

# 2013 INTERNATIONAL CONFERENCE ON HUMAN NUTRITION AND FUNCTIONAL MEDICINE

PORTLAND OREGON CONVENTION CENTER • SEPTEMBER 25-29, 2013

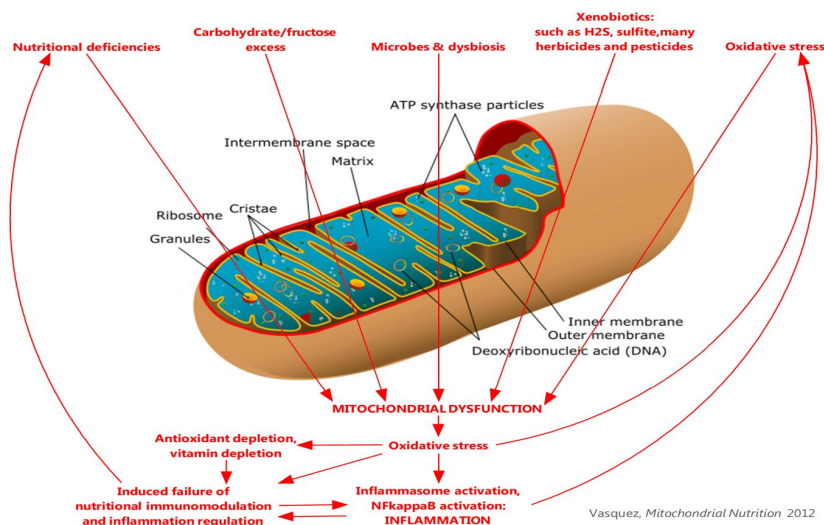


## Brief outline of topics by day:

- **Wednesday 9/25 • Preconference Introduction, Overview and Pharmacology included:** 1) History and Direction of Functional Medicine: From Concept to New Branch of Science and Academic Discipline, 2) Functional Inflammation Protocol: Deciphering and Treating Disorders of Chronic Inflammation, 3) Integrative Pharmacology for Disorders of Chronic Pain and Inflammation *Clinical Focus:* Migraine, Fibromyalgia, Rheumatoid Arthritis, Psoriasis, Osteoarthritis; Integrative Pharmacology for Migraine, Fibromyalgia, Rheumatic Dz.
- **Thursday 9/26: MindBody Medicine and Nutrition for the Brain:** *Clinical Focus:* Mood, Memory, Attention/ADHD, Alzheimer's and Parkinson's Diseases, Traumatic Brain Injury, Celiac Disease and Gluten-Induced Brain Diseases
- **Friday 9/27: Mitochondrial Nutrition, Obesity, Diabetes, and Cancer: From Meals to Molecules to Mitochondria to (Prevention of) Maladies and Malignancy:** *Clinical Focus:* Migraine, Fibromyalgia, Diabetes and Insulin Resistance, Cardiovascular Disease and Cancer Prevention
- **Saturday and Sunday 9/28-29: The Optimal Daily Diet and Lifestyle: Meals, Molecules, and Mechanisms:** *Clinical Focus:* Integrative Evidence-Based Prevention and Treatment of Common Health Problems such as Overweight, Insulin Resistance, Hypertension, Diabetes, Cardiovascular Disease

## Conference Speakers:

- Dr Jeffrey Bland, PhD FACN
- Dr Alex Vasquez, DC ND DO
- Dr Loren Cordain, PhD
- Prof Dr Garth L. Nicolson, PhD
- Dr James O'Keefe, MD
- Dr Michael J. Gonzalez, PhD DSc
- Dr Deanna Minich, PhD FACN
- Dr Matthew Hirschey, PhD
- Dr Lynda Frassetto, MD
- Dr David H Haase, MD
- Dr Kenneth Cintron, MD
- Mr. Jeffrey Smith, GMO expert
- Dr. Thomas O'Bryan, DC
- Pedro Bastos MA MS Ph.D. candidate (Lund University, Sweden)
- Maelan Fontes MS PhD candidate (Lund University, Sweden)



## Hosted by:

International College of Human Nutrition and Functional Medicine

[www.ICHNFM.Org](http://www.ICHNFM.Org)

## CME sponsored by:

University of Texas Medical Branch



See website and our Facebook for updates, local attractions, links to cafes and restaurants, and videos, and fun!

# INTELLECTUAL AND SCIENTIFIC FUN ☺

Arrive early or stay late = more fun from your trip!

## Great things about Portland: Top 10 list:

1. **Great local food** from indie/independent restaurants and cafes!
2. **Great hiking only 30 minutes** from downtown and the convention center!
3. **Get to hang out with cool people** who share your intellectual and professional interests!
4. **Get to learn new stuff**, even on topics that you've already studied!
5. Portland's **friendly and quirky culture** means that you'll feel welcome here, and your clothes don't have to match! ☺
6. Walk or run the **glorious Portland Waterfront at the Willamette River**—just a few hundred feet from the convention center!
7. **Powell's Bookstore** is the largest bookstore in the world! Plus they have a great hazelnut latte in their café!
8. A variety of local **unique and boutique hotels** to suite your style and budget!
9. Portland has a different feel and culture from most other cities in the USA, yet the people here speak English and businesses take American dollars—no Passport needed!
10. **Traveling for work is a legitimate business expense and write-off** ☺
11. **Bonus: No rental car needed**—just use the light rail from the airport and it will take you directly to the front door of the convention center!



## Nearby Hotels—for any style and budget: a few examples...

1. [www.riverplacehotel.com](http://www.riverplacehotel.com)
2. [www.redlion.com](http://www.redlion.com) See details in this document  
*This discount hotel block has sold out!*
3. [www.governorhotel.com](http://www.governorhotel.com)
4. [www.doubletreegreen.com](http://www.doubletreegreen.com): See details later in this document
5. [www.portland.heathmanhotel.com](http://www.portland.heathmanhotel.com)
6. [www.bensonhotel.com](http://www.bensonhotel.com)
7. [www.marriott.com/hotels/travel/pdxor-portland-marriott-downtown-waterfront](http://www.marriott.com/hotels/travel/pdxor-portland-marriott-downtown-waterfront)
8. On a budget? [www.motel6.com](http://www.motel6.com) 518 NE Holladay Street. Phone: (503) 234-4391 or [www.innatcc.com](http://www.innatcc.com)

**You can afford this ☺**

**Target Audience:**

- Healthcare professionals: Medical (allopathic, osteopathic, naturopathic) physicians, chiropractic doctors, dietitians, nutritionists, graduate students, researchers, academicians/directors, other healthcare professionals; general public may also attend.

**Educational Methods:**

- Didactic lectures, reading materials and peer-reviewed articles, slide presentations, interactive question-and-answer sessions, case reports and problem-based learning exercises.

**Learning Objectives:**

- To describe and define recent important and consensus-approaching advances in basic science and clinical trials research related to topics of nutrition, molecular biology, and metabolism that are appropriate for translation into clinical practice.
- To demonstrate and exemplify the actual clinical applications of new research and evidence so that physicians can apply this data to clinical practice and patient utilization and treatment compliance.

*For more information about the speakers, schedule, and educational details, please see the remainder of this PDF document.*

**Accreditation for continuing medical education (CME) for medical doctors:**

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council of Continuing Medical Education through the joint sponsorship of the University of Texas Medical Branch at Galveston and *International College of Human Nutrition and Functional Medicine*. The University of Texas Medical Branch at Galveston is accredited by the Accreditation Council of Continuing Medical Education to provide continuing medical education for physicians.

The University of Texas Medical Branch at Galveston designates this live activity for a maximum of 35.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



**Accreditation for continuing education for chiropractors:** University of Western States is recognized by the PACE program of the Federation of Chiropractic Licensing Boards and will provide at least 36 (thirty six) hours of continuing education. States approved by PACE: AK, ID, IN, IA, KS, MA, ME, MN, MT, NC, ND, NE, NM, NV, OH, OK, OR, SC, SD, UT, VT, Puerto Rico, Nova Scotia. CCE college sponsored programs are accepted for continuing education in CO, CT, DE, GA, IA, ID, IL, IN, MI, MS, MT, ND, NE, NM, OR, SC, UT, VA, VT, WA, WY, BC.



**Accreditation for continuing education for dietitians:** Dannemiller is a Continuing Professional Education (CPE) Accredited Provider with the Commission on Dietetic Registration (CDR). Registered dietitians (RDs) and dietetic technicians, registered (DTRs) will receive 37 continuing professional education units (CPEUs) for completion of this material. Learning Level 2: Assumes that the participant has general knowledge of literature and professional practice in the area(s) covered. The focus of the activity is to enhance knowledge and application by the participant.





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PORTLAND OREGON CONVENTION CENTER • SEPTEMBER 25-29, 2013



## Countries/regions represented:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>▶ USA</li> <li>▶ Canada</li> <li>▶ Australia</li> <li>▶ England/UK</li> <li>▶ Netherlands</li> <li>▶ Brazil</li> </ul> | <ul style="list-style-type: none"> <li>▶ Mexico</li> <li>▶ Puerto Rico</li> <li>▶ Spain</li> <li>▶ Portugal</li> <li>▶ Colombia</li> <li>▶ South Korea</li> <li>▶ Philippines</li> </ul> |
|---|--|

**Providing CEU specifically  
but not exclusively for: ND\*,  
DC, DO\*, MD\*, RD/LD**

*\*This activity has been approved  
for AMA PRA Category 1 Credit.™*

Oregon Board of Naturopathic Examiners  
has advised that AMA PRA Category 1 Credit™  
is valid for naturopathic licensure renewal.  
NDs should check with their respective  
states.

Note from our ACCME accreditor at UTMB on 9/13/13: "The AMA only awards CME credit to MDs and DOs. Therefore, any other professional that takes a course certified for *AMA PRA Category 1 Credit™* will receive a certificate which indicates that the course was designated for 35.75 credits. However, unlike the credit certificate for MDs and DOs it will not bear the number of credits awarded. Any profession, including NDs, that need to verify the number of sessions that they attended should use their Credit Tracking form to keep track. If acceptable they may submit the certificate and credit tracking form as proof. Otherwise they can go into their profile and get a transcript of the sessions attended with the corresponding credits that they would earn if they were being awarded credit."

# 2013 International Conference on Human Nutrition and Functional Medicine

Hosted by the *International College of Human Nutrition and Functional Medicine*

**September 25 - 29, 2013**  
**Portland, Oregon**

## Learning Objectives

To describe and define recent important and consensus-approaching advances in basic science and clinical trials research related to topics of nutrition, molecular biology, and metabolism that are appropriate for translation into clinical practice.

To demonstrate and exemplify the actual clinical applications of new research and evidence so that physicians can apply this data to clinical practice and patient utilization and treatment compliance.

## Clinical Focus

- Migraine
- Fibromyalgia
- Rheumatoid Arthritis
- Psoriasis
- Mood
- Memory
- ADHD
- Alzheimer's and Parkinson's Diseases
- Traumatic Brain Injury
- Celiac Disease
- Gluten-Induced Brain Diseases
- Diabetes and Insulin Resistance
- Cardiovascular Disease
- Cancer Prevention
- Hypertension



## Conference Speakers

Dr. Jeffrey Bland, PhD, FACN  
Dr. Alex Vasquez, DC, ND, DO, FACN  
Dr. Loren Cordain, PhD  
Prof Dr. Garth L. Nicolson, PhD  
Dr. James O'Keefe, MD

Dr. Michael J. Gonzalez, PhD, DSc, FACN  
Dr. Deanna Minich, PhD, FACN  
Dr. Matthew Hirschey, PhD  
Dr. Lynda Frassetto, MD  
Dr. David H Haase, MD

Dr. Kenneth Cintron, MD  
Mr. Jeffrey Smith, GMO expert  
Dr. Thomas O'Bryan, DC  
Pedro Bastos, MA, MS, Ph.D. candidate  
Maelan Fontes, MS, PhD candidate

## CE Credits

### Medical Doctors (MD & DO):

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**Dietitians:** Registered dietitians (RDs) and dietetic technicians, registered (DTRs) will receive 36 continuing professional education units (CPEUs) for completion of this material from the Commission on Dietetics Registration (CDR).

**Chiropractic Doctors:** Accreditation for chiropractic continuing education is provided by The Federation of Chiropractic Licensing Boards - Providers of Approved Continuing Education (PACE).

Visit **[www.ICHNFM.org](http://www.ICHNFM.org)** for current pricing

Call to register: (503) 432-5341

Register online at: **<http://ichnfm.org/registration.html>**



# 2013 INTERNATIONAL CONFERENCE ON HUMAN NUTRITION AND FUNCTIONAL MEDICINE

## Conference Speakers:

- **Dr Jeffrey Bland**, Award Ceremony, Personalized Lifestyle Medicine Institute (PLMI)
- **Dr Alex Vasquez**, International College of Human Nutrition and Functional Medicine
- **Dr Loren Cordain**, Colorado State University
- **Dr Garth L. Nicolson**, Professor Emeritus, Institute for Molecular Medicine
- **Dr James O'Keefe**, Saint Luke's Health System
- **Dr Michael J. Gonzalez**, University of Puerto Rico Medical School, International College of Human Nutrition and Functional Medicine
- **Dr Deanna Minich**, Personalized Lifestyle Medicine Institute (PLMI)
- **Dr Matthew Hirschey**, Duke University
- **Dr Lynda Frassetto**, University of California, San Francisco
- **Dr David Haase**, International College of Human Nutrition and Functional Medicine
- **Dr Kenneth Cintron**, Ponce School of Medicine in Puerto Rico
- **Dr. Thomas O'Bryan**, National University of Health Sciences
- **Mr Jeffrey Smith**, Institute for Responsible Technology—special lunch presentation
- **Pedro Bastos MA MS Ph.D. candidate** in Medical Sciences at Lund University, Sweden; International College of Human Nutrition and Functional Medicine
- **Maelan Fontes MS Ph.D. candidate** in Medical Sciences at Lund University, Sweden; International College of Human Nutrition and Functional Medicine

**Jeffrey Bland Ph.D., F.A.C.N.** including: *scholarship announcement and award for Scholarship and Innovation; Functional Medicine: from concept to new graduate-level field of study and university-based scientific and academic discipline*

- **Biographical sketch:** In 1981, Jeffrey Bland was invited by two-time Nobel Laureate in Chemistry and Peace, Linus Pauling, to become the Director of Nutritional Supplement Analysis at the Linus Pauling Institute in Palo Alto, California. Currently based in Gig Harbor, Washington, Dr. Jeffrey Bland has been an internationally recognized leader in the nutritional medicine field for over 25 years. Dr. Bland founded HealthComm International, Inc. in 1984, and served as its Chief Executive Officer until a merger with its strategic partner, Metagenics, in 2000. Dr. Bland served as Chief Science Officer for Metagenics and President of MetaProteomics for 12 years. In 2012, Dr. Bland formed a nonprofit organization called the Personalized Lifestyle Medicine Institute (PLMI) based in Seattle, Washington. More information about the PLMI can be found at [www.plminstitute.org](http://www.plminstitute.org). A nutritional biochemist and registered clinical laboratory director, Dr. Bland is a former professor of biochemistry at the University of Puget Sound, and a previous Director of Nutritional Research at the Linus Pauling Institute of Science and Medicine. He was the first member of the Board of Trustees of Bastyr University, the first federally accredited university in the United States offering graduate and undergraduate degrees in natural medicine, and contributed significantly to its founding and accreditation. With his wife, Susan Bland, MA, he founded the Institute for Functional Medicine, now a respected nonprofit organization. Throughout his long career, two activities have remained constant for Dr. Bland: production of his monthly audio publication, Functional Medicine Update (FMU), and an annual one-day seminar tour.



## Alex Vasquez D.C., N.D., D.O., F.A.C.N.

- **Biographical sketch:** Dr Vasquez graduated from University of Western States (Doctor of Chiropractic), Bastyr University (Doctor of Naturopathic Medicine), and University of North Texas Health Science Center (Doctor of Osteopathic Medicine) and has written approximately 100 articles, numerous audios and videos, and more than 10 books. Dr Vasquez lectures to doctors and healthcare professionals internationally and has taught university-level courses in Orthopedics, Rheumatology, Radiology, Pharmacology, Evidence-Based Nutrition, Immunology, Clinical Psychology:
  - **Books:** *Integrative Orthopedics* (2005, 2007, 2012), *Integrative Rheumatology* (2007), *Musculoskeletal Pain—Expanded Clinical Strategies* (continuing medical education [CME] peer-reviewed monograph published by the Institute for Functional Medicine in 2008), *Integrative Medicine and Functional Medicine for Hypertension* (2011), *Integrative Chiropractic Management of High Blood Pressure and Chronic Hypertension* (2010, 2011), *Integrative Orthopedics Third Edition* (2012), *Migraine Headaches, Hypothyroidism, and Fibromyalgia* (2012), *Chiropractic and Naturopathic Mastery of Clinical Disorders* (2009), *Functional Immunology and Nutritional*



*Immunomodulation* (2012), *Fibromyalgia in a Nutshell* (2012), *Integrative Rheumatology*, *Nutritional Immunomodulation*, and *Functional Inflammation* (2013).

- More than 100 articles and letters: JAMA—Journal of the American Medical Association, BMJ—British Medical Journal, The Lancet.com, JAOA—Journal of the American Osteopathic Association, Annals of Pharmacotherapy, Journal of Clinical Endocrinology and Metabolism, Alternative Therapies in Health and Medicine, Nutritional Perspectives, Journal of Manipulative and Physiological Therapeutics, The Original Internist, Integrative Medicine, Holistic Primary Care, Nutritional Wellness, Dynamic Chiropractic, Evidence-based Complementary and Alternative Medicine, and Arthritis & Rheumatism: Official Journal of the American College of Rheumatology.

### **Loren Cordain, Ph.D.**

- Biographical sketch: Dr. Loren Cordain is the world's foremost authority on the evolutionary basis of diet and disease. Featured on Dateline NBC, the front page of the Wall Street Journal, and the New York Times, Dr. Cordain is widely acknowledged as one of the world's leading experts on the natural human diet of our Stone Age ancestors. He is the author of more than 100 peer-reviewed scientific articles and abstracts, and his research into the health benefits of Stone Age Diets for contemporary people has appeared in the world's top scientific journals including the American Journal of Clinical Nutrition, the British Journal of Nutrition, and the European Journal of Clinical Nutrition, among others. Dr. Cordain's popular book, The Paleo Diet, has been widely acclaimed in both the scientific and lay communities and was fully revised in 2010. His next book, The Paleo Diet for Athletes, published in October 2005, discusses how the Paleo Diet can be modified for the high performance endurance athlete and lead to improved health and performance. His next book, The Dietary Cure for Acne, is available in paperback and as an instant download ebook. The Paleo Diet Cookbook was published in 2010 and became an instant bestseller. His most recent book, The Paleo Answer, was released in December 2011, and represents a sequel to The Revised Paleo Diet. Dr. Cordain is the recipient of the Scholarly Excellence award at Colorado State University for his contributions into understanding optimal human nutrition.
  - Book: The Paleo Diet -- international best-seller.



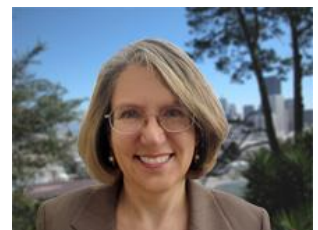
### **Professor Emeritus Garth L. Nicolson, Ph.D.**

- Biographical sketch: Professor Garth L. Nicolson is the President, Chief Scientific Officer and Research Professor at the Institute for Molecular Medicine in Huntington Beach, California. He is also a Conjoint Professor at the University of Newcastle (Australia). He was formally the David Bruton Jr. Chair in Cancer Research and Professor and Chairman of the Department of Tumor Biology at the University of Texas M. D. Anderson Cancer Center in Houston, and he was Professor of Internal Medicine and Professor of Pathology and Laboratory Medicine at the University of Texas Medical School at Houston. He was also Professor of Comparative Pathology at Texas A & M University. Professor Nicolson has published over 600 medical and scientific papers, including editing 19 books, and he has served on the Editorial Boards of 30 medical and scientific journals and was a Senior Editor of four of these. Professor Nicolson has won many awards, such as the Burroughs Wellcome Medal of the Royal Society of Medicine (United Kingdom), Stephen Paget Award of the Metastasis Research Society, the U. S. National Cancer Institute Outstanding Investigator Award, and the Innovative Medicine Award of Canada. He is also a Colonel (Honorary) of the U. S. Army Special Forces and a U. S. Navy SEAL (Honorary) for his work on Armed Forces and veterans' illnesses.



### **Lynda Frassetto, M.D.**

- Biographical sketch: Lynda Frassetto, MD, is a Professor of Medicine in the Division of Nephrology at the University of California, San Francisco (UCSF). She grew up in the greater New York metropolitan area and attended college and medical school in Connecticut. She trained as a nephrologist at UCSF and was in private practice in San Francisco before returning to UCSF to start her research career with Drs. Anthony Sebastian and R. Curtis Morris Jr. Over the last 15 years, the group has published papers on regulation of acid base balance in healthy and aging people and dietary influences on acid-base balance in healthy people and those with diabetes. Dr. Frassetto also collaborates with Dr. Leslie Z Benet, past chair of the Department of Biopharmaceutical Sciences at UCSF. Dr. Benet has pioneered a novel model predicting drug interactions in vivo, depending on the degree of in vitro membrane transporter and intracellular metabolizing enzyme interactions with a specific drug, xenobiotic or toxin. These predictions are then tested in clinical trials in healthy people and those with kidney disease, diabetes or HIV before and after transplantation. In addition to research, Dr. Frassetto is presently the director of the adult Clinical Research Center at the Parnassus Campus in UCSF's Clinical and Translational Science Institute, supervises inpatient and outpatient care at three of the University's hospital campuses, and for the last several years has been participating in programs that teach UC students and faculty better communication and behavioral stress modification techniques.
  - <http://profiles.ucsf.edu/lynda.frassetto>



## James O'Keefe M.D.

- **Biographical sketch:** Dr. James O'Keefe Jr., MD (born June 8, 1956) is an American author and cardiologist best known for his studies in the field of cardiovascular medicine, diet and exercise. O'Keefe is the co-author of the best selling consumer health books, *The Forever Young Diet & Lifestyle* and *Let Me Tell You a Story*. He is currently a professor of medicine at the University of Missouri–Kansas City and Director of Preventive Cardiology at St. Luke's Cardiovascular Consultants, a large cardiology practice based in Kansas City. In 1982, he graduated with his MD from Baylor College of Medicine. He then completed his medical residency as well as a cardiovascular fellowship at the Mayo Graduate School of Medicine in Rochester, Minnesota. He did an advanced fourth year cardiovascular fellowship in nuclear cardiac imagery and interventional cardiology. O'Keefe is the director of the Preventive Cardiology Fellowship Program at the Saint Luke's Mid America Heart Institute. At the Mid America Heart Institute, he is actively involved with patient care, clinical research as well as non-invasive cardiology practices. He has been board-certified in cardiology, nuclear cardiology, pacing, lipids, cardiac CT imaging, and internal medicine. He has been named to many top doctors lists, both regionally and nationally, including USA Today's Most Influential American Physicians, Ingram's Business Magazine, Kansas City Family Magazine, and Consumer Guide to Top Doctors. In 1989, he became a Professor of Medicine at the University of Missouri in Kansas City. Dr. O'Keefe is also a fellow of the American College of Cardiology and the American Heart Association Council of Clinical Cardiology. Dr. O'Keefe has contributed over 250 articles to medical literature. These include his numerous studies on vitamin D, omega-3, diet, exercise, and alcohol. He has been the lead author of four best-selling books, including, *The Forever Young Diet & Lifestyle*, *Dyslipidemia Essentials*, *Diabetes Essentials*, and the *Complete Guide to ECGs*. He has been a contributor to chapters in eight other books.
  - Books: *The Forever Young Diet & Lifestyle* and *Let Me Tell You a Story*.



## Michael J. Gonzalez M.S., M.H.S.N., D.Sc., Ph.D., F.A.C.N.

- **Biographical sketch:** Dr. Michael J. Gonzalez is Professor at the Nutrition Program, School of Public Health in the Medical Sciences Campus, University of Puerto Rico. He earned a Bachelor Degree in Biology and Chemistry (Catholic University), a Masters in Cellular Biology and Biophysics (Nova University), and another Masters in Nutrition and Public Health (University of P.R.). He has a Doctorate in Nutritional Medicine (John F. Kennedy University). He also has a Doctorate in Health Sciences (Lafayette University), and another Doctorate in Nutritional Biochemistry and Cancer Biology (Michigan State University). He completed a Post-Doctoral Fellowship in Geriatrics at the School of Medicine, University of Puerto Rico. Dr. Gonzalez is a Fellow of the American College of Nutrition, and has authored over 150 scientific publications. He has served as a member on several scientific journal Editorial Boards, such as *Biomedicina*, the *Journal of Orthomolecular Medicine*, and *Alternative Medicine Reviews*. As a consultant for several companies, he has been responsible for designing formulations of nutritional supplements and pharmaceutical products. He has been a consultant for The Center for the Improvement of Human Functioning (now Riordan Clinic), in Wichita, Kansas. He has obtained several research awards for his work on Nutrition and Cancer. He is currently Co-Director of REC-NAC II project, and Research Director of the InBioMed Project Initiative. Dr. Gonzalez also serves as a nutrition consultant to the Puerto Rican Basketball National Team and is part of the Medical Commission of the Puerto Rican Basketball Federation. Doctor González and Dr. Jorge Miranda-Massari, founders of InBioMed, are leaders in the development of non-toxic chemotherapy treatments for cancer. The findings of their work with Intravenous Vitamin C as an anti-cancer agent, published in 2002, were confirmed by the NIH in 2005. They published the first Phase-I clinical study utilizing Intravenous Vitamin C for treatment of terminal cancer patients in 2005, and also published in 2005 the most comprehensive review on Vitamin C and Cancer, as a follow-up on the work of two times Nobel Laureate, Dr. Linus C. Pauling. They have brought many new concepts into the field, such as the Bioenergetic theory of carcinogenesis, the systemic saturation phenomenon of intravenous vitamin C, the metabolic correction concept for disease treatment and prevention.
  - **Book:** Drs Gonzalez, Miranda-Massari, Saul's. *I Have Cancer What Should I Do: The Orthomolecular Guide to Cancer Management* provides evidence-based recommendations for an integrative approach for those dealing with cancer and seeking to improve quality of life and survival.
  - **2012 landmark publication:** Gonzalez MJ, et al. *The bio-energetic theory of carcinogenesis. Med Hypotheses*. 2012 Oct;79(4):433-9 *The altered energy metabolism of tumor cells provides a viable target for a non toxic chemotherapeutic approach. An increased glucose consumption rate has been observed in malignant cells. Warburg (Nobel Laureate in medicine) postulated that the respiratory process of malignant cells was impaired and that the transformation of a normal cell to malignant was due to defects in the aerobic respiratory pathways. Szent-Györgyi (Nobel Laureate in medicine) also viewed cancer as originating from insufficient availability of oxygen. Oxygen by itself has an inhibitory action on malignant cell proliferation by interfering with anaerobic respiration (fermentation and lactic acid production). Interestingly, during cell*





*differentiation (where cell energy level is high) there is an increased cellular production of oxidants that appear to provide one type of physiological stimulation for changes in gene expression that may lead to a terminal differentiated state. The failure to maintain high ATP production (high cell energy levels) may be a consequence of inactivation of key enzymes, especially those related to the Krebs cycle and the electron transport system. A distorted mitochondrial function (transmembrane potential) may result. This aspect could be suggestive of an important mitochondrial involvement in the carcinogenic process in addition to presenting it as a possible therapeutic target for cancer. Intermediate metabolic correction of the mitochondria is postulated as a possible non-toxic therapeutic approach for cancer.*

### **Deanna Minich Ph.D., F.A.C.N., C.N.S.**

- **Biographical sketch:** Dr. Minich has a unique approach to clinical medicine based in a combination of physiology and psychology. She has trained in functional medicine for the past decade with the “father of functional medicine,” Dr. Jeffrey Bland, as her mentor, and has served on the Nutrition Advisory Board for the Institute of Functional Medicine. Her academic background is in nutritional science, including a Master’s Degree in Human Nutrition and Dietetics from the University of Illinois at Chicago (1995), and a Ph.D. in Medical Sciences (Nutrition) from the University of Groningen in The Netherlands (1999). In conjunction with her academic degrees and extensive teaching experience at the university level, she is both a Fellow (F.A.C.N.) and a Certified Nutrition Specialist (C.N.S.) through the American College of Nutrition and has received education in functional medicine through the Institute of Functional Medicine. Dr. Minich has over ten years of experience working in both the food and dietary supplement industries with her last position as Vice President of Scientific Affairs at Metagenics, Inc., in which she was responsible for global product launches in addition to serving as a teaching clinician for international audiences of healthcare practitioners. She currently leads educational outreach as Vice President of Education at the Personalized Lifestyle Medicine Institute, which involves coordination of cutting-edge information and collaboration with opinion leaders in the personalized lifestyle medicine field, along with her role as adjunct faculty at the University of Western States, Bastyr University, Institute for Functional Medicine, and the Maryland University of Integrative Health. She is the author of five books on nutrition, wellness, and psychology, and is passionate in helping others to live well using therapeutic lifestyle changes.
  - **Books:** *Essential Fatty Acid Absorption and Metabolism* (1999); *Chakra Foods for Optimum Health: A Guide to the Foods that can Improve Your Energy, Inspire Creative Changes, Open Your Heart, and Heal Body, Mind, and Spirit* (Conari Press, 2009); *An A-Z Guide to Food Additives* (Conari Press, 2009); *Quantum Supplements: A Total Health and Wellness Makeover with Vitamins, Minerals, and Herbs* (Conari Press, 2010); *The Complete Handbook of Quantum Healing: An A-Z Self-Healing Guide for Over 100 Common Ailments* (Conari Press, 2011).
  - **More than 20 scientific publications:** *Journal of Lipid Research*; *American Journal of Clinical Research*; *Nutrition Reviews*; *Journal of Clinical Lipidology*; *Biochimica Biophysica Acta*; *Gastroenterology*; *American Journal of Physiology - Gastrointestinal and Liver Physiology*; *Pediatric Research*; *Canadian Journal of Physiology and Pharmacology*; *Metabolic Syndrome and Related Disorders*; *Journal of Bone and Mineral Metabolism*; *Journal of Medicinal Food*.



### **David H. Haase M.D.**

- **Biographical sketch:** Dr. Haase graduated from Calvin College (BS Biology), Vanderbilt University School of Medicine (MD) subsequently training and practicing at the Mayo Clinic becoming board certified in both Family and Integrative Holistic Medicine. He is the founder of the MaxWell Clinic for Proactive Medicine, CMO of the LifeStrive Group and CMO of Evoke Neuroscience. He holds certifications in Health Coaching, Nutrition, and Neurofeedback. Dr. Haase is faculty for the University of South Florida Medical School’s Master’s program in Nutritional and Metabolic Medicine and for Western States University’s Master’s program for Functional and Nutritional Medicine with the area of emphasis for each being Functional Neurophysiology. He is a reviewer for the Textbook of Functional Medicine and a reviewer for Alternative Medicine Reviews. Dr. Haase is a co-founder of the non-profit “TheFoodInitiative.org” where high-school youth learn to live health-response-able and world-response-able lives via a curriculum of small-group learning, organic gardening, and community service.



## Decker Weiss N.M.D., F.A.S.A. (Fellow of the American Society of Angiology)

- **Biographical sketch:** Dr. Decker Weiss is the first Naturopathic Physician to complete an internship, residency, and fellowship in a conventional medical system. Dr. Weiss trained in the Columbia Hospital System (AZ), the Arizona Heart Hospital, and the prestigious Arizona Heart Institute. Dr. Weiss served on the staff of the Arizona Heart Hospital for over 10 years. Dr. Weiss is the first and only Naturopathic Physician to hold the credential of “Cardiologist” as a fellow of the American Society of Angiology. Dr. Weiss is the Author of “The Weiss Method, A Better Heart Better Life”, and travels the world training physicians and pharmacists on how to reverse heart disease naturally and reduce or eliminate the need for medications. Dr. Weiss has brought Naturopathic medicine to the world including Haiti and Tibet.



## Kenneth Cintron M.D.

- **Biographical sketch:** Dr. Cintron is an active Fellow of the American Academy of Orthopaedic Surgeons. He graduated from the University of Puerto Rico School of Medicine in 1990 and completed his training in Orthopaedic Surgery Residency in 1995. He fulfilled a Foot and Ankle Surgery Fellowship at Emory University in Atlanta, Georgia in 1996. Dr. Cintron is Board Certified in Anti-Aging, Preventative, Regenerative and Functional Medicine and an Advanced Fellow of the American Academy of Anti-Aging Medicine. As a former owner and operator of BodylogicMD of Puerto Rico he dedicated his practice to helping women and men overcome health challenges associated with aging, using bioidentical hormone replacement therapy (BHRT) integrated with customized nutrition and fitness programs. He is author and co-author of several published articles related to both Orthopaedic Surgery and Integrative Medicine. During his career he has worked as Team Physician of professional basketball, baseball and volleyball teams as well as in Central American and Panamerican Games and 1996 Olympics. He is past President of the Puerto Rico Orthopaedic State Society and former member of the Board of Councilors of the American Academy of Orthopaedic Surgeons.



## Matthew Hirschey, Ph.D.

- **Biographical sketch:** Dr. Hirschey's laboratory at Duke University explores different aspects of mitochondrial function, a crucial sub-cellular organelle that is gaining increasing recognition as a regulator of human health. Mitochondrial dysfunction is correlated with several disease states. However, mitochondria perform several functions, including synthesis, degradation, fission/fusion, signaling and ATP production. Thus, before we can understand how mitochondrial dysfunction contributes to disease, we need to better understand mitochondrial function. The overall objective of the Hirschey Lab is to better understand the interaction between mitochondrial genes and function, to identify novel pathways that are dysfunctional in human disease, and to identify new targets which could be exploited for disease therapy.
- **Select Recent Publications:**
  - DB Lombard, FW Alt, HL Cheng, J Bunkenborg, RS Streeper, R Mostoslavsky, J Kim, G Yancopoulos, D Valenzuela, A Murphy, Y Yang, Y Chen, MD Hirschey, RT Bronson, M Haigis, LP Guarente, RV Farese Jr, S Weissman, E Verdin, B Schwer. Mammalian Sir2 Homolog SIRT3 Regulates Global Mitochondrial Lysine Acetylation. *Mol. Cell. Biol.* (2007) 27: 8807-8814 • MD Hirschey\*, T Shimazu\*, J-Y Huang\*, E Verdin, Chapter 8: acetylation of mitochondrial proteins. *Meth. Enzymol.* (2009) 457: 137-147 • MD Hirschey, T Shimazu, E Goetzman, E Jing, B Schwer, DB Lombard, CA Grueter, C Harris, S Biddinger, OR Ilkayeva, RD Stevens, Y Li, AK Saha, NB Ruderman, JR Bain, CB Newgard, RV Farese Jr., FW Alt, CR Kahn, and E Verdin. SIRT3 regulates mitochondrial fatty acid oxidation via reversible enzyme deacetylation. *Nature* (2010) 464: 121-125 • J-Y Huang\*, MD Hirschey\*, T Shimazu\*, LT Ho, E Verdin. Mitochondrial Sirtuins. *Biochim. Biophys. Acta.* (2010) 1804: 1645-1651 • T Shimazu\*, J-Y Huang\*, MD Hirschey\*, LT Ho, E Verdin. Acetate metabolism and aging: an emerging connection. *Mech. Aging and Develop.* (2010) 131: 511-516 • E Verdin, MD Hirschey, LWS Finley, MC Haigis. Sirtuin regulation of mitochondria - energy production, apoptosis, and signaling. *Trends Biochem. Sci.* (2010) 35: 669-675 • T Shimazu\*, MD Hirschey\*, L Ha, K Dittenhafer, B Schwer, DB Lombard, Y Li, J Bunkenborg, JS Andersen, FW Alt, JM Denu, MP Jacobson, and E Verdin. SIRT3 Deacetylates Mitochondrial 3-Hydroxy-3-Methylglutaryl CoA Synthase 2, Increases its Enzymatic Activity and Regulates Ketone Body Production. *Cell Metab.* (2010) 12: 654-661 • X Qiu\*, K Brown\*, MD Hirschey, E Verdin and D Chen. Calorie Restriction Reduces Oxidative Stress by SIRT3-mediated SOD2 Activation. *Cell Metab.* (2010) 12: 662-667 • MD Hirschey\*, T Shimazu\*, JA Capra\*, KS Pollard, and E Verdin. SIRT1 and SIRT3 Deacetylate Homologous Substrates: AceCS1,2 and HMGCS1,2. *Aging* (2011) 3:1-8 • MD Hirschey, T Shimazu, E Jing, CA Grueter, AM Collins, B Aouizerat, A Stancáková, E Goetzman, MM Lam, B Schwer, RD Stevens, MJ Muehlbauer, S Kakar, NM Bass, J Kuusisto, M Laakso, FW Alt, CB Newgard, RV Farese Jr., CR Kahn and E Verdin. SIRT3 Deficiency and Mitochondrial Protein Hyperacetylation Accelerates the Development of the Metabolic Syndrome. *Mol. Cell* (2011) in press



### Thomas O'Bryan, DC, CCN, DABCN

- **Biographical sketch:** Dr. Thomas O'Bryan is an internationally recognized speaker and workshop leader specializing in Non-Celiac Gluten Sensitivity and Celiac Disease. He is a 'Sherlock Holmes', a clinician par excellence in treating chronic disease and metabolic disorders from a Functional Medicine perspective. He holds teaching Faculty positions with the Institute for Functional Medicine, the Institute for Integrative Medicine and the National University of Health Sciences. Dr. O'Bryan is always one of the most respected, highly-appreciated speakers at many conferences. Dr. O'Bryan's passion is in teaching the many manifestations of Non-Celiac Gluten Sensitivity and Celiac Disease as they occur inside and outside of the intestines.
  - Vojdani A, O'Bryan T, Green JA, McCandless J, Woeller KN, Vojdani E, Nourian AA, Cooper EL. Immune response to dietary proteins, gliadin and cerebellar peptides in children with autism. *Nutr Neurosci*. 2004 Jun;7(3):151-61
  - Di Bernardino F, Filippini E, Alpini D, O'Bryan T, Soi D, Cesarani A. Ménière disease and gluten sensitivity: Recovery after a gluten-free diet. *Am J Otolaryngol*. 2013 Jul-Aug;34(4):355-6



### Jeffrey Smith, Director of the Institute for Responsible Technology

- **Biographical sketch:** An admired keynote speaker, Mr. Smith has lectured in 37 countries, counseled leaders from every continent, and has been quoted by hundreds of media outlets including: The New York Times, Washington Post, BBC World Service, The Independent, Daily Telegraph, New Scientist, The Times (London), Associated Press, Reuters News Service, LA Times, and Time Magazine. Also a popular guest, he appears on influential radio shows and television programs, such as the BBC, NPR, Fox News, Democracy Now, and the Dr. Oz Show. He is the founding executive director of The Institute for Responsible Technology (IRT), a leading source of GMO health risk information for consumers, policy makers, and healthcare professionals. IRT's educational programs are a driving force supporting consumer rejection against GMOs, which is already starting to push genetically engineered ingredients out of the market in the US.
  - **Recent books and documentary films:** Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating, which is the world's bestseller on GMOs; and Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods



### Pedro Carrera Bastos M.A., M.S., Ph.D. candidate in Medical Sciences at Lund University, Sweden

- **Biographical sketch:** Pedro Bastos is a Portuguese Nutrition researcher and PhD candidate in Medical Sciences, holding an MSc in Human Nutrition and three Post-graduate Diplomas (Clinical Nutrition; Functional Nutrition and Orthomolecular Medicine; Health & Exercise Science). He lectures extensively to health professionals on topics related to Nutrition across Europe, USA and Latin America and has authored and co-authored 12 scientific papers. Best known for being an expert in milk and milk-associated immune dysfunction and allergy.
  - **Recent publications:** Coauthor of scientific paper "The Western Diet and Lifestyle and Diseases of Civilization", which is already the most viewed paper of Dove Press: <http://www.dovepress.com/getfile.php?fileID=9163>
  - Melnik BC, John SM, Carrera-Bastos P, Cordain L. The impact of cow's milk-mediated mTORC1-signaling in the initiation and progression of prostate cancer. *Nutr Metab*. 2012 Aug <http://www.nutritionandmetabolism.com/content/pdf/1743-7075-9-74.pdf>
  - Ramsden CE, Faurot KR, Carrera-Bastos P, Cordain L. Dietary fat quality and coronary heart disease prevention: a unified theory based on evolutionary, historical, global, and modern perspectives. *Curr Treat Options Cardiovasc Med*. 2009 Aug;11(4):289-301



### Maelan Fontes M.S., Ph.D. candidate in Medical Sciences at Lund University, Sweden

- **Biographical sketch:** Physical Therapist, Master in Science in Human Nutrition and Food Quality, PhD candidate in Medical Sciences, Researcher at the Center for Primary Health Care Research, Lund University, Sweden. Lecturer in several postgraduate courses in Spain and Portugal, Author of peer-reviewed papers on evolutionary nutrition. Focused on Food and Western Disease from an evolutionary perspective.
  - **Recent publications:** Coauthor of scientific paper "The Western Diet and Lifestyle and Diseases of Civilization", which is already the most viewed paper of Dove Press: <http://www.dovepress.com/getfile.php?fileID=9163>





**Wednesday—September 25—start at 8am and finish at approximately 5:45pm**

- 1. HISTORY AND GROWTH OF FUNCTIONAL MEDICINE**
- 2. APPLYING THE “FUNCTIONAL INFLAMMOLOGY PROTOCOL” IN CLINICAL PRACTICE**
- 3. INTEGRATIVE PHARMACOLOGY FOR DISORDERS OF PAIN AND INFLAMMATION**



**Dr Jeffrey Bland**  
International Leader and  
Founder of the field of  
“Functional Medicine”



**Dr Alex Vasquez**  
International Speaker and  
Author on Human Nutrition  
and Functional Medicine



**Dr Decker Weiss**  
Fellowship-accredited  
naturopathic cardiologist



**Dr Kenneth Cintron**  
Board-certified Orthopedic  
Surgeon and Integrative Pain  
Management Expert

Morning Topics		8am start: Speakers and Details	
<b>① The Progress of Functional Medicine:</b> from Concept to Academic Discipline and Accredited Graduate-level Branch of Science	<b>② Functional Inflammolgy:</b> Deciphering and Deconstructing the Enigma and Phenomenon of Inflammation-Related Diseases (Metabolic, Allergic, Autoimmune) in Clinical Practice	8-9am: Drs Bland, Minich, and Vasquez—nonCME: Functional Medicine: From Concept to Academic Discipline and Accredited Graduate-level New Branch of Science—Recognizing the Creation of a New Branch of Science by Jeffrey Bland, Announcement and Award for Scholarship and Innovation	
		9-10:15: Vasquez—75-minute: Understanding Functional Medicine, Clinical Nutrition: Applying the “Functional Inflammolgy” protocol to the Prevention and Treatment of the 3 Main Categories of Inflammatory Diseases: Metabolic, Allergic, and Autoimmune	
		20-30-minute break for rest and vendor visitation	
		10:45-12:15 Vasquez—90-minute: Understanding Functional Medicine, Clinical Nutrition: Applying the “Functional Inflammolgy” protocol to the Prevention and Treatment of the 3 Main Categories of Inflammatory Diseases: Metabolic, Allergic, and Autoimmune	
Afternoon Topics		Lunch—approximately 12:15 – 1:45	
<b>③ Integrative (Nutritional-Pharmaceutical) Pharmacology in Clinical Practice for Hypertension, Migraine, Fibromyalgia, Rheumatoid Arthritis, and Osteoarthritis:</b> From Chiropractic, to Botanical Medicines, to Orthopedic Surgery		1:45 start, 55-minute lecture with brief break during transition: Weiss— <u>Integrative Pharmacology:</u> Integrative Pharmacology—Using Drugs within an Integrative Functional Clinical Medicine Protocol for <b>Hypertension</b>	
		2:35 start, 55-minute lecture with brief break during transition: Cintron— <u>Integrative Pharmacology:</u> Essential Pharmacology—Using Drugs within an Integrative Functional Medicine Protocol for <b>painful arthritis: OA and RA</b>	
		3:25-3:45: 20-minute break for rest and vendor visitation	
		3:45 start, 55-minute lecture with brief break during transition: Cintron— <u>Integrative Pharmacology:</u> Using Drugs within an Integrative Functional Medicine Protocol for <b>Fibromyalgia</b>	
		4:45 start, 55-minute lecture with brief break during transition: Vasquez— <u>Integrative Pharmacology:</u> <b>Antirheumatic Use of Antimicrobial Drugs and Neuroendocrine Interventions in the Treatment of Autoimmunity</b>	

# MIND-BODY MEDICINE

AND

# NUTRITION FOR THE BRAIN



- **The Alzheimer's epidemic:** Alzheimer's disease does not just take memories, it takes lives. The disease is now the sixth leading cause of death in the United States. Two new reports out today crunch federal data and show that Alzheimer's deaths are both on the rise and accelerating. NPR's Jon Hamilton has more on why more people are dying of the disease and how it causes death.

<http://www.npr.org/blogs/health/2013/03/19/174651566/alzheimers-epidemic-now-a-deadlier-threat-to-elderly>

- **The Depression Epidemic:** "Most nearly everyone agrees about the basic fact of an epidemic of depression. Our best numbers from population studies say that nearly twenty percent of people will have serious, clinical depression over the course of a lifetime, with 8-9 percent of adults depressed in any one year period. If you walk in any neighborhood in America, odds are that you will only need to knock on a few doors before finding a household that contains a person who has suffered from depression. Depression is already the most disabling health condition for adults between the ages of 15-44. It is not easy to quantify the harms done by health conditions but our best estimates -- like the World Health Organization's global burden of disease study -- project that depression's carnage will only continue. An ominous straw in the wind, rates of depression are especially high in adolescents and young adults."

<http://www.psychologytoday.com/blog/charting-the-depths/201005/the-depression-epidemic-old-news-mysteries-and-bold-claims>

Thursday—September 26—start at 8am

# MIND-BODY MEDICINE AND NUTRITION FOR THE BRAIN:



**Dr Deanna Minich**

International expert on Mind-Body Medicine and author of several popular books on Mind-Body Medicine, Holistic Health, and Nutrition. Exceedingly well-published scientific author of many peer-reviewed science articles on nutrition and phytochemistry in leading biomedical journals.



**Dr David H Haase**

Dr Haase is a pioneer in the field of Functional Neurophysiology—the use of evidence-based in-office assessment with quantitative EEG—electroencephalography. Dr Haase will demonstrate the ability of this technology to improve the diagnosis of mood/brain disorders and also to document improvements due to the use of nutritional interventions.



**Dr Alex Vasquez**

Graduate Program Director and International Speaker and Author on Human Nutrition and Functional Medicine; author of 14 textbooks and more than 100 articles and letters in healthcare publications and scientific journals.



**Dr Thomas O'Bryan**

Dr. Thomas O'Bryan is an internationally recognized speaker and workshop leader specializing in Non-Celiac Gluten Sensitivity and Celiac Disease.

## Thursday Morning

- **8-9am: 55-minutes: Minich: Brain Nourishment: From Food to Meditation:** When it comes to brain health, there are many aspects of nourishment to consider to keep this remarkable organ plastic and flexible, able to withstand the changes associated with inflammation normally present in aging. This 1 hour presentation will provide a spectrum of nourishment options for keeping one's brain healthy and vital, including an overview of foods and dietary patterns that are consistent with maintaining cognitive function. In addition, other forms of nourishment such as physical activity, mental fitness (e.g., meditation), and emotional regulation will be discussed within this context.
- **9-10:25am: 85-minutes: Haase: Functional Clinical Approach to Assessing Brain Health:** The brain is a complex structure with highly complex function. In-office assessment of this remarkable organ should include quantifiable measures for the subjective experience of the patient, the level of neurocognitive performance, the biochemical milieu of the body, and the electrical patterning, efficiency and speed of the brain itself. In this 1.5 hour presentation we will demonstrate this methodology and how it may be implemented in a functional medicine practice.

## Break—20 minutes

- **10:45-12:10pm: 85-minutes: Minich: Research review of Lifestyle/exercise and (phyto)nutrients for brain health, memory, and treatment and prevention of memory loss and Alzheimer's disease (aka, Type-3 Diabetes):** Cognitive decline and dementia are some of the largest, growing concerns in the 21st century. Over the past decade, there has been greater scientific understanding of Alzheimer's disease as a form of diabetes (i.e., Type 3 Diabetes). This 1.5 h presentation will focus on how an individual can take a personalized lifestyle medicine approach to retaining mental acuity and keeping neurons plastic through modulation of systemic insulin activity using an array of options such as specific foods and phytonutrients, physical activities, stress management, and emotional regulation. Topics to be discussed include glycemic impact, phytochemical index, the interrelationship between insulin resistance and inflammation, along with practical tools and tips on how to implement a healthy brain aging protocol focused on modulation of insulin.

## Lunch on your own for approximately 80 minutes

- **1:30-2:55pm 85 minutes: Haase: Nutritional Interventions that measurably Effect the Brain:** By using the tools of quantitative EEG, and full-head visual and auditory ERP, we are not only able to assess the functioning of the brain, we are able to visualize the effects of different diets, and nutritional supplements upon brain function. In this 1.5 hour presentation we will explore how Oligo-antigenic diets, ketogenic diets, SAME, GABA, 5-MTHF, and L-theanine may impact brain function.

## Short break 15 minutes

- **3:10-4:25pm: 75-minutes OBryan:** Dr Obryan will discuss the role of gluten sensitivity and (non)celiac "wheat allergy" in neurologic dysfunction, gluten ataxia and conditions that mimic multiple sclerosis. Diagnosis and treatment will be reviewed.

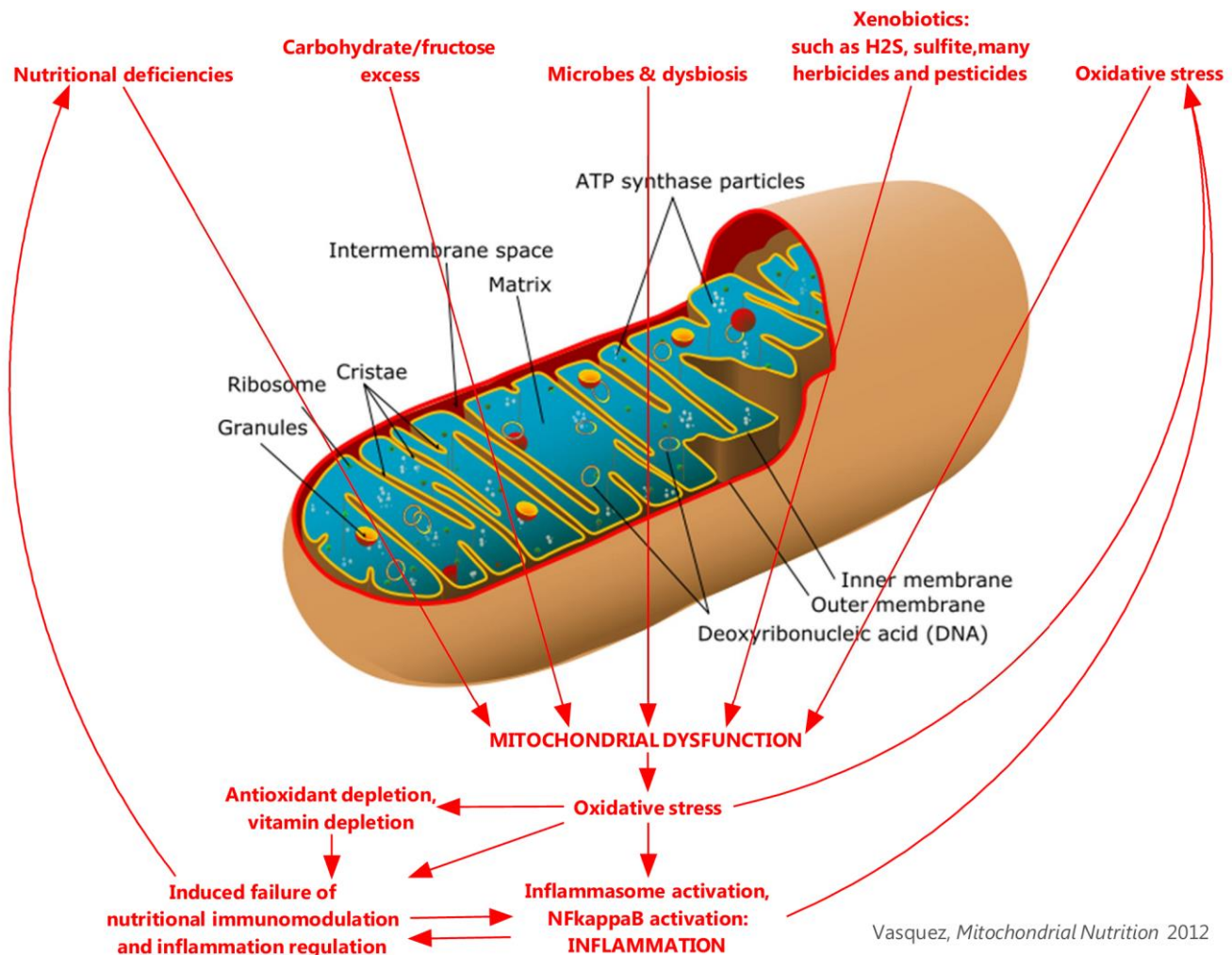
## Short break: 20 minutes

- **4:45-5:40pm: 55 minutes: Vasquez: Using Peer-Reviewed Research to Optimize Brain Function using Nutrition—What All Clinicians Need to Know**



Friday—September 27—start at 8am and finish at approximately 5:45pm

# MITOCHONDRIAL NUTRITION IN MEDICINE: METABOLIC PATHWAYS INFLUENCING INFLAMMATION, MIGRAINE, FIBROMYALGIA, DIABETES, AND CANCER



Kozlov et al. *Annals of Intensive Care* 2011, 1:41  
<http://www.annalsofintensivecare.com/content/1/1/41>

 **Annals of Intensive Care**  
a SpringerOpen Journal

REVIEW

Open Access

## Mitochondrial dysfunction and biogenesis: do ICU patients die from mitochondrial failure?

Andrey V Kozlov<sup>1\*</sup>, Soheyl Bahrami<sup>1</sup>, Enrico Calzia<sup>2</sup>, Peter Dungal<sup>1</sup>, Lars Gille<sup>3</sup>, Andrey V Kuznetsov<sup>4</sup> and Jakob Tropmair<sup>5</sup>

### Abstract

Mitochondrial functions include production of energy, activation of programmed cell death, and a number of cell specific tasks, e.g., cell signaling, control of Ca<sup>2+</sup> metabolism, and synthesis of a number of important biomolecules. As proper mitochondrial function is critical for normal performance and survival of cells, mitochondrial dysfunction often leads to pathological conditions resulting in various human diseases. Recently mitochondrial dysfunction has been linked to multiple organ failure (MOF) often leading to the death of critical care patients. However, there are

Friday—September 27—start at 8am and finish at approximately 5:45pm

# MITOCHONDRIAL NUTRITION IN MEDICINE:



**Dr Matthew Hirschey**

PhD scientist at Duke University with a powerful record of innovative and important contributions to our knowledge about the importance and mechanisms of mitochondrial dysfunction in health and disease.



**Dr Michael J Gonzalez**

A prolific author of more than 150 scientific publications and books for the general public, Dr Gonzalez has a strong interest in nutrition and—in particular—the relevance of clinical nutrition to alleviating the burden of cancer.



**Prof Dr Garth L. Nicolson**

Professor Emeritus Garth L. Nicolson, Ph.D. is the author of more than 600 scientific publications and is an international expert on the relationships between chronic microbial infections, mitochondrial disorders, and clinical diseases.

## Friday Morning Topics 8am start: Speakers and Details

- **8-8:55am: 55 minutes: Hirschey:** Mitochondria, Mild Stress: A new prescription for living healthier and longer
- **9:55am: 55 minutes: Gonzalez:** Diet, Mitochondrial Nutrition, and Risk Reduction for Cancer and Chronic Illness

## 25-minute break for rest and vendor visitation

- **10:20am-11:50am: 85 minutes: Nicolson:** The Role of Multiple Chronic Infections in Mitochondrial Dysfunction and the Importance of Combined Antimicrobial Therapy And Nutritional Interventions

## Optional Lunch (\$45) with Jeffrey Smith on the Science and Politics of GMO foods

- **1:30-2:25pm: 55 minutes: Hirschey:** Mitochondria and Metabolites: Relevance for Diabetes, Obesity, and Cancer
- **3:30pm: 55 minutes: Gonzalez:** New Paradigms in Cancer: Mitochondrial Oncology, The Bio-Energetic Theory of Carcinogenesis and Mitochondrial Correction

## 3:25-3:45: 20-minute break for rest and vendor visitation

- **4:30: 55 minutes: Vasquez:** Mitochondrial nutrition protocol: How to make your mitochondria work better for a longer and healthier life
- **30 minutes Q and A**

## The bio-energetic theory of carcinogenesis

**Michael J. Gonzalez<sup>a,\*</sup>**, Jorge R. Miranda Massari<sup>a</sup>, Jorge Duconge<sup>a</sup>, Neil H. Riordan<sup>b</sup>, Thomas Ichim<sup>b</sup>, Ana I. Quintero-Del-Rio<sup>c</sup>, Norma Ortiz<sup>c</sup>

<sup>a</sup> University of Puerto Rico, Medical Sciences Campus, School of Public Health and Pharmacy, RECNAC2 Program, GPO Box 5067, San Juan, PR 00936-5067, USA

<sup>b</sup> The Riordan Clinic, 3100 N Hillside Ave., Wichita, KS 67219, USA

<sup>c</sup> Puerto Rico Children's Hospital, Carr 2 KM 11.7 Bayamon, PR 00959, USA

### ARTICLE INFO

#### Article history:

Received 1 February 2012  
Accepted 22 June 2012

This paper is dedicated to the memory of our dear friend, colleague and mentor, Dr. Hugh D. Riordan

### ABSTRACT

The altered energy metabolism of tumor cells provides a viable target for a non toxic chemotherapeutic approach. An increased glucose consumption rate has been observed in malignant cells. Warburg (Nobel Laureate in medicine) postulated that the respiratory process of malignant cells was impaired and that the transformation of a normal cell to malignant was due to defects in the aerobic respiratory pathways. Szent-Györgyi (Nobel Laureate in medicine) also viewed cancer as originating from insufficient availability of oxygen. Oxygen by itself has an inhibitory action on malignant cell proliferation by interfering with anaerobic respiration (fermentation and lactic acid production). Interestingly, during cell differentiation (where cell energy level is high) there is an increased cellular production of oxidants that appear to stimulate a type of physiological stimulation for changes in gene expression that may lead to a terminal state of high ATP production (high cell energy levels) may be a consequence of the Krebs cycle and the electron

## Special (optional, \$45) lunch presentation with Mr Jeffrey Smith on Friday—September 27



Mr Jeffrey Smith (photo: Mark Seliger)

**Jeffrey M. Smith**—International best-selling author and filmmaker; Executive Director, Institute of Responsible Technology and leading spokesperson on the health dangers of GMOs—will provide a **60-90 presentation during the lunch time on Friday**, with the \$45 cost going mostly to cover the cost of the healthy box lunch provided by the Oregon Convention Center catering service and also toward the honoraria and travel for Mr Smith's presentation.

✓ **Note:** To attend this optional lunch presentation, you need to add this choice to your registration when you register for the conference to cover the cost of the lunch and so that we know how many meals to have ready.

The leading consumer advocate promoting healthier non-GMO choices, Jeffrey Smith's meticulous research documents how biotech companies continue to mislead legislators and safety officials to put the health of society at risk and the environment in peril. His work expertly summarizes why the safety assessments conducted by the

FDA and regulators worldwide teeter on a foundation of outdated science and false assumptions, and why genetically engineered foods must urgently become our nation's top food safety priority.

Mr. Smith's feature-length documentary **Genetic Roulette, The Gamble of Our Lives** was awarded the 2012 Movie of the Year (Solari Report) and the Transformational Film of the Year (AwareGuide). Described as a "life-changer" and seen by millions world-wide, the film links genetically engineered food to toxic and allergic reactions, infertility, digestive disorders, and numerous problems that have been on the rise in the US population since genetically modified organisms (GMOs) were introduced.

His books include: **Seeds of Deception: Exposing Industry and Government Lies about the Safety of the Genetically Engineered Foods You're Eating**, which is the world's bestseller on GMOs; and **Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods**, which is the authoritative work on GMO health dangers.

An admired keynote speaker, Mr. Smith has lectured in 37 countries, counseled leaders from every continent, and has been quoted by hundreds of media outlets including: *The New York Times*, *Washington Post*, *BBC World Service*, *The Independent*, *Daily Telegraph*, *New Scientist*, *The Times* (London), *Associated Press*, *Reuters News Service*, *LA Times*, and *Time Magazine*. Also a popular guest, he appears on influential radio shows and television programs, such as the *BBC*, *NPR*, *Fox News*, *Democracy Now*, and the *Dr. Oz Show*.

He is the founding executive director of **The Institute for Responsible Technology (IRT)**, a leading source of GMO health risk information for consumers, policy makers, and healthcare professionals. IRT's educational programs are a driving force supporting consumer rejection against GMOs, which is already starting to push genetically engineered ingredients out of the market in the US. Mr. Smith lives in Iowa, surrounded by genetically modified soybeans and corn.

**We hope that you will choose to join us for this excellent presentation on an important topic relevant to all of us—ourselves, our patients and clients!**

Entropy 2013, 15, 1416-1463; doi:10.3390/e15041416

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entropy

ISSN 1099-4304

www.mdpi.com/journal/entropy

http://www.mdpi.com/1099-4304/15/4/1416

Review

### Glyphosate's Suppression of Cytochrome P450 Enzymes and Amino Acid Biosynthesis by the Gut Microbiome: Pathways to Modern Diseases

Anthony Samsel<sup>1</sup> and Stephanie Seneff<sup>2,\*</sup>

<sup>1</sup> Independent Scientist and Consultant, Deerfield, NH 03037, USA;

E-Mail: anthony.samsel@acoustictracks.net

<sup>2</sup> Computer Science and Artificial Intelligence Laboratory, MIT, Cambridge, MA 02139, USA

\* Author to whom correspondence should be addressed; E-Mail: Seneff@csail.mit.edu;

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Received: 15 January 2013; in revised form: 10 April 2013 / Accepted: 10 April 2013 /

Published: 18 April 2013

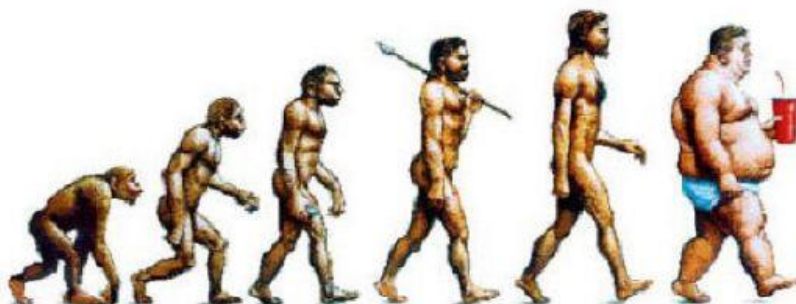
**Abstract:** Glyphosate, the active ingredient in Roundup®, is the most popular herbicide used worldwide. The industry asserts it is minimally toxic to humans, but here we argue otherwise. Residues are found in the main foods of the Western diet, comprised primarily of sugar, corn, soy and wheat. Glyphosate's inhibition of cytochrome P450 (CYP) enzymes is an overlooked component of its toxicity to mammals. CYP enzymes play crucial roles in biology, one of which is to detoxify xenobiotics. Thus, glyphosate enhances the damaging effects of other food borne chemical residues and environmental toxins. Negative impact on the body is insidious and manifests slowly over time as inflammation damages cellular

abundant, commonly used





Saturday and Sunday—September 28 and Sept 29



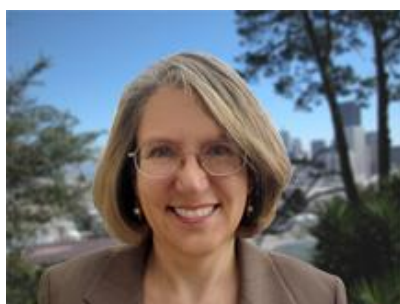
## **THE OPTIMAL DAILY DIET AND LIFESTYLE: MEALS, MOLECULES, AND MECHANISMS**

For the Prevention and Treatment of Common Health Problems such as Overweight/Obesity, Insulin Resistance, Hypertension (high blood pressure), Diabetes Mellitus, and Cardiovascular Disease



**Dr Loren Cordain**

*Author of many top-quality scientific articles and also of the popular book THE PALEO DIET, an international best-seller*



**Dr Lynda Frassetto**

*Key researcher in the role of diet on kidney physiology and acid-base balance; we all need to know about metabolic acidosis.*



**Dr James O'Keefe**

*Board-certified cardiologist and well-known expert and speaker on exercise and fitness.*



**Maelan Fontes**

*Researcher, author, speaker and PhD student with Dr Staffan Lindeberg in Sweden*



**Pedro Bastos**

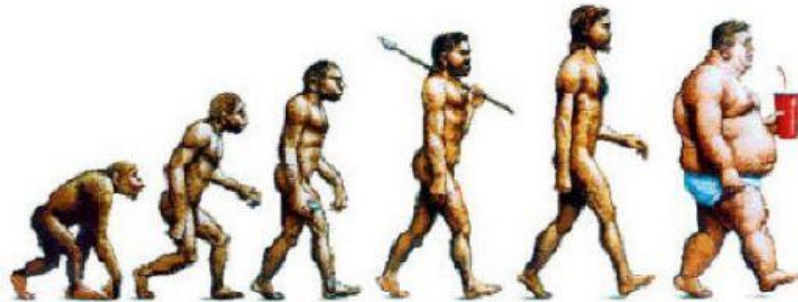
*Researcher, author, speaker and PhD student with Dr Staffan Lindeberg in Sweden*



**Dr Alex Vasquez**

*Appreciates the molecular benefits of dark chocolate, olive oil, and red wine and has lectured internationally on integrative nutrition while authoring more than 100 letters and articles and 13 textbooks.*

Saturday and Sunday—September 28 and Sept 29



# THE OPTIMAL DAILY DIET AND LIFESTYLE: MEALS, MOLECULES, AND MECHANISMS

For the Prevention and Treatment of Common Health Problems such as Overweight/Obesity, Insulin Resistance, Hypertension (high blood pressure), Diabetes Mellitus, and Cardiovascular Disease

Saturday: Sept 28	Sunday: Sept 29
<i>Morning</i>	<i>Morning</i>
<b>8-9: Cordain:</b> Origins and evolution of the western diet: health implications for the 21st century	<b>8-9: Bastos:</b> Dairy, grains, insulin, and Cancer: From meals to MTOR signaling to Malignancy
<b>9-10: Cordain:</b> Lifestyle and Clinical Applications: Implementing the Paleo Diet	<b>9-10: Fontes:</b> Satiation vs Inflammation: Food, the Metabolic Syndrome and Diabetes/Obesity: Focus on Glucagon and Adipokines in Insulin Resistance
<i>Break</i>	<i>Break</i>
<b>10-11: Fontes:</b> Evidence-Based Nutrition: Are evolutionary and historical data relevant for clinical practice, and if so (or not) how, why, and what should doctors tell patients?	<b>10-11: Okeefe:</b> Adverse Cardiovascular and Health Effects of Excess Exercise
<b>11-12: Okeefe:</b> Modulation of Health and Disease with Diet, Exercise, Lifestyle Choices	<b>11-12:30 Vasquez:</b> Functional Medicine for Diabetes, Obesity, Hypertension and the CardioMetabolic Syndrome: Combining Research and Clinical Experience into the "Functional Inflammation Protocol"
<b>12-1230: Q and A with Audience:</b> All present	<b>1230 - 1: Q and A with Audience:</b> All present
<i>Lunch off-site 1230-2pm/ afternoon</i>	<i>Closure / afternoon</i>
<b>2-3: Bastos:</b> Dairy and grains and the connection via inflammation and microbes to insulin resistance and diabetes	<p>Hike • Eat • Relax • Integrate</p> <p>Run • Walk • Talk • Collaborate • Travel</p> <p>Reflect • Absorb • Connect • Incorporate</p>
<b>3-4: Frassetto:</b> Diet-Induced Metabolic Acidosis: How relevant is it, what are the mechanisms, and how do we assess it?	
<b>4-5: Frassetto:</b> Diet-Induced Metabolic Acidosis: Relevance to Osteoporosis, CardioMetabolic Syndrome, Chronic Pain, ...Depression and Addiction	
<b>5-530: Q and A with Audience:</b> All present	



**City location:** Portland, Oregon <http://www.travelportland.com/>

**Conference location:** Oregon Convention Center <http://oregoncc.org/>

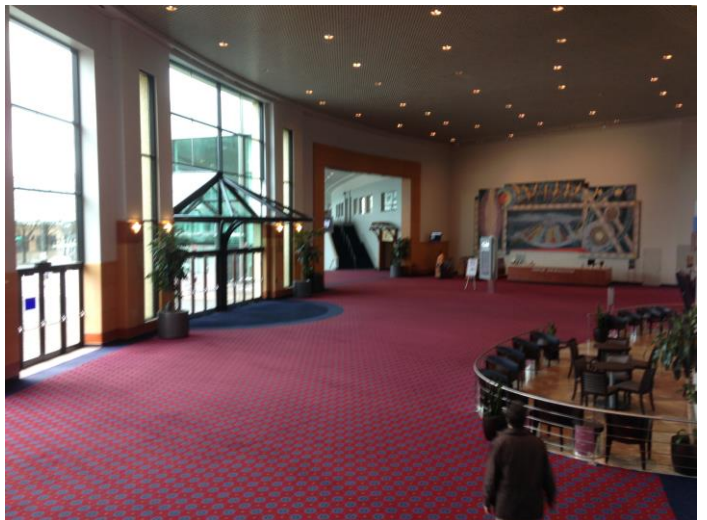
**Attributes of city and venue:**

- **World-class modern venue:** Very clean and contemporary conference center with internal and nearby local cafes and attractions, including the Portland Waterfront (pictured above).
- **Food:** Portland is famous for its “foodie culture” that treasures locally grown and organic foods; most restaurants are unique independent restaurants (not “chains” or “corporate kitchens”).
- **Local hiking and nature:** Portland has more inner-city parks than any other city in the United States; the famous “Forest Park” in the northwest district of the city is the largest in the United States. Amazing hiking is a mere 30 minutes from the convention center.
- **No rental car needed:** You can easily travel from the airport to the convention center for about \$2 on the city’s MAX light rail system. Taxis are abundant in the city.
- **Portland International Airport (PDX):** [http://www.portofportland.com/PDX\\_Home.aspx](http://www.portofportland.com/PDX_Home.aspx)

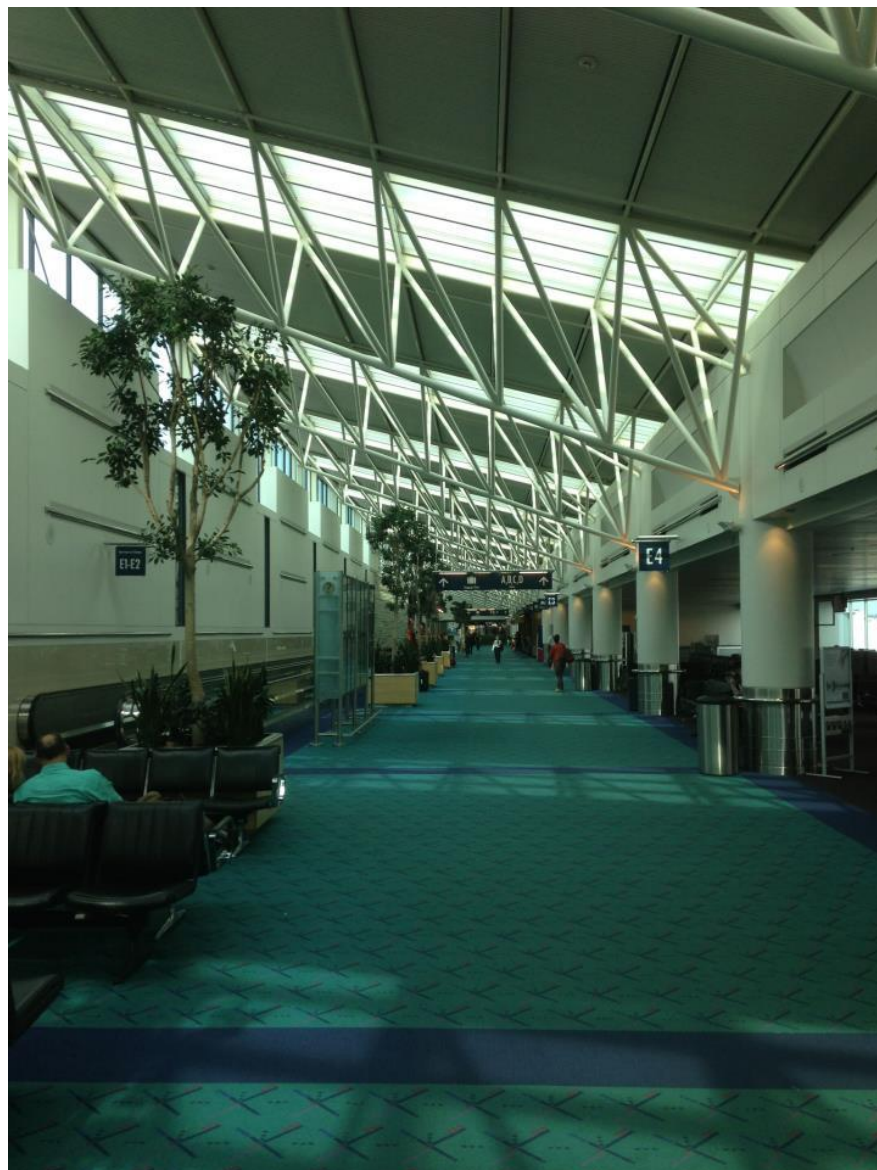




**Conference location:** Oregon Convention Center <http://oregoncc.org/>







Outdoor activities:  
**Marine Drive hike/bike/run trail**



**Mount Tabor Park—an extinct volcano**



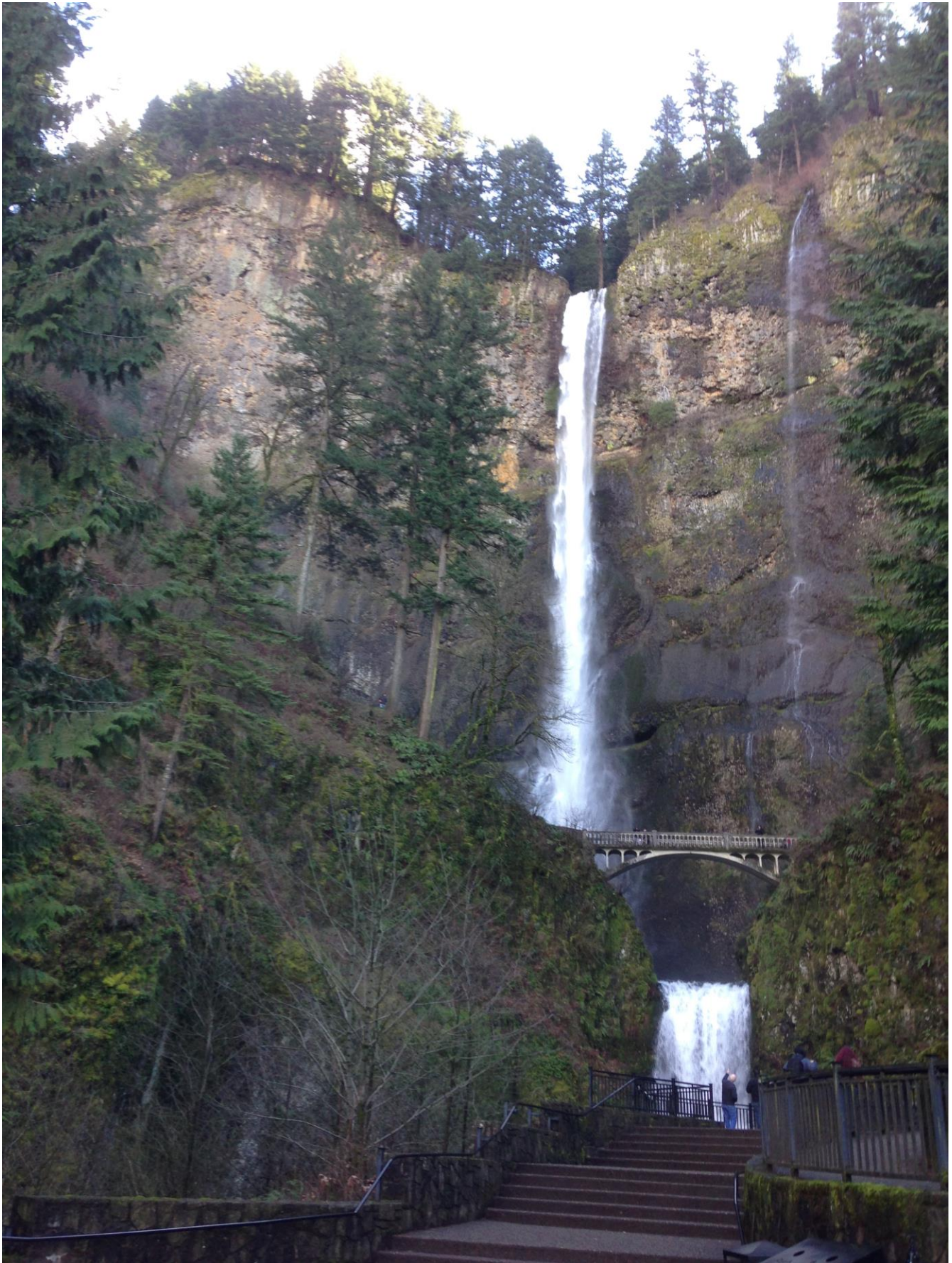


Indoor activities:  
**Pearl Yoga and Prasad Café**  
(Portland's best coffee!)  
<http://www.yogapearl.com/>  
<http://prasadcuisine.squarespace.com/>





Outdoor activities: **Nearby hiking in the Colombia River Gorge—a Portlander favorite!**





Outdoor activities: Nearby hiking in the **Colombia River Gorge**—a Portlander favorite!





## Our two best hotel discounts:

### HILTON DOUBLE TREE "GREEN":

- <http://www.doubletreegreen.com/> Call 1-800-996-0510 and ask for the "Human Nutrition and Functional Medicine Group Block"
- 3 blocks from the convention center,
- right next to a park, with nearby cafes and shops (largest mall in Oregon is a few blocks away)
- 1/2 block from the light-rail system (directly to/from airport, and to/from downtown): RED LINE from airport to hotel and convention center: <http://trimet.org/schedules/maxredline.htm>
- on-site restaurant featuring local and organic: <http://www.doubletreegreen.com/dine/gather-food-drink/index.cfm>
- "green certified" <http://www.doubletreegreen.com/sustainability/index.cfm>
- several food options: <http://www.doubletreegreen.com/dine/index.cfm>
- windows open for fresh air; refrigerator available for room; 3-star: quite nice



### RED LION:

- <http://www.redlion.com/conventioncenter>
- 30 steps from the convention center -- directly across the street
- nearby cafes and shops
- directly on the light-rail system (directly to/from airport and downtown): RED LINE from airport to hotel and convention center: <http://trimet.org/schedules/maxredline.htm>
- windows open for fresh air; refrigerator available for room; 3-star, I believe: decent/nice
- Decent place -- I lived here for 2 years before moving to Portland in 2011 while I was waiting on my apartment. They are doing some major renovations and updates.



**This discount hotel block has sold out!**

**Nearby hotels, the Portland Willamette River Waterfront—many hotel, café, shopping, and restaurant options:** **do not get a rental car**—take the “Max” from the airport to the **convention center (purple dot on map)** and downtown area for your chosen hotel and for the conference.

• **DoubleTree by Hilton Hotel Portland:** 1000 NE Multnomah St, Portland, OR 0.4 mi NE. (503) 281-6111 [www.doubletreegreen.com](http://www.doubletreegreen.com)

• **Motel 6 Portland Downtown:** 518 NE Holladay St, Portland, OR 0.2 mi NE. (503) 234-4391 • motel6.com

• **Jupiter Hotel:** 800 E Burnside St, Portland, OR 0.5 mi SE. (503) 230-9200 • jupiterhotel.com

• **Red Lion Hotel:** 1021 NE Grand Ave, Portland, OR 0.2 mi NE. (503) 235-2100 • redlion.rdl.com

• **Courtyard Portland Downtown/ Convention Center:** 435 NE Wasco St, Portland, OR 0.3 mi N. (503) 234-3200 • marriott.com

• **Crowne Plaza Hotel Portland - Downtown Convention Center:** 1441 NE 2nd Ave, Portland, OR 0.4 mi N. (503) 233-2401 • ihg.com

• **Governor Hotel Downtown**

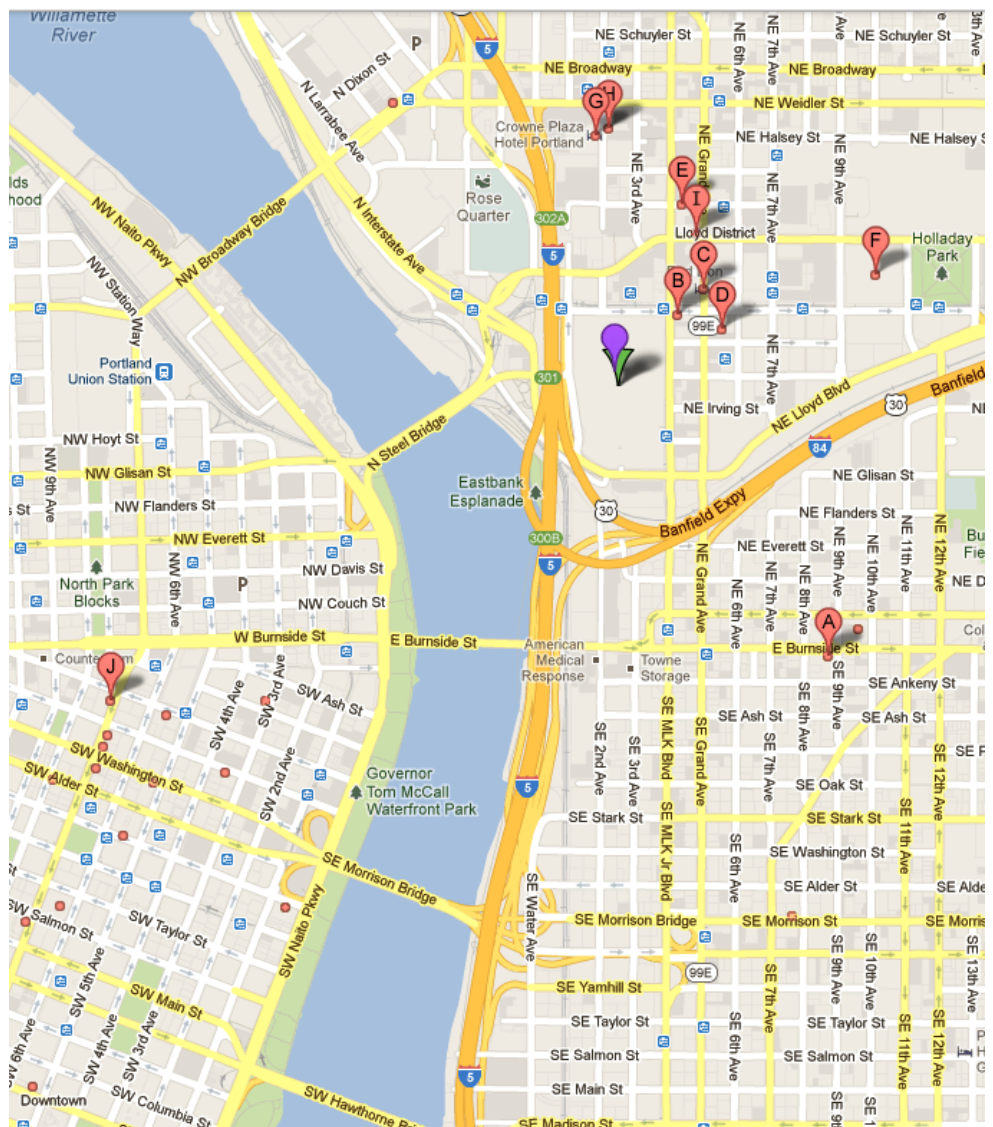
• **The Benson:** 309 SW Broadway, Portland, OR 0.9 mi SW. (503) 228-2000 • bensonhotel.com

• **Courtyard by Marriott Portland City Center:** 550 SW Oak St, Portland, OR 0.8 mi SW. (503) 505-5000 • myfavoritecourtyard.com

• **The Mark Spencer Hotel:** 409 SW 11th Ave, Portland, OR 1.0 mi SW. (503) 224-3293 • markspencer.com. wine tasting • afternoon tea • book store • high speed internet access • espresso. "The Customer Service and cleaning are top notch!" - Whole Foods Market is 2 blocks away; hotel has kitchens in most rooms.

• **Joyce Hotel:** 322 SW 11th Ave, Portland, OR 1.0 mi SW. (503) 243-6757. "There are only a few truly cheap hotels in downtown Portland, and this ..." - gayot.com

• **Hotel Rose:** Portland 3.5 stars. 50 SW Morrison Street, Portland, OR, 97204-3390 United States 866 539 8430. Directly on Willamette River Waterfront—very nice hotel with a good restaurant and bar.



## Overview of nutrition-specific educational/practice gaps:

### Overview of nutrition-specific educational/practice gaps

This page introduces the "practice gaps" (ie, the differential between current science and clinical practice) that are general to the discipline of nutrition. Per ACCME guidelines, additional Learning Objectives and educational infrastructure must be developed in coordination with the CME joint sponsor. Each daily theme and individual lecture must have practice-oriented learning objectives.

Most contemporary medical physicians received essentially zero training in nutrition (nor therapeutic exercise); however, current clinical science and biomedical research clearly document the important role of dietary and nutritional interventions (and exercise/lifestyle) in the prevention and co-management of many common diseases encountered in clinical practice. Therefore, our International Conference on Human Nutrition and Functional Medicine seeks to advance the practice of clinical care by educating physicians on the scientific evidence-based use of select clinical nutrition facts and interventions appropriate for clinical use. Likewise, the evidence base of basic science and clinical trials research in metabolism, mitochondrial (dys)function, insulin secretion/receptivity, neurologic (dys)function, and drug-nutrient interactions and drug-nutrient comanagement is growing strong and many of these interventions have proven safe and effective and are ready for translation into clinical practice. Physicians need to be informed of these advances within an overall educational architecture that facilitates clinical application and patient compliance. Given the importance of "nutrition" as a topic that ranges from daily diet to the popular use of nutritional supplements and potential drug interactions, our conference will help bridge a vitally important practice gap; evidence of the lack of nutritional knowledge among medical physicians is well documented, as shown in the following examples:

1. "OBJECTIVE: Despite the increased emphasis on obesity and diet-related diseases, nutrition education remains lacking in many internal medicine training programs. We evaluated the attitudes, self-perceived proficiency, and knowledge related to clinical nutrition among a cohort of internal medicine interns. METHODS: Nutrition attitudes and self-perceived proficiency were measured using previously validated questionnaires. Knowledge was assessed with a multiple-choice quiz. Subjects were asked whether they had prior nutrition training. RESULTS: Of the 114 participants, 61 (54%) completed the survey. Although 77% agreed that nutrition assessment should be included in routine primary care visits, and 94% agreed that it was their obligation to discuss nutrition with patients, only 14% felt physicians were adequately trained to provide nutrition counseling. There was no correlation among attitudes, self-perceived proficiency, or knowledge. Interns previously exposed to nutrition education reported more negative attitudes toward physician self-efficacy ( $p = 0.03$ ). CONCLUSIONS: Internal medicine interns' perceive nutrition counseling as a priority, but lack the confidence and knowledge to effectively provide adequate nutrition education." Vetter ML, Herring SJ, Sood M, Shah NR, Kalet AL. Division of General Internal Medicine, Section of Primary Care, Department of Medicine, New York University School of Medicine. What do resident physicians know about nutrition? An evaluation of attitudes, self-perceived proficiency and knowledge. *J Am Coll Nutr*. 2008 Apr;27(2):287-98
2. "Scientific advances on the relationship of dietary substances to the cellular mechanisms of disease occur with regularity and frequency. Yet, despite the prevalence of nutritional disorders in clinical medicine and increasing scientific evidence on the significance of dietary modification to disease prevention, present day practitioners of medicine are typically untrained in the relationship of diet to health and disease." Halsted CH. Department of Internal Medicine, University of California Davis, 95616, USA. The relevance of clinical nutrition education and role models to the practice of medicine. *Eur J Clin Nutr*. 1999 May;53 Suppl 2:S29-34
3. "Vitamin deficiency syndromes such as scurvy and beriberi are uncommon in Western societies. However, suboptimal intake of some vitamins, above levels causing classic vitamin deficiency, is a risk factor for chronic diseases and common in the general population, especially the elderly. ...Most people do not consume an optimal amount of all vitamins by diet alone. Pending strong evidence of effectiveness from randomized trials, it appears prudent for all adults to take vitamin supplements. ... Physicians should make specific efforts to learn about their patients' use of vitamins to ensure that they are taking vitamins they should,...." Fletcher RH, Fairfield KM. Department of Ambulatory Care and Prevention, Harvard Medical School. Vitamins for chronic disease prevention in adults: clinical applications. *JAMA*. 2002 Jun 19;287(23):3127-9



4. "RESULTS: Thirty-two GI fellows completed the needs assessment. Cronbach alpha of the needs assessment instrument was 0.72, indicating satisfactory internal consistency reliability. GI fellows perceived themselves to have the least knowledge in obesity and micro/macronutrients. They indicated a perceived greater knowledge base in nutrition assessment. The mean total test score was 50.04% (SD=7.84%). Fellows had the highest score in the subscale of nutrition assessment (80.64%; SD=19.05%), which was significantly higher than scores obtained in nutrition support (49.45%; SD=11.98%;  $P<0.05$ ), micro/macronutrients (37.84%; SD=16.94%;  $P<0.05$ ), obesity (40.11%; SD=20.00%;  $P<0.05$ ), and nutrition in GI diseases (65.05%; SD=22.09%;  $P<0.05$ ). A backward linear regression including hours of nutrition education received during GI fellowship, hours of nutrition education received during medical school, and year of GI fellowship accounted for 22.7% of the variance in test performance (multiple  $R=0.477$ ). CONCLUSIONS: Gastroenterology fellows think their knowledge of nutrition is suboptimal; objective evaluation of nutrition knowledge in this cohort confirmed this belief. A formal component of nutrition education could be developed in the context of GI fellowship education and continuing medical education as necessary." Raman M, Violato C, Coderre S. Department of Medicine, Faculty of Medicine, University of Calgary, Calgary, AB, Canada. How much do gastroenterology fellows know about nutrition? *J Clin Gastroenterol*. 2009 Jul;43(6):559-64

**Additional details:** Questions and answers related to objectives and our addressing educational/practice gaps

What has changed in the practice of medicine over the past year which would merit educational interventions to focus on that issue?

1. Day 1—Introduction and Focus on Disorders of Systemic Inflammation and Chronic Pain: Disorders of systemic inflammation and chronic pain comprise a large part of today's clinical practice, and many of these conditions are associated with suboptimal outcomes under pharmacologic management; an excellent example of this is the low remission rate—approximately 10 % over 2 years—for specialist-managed rheumatoid arthritis: Sustained rheumatoid arthritis remission is uncommon in clinical practice. *Arthritis Research & Therapy* 2012 <http://arthritis-research.com/content/14/2/R68> Relatedly, allergic and autoimmune disorders are showing increased prevalence—along with obesity and cardiometabolic disorders and insulin resistance—despite increased use of medical/drug therapies. As an additional example, pharmacologic management of “Fibromyalgia Just as Likely to Harm as Help, Review Finds: Feb. 21, 2013 — Among fibromyalgia patients taking either of two commonly prescribed drugs to reduce pain, 22 percent report substantial improvement while 21 percent had to quit the regimen due to unpleasant side effects, according to a new review in The Cochrane Library.” <http://www.sciencedaily.com/releases/2013/02/130221104155.htm>
2. Day 2—Introduction and Focus on The Role of Diet, Lifestyle, and Nutrition in Brain Health and Associated Clinical Conditions: Most physicians have never received training on the interconnections between diet/lifestyle/nutrition on the health of the brain-mind and the clinical relevance for the evaluation and treatment of disorders of thought (eg, ADD/ADHD<sup>1,2</sup>, psychosis<sup>3</sup>), mood (eg, depression, anxiety<sup>4</sup>), and chronic neurologic diseases (eg, Alzheimer's and Parkinson's diseases).<sup>5</sup> As with all of our evidence-based presentations, abundant citations to clinical research will be coupled with practical clinical applications.
3. Day 3—Mitochondria and Mitochondrial Dysfunction in Disease and Clinical Medicine: Most physicians have never received training on the interconnections between mitochondrial dysfunction<sup>6</sup> and commonly-

<sup>1</sup> Cortese S, Angriman M, Lecendreux M, Konofal E. Iron and attention deficit/hyperactivity disorder: What is the empirical evidence so far? A systematic review of the literature. *Expert Rev Neurother*. 2012 Oct;12(10):1227-40

<sup>2</sup> Donfrancesco R, Parisi P, Vanacore N, Martines F, Sargentini V, Cortese S. Iron and ADHD: Time to Move Beyond Serum Ferritin Levels. *J Atten Disord*. 2013 May;17(4):347-57

<sup>3</sup> Jauhar S, Blackett A, Sreireddy P, McKenna PJ. Pernicious anaemia presenting as catatonia without signs of anaemia or macrocytosis. *Br J Psychiatry*. 2010 Sep;197(3):244-5

<sup>4</sup> Markus CR, Olivier B, Panhuysen GE, Van Der Gugten J, Alles MS, Tuiten A, Westenberg HG, Fekkes D, Koppeschaar HF, de Haan EE. The bovine protein alpha-lactalbumin increases the plasma ratio of tryptophan to the other large neutral amino acids, and in vulnerable subjects raises brain serotonin activity, reduces cortisol concentration, and improves mood under stress. *Am J Clin Nutr*. 2000 Jun;71(6):1536-44.

<sup>5</sup> Kidd PM. Neurodegeneration from mitochondrial insufficiency: nutrients, stem cells, growth factors, and prospects for brain rebuilding using integrative management. *Altern Med Rev*. 2005 Dec;10(4):268-93.

<sup>6</sup> Pieczenik SR, Neustadt J. Mitochondrial dysfunction and molecular pathways of disease. *Exp Mol Pathol*. 2007 Aug;83(1):84-92

encountered clinical disorders such as hypertension, diabetes mellitus type-2, Alzheimer's and Parkinson's diseases.<sup>7</sup>

4. Days 4-4.5—The Importance of Physician-Encouraged Diet and Lifestyle Modifications for the Prevention of Disease and Optimization of Health: The focus of this day is to review the science of proper diet and exercise recommendations for medical physicians. Most contemporary medical physicians received essentially zero training in nutrition (nor therapeutic exercise); however, current clinical science and biomedical research clearly document the important role of dietary and nutritional interventions (and exercise/lifestyle) in the prevention and co-management of many common diseases encountered in clinical practice. Therefore, our **2013 International Conference on Human Nutrition and Functional Medicine** seeks to advance the practice of clinical care by educating physicians on the scientific evidence-based use of select clinical nutrition facts and interventions appropriate for clinical use.

Have there been changes in practice suggesting there is a need for clinicians to improve their skills in order to perform better?

- Clinical outcomes for the conditions listed above are clearly suboptimal, even under combination pharmacologic therapy.

Is there breaking research that physicians will find interesting and medically relevant to the quality of care they provide for their patients? What are the educational strategies that will expedite the translation of the research to practice?

- Yes—absolutely. All speakers have been instructed to ensure that their presentations are ready for clinical application. Most of our presenters are clinicians who are intimately familiar with the judicious translation of current research into patient-appropriate decisions and therapeutic interventions.

Are there traditional core performance areas that are worth reinforcing and updating?

- Clinicians are often benefited from reminders about the components of patient management and risk reduction—these will be included in the initial and concluding presentations by Dr Vasquez.

What are the statistics and/or findings that indicate, or infer that there is a GAP between how clinicians diagnose or manage patient outcomes versus how they should diagnose or manage patient problems?

- Most practicing doctors these days are unaware of—for example—the role of mitochondrial dysfunction in human clinical disease and how to correct this pathophysiologic problem.

Have there been recent patient incidents concerning safety and efficacy that would merit iteration?

- Clinicians are often benefited from reminders about the components of patient management and risk reduction—these will be included in the initial and concluding presentations by Dr Vasquez.

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<sup>7</sup> Vasquez A. *Mitochondrial Nutrition*. In press.

**Additional details:** *Specific plans for addressing educational/practice gaps*

Current Practice	Best Practice	The Resulting Gap
Drug-only management of disorders of “chronic inflammation”	Evidence-based use of pharmacologic, antimicrobial, hormonal and dietary/nutritional interventions	Clinicians need to be updated regarding current research supporting the use of antimicrobial, hormonal and dietary/nutritional interventions in the treatment of disorders of “chronic inflammation”
Most physicians have no training in clinical nutrition and they therefore lack an appreciation of the role of nutrition in mental/emotional health and the prevention of neurodegenerative diseases.	Clinical trials and validated case reports from the peer-reviewed scientific research validate the physician-supervised use of dietary and nutritional interventions in the treatment/alleviation of many neurologic/psychiatric disorders.	Clinicians need to learn the appropriate clinical assessments, laboratory evaluations, and therapeutic interventions for neurologic/psychiatric disorders that have an immunologic/metabolic/nutritional that is likely to respond to dietary, nutritional intervention or co-management with medications.
Mitochondrial dysfunction—although common in clinical practice—is rarely assessed and treated by practicing clinicians.	Current research clearly illuminates the importance of mitochondrial dysfunction in the genesis and perpetuation of many common chronic disorders: “A wide range of seemingly unrelated disorders, such as schizophrenia, bipolar disease, dementia, Alzheimer's disease, epilepsy, migraine headaches, strokes, neuropathic pain, Parkinson's disease, ataxia, transient ischemic attack, cardiomyopathy, coronary artery disease, chronic fatigue syndrome, fibromyalgia, retinitis pigmentosa, diabetes, hepatitis C, and primary biliary cirrhosis, have underlying pathophysiological mechanisms in common, namely reactive oxygen species (ROS) production, the accumulation of mitochondrial DNA (mtDNA) damage, resulting in mitochondrial dysfunction. Antioxidant therapies hold promise for improving mitochondrial performance.” <sup>8</sup>	Clinicians need to learn the appropriate clinical assessments, laboratory evaluations, and therapeutic interventions for disorders of mitochondrial function and their resulting/associated clinical sequela—clinicians will learn the causes, consequences, assessments and treatments for mitochondrial dysfunction.
That most physicians receive no training in medical school nor in internship/residency training is well documented.	Clinical trials have delineated the effectiveness of skilled supervised dietary intervention for a wide range of conditions, notably rheumatoid arthritis, hypertension and cardiometabolic syndrome.	Clinicians will receive expert-level instruction on current dietary interventions to make these diet-lifestyle interventions accessible and palatable for the patients who will benefit. Appropriate laboratory evaluation and follow-up will be included in the discussion, as well as drug-nutrient interactions.

<sup>8</sup> Pieczenik SR, Neustadt J. Mitochondrial dysfunction and molecular pathways of disease. *Exp Mol Pathol*. 2007 Aug;83:84-92.



Source for Current or Best Practice or Desirable Attribute	Key points from the source	Location of the source (e.g., file name, URL, publication name and date)
<p><u>Peer-reviewed research:</u> Clinical review</p>	<p>Nutrient-dense diets are the most appropriate for genotropic physiologic compatibility and disease prevention</p>	<p><a href="http://www.ncbi.nlm.nih.gov/pubmed/14708953">http://www.ncbi.nlm.nih.gov/pubmed/14708953</a>  <a href="http://ajcn.nutrition.org/content/72/6/1589.long">http://ajcn.nutrition.org/content/72/6/1589.long</a>  <a href="http://www.nature.com/ejcn/journal/v56/n1s/pdf/1601353a.pdf">http://www.nature.com/ejcn/journal/v56/n1s/pdf/1601353a.pdf</a>  <a href="http://ajcn.nutrition.org/content/81/2/341.full.pdf">http://ajcn.nutrition.org/content/81/2/341.full.pdf</a></p>
<p><u>Peer-reviewed research:</u> benefit and mechanism of diet intervention in inflammatory diseases</p>	<p>Dietary and therapeutic interventions that alter microbial activity in the gastrointestinal tract lead to a clinically significant anti-inflammatory benefit that can augment anti-inflammatory drug efficacy.</p>	<p><a href="http://www.ncbi.nlm.nih.gov/pubmed/10479237">http://www.ncbi.nlm.nih.gov/pubmed/10479237</a>  <a href="http://www.ncbi.nlm.nih.gov/pubmed/8019792">http://www.ncbi.nlm.nih.gov/pubmed/8019792</a>  <a href="http://rheumatology.oxfordjournals.org/content/36/1/64.full.pdf">http://rheumatology.oxfordjournals.org/content/36/1/64.full.pdf</a></p>
<p><u>Peer-reviewed research:</u> clinical review</p>	<p>A wide range of disorders, such as dementia, Alzheimer's disease, epilepsy, migraine headaches, Parkinson's disease, ataxia, cardiomyopathy, coronary artery disease, chronic fatigue syndrome, fibromyalgia, retinitis pigmentosa, and diabetes have underlying pathophysiological mechanisms in common, namely reactive oxygen species (ROS) production, the accumulation of mitochondrial DNA (mtDNA) damage, resulting in mitochondrial dysfunction. Antioxidant/nutritional and diet/lifestyle therapies hold promise for improving mitochondrial performance and alleviating the burden of associated diseases.</p>	<p>Pieczenik SR, Neustadt J. Mitochondrial dysfunction and molecular pathways of disease. <i>Exp Mol Pathol.</i> 2007 Aug;83(1):84-92  <a href="http://www.ncbi.nlm.nih.gov/pubmed/?term=16366737">http://www.ncbi.nlm.nih.gov/pubmed/?term=16366737</a></p> <p>Many additional citations available.</p>

**Additional details:** *addressing barriers to improved care*

Identified System Barrier	Strategy to Address or Remove the Identified Barrier
Formulary restrictions	<ul style="list-style-type: none"> <li>The possibility exists for clinicians to request additions/exceptions to their organization's formulary; firstly, clinicians will have to be educated about the benefits of the additional therapeutics for which this may apply.</li> </ul>
Time not allotted for implementation of new skills	<ul style="list-style-type: none"> <li>We are all aware that physicians and other clinicians commonly work in time-pressured environments with overbooked schedules; here again, our presenters are encouraged to condense their information with an emphasis on efficient and expedient clinical application.</li> </ul>
Lack of resources	<ul style="list-style-type: none"> <li>Often, for patient-sustained interventions to be maintained, physicians have to coach them on appropriate spending, time, and resource allocation to ensure that funds/time are appropriately utilized for health-enhancing activities and services/products.</li> </ul>
Insurance doesn't reimburse for treatments	<ul style="list-style-type: none"> <li>Often, for patient-sustained interventions to be maintained, physicians have to coach them on appropriate spending, time, and resource allocation to ensure that funds/time are appropriately utilized for health-enhancing activities and services/products.</li> </ul>
Organization doesn't support educational efforts	<ul style="list-style-type: none"> <li>Our program is very reasonably priced to make it accessible for the broadest-possible audience.</li> </ul>
Policy issues within organization	<ul style="list-style-type: none"> <li>If science has merit within the organization, our attendees will be supported by clinically-applicable science in order to modify and update organizational policies to reflect the consistent updates in "best practices"</li> </ul>
Behaviors—clinicians	<ul style="list-style-type: none"> <li>Clinicians will be shown how to implement new clinical interventions in a way that is consistent with practicing the best possible healthcare</li> </ul>
Behaviors—patients	<ul style="list-style-type: none"> <li>Clinicians will be shown how to motivate and maintain patient compliance, in part by utilizing the stages of change model by Prochaska et al: <ul style="list-style-type: none"> <li><a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2900512/">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2900512/</a></li> </ul> </li> </ul>

**Additional details:** *addressing learning objectives*

IDENTIFIED GAP WHAT ARE THE LEARNERS' NEEDS?	BEST PRACTICE/DESIRED RESULTS WHAT YOU WANT LEARNERS TO DO	CONTENT FOCUS LEARNING OBJECTIVES
Need to appreciate the modifiable factors that perpetuate chronic pain and inflammation.	Integrate knowledge about modifiable factors contributing to chronic pain and inflammation into modern treatment protocols; appreciate the utilization of pharmaceutical drugs in association with dietary and nutritional interventions to optimize outcomes and minimize risk of disease and adverse drug effects	<ul style="list-style-type: none"> <li>♦ Appreciate that inflammation is a “common theme” among various metabolic, allergic, and autoimmune disorders such as—respectively—diabetes, asthma/eczema, and psoriatic/rheumatoid arthritis.</li> <li>♦ Be able to recite the main factors that contribute to and sustain various inflammatory diseases.</li> <li>♦ Know appropriate clinical, laboratory, and therapeutic interventions for each of the main factors relevant to the treatment of disorders of chronic pain and inflammation.</li> </ul>
Appreciate the role of diet and nutrition (such as food allergy and subclinical nutritional deficiency) in the pathoetiology of disorders of the mind (eg, mood, depression, anxiety) and nervous system (dementia, neurodegenerative diseases, case reports of traumatic brain injury).	Clinicians will be given the necessary information to gain an appreciation of the role of diet/nutrition/(dys)metabolism in the genesis of mood/brain disorders; thereafter clinicians will be taught how to use appropriate clinical assessments and therapeutic interventions.	<ul style="list-style-type: none"> <li>♦ Be able to discuss/recite/explain the role of nutritional and associated metabolic factors that affect neurocognitive health and function.</li> <li>♦ Provide 4 specific examples of nutrient-neuron or “nutrition and the brain” pathoetiologic associations along with the specific clinical assessments, laboratory evaluations, and therapeutic interventions. Know the risk and benefit of each treatment and the consequences of nontreatment.</li> </ul>
Clinicians must appreciate the role of mitochondrial dysfunction in the common clinical conditions encountered in general and specialty practice.	Clinicians must appreciate the role of mitochondrial dysfunction in the common clinical conditions encountered in general and specialty practice; this understanding must be coupled with the knowledge of proper clinical assessments and interventions.	<ul style="list-style-type: none"> <li>♦ Clinicians must demonstrate the ability to recall the clinical conditions that have a strong component of mitochondrial dysfunction.</li> <li>♦ Clinicians must demonstrate appropriate selection of in-office and laboratory/imaging/biopsy studies to evaluate mitochondrial dysfunction.</li> <li>♦ Clinicians must recall and recite from memory at least 5 safe and effective interventions used in the correction of mitochondrial dysfunction.</li> </ul>
Most medical physicians have no training in nutrition other than the basic appreciation of index nutritional deficiency diseases, such as scurvy/ascorbate, rickets/cholecalciferol, cardiomyopathy/thiamine. Clinicians need to know about the use of diet and nutritional therapy in	Learners will demonstrate recall of the key points reviewed in the dietary science presentations.	<ul style="list-style-type: none"> <li>♦ Learners will demonstrate recall of the diet interventions most appropriate for the following conditions: <ul style="list-style-type: none"> <li>○ Hypertension</li> <li>○ Diabetes mellitus type-2 and insulin resistance and cardiometabolic syndrome,</li> <li>○ Fibromyalgia, Irritable Bowel Syndrome</li> <li>○ Migraine headaches</li> <li>○ Obesity</li> <li>○ Appropriate modifications for patients in renal failure</li> </ul> </li> </ul>



contemporary clinical practice.		<ul style="list-style-type: none"> <li>♦ Learners will demonstrate recall of the five means by which renal function is assessed for the determination of proper drug and dietary interventions.</li> <li>♦ Learners will demonstrate recall of specific nutritional interventions that can be safely/unsafely used with pharmacologic treatment in the management and comanagement of the following conditions: <ul style="list-style-type: none"> <li>○ Hypertension</li> <li>○ Diabetes mellitus type-2 and insulin resistance and cardiometabolic syndrome,</li> <li>○ Fibromyalgia, Irritable Bowel Syndrome</li> <li>○ Migraine headaches</li> <li>○ Obesity</li> <li>○ Appropriate modifications for patients in renal failure</li> </ul> </li> </ul>
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### **Activity Overview:**

1. Education and Information Evaluation and Appraisal: To describe and define recent important and consensus-approaching advances in basic science and clinical trials research related to topics of nutrition, molecular biology, and metabolism that are appropriate for translation into clinical practice.
2. Application and Utilization: To demonstrate and exemplify the actual clinical applications of new research and evidence so that physicians can apply this data to clinical practice and patient utilization and treatment compliance.
3. Measurement and Assessment: Attendees will be asked to engage in on-site and on-line pre-conference knowledge and post-conference changes in knowledge and clinical behavior.
4. Expected health care outcome of this activity: Our purpose and goals include improved patient care for conditions addressed in the conference, particularly overweight/obesity, diabetes mellitus, hypertension, select brain and mood disorders, migraine and fibromyalgia. We will measure attendees' knowledge before the event and after the event to quantify and qualify informational advances as well as clinical applicability for patient treatment.

### **Attendance costs and changes/updates:**

- Cost: Due to low overhead and infrastructure donations, we are able to provide this world-class conference to a broad audience at a lower-than-expected cost.
  - Early on-line registration—675 if registered on-line before September 15.
  - Within 10 days of the event (after Sept 15) or On-site event registration: 875 with no guarantee of availability of seats or notes.
- Link to registration: <http://www.intjhumnutrfunctmed.org/events/registration2013Portland.html>
- Changes/additions/updates: Any changes will be reflected in an updated version of this document as well as announced on the website and—perhaps as well—on our Facebook page. In light of the possibility of change—including from mundane and unpredictable events such as faculty illness, missed/canceled flights, etc—we will make every reasonable accommodation to ensure the continuity and quality of the event. However, the presenters and organizers cannot be held responsible for random events in the universe; the overall quality of the event will be maintained even if changes to the schedule must occur.

# 2013 INTERNATIONAL CONFERENCE ON HUMAN NUTRITION AND FUNCTIONAL MEDICINE

PORTLAND OREGON CONVENTION CENTER • SEPTEMBER 25-29, 2013



WEDNESDAY 8am start: Speakers and Details		CE Hours
• 8-9am: Drs Bland, Minich, and Vasquez—nonCME: Functional Medicine: From Concept to Academic Discipline and Accredited Graduate-level New Branch of Science—Recognizing the Creation of a New Branch of Science by Jeffrey Bland, Announcement and Award for Scholarship and Innovation		0
• 9-10:15: Vasquez—75-minute: Understanding Functional Medicine, Clinical Nutrition: Applying the “Functional Inflammolgy” protocol to the Prevention and Treatment of the 3 Main Categories of Inflammatory Diseases: Metabolic, Allergic, and Autoimmune		1.25
20-30-minute break for rest and vendor visitation		0
• 10:45-12:15 Vasquez—90-minute: Understanding Functional Medicine, Clinical Nutrition: Applying the “Functional Inflammolgy” protocol to the Prevention and Treatment of the 3 Main Categories of Inflammatory Diseases: Metabolic, Allergic, and Autoimmune		1.5
Lunch on your own—approximately 12:15 – 1:45		0
• 1:45 start, 55-minute lecture with brief break during transition: Weiss—Integrative Pharmacology: Integrative Pharmacology—Using Drugs within an Integrative Functional Clinical Medicine Protocol for Hypertension		1
• 2:35 start, 55-minute lecture with brief break during transition: Cintron—Integrative Pharmacology: Essential Pharmacology—Using Drugs within an Integrative Functional Medicine Protocol for painful arthritis: OA and RA		1
3:25-3:45: 20-minute break for rest and vendor visitation		0
• 3:45 start, 55-minute lecture with brief break during transition: Cintron—Integrative Pharmacology: Using Drugs within an Integrative Functional Medicine Protocol for Fibromyalgia		1
• 4:45 start, 55-minute lecture with brief break during transition: Vasquez—Integrative Pharmacology: Antirheumatic Use of Antimicrobial Drugs and Neuroendocrine Interventions in the Treatment of Autoimmunity		1
		6.75

<i>Thursday 8am start: Speakers and Details</i>		<i>CE Hours</i>
• <u>8-9am: 55-minutes: Minich: Brain Nourishment: From Food to Meditation:</u> When it comes to brain health, there are many aspects of nourishment to consider to keep this remarkable organ plastic and flexible, able to withstand the changes associated with inflammation present in aging.		1
• <u>9-10:25am: 85-minutes: Haase: Functional Clinical Approach to Assessing Brain Health:</u> In this hour presentation we will demonstrate this methodology and how it may be implemented in a functional medicine practice.	1.5	1.5
<i>Break—20 minutes</i>		0
• <u>10:45-12:10pm: 85-minutes: Minich: Research review of Lifestyle/exercise and (phyto)nutrients for brain health, memory, and treatment and prevention of memory loss and Alzheimer's disease (aka, Type-3 Diabetes):</u>	1.5	1.5
<i>Lunch on your own for approximately 80 minutes</i>		0
• <u>1:30-2:55pm 85 minutes: Haase: Nutritional Interventions that measurably Effect the Brain:</u>	1.5	1.5
<i>Short break 15 minutes</i>		0
• <u>3:10-4:25pm: 75-minutes OBryan: Dr Obryan will discuss the role of gluten sensitivity and (non)celiac “wheat allergy” in neurologic dysfunction, gluten ataxia and conditions that mimic multiple sclerosis. Diagnosis and treatment will be reviewed.</u>	1.25	1.25
<i>Short break: 20 minutes</i>		0
• <u>4:45-5:40pm: 55 minutes: Vasquez: Using Peer-Reviewed Research to Optimize Brain Function using Nutrition—What All Clinicians Need to Know</u>	1	1
		7.75

<i>Friday Morning Topics 8am start: Speakers and Details</i>		<i>CE hours</i>
• <u>8-8:55am: 55 minutes: Hirschey: Mitochondria, Mild Stress: A new prescription for living healthier and longer</u>		1
• <u>9:9:55am: 55 minutes: Gonzalez: Diet, Mitochondrial Nutrition, and Risk Reduction for Cancer and Chronic Illness</u>		1
<i>25-minute break for rest and vendor visitation</i>		0
• <u>10:20am-11:50am: 85 minutes: Nicolson: The Role of Multiple Chronic Infections in Mitochondrial Dysfunction and the Importance of Combined Antimicrobial Therapy And Nutritional Interventions</u>		1
<i>Optional Lunch (\$45) with Jeffrey Smith on the Science and Politics of GMO foods</i>		1.5
• <u>1:30-2:25pm: 55 minutes: Hirschey: Mitochondria and Metabolites: Relevance for Diabetes, Obesity, and Cancer</u>		1
• <u>3:30pm: 55minutes: Gonzalez: New Paradigms in Cancer: Mitochondrial Oncology, The Bio-Energetic Theory of Carcinogenesis and Mitochondrial Correction</u>		1
<i>3:25-3:45: 20-minute break for rest and vendor visitation</i>		0
• <u>4:30: 55 minutes: Vasquez: Mitochondrial nutrition protocol: How to make your mitochondria work better for a longer and healthier life</u>		1
• <u>25 minutes Q and A</u>		.5
		8



Saturday: Sept 28	CE
<i>Morning</i>	
8-9: <u>Cordain</u> : Origins and evolution of the western diet: health implications for the 21st century	1
9-10: <u>Cordain</u> : Lifestyle and Clinical Applications: Implementing the Paleo Diet	1
<i>Break</i>	0
10-11: <u>Fontes</u> : Evidence-Based Nutrition: Are evolutionary and historical data relevant for clinical practice, and if so (or not) how, why, and what should doctors tell patients?	1
11-12: <u>Okeefe</u> : Modulation of Health and Disease with Diet, Exercise, Lifestyle Choices	1
12-1230: Q and A with Audience: All present	.5
<i>Lunch off-site 1230-2pm/ afternoon</i>	0
2-3: <u>Bastos</u> : Dairy and grains and the connection via inflammation and microbes to insulin resistance and diabetes	1
3-4: <u>Frassetto</u> : Diet-Induced Metabolic Acidosis: How relevant is it, what are the mechanisms, and how do we assess it?	1
4-5: <u>Frassetto</u> : Diet-Induced Metabolic Acidosis: Relevance to Osteoporosis, CardioMetabolic Syndrome, Chronic Pain, ...Depression and Addiction	1
5-530: Q and A with Audience: All present	.5
	8

Sunday: Sept 29	CE
<i>Morning</i>	
8-9: <u>Bastos</u> : Dairy, grains, insulin, and Cancer: From meals to MTOR signaling to Malignancy	1
9-10: <u>Fontes</u> : Satiation vs Inflammation: Food, the Metabolic Syndrome and Diabetes/Obesity: Focus on Glucagon and Adipokines in Insulin Resistance	1
<i>Break</i>	0
10-11: <u>Okeefe</u> : Adverse Cardiovascular and Health Effects of Excess Exercise	1
11-12:30 <u>Vasquez</u> : Functional Medicine for Diabetes, Obesity, Hypertension and the CardioMetabolic Syndrome: Combining Research and Clinical Experience into the "Functional Inflammation Protocol"	1.5
1230 - 1: Q and A with Audience: All present	.5
	5