APPETITE FOR LIFE
SoundBites

UNC-CHAPEL HILL Nutrition Research Institute KANNAPOLIS

exploring nutritional individuality • www.uncnri.org

Harris Teeter, The Dickson Foundation establish first Professorship at NRI

Gift Creates $1 Million Endowment Fund

When Charlotte, N.C. native Alan T. Dickson first visited the UNC NRI during the winter of 2010, it didn't take him long to decide he wanted to be actively involved. After a few hours of exploring laboratories and discussing our bold vision with Director Steven H. Zeisel, M.D., Ph.D., he accepted an invitation to serve on the NRI's accomplished Board of Advisors.

Alan T. Dickson and Steven Zeisel, M.D., Ph.D., shake hands on the balcony of UNC Nutrition Research Building in Kannapolis.

Just a few months later, Dickson took a particular interest in the Institute's faculty recruitment efforts. "One of the greatest challenges in building a world class center, particularly one that is located two hours from its 'traditional' campus, is creating intellectual capital," Zeisel said. "Yet we know the strength and ultimate success of the center rests in our ability to recruit the best scientists." Dickson agreed to spearhead a board effort to generate five privately funded, endowed distinguished professorships to help the NRI attract great scientific minds.

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As this issue of SoundBites was going to press, Mr. Dickson lost a hard-fought battle with cancer. We extend our deepest sympathies to his family and honor his tremendous impact on the NRI. He will be greatly missed.

INSIDE THIS ISSUE Spring 2012

ABOUT THE NRI

The University of North Carolina at Chapel Hill's Nutrition Research Institute has a bold mission: to develop the field of individualized nutrition. As we unravel why people have different metabolism and nutrient requirements, we are able to discover nutrition-based solutions to overcome some of our greatest health challenges.

UNC NUTRITION RESEARCH INSTITUTE

NRI DIRECTOR

FROM THE DESK OF STEVEN ZEISEL, M.D., PH.D.

The past several months have been exciting around the NRI, filled with growth and activity. We have steadily been increasing our faculty and research teams, enabling more working labs.

With this growing group of professionals, the NRI is earning an increasing number of research grants, allowing even more new investigations to begin. For example, the NRI recently brought in its largest grant to date: Dr. Philip May earned an $8.9 million grant to examine fetal alcohol syndrome disorders (FASD). As another significant milestone, we received a pledge to create our very first endowed professorship, The Dickson Foundation-Harris Teeter Distinguished Professorship in Nutrition. **And we are proud to announce that The Bill and Melinda Gates Foundation has awarded the NRI a grant to study choline and brain development.** In addition to earning grants, the NRI was busy publishing research in 14 scientific journals. Dr. Oz even recognized us as a leader in the field of individualized nutrition in the September 12, 2011 issue of Time Magazine:

> **"The University of North Carolina Nutrition Research Institute is a leader in the growing field of individualized nutrition, studying what's known as nutrigenomics: the link between genes and diet. The science is a comparatively new one, but the early reports are tantalizing."**
>
> **– OZ MEHMENT. "THE OZ DIET." TIME 12 SEPT. 2011: 48-58.**

Your support made this amazing progress possible. We appreciate that you share a belief in our bold mission: to develop nutrition-based solutions designed to solve some of our greatest health challenges and, most importantly, to put these solutions into practice.

I look forward to your ongoing support. To help us ensure that NRI resources keep pace with our growth, please consider a gift to the NRI. Complete the enclosed envelope or make a gift online (www.uncnri.org/MakeAGift.asp) to help make a difference – not only for our research teams but also the health of future generations. We appreciate your support, and your consideration of this request.

[*Continued from cover*]

And he kicked it off by making the first pledge—a joint gift of $666,000 from the Dickson Foundation and Harris Teeter, a subsidiary of Ruddick Corporation, which Dickson and his brother, Stuart, built into one of North Carolina's leading firms. The gift will be matched with $334,000 from the North Carolina Distinguished Professors Endowment Trust to create a $1,000,000 endowment fund. This generous gift will create the NRI's very first endowed distinguished professorship, The Dickson Foundation-Harris Teeter Distinguished Professorship in Nutrition. Once fully endowed, this professorship will generate an annual disbursement to support a designated NRI faculty member and foster scientific discovery.

"We are pleased to make this gift to the NRI. It makes sense for Harris Teeter to take a leading role in developing the future of nutrition, and we believe in the NRI's mission of customizing diet recommendations specific to an individual, in an effort to optimize wellness," Dickson said. "With this gift, we are making an investment in the future health of people in Charlotte, across North Carolina, and around the world. At the same time, we are building a new economic engine for the Charlotte region."

Dickson, a former chairman of the board at Ruddick Corporation, is a highly regarded business and community leader. Both Alan and his wife Mary Anne have been stalwart supporters of UNC for many years, and this is the latest demonstration of their commitment to the University's mission to not only serve its students, but also the state of North Carolina, the nation and the world. He was a trustee of The Morehead Foundation for 42 years and served as chairman for 21 years until retirement. He has received numerous awards, including the prestigious William Richardson Davie Award in 2006 from the UNC Board of Trustees, its highest honor, in recognition of his extraordinary service to the University. Mary Anne heads the Carolina Women's Leadership Council, committed to supporting the University and the educational experiences of students.

The Dickson Foundation-Harris Teeter Distinguished Professorship in Nutrition is an essential cornerstone for the NRI. An endowed chair is a widely recognized measure of respect and achievement that also supports the research of the faculty recipient.

"This is a transformative gift for the NRI, an important historical landmark in our development," Zeisel said. "Alan Dickson is a true pioneer, and we are proud to have him with us at the helm of economic development and scientific innovation. We hope that others will follow his lead, take a personal interest in our work and help us become the world's leading center for nutrition science research."

Dr. Philip May earns $8.9M grant to unravel Fetal Alcohol Spectrum Disorders (FASD)

Dr. Philip May and two study participants in the Western Cape Province of South Africa.

- Grant allows Dr. May to examine prevalence and characteristics of FASD in the United States.
- Grant is largest in NRI's history.
- Awarded grant by the National Institute of Health's National Institute on Alcohol Abuse and Alcoholism.
- Funds support May's extensive research on individual nutrient risk factors related to alcoholism during pregnancy.
- Symptoms of FASD are typically evident late in childhood, making early diagnosis and tracking difficult.
- Dr. May uses grant to study first graders across the United States to develop an earlier diagnosis method. North Carolina schools step up to participate.

  Steven Zeisel, M.D., Ph.D. and NRI Director, elaborates, "The overarching objective of the NRI is to advance the field of individualized nutrition, as opposed to a one-size-fits-all approach. This requires attention to genetic, metabolomic and epigenetic variations among people. Dr. May's investigation of the severity and prevalence of fetal alcohol syndrome disorders suggests that there is great variation in cognitive outcomes in children affected with this disorder. Using the NRI's advances in nutrigenomics and metabolomics, Dr. May hopes to gain a better understanding of this variation, which in turn should assist with identification of risk factors and prevention."

You Can Participate

Does overeating slow your metabolism?

While it is long accepted that overeating can lead to weight gain, there are no solid facts around the role of metabolism in this equation. Dr. Andrew Swick, NRI Associate Professor and Director of Obesity and Eating Disorders Research, has recently earned a research grant from the Nutrition Obesity Research Center to analyze the effects of overeating on metabolism.

In this new research, Dr. Swick hopes to discover indicators in the body that will help identify people at risk of becoming overweight in the future. Ultimately, the discoveries from this study will help address the global increase in obesity and its negative associations, such as heart disease, diabetes, and certain cancers. The NRI's metabolic chamber, the most sophisticated tool available to measure calorie usage to highest accuracy, will be used to conduct research critical to this study.

Cheatham Lab conducts B.E.R.R.Y. Study: Blueberries, Exciting Research Relevant To You

Blueberries are high in anthocyanins, antioxidants associated with memory function. To analyze impact on memory, Dr. Carol Cheatham, Assistant Professor, developed a new blueberry study. This study is designed to track the effect of blueberries on people's cognitive abilities and memory. As part of this study, Cheatham's team will collaborate with the NC State University Plants for Human Health Institute.

If you are interested in opportunities to participate in UNC NRI studies like these, join our mailing list online at www.uncnri.org/moreinfo_form.asp

UNC NRI
Appetite for Life
SEMINAR SERIES

Carolinas Medical Center NorthEast

Dole

Special thanks to lead sponsor, Carolinas Medical Center – NorthEast. Dole Foods also sponsored refreshments, which were enjoyed by attendees. As a new feature, tasting stations let participants try healthy snacks from Augusta's Creations, EarthFare, Harris Teeter and Polka Dot Bake Shop.

SoundBites from the 2012 Appetite for Life Academy:

Dr. Steven Zeisel "Diet and the Risk of Cancer"

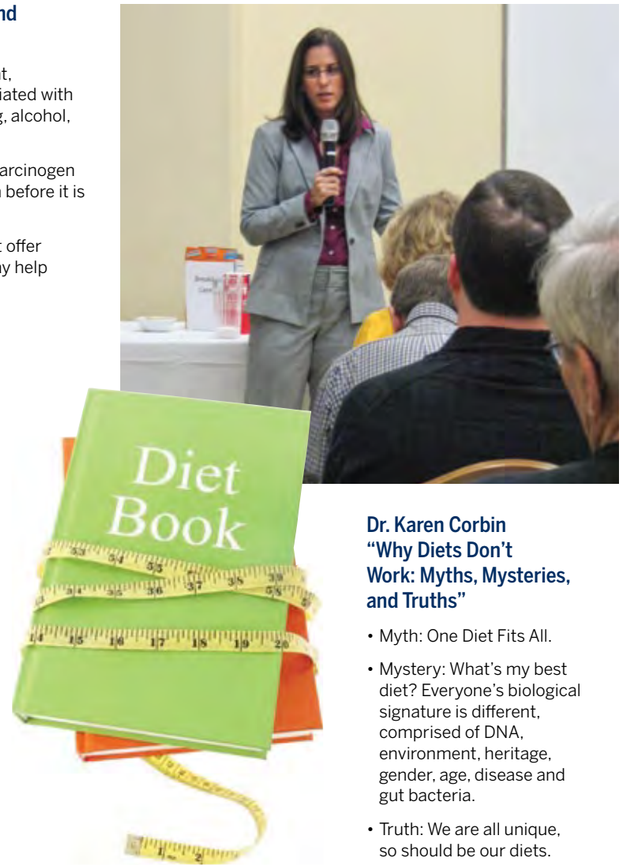
- Diet is the most significant, contributory factor associated with cancer (ahead of smoking, alcohol, family history).
- Fiber can help remove a carcinogen from the digestive system before it is significantly absorbed.
- Fruits and vegetables that offer protective substances may help prevent these cancers.

Dr. Melanie Spencer "Gut Microbes: A Trillion Tiny Friends for Life"

- Human beings are a biosystem, including 100 trillion microbes in each individual.
- Diet and nutrition are primary influencers on gut bacteria health.
- Nutrients like vitamin A modify microbes that guide immune response.

Dr. Philip May "The Prevalence of Fetal Alcohol Spectrum Disorders (FASD)"

- FASD are believed to affect 1% of the population, with up to 5% of children in the U.S. suffering from cognitive and behavioral problems caused by prenatal alcohol exposure.

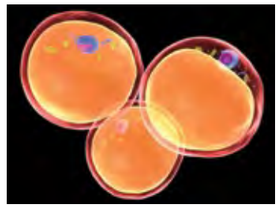


Dr. Karen Corbin "Why Diets Don't Work: Myths, Mysteries, and Truths"

- Myth: One Diet Fits All.
- Mystery: What's my best diet? Everyone's biological signature is different, comprised of DNA, environment, heritage, gender, age, disease and gut bacteria.
- Truth: We are all unique, so should be our diets.

Dr. Swick "It's Not Easy Being Lean"

- In the U.S., obesity is the leading cause of preventable death.
- Since 1980, obesity among children has almost tripled.
- Obesity has its own economic impact: estimated cost of obesity is up to $8,000/year/adult.
- Even modest weight loss improves metabolic profile and overall health.



(Above) Fat cells as seen under a microscope

Attendee feedback:

"Entertaining, fun and FULL OF INFO!"

"Interesting speaker, enthusiastic and real."

"PRACTICAL application to daily routine."

"DR. ZEISEL IS A VERY GOOD SPEAKER, and can relate info to everyone!"

"ENLIGHTENING!"

"Lots of EYE OPENING facts."

Thanks to all who attended the 2012 seminar series. Join us again next year – watch for details in early 2013.

/ StudentFocus /

THE GREAT FOOD EXPERIMENT:

4th Annual Kindergarten Science Expo – April 16-24

All Kannapolis City kindergarteners – over 450 students – enjoyed hands-on science experiments and learning opportunities. Presented by NRI staff and faculty, in partnership with the A.L. Brown High School Early Childhood Education Class.

NUTRIBRAIN SING-A-LONG:

Roger Day in Concert

The NRI's Cheatham Nutrition and Cognition Lab hosted an outdoor concert starring nationally acclaimed singer, song-writer, Roger Day. It was a day of healthy living combined with outdoor fun for a crowd of music fans.

NEW "THINK LAB" OPENS TO SUPPORT NRI INTERNS

STUDENTFOCUS

The Scholar's Cove, created by The Cannon Foundation, now open for interns

The Scholar's Cove, a state-of-the-art student area located on the first floor of the UNC NRI, was dedicated in a ribbon cutting ceremony on February 1, 2012. The Scholar's Cove was created with a $75,000 grant from The Cannon Foundation to support interning students at the NRI.

Designed to complement research laboratories, the students' "think lab" enables creativity, collaboration, and concentration. This new facility will help optimize the academic experience of students, increase their productivity, and cultivate their career goals.

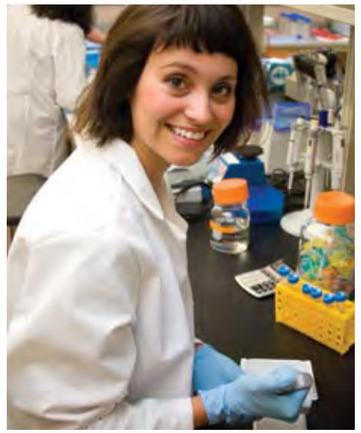
As a special feature, the Scholar's Cove is home to a unique history display, dedicated by the family of NRI employee, Ryan Dayvault.

Left to right: Ryan Dayvault, Bill and Ann Cannon, Kannapolis Mayor Bob Misenheimer, and Dr. Steven Zeisel, NRI Director.

Visitors enjoy a new history display of Kannapolis in Scholar's Cove.

ADDITIONS TO **OUR STAFF**

MEET THE PEOPLE BEHIND THE SCIENCE



Anna Louise O'Connor, Ph.D.,

recently relocated from Ireland to be an NRI Postdoctoral Research Associate, working directly with Dr. Andrew Swick, in the Obesity and Eating Disorders Research laboratory. In Dr. Swick's lab, Dr. O'Connor studies the role of the gut in body weight and metabolism and the regulation of energy metabolism.

by Katherine J. Moore, Volunteer Intern

How did you narrow your field of study to nutrition research?

Like many youth, I've always been interested in science and nutrition, and during my school years, I decided to study nutrition and dietetics. I went on to become a dietitian, and worked in a clinical setting. But I still wanted to explore more, so I returned to college and earned my Ph.D. It was during this graduate program that I understood more about research, and realized nutrition research was my calling. I would advise others who are considering a career in science to really leverage your school years as time to explore the options.

What brought you to the NRI?

In searching for interesting opportunities, the NRI rose to the top of my list. The Institute was impressive – it clearly was young, growing, and exciting, and I had a good feeling about it. Since I wanted to get experience abroad, I found an NRI job listing on "Nature Jobs," and simply applied online.

What are you working on at the NRI?

In Dr. Swick's lab, we are working on characterizing a new rat model of obesity, with the study targeted to begin in August 2012. We are all looking forward to the discoveries that will be made possible with this new model. I am also involved in an ongoing black pepper study where we explore the impact of this spice on metabolism.

What do you enjoy most about your work?

I like trying to piece everything together. I think about what could happen, read about the topic, and come up with experiments to see what goes on in the cell, or in the body. I also feel lucky that it's a varied job – you're reading, meeting people, working in the lab, or writing. There are a lot of different things that you do every day.

Is there a difference between working in the U.S. and your homeland of Ireland?

The perception [in Ireland] is that so much more is possible when you're doing research in America. Here, there's a lot more going on, and it's viewed as a kind of mecca of scientific research. This allows people here to be more enthusiastic about their research. And thanks to the variety of people and fields in America, collaboration possibilities, particularly in nutrition, have much more opportunity than other geographic locations.

The NRI welcomes Anna Louise O'Connor and appreciates her contributions.

North Carolina Research Campus Catalyst Group

NRI POST-DOCTORATES CREATE CAMPUS-WIDE CONTINUING-EDUCATION RESOURCE

The NRI's Corinne Zeller-Knuth, Ph.D. and Anna Louise O'Connor, Ph.D. lead the North Carolina Research Campus Catalyst Group. Its goal is to foster professional relationships and career development for rising scientists. The club hosted keynote speaker Dr. John Milner, Chief, Nutritional Science Research Group of the National Cancer Institute, National Institute of Health (NIH). Members are already enrolling in future learning opportunities, including grant writing and business ettiquette workshops.

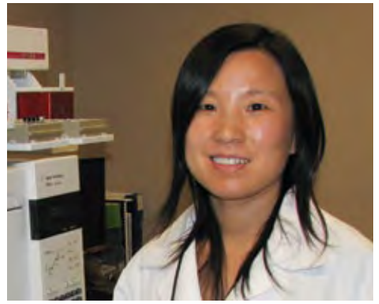
/ NEW Faculty /

BRIAN BENNETT, PH.D. joined NRI December 1, 2011 as Assistant Professor. Dr. Bennett:

- Investigates nutrigenomics, with a focus on heart disease prevention.
- Researches role of human diet and nutrition on heart disease and explores genetic components of chronic metabolic diseases, such as cardiovascular disease and obesity, using integrative genetic studies, called "systems genetics."
- Examines relationship among many types of data, such as genetic variants, gene expression levels and metabolite levels, and how these interact to increase susceptibility to cardiovascular disease.
- "Now at the NRI, I am excited to investigate how diet affects metabolic diseases and, in particular, gene expression."

KAREN CORBIN, PH.D., R.D. promoted to Research Assistant Professor, December 1, 2011. Dr. Corbin:

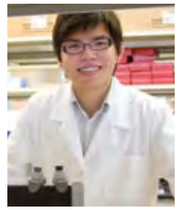
- Leads research in 1-carbon metabolism and energy metabolism.
- Focuses on role of nutritional and genetic components in obesity, fatty liver, and metabolic syndrome.
- Creates research initiatives designed to explore individual variations in chronic metabolic diseases.
- Strives to create ability to prescribe diets on individual basis, enabling medical community to leverage food as medicine.
- Named 2012 Grand Prize Winner of the American Society for Nutrition Postdoctoral Research Award Competition.



SHUCHA ZHANG, PH.D. joined NRI January 1, 2012 as Research Assistant Professor. Dr. Zhang:

- Studies emerging area of metabolomics in Zeisel lab.
- Leverages metabolomics for application opportunities including nutritional assessment, early disease diagnosis and more accurate prognosis. Plans to establish nutri-metabolomics platform that reliably measures selected metabolites in various biological samples, then expand scope of analysis to protein targets using proteomics technologies.
- "I enjoy developing multiplexed assays for targeted metabolite quantification in biological samples, such as blood plasma. With this analysis, I can measure selected metabolites, and ultimately measure the nutritional status of the human body."

/ NEW Post-doctorates, Lab & Support /



JODY ALBRIGHT Research Assistant, Bennett lab

SHEAU CHING CHAI, PH.D. Cheatham lab

TRACEY (FULI) HE Graduate Student, Niculescu lab

SARAH KING, PH.D. Zeisel lab

GRACE MILLSAP Study Recruiter, Cheatham lab

STEPHEN ORENA , M.S. Research Associate, Swick lab

CORINNE ZELLER-KNUTH, PH.D. Swick lab

JIE "JACKY" ZHU, PH.D. Kohlmeier lab

Zeisel Receives Grand Challenges Explorations Grant For Groundbreaking Research in Global Health and Development

The UNC NRI is home to a Grand Challenges Explorations winner, an initiative funded by the Bill & Melinda Gates Foundation. Steven H. Zeisel, M.D., Ph.D., Kenan Distinguished University Professor in Nutrition and Pediatrics and UNC NRI Director, will pursue an innovative global health and development research project, titled "Choline and Optimal Development."

"Grand Challenges Explorations encourages individuals worldwide to expand the pipeline of ideas where creative, unorthodox thinking is most urgently needed," said Dr. Chris Wilson, director of Global Health Discovery and Translational Sciences at the Bill & Melinda Gates Foundation. "We're excited to provide additional funding for select grantees so that they can continue to advance their idea towards global impact."

The proposed research on choline and brain development is a collaboration among Zeisel, Carol Cheatham, Ph.D., Assistant Professor of psychology in the UNC-Chapel Hill College of Arts and Sciences and at the NRI, and Andrew Prentice, Ph.D., scientific director of the Medical Research Council's Keneba field station in The Gambia, Africa.

The Grand Challenges Explorations grant will enable Zeisel and colleagues to design a diet intervention that can be implemented in The Gambia, where diet intake of choline, an essential nutrient, is less than half the recommended Adequate Intake.

First, investigators at the UNC institute will develop methods for testing infant memory. At the same time, the team will conduct studies to determine which of the SNPs, or genetic misspellings, in genes of choline metabolism are common in The Gambia.

These studies will enable Zeisel to design and implement an intervention that assures adequate intake of choline in a population in The Gambia and assess whether this enhances brain development.

Baby is wearing a net that is used at the NRI to test infant memory. *(Photo courtesy of Salisbury Post.)*

This Grand Challenges Explorations award provides an initial grant of $100,000. Successful projects have the opportunity to receive a follow-on grant of up to $1 million.

For more on this grant, visit uncNRI.org

SoundBites *is a publication brought to you by the UNC Nutrition Research Institute, and produced by Tivoli Partners, Inc.*

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