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Nutritional Sciences

Department Awards!

On March 22 the College of Agriculture & Life Sciences recognized the Outstanding Faculty and Staff in the Department of Nutritional Sciences at the Dean's Faculty/Staff Luncheon. Congratulations!



Cooperative Extension Faculty of the Year
Dr. Scottie Misner, Associate Specialist

Outstanding Staff in Cooperative Extension
Marilyn Overpeck, Accountant, Principal

Year-to-Year Appointed Professional Award for Excellence
Jennifer Reeves, Associate Research Scientist



New NSC Course

NSC 255: *Food and Culture* is a 3-unit online course approved for both the Nutrition Minor and Tier II INDV general education credit. The course will be offered for the first time during summer session II, 2013.

Food and Culture will give students the opportunity to learn about other cultures through their foods. The class provides a wonderful opportunity to experience unique foods, ingredients and customs while acquainting students with how the surrounding environment influences the tastes and flavors of a region. Sampling foods and exploring what different cultural markets have to offer will help bring these cultural flavors to life.

Faculty Honors



Dr. Wanda Howell was inducted into the Golden Key International Honour Society as an honorary member in fall 2012. Golden Key focuses on maintaining high academic standing, building leadership skills and performing community service. Dr. Howell was honored for her achievements in academia and dedication to the success of students and service to The University of Arizona.

Dr. Melanie Hingle was accepted this Spring into the Dannon Nutrition Leadership Institute. Members of the Dannon Nutrition Leadership Institute are accepted at an early stage in their career to help develop a network of professional peers, set and work toward professional goals, and develop the skills necessary to become a leader in the field of Nutritional Sciences.



Faculty Publications

Please visit <http://www.cals.arizona.edu/nutrition/content/new-publications> to view a list of recent faculty publications in peer reviewed journals.

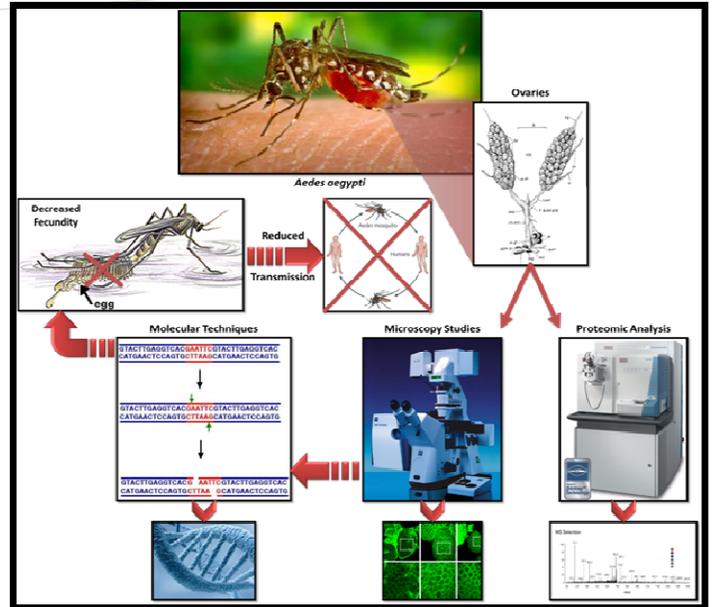


Research

Research Brief: Dr. Joy Winzerling & Dr. Dawn Geiser

Diseases transmitted by mosquitoes are estimated to kill more than 2 million people annually. One approach to limiting the spread of disease is to reduce the numbers of mosquito vectors. The vector for one of these diseases, *Aedes aegypti* (dengue), is the yellow fever mosquito and is found in the southwestern US. Our goal is to use molecular techniques to alter the expression of iron related proteins in mosquitoes, like the yellow fever mosquito, to reduce fecundity (reproductive ability) and survival.

Our hypothesis is that female mosquitoes require iron in the blood meal as an essential nutrient to aid in egg development. Although iron is necessary for fecundity, it is also highly toxic in biological systems unless associated with a molecule that can mitigate its oxidative potential. One such molecule is ferritin, the primary iron storage protein. We think different ferritin subunits play a crucial role in the transport of iron from the mosquito mid-gut to the ovaries, as well as storage of iron in the ovaries and eggs. We are currently analyzing tissue-specific, iron regulated proteins by proteomics of the mosquito ovary. Additionally, microscopy studies of the mosquito ovary have been initiated to observe and document iron storage patterns during oogenesis and to detect iron metabolic proteins directly involved in ovarian iron processing. This research will contribute to the understanding of mosquito development in general, as well as ovarian iron metabolism.



Student Wellness Advocacy Teams (SWAT)

The YMCA of Southern Arizona kicks off another year of partnering with the UA and Pima County to make Tucson a healthier community through the development of *Student Wellness Advocacy Teams (SWAT)*. Jennifer Reeves, Associate Research Scientist in the Department of Nutritional Sciences developed the program and is the Principal Investigator for the project. The goal is to fight youth obesity and decrease the risk of preventive diseases in children. The program is built on a peer to peer healthy living model where students are provided tools and resources to design their own healthy living programs within their schools to increase physical activity and good nutrition.



This year *Let's Move Y Families* will bring healthy SWAT principles into the homes of students where families are encouraged to take on healthy challenges like decreasing screen time and increasing physical activity as a family. *Let's Move Y Families* is a grant received by the YMCA of Southern Arizona and the UA Department of Nutritional Sciences to expand school-wide health-promoting activities to reach students and their families using innovative technology. Five 4-6 week wellness challenges called Five Star Family Challenges are patterned after Michelle Obama's *Let's Move Initiative* with a goal of increasing physical activity and improving nutritional behavior. Technology will be utilized to deliver, monitor, and share new ways to reverse the high prevalence of obesity in Tucson.

Contributed by Jennifer Reeves
 Visit <http://letsmovefamilies.org/family-challenges> to learn more!



Graduate Program

Congratulations to our May Graduates!



Caitlin Dow defended her dissertation entitled, "The role of grapefruit consumption on cardiometabolic health in overweight and obese adults" to earn her PhD degree. Caitlin was mentored by Dr. Cynthia Thomson. After graduation, Caitlin will be moving to Boulder, CO to work as a postdoctoral Research Assistant in the Integrative Vascular

Biology Laboratory with Dr. Christopher DeSouza at CU Boulder (Department of Integrative Physiology).

Ashley Vargas defended her dissertation entitled, "Assessing the role of dietary polyamines on the continuum of colorectal carcinoma" to earn her PhD degree. Ashley was mentored by Dr. Patricia Thompson. After graduation, Ashley will begin the National Cancer Institute's Cancer Prevention Fellowship Program (CPFP). The CPFP will sponsor her one-year MPH program at Harvard University and then 2-3 subsequent years as a cancer prevention post-doctoral fellow at the NCI.



Rebecca Weiner defended her thesis entitled, "Resveratrol as a modulator of adipokines in postmenopausal women with a high BMI" to earn her MS degree. Rebecca was mentored by Dr. Hsiao-Hui (Sherry) Chow. After graduation Rebecca plans to pursue teaching nutrition at the community college level.



Donella Yoon defended her thesis entitled, "Collection and visualization of dietary behavior and reasons for eating" to earn her MS degree. Donella was mentored by Dr. Randy Burd. After graduation, Donella will begin a position in Regional Development, Outreach and Global Initiatives at the U of A.



John Stroster defended his dissertation entitled, "Meta-analytic assessment of blood lipid response to dietary manipulation of macronutrient distribution" to earn his PhD degree. John was mentored by Dr. Wanda Howell.

Alumni Update

Renu Roy, MS

After graduating with an MS from the Department of Nutritional Sciences in 2007, Renu Roy joined the Department of Dermatology at The University



of California, Irvine as a Research Specialist. She was able to obtain the position based on the clinical trial work she had conducted during her time at the U of A. In her new position, Renu worked on a project that investigated the ability to regenerate lost limbs in a non-healing adult mammal. "Humans respond to injury by scar formation, while newts and salamanders form blastoma that grows to form bones, muscles, nerves, skin of the regenerated limbs," she explained. "My team's effort was to understand the regenerative mechanisms in salamanders and attempt to orchestrate a similar mechanism in mice."

Despite differing from Nutritional Sciences, Renu enjoyed her position in dermatology because it offered "valuable hands on experiences in the area of biotechnology."

Although working in biotechnology was enjoyable, Renu later focused her efforts on obtaining a position in a field closer to her educational background. She currently works as a Nutrition Analyst and Lab Manager for a company that specializes in food labeling, consulting and FDA compliance. Renu's job duties include shelf-life establishment, preservative consultation and helping to establish proper food handling procedures. Renu says that her education at the UA has definitely helped to enhance career options, stating that, "It has been an enriching experience to use my background and knowledge to aid people in manufacturing safe and healthy food products. If you take a look around on the shelves at your local grocery stores you may see a product that I have helped bring to market."



Undergraduates

Megan Meyer Selected as Nutritional Sciences Outstanding Graduating Senior

Though Megan Meyer has been an outstanding student as well as an accomplished student athlete on the UA cross country and track teams, it was the plethora of outreach and volunteer experiences that set her apart. For example, Megan has been active in the Nutritional Sciences Club, educated elementary students with the Arizona Nutrition Network, served as a Student Athlete Advisory Committee representative and been a UA Peer Athlete Leader.

While these endeavors surely kept Megan busy, she also found time to serve as a facilitator for the Step UP! Bystander Intervention Program. STEP UP! is a proactive behavioral intervention program that educates and encourages students to help others. "I helped organize the first ever facilitator training for the program last May where representatives from universities around the country came to the UA to learn how to implement the program on their campuses." Megan also served on a Student Panel that spoke during the conference. The Step UP! Program is an example of service learning, allowing students to learn valuable life and academic skills while helping others in the community. In fact, when asked about the most memorable parts of her undergraduate years at the UA, Megan said that "being featured on the UA website homepage in the Step UP! Be Kind article was unforgettable. It was such an honor to be a vehicle for such an incredible program."

Megan explained that being part of a diverse and nurturing

department was integral to her success as an undergraduate, "The faculty members care about each student individually and are kind, passionate, and helpful. They are very approachable and always available to help enhance our education and to be mentors, helping to provide guidance, advice, and support. The students are warm and welcoming and it is a fun environment to be in. The people are great and the classes are interesting, challenging and applicable. The Nutritional Sciences Department has provided me with an education that has combined my love and talents in math and science with my passion for helping others and learning about a field of science that is very interesting to me."



After graduating this spring, Megan plans to travel through Europe for three weeks before starting an Occupational Therapy Graduate Program at either Loma Linda or USC. After completing that program, Megan will be a licensed Occupation Therapist and hopes to work in Pediatric Occupational Therapy. If her undergraduate achievements are any indication, she is sure to be successful in that career as well!

Course Highlight: NSC 358L *Quantity Food Production Management Lab*

NSC 358L is unlike any of the other labs I have taken as an undergrad. It is unique because it is an off-campus lab, in which I travel to various foodservice locations to gain hands-on experience in an institutional kitchen. I have traveled to both Tucson Medical Center and University of Arizona Medical Center for my required labs.

During each lab I become more acquainted with the various areas of foodservice. I have been exposed to everything from meal orders and quantity food production, to customer service and meal deliveries. Some of my assigned tasks include helping with tray line, cleaning refrigerators, recording food temperatures, and serving meals in the cafeteria. I have also been able to see how special diets, such as renal, diabetic, or low-sodium, are applied to the needs of each individual.

This lab has been extremely beneficial for my major in Nutritional Sciences by providing me with the opportunity to network in the fields of foodservice and nutrition. I have thoroughly enjoyed being able to step out of the classroom setting and gain the pertinent experiences needed to build a strong foundation in dietetics.

Contributed by NSC Major Brienne Berg; bnberg@email.arizona.edu



Outreach

U of A Nutrition Network (UANN) Update

Martha Mosqueda, a Department of Nutritional Sciences graduate program alumni, recently completed her dietetic internship community nutrition rotation with the UA Nutrition Network (UANN).

When asked about her rotation, Martha explained some of the projects and activities that she has worked on: "I've conducted in-class education sessions teaching elementary students about MyPlate. Similar sessions were delivered at KidCo, which is an after-school Parks and Recreation program in Tucson with fun physical activities incorporated into the lesson plan. With adult populations, I had the opportunity to train Parks and Recreation staff on MyPlate and how to incorporate nutrition into activities and games."

Martha also visited WIC and Department of Economic Security (DES) offices to interact with clients using booths with fruit and vegetable information and promotional items such as recipe cards, vegetable peelers, vegetable brushes, and MyPlate resources. While the UANN is certainly known for community outreach, Martha was able to experience other areas within the network, like admin-

istration, research, development, and customer service.

After many years as an undergraduate and graduate student, Martha said that there were still plenty of opportunities to learn, especially at UANN, "The nutrition field is so diverse and requires many skills. Being able to speak more than one language, adjust to different settings, and talking to different audiences are just a few skills necessary beyond the ordinary nutrition knowledge required in this field."

When asked to sum up her experiences at UANN, Martha said, "After years of education, the internship experiences remind you of why you picked the nutrition profession in the first place."

Story contributed by Kasey Brixius, MS RD. Kasey works for the UANN and can be reached at: kbrixius@email.arizona.edu



Nutritional Sciences Club (Nut Club)

The Nut Club spends most of its efforts creating opportunities to volunteer, providing students with an easy, centralized location to find activities and events that allow them to become more competitive professionally. At the end of March, the Nut Club was seen in the Forbes Courtyard working their bi-annual Food Drive for the Community Food Bank of Southern Arizona. The spring total was over 1100 lbs of food collected! The Nut Club partners with the UANN by assisting with events at local schools, as well as providing education-based booths at various UA themed events (Wellness Week, Food Day, Earth day, etc.). The Nut Club also participates in the Health Professionals Fair each semester and offers opportunities to build professional contacts. Hosting a luncheon for UMC's Internship Coordinator to discuss the process for applying and obtaining a dietetic internship was one of the members'

favorite events in the spring.

The Nut Club held a bake sale in early April that featured healthy baked goods. Proceeds from the sale were used to purchase food so that the club could participate in *Chef for a Day*, which feeds families staying at the Ronald McDonald House.

The club is open to *all* students and focuses on health promotion education and outreach to the local community. Search "UA Nutritional Sciences Club" to join the Facebook group and see what the club is up to.

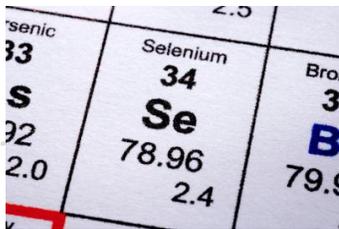
Contributed by Bianca Roe, Nutritional Sciences Club President: bnroe@email.arizona.edu



and obtaining a dietetic internship was one of the members'

Joint Appointed Faculty

Joint Appointed Faculty Research Highlight: Dr. Patricia Thompson



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92		2.4
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Colorectal cancer is the #2 cancer killer in the US, behind lung cancer. Research has previously shown that COX inhibitors (like Celecoxib) can reduce colorectal cancer recurrence and that selenium supplements may help to

prevent colorectal cancer. As a result of these findings, Dr. Thompson designed a phase III 2x2 randomized clinical trial to investigate the effects of Celecoxib, selenium or both on the recurrence of colorectal cancer. Recruitment of colorectal cancer survivors for the study began in 2001 in 4 different sites throughout the US.

The Celecoxib arm was discontinued in 2004 after other studies showed an increase of cardiovascular events in participants on Celecoxib. Despite this setback, randomization continued with either selenium or placebo, and a final cohort of 1824 was reached in 2011. Biosamples from all sites are

sent to a repository in the Thompson lab at the Arizona Cancer Center.

While study personnel are still waiting for the unblinding (which is scheduled to occur at the end of this year after the last participant has completed 3 years of study related activities), they are wasting no time on planning the next step. The selenium in this trial happened to be delivered in the form of selenized yeast. In the years since this study was designed, other publications have shown that selenized yeast may affect the development of type II diabetes, which opens up further possibilities during the analysis portion of this study. "So a study on polyp prevention has turned into looking at diabetes," said PhD candidate Ashley Vargas, "kind of a cool story!"

*A complete description of this study can be found in the 2012 **Cancer Prevention and Research** article entitled, 'Design and baseline characteristics of participants in a phase III randomized trial of Celecoxib and selenium for colorectal adenoma prevention' by Thompson P et. al.*

The NSC Department Welcomes New Joint Appointed Faculty



Dr. Janet Funk is an Associate Professor of Medicine in the UA College of Medicine. Dr. Funk is currently working on investigating the use of medicinal botanicals for the treatment of osteoporosis, arthritis and inflammation. Dr. Funk is also involved in research to prevent the spread of breast cancer to the bone.



Dr. Elizabeth Jacobs is an Associate Professor of Epidemiology and Biostatistics in the Mel & Enid Zuckerman College of Public Health. Dr. Jacobs is currently working on 2 NCI-funded R01 grants to study the relationship between vitamin D and cancer.



Dr. Christina Laukaitis is an Assistant Professor of Medicine in the UA College of Medicine. Dr. Laukaitis currently Investigates treatment options for neoplasias before metastasis develops and is interested in developing new chemoprevention strategies.



Dr. John Konhilas is an Assistant Professor of Physiology in the UA College of Medicine. Dr. Konhilas is currently working on an NIH funded grant studying the impact of AMP-activated kinase on sex differences in hypertrophic cardio-myopathy.



Retirement

Dr. David Hartshorne Retires



After 35 years of research and service to the UA, Dr. David Hartshorne will retire this May. To help commemorate this event, we caught up with him to ask a few questions about the past, present and future:

Are there other research directions that you might have tried or did you always have a passion for muscle biology? The direction I took in working on smooth muscle was probably predetermined because my thesis examiner was Dorothy Needham, who was one of the pioneers in smooth muscle. I knew I had passed the PhD exam because Dr. Needham fell asleep. Before 1975 muscle meant skeletal muscle because it appealed to the muscle community, many of them Biophysicists who were attracted to the high degree of order (striations) in skeletal muscle. Smooth muscle is not so highly organized (but does have a sarcomeric structure as shown much later) and it was considered "disreputable". Skeletal muscle was considered the prototype that everything should conform to. Since the late 70s this idea has been shown to be wrong and in fact smooth muscle fits the prototype concept much better and is used in many (non-muscle) motile systems.

What was your favorite class during your undergraduate schooling and why? My favorite class as an undergrad was ping pong, until I got thrown out because I beat the instructor.

How did the 6th floor addition to Shantz for the Muscle Biology Group come about? The Muscle Biology Group was formed by Darrel Goll based on the model used at Iowa State. It was called MBG until I pointed out to Darrel that this really stood for "Mine Before Golls" and then he switched to DEG, his initials. (He used to label absolutely everything -



Dr. Hartshorne using a Model E Analytical Ultracentrifuge.

every Kleenex box and paper towel holder. He sometimes even extended his labeling to other peoples stuff.) The MBG group grew quite large. DEG recruited me, Ron Allen and Parker Antin and already here were Howard White and Jim Deatherage in Biochem.

In addition, we formed collaborations with Gene

Morkin and his group in Cardiology and Steve Goldman at the VA; and with others formed a Program Project Grant that was funded for several rounds. At one time we had about 10 Faculty and many Post-Docs and visiting Professors (Fred Wolfe was there quite often). Darrel and I had labs on the third floor, but when Patsy Brannon and Roger Sunde were recruited we ran out of space and we were very lucky to get [the college] to agree to a new floor, which was color coded. Someone interviewed us and decided Darrel was a red person and me a blue.

How has the department changed most in the past few decades? It's decreased in size and reduced basic science faculty. In the old days we actually were short of lab space!

How has the UA changed? In the old days there were considerably more support personnel. Plus the pubs on 6th street have all changed.

What is your favorite class to teach? The signaling class - because I probably learn more from it than the students.

Do you have a favorite cell signaling pathway? Insulin - because it has so many twists and turns and is almost impossible to get a true understanding.

There is a good summary of your research in a 2008 newsletter. How has your research progressed since then? Since 2008 we concentrated on the target subunit of myosin phosphatase (MP) and tried to establish how MP is regulated particularly by RhoA leading to vasoconstriction and cyclic nucleotides (cAMP and cGMP-latter of Viagra fame) leading to vasodilation. We didn't get all the answers but did establish some important features of the target subunit and worked on phosphorylation sites and effects etc. On another front we continued our research (with others) that phosphorylation of a large protein, twitchin (found in molluscan smooth muscle) was responsible for the catch state -try opening an oyster!

Now that you will no longer be expected to report to the 6th floor, what are your plans? No fixed plans. I am trying my hand at Hydroponics. I travelled so much in my "active" days that the thought of getting on an airplane is not a hot priority.

Nutritional Sciences

OUR MISSION

To provide outstanding research, graduate and undergraduate programs, and outreach education that advances nutrition and physical activity in optimizing health for people in Arizona, the nation and the world.

OUR VISION

To discover, integrate, extend and apply knowledge of Nutritional Science to promote optimal health and to prevent chronic disease.

"Those who say something cannot be done should get out of the way of those who are already doing it."

-Translation of Chinese Proverb

Support Nutritional Sciences Through Charitable Giving

Supporting the Department of Nutritional Sciences has never been easier! All contributions are made to the UA Foundation, a 501(c)3 organization. Through this foundation donors may choose how their gift is applied. All gifts are tax deductible. Visit <http://cals.arizona.edu/nutrition/content/donations> for direct links to the UA Foundation for secure, online giving. Below are some examples of results of charitable giving that are helping current Nutritional Sciences students to complete their studies.

- The Darrel E. Goll Graduate Fellowship for Nutritional Sciences provides monetary support to select graduate students in the Department of Nutritional Sciences. During the 2012-2013 school year, this award supported research in the areas of children, healthy eating and physical activity.
- The Paul and Gladys Klingenberg Endowment in Nutritional Sciences awards monetary support to Nutritional Sciences students with priority given to a student from any Native American Nation or of Hispanic ancestry. During the 2012-2013 school year, this Endowment was awarded to 3 undergraduate students to help with education related costs, including tuition and books.



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