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Societal inequities are such strong drivers of health disparities in our country, and the inequity in people’s access to food, and specifically nutritious food options, is no exception. Worldwide and in our local communities, entire groups of people are undernourished and grow up with nutritional deficiencies, setting them up for poorer health outcomes throughout their lives.

That realization is behind a good deal of our school’s scholarship and education in the area of nutrition. Much of our research and curricula comes back to the underlying understanding that nutrition is a vitally important factor in achieving optimal health. It isn’t everything, but it is an essential part of our lives and affects our health throughout the life course.

In this issue of Health Impact, you will get a look at the work we are doing across our school on nutrition along the research continuum—from basic science to community interventions. This focus arose from the foundational work of our faculty in the Department of Exercise and Nutrition Sciences and from the study of the nutritional epidemiology of cancer by Dr. Saxon Graham, the late professor emeritus of our Social and Preventive Medicine Department (now Epidemiology and Environmental Health). The growth in our research and educational programs focusing on nutrition now includes virtually every department in our school. We also reach across many university programs and collaborate with colleagues in other health science schools like medicine, dentistry and nursing, in urban planning, and more.

One idea that spans nearly all of our work is that nutrition is, indeed, medicine. Nutritional interventions are an increasing part of disease prevention and therapies for many chronic conditions. Nutrition coupled with physical activity play a role in survivorship in those affected by cancer and in many, many other diseases. The promise of the work we’re doing today is that nutrition will continue to be recognized as a key strategy to prevent disease and maintain health. Our work importantly also focuses on access, a cornerstone of health equity that needs to be addressed. I hope you will enjoy learning more about the important work the school is doing in nutrition.

Enjoy the arrival of spring,

Jean Wactawski-Wende, PhD
Dean, UB School of Public Health and Health Professions
SUNY Distinguished Professor
The School of Public Health and Health Professions recently added two new programs and a minor. All received required New York State Education Department approvals and are ready to welcome students.

The bachelor’s degree program in nutrition science prepares students for various career pathways, including dietetics and food science, and for entry into dietetics and other health profession programs. It builds on the nutrition minor, a popular area of study at UB for years. Nutrition science is a growing field encompassing the role that food and diet plays in promoting and maintaining health and preventing disease, said Heather Kearns, MPH, MCHES, director for the undergraduate Exercise Science program.

The four-year curriculum includes foundational sciences like chemistry, and nutrition courses in human health and disease. The program was designed so students can apply to Future Education Model (FEM) programs in dietetics, accredited by the Accreditation Council for Education in Nutrition and Dietetics. FEM programs are the new model for completing the required education to sit for the Registered Dietitian exam.

The MS in environmental health sciences is a two-year, research-based program offering specialized training in environmental health, environmental toxicology, exposure science and environmental epidemiology. This program will prepare students for careers as environmental health research scientists, professionals or specialists, or continuing graduate study.

Environmental health is the science and practice of preventing human injury and illness and promoting well-being by identifying and evaluating hazardous agents in the environment and their sources, and limiting exposures to hazardous physical, chemical and biological agents in air, water, soil or food that may adversely affect health.

The coaching minor in the Department of Exercise and Nutrition Sciences is open to all UB undergraduates interested in careers related to coaching in various sports programs, or school or intercollegiate athletics. (It does not lead to New York State coaching credentials, however.)

The minor builds on the idea that coaches are educators and leaders. It focuses on competencies and skills, such as CPR and first aid, sports nutrition, sports science, performance psychology, injury prevention and organizational issues specific to coaching in different sports programs.
IPE Team Honored for “Enduring Contributions”

SPHHP students lead the way in micro-credential

UB’s Interprofessional Education (IPE) Leadership Team has been recognized by the National Academies of Practice with the Interprofessional Group Recognition Award, a national honor for enduring contributions to interprofessional practice and education. The 19-person leadership team develops, implements and assesses UB’s IPE program. Its members also help advance the field through research and national presentations.

Patricia Ohtake, PhD, PT, is assistant vice president for IPE and chair of the IPE Leadership Team. She is also an associate professor in SPHHP’s Physical Therapy program. Other SPHHP members of the team include:

» Nicole Klem, MS, RD, Clinical Nutrition MS Dietetic Internship program director
» Jessica Kruger, PhD, MCHES, clinical assistant professor of community health and health behavior
» Kimberly Krytus, PhD, MPH, MSW, assistant dean and director of the MPH program
» Ryan Krzyzanowicz, DAT, LAT, ATC, clinical associate professor of exercise and nutrition sciences and director of the Athletic Training program
» Kirk Personius, PhD, PT, clinical associate professor of physical therapy
» Janice Tona, PhD, OTR, clinical associate professor of occupational therapy

In addition to SPHHP, schools represented on the 19–person IPE Team include Dental Medicine, Management, Nursing, Pharmacy and Pharmaceutical Sciences, Social Work and Education; the Jacobs School of Medicine and Biomedical Sciences; and the College of Arts and Sciences.

A notable accomplishment of the IPE team is the development of the Interprofessional Collaborative Practice Micro-credential program—the largest such program at UB—comprised of three digital badges.

The badges—and the training they represent—matter, according to Ohtake: “Teamwork and collaboration are highly valued by health systems because they lead to improved patient outcomes, improved patient satisfaction, reduced medical error, and reduced healthcare costs. By having the IPCP Micro-credential, students have verified evidence that they have knowledge and skills in interprofessional collaborative practice desired by many health systems.”

Interestingly, SPHHP students lead the pack when it comes to obtaining the credential. The most recent data show 80 of the 83 students who completed all badges and earned the IPCP Micro-credential are from SPHHP programs: Athletic Training, 4; Dietetic Internship, 3; Occupational Therapy, 5; Physical Therapy, 1; Public Health, 67.

MPH student Ebehitale Imobhio chose to obtain the micro-credential because interdisciplinary work is something she finds crucial to public health.

“The most memorable part of the experience happened during the virtual forums. I was in groups with students from the spectrum of health-affiliated fields. We were given the same case study and asked how we would best address the client’s issues using skills from our various fields. The experience showed me that as future practitioners in our fields, we have to be willing to work with people with different areas of expertise so that our clients receive the best care and have the best health outcomes,” she said.
Researchers Discuss Focus of Recently Awarded Studies

**Kirk Personius, PhD, PT**, associate professor of physical therapy, is beginning work on his project, “T Regulatory Cell Responses in Toxoplasma-infected Muscle.” The National Institute of Allergy and Infectious Diseases/National Institutes of Health

“Skeletal muscle is a highly regenerative tissue that can easily repair itself when damaged. However, it’s not clear how a chronic infection can alter the ability of the skeletal muscle to repair. Our recent findings showed that chronic infection actually impairs the ability of the muscle to repair itself. This study will explore how chronic infection impacts the repair process in muscle. These findings could provide insight into how infection in muscle can lead to loss of muscle function and the potential for therapeutic interventions.”

**Riana Pryor, PhD, ATC**, assistant professor, Department of Exercise and Nutrition Sciences, received a K01 grant from the Centers for Disease Control and Prevention for her project “Short- and Long-term Health Consequences of Workers During Consecutive Days of Heat Stress.”

“I’m collaborating with Associate Professor Xiaozhong Wen from the Jacobs School of Medicine to evaluate the potential protective role of dietary pulses (legumes like navy beans and chickpeas whose seeds are contained in pods) when they’re consumed by mothers during and after pregnancy, and by children. We’re looking at how that consumption might influence maternal and offspring health. A positive outcome from consumption would be an improvement in cardio-metabolic health, shown by a reduced risk for obesity, improved biomarkers like cholesterol levels, and more.”

**Jennifer Temple, PhD**, professor, Department of Exercise and Nutrition Sciences, and **Gregory Wilding**, chair and professor, Department of Biostatistics, received R01 funding from the National Institute of Diabetes and Digestive and Kidney Diseases/NIH for their study “The Role of Food Insecurity and Sensitization in Excess Weight Gain in Adolescents from Low to Moderate Income Households.”

“Children from food-insecure households are at higher risk for overweight, obesity and other chronic disease; more research is needed to identify and characterize individual, behavioral and environmental factors that underlie these relationships. This study will examine a novel behavioral phenotype—sensitization to repeated intake of snack food—and its relationship with food insecurity, body weight and weight change over time in a cohort of adolescents from moderate- to low-income families. We will also examine the impact of family dynamics of food insecurity and neighborhood and home food environment on the relationship between sensitization and weight change over time.”
Researchers Discuss Focus of Recently Awarded Studies

John Violanti, PhD, research professor, Department of Epidemiology and Environmental Health, is principal investigator on a $1.2 million, two-year study funded by National Institute of Occupational Safety and Health (NIOSH) called “A Longitudinal Examination of Mental and Physical Health among Police Associated with COVID-19.”

“How persons in authoritative positions such as law enforcement address disasters like COVID-19 is a matter of concern because it not only affects the people they serve but also themselves. Police officers need to remain healthy and be ready to perform at their peak during such crises. Societal challenges such as COVID-19 contribute to increased physical and psychological stress overload. This research addresses the harmful effects on the psychological and physical health of officers prior to and after the onset of the COVID-19 pandemic. Information gained from this study will show the harmful effects of COVID-19 on officers and alert police agencies to initiate policy to help reduce the stress.”

Lina Mu, PhD, MD, assistant professor, both Department of Epidemiology and Environmental Health, and Meng Wang, PhD, have received funding from the National Institute of Environmental Health Sciences/National Institutes of Health for their project “Air Pollution, Coronary Events, Atherosclerotic Progression in a Susceptible Population.”

“Atherosclerosis is the most common form of coronary heart diseases (CHD), constituting 17.5 million deaths worldwide annually. Although air pollution is known to increase the risk of CHD mortality, little evidence exists about the impact of air pollution on CHD morbidity and progression. Our study will rely on a cohort of patients with atherosclerosis in Beijing, China, and focuses on three activities: 1) to determine the impact of air pollution exposure on CHD events and mortality; 2) to investigate the effects of exposure to air pollution on atherosclerosis progression and high-risk plaque formation characterized by computed tomography angiography; 3) to examine the effects of air pollution on biological markers of inflammation pathways. Findings from this study will not only extend scientific knowledge on air pollution and CHD physiopathology but will also provide information to guide public policy and inform clinical management for individuals at-risk of CHD.”

Violanti’s newest book, “Occupation Under Siege: Resolving Mental Health Crises in Law Enforcement,” was published late last year by Charles C. Thomas Publishing Ltd. The volume brings to the forefront the realization that a successful police career involves not only surviving the danger involved in policing but also psychological survival. It’s available at Amazon.com
It’s always sunny in San Juan, Puerto Rico, which makes the findings of a new study on breast cancer and sun exposure noteworthy.

Work by researchers from UB and the University of Puerto Rico showed a lower risk of breast cancer associated with greater sun exposure. Researchers used a chromameter to compare skin pigmentation in unexposed and exposed skin in 307 cases of breast cancer and 328 women without breast cancer. The difference in skin pigmentation provided an estimate of usual sun exposure.

“This study was unique in that it was of Puerto Rican women, which allowed for us to look at this association in a population with a wide range of skin color and with year-round high sun exposure,” said study senior author Jo L. Freudenheim, PhD, SUNY Distinguished Professor, Department of Epidemiology and Environmental Health.

There is some, albeit inconsistent, evidence that sun exposure is associated with lower risk of breast cancer. A number of reasons may explain this finding, says Freudenheim.

“One step in the internal production of vitamin D occurs when skin is exposed to sun,” she said. “Sun exposure also affects the body in...other helpful ways, with effects on inflammation, obesity and circadian rhythms. While recent recommendations have been to limit sun exposure to prevent skin cancer, some sun exposure, especially exposure without sunburn, may provide benefits.”

Previous studies have been conducted in places that experience seasonal variation in ultraviolet radiation. Puerto Rico has no significant seasonal fluctuation, resulting in potentially continuous exposure to high UV radiation for those who spend time outdoors.
Prolific Saleem Sheds Light on Brain Injury

Ghazala Saleem, EdD, MS, OTR/L, assistant professor, Department of Rehabilitation Science, is the lead or senior author of a number of recent papers related to her work on brain injury and disorders of consciousness.

In fact, one paper, “Prevalence and Risk Factors for Intimate Partner Physical Violence Related Brain Injury among Visitors to Justice Center in New York,” was chosen after a worldwide competition for inclusion in a special issue of “The Journal of Head Trauma Rehabilitation.” Editors of the special issue cited the importance of highlighting “the widespread but neglected issue of brain injury in the context of IPV [intimate partner violence].” Other recent papers on which Saleem was first or senior author are:

» “COVID-19 Induced Surge in the Severity of Intimate Partner Violence Might Increase the Risk for Acquired Brain Injuries,” Sage Open Medicine


» “Global Surge in Intimate Partner Violence: Implications for Pakistan,” “The Journal of Pakistan Medical Association”

» “Construct Validity and Reliability of the Revised Physical and Neurological Examination of Subtle Signs (PANESS) Gaits and Stations Measures,” “Journal of Motor Learning and Development”
Every single person eats—and needs to eat. Maybe that ubiquity is part of the reason nutrition is a major focus at the School of Public Health and Health Professions.

"Nutrition is an essential part of our lives and affects us and our health throughout the life-space," says SUNY Distinguished Professor and SPHHP Dean Jean Wactawski-Wende. "We need to have a better understanding of it as we do with any other tool that helps us improve health."

For instance, one of the largest components of Wactawski-Wende’s own work is the Women’s Health Initiative, an ongoing 30-year study. The WHI dietary intervention study included 63,000 women nationwide. One third of the women were assigned to a diet lower in total fat, and higher in fruit, vegetable and fiber intakes. The other two thirds of the women ate their regular diet.

“The study found that those in the dietary change group, especially those who lowered their saturated fat intake, reduced their cardiovascular disease risk. Although there was a suggestion of small reduction in breast cancer, the results were not statistically significant”, she says.

SPHHP’s history in nutrition begins with the foundational work of faculty in the Department of Exercise and Nutrition Sciences, includes pioneering epidemiologist Dr. Saxon Graham’s work in nutrition and cancer, and continues today with efforts across the continuum—from basic science and epidemiological studies to education and community interventions.

SPHHP’s nutrition researchers also collaborate with colleagues in the medical and dental schools, through the Center for Ingestive Behavior Research, and the School of Architecture and Planning, among many other efforts.

“Nutrition is becoming a part of primary treatment and is a major factor in health equity,” Wactawski-Wende adds. “We believe nutrition and its promise of disease prevention is an asset...nutrition is a form of medicine.”
HORMONES AND EATING
Elizabeth Mietlicki-Baase, PhD, assistant professor, Exercise and Nutrition Sciences

From a young age, Mietlicki-Baase has been fascinated by why we eat what we eat and what motivates us. Naturally, then, her research broadly focuses on how the brain controls how we eat and body weight, and on translating discoveries into treatments for obesity.

Her current study, funded by an NIH Research Project Grant (R01), focuses on amylin, a pancreatic hormone that can affect food intake and motivation for palatable foods. A new project “delves further into the mechanisms of how amylin acts in the brain to control intake,” Mietlicki-Baase explains, “especially looking at how this interacts with the types of food eaten and with sex differences.”

How feeding is controlled also grounds her research on Prader Willi Syndrome (PWS), a genetic disorder that causes obesity in humans. “Genetic disruptions at first result in failure to thrive in infancy, then a metaphorical switch happens,” she says, “and people with PWS experience extreme hunger, then weight gain.” The goal of her research is to discover how the disrupted gene expression can influence feeding and weight gain.

DIET AND CANCER RISK
Jo Freudenheim, SUNY Distinguished Professor, Epidemiology and Environmental Health

After finishing a PhD in nutrition, Freudenheim came to UB as a postdoc to learn nutritional epidemiology because UB “was a leading center of epidemiologic research on nutrition and cancer at that time,” she says. Her research continues on that path, with studies of diet and alcohol consumption in relation to breast cancer.

In one such project, she and her research group are examining dietary and other factors in relation to mortality among women diagnosed with breast cancer. In a recent paper written with PhD student, Nadia Koyratty she examined the association of sugar-sweetened beverage consumption with survival among women with breast cancer.

Freudenheim also has collaborated with colleagues in Puerto Rico for more than 10 years in a breast cancer study with a diet component. “The Puerto Rican diet has changed in the last several decades from a traditional to a more Western-type dietary pattern. At the same time, there have been increases in the rate of breast cancer in Puerto Rico. We are looking to see if the diet changes are associated with breast cancer risk. It may be easier to see associations in a population that is experiencing change,” she says.

NUTRITION AND POPULATIONS
Amy Millen, PhD, associate professor, Epidemiology and Environmental Health

From her nutritional epidemiology course to her current research, Millen focuses on population-based studies of nutrition, examining the links between nutrition and conditions like periodontal and age-related eye disease. Her current project, the Microbiome and Eye Disease Study, is looking at the role of the gut microbiome in 300 women and the outcome of macular degeneration related to aging. Biostatistics Associate Professor Rachael Hageman Blair, PhD, is a co-investigator on the study.

“We want to better understand the role of diet in possibly protecting against development of this disease, and whether the composition of the gut microbiome plays a role in this,” Millen says. She also collaborates with other researchers (e.g., Jean Wactawski-Wende, Research Professor Michael LaMonte and Jo Freudenheim) on diet’s influence on the oral microbiome, from the intake of specific food groups like carbohydrates to overall diet patterns, and what the results of that influence, like cavities and periodontal disease, might be. Millen is fascinated by the nuances of diet and diseases affecting large populations, as well as the perspective that studying cohorts of people have brought to her field.

“Independent of body weight, we’ve learned that aspects of food are helpful for health, like calcium with osteoporosis, lutein and eye health and trans fatty acids and cardiovascular disease,” she explains.
PROTECTIVE NUTRITION

Lina Mu, PhD, MD, associate professor, Epidemiology and Environmental Health

Mu has studied nutrition-related topics like dietary quality in relationship to lung cancer and smoking cessation. One particular aspect, the protective effects of garlic intake, has proven exceptionally fruitful. Garlic contains rich antioxidants, which might reduce oxidative stress and damage, one of the key mechanisms in cancer formation. Mu and her doctoral students wanted to see if they could identify a potential association in a human study and brought the question into a lung cancer study among a Chinese population.

The “pretty strong” protective effect they found was confirmed again with a breast cancer study in a Puerto Rican population and when they analyzed national data from the Prostate Lung Colorectal Ovarian Cancer Study.

“We also did a lab analysis to find out why garlic consumption offers benefits, analyzing seven different forms of garlic and garlic supplements,” Mu adds. Their comparison found that supplements and raw garlic have the highest level of antioxidants. For the future, Mu says she wants to understand better what other changes garlic consumption actually makes inside the body that offer benefits.

MOTIVATION TO EAT

Jennifer Temple, PhD, professor, Exercise and Nutrition Sciences/Community Health and Health Behavior

The overarching theme of Temple’s work is trying to understand what motivates people to eat certain foods, especially how preferences and behaviors are shaped throughout life. She often examines people’s motivation to eat high-energy-density foods (lots of fat, sugar and calories/gram) and low-energy-density foods (like yogurt and vegetables).

The key question: “How does motivation to eat foods affect a person’s health and body weight?”

Temple’s five-year study, UB SNAK, looked at 12- to 14-year-olds’ motivation to eat high- and low-energy-density foods. She found motivation to get healthy food was not related to body weight nor did it affect eating unhealthy food. Rather children who showed sensitization—meaning they wanted more of a food they’d eaten daily instead of tiring of it—gained more weight than during the typical adolescent weight-gain period.

A new R01 award from the National Institute of Diabetes and Digestive and Kidney Diseases/National Institutes of Health, sees Temple and Professor Gregory Wilding, PhD, as co-investigators on their study “The Role of Food Insecurity and Sensitization in Excess Weight Gain in Adolescents from Low to Moderate Income Households.” (Details on page 7.)
ENVIRONMENTAL HEALTH AND NUTRITION
Gauri Desai, PhD, clinical assistant professor, Epidemiology and Environmental Health

Desai wants to know how environmental exposures affect children’s growth and development and whether nutrition can mitigate the detrimental effects of toxic exposures.

“Environmental health and nutrition go hand in hand,” she says. Right now, Desai is looking at the dietary patterns of school-age and younger children in the U.S., and whether the foods they eat contain toxic elements. Desai is mining data on people’s eating habits from the National Health and Nutrition Examination Survey and other publicly available sources to estimate what kinds of food children eat and what kinds of toxicants they get through diet.

“Food can be sources of toxicants,” she says, and “can also mitigate toxicant effects. Since this is a modifiable factor, you can do a lot through nutrition to change outcomes.” Desai adds the association between toxic elements and health in children might be evident in outcomes like physical growth, height and weight by age, blood pressure, head circumference and cognitive measures.

Desai also injects nutrition into the classes she teaches at UB on global health and epidemiology: “I make sure nutrition is a topic.”

MOMS, KIDS, PULSES
Todd Rideout, PhD, associate professor, Exercise and Nutrition Sciences

A start as an animal scientist morphed into Rideout’s focus on early-life nutrition. Though previous thinking saw chronic disease as age-related, Rideout notes “new thinking says these diseases can take hold even in utero, having a big impact on disease trajectory later.”

One of Rideout’s two current grants from the U.S. Department of Agriculture is a collaboration with Professor of Pediatrics Xiaozhong Wen, PhD. They’re investigating if eating highly nutritious “pulse” foods (lentils, chickpeas, etc.) by mothers and their young children is associated with protection later from conditions like obesity and cardiovascular disorders.

The study takes an epidemiological approach, evaluating data from three large groups of mothers and children who have been tracked for up to 17 years and looking for associations between early pulse consumption and later-life health.

“The hypothesis is that increased maternal pulse consumption can alter or shift the microbiome to a healthier aspect, which can influence the child.”

FOOD AND TOXIC SUBSTANCES
Kasia Kordas, PhD, associate professor, Epidemiology and Environmental Health

The interaction among nutrients, toxic substances and diet in pregnant women and children is Kordas’s realm. Her work asks whether components of diet can counteract the absorption or effects of children’s exposure to toxic substances like lead or arsenic.

Paradoxically, she says, “it’s becoming apparent that diet also can be the source of toxic elements.” Thus, Kordas and her colleagues also examine how much diet contributes to toxic exposure.

“Will levels of lead/arsenic be different depending on the level of food and water consumed and the level of contaminants in foods and water? We’re expanding to look at exposures in children in Uruguay and the U.S., using publicly available data sets,” she explains. Future inquiry will look at how exposures to toxic elements in foods might contribute to negative health outcomes.

When people eat healthy foods (also low in contaminants), Kordas says, they are preventing disease in early and later life: “The benefits of practicing balanced nutrition are obvious, but we still don’t know so much. The relationships are so nuanced.”
NEW COMMUNITY PANTRY

Jessica Kruger, PhD, MCHES, clinical assistant professor, Community Health and Health Behavior

Kruger had been working with an interdisciplinary group of UB students at the Seneca-Babcock Community Center for some time when she discovered the center closed their food pantry because they couldn’t staff it.

Kruger stepped in to help develop what she calls an “interprofessional food pantry” at the center. Today, students from the MPH, OT, PT, dietetic interns and other health profession programs run the pantry, ordering food through a local food bank, helping people “shop,” and more.

“We know if people have health issues like cancer, or if they just had a baby,” she says, “and it’s rewarding to make those connections.” A request for volunteers via the email list of UB’s UUP chapter resulted in a pantry now staffed by people from all over UB.

Every Wednesday finds Kruger at the site, where she and her students are beginning a community needs-assessment survey. She believes the benefits of their work are meaningful: “Having students see the struggles that people go through daily can really affect their career choice.”

BETTER FOOD ACCESS

Lucia Leone, PhD, associate professor, Community Health and Health Behavior

Leone develops interventions to make getting healthy food easier. Among other efforts, she and her team of researchers have explored how food programs like SNAP and WIC can work better for people who rely on them and grown support for the nation’s mobile produce markets (“veggie vans”) through resources like an annual conference.

The latter just got a $750,000 boost from the U.S. Department of Agriculture allowing the expansion of UB’s Veggie Van Training Center and Mobile Market Coalition, both of which help mobile markets become more effective and sustainable through evidence-based practices.

The team also plans to create regional mobile market networks to facilitate operator training, resource sharing and obtaining food from local sources. The mobile market niche, says Leone, “is the perfect marriage of helping improve access to food and encouraging entrepreneurship by people who run mobile markets.”

A key strategy across many of Leone and the team’s projects is improving the sale of food and food access by working through food retailers.

“We try to make it easier to work with retailers who have stake in the game,” she says. “Serving customers better is our goal.”

TRENDING IN NUTRITION

Talking with SPHHP’s nutrition experts for this article surfaced a number of trends they perceive in the field. These are the top three:

1. Growing interdisciplinary research and education
2. Heightened attention to factors like food access, cultural preferences
3. Increased focus on overall diet patterns rather than on one nutrient or food
OBESITY AND EATING DISORDERS
Katherine Balantekin, PhD, RD, clinical assistant professor, Exercise and Nutrition Sciences

A career development (K01) award is benefitting Balantekin’s interest in the intersection of obesity and eating disorders. People often equate “eating disorder” with anorexia nervosa, but she notes the rates of bulimia nervosa and binge-eating disorder are higher than anorexia nervosa in people in general.

Balantekin studies children who have a loss of control of their eating and those who don’t, and how four factors affect their weight gain over time: loss of control eating status; parental feeding practices; baseline weight status; and how motivated the children are to eat certain foods over time.

“The foods we’re testing kids’ motivation to eat will be the foods that we tell their parents to restrict. Later on, we’ll offer those foods on a buffet to see if kids are more likely to choose them.” Balantekin’s goal is to have 100 families in the study; enrolling participants began in October.

“The study’s main idea is loss of control over eating, related to kids,” Balantekin adds. “That can be hard to conceptualize with kids because they go through periods of extreme growth when they’re eating a lot.”

NUTRITION EXPERTS IN TRAINING
Nicole Klem, MS, RD, Clinical Nutrition MS program director, Exercise and Nutrition Sciences

With its new Clinical Nutrition MS program, UB is now “translating what researchers do to create dietitians of the future,” says Klem. Students in the program learn critical thinking and scientific skills needed for clinical dietetics practice, management, research, and leadership roles of the future. The master’s degree in clinical nutrition produces competent graduates prepared for interprofessional collaboration and offers opportunities to seize expanded roles in health promotion, disease prevention, translational research and nutrition intervention for a diverse society.

“We help students translate research into nutrition practice,” she says. A truly immersive research experience is relatively rare in nutrition and dietetics programs; UB students are equipped to actually consider research as a profession while working alongside SPHHP faculty on nutrition-related projects.

Frequent interprofessional study with other health profession students also helps the program’s students address nutrition—often the “unspoken background in patients’ lives,” Klem explains. “Other health professionals’ therapies can improve if patients have good nutrition. The role we play on the team can improve outcomes of everyone working on patient care.”

NUTRITION AND HEALTH PROFESSIONS
Danielle Meyer, MS, RD, CSO, Clinical Nutrition MS clinical director, Exercise and Nutrition Sciences

Dietitians understand how to translate research in the science of nutrition and apply it to people. According to Meyer, students in SPHHP’s Clinical Nutrition MS program become well-versed in educating and motivating people to make healthy food choices. And the new undergraduate program in nutrition (see page 4) will prepare students with the basic science knowledge they need to go on to careers and further study in nutrition and dietetics.

Students in the Clinical Nutrition program learn how to “synthesize population data to provide patient-centered care,” Meyer says. In addition, they take part in an important trend in clinical nutrition, as in other health professions—interprofessional education (IPE).

“We must know how to talk to the rest of the clinical team,” Meyer notes. “We’re involved in IPE so the other professions know what we do and how we can help patients.” Thus, clinical nutrition students often educate the students in programs like medicine, dentistry and social work on what dietitian/nutritionists “can do for patients, as well as about nutrition itself.” For instance, clinical nutrition students take part with medical students in the “Introduction to Culinary Medicine” course that helps both professions understand food and health in a new way.
Jeffrey Shaman, PhD, is director of the Climate and the Health Program at Columbia University Mailman School of the Public Health and faculty chair of Columbia University’s Earth Institute. His Lee Lecture reviewed the connections his work makes between the flu, and humidity and temperature, including why flu outbreaks peak during wintertime. Shaman wondered whether he could use observed humidity conditions at population levels to mathematically model a flu season—and predict seasonal flu outbreaks.

He developed his model and populated it with data from 31 years on humidity conditions in several states. The result reproduced “the cycle of influenza seasonality.” The next step was finding out whether the model could predict individual flu outbreaks. He discovered that the model “would do a terrible job” due to the highly irregular nature of outbreaks.

Here’s where Shaman’s expertise in climate comes in. He tried building a system mimicking what happens in weather prediction and applied it to influenza prediction. Numerous simulations of the system showed that it almost consistently predicted the peak of flu outbreaks five weeks into the future. Refinement of the system allowed it to show how certain the forecast would be. Just as with weather predictions, Shaman found the likelihood of good forecasts eroded over time.

Respiratory nitty-gritty
Another aspect of Shaman’s work relates to COVID-19. He conducted a field study in which the aim was to improve his flu forecast by understanding the nitty-gritty of respiratory illnesses. Tellingly, the study found most people had no symptoms yet were shedding detectable virus and probably contagious.

He added, “the fact that most infections are undocumented and mild or asymptomatic means that these viruses can get around.” Shaman and his team in January 2020 got word of a newly emerging virus with Wuhan as its epicenter and saw it quickly spreading throughout China.

“Then it is hopping on airplanes and going to Thailand and Japan and South Korea and the U.S.,” he said. The team’s respiratory illness work suggested COVID-19 behaved like a common respiratory virus: “Most of the people who are infected probably don’t know they have it.”

System for COVID-19?
They built a system to determine if that were, indeed, the case, coupling GPS travel records and observations of confirmed cases from 375 Chinese cities. Their system estimated 86 percent of COVID-19 infections were in the “undocumented category.” They also saw evidence of a two-to-three-day period before symptoms when people were already contagious. Their conclusion? “This virus is not going to be stopped.”
Perry Lecturer Wants to Meet People “Where They Are” with Health Information

As with so many things during the current pandemic, the notion of health literacy has gained heightened attention. Health literacy is the degree to which people can find, process and understand basic health information and services needed to make appropriate health decisions, and it’s the interest of this year’s J. Warren Perry Lecturer, Kimberly Kaphingst, PhD.

Kaphingst is director of cancer communication research at the University of Utah’s Huntsman Cancer Institute. She’s currently knee-deep in studying how people with varying levels of health literacy respond to genetic testing, but has also studied health literacy in many contexts. One would naturally deduce that different levels of health literacy affect the quality of health decisions people make. Kaphingst also revealed people with limited health literacy have less knowledge about a variety of health topics, lower use of preventive services, and increased emergency department usage. Further, adults with limited health literacy had more problems keeping up with medications, poor control of their chronic conditions like diabetes and asthma, poor self-reported overall health, and higher rates of death from any cause.

“So certainly,” Kaphingst concluded, “health literacy has an important impact on a variety of different health outcomes.”

A major area of inquiry right now, Kaphingst said, “is looking at health literacy and how that impacts people’s use of electronic sources of health information…Even before the pandemic, but certainly during the COVID pandemic, this has been critically important.” She discussed a study she took part in, led by SPHHP researchers Associate Professor Heather Orom, PhD, and Post-doctoral Associate Xuewei Chen, PhD, that looked at how people used sources of information and their evaluation of their trust in the information. The study showed people with lower health literacy were more likely to use television, blogs and celebrity web pages as sources of health information and less likely to use medical websites as information sources.

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“Not only did people use different sources of health information,” Kaphingst said, “but...these data showed adults with lower health literacy had less trust in various healthcare professionals particularly dentists and specialty doctors. They had higher trust in health information from social media, blogs, celebrity web pages, friends and pharmaceutical companies.”

Kaphingst’s advice for people who have to communicate about COVID-19 issues applies to her thoughts about making health information more accessible and effective overall: “Health literacy researchers focus on improving the consistency of messaging. Working together to a much greater extent than we have across federal and state agencies could also improve things.”
A Dream Realized, A Partnership Formed

For Natalie Barnhard and her dream of a gym for people with spinal cord injury, the right puzzle pieces—including expertise from Department of Rehabilitation Science Chair Sue Ann Sisto, PT, MA, PhD, FACRM—fell into place at the right time. The Natalie Barnhard Center for Spinal Cord Injury Rehabilitation and Recovery opened in Buffalo this fall, welcoming clients who would otherwise have to travel hundreds of miles to find a similar place to work out and bond with others with spinal cord injuries.

Soon, UB physical and occupational therapy students will prepare there for their clinical experiences, learning to work with state-of-the-art equipment available thanks to a partnership forged between Barnhard’s Motion Project Foundation and SPHHP’s Department of Rehabilitation Science.

“A perfect relationship” Barnhard suffered a spinal cord injury in 2004 that left her paralyzed. The Motion Project became a personal goal early on in her rehabilitation from the injury, as she experienced the challenge of obtaining critical services such as intense rehabilitation therapy, acquiring home modifications and other equipment.

A key piece of the puzzle was the 2018 arrival at UB of Sisto as department chair. Sisto has spent several decades as a clinician caring for people with spinal cord injury and studying spinal cord injury rehabilitation and immediately recognized the importance of the project.

Training opportunities for OT, PT students

The partnership with UB involves research and education. On the research front, Sisto plans to work with Barnhard and the center to create a database containing the benefits of health and wellness programming for people with spinal cord injury. Such a database could lead to much-needed health care policy changes for the spinal cord injury community.

Sisto also plans to partner with colleagues from her department’s Center for Assistive Technology, and researchers from the School of Engineering and Applied Sciences and the Jacobs School of Medicine and Biomedical Sciences, to conduct studies on robotic devices and intervention outcomes with some of the center’s cutting-edge equipment.

As well, students in the Occupational and Physical Therapy programs will do internships and fieldwork at the Motion Project soon.
Marianthi Markatou, PhD, professor and associate chair of research and healthcare informatics in the Department of Biostatistics, has been appointed to the distinguished professor rank by the SUNY Board of Trustees. The rank of distinguished professor is an order above full professorship and the highest rank in the SUNY system.

Markatou was named Distinguished Professor in recognition of her international prominence and distinguished reputation in her field. According to SUNY, “this distinction is attained through extraordinary contributions to, and impact on, the candidate’s field of study, often evidenced by significant research.” Markatou is an internationally renowned expert in biostatistics, statistics and biomedical informatics. She has conducted seminal methodological research that has significantly advanced the fields of statistical robustness, mixture models, statistical distances, weighted likelihood methods and statistical machine learning.

Markatou has also earned prominence as an interdisciplinary scholar and made pioneering contributions to statistical and domain sciences. Her interdisciplinary work has applied rigorous statistical methodologies to advance pharmaco-epidemiological and emerging safety sciences research, biomedical informatics and computer science.

Her work has been continuously supported by external funding agencies since 1990, and her influential statistical publications have appeared in highly regarded journals. She has current awards that include a $7 million grant from the Patient-Centered Outcomes Research Institute, the Food and Drug Administration, and the Kaleida Health Foundation. Markatou is a fellow of the American Statistical Association and the Institute of Mathematical Statistics, and a member of the International Statistical Institute.

“When students come and see a top-notch center like this, they develop a standard in their minds during their professional training in physical and occupational therapy as they begin to learn about spinal cord injury rehabilitation and the impact of injury on every day life,” Sisto said. “It’s really going to raise their standards of what a clinic should look like, what equipment should be available to their patients and what they should know of spinal cord injury rehabilitation.”

For instance, among the Motion Project’s signature pieces of equipment is the Lokomat, a treadmill-like robotic rehabilitation device to help clients improve their ability to walk. Fourth-year OT student Sydney Szwarcbarg, who recently visited the Barnhard Center, was impressed: “I had never even heard of it before today!”
Why did you decide to get a degree in biostatistics?
I liked mathematics as a child. For my undergraduate study, I majored in information and computing science, which is tightly related to mathematics. I participated in five different mathematical modeling contests, and I obtained training in applying the mathematical theory and programming knowledge I learned in the classroom to analyze mathematical and statistical models. In this procedure, I realized that statistics is a more applied subject and can be applied to many fields such as public health, medicine, finance and business.

For my PhD study, I hoped to learn more advanced statistical theories and focus on something more specific to learn how to apply statistical knowledge to help solve issues in public health and medicine.

How is your research going?
My current research focuses on statistical methods in biomarker evaluation and diagnostic studies. This is also the main part of my PhD dissertation. We have explored different diagnostic measures in the framework of tree/umbrella ordering and investigated statistical inference methods for these measures for the purpose of biomarker evaluation and comparison. We also applied these proposed methods to lung cancer study. We are continuing to investigate more statistical topics in this area.

How would you characterize your time at SPHHP?
The biostatistics program not only provides the solid and advanced theoretical training, but also provides students tremendous practical training opportunities to apply the statistical knowledge learned in the classroom to various real-world projects. At SPHHP, we also can choose courses in other departments to broaden the scope of knowledge.

Why is biostatistics important?
Biostatistics links statistics with many fields such as medicine, biology and public health, allowing researchers to draw inferences in a scientific way from gathered information and to make data-driven decisions that help improve the efficiency and efficacy of health- and medicine-related programs and make our life better and better.

What is the most important part of your time at SPHHP?
The most important aspect of my time at SPHHP is that I did my PhD dissertation research under the guidance of [Department of Biostatistics] Prof. Lili Tian. Prof. Tian is the most responsible mentor I have ever met. I could not grow as fast without her precious instructions. Her passion for research always highly motivated me, and, gradually, I found that doing research is an enjoyable process. Besides providing me the best doctoral training, her enthusiasm and optimistic personality generates a lot of positive impacts on me that help me get over difficulties and frustrations in work and life.

Why should someone consider a degree in biostatistics?
Through learning biostatistics, we can obtain lots of knowledge about how to analyze real life data such as public health data and medical data in a scientific way. The biostatistics program not only can improve our statistical skills, but also can help us accumulate real-world experience in practice, which set students apart in their future career.

What interests you outside of your studies?
Outside of my studies, I like listening to music, and I am also a sports fan. I watch different sports games every week and follow sports news every day. I know lots of sports among which soccer is my favorite. Since I was a child, I have enjoyed playing soccer and watching live soccer streaming with family and friends. When I have time, I always go to the stadium to watch sports matches.

What are your plans once your studies are complete?
I hope to apply the solid theoretical knowledge and valuable research experiences I gained during my PhD study to my work and help solve public health and medicine issues in real life. I also hope to stay curious, keep exploring, and improve my work skills and research ability through constantly learning new knowledge and communicating and collaborating with colleagues.

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Their findings revealed differences in mask adherence by sex, race and age, and show that Erie County’s (N.Y.) mask rate was highest over the summer when its COVID-19 transmission rate was relatively low.

The Systematic Observation of Mask Adherence and Distancing (SOMAD) study aimed to monitor adherence to public health safety practices, which have been uneven during COVID-19. UB was among 14 institutions participating in the study, led by Kaiser Permanente and funded by the National Institutes of Health and the Bloomberg Foundation.

Students from the departments of Community Health and Health Behavior, and Epidemiology and Environmental Health, collected data for three months, observing masking and social distancing behavior of more than 5,000 people in outdoor and indoor settings in Albany, Erie and Nassau counties. Additional observations were made in China.

Dylan Jablonski, a student in UB’s Online Master of Public Health program, says the experience gave him valuable lessons for future real-world applications in observational data collection, data cleaning and analysis, and developing a research plan.

“I was fascinated with how big the study was and how many other universities were participating in the study,” adds Jablonski, who served as the data liaison for the UB team.

Intriguing patterns

Findings from observations made in New York revealed that certain factors may play a role in mask adherence. For example, in Erie County, Black women had the highest rates of mask adherence. Mask adherence among African Americans overall was about 4 times that of white people in the county.

The finding revealing higher compliance with face coverings in June stood out in particular, says Xin (Skai) Pan, a dual degree PharmD/MPH student.

“We usually think that our mask-adherence rate would be the highest during the period of high COVID-19 transmission,” Pan says. “However, our results show that we actually had the highest mask-adherence rate during the period of low disease transmission.”

Pan and Kim Krytus, assistant dean and director of graduate public health programs in the School of Public Health and Health Professions, who served as faculty adviser on the project, presented the group’s findings to the Western New York Public Health Alliance, a group of health directors from the eight counties of Western New York.

Grad Students Part of National Study on Masking, Social Distancing

UB graduate students in public health recently were among researchers collecting and analyzing data on mask-wearing and social distancing.

Intriguing findings

According to the SOMAD study:

» Mask adherence was highest in June. During this time, the seven-day rolling average of COVID-19 cases was at its lowest point of the summer. Researchers suggest mask adherence may have been higher then because the county’s vaccination rate was lower than it had been in previous months.

» The national study looked at physical activity level and mask adherence. Local results show sedentary individuals had a higher rate of mask adherence.

» People in indoor settings were more likely to wear a mask and maintain social distancing.

» Adults had a higher rate of mask adherence compared to children and older adults.

» Women were more likely to wear a mask than men.

Source: bit.ly/UB-SOMAD
Clark is professor emeritus of occupational science and occupational therapy at the University of Southern California and a noted expert in occupational therapy (OT) and aging. From her time at the University at Buffalo’s OT master’s program, to her influential “Well Elderly Studies,” to her role securing occupational science as a viable discipline, Clark has been a groundbreaker.

Perhaps her circuitous route to a career in OT was the first instance of her mold-breaking ways. Clark had been an arts-oriented student, majoring in English and drama as an undergrad at the University at Albany. But when she graduated during the societal upheaval of 1968, a service career seemed more appropriate. She discovered OT would allow her to use her background in drama and writing because, at the time, OT was well represented in psychiatric hospitals, where therapists engaged patients in creative pursuits.

“Since its inception,” Clark explained, “OT has been based in creative and meaningful activities for people with physical or mental disabilities. ‘Occupation’ was the generic definition—what you occupied your time doing, which, ideally, should be health-promoting.”

Clark enrolled in UB’s brand-new OT master’s program and was one of the first in the country to get the degree. She laughed when she recalled her time at UB: “I was a misfit because I expected a conceptual education with a theoretical knowledge base. But I entered a field that was very practical.”

Once Clark found a mentor in one of her fieldwork supervisors, she felt “challenged. At graduation, I received the award for the best master’s student in clinical fieldwork.”

Clark’s path took her in a research-based direction. She built a large OT department as the director within a state school in Pennsylvania and started research with people with disabilities based on a therapy that helps people with sensory processing issues by providing individually tailored opportunities for sensory stimulation.

When she eventually made her way to the University of Southern California, she joined the faculty and stayed for 41 years, gaining her doctorate in psychometrics and special education and ultimately becoming associate dean of the Mrs. T.H. Chan Division of Occupational Science and Occupational Therapy. She also furthered her forays into research; by 1993, she received her first grant from the National Institute of Aging/National Institutes of Health, one of the first three OT researchers to have secured such funding.

In 1994, Clark had begun the work of which she is most proud: the USC Well Elderly Studies. The first study made notable contributions to research on OT and its effect on the aging population. The largest outcomes research study conducted in the field to date, the results were published in October 1997—the first OT study to appear in the Journal of the American Medical Association. In the follow-up Well Elderly 2 study, Clark and her fellow OT researchers...
researchers at USC found that small, healthy lifestyle changes—coupled with involvement in meaningful activities—are critical to healthy aging.

“The research was ahead of its time in looking at wellness and establishing OT as relevant to the well-elderly population,” Clark said. “We found that non-medication-based interventions could prevent disease.”

The idea of “Lifestyle Redesign” was a key component of the findings.

“Putting together a daily round of customary activities would be life-promoting,” she said. “This was way before Peloton!”

Clark’s science was one of the key prompts of the notion that occupational science was a credible discipline.

“Previously,” she explained, “people wondered if OT really needed a discipline. But unless OT had a scientific base, it would just be a technical field and unable to progress.”

Clark put occupational science’s stake in the ground during her Eleanor Clarke Slagle Lecture, a renowned forum of the American Occupational Therapy Association named for a pioneer of the OT profession.

“The lecture secured the viability of occupational science as a discipline,” she said. “Now, 30 years later, it’s completely viable and well established.”

For Clark, the essence of her career comes down to practice, to the people with whom she has worked, counseled and supported as an OT, and seeing the changes in their lives.

“You do research not to be glorified as a researcher but to contribute to the well-being of others,” she said. “You’re on the side of good and making a positive contribution.”

Jessica O’Neill, PhD ’21, MPH ’14, a recent doctoral degree recipient in community health and health behavior at SPHHP, has received a fellowship from the American Association for the Advancement of Science. She has been placed with the U.S. Agency for International Development’s Bureau of Humanitarian Assistance in Washington, D.C. The bureau provides lifesaving humanitarian assistance to the world’s most vulnerable and hardest-to-reach people.

O’Neill is among 284 highly trained scientists and engineers who will spend a year serving in federal agencies and congressional offices as Science & Technology Policy Fellows. The government benefits from the contributions of highly trained scientists and engineers, while they learn firsthand about federal policymaking and implementation.

“I get excited about the possibilities the future may hold when policies are rooted in sound scientific evidence and developed with the lenses of equity and environmental sustainability in mind,” O’Neill says.

“I thank my mentors Heather Orom (my primary research mentor) and Lorraine Collins for giving me the autonomy I wanted to explore the possibilities in my research, the guidance I needed to achieve success, and the support to pursue my interests in the nonprofit and policy sectors, which led to the AAAS Science and Technology policy fellowship. My years in CHHB were perhaps the most formative in my life, and I regard that time fondly, with much gratitude,” O’Neill adds.

Since AAAS’s fellowship program’s inception in 1973, nearly 4,000 fellows have supported the executive, judicial and legislative branches of the U.S. government.
“A girl going to college—why would you want to do that?” asked an uncle. Happily, a favorite high school science teacher’s encouragement counteracted the family skepticism, and UB alumna Alma (Coleman) Scully, EdM ’64, ended up enrolling at Hunter College in New York City, which was then tuition-free.

When Alma was a junior at Hunter, she met Don Scully from Orchard Park, N.Y., on a blind date. They married during her senior year, and Alma taught physical education on Long Island, while her husband completed his tour of duty. Once the couple settled in Orchard Park, Alma continued to teach physical education in Orchard Park schools and coached synchronized swimming. They also started a family.

In addition, Alma began taking courses at UB toward a master’s degree in guidance counseling until changes in requirements made a master’s in physical education more practical. That change turned out to be a boon for the Department of Exercise and Nutrition Sciences. Alma and Don, before he died, generously supported the department once Alma graduated. Over the years they gave the department and UB gifts that, among other uses, support the department’s Outstanding Senior Award.

“I wouldn’t have had a college education if it hadn’t been free,” she says. “Don’s family had a long history of college education but I was the first in my family. Despite that, we had the same strong feelings about the importance of education.”

Today, Alma is 90 years young and has placed another stake in the ground toward funding worthy scholars. With a $50,000 gift, she has created a scholarship for undergraduate students in the Exercise Science program. The endowment fund will be called the Alma C. Scully Scholarship Fund, to be awarded to students whose academic achievements are deserving of support.

“I wanted to ensure that the scholarship that I have been funding for many years will continue after I am gone,” Scully said. “I hope that this Scholarship Fund will do that and more in the years to come for worthy students.”