, RD, FADA and
Elizabeth Redmond, PhD, MMSc, RDN

Food and water are known as a primary route of exposure for a number of environmental toxicants. Nutrients share many of the same metabolic pathways as toxicants, and can alter the toxicity of environmental exposure. This joint session will focus on the impact of pollutants on women’s health, including infertility and cancer. Speakers will identify key changes individuals can make to reduce their exposure and strategies for RDs to educate the public on these important public health issues. Planned with the Hunger and Environmental Nutrition and the Dietitians in Integrative and Functional Medicine Dietetic Practice Groups. Code: Food Safety and Security Level: 2 CPE Credit: 1.5 Learning Codes: 4180, 8018, 9020

Nutritional Approaches to Detoxification: Separating Fact From Fiction
Tuesday, October 22, 2013
9:45 AM – 11:15 AM
Gerard “Gerry” Mullin, MD and Kathie Swift, MS, RD

Do you know what to tell your clients who ask about “detox” programs? What is the scientific evidence surrounding detoxification diets and herb based therapies? Join two internationally recognized experts to fully grasp the pathophysiology behind detoxification as well as the latest in research both for and against detox therapies. Specific foods and nutraceuticals that can influence detoxification will also be addressed. Planned with the Academy Committee for Professional Development. Code: Obesity and Weight Management Level: 2 CPE Credit: 1.5 Learning Codes: 3070, 2080, 3100

Member Product Marketplace
Sunday, October 20, 2013
8 AM to 4 PM
George R. Brown Convention Center, 3rd Floor

Member Breakfast
Monday, October 21st
7 AM- 9 AM
Hilton Americas Ballroom of the Americas B

DPG Showcase - DIFM Booth
Monday, October 21, 2013
From 10:30 AM to 1 PM
George R. Brown Convention Center

Find Us at FNCE®

Insights to ACTION

FNCE™ = Insights
Attend the Academy’s Food & Nutrition Conference & Expo to gather ideas you can immediately put into practice.
Visit www.eatright.org/fnce to learn more.

Academy of Nutrition and Dietetics | Food & Nutrition Conference & Expo
George R. Brown Convention Center • Houston, TX • October 19–22, 2013
Upcoming Conferences:


Diet of resistant starch shown to help defend against colorectal cancer
A study published in the Current Opinion in Gastroenterology, 29(2):190-194, March 2013 reported that resistant starch helps the body resist colorectal cancer through mechanisms including killing pre-cancerous cells and reducing inflammation that can otherwise promote cancer. http://www.eurekalert.org/pub_releases/2013-02/uocd-sst021913.php

GOS prebiotic supplement may increase calcium absorption in teenage girls
A double-blind crossover trial from Purdue University found that daily galacto-oligosaccharide (GOS) supplements enhanced calcium absorption in adolescent girls. The authors noted that gut microbiota may play a role as subjects also had an increase in faecal bifidobacteria. Whisnera.CM,.Martina.BR,.Schotermana.MHC,.et.al..Galacto-oligosaccharides.increase.calcium.absorption.and.gut.bifidobacteria.in.young.girls:.a.double-blind.cross-over.trial..Br J Nutr. 2013;(14):1-12.

Danone/UCLA data: Probiotics may alter brain activity

Prevention of Food Allergy and Eczema with Probiotics and Prebiotics
A review of current literature finds that probiotics have been most successful at preventing atopic eczema, with over 50% of studies reporting a decrease in prevalence until 2 years of age. Combined prenatal and postnatal supplementation (of the infant) show the most consistent effects, and the strain Lactobacillus rhamnosus has most often been effective. Kuitunen.M..Probiotics.and.prebiotics.in.preventing.food.allergy.and.eczema..Curr Opin Allergy Clin Immunol. 2013;13(3):280-286. Available at http://journals.lww.com/co-allergy/Abstract/2013/06000/Probiotics_and_prebiotics_in_preventing_food.12.aspx. Accessed 7/25/2013.

Study: Coenzyme Q10 Supplement reduced death rates and hospitalizations
A study presented, yet to be published, at the annual meeting of the Heart Failure Association of the European Society of Cardiology demonstrated protective effects of supplementation with 100mg CoQ10, three times per day, as compared to placebo. The study was conducted with 420 patients with moderate to severe heart failure. The study was presented on the following site: http://consumer.healthday.com/Article.asp?AID=676719. For additional information regarding this study see the link to the Heart Failure Association of the European Society of Cardiology at http://www.escardio.org/communities/HFA/Pages/welcome.aspx.
Supplementation with Vitamins C and E shown to Reduce Muscle Damage Markers Related to Aerobic Exercise

In a randomized, double blind study, 64 female athletes were assigned to one of four intervention groups: 250mg vitamin C, 400 IU vitamin E, vitamin C and vitamin E, or placebo. The groups consuming vitamin C and vitamins C + E had a significantly lower level of oxidative stress markers creatine kinase and lactate dehydrogenase.


HOT Nutritional Genomics Research Publications

Carotenoid consumption and ALS risk

In an assessment of data pooled from five previous studies, investigators concluded that increased carotenoid consumption—especially beta-carotene and lutein—might prevent or delay ALS onset.


Ginger Supplementation and Insulin Sensitivity

In a double-blind, randomized controlled trial, 64 patients with type 2 diabetes consuming ginger supplements (2g/day) for eight weeks showed improvements in insulin sensitivity and LDL cholesterol.


The liver X receptor genes (especially LXR-alpha, also known as NR1H3) are involved with the development of fatty liver in response to inadequate intakes of polyunsaturated fatty acids. Although promising for future prevention or treatment of non-alcoholic fatty liver disease, it also underscores the importance of proper fatty acid nutrition for maintaining liver health.


Beneficial gene expression was increased for a number of genes involving cholesterol metabolism after consuming higher intakes of polyphenols from olive oil. These changes included a reduction in the oxidation of LDL, and an increase in antioxidant capacity (oxygen radical absorbance capacity, or ORAC). The authors suggest that enrichment of the diet with olive-oil polyphenols may prove helpful in reducing cardiovascular risk.


Review of the importance of nutrition as the primary environmental variable affecting gene expression related to obesity and type-2 diabetes, as well as metabolic syndrome. Progress is encouraging and provides “proof of concept,” but further research on
consumer attitudes will be important, along with a holistic approach incorporating additional environmental variables such as physical activity, etc. Validation and translation of new findings will be key.


The effect of physical activity on gene expression can help slow cognitive decline that comes with aging, which can be affected by variants in genes such as APOE, BDNF, and COMT. The advantage of omega-3 fatty acids such as DHA in combination with physical activity is also discussed.


Challenges and considerations surrounding the implementation of personalized nutrition are discussed. Success will require availability and affordability of information, guidance, and support from healthcare practitioners. As helpful new information continues to emerge, individuals will have increased responsibility for making appropriate lifestyle and nutrition choices from among existing nutritional products. We must also learn how to better educate individuals to make good choices and longer-term behavioral changes.


Diabetic subjects carrying two copies of the f allele (ff) of the VDR FokI variant were more apt to remain deficient in vitamin D status after consuming 500 IU of vitamin D daily for 12 weeks. The authors suggest that a nutrigenetic approach can be helpful to identify diabetics who are “low responders” to vitamin D, which can be associated with inflammation.

Inquiries about above references? Please contact Ron L Martin, MS, President, Nutrigenetics Unlimited, Inc.; ron@nutrigenetics.net. Please check out http://www.isnn.info/ to learn more about the dietitian membership discount.
Whole: Rethinking the Science of Nutrition
T. Colin Campbell with Howard Jacobson

Hardbound. $26.95

From the author of The China Study, comes yet another book that stimulates the reader to consider how Americans think about health. As a biochemist specializing in the long-term effects of nutrition on health, Campbell goes into more detail about what led him to the field and how his early experience formulated the ideas that he firmly believes in today.

One thing that stands out in this book is his discussion about how the modern healthcare system is not that, but a disease care system. He illustrates very adeptly how science does not want to focus on nutrition as the root cause of many diseases, but wants to focus on specifics of one element such as a drug or vitamin. He discusses the reasons behind the resistance of members of our health care system and the government to examine nutrition’s impact on our health and provides an overview of his research and the reasons why his work continues to be challenged.

Instead of focusing on isolated vitamins, drugs, and government recommendations, Campbell simply encourages a whole, plant food based diet that lets the body do what it is intended to with these whole nutrients, and naturally. In the chaptered titled The Modern Health-Care Myth he discusses how the Whole Food Plant Based Diet (WFPB) that he has studied for decades intervenes in the oxidation process in the body thus reducing the risk of a myriad of conditions so common to modern man—heart disease, cancer, diabetes, and more.

In the two chapters on genetics he helps the reader understand, in a less technical way, how our DNA works and then goes on to discuss it as a system that we are tampering with through diet. Genes start reactions that can lead to health and disease. The reactions referred to as mutations are thought to be a result of chemicals and environmental toxins that can cause these reactions in the body’s cells. It helps us to understand that in many, if not all cases, ‘we are what we eat’ in both health and disease.

Throughout the book and in greater detail at the end Campbell aptly discusses the economic forces and the many entities with a vested interest in preserving business as usual, with the medical establishment, government, and pharmaceutical companies heading the list.

This book makes a convincing case for a WFPB diet. Although not an easy read, the book provides a considerable amount of scientific information with more depth than The China Study. This is a valuable reference for the Integrative RDN’s library, whether you have read his previous book or not.
The Inflammation Free Diet Plan

Monica Reinagel

Paperback. $16.95


Mary Purdy, MS, RD is a Registered Dietitian with a master's Degree in Clinical Nutrition from Bastyr University. She provides medical nutrition therapy and nutritional counseling at her Private Practice at the Seattle Healing Arts Center and is Clinical Supervisor at the Bastyr Center for Natural Health. Mary is the Communications Chair of Dietitians in Integrative and Functional Medicine. Contact Mary at mary@nourishingbalance.com.

These days, the “anti-inflammatory diet” seems to be a buzzword in many nutrition circles. While inflammation is a necessary part of the body’s defense system, many people are dealing with a chronic and excessive inflammatory response, which may be quelled by certain foods. The pro- and anti-inflammatory chemicals known as prostaglandins are produced by our bodies using compounds found in the foods we eat and can be up-regulated and down-regulated accordingly. In her book The Inflammation Free Diet Plan, author Monica Reinagel offers some basic explanations around how current lifestyles and diet drive inflammation and the chronic diseases to which it may contribute: diabetes, Alzheimers, cancer, arthritis, allergies, heart disease, etc. She also discusses how one might determine one’s risk for inflammation, highlights “Inflammation Reducing Nutrients” like fish oil, herbs and spices, bromelain, and phytochemicals, and briefly discusses inflammatory components of high homocysteine levels and sugar.

The main portion of the book is dedicated to something she refers to as the “IF” (Inflammatory Factors) rating system which assigns various foods a number representing their total inflammatory or anti-inflammatory potential. Positive numbers between 1 and 100 are anti-inflammatory (101-500 extremely anti-inflammatory), and negative numbers -1 to -100 are more inflammatory. She bases her scoring method on numerous factors including the nutrients contained in the foods as well as their glycemic index. Most vegetables seem to score high, while a number of items such as fruits, dairy and whole grains have lower ratings. The IF rating system is confusing at best and its accuracy is somewhat debatable. There are some generalizations around meats and eggs; giving them a lower score does not take into account how the diet of the animal (grass fed beef, for instance) might help to reduce its inflammatory effects. The author also does not differentiate between types of grains or mention the idea that the glycemic index of certain grains (and fruits) may be altered when they are paired with fats and proteins. “Best choices” include whole wheat spaghetti and couscous while quinoa, amaranth and teff are not even included on the list. Most beans also get a low score due to their high starch content, but their additional nutrients do not seem to be taken into account. What is more head-scratching is that a ½ cup of chickpeas has a lower score (-36) than a vanilla wafer (-28), and most nutrition professionals, including myself, know which one they would prefer recommending. There are also over 20 confusing entries for “lamb” alone with 3 oz. of New Zealand broiled lamb chop getting a -17 and domestic lamb leg garnering -26. It is unclear why we need so many ratings for one food item. Reinagel does emphasize the idea of moderation and flexibility of the diet, which might offer many readers a sigh of relief, but many of the items included in her “best choices” list, like vanilla wafers and saltines under the “Crackers & Cookies” category, are somewhat questionable given the variety of more high quality and high fiber choices now available. It may be likely that she is working to appeal to more of mainstream America.

Positive aspects of the book include a seven day meal plan, meal planning ideas and numerous appealing recipes like “Citrus Watercress Salad” and “Curried Carrots and Chickpeas.” One point of interest was the emphasis on Vitamin K and the recent research on its positive impact on bone health and heart disease. The book comes armed with a number of strong references, although with hundreds of foods being rated, one might expect to see more references with specific mention of those items. While the system Reinagel has devised may be somewhat more complicated than is necessary to help patients make healthier food choices, its basic philosophy does promote eating more real foods, particularly vegetables, which is a recommendation with which we all can get on board.
There is a lot going on with the Academy of Nutrition and Dietetics—they are experiencing substantial growth with over 75,000 members at this writing! DIFM is an integral part of that growth and there is also a lot going on with DIFM as well. We received approval to help develop an Online Certificate of Training Program in integrative and functional nutrition, we are participating in a Spotlight Session with the Health and Environmental Nutrition (HEN) DPG at FNCE® in October, and we have a lineup of wonderful webinars this year. (For more information on the Spotlight Session at FNCE®, see page 5)

Additionally, we want to have integrative and functional nutrition incorporated into all areas of nutrition practice. Integrative and functional nutrition is not a separate area of care, it is not alternative, it is in addition to traditional care. DIFM has members from all areas of practice; we have integrative and functional oncology RDNs, integrative and functional bariatric RDNs, and so many more. Thus we need to work to incorporate integrative and functional nutrition into all areas of the Academy and the Nutrition Care Process. To achieve this we need members from all areas of practice to join and participate. We need to develop and utilize integrative and functional nutrition PDP Learning Codes and diagnostic terminology and we also need to promote integrative and functional nutrition diet plans, such as the anti-inflammatory diet or the elimination diet.

My focus as Chair is to educate and advocate for integrative and functional nutrition. We want every member’s input on how they incorporate integrative and functional nutrition principles into their area of practice. DIFM should be the first resource for integrative and functional RDNs. Join in by bringing your ideas and a new member.

---

**Chair’s Corner**

**We are diving in and need your help.**

**Dr. Elizabeth Redmond, PhD, MMSc, RD, LD**

is currently Chair of DIFM. She received her master’s from Emory University, and doctorate in nutrition from the University of Georgia. She is co-author of several publications including the Standards of Practice (SOP) for Dietitians in Integrative and Functional Medicine, and the Laboratory Evaluations for Integrative and Functional Medicine (2008) textbook. Contact Dr. Redmond at 3425 Corporate Way, Duluth, GA 30096 or email eredmond@gdx.net.
Editor’s Notes

Sarah Harding Laidlaw, MS, RD, MPA, CDE, The Integrative RD newsletter editor. Contact Sarah at peaknut70@gmail.com or 970-216-2356.

Welcome to the Dietitians in Integrative and Functional Medicine (DIFM) newsletter! The Integrative RD is the resource for RDs who desire to improve and build upon their understanding of integrative and functional nutrition therapies and includes:

- Content rich articles
- Timely information on cutting-edge topics
- Clinical practice pearls
- Translation of research into practice
- Frequently asked questions about functional and integrative nutrition therapies

For those of you who are renewing members, welcome back. For those just joining us, I am confident that you will find the practice group and the newsletter a valuable resource as you traverse the field of integrative and functional medicine. In this issue you will read about the many exciting opportunities that the Executive Committee has planned for this year and beyond. If you are planning on attending FNCE® in Houston, don’t miss the joint Spotlight presentation sponsored by DIFM and Hunger and Environmental Nutrition (HEN), as it will offer considerable insight on the impact of environmental toxins on our health. The Art, Science and Practice of Dietary Supplementation: A Review summarizes a presentation given by our Chair-Elect, Mary Beth Augustine RD, CDN, at the Integrative Healthcare Symposium in February 2013 and provides exceptional information on choosing and recommending reputable supplements to patients and clients.

To make obtaining CEUs easier, especially for those of us in rural areas, the Academy is now allowing members to download and listen to archived webinars for credit without the requirement of a post-test. Stay tuned for more information as the information is updated on the DIFM website. And don’t forget one of the most valuable benefits of DIFM membership—besides the newsletter—is a free annual subscription to Natural Medicines Comprehensive Database, a trusted source for evidence-based research on dietary supplements (value $92) available on the Member’s Only portion of the DIFM website—Integrative RD.org.

As always, I encourage members to email me at peaknut70@gmail.com with suggestions for improving newsletter content and offers to contribute in any way to the newsletter. Authors, whether seasoned or with new research, information, or an idea they would like to present are always welcome.

Those of you who would like to contribute an article or have topics that you would like to see in future issues, please feel free to drop me an email or give me a call—peaknut70@gmail.com or 970-216-2356—or contact any one of the capable DIFM leaders listed in this newsletter.
Congratulations to the 2013 Recipients for DIFM Awards

DIFM Excellence in Practice Award 2013

Geri Brewster, RD, MPH, CDN

Geri Brewster, RD, MPH, CDN began her clinical career nearly 30 years ago, specializing in pediatric and young-adult developmental disabilities, including metabolic and gastrointestinal disorders; specialized tube feedings; dysphagia; autism; behavioral, attention, sensory and oral-motor integration disorders; and eating disorders. In her current practice, she develops comprehensive individualized lifestyle, nutritional and supplement programs for each client’s specific conditions.

Ms. Brewster’s “whole person” approach makes her an effective and motivating clinician. She acts as an educator and health coach by explaining the details of metabolism and biochemistry. In addition to her private practice, Ms. Brewster consults with and runs workshops for corporations and healthcare facilities on nutritional treatments for weight management and nutrition related diseases. Her knowledge and experience in the field of nutrition and complimentary care makes her a frequently requested speaker on the subject.

Ms. Brewster received a Bachelor of Science in Human Nutrition and Foods from Virginia Polytechnic Institute and State University in Blacksburg, Virginia, where she graduated summa cum laude and Who’s Who in American Colleges and Universities. She earned her Masters in Public Health Nutrition from New York Medical College in Valhalla, New York and was awarded the Sirach Award for outstanding achievement in the field of Public Health. She also holds certificates of study in Chronic Fatigue Syndrome and Fibromyalgia from Dr. Jacob Teitelbaum, IAACN, and the Institute of Functional Medicine, in addition to an advanced certificate in Adult Weight Management from the Academy of Nutrition and Dietetics. She has participated in Defeat Autism Now! (DAN!) conferences and training. She hosts a monthly online radio show at AutismOne.com. Ms. Brewster is a Reiki practitioner and an active member in national and state dietetic associations. She is on the board of Better School Food and is deeply committed to improving the quality of school food and promoting farm to school programs.

She has been featured on CNN, CBS, WOR, WNEW radio, Disney radio, Wall Street Journal radio, Martha Stewart Radio and multiple local radio stations. She has been seen on NBC Early Morning News, CBS News and CBS Newswatch. Geri has been quoted in the NY Times, Gannett, Shape, Fit, Martha Stewart Living, Cookie and Allure magazines, Westchester Magazine, The Associated Press, WebMD and multiple other publications. She was also featured in the documentary movie on grassroots school lunch reform: Two Angry Moms.

DIFM Excellence in Service Award 2013

Rita Kashi Batheja, MS, RD, CDN

Medical Nutrition Therapist in Private Practice, New York City Area

“Nutrition will become the primary treatment modality in the 21st Century. The term integrative and functional medicine is a new approach to healing. It is a revolutionary way to treat illness by prevention and looking at the root cause rather than putting a band-aid® on symptoms.” This is the message Rita shares with all she sees as she has been an ambassador for DIFM since its founding. It is with great honor that DIFM presents the Excellence in Service Award 2013 to Rita Batheja, MS, RD, CDN in gratitude for her tremendous service to DIFM. As a founding member of DIFM she has held DIFM Executive Committee positions of Nominating Chair, Membership Services Chair, and most recently Public Policy/Reimbursement Chair. In 2012 Rita gathered renowned authors in the field of integrative and functional medicine together to write a free 2-part eBook that went around the world spreading the paradigm of integrative and functional medical nutrition principles (http://www.aapiusa.org/; API’s Nutrition Guide To Optimal Health: Using Principles of Functional Medicine and Nutritional Genomics PART 1 & 2). Rita also practices integrative and functional medical nutrition therapy in private practice in the New York City area for a variety of diseases and conditions, utilizing integrative and functional nutrition therapies for the majority of health conditions from pediatrics to geriatrics.

DIFM Student Stipend 2013 Award

DeeAnna Wales-VanRecken

It is an honor for DIFM to award the DIFM Student 2013 Stipend Award to DeeAnna Wales VanRecken, who graduated from Bastyr University in June 2013 from the Didactic Program in Dietetics, with an M.S. in Nutrition as well. Wales-VanRecken is awaiting acceptance to a dietetic internship. DeAnna was trained as a Certified Natural Chef from Bauman College and has been accepted to the Bastyr University Internship program.

Throughout her graduate education she has immersed her energies in learning whole foods, culinary skills, educating others about the value of good food. She sought out additional training as a member of the Clinical Nutrition Handout Committee and gained experience in volunteer nutrition education activities, food demos, elementary school nutrition education, and speaking on gluten and sustainability. Among the awards she has received are: Scholarship recipient, Bastyr University; Phi Theta Kappa, President’s List, Portland Community College; Deans List, Honors Thesis, Archaeology Field School, Auburn University; Capstone Summer Honors program, University of Alabama. She has been a student member of DIFM since 2011 to support her special interest in integrative nutrition. We are proud of the students who are preparing themselves to practice the advanced specialty of integrative and functional nutrition.
### DIFM Executive Committee 2013-2014

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair 2013-2014</td>
<td>Elizabeth Redmond, PhD, MS, RD, LD</td>
<td><a href="mailto:eredmond@gdx.net">eredmond@gdx.net</a></td>
</tr>
<tr>
<td>Chair Elect 2013-2014</td>
<td>Mary Beth Augustine, RDN, CDN</td>
<td><a href="mailto:DIFMChairElect@gmail.com">DIFMChairElect@gmail.com</a></td>
</tr>
<tr>
<td>Past Chair 2013-2014</td>
<td>Alicia Trocker, MS, RD</td>
<td><a href="mailto:atmsrd@aol.com">atmsrd@aol.com</a></td>
</tr>
<tr>
<td>Treasurer 2012-2014</td>
<td>Stephanie Harris, PhD, MS, RD, LD</td>
<td><a href="mailto:DIFMTreasurer@gmail.com">DIFMTreasurer@gmail.com</a></td>
</tr>
<tr>
<td>Secretary 2013-2015</td>
<td>Ann Sukany-Suls, Med, RDN, LD</td>
<td><a href="mailto:ann.suls@gmail.com">ann.suls@gmail.com</a></td>
</tr>
<tr>
<td>Communications Chair 2013-2014</td>
<td>Mary Purdy, MS, RD</td>
<td><a href="mailto:MaryPurdyRD@gmail.com">MaryPurdyRD@gmail.com</a></td>
</tr>
<tr>
<td>Associate Communications Chair 2013-2014</td>
<td>Kelly Morrow, MS, RD</td>
<td><a href="mailto:kmorrow@bastyr.edu">kmorrow@bastyr.edu</a></td>
</tr>
<tr>
<td>Development Chair 2013-2014</td>
<td>Julie Starkel, MS, MBA, RDN</td>
<td><a href="mailto:DIFMDevelopment@gmail.com">DIFMDevelopment@gmail.com</a></td>
</tr>
<tr>
<td>DPG Delegate 2013-2016</td>
<td>Kathie Madonna Swift, MS, RDN, LD</td>
<td><a href="mailto:DIFMDPGDelegate@gmail.com">DIFMDPGDelegate@gmail.com</a></td>
</tr>
<tr>
<td>Executive Asst/Website Mgr/EML Coordinator 2013-2014</td>
<td>Amy Jarck</td>
<td><a href="mailto:info@integrativeRD.org">info@integrativeRD.org</a></td>
</tr>
<tr>
<td>Fulfillment Chair 2013-2014</td>
<td>Christine Doolittle MS, RD, CSSD, LD, CLT</td>
<td><a href="mailto:DIFMFulfillment@gmail.com">DIFMFulfillment@gmail.com</a></td>
</tr>
<tr>
<td>Marketing Chair 2013-2014</td>
<td>Robin Foroutan, MS, RD, HHC</td>
<td><a href="mailto:DIFMMarketing@gmail.com">DIFMMarketing@gmail.com</a></td>
</tr>
<tr>
<td>Member Services Chair 2013-2014</td>
<td>Monique M Richard, RDN</td>
<td><a href="mailto:mmr2v@mtmail.mtsu.edu">mmr2v@mtmail.mtsu.edu</a></td>
</tr>
<tr>
<td>Associate Member Services Chair 2013-2014</td>
<td>Susan Allen, RD, CCN</td>
<td><a href="mailto:nutriwellness@gmail.com">nutriwellness@gmail.com</a></td>
</tr>
<tr>
<td>Network Chair 2013-2014</td>
<td>Lisa Powell, MS, RD</td>
<td><a href="mailto:lpowell@canyonranch.com">lpowell@canyonranch.com</a></td>
</tr>
<tr>
<td>Network Associate 2013-2014</td>
<td>Melinda Dennis, MS, RD, LDN</td>
<td><a href="mailto:mdennis@bidmc.harvard.edu">mdennis@bidmc.harvard.edu</a></td>
</tr>
<tr>
<td>Network Associate 2013-2014</td>
<td>Merav Shikler, RD</td>
<td><a href="mailto:Meravsh1@yahoo.com">Meravsh1@yahoo.com</a></td>
</tr>
<tr>
<td>Newsletter Editor 2013-2014</td>
<td>Sarah Harding Laidlaw, MS, RDN, MPA, CDE</td>
<td><a href="mailto:peaknut70@gmail.com">peaknut70@gmail.com</a></td>
</tr>
<tr>
<td>Newsletter Editor-Associate 2013-2014</td>
<td>Jacqueline Santora Zimmerman, MS, RD</td>
<td><a href="mailto:jacq.zimmerman@gmail.com">jacq.zimmerman@gmail.com</a></td>
</tr>
<tr>
<td>Newsletter Copy Editor 2013-2014</td>
<td>Emily D. Moore, MS, RD, LDN</td>
<td><a href="mailto:emilydavismoore@hotmail.com">emilydavismoore@hotmail.com</a></td>
</tr>
<tr>
<td>Newsletter CPE Editor/CPE Item Writer</td>
<td>Shari B Pollack, MPH, RD</td>
<td><a href="mailto:sbethp@gmail.com">sbethp@gmail.com</a></td>
</tr>
<tr>
<td>Newsletter CPE Item Writer 2013-2014</td>
<td>Janelle L’Heureux, MS, RD</td>
<td><a href="mailto:janellelheureux@gmail.com">janellelheureux@gmail.com</a></td>
</tr>
<tr>
<td>Newsletter Resource Reviews Editor</td>
<td>Barbara Goldman MS, CDE, LDN, RD</td>
<td><a href="mailto:goldmanb@palmbeachstate.edu">goldmanb@palmbeachstate.edu</a></td>
</tr>
<tr>
<td>Nominating Committee Chair 2013-2014</td>
<td>L Kathleen Mahan, RD</td>
<td><a href="mailto:lkmahan@nutritiondesign.com">lkmahan@nutritiondesign.com</a></td>
</tr>
<tr>
<td>Nominating Committee Chair Elect 2013-2014</td>
<td>Kathy Moore, RD, LD, CCN</td>
<td><a href="mailto:moorenutritiondifm@gmail.com">moorenutritiondifm@gmail.com</a></td>
</tr>
<tr>
<td>Nominating Committee Member 2013-2014</td>
<td>Mary M Gocke, RD</td>
<td><a href="mailto:marygocke@gmail.com">marygocke@gmail.com</a></td>
</tr>
<tr>
<td>Nominating Committee Member 2013-2014</td>
<td>Lea Russell, MBA, RD, LDN</td>
<td><a href="mailto:lrussell.rd@gmail.com">lrussell.rd@gmail.com</a></td>
</tr>
<tr>
<td>Nutritional Genomics Advisor 2013-2015</td>
<td>Colleen Fogarty Draper, MS, RD, LD</td>
<td><a href="mailto:colleen@nugenso.com">colleen@nugenso.com</a></td>
</tr>
<tr>
<td>Professional Advancement Chair 2013-2014</td>
<td>Esther Trepal, RD, MS, CDN</td>
<td><a href="mailto:etrepal@glwd.org">etrepal@glwd.org</a></td>
</tr>
<tr>
<td>Professional Advancement Committee</td>
<td>Therese Berry, MS, RD, LD, CNSC</td>
<td><a href="mailto:austint@coramhsc.com">austint@coramhsc.com</a></td>
</tr>
<tr>
<td>Public Policy/Reimbursement Chair 2013-2015</td>
<td>Ane Marie Kis, MS, RDN, LDN</td>
<td><a href="mailto:amkis@verizon.net">amkis@verizon.net</a></td>
</tr>
<tr>
<td>Social Media Chair 2013-2014</td>
<td>Dr. Judith Lukaszuk</td>
<td><a href="mailto:jmlukaszuk@niu.edu">jmlukaszuk@niu.edu</a></td>
</tr>
<tr>
<td>Student Committee Chair 2013-2014</td>
<td>Olivia Wagner</td>
<td><a href="mailto:wagneror@muohio.edu">wagneror@muohio.edu</a></td>
</tr>
<tr>
<td>Student Committee 2013-2014</td>
<td>Jeanna Glick, RD</td>
<td><a href="mailto:jeannaglick@gmail.com">jeannaglick@gmail.com</a></td>
</tr>
<tr>
<td>Academy Practice Manager 2013-2014</td>
<td>Carrie Kiley</td>
<td><a href="mailto:ckiley@eatright.org">ckiley@eatright.org</a></td>
</tr>
</tbody>
</table>

---

### Executive Assistant/Website Manager 2013-2014

- **Amy Jarck**
  - Email: info@integrativeRD.org

---

### Marketing Chair 2013-2014

- **Robin Foroutan, MS, RD, HHC**
  - Email: DIFMMarketing@gmail.com