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Nutritional Sciences

Dr. Scott Going Appointed NSC Department Head



With a background in exercise physiology, physical education and health education, Dr. Scott Going came to the UA in 1985 as a Post-Doctoral Research Associate and lecturer in exercise and sports sciences for the then-School of Health Related Professions. He joined the faculty of CALS thirteen years later as an Associate Research Scientist in Nutritional Sciences. In 2012, Dr. Going began serving as interim head of the Department of Nutritional Sciences and is also director of CPAN, the Center for Physical Activity and Nutrition. Dr. Going has the excellent management and leadership skills we need to help Nutritional Sciences and all of us in the college meet today's challenges. I know you will join me in wishing him well in his new position.

Submitted by Dean Burgess; sburgess@cals.arizona.edu

New Department Website Unveiled

This fall, due to tireless effort by NSC Communications Network Analyst Tait Hansen, the Department of Nutritional Sciences unveiled a new website. The new site, found at <http://nutrition.cals.arizona.edu/>, features an updated look, streamlined navigation, an events calendar, faster document downloads and optimized search capabilities.

Other improvements include a more organized 'people' section, centralized department contact information and departmental/UA news blocks on the homepage. Students will find more organized and helpful links within the Graduate and Undergraduate Education pages.



NSC Undergrad Named AAUW Grant Recipient

Kaitlin Charette, a Nutritional Sciences undergraduate and Honor's College student, has earned an American Association of University Women (AAUW) Career Development Grant. The AAUW Career Development Grant is available for women who already hold an undergraduate degree and are returning to the educational system to further or change careers. The grant covers tuition and fees for one year.

Kaitlin graduated with a degree in Spanish from Oregon State University in 2007, taught English abroad for several years and came to UA in 2012 to work toward a BS in Nutritional Sciences. After graduating, Kaitlin plans to pursue a career as a Registered Dietitian. "I'm hoping to complete my internship next year," she explained, "and then secure a career serving my community through a job with WIC as a community dietitian or at a hospital as a clinical dietitian."

Congratulations Kaitlin!

Faculty Publications

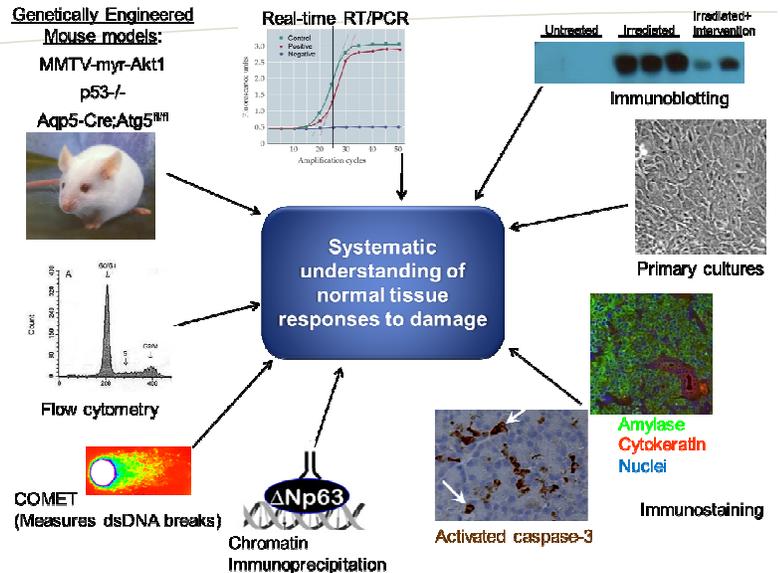
Please visit <http://nutrition.cals.arizona.edu/new-publications> to view a list of recent faculty publications in peer reviewed journals.

Research

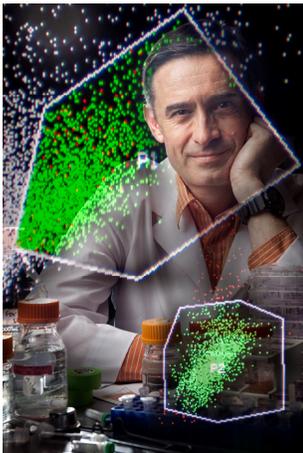
Research Brief: Dr. Kirsten Limesand

Radiation therapy for head and neck cancer causes adverse secondary side effects in salivary glands resulting in xerostomia (extreme dry mouth), oral mucositis (canker sore-like lesions), malnutrition, changes in taste, and increased oral infections and cavities. Although improvements have been made in targeting radiation treatment to the tumor, the salivary glands are often in close proximity to the treatment site. The significant destruction of the oral cavity following radiation therapy results in diminished quality of life and in some cases interruptions in cancer treatment schedules. Currently there are very few xerostomia treatment approaches that provide long-term results without significant side effects.

Patients treated with radiation therapy have significant decreases in saliva production within a few days of treatment and this persists for months or years. Therefore the long-term goal of our research is to evaluate whether preventative or restorative interventions can be discovered in order to circumvent salivary gland dysfunction and xerostomia. We utilize genetically engineered mouse models in order to modulate certain proteins and utilize a variety of techniques to identify key changes in the response to DNA damage caused by radiation therapy. We also utilize a pre-clinical mouse model that involves injection of a growth factor (IGF1) to prevent radiation-induced loss of function. This model has assisted us in identifying specific candidate molecules that could be used to spare normal tissues surrounding cancers without affecting tumor clearance. We also are interested in restoration therapies for patients who have completed their anti-cancer treatments yet continue to suffer from side effects. We are currently investigating the healing process of the tissue and specific defects that could contribute to long term alterations in physiologic function. Understanding the events that control this process may allow us to design therapies to induce tissue regeneration in irradiated salivary glands.



Joint Appointed Research Highlight: Dr. Janko Nikolich-Zugich & Emily Goldberg



Our lab is interested in age-related defects of the immune system. Your immune system is responsible for protecting you against infection. It is well known that aged individuals exhibit increased morbidity and mortality due to infection. In fact, infectious disease remains a leading cause of death in the elderly in the United States.

We are primarily interested in how CD8 T cells are impacted during the lifespan and how the accumulation of defects during aging alters their ability to protect the host during infection. Based on the defects that we have identified, we are working on designing novel treatment and vaccine strategies to improve immune protection against infection during aging. We use an aging mouse model to identify potential targets that will eventually be tested in non-human primates and peripheral blood lymphocytes collected from healthy adult and elderly human donors.

Story contributed by NSC graduate student Emily Goldberg; goldberg@email.arizona.edu

Photo by: Tom Spitz



Graduate Students

Grad Student Award



Megan Hetherington-Rauth earned her BS in Clinical Nutrition from UC Davis and then went on to complete a Dietetic Internship at Carolina University. This fall, Megan entered the UA Department of Nutritional Sciences Graduate Program and received the Science Foundation Arizona Graduate Research Fellowship (GRF) for the 2013-2014 academic year.

This prestigious award includes a \$31,500 stipend with full tuition. Science Foundation Arizona describes the goal of the GRF program as providing “a pool of talented job candidates for the high-technology and science-related industries imperative to Arizona’s future and to enhance the global competitiveness of Arizona’s graduate programs.”

The fellowship requires grant recipients to work in a K-12 school weekly to mentor teachers and/or students in the areas of science, technology, engineering and math. The goal of this work is to “further strengthen the future generation of workers with the hands-on experience and skills necessary to compete in the 21st century global economy.”

Megan is not wasting any time making the most of this award. “I plan to strengthen my core understanding and knowledge in the field of nutrition and nutrition research by taking graduate level courses and rotating through various research labs”, she said. “I also plan to engage in outreach activities in the local community in hopes of translating the latest research and knowledge in the field of nutrition to the public, as well as getting kids excited about nutrition and healthy foods.”

Please join us in offering Megan our sincerest congratulations!

Alumni Update

Stephanie Degner, PhD

Stephanie Degner graduated with her PhD in Nutritional Sciences from the University of Arizona in 2007. Her fascination with epigenetics began in Dr. Donato Romagnolo’s lab where she researched the regulation of cyclooxygenase-2 by dietary and environmental factors in breast cancer cells. She is grateful for the excellent mentorship, guidance and support she received during her graduate studies. Certainly many people up and down the hallways of the Shantz building contributed to making graduate studies an enjoyable experience.



After graduating she headed west for a postdoctoral fellowship with Dr. Ann Feeney in the Immunology Department at the Scripps Research Institute in La Jolla, CA. There she continued her studies in epigenetics with research focused on the role of CTCF and cohesin in the three-dimensional genomic architecture of immunoglobulin loci. Collaborations, joint lab meetings, symposiums and camaraderie amongst fellow postdocs made for a rich learning and research environment.

Stephanie is currently working in the Molecular Biology division of Thermo Fisher Scientific near Boulder, Colorado. Her primary role is to provide experimental support for scientists using a variety of gene modulation and molecular biology techniques. Her specialty areas include siRNA’s, shRNA’s, microRNA’s and next-generation sequencing. She is especially excited with new research in the area of long noncoding RNA’s. Stephanie finds it rewarding to help researchers overcome hurdles in their experiments and see their projects move forward.

In her spare time you might find her hiking Colorado’s 14ers (mountains that peak above 14,000 feet) or trying to figure out what to cook with the veggies from her garden.

Looking back at her years at the University of Arizona, Stephanie is thankful for the great people with whom she worked and the opportunities that provided a foundation for future endeavors.



Undergraduates

NSC Courses Prepare Student for Smart Career Moves



“Great service starts with me!” are the words that I have lived by for the past four years as an employee of Morrison Healthcare at Northwest Medical Center. I have enjoyed working in several different areas of the Nutritional Services Department. My daily work is more than just a shift, but an experience that will make a difference to myself and others around me. When helping the department clinically, I check-up on patients and make sure that their diets and meals are suitable for their current health condition. I also answer any questions that they may have on both their assigned diet and restricted meal plans. I make it a point to go beyond my job to assist the patient as much as I can to make their stay in the hospital the best it can be.

My most memorable experience at Northwest Medical Center so far would have to be the time that I assisted the retail team in designing a new menu for the hospital’s café. At the time the food in the café was good, but the diversity in food choices was limited. Listening to what the retail manager and nutritional services director had to say about their customers’ input and what they would like to see helped me come up with the idea of adding different ethnic foods to the menu. Using that idea as a starting point, we all brainstormed and collaborated to come up with a ‘Taste Around the World’ menu. It was decided that we would try this idea for three weeks and highlight a particular cuisine (Latin, Asian and Italian) each week.

As the retail manager, nutritional services director and head chef were designing the weekly menus, the team struggled with the menu for the Asian cuisine. Being Filipino-American and having been exposed to many Asian ingredients, I was able to step in and help to create a delicious menu that week. Once the new menu was implemented, the satisfaction from the customers made the overall experience not only exciting, but a great way to see the food management side of dietetics. By incorporating what I have learned from my nutritional sciences courses, I am able to enjoy the positive feedback from my colleagues and appreciate the field of dietetics even more by giving back to the patients, visitors, the Nutritional Services Department and overall, the hospital!

Contributed by NSC major Kristina Valbuena; kae009@email.arizona.edu

Nutritional Sciences Students and Campus Health Launch Smart Moves

Life is full of choices. You make choices every day; choices about what to eat, how to move your body, and how you manage stress. Smart Moves, the newest healthy initiative on campus sponsored by Well U, is all about making these choices clear and simple, so that taking care of you is a little bit easier.

Smart Moves focuses on three components: food, fitness, and mind/body. The Smart Moves icon identifies programs, services, and food options on campus that are the better choice for promoting healthy lifestyles. It’s simple, at the point of decision, make the Smart Move!

Currently, Smart Moves has icons in the Student Union, indicating which food items are healthier options. Foods were determined to be a “smart move” based on a list of criteria and an evaluation from a registered dietitian. As far as next steps, by the end of the semester, Smart Moves plans on expanding to include fitness and mind/body by incorporating relaxation techniques in the libraries and positive

reinforcement at the bike stations on campus.

Students in the UA Nutritional Sciences Club helps to promote the Smart Moves program by tabling at events such as Food Day and the Rec Fest. To learn more, visit:

smartmoves.arizona.edu



Contributed by Health Promotion and Prevention Services intern Lisa Phillips; lisamphi@email.arizona.edu



Outreach

UA Nutrition Network Educates Bhutanese Community Health Promoters on MyPlate



Tucson, Arizona is home to about 1,400 Bhutanese refugees. There are many health issues faced by Bhutanese who come from sub-standard living conditions in refugee camps in Nepal. Poor nutrition-related

health issues are the most voiced concern.

On June 29, 2013, the University of Arizona Nutrition Network (UANN) in partnership with the Pima County Health Department was invited by the Bhutanese Mutual Assistant Association for Tucson and the Mel & Enid Zuckerman College of Public Health to present at the Bhutanese

Community Health Promoter Training. UANN trained 11 Bhutanese community health promoters about MyPlate and how it can be culturally adapted. The health promoters prepared and brought in recipes of traditional Bhutanese cuisine, which led to a discussion of how Bhutanese foods can be integrated into MyPlate.

The Bhutanese community health promoters are currently giving presentations throughout Tucson to their community members about the tools, resources, and information they received from the training.

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



New Course, NSC 395a, Helps Students Make a Difference in the Community

As a senior, I thought that I had done and seen all that there is to do as a student at the UA. Then I received an email prior to the fall semester with information about a new class (NSC395a: Experiential Learning) that would emphasize volunteering. Reading over the description I thought the class sounded easy; but I was unaware of all that I would learn throughout the course of the semester. I was assigned to volunteer through the Food Bank of Southern Arizona to serve meals to children at the Boys and Girls Club of America at the Roy Drachman Club House. The mission of the Boys and Girls Club is to "serve those that need help the most". Never has a statement been so true, and never did I think that I would take so much from one experience. Working with these children really changed my perspective on the power of volunteering. The children I work with are from the lowest socio-economic status in Tucson; with 85% of them living in poverty and 15% of those children living in extreme poverty.

Serving meals to these children has been a life changing event. To see the look in the eyes of children that might not eat a meal all day other than the one I am serving to them; it made me think about what we often take for granted. One child in particular stood out to me; he comes from a broken home of a single mother struggling to raise five children. He gets in trouble a lot due to the lack of discipline in his life and sheer frustration of his living arrange-

ment. I still remember the day he told me that the meal I served him was the only one he would eat that day; it was heart breaking. He told us that his morning school bus arrives too late to enjoy the free breakfast, and how most days at lunch the line is too long and he misses out on the free lunch as well. This boy was hungry and you could see it in his eyes.

The fall semester is still going strong and I look forward every week to going to the Boys and Girls Club for the privilege of serving these children. The children I work with appreciate all we do for them as volunteers and I appreciate the opportunity to give back. That is what this class is truly about; giving back to the community, the very community surrounding our University. Many students forget about those that live outside of our square mile campus. However, through these opportunities we will not only remember them, but if we are lucky enough we might even get the chance to make a difference in their lives.

Contributed by NSC major Austin Hampton; ahampton@email.arizona.edu



Extension

Dr. Linda Houtkooper Completes Term on National Science Board



Dr. Linda Houtkooper will complete her three-year term as a member of the Science Board for the President's Council on Fitness, Sports and Nutrition (PCFSN) in December 2013. Dr. Houtkooper was nominated to serve on the Science Board by the Academy of Nutrition and Dietetics due to her significant contributions to the advancement of nutrition research and science in bone health and sports nutrition. The PCFSN engages, educates, and empowers Americans to adopt a healthy lifestyle that includes regular physical activity and good nutrition. The President of the United States established the PCFSN through an Executive Order. The PCFSN is made up of athletes, chefs, physicians, fitness professionals, and educators who are appointed by the President and serve in an advisory capacity through the Secretary of Health and Human Services. The Science Board for the PCFSN was formed in 2003 to ensure that the messages and programs of the Council are scientifically sound. The Board includes scholars who have made significant contributions to the research and science of physical activity, health, sports, and nutrition.

As a member of the Science Board, Dr. Houtkooper provided science advice to the members of the PCFSN, developed educational resources and wrote publications. She co-authored a publication in the *Research Digest* of the PCFSN in September 2013 titled "Improve Your Performance: Sports Nutrition for Youth and Adults". (<https://www.presidentschallenge.org/informed/digest/docs/201309digest1.pdf>) The article discusses how nutrition can improve overall exercise performance, as well nutrition and exercise for weight loss. Dietary supplements were also addressed, due to their wide use by athletes.

The *Research Digest* is a quarterly publication from the PCFSN that synthesizes scientific knowledge to present a balanced, research-to-practice analysis on a range of topics including physical activity, fitness, physical education, nutrition, and dietetics research. The publication addresses topics of current relevance to physical educators, sport coaches, registered dietitians, sports medicine and public health practitioners, physicians, and students. Use <http://bit.ly/WrO8Ez> to subscribe to the *Research Digest* mailing list.

Dr. Kay Hongu Assists the 4-H International Exchange in the CALS Cooperative Extension

Since 1972, the 4-H International Exchange program has been operated by the Cooperative Extension Service nationally, and through the 4-H Youth Development Departments of the Cooperative Extension of the land-grant university in each state. This program promotes and encourages mutual understanding among the different cultures of the world by means of first-hand cultural immersion. For 4 weeks during the summer of 2013, Arizona families hosted 11 Japanese youths between the ages of 11 and 15, and one adult chaperone to experience American culture by living with host families.

Associate Specialist in Nutritional Sciences Dr. Kay Hongu works primarily in the area of nutrition and physical activity, but often assists other related statewide or nationwide programs within the Cooperative Extension System. As a result, Dr. Hongu was involved in offering the statewide program, *Walk Across Arizona* as a family project during the exchange program. Families walked 12,000 miles together!

Additionally, because Dr. Hongu speaks Japanese, she was able to help ease the students' transition into a new culture.

Arizona 4-H will be looking again for host families after January, 2014. The deadline for completing your host family application is March 30, 2014. You can learn more about the program by visiting: <http://extension.arizona.edu/4h/programs/international-exchange>. Please also feel free to contact Dr. Kay Hongu; hongu@email.arizona.edu or Kirk Astroth, Assistant Dean and Director of the Arizona 4-H Youth Development Program; kastroth@cals.arizona.edu.



Food

What is That?! Exploring a Less-than-Familiar Food in the Produce Section



yuca is great for adding variety and can be a unique addition to your home cuisine once the preparation and cooking processes are demystified.

Have you ever seen one of these in the grocery store and wondered, “What the heck is that?” This is a yuca root, a tuber that is also known as manioc and cassava (and the source of tapioca). Most of us are familiar with yucca plants that grow in and around Tucson; but to be clear, yuca (*pr. yoo-cah*) and yucca (*pr. yuck-uh*) are two entirely different things. The name that this root is known by varies depending on geographical location. In the Southwest, it is most often referred to as yuca. Nutritionally, the carbohydrate-rich yuca is not unique. In fact, the common potato has a better nutritional profile. However,

Preparation: The first thing you need to know is that the skin is quite tough and bark-like. You can try to peel it like a potato, but that will most likely take too much time, hurt your hands and cause you to curse. Instead, follow these steps to remove the outer skin: 1. Cut off the two ends and discard. 2. Slice the remaining root into 2” slices. 3. With the slices lying flat, cut off the skin in a series of downward cuts. Once you have skin-free rounds, the next step is to remove the fibrous core that runs down the center of the tuber. To do this, cut each round into fourths. Each fourth will look like a little pie piece. Simply cut off the inner point of this ‘pie piece’ to remove the fibrous core.

Cooking: There are many ways to cook yuca. It can be grated and made into little cakes, sliced and fried into chips, or cut and fried like French fries. It is also frequently used in stews and side dishes. To use in a stew or to roast with other root vegetables, take the pieces you now have from the preparation stage above, and cut into ½ to 1” chunks before adding to your recipe. Or, try the side dish below.

Recipe: Prepare 1.5 pounds of yuca as outlined above, boil for 20 to 25 minutes in saltwater and set aside. Chop 1 onion and 6 garlic cloves and sauté with ½ cup olive oil, 1 tsp salt, the juice of 1 lime and ¼ cup lemon juice. Once the onions are translucent and the liquid boiling, pour over the yuca and mix well.

So there you have it - the secret to this funny looking root. It’s almost guaranteed that within the first few times of picking it up, someone will see you and say, “What are you gonna do with that?” Now you know how to answer!

Contributed by Jennifer Ravia, MS; jrvia@email.arizona.edu

Holiday Baking: Substitutions to Lower Calories

With the holiday season in full swing, many kitchens will be filled with the aromas of baking. Who doesn’t like these special treats that seem so appropriate at this time of year? However, too much of a good thing can lead to extra sugar, fat and calories that can lead to weight gain. To enjoy baking and the ‘fruits’ of your labor, try these substitutions to decrease added calories and increase nutrient density:



- To increase fiber and decrease cholesterol and saturated fat, use 1/2 c. of mashed banana –or– 1 TBS ground flax mixed with 3TBS water in place of one egg
- To decrease total calories, fat and saturated fat; replace half the butter with an equal amount of applesauce or canned pumpkin

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.



Like us on Facebook to share and learn about new opportunities and ideas! It's easy, just type *The U of A Department of Nutritional Sciences* into the Facebook search bar, then click on like.

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.
- 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.



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