

LIFE 360

COLLEGE OF HEALTH & HUMAN SCIENCES

NO SUBSTITUTE:

HHS research reveals insights
into obesity prevention

MAKING LIVES BETTER

In the **College of Health and Human Sciences** (HHS), we're discovering healthier ways to eat, exercise, manage finances and navigate relationships. We're finding better ways to treat, prevent and diagnose cancer. We're working to improve the environment as well as the safety of employees. We're addressing the challenges of aging, and uncovering new ways to improve memory and prevent disease. We're translating our discoveries into educational programming to inform people living in Indiana and around the globe about health and well-being. And we're preparing future generations of health and human sciences professionals, educators and business leaders who are determined to make this a better world.

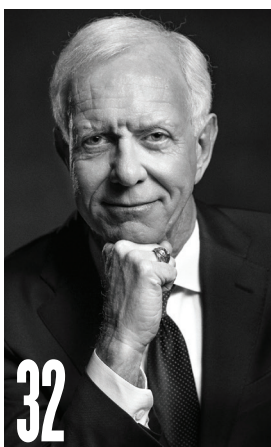
Thank you for making Purdue's sesquicentennial a success! We look forward to the years ahead and invite you to join in celebrating HHS' 10th anniversary in 2020.

150 YEARS OF
GIANT LEAPS[™]
PURDUE UNIVERSITY



LIFE360

COLLEGE OF HEALTH & HUMAN SCIENCES FALL 2019



24 ON THE COVER BEYOND 'YOU ARE WHAT YOU EAT'

Professor Susan E. Swithers studies the roles that artificial sweeteners and other food substitutes play in weight management and eating. Her findings show consuming high-intensity sweeteners, despite their zero calories, may result in overeating, weight gain or other health problems. She is one of many HHS researchers investigating obesity prevention featured in this issue. (Photo by Brian Powell)

- 04 **SPEAK UP**
- 06 **YOUR FRIENDS AT YOUR FINGERTIPS**
- 08 **BREAKING THE SILENCE**
- 10 **ENVIRONMENT FOR OBESITY**
- 16 **IS YOUR DRINKING WATER SAFE?**
- 18 **A WHOLE NEW WORLD**
- 20 **GETTING AN EARLY START ON SUCCESS**
- 30 **A CALL TO NURSING**
- 32 **GIANT LEAPS SERIES Q&A**
- 34 **REDUCING OBESITY AND IMPROVING LIVES**
- 40 **GRADY EIFERT**
- 42 **UPGRADE**

ABBREVIATION LEGEND

CSR	Consumer Science
HK	Health and Kinesiology
HSCI	Health Sciences
HTM	Hospitality and Tourism Management
HDFS	Human Development and Family Studies
NUR	Nursing
NUTR	Nutrition Science
PSY	Psychological Sciences
SLHS	Speech, Language, and Hearing Sciences

FIRST IMPRESSIONS

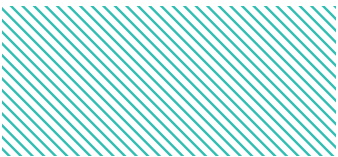


Photo by Brian Powell

As our yearlong celebration of Purdue's sesquicentennial wraps up this month, we're preparing for another kind of celebration. July 1, 2020, is the 10th anniversary of the College of Health and Human Sciences. Plans are underway for a variety of activities to recognize the founding of our dynamic college, which was created to enhance student learning, bring about greater faculty collaborations and further community outreach — all aimed at improving health and quality of life.

We'll be posting information to our anniversary website at purdue.edu/hhs/10 as well as to our social media. I hope you'll consider joining us for some or all of our celebration activities.

Part of HHS' growth and evolution stems from how we can better serve students. On June 14, 2019, the Purdue University Board of Trustees approved the merging of two current academic units and the addition of a new one. Specifically, we will create a new Department of Public Health and also create a new, larger unit focused on the human side of business relationships as the Department of Consumer Science will become a division of the School of Hospitality and Tourism Management. The new Department of Public Health will house two existing programs — our undergraduate public health degree and our Master of Public Health (MPH) degree — with more (new) degree programs to come. More information about these changes will be shared in future HHS e-newsletters and on social media. We are excited about these developments because they will help us better serve our students in Public Health, Consumer Science, and

Hospitality and Tourism Management by giving them access to even more faculty members with strong expertise in each area.

HHS has a rich array of expertise related to food and eating: Our nutrition scientists study how dietary choices can prevent disease, our hospitality and tourism experts train students to prepare healthy food and present it in a way that is appealing, and many other HHS scientists study how and why we eat what we eat. According to the Centers for Disease Control and Prevention, the nation's obesity rate is approaching 40% for adults and is more than 20% for adolescents ages 12-19. Compared with healthy weight individuals, obese people have an increased risk for many serious diseases and health conditions, such as stroke, Type 2 diabetes, coronary heart disease and some cancers. HHS researchers are studying a broad range of factors (environmental, biological, genetic and others) to better understand obesity and to discover long-lasting ways to treat and prevent it. In this issue of Life 360, we explore how the college is working to treat and prevent obesity on many fronts.

HHS has accomplished so much in 10 short years and I am excited by our endless potential! I am deeply thankful for your support of our work. Together, we will continue to advance HHS as a national leader in enhancing human health and well-being at every stage of the life span.

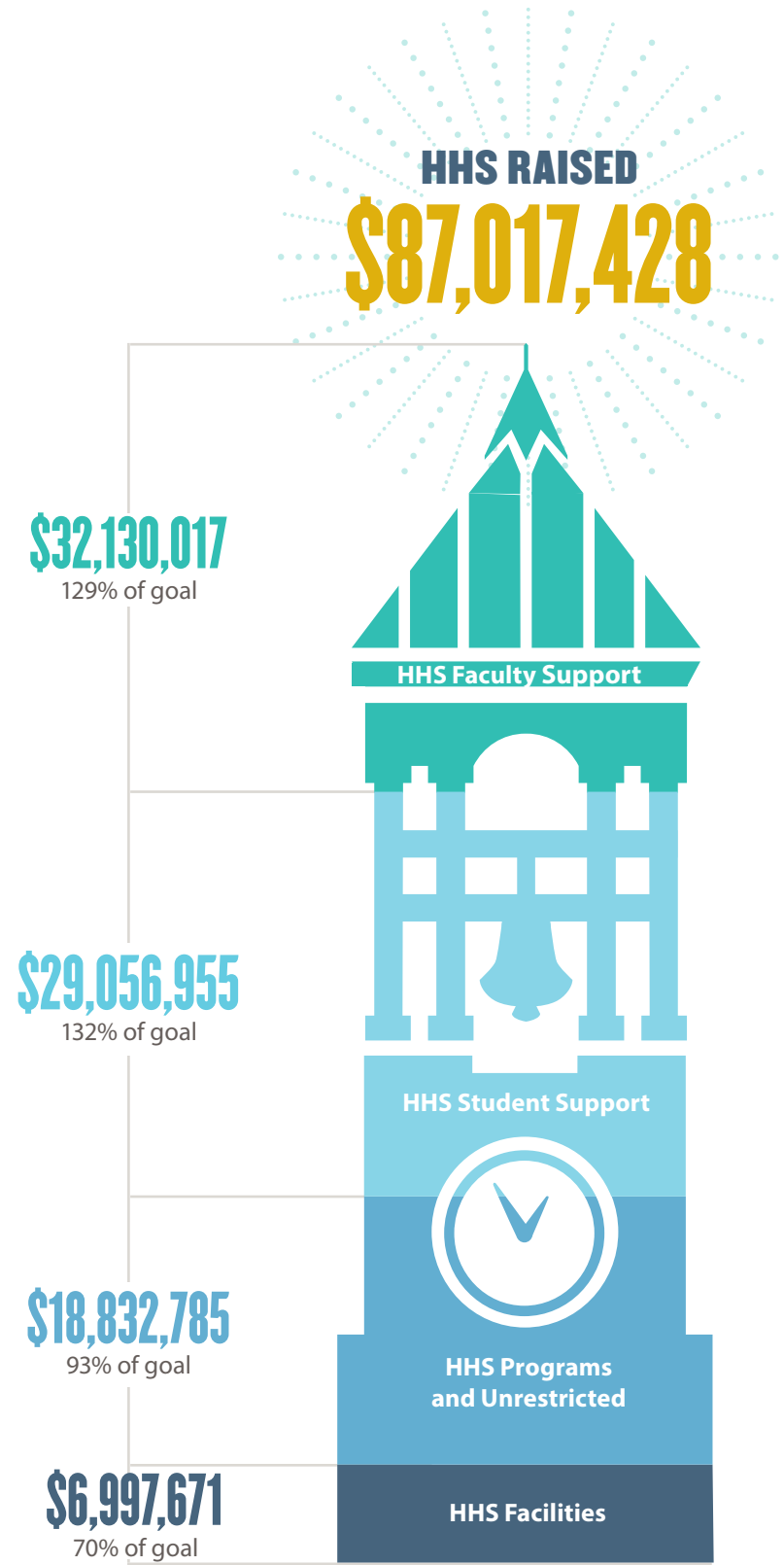
Hail Purdue!

Marion K. Underwood

Marion K. Underwood
Dean



COLLEGE OF HEALTH AND HUMAN SCIENCES



Thanks to the generosity and enthusiasm of alumni and friends, HHS surpassed its campaign goal and raised more than \$87 million to expand opportunities for students and faculty. Such giving led to the record success of Ever True: The Campaign for Purdue University and its achievement of \$2.529 billion.

Giving to HHS exceeded goals for student support (132%) and faculty support (129%), and significantly expanded funding for facilities, programs and unrestricted support. These gifts increase scholarship and study abroad opportunities for students, and support life-changing research programs including healthy aging, public health, autism spectrum disorder, and health and wellness.

Through your sustaining support, HHS will continue our mission to make lives better.

THANK YOU!

SPEAK UP

STUDENTS IN SPEECH, LANGUAGE, AND HEARING SCIENCES TAKE ADVOCACY TO THE STATE

By Brian Wallheimer

Students in the Department of Speech, Language, and Hearing Sciences get the same message from mentors and professors throughout their college years: Advocate for your patients.

It's an important lesson, but one that many students can't wrap their minds around while they spend much of their time in classrooms and may be years away from working with patients.

"We're always talking about advocating for our patients and their rights. But it's kind of an abstract idea," says Katy Hopping (BS '17), a second-year Doctor of Audiology student. "We talk about how we have the knowledge and expertise, but talking in class isn't going to get anything done."

So students like Hopping started talking outside of class — specifically to fellow students and then to state legislators. What started as a small group of Purdue students taking advocacy outside the classroom has grown into hundreds of voices speaking out on behalf of their fields and their future patients.

The spark came from **DAWN WETZEL**, a clinical associate professor in speech, language, and hearing sciences. A few years ago, she was asked to speak to an Indiana State Senate committee on an issue related to her field and she saw the need for more

passionate voices to educate legislators. Those voices, she realized, could come from students already active on campus.

"I started appreciating the impact they could make as grassroots advocates," Wetzels says. "They can make a difference."

Wetzel and the Indiana Speech-Language-Hearing Association organized a Legislative Day in Indianapolis in 2017. After seeing Purdue students talking to legislators at the event, she was determined to build on their enthusiasm and organized the Purdue SLHS Student Advocacy Council. That group took the reins for student involvement at future legislative events.

One of the first things the students had to tackle was simply educating legislators about what speech-language pathologists and audiologists are and the populations they serve.

"Students clearly understand the populations our professions treat, the specific services we provide, and the impact we make, and they may assume everyone else does as well," Wetzels says. "They are amazed when they talk to a legislator and that person has no idea what we do."

That experience — having the ears of state policymakers — was empowering for students, many of whom had observed the legislative process only through news sound bites from elected officials they had never met.

"They're wanting us to give them information so they can make the best decisions possible," says Stacia Braden, a second-year master's degree student in speech-language pathology. "Just knowing them on a personal level, having the time to talk to them at an event, was so powerful."

At the 2019 Legislative Day, students took positions on four bills, including proposed laws pertaining to the amount of training required to be a school speech-language pathologist, funding for hearing aids for children, and the removal of state licensure for hearing aid dealers. They're the types of issues that state government deals with every year.

"Before joining the Student Advocacy Council, I had no idea what type of legislation was out there, how to find out or who my state legislators are," Hopping says. "Being on this council has educated me so much."

Legislators also heard from more than just Purdue students on these issues. That's because a significant part of the Purdue SLHS Advocacy Council's work has been to rally students at all seven of

the communication sciences and disorders programs at colleges and universities throughout Indiana.

"This isn't a single person's responsibility. It's intertwined in our profession," Braden says. "We can all join forces and make a difference. We're all on the same team."

During the 2017 Legislative Day, 46 students participated. But thanks to Purdue student efforts, there were 167 students in 2018 and 220 this year.

"I'm incredibly grateful for the students of Purdue because they did a phenomenal job of reaching out to students statewide and encouraging participation," says Susan Latham, president of the Indiana Speech-Language-Hearing Association. "Hopefully what happens is that students use these experiences to become leaders, sustaining this after they graduate and become professionals."

Wetzel and Purdue's students are confident that the advocacy will keep up. That's because in the first year, Wetzel had to recruit students to the SLHS Advocacy Council and now the demand has grown so much that students have to apply for membership.

"This has been a great way to be familiarized with advocating for myself as a professional and for my clients when I'm in the field," says Jasmine Anguiano, a first-year master's degree student in speech-language pathology. "This program has given me the skills to be comfortable with advocating. If there were a bill on another of these topics or any other topic that I feel strongly about, I would be able to approach my legislator now."

"I think I can make an impact."

"This isn't a single person's responsibility. It's intertwined in our profession. We can all join forces together and make a difference. We're all on the same team."

— Stacia Braden, graduate student in speech-language pathology



MANY VOICES, ONE PURPOSE



Your friends
at your
fingertips

can be 😊❤️👍😐

Dean and psychologist Marion K. Underwood studies the complex lives of tweens and teens in the digital age

By Elizabeth Gardner

Despite scary headlines and shocking stories, texts and social media postings by adolescents and young adults are mostly positive or neutral, according to research by Marion K. Underwood, professor of psychological sciences. In 2006, Underwood was among the first to move from surveying kids about electronic communication and social media use to directly viewing and analyzing messages, posts and comments — even those hidden from public.

“Although negative talk, sexting and bad behaviors happen, a lot of what young people are texting and posting on social media is positive,” says Underwood, who collaborated on and was featured in the CNN special report “#Being13: Inside the Secret World of Teens” in 2015. “The percentage of messages that we

would consider bad behavior is very low. But in text messages especially, there are a lot of kind, intimate conversations about real problems the kids are facing and friends trying to help problem solve or show support. There is a lot of encouragement.”

This may reassure many parents, as 95% of teens have access to smartphones, 45% report being online constantly, and teens as a whole use text messaging more than any other mode of communication, according to the Pew Research Center.

“They use texting and social media to develop close peer connections, develop romantic relationships, figure out who they are and project who they might want to be to see the peer response,” says Underwood, who also is dean of the College of Health and Human Sciences. “It is completely developmentally normal at 13 or 14 to want to spend a ton of time with your friends. And we all did this at their age too. We just did it offline.”

Seamless connections

Texting and social media use are ubiquitous now, but at the time of the study these media were relatively new and the implications for adolescents and teens were a mystery.

“The BlackBerry project was the first to track and record digital communication at a time when no one thought it was possible to do so,” says Kaveri Subrahmanyam, a professor of psychology at California State University, Los Angeles. “When I first heard about her study, I was amazed. Until then we knew very little regarding youth’s digital communication — who they communicated with, how much and the content of their digital talk.”

“There are a lot of **KIND, INTIMATE** conversations about real problems the kids are facing...”

— Marion K. Underwood, professor of psychological sciences and dean of the College of Health and Human Sciences

Subrahmanyam says the prevailing concern at the time was that online communication occurred with strangers and was unconnected to offline lives, but the results of the BlackBerry project showed that adolescents and teens were communicating among their own social circles and their online and offline lives were connected.

“Young people move seamlessly from online to face-to-face interactions — the only clear line between online and offline interactions is in adults’ minds,” Underwood says. “However, text messaging and social media have the potential to amplify the positive or negative influence of peer interactions more than face-to-face interactions because of the immediate availability of feedback from potentially hundreds of people.”

Despite her generally positive view of social media, Underwood says there are youth vulnerable to distress from the constant communications, and she is concerned about cyberbullying.

“It is not something that has to happen every day to cause distress,” she says. “Even just being the victim of one elaborate episode can have lasting effects.”

Though bullying is overt, it was an interest in subtle mean behaviors that brought Underwood to texting and social media in the first place.

Sneaky mean behaviors

Underwood’s social media research stems from an interest in understanding subtle forms of social aggression she calls “sneaky mean behavior,” which includes malicious gossip, social exclusion and other attempts to hurt someone’s friendships or status.

“You might think from watching ‘Mean Girls’ (the movie) that these behaviors peak in high school, but that’s not true,” she says. “These behaviors actually peak in the late elementary years — and we see no gender differences. It happens as much among boys as girls.

“Some kids do these behaviors a little bit and some do them a lot. Some kids are the victim of it a little bit and some kids are chronically victimized. I wanted to know how these behaviors develop over time.”

As part of a study started in 2003, she had been observing 9-year-old children interact with their parents and friends. After a few years, the group of children began coming into the lab clutching cellphones and desperate to text with their friends, she says.

“I was curious and thought it would be great to be able to check my email when away from my computer, so I bought a smart phone. Then I quickly realized ‘Oh wow, this is my whole social network in my hand.’ And I understood why it appealed so much to the young people I was observing.”

On their turf

Underwood saw texting and social media as inviting venues for social aggression and expanded her study as the cohort, at the time totaling 175 kids, entered ninth grade. She gave the participants free BlackBerry devices and service plans, and — with the participants’ and their parents’ permission — text messages, email and instant messages were archived for four years as the group moved through 12th grade.

“Understanding the hidden world of kids’ digital communication requires actually seeing what they say and do, not just asking them what they do,” she says.

“I thought they would maybe text five times a day. To my great surprise, they were texting constantly. It was very deep, lengthy interactions, Young romantic partners texting through the night.”

Underwood and her collaborators analyzed the data collected from the BlackBerrys, as well as from surveys, interviews and observation. They examined a variety of behaviors including social aggression, cyber victimization, antisocial behavior, prosocial behavior, and internalizing symptoms as predictors of the content of social media communication. Scientific journals including American Psychologist, Developmental Psychology, and Aggressive Behavior have published the findings, and her work continues today. Underwood is currently studying adolescent use of Instagram and “lurking,” or checking social media without posting.

“Dr. Underwood has helped to demystify youth’s digital communication,” Subrahmanyam says. “Her work has been crucial to helping us develop a much better understanding of the content of youth’s digital communication and its relation to well-being.” 🌈

PARENTING IN THE DIGITAL AGE
Tips from Marion K. Underwood are available
at purdue.edu/hhs/life360/2019-fall/tips.html



BREAKING THE SILENCE

PURDUE GRADS BRING SOUNDS OF SERENITY TO YOUTH WITH HEARING LOSS

By Lesa Petersen



Jillian Laski (HK '13)



Andrea "Drey" Mingo (COS '13)

For hard-of-hearing children immersed in a hearing world, hearing aids are lifelines. But the minimum cost of \$1,500 for hearing devices is prohibitive for the nearly 1 million underprivileged youth who need them.

Jillian Laski (HK '13) is a star player on a Purdue dream team that is breaking the silence for these youth. Laski is vice president and director of social media outreach for the nonprofit philanthropy Sounds of Serenity (SoS), which provides financial assistance for acquiring hearing devices. The organization also provides mentorship and practical skills such as lipreading and techniques in distinguishing common sounds in speech — helping the students to keep up in the classroom and build their confidence and social connections.

"My goal with SoS is to make sure that no child ever feels alone or faces unnecessary struggles due to economic hardship," Laski says. Laski and Sounds of Serenity founder and president Andrea Mingo (College of Science '13) are collaborating with Jennifer Simpson, director of clinical education in audiology at the Purdue M.D. Steer Audiology Clinic, to give a voice to patients and their families who otherwise would be without this vital support.

A near-death experience gave life to a cause

Mingo might never have heard the cheers of Purdue women's basketball fans again. She might not even have lived to win two Big Ten championships.

Known as "Drey" to her family and friends, Mingo woke up from a medically induced coma on Thanksgiving Day in 2010 unable to hear. The bacterial meningitis that gave her a 50-50 chance to live also made her deaf.

At the M.D. Steer Audiology Clinic, the work began to help Mingo as she regained partial hearing in one ear. The road was rocky for the Purdue undergrad and basketball star, who had to rely on her teammates to help her play, struggled with keeping up in lectures, and found herself shying away from social interactions. Mingo says she had a choice — "to feel sorry for myself or to truly realize the potential I had to influence change." Leaning on her faith, she chose the latter. In a difficult moment, Mingo heard the Serenity Prayer, which became the namesake for the organization she founded in 2012.

Taking root from seeds planted at Purdue

At the heart of Sounds of Serenity (<https://www.teamsounds.org>) is the friendship between Laski and Mingo, who were basketball teammates when Mingo was diagnosed with meningitis. "Drey and I have been as close as sisters since our final year at Purdue," says Laski, who manages social media for Sounds of Serenity, increasing awareness and engagement in the organization's ventures like the very successful Sign With Us Sundays program

she spearheaded. "When I first found out about Drey's hearing loss, I was immediately able to relate." Laski's sister — who also loved playing basketball — is profoundly hard of hearing. "I had a front row seat to the hardships. And when Drey gave me an opportunity to work on something that would benefit children like my sister, I couldn't say no."

Purdue relationships have been crucial for the philanthropy's growth and have broadened the pathways for the cause. Mingo is forever grateful to Lata A. Krishnan, clinical professor in the Department of Speech, Language, and Hearing Sciences, and everyone who worked with her at the M.D. Steer Audiology Clinic. "Coach (Sharon) Versyp and Purdue women's basketball afforded me a platform to share an important message," Mingo says. "Much of the support for Sounds of Serenity takes root from seeds that were planted there."

And best of all, she is happy

When the Sounds of Serenity team wanted access to the front lines where the needs are most significant, it made sense to reach out to the M.D. Steer Audiology Clinic, where Simpson is a bridge between the philanthropy and those it seeks to serve. The funds from Sounds of Serenity have helped many families, Simpson says. "Other funding sources often don't cover everything a child needs."

The SoS funds allowed the M.D. Steer Audiology Clinic to reunite with a patient that had been under its care for four years until, when the young girl was 6 years old, her family could no longer afford the visits. Simpson is grateful that the girl, at age 10, was able to return to the clinic, where she received new hearing aids — aids her family couldn't purchase during the four-year gap. The improvement in the girl's abilities was enormous, and her teacher emailed the clinic staff the next day to thank them and to tell them how much better the girl could hear and speak in class.

"Wow!" the teacher wrote, "And best of all, she is happy!"

"Knowing personally how ostracizing living with a disability can be, my passion is fueled by the potential we have to change the trajectory of a child's life," Mingo says. Laski and Mingo plan to grow the reach of their philanthropy through partnerships with additional clinics and programs. The two are united in the power and importance of making lives better for the hard-of-hearing community.

"We want to expand our reach and help as many children as we can," Laski says. 🌟



Top: Jillian Laski presents a check to Jennifer Simpson at Purdue's M.D. Steer Audiology Clinic. (Photo courtesy of Jillian Laski) | Bottom: Andrea "Drey" Mingo speaks to the Purdue women's basketball team during a visit in February 2017. (Photo courtesy of Jillian Laski)



ENVIRONMENT FOR OBESITY

HHS RESEARCH SUGGESTS ADJUSTING CULTURE, POLICY AND HABITS TO PREVENT CHILDHOOD OBESITY

By Brian Zink

Obesity among children and adolescents in the United States is a complicated challenge for researchers, policymakers, the health profession and communities.

Untying the complex issues that drive and bind together childhood and adolescent obesity involves not only seeking answers through research but also finding ways to make changes to a society that has, in large part, evolved to create and perpetuate obesity.

"Most people would argue that obesity is a policy, systems and environment problem," says Dennis Savaiano, Purdue's Virginia C. Meredith Professor of Nutrition Policy. "A lot of the policies we have implemented in the past 50 years are the cause of that obesity, in my opinion. Why do we have an automobile culture? Why do our schools not have bike paths and walking paths? Nobody tried to design an obesogenic environment. That wasn't the goal or the intent, but we have succeeded pretty well."

The number of children tangled in the obesity web is staggering, and the implications are dire.

According to the U.S. Centers for Disease Control and Prevention (CDC), for those ages 2-19, obesity levels are at 18.5%, or nearly 14 million U.S. children and adolescents. And obese youths have a high likelihood of becoming obese adults. The National Survey of Children's Health cites a study that found overweight 5-year-olds were four times more likely to be obese at age 14 than children with healthier weights, and carrying that weight into adolescence increases the chances of adulthood obesity.

If current trends continue, more than half of today's children will be obese by age 35. Along with that obesity comes increased risk for Type 2 diabetes, heart disease, high blood pressure and asthma.

Be a sport

Jorge Banda, assistant professor of health and kinesiology, is going into the field to examine how youth team sports programs can be part of breaking the cycle of obesity. The focus of his research lab is three broad areas: increasing childhood physical activity; improving children's eating behaviors; and preventing and treating childhood obesity.

"Can we use youth team sports programs to prevent and treat obesity in kids?" he asks. "My goal is to work with community organizations to create the best possible sports programs for the kids."



Banda is partnering with youth sports programs in Lafayette and Indianapolis. Children ages 3-10 are fitted with accelerometers during practices to track their physical activity levels, and their snacks and drinks during practices are monitored.

Surprisingly, activity levels in some sports activities are not as high as people might think. Banda says previous research has shown students in school physical education programs spend only about 20% of their time being active, and in sports programs the activity level rises to just 30-40%.

"What we want to know is how physically active the kids are during their sports practices, and we want to know the quality of the snacks and beverages they get," he says.

Coaches also play a key role in Banda's work, since they are on the front lines of helping children develop a love not only of their sport, but also of physical activity in general.

"We want to understand the coaches' previous experience and if they would be interested in taking part in a coach-training program we want to develop," he says. "I want them to be the best possible coaches, to make sure kids have really great experiences so they want to continue to take part in sports or physical activity."

Banda's work with coaches is based in social psychology theory — encouraging interactions that promote a growth mindset among children that tells them they can improve, versus a fixed mindset that values inherent talent over work and improvement. And if you are what you eat, you also are what you think.

"Part of my long-term work is to help coaches interact with kids in a way that promotes that growth mindset so that kids believe if they work hard they can get better, have fun and be successful," Banda says. "Kids with a growth mindset are willing to take on more challenges and are more likely to put forth effort to overcome setbacks. Kids with a fixed mindset don't want to take on new challenges."

Diabetes: The lurking danger

Nana Gletsu Miller, an associate professor of nutrition science, is researching a relatively recent phenomenon — a growing number of adolescents developing Type 2 diabetes. The disease typically is referred to as adult-onset diabetes, since it historically strikes older adults. Type 2 diabetes leads to further complications such as kidney damage leading to kidney failure and retinopathy, which is damage to the retina that results in vision impairment and even blindness.

"Because we have an epidemic of childhood obesity where children are not only overweight and obese, but moving into the severely obese category, we are starting to see Type 2 diabetes develop in kids for the first time ever," Gletsu Miller says. "We need to learn a lot about it in terms of treatment and prevention."

Gletsu Miller's co-principal investigator on the project is Dr. Tamara Hannon, a pediatric endocrinologist at IU Health. The multidisciplinary team also includes Purdue researchers Banda; Cordelia Running, assistant professor of nutrition science; Wayne Campbell, professor of nutrition science; Fengqing Zhu, assistant professor of electrical and computer engineering;

and Edward Delp, the Charles William Harrison Distinguished Professor of Electrical and Computer Engineering and professor of biomedical engineering.

The team wants to find out if diet can reverse or mitigate issues in adolescents who are prediabetic and thereby prevent the onset of full-blown Type 2 diabetes. The average age of the study participants is 14, and all are in the severely obese category. In the United States, 8% of girls and 5% of boys fall into this category.

"We believe that certain dietary habits promote Type 2 diabetes, which is why we are focusing on diet and not just obesity," Gletsu Miller says. "Dietary habits like high intake of foods and drinks that are rich in solid fats and added sugars and low intake of fruits and vegetables are common for adolescents here in Indiana. And the number of kids we find who have prediabetes is alarming. Out of the population we have assessed, about 40% have prediabetes."

Participants in the research study may receive weekly health coaching over the six-month study period to address and encourage both dietary and lifestyle changes. A novel aspect of the project has participants using mobile phones to take pictures of their food both before and after every meal. Those images are used to create a "food record" to analyze dietary content.

"We hope we show that health coaching is more effective than the current standard, a single dietary consult, and that could factor into the guidelines that are released by pediatricians on how to manage kids they diagnose with prediabetes," Gletsu Miller says.

One reason treatment alternatives like this are needed is that some studies indicate medications used to treat Type 2 diabetes in adults aren't effective in younger patients. While Gletsu-Miller's work is still ongoing, she is encouraged by what they have seen thus far.

"I would say that I'm cautiously optimistic," she says. "Intuitively, it makes sense that if someone has a little bit more assistance with a lifestyle intervention they are going to be more successful. We would like to show that our preliminary data is pointing in the right direction in terms of efficacy — that our hypothesis is correct — so we can apply for more funding to do a multicenter study."

Talking the talk

Strategies involving how sports coaches and health counselors interact with youths indicate that communication will play a key role in addressing obesity. Stewart Chang Alexander, associate professor of public health, specializes in how doctors talk to their patients. He conducted a series of studies that examined how doctors discuss weight and weight loss with teens, then

HHS CHILDHOOD OBESITY RESEARCHERS



JORGE BANDA

Assistant Professor of Health and Kinesiology



STEWART CHANG ALEXANDER

Associate Professor of Public Health



NANA GLETSU MILLER

Associate Professor of Nutrition Science



DENNIS SAVAIANO

Virginia C. Meredith Professor of Nutrition Policy

introduced an intervention that taught doctors to use a technique called motivational interviewing. The approach is all about turning control over to patients for their health decisions.

“Motivational interviewing is where you help patients explore and resolve mixed feelings they have regarding their weight. When they hear those conflicted thoughts in their own words, it can be a powerful motivator,” Chang Alexander says. “Doctors are great at asking questions and advising, but lecturing and putting pressure on a teen to lose weight doesn’t make them more motivated or confident they can do it. Motivational interviewing kind of flips the book. It says, ‘My job as your doctor is to support you in a compassionate and nonjudgmental way.’”

The study indicates that when doctors used these skills, patients exercised more, lost weight, and reduced their TV and phone screen time.

“The one thing I love about the study is the idea of getting adolescents to see that they are becoming adults and need to start thinking from that perspective,” Chang Alexander says. “Adolescence is a great transition from adults telling you what to do to learning that you are in the driver’s seat when it comes to your choices and decisions.”

He says doctors in the studies were eager to learn new communication skills. “They wanted to do better, and they wanted to help their patients,” he says. “We were just trying to give them a couple of different tools they could pull out of their tool chest to make it easier to have this one conversation that feels really big.”

Policy for the win-win

Savaiano, who also teaches a course on the history of U.S. food policy, knows that policy will have a role to play in creating an environment that incentivizes healthy options and balances the scales when it comes to economic inequities that stymie health outcomes.

“Obesity in Indiana is 10-15% higher among the poor than it is among the middle class,” he says. “And if you’re wealthy in Indiana, your life expectancy is that of countries like Denmark and Norway. If you’re poor in Indiana, your life expectancy is that of Central Africa.”

Nationally, childhood obesity ranges from 18.9% among the lowest-income families to 10.9% among the highest-income groups, according to the CDC.

Savaiano says the Healthy Hunger-Free Kids Act of 2010, which provides low-income children with school meals and child

nutrition programs, has been one policy step in the right direction.

“The quality of the school lunch is so much better than it was 20 years ago,” he says.

A three-decade crusade by the U.S. Department of Agriculture to get SNAP (Supplemental Nutrition Assistance Program) participants to eat more healthfully by encouraging fruit and vegetable consumption indicates that sound policy can, eventually, lead to sound behaviors, Savaiano says.

“It’s a 30-year story that hasn’t really ended,” he says. “Policy has to be designed where there are win-wins. It’s a very slow process that takes a lot of time. You have to create an environment where the healthy choice is the easy choice — where walking to work is easier than driving, where buying fruits and vegetables is easier than buying junk food.”

Savaiano oversees the Indiana State Department of Health’s coalition work — including 60 health coalitions that collaborate with Purdue Extension in communities across Indiana. His current research interest is to find out how well these coalitions accomplish their goals and which strategies have the best outcomes.

He says at least one third of these coalitions include obesity among their areas of focus.

“It’s great to engage communities, but we are a research university. We have to figure out the best way to engage communities in the most effective way,” Savaiano says. “Really, what we are trying to do is create a culture of health and an environment for health that is eventually going to lead to children developing healthier habits and, ultimately, fewer obese children and adults.”

Although the obesity issue may seem intractable, Purdue faculty keep doing what they have always done: educate students to understand the problems and carry on the work, conduct research to find answers, and take those solutions to the public and policymakers.

“It can be discouraging,” Gletsu Miller says. “We are getting better at doing the research, but my research is just one piece. There are things that we can change as a society, and if we do it, we will all see the benefit.”

Banda agrees.

“Yes, it is a very complex, challenging issue, but it’s one I’m very interested in. I think the way I can make the biggest impact on lives is by working directly with people in the community. For me, that’s the thing I’m the most passionate about.”

SOCCER AND SCIENTISTS

Student researchers study youth team sports

On Saturday mornings, a group of Purdue students heads to Indianapolis to conduct research with youth team sports programs. The findings could help combat childhood obesity — and it is work that would be difficult, if not impossible, to achieve without these student researchers.

“We all drive down to Indianapolis in a big van — REALLY early in the morning,” senior Tatum Lohse says with a laugh. She has been working since August 2018 on the research, which is led by Jorge Banda, assistant professor of health and kinesiology. During that time, Lohse, a nutrition science major, has been involved in data collection, reviewing related research literature, helping with Purdue Institutional Review Board approvals, and watching video of youth sports practices.

As part of Banda’s research, students fit accelerometers to children to monitor their physical activity; researchers also watch from the sidelines to document the snacks and drinks provided. In addition to Indianapolis, Banda’s team is working with youth sports programs in Lafayette.

“It’s really important for every health major to experience some kind of research opportunity,” says Megha Reddy, a senior majoring in public health who is part of the research team. “It gives you exposure to a wide range of journal articles as well as other problems out there in the community that you might not be aware of.”

That community aspect is of particular interest to Alec Suarez, also majoring in public health. After graduation, he will be working for the Marion County Public Health Department on programming to prevent diabetes and tobacco use. He plans to become an epidemiologist.

“Working in Dr. Banda’s lab has helped me gain so much exposure to what community health programs look like in the real world,” Suarez says. “He really exposed me to the kind of work done in communities and how community partnerships are made.”

Banda says it would be difficult to collect all the data he needs if it weren’t for the students. But beyond the practical goal of conducting research, involving student researchers serves another important function.

“I’ve been very fortunate to have some very good mentors and professors who have cared about me and helped me get to where I am in my career. And I try to do the same thing as well,” Banda says. “In my role as a professor, I want to create a positive environment and learning experience, and part of that is conducting research.”



TATUM LOHSE

Senior, Nutrition Science



MEGHA REDDY

Senior, Public Health



ALEC SUAREZ

Senior, Public Health

“Working in Dr. Banda’s lab has helped me gain so much exposure to what community health programs look like in the real world”

— Alec Suarez, (Public Health ’20)

IS YOUR DRINKING WATER SAFE?

Researcher focuses on advancing toxicology data efforts to understand how chemicals can harm our health

By Phillip Fiorini

More than 10,000 gallons of a potentially toxic, coal-cleaning liquid spilled into the Elk River, centered near West Virginia's capital city of Charleston, in early January 2014. Soon after, residents noticed a strong odor similar to black licorice coming from their faucets.

The chemical, known as methylcyclohexanemethanol (MCHM), had entered a local water source, and the drinking water of more than 300,000 residents in nine West Virginia counties was contaminated. A statewide emergency was declared, and health officials were looking for answers, specifically to whether the local drinking water was safe.

"As the concentration went up, the smell got more intense — a very intense black licorice smell. And that led to the heightened concern, because everyone could smell it," says Jennifer Freeman, an associate professor of toxicology in Purdue University's School of Health Sciences. Her team was the first to directly evaluate the toxicity of the chemicals spilled into the Elk River.

The West Virginia spill points to the broader problem of the dearth of available data to identify what chemical compounds have the potential to disrupt biological processes in the human body, leading to serious negative health effects, Freeman says.

More than 90,000 chemicals are used by thousands of industries for growing crops, smelting steel, mining for coal, drilling for oil — everything that helps drive U.S. manufacturing and fuels the economy. Detailed toxicology data exist for just a fraction of those chemicals. As a toxicologist, Freeman is determined to change that.

"As a researcher, I put myself in their shoes, as if I am the one drinking the water. The Elk River chemical spill is just one example," Freeman says. "For me, the take-home is this: We have 90,000 chemicals that are available in commerce, but we only have decent toxicity data for about 200 of them. When it comes down to it, if chemical X — whatever it might be — is spilled in or near a community that is using surface water as their drinking water source, you could be faced with this problem again."

Credible sample needed for researchers

Andrew Whelton, at the time a professor at the University of South Alabama and now an associate professor of both civil engineering and environmental and ecological engineering at Purdue, immediately traveled to West Virginia. His goal: to obtain credible chemical samples, characterize them and collaborate with expert toxicologists like Freeman, who could scientifically address the questions and concerns from the public, as well as from state and local health officials.



Photo by Steven Yang

"The exposures affected 300,000 people. It was indiscriminate — healthy adults, pregnant women, children, those with COPD issues," says Whelton, whose expertise is in water treatment chemistry and infrastructure systems. "Many people had real questions about the safety of their licorice-smelling drinking water. I was limited in answering people's questions: Is it safe? Are my children going to get cancer? Am I going to have long-term inhalation lung problems? I knew the community needed the type of expertise that Professor Freeman has."

The findings by Freeman's team suggested that a mixture of compounds individually at levels deemed safe had the potential for toxicity — and the residents of Charleston were exposed to multiple chemicals simultaneously in their drinking water. The group conducted a toxicological assessment on an MCHM mixture from the leaking barrel, Tank 396.

Using the zebrafish model, a genome known to be 70% similar to humans and that behaves similarly when exposed to toxicity, Freeman is able to study how the effects of exposure to harmful chemicals can affect human health at different stages of life. Longer term, her goal is to try to define the underlying genetic and epigenetic mechanisms of the toxicity of environmental stressors and determine the potential for neurological disorders, reproduction dysfunction and cancer.

After exposure to the three MCHM samples from the Elk River spill, Freeman says, the zebrafish that her team studied experienced malformations and mortality at higher concentrations of the chemical. However, she notes that the effects on humans exposed to the chemicals are not known. Although some residents reported respiratory issues and other problems from inhaling the chemical's fumes, studies that followed up on the incident have not found any long-term health impacts on the residents, she says.

In June 2019, the National Toxicology Program released a study that concluded "clear evidence of developmental toxicity from

"We have 90,000 chemicals that are available in commerce, but we only have decent toxicity data for about 200 of them."

— Jennifer Freeman, associate professor of toxicology

MCHM" in a rodent study with reduced fetal weight, adrenal malformations and increased malformations of the axial skeleton. Freeman says those results align with the morphological alterations from exposure to MCHM that her team saw.

More than \$160 million has been paid out to residents as part of a settlement of a class-action lawsuit filed against the chemical tank farm owned by Freedom Industries Inc., chemical maker Eastman Chemical Co. and West Virginia American Water Co.

'Measured what no one else measured'

The Elk River spill has had a profound effect on Maya Nye, who recalls driving to the Kanawha Valley in early January 2014 to confront a noticeable chemical odor in the air from what would later be determined to be MCHM. Even before the Elk River spill, Nye had spent nearly three decades as an environmental advocate, serving as the spokesperson for the group People Concerned About Chemical Safety. After the West Virginia spill, she assisted in establishing the community group Advocate for a Safe Water System.

And now, Nye is pursuing a doctorate in public health from West Virginia University. She hopes to complete her dissertation, centered on the Elk River chemical leak as a case study that examines the associations between governmental disaster management and environmental health disparities, by May 2020.

"Indeed, I am utterly thankful to Dr. Freeman and the Purdue team," Nye says. "By investigating the effects of the chemical mixture instead of the individual chemicals one at a time, like most of the other toxicological studies had done, their study helped us better understand how people actually experienced exposure. They definitely measured what no one else measured, and it helped us address important exposure questions not previously understood." 🍷



A WHOLE NEW WORLD

THE WHITTAKER INN OPENS A WORLD OF POSSIBILITIES

By Aaron Martin

A memorable night at a Connecticut inn in 2012 led Elizabeth Dimos Whittaker (BS, HTM '99) and husband Andrew Whittaker (MS, HTM '99) to leave their conventional careers in hospitality and pursue their dream of opening an upscale inn.

This new path also led them home, in a way, when they decided to locate their inn near Purdue's West Lafayette campus. The Whittaker Inn, a 15-room inn built from the ground up just five miles from campus, opened in May 2019.

"We want The Whittaker Inn to be the premier location for lodging and events in Greater Lafayette, the place where people go to celebrate the memorable moments in their lives," Andrew says. "The skills I learned at Purdue provided a great foundation for my roles in finance, and this in turn allowed us to put together a business plan for our inn project. Without that, this venture would not be happening."

The Whittakers met while they were students in Purdue's School of Hospitality and Tourism Management (HTM).

After earning his degree in hotel and catering management from the University of Dundee in Scotland, Andrew learned of

Purdue's excellence in HTM during an exchange program and decided to pursue his master's degree in Purdue's Restaurant, Hotel, Institutional and Tourism Management Program. At the time, Elizabeth was earning her bachelor's degree in restaurant, hotel, institutional and tourism management, eventually graduating with honors.

Checking all the boxes

The Whittakers spent nearly 20 years in corporate hotel management and financing on the East Coast and abroad before deciding to launch their own hospitality business. After much research, they determined that an inn near Purdue "checked all the boxes," Elizabeth says.

"We wanted to create a unique place that people can't otherwise find in this area," says Elizabeth, who is from Crown Point, Indiana. "Plus, I have a lot of family ties to Purdue. My grandfather graduated with the class of 1950 and my parents met here."

Acknowledging the underlying connection between hotels and travel, the inn features destination-inspired rooms. Each room reflects a different location, from Indiana and New York to India and Norway. It includes an England-inspired room as a nod to



Photos by John Underwood

Elizabeth Dimos Whittaker (BS, HTM '99)



Andrew Whittaker (MS, HTM '99)

Andrew's home country, as well as a Greece-inspired room in honor of Elizabeth's Greek heritage.

"Some of the rooms are based on places we've visited and some are based on places we'd like to go to someday. Some of our choices were easy because they're based on family ties and experiences," Elizabeth says. "We love to travel and we like the idea of learning about different cultures and different places. This also allows us to be experimental in terms of the food and beverage options we can have."

Complementary roles

Responsibility for the diverse menu will fall to Andrew, as the inn's executive chef. Elizabeth will be responsible for "front of the house" duties like booking reservations, maintaining the website and overseeing the service experience.

"Our roles complement each other perfectly," Andrew says. "Elizabeth has had a career in rooms operations and revenue generation, so she'll be focused on the front of the house and generating sales. I have been in the food and beverage side and overall financial management, so I'm running the kitchen and doing the accounting. I've always loved cooking and this gives me an opportunity to go back to my roots."

The Whittakers decided to have a new building constructed in order to offer all the charm of a traditional inn with all the modern amenities of a hotel — and at an affordable price point to match.

With a pair of two-story stone fireplaces as its centerpiece, The Whittaker Inn includes two suites, 13 standard rooms in various configurations, sleek and stylish en suite bathrooms throughout, and night kitchens offering snacks and beverages on both floors. The inn can accommodate 45-50 overnight guests, 50 dining room guests and as many as 75 people for a standup reception in the dining room, gathering room and patio.

Giving back to Purdue

The Whittakers, already HHS donors, also plan on giving back to Purdue when it comes to staffing the inn. They offer internships and other employment and training opportunities to HTM students.

"Purdue prepared me to be successful in my chosen career and I appreciate that. But we didn't get where we are on our own," Elizabeth says. "Lots of people invested in us when we were in college and they continued to invest in us. We want to give current Purdue students the same feeling. We want them to know that someone is investing in them." 🍷



GETTING AN EARLY START ON SUCCESS

Purdue researchers create an early care and education curriculum for the Department of Defense to better prepare children for school and life success

by William Meiners

Preschool sets the foundation and tone for a child's education experience. Research shows that 5-year-olds considered "school ready" are indeed more successful throughout the long run of their academic careers. And while the definition of school readiness may not be the same for every child, Purdue researchers are hoping to maximize lifelong success for as many children as possible. To that end, they answered a call from the Department of Defense (DOD) to develop an early childhood care and education curriculum for use throughout the United States and on military installations all over the world.

Operating the world's largest employer-sponsored child care system, the DOD serves more than 200,000 children and their families. That scale alone dictates that the curriculum must be both inspiring to children and helpful to a wide range of teachers — from caregivers with minimal classroom experience to 20-year early childhood professionals with advanced degrees.

Led by Douglas Powell, a distinguished professor in the Department of Human Development and Family Studies (HDFS), a Purdue team loaded with experts in the various aspects of early care and education set forth to develop a comprehensive curriculum focused on school readiness. Their outcome: Early Learning Matters, or ELM. In 2016-2017, the team worked closely with child development centers that piloted curriculum resources at eight Air Force, Army, and Marine Corps installations from Virginia to



U.S. Air Force photos by Staff Sgt. Jessica H. Smith



U.S. Air Force photo by Airman 1st Class Christina Bennett



The detailed 50-week curriculum supports teachers in becoming experts in adapting detailed activity plans that reflect the latest research and best practices for specific children.

Alaska. Incorporating feedback from teachers and staff using the new curriculum, they have revised and reworked it for global delivery in fall 2019.

Plug and play curriculum

Powell believes early care and education providers will be enthusiastic about using ELM as a research-based, university developed program reflective of how best to support children's learning. To that end, ELM provides nearly a year of developmentally appropriate activity plans for children organized by ages: birth to 1 year, 1-2 years, 2-3 years and 3-5 years.

Working alongside early childhood education experts and researchers across campus, Powell tapped content specialists to provide curriculum roadmaps. Among those HDFS experts, Jim Elicker, Sara Schmitt, Megan Purcell and David Purpura developed subsets of ELM that cater to infant-toddler development, self-regulation, creative expression and mathematics, respectively.

"They offered the big framework in their content areas," says Powell. "They then suggested specific sequenced activities to use with the roadmap, pointing us to valuable resources that complemented their extensive expertise. A huge advance of ELM is the developmental sequence of activities. Our content experts also reviewed drafts of activities and provided guidance on revisions made in response to feedback from pilot sites."

The detailed 50-week curriculum supports teachers in becoming experts in adapting detailed activity plans that reflect the latest research and best practices for specific children, Powell says. Furthermore, with so much of the curriculum meticulously spelled out in developmental sequence, younger teachers can use it as a professional development tool.

Kathy Broniarczyk, senior director of outreach and operations for MFRI, knows well the uphill battles of building successful early childhood programs. Part of a military family herself, she has worked in early childhood education for more than two decades, including a seven-year stint overseas as a program director and trainer.

"One of the challenges of military child care, especially overseas, is that staff may not have much knowledge of early childhood development," Broniarczyk says. "So, having them develop activities to lead children toward learning goals can be difficult."

Freedom from excessive planning lets teachers zero in on the real-time moments with their children, allowing for deeper dives, such as how language intertwines with early math skills. "As a director or trainer, now I can have my staff really focus on the activities," Broniarczyk says. "How do you tailor it for this particular child? How do you make it more challenging for these children over here?"

Broniarczyk, who helped write some of the curriculum and visited and worked with two pilot programs in Virginia and Texas,



Photo by Lisa Stein



U.S. Air Force photo by Staff Sgt. Jessica H. Smith



Researchers generally agree on four developmental domains that support school readiness: physical, social-emotional, language and cognitive development. Ideally, a first-grader should be ready to learn by knowing how to listen, explore exciting materials, follow instructions and get along with others.

noted breakthroughs in language and literacy skills that helped to further engage parents who were surprised about hearing words like “frustration” from their kids. “This is not a curriculum where you need to know 12 words before you move on to the next thing,” she says. “There’s a lot of language over many weeks about identifying feelings. It’s very easy for children to understand being happy, sad or mad. But what about frustration? Or embarrassment? Children start understanding these emotions and share that new knowledge with their parents.”

Though military families may face common challenges, including frequent moves, the ELM curriculum is neither military nor geographically based. The DOD leaders anticipate use of ELM systemwide will help families to step into similar programs wherever they are stationed, Powell says.

Tree poses and mindfulness

School readiness means, in part, that a child can keep emotions in check and follow the directions of a teacher. Self-regulation is about expressing emotions appropriately. So, it’s OK to say you’re angry, but not OK to act out that anger by biting another child.

Researchers generally agree on four developmental domains that support school readiness. They include physical, social-emotional, language and cognitive development. Those domains overlap

and may not be easily quantifiable. Ideally, a first-grader should be ready to learn by knowing how to listen, explore exciting materials, follow instructions and get along with others.

Focusing on social-emotional development, Sara Schmitt, associate professor of human development and family studies, incorporated cutting-edge activities that used mindfulness and yoga in the classroom. In feedback from some of the pilot sites, it seems the yoga was a big hit with the kids.

“The children really enjoyed doing things like tree pose or frog pose,” says Schmitt, who also uses circle games like Red Light-Green Light and other repetitive games that can help children to better think and react in the moment. “But it was also an opportunity for them to focus on their breathing, which can be a strategy for calming down if children experience negative emotions like frustration.”

Age-appropriate meditation, where a child might focus on breathing through a rising teddy bear placed on her belly, could improve self-regulation. For Schmitt, it’s just another aspect of ELM’s intentional focus on the domains linked to school readiness. “The curriculum targets all those early skills that promote academic achievement and does so in an engaging manner,” she says.

Like Schmitt, Megan Purcell, assistant clinical professor of human

development and family studies, embraced her own role in helping to craft a large-scale, robust program for the DOD. Powell brought her on board for content development in social studies and creative arts. Purcell also assisted in some of the assessment processes.

“We were all challenged with the question of how to take what we know is good through the research and evidence and put it into the hands of early childhood educators,” Purcell says. “I do see myself as a bridge for that.”

Echoing the praise of her colleagues for a curriculum that allows teachers to better focus on learning in the classroom, Purcell looks forward to its ultimate impact on children. “This gives teachers, who may or may not have a strong background in research and theory, the ability to implement a very strong, research-informed curriculum,” she says.

Military bases to civilian communities

Powell says the DOD has been exceptionally progressive in its move to bolster early childhood education on such a large scale. A comprehensive curriculum, for starters, provides a building block to improve the whole system for children, families and practitioners. The continuity of such services can ease the pain of long-distance moves for families.

But even as a large-scale provider of early childhood care and education programs, not all military children are enrolled in centers on military bases. “DOD centers can enroll a limited number of children,” Powell says. “So, you also have children in community-based programs around the installations, and the DOD would very much like those civilian programs to use the curriculum.”

Shortly on the heels of the ELM curriculum, Purdue established the Center for Early Learning, which is co-directed by Schmitt and Doran French, department head and professor of human development and family studies. Schmitt says this Purdue center is dedicated to improving the quality of early childhood education and care for all children from birth through five by focusing on curriculum, evaluation and research. As a home to interdisciplinary discovery, the center is prime for expansion and evolution through collaborations between researchers and pioneering practitioners.

“The Center for Early Learning will continue to offer support to the DOD as they roll out implementation of the ELM program,” Schmitt says. “It’s exciting because this curriculum fills a substantial gap that exists in the field of early childhood education.”

“We were all challenged with the question of how to take what we know is good through the research and evidence and put it into the hands of early childhood educators. I do see myself as a bridge for that. ... This gives teachers, who may or may not have a strong background in research and theory, the ability to implement a very strong, research-informed curriculum.”

— Megan Purcell, assistant clinical professor of human development and family studies





Photos by Brian Powell


BEYOND ‘YOU ARE WHAT YOU EAT’

PURDUE RESEARCHERS WORK TO UNRAVEL OBESITY BIOLOGY AND BEHAVIORS, WITH SOME SURPRISING RESULTS

By Eric Bender

Obesity is a pandemic, and one center of the pandemic is the United States, where about 40% of adults and over 20% of adolescents ages 12-19 are obese, according to the Centers for Disease Control and Prevention. The disorder contributes to heart disease, stroke, Type 2 diabetes, certain forms of cancer and many other ailments. “It’s a crushing burden on public health and our health care system,” says Richard Mattes, distinguished professor of nutrition science and head of the Department of Public Health.

The driver for overweight and obesity is simple: regularly consuming more energy than we need to maintain a healthy body weight. However, the underlying biological mechanisms and solutions are far less clear. “We don’t know why somebody can eat one type of diet and be fine, while somebody else eats that same diet and becomes overweight,” says Kimberly Kinzig, associate professor of psychological sciences. “There’s not just a single cause of obesity; there are environmental components, biological components and genetic components.”



Nuts, a high-fat food, actually may aid people struggling to manage their weight.

Purdue researchers are pursuing a broad sweep of obesity-related studies across fields ranging from nutrition science and psychology to biology and food science. One key interdisciplinary thrust is to understand eating behaviors and their results. Officially launched in 2005, the Ingestive Behavior Research Center (IBRC) located in Purdue's Discovery Park brings together dozens of faculty members, from eight colleges at Purdue, with this goal. IBRC investigators seek to understand the mechanisms determining why, when, what and how much people eat and the effects on our health. They also seek to identify ways to improve eating behaviors, and investigate potential clinical treatments that might help those who need help.

Responding correctly to food clues

Eating is a complex activity, especially for omnivores like humans. As Mattes notes, "Every time we eat, we put different chemicals in our mouth, and our body has to determine how to handle them. It has to extract the nutrients that we need, it has to excrete toxins and other substances that we don't want, and there's a different mix every time."

One focus of his lab is exploring how the sensations involved in appetite are modified both by the properties of food and beverages and by human characteristics such as levels of obesity and physical activity. "The physiological processes involved in food ingestion, digestion and nutrient metabolism are all initiated by the sensory properties of foods," he says. "Consequently, we are particularly interested in the mechanisms and functions of oral sensory stimulation," he says.

Some striking findings have come from his clinical research comparing the effects of consuming liquids versus solids. "Our initial thinking might be: A calorie is a calorie, so the source of energy should be of little consequence," Mattes says. "But everything about how we handle those two food forms is quite different. Based on a number of clinical studies, our interpretation at this point is that beverages tend to add energy to the diet, rather than displacing other energy sources, so are particularly problematic for weight management."

On a brighter side, human observational studies have long suggested rather puzzlingly that nuts, a high-fat food, actually may aid people struggling to manage their weight. Clinical trials led by Mattes and others validated that finding from observational studies. They conducted human trials that pointed to three main reasons: Nuts have a satiating effect, the energy from nuts

is not efficiently absorbed, and their consistent consumption may raise energy expenditure. He and his colleagues are probing how different nuts are chewed (which might affect how much energy they deliver) and how specific types of nuts might alter how fat is stored in various places in the body (which can pose different health risks).

A sweet, sad saga

Mattes is shedding light on some previously unexpected actions of low-calorie sweeteners such as aspartame, saccharin, stevia and sucralose. "We talk about these sweeteners as if they're all the same, but each of these compounds is a unique chemical," he notes. "Pretty much everything about them (such as sensory properties, digestion, absorption and effects on hormones) is different. Our most recent work has been to contrast the effects of these different low-calorie sweeteners on appetite, food intake and body weight."

The initial findings are that these sweeteners had varied effects on body weight. "Saccharin, in our hands at least so far, seems to promote increased body weight, whereas sucralose tends to be associated with weight loss," Mattes says.

Susan Swithers, professor of psychological sciences, has demonstrated in rodents that low-calorie sweeteners actually can worsen rather than improve weight problems, because the sweeteners can interfere with the ability to deal with regular sugars. "Work in our animal models provided the first biologically plausible mechanism by which consuming artificial sweeteners could produce this counterintuitive effect," she says.

Normally, things that taste sweet are very good predictors to expect an incoming dose of energy, she explains. Your body learns to expect that dose and to respond appropriately — for example, by releasing insulin, a hormone that helps to keep your blood sugars in a healthy range.

"But when you introduce an artificial sweetener, your body is learning that sweet taste is no longer a reliable predictor," Swithers says. "And that becomes problematic when you get real sugar, because now your body can't predict whether it will have the same kind of metabolic consequences."

Long-term observational studies repeatedly have found that drinking diet sodas each day is associated with Type 2 diabetes, stroke, hypertension, cardiovascular disease and dementia. However, these studies in humans can't clarify whether the diet

sodas are at least partly responsible.

"Maybe people who are unhealthy or concerned about their weight choose to consume these sodas, but it could also be the case that these products are making it harder for people to achieve healthy outcomes," she says. "And those aren't mutually exclusive."

It's not practical to solve this problem in clinical research, one reason being that even with the best intentions, people simply don't report their consumption accurately. But Swithers' work with animal models has helped to clarify what is cause and what is effect. "We don't have animals that have said, 'I'm concerned about my weight, I'm going to switch to diet soda,'" she remarks. "If we give animals experience with artificial sweeteners, we tend to find that they gain excess weight compared to animals that are getting regular sugars, and that their ability to regulate their blood sugar levels is impaired."

In one project, Swithers' lab is following up on human studies that found that babies of mothers who drank diet soda while they were pregnant have an increased risk for overweight and obesity at one year of life. Swithers is leading animal studies to probe the mechanisms at work.

In the meantime, Swithers offers straightforward diet advice: "Reduce the amount of sweeteners you're consuming, whether they have calories or not. And there's nothing wrong with drinking water!"

Learning from gut reactions

Edward Fox, associate professor of psychological sciences, looks at how the gastrointestinal system sends messages back to the brain to help control feeding behavior. He began this work as a PhD student with Terry Powley, distinguished professor of psychological sciences, and then resumed his quest years later after returning to Purdue as faculty.

“It turns out that obesity and almost every other disorder of eating involves a change in meal size.”

—Edward Fox, associate professor of psychological sciences

Fox’s work centers primarily on the vagus nerve, the longest nerve in the autonomic nervous system. The vagus nerve is thought to carry most of the messages back from the gastrointestinal tract that tell the brain to stop eating when you’ve had enough. “When you sit down to eat, it largely determines how much you eat,” he says. “And it turns out that obesity and almost every other disorder of eating involves a change in meal size.”

One project is to examine precisely how the vagus and other nervous systems are embedded throughout the gastrointestinal tract. “All these nerve endings tangled up in the gut are confusing, and it’s hard to decipher what’s going on,” Fox says. “But it’s really important, because that’s where nutrients are absorbed. And we

don’t understand how those nutrients are tasted (so to speak) by the nerves, or how that information is signaled or processed.”

Fox and his co-workers are finishing up the first map of how nerves are distributed along the length of the small intestine. Providing these new abilities to label and map nerve terminals will help with many investigations — for example, in analyzing the roles of the microbes in the gut.

His other major area of research looks at how satiation signaling from the gut is handled in the area of the brain stem where it enters the brain. “We’re trying to identify the specific cells that are activated by those signals, and to study their connections and how they influence feeding, because we don’t really know what circuits they’re forming in the brain,” Fox says. “We need to know this in order to know what questions to ask about how the system is controlling food intake.”

A diet for brain damage

Kinzig looks at how diets with different fat compositions can influence the brain, which in turn can change overall feeding behavior.

None of the news is reassuring about the “Western diet,” high in saturated fat and sugar, which is the typical diet consumed by people in the U.S. Among its risks, the diet has been shown to impair cognitive function and alter feeding behaviors.

Her research in rodents helps to analyze the mechanisms at work. Within one day of being put on such a diet, the animals

display inflammation in the brain, Kinzig says. Western diets also have been shown to cause leakiness in the blood brain barrier — the brain’s unique network of blood vessels designed to wall off toxins.

Some of her studies focus on the hippocampus, a region of the brain with many tasks in feeding. In rodents on a Western diet, “inflammation hits the hippocampus hard,” Kinzig says. The response comes in phases: inflammation soars after 10 days, subsides by 40 days, then rises again at 90 days. This response suggests that there is an early biological signal that controls inflammation for a time, but the control is not sustainable.

There’s a surprisingly similar pattern in cognitive tasks involving the hippocampus, Kinzig says. At 10 days, rodents perform worse, at 40 days they don’t, then at 90 days they do once again.

Her lab is now looking at how blood brain barrier damage can contribute to brain inflammation and contribute to cognitive decline. Pinpointing such control mechanisms eventually may prove helpful in understanding how to guard the brain against the inroads of the Western diet, she says.

Similarly, work in animals by researchers in the Swithers lab points to risks in this part of the brain. “There is strong evidence that eating a Western diet can produce damage to the hippocampus, which may normally tell you not to eat even when there are cues that tell you that food is available,” Swithers says. “So you eat more, which causes more damage. It’s a vicious cycle.”

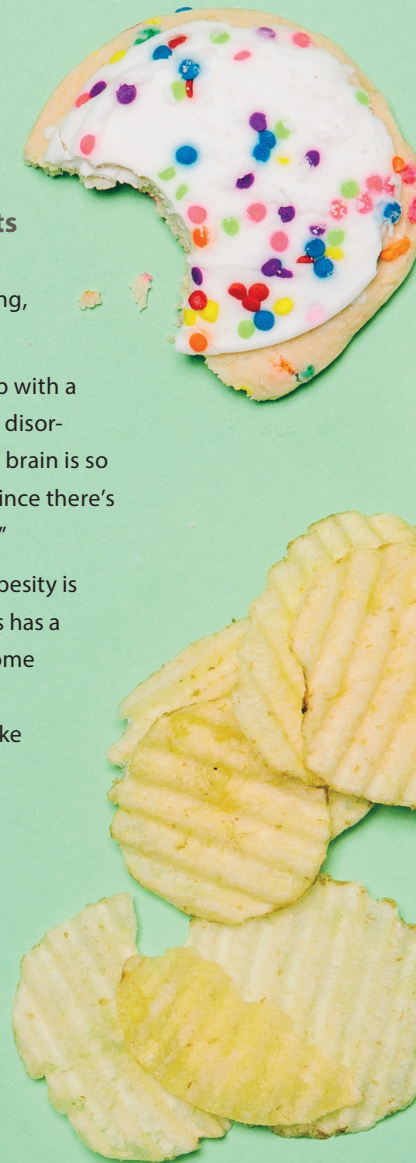
Confronting obesity on many fronts

Major progress is being made in many fields of obesity research, but the battle will be long, researchers say.

“With current knowledge, we won’t come up with a magic bullet to treat obesity or other eating disorders, just because the feeding system in the brain is so complicated,” Fox says. “It’s been evolving since there’s been a one-celled organism that had to eat.”

“Obesity is not one disease,” Mattes adds. “Obesity is the result of many factors, and each one of us has a different combination of those factors. For some people, it’s more of an energy-expenditure problem. For others, it’s more an energy-intake problem. For some it’s a food-form problem. For others, it’s an eating-frequency problem. For others, it’s a portion-size problem.”

Eventually obesity, like cancer, will be addressed by tailoring therapies to each exact condition, Mattes predicts: “We’ll have to individualize obesity treatments to address the root cause of each person’s issue.”



TRACKING FAT FROM DIGESTION TO DELIVERY FAT FUNDAMENTALS

Our bodies are truly excellent at holding onto fat. “We absorb more than 95% of what we consume,” says Kimberly Buhman, professor of nutrition science.

She studies how the body processes lipids, a class of organic compounds that includes fats (such as triglycerides) and cholesterol, in animal models. More specifically, she examines how lipids are digested and processed in the small intestine and how these processes change with different levels of fat consumption and varied body weights.

Normally, cells in the small intestine called enterocytes package triglycerides and cholesterol together with proteins into “lipoproteins.” The lipoproteins then travel through the blood and are dropped off to provide energy or material to build cells as needed. But if we eat too much, the extra lipids end up stored in fatty tissue.

Until recently, biologists thought that enterocytes functioned simply as thoroughfares — nutrients come in, nutrients go out. But work by Buhman and her colleagues has examined how these cells also can store the lipids in droplet form, helping to handle sudden bursts of fat.

“After you eat a large milkshake, with 50 grams of fat, you don’t want all of that fat in your blood immediately, since that would be a big shock to your system,” she says. “These cells take it up, and only let out a certain amount at a time, while the rest backs up in the cell.”

Alyssa Zembroski, a graduate student in Buhman’s lab, is looking at how lipid droplets in different regions along the length of the small intestine may influence fat absorption — for instance, what happens when high-fat diets move more fat into the lower reaches of the small intestine. “It’s really interesting to be involved in research that might affect how we treat obesity or other lipid metabolism disorders in the future,” Zembroski says. “Understanding these processes at the cellular level is fundamental for understanding how these disorders affect a whole body.”

“People who are chronically eating high-fat diets and are obese are processing dietary fat and delivering it in a different way than a lean person,” Buhman says. “If we can modify that process, it might help in reducing obesity and its associated health problems.”



Photo by Brian Powell

A CALL TO NURSING

By Marti LaChance

Nursing student Julie Smith is embarking on her second career. Her first job was a mother of four.

"I've always been a mom," says Smith, who had her first child at age 21. But Smith's experience of motherhood is far from the norm.

Two months after the birth of her fourth child, her three youngest children were diagnosed with a rare terminal illness known as Niemann Pick type C. NP-C is a genetic disorder that leads to a dangerous accumulation of cholesterol in the brain, liver and spleen. Patients lose the ability to walk, talk and eat; the Smith kids had feeding tubes and were wheelchair-bound by the time they passed away: Braden at age 10, Riley at age 15 and Keaton

After caring for her own terminally ill children, Julie Smith prepares to join the nursing profession

at age 14. Children with the disease typically succumb before reaching age 20.

For 15 years, Smith and her husband, Trent, cared for — and advocated for — Braden, Riley and Keaton. Their eldest child, Chandler, did not inherit the disorder. As Smith phrased it in her application to the nursing program, "My days shifted from weekly playdates and trips to the park, to weekly appointments with occupational and physical therapists and trips to Riley Hospital for Children to meet with specialists."

Keaton, their last child with NP-C, died in 2015. Smith was still working as a paraprofessional at Battle Ground Middle School.

"Julie is inspiring. You hope for an ounce of her strength."

— David Thompson, professor of chemistry

"I was thinking: 'What am I going to do next?'" she says. She liked working with children. And yet she didn't feel the pull to be a teacher.

Hearing the call

Around that time, on a drive to Indianapolis with her husband, Smith had an epiphany.

"As we pulled off the interstate exit, there was Riley Hospital," Smith recalls. "I said aloud: 'I think I want to work there.'"

Initially, her husband thought she was crazy. "We had spent so much time in the hospital. And ultimately, we left three kids in the hospital," she says. "But it was an 'aha' moment for me. I never believed in 'callings.' But, yes, nursing is a calling for me."

She started slowly, taking one class at a time at Ivy Tech Community College. Then, in the fall of 2018, Smith took the plunge and enrolled in Purdue's second-degree nursing program.

Fond family memories

Looking back, Smith has tender memories about her child-rearing years. Raising sick children involved more than tending to their health. An outgoing couple, Julie and Trent Smith continued to enjoy lively group activities with friends and family. Unsurprisingly, their kids eagerly participated.

"Wherever we went, my kids were the lives of the party, the mayors of our little world. They were not going to sit home and be sick," Smith says. "They knew no strangers. I really believe people learned from them. It's weird. There is really something special about kids with NP-C. They just have a light! They have a light and a way with people. That's why it is not a sad story. Because we were blessed."

During those tough but treasured years, the Smiths drew support from a large and loving community of friends, co-workers, family and medical professionals in West Lafayette. "We did not walk this journey alone," she says.

Funding for future lives

The Smiths started a charitable foundation to spur research in Nieman-Pick type C. The Smith Family BReaK Thru Fund (with capital letters B, R and K for Braden, Riley and Keaton) raised money with an annual golf outing and through the Infiniti Coaches Challenge with Purdue basketball coach Matt Painter.

In 2012, the BReaK Thru Fund gave \$200,000 to support NP-C

research underway in Purdue's Department of Chemistry. There, with a molecule called cyclodextrin, researcher David Thompson is developing a promising therapy that may alleviate NP-C symptoms in the body's visceral organs.

The Smiths understood the value of Thompson's work. Today, the cyclodextrin therapy under development in Thompson's lab is moving steadily toward Food and Drug Administration approval.

"The money from the Smith family fund was our first break," Thompson says.

"Julie is inspiring," Thompson adds. "You hope for an ounce of her strength."

A new chapter: nursing

Today, Julie Smith is in the fourth semester of Purdue's second-degree nursing program, an accelerated, full-time, four-semester curriculum. For the students, it is 16 months of dedicated work.

"Julie fits right in," says Karen Atcheson, clinical assistant professor in the School of Nursing. Most of Smith's classmates are under 30, but the students in the second-degree program have much in common.

"Despite age differences, the students are all super-directed and come together as a cohesive unit, supporting each other," Atcheson says. "They are confident about their choice to return to school."

Returning to school is a kind of therapy for Smith. "My children passed, and I turned to education. It seems like a healthy choice," she says. As for the future, she looks forward to working with kids and their families, at a local hospital, or at Riley Hospital in Indianapolis.

Not that school comes easily. She misses the familiarity of her tightly knit support community. And the science-based material is a challenge. "I'd rather be doing math," she laughs. But Smith is philosophical. "My advice is to remember that school can be stressful and overwhelming, but ultimately, you will be sitting with a patient or a family member, and they are never going to ask how you did on a test."

Smith knows what patients and their families care most about: feeling supported and having an advocate in their health care experience.

"We had many good nurses, and others that were not so good," Smith says. "That's why I want to be a nurse. I want to do better." 🌈

GIANT LEAPS SERIES

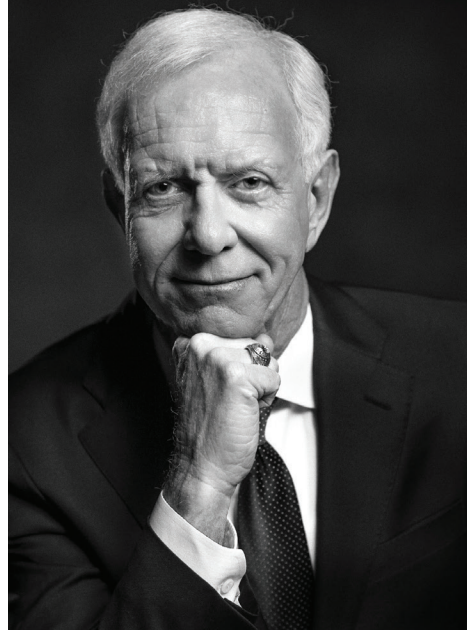


Photo by John Underwood

Q&A with SULLY SULLENBERGER

By Aaron Martin

When he successfully piloted a passenger airliner to an emergency landing in New York's Hudson River in 2009 — saving all 155 people on board — Chesley “Sully” Sullenberger (MS PSY '73) became a part of history. The landing is known as “The Miracle on the Hudson,” and Sullenberger is known as a hero.

As part of Purdue's 150th anniversary celebration, he spoke to a crowd of more than 5,000 people on Feb. 24 at Elliott Hall of Music and credited his Purdue master's degree in industrial psychology with playing a significant role in the remarkable landing.

Q : What are your thoughts on Purdue's choice to celebrate its 150th anniversary by looking to the future and challenging itself to tackle the global problems of tomorrow?

A : I think it's a great thing to do. I think all of us, at the end of our lives, hope we can accomplish something that can make a difference.

Q : What was your most significant or profound experience as a Purdue student — something you carry with you from your years at Purdue?

A : I experienced different ways of thinking about the world, and that was a great foundation for a lot of things that followed. You have to realize I came here from the Air Force Academy, a very rigorous and disciplined atmosphere. I saw many different ways of seeing things, the interconnectedness of much of life, through the human-factors side of industrial psychology.

Q : How has your understanding of human behavior been incorporated into your work?

A : People in the airline industry make what we do look easy, but it's not. Flying is as safe as it is because of team building and leadership. One of the ways we've made aviation safer is by observing how the best captains lead and build teams, and how the most effective crews communicate, make decisions and create a shared sense of responsibility for the outcome. We work on these things day after day, month after month, year after year.

Q : In your career, what have you accomplished that you consider to be a “giant leap”?

A : You might think I consider that landing on the Hudson my giant leap, but that's not entirely true. In many ways, the events of that day were the culmination of a lifetime of vigilance, of learning and growing, and of a professional career dedicated to airline safety. When you ask me what I think my profession has done, I think it's that

we've made air travel far safer than it was maybe 20 or 30 years ago. I'd like to think I played a part in that.

Q : How has Purdue changed since you were a student?

A : Higher education has changed a lot. Purdue has changed. When I was here 45 years ago, Purdue was predominantly male. It was much smaller and more intimate. But I think it still has the same purpose, still has the same tradition of excellence. I'm proud to be a Boilermaker and I'm happy to be in such great company.

Q : Have you embraced your fame? How have you used it as a platform?

A : It took me a while to embrace it. This is not something I had done much of before, being a public figure, and it took me a while to get good at it. I looked upon it as an opportunity, but also as an obligation. I have a duty to use this bully pulpit that I've been given — by circumstance — for good. I'm using what I've been given to raise awareness about things I've cared about my entire life. 🍷



Photo by Rebecca Wilcox

Q&A with TED ALLEN

By Marti LaChance

Ted Allen (PSY '87) is host of the popular show “Chopped” on the Food Network. Fans also remember him as one of the fab five — the food and wine expert — on the Bravo network's original “Queer Eye for the Straight Guy,” which won an Emmy Award for Outstanding Reality Program in 2004.

On Feb. 20, Allen returned to Purdue as part of Purdue's 150th anniversary celebration and entertained a packed Loeb Playhouse with his thoughts and feelings about life, work, food and his student experience at Purdue.

Q : What is something you still carry with you from your years at Purdue?

A : My favorite professor, who's no longer with us, was David Santogrossi — a notable professor in the psychology department. He was a mentor and a friend and someone I played music with. David had a set of kettle drums, he had a marimba, he was a drummer himself. A group of us would jam with him, play stuff like Dire Straits. Later in life, when I lived in New York, he did this really special thing for me. I won an award from Purdue, a distinguished alumnus award, and I couldn't leave New York because I was shooting. So David brought a group of people to New York to honor me. He was the most special person for me at Purdue.

Q : In your career, what have you accomplished that you consider to be a “giant leap”?

A : I didn't initiate it. But the five of us in the original “Queer Eye” were the first all openly gay cast of a national television show. And while the show itself was fun and silly for the most part, one

thing it did was it put those openly gay people in the living rooms of people who not only had never met a gay person, but many millions of whom probably actively disliked us. We showed them that we were kind, successful, educated and empathetic and willing to devote our energy to helping people. As silly as the show was, ultimately there are two things profound about it. One is to have five guys put tremendous energy into truly making the hero's life better. And two, the impact that the show can have on young LGBTQ people, when you show that no, the world isn't going to hate you. You don't have to believe that you're broken. And you can ignore all that baggage and garbage and go on and do what you want, hit it out of the park. Be yourself.

Q : Why are food and wine so important in our culture today?

A : What happened is that in the last several decades we have discovered the joy of food. It isn't a trend; it is a shift of our values. And I think one factor is the Food Network. We certainly don't get sole credit. Martha Stewart happened. But on

television and in magazines people saw other people they admired or respected showing their excitement about this craft of cooking and wine and craft brewing. I always felt I had the best category in “Queer Eye” because the culinary arts are so vast, absolutely limitless. You could spend your whole life trying to eat every cuisine in the world and you'd fail. That limitlessness of food is my favorite part about it. The variety. The endless experiences you can have.

Q : What advice do you have for Purdue undergraduates?

A : The best advice is to do something that you love. The goal in life is to do what you love, whether it pays well or not. Because you're going to be stuck with it. Very few of us get that life. So you should try to be one of them. The other advice that I would offer anybody in college is hustle. Do something to stand out. I once recorded an original song and sent a tape to an editor. Which sounds dumb, but anything that you can do to show hustle only works to your favor. 🍷

FAMOUS ALUMNI SIT DOWN WITH LIFE 360



CONCESSIONS

DRINKS

Water*	\$1.00
Pop	\$1.50
Gatorade	\$2.00

SNACKS

Chips	.75
Grapes*	.75
Popcorn	\$1.00
Sunflower Seeds*	\$1.00
Peanuts or Cashews*	\$1.00
Nutri-Grain Bars*	\$1.00
Hot Dog	\$2.00
Carrots & Hummus*	\$2.00
Pretzel	\$2.00
Pretzel w/cheese	\$2.50

*Snack Healthy

REDUCING OBESITY AND IMPROVING LIVES ONE COMMUNITY AT A TIME

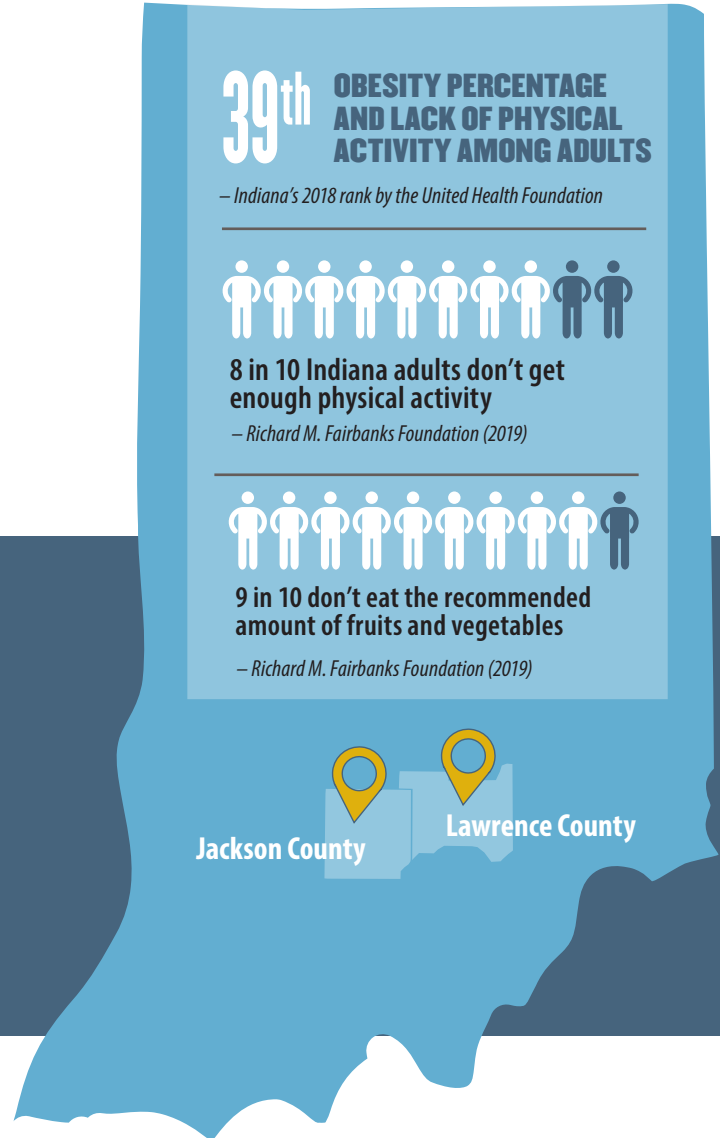
By Becky Brown

It's no secret that obesity has reached epidemic levels in the United States — driving up health care costs by the billions and driving down quality of life for millions. Could one secret to tackling the problem lie in community-based prevention?

Experts from the College of Health and Human Sciences are testing this idea through a new project implemented in two rural Indiana counties. What they have learned is this: Though reducing obesity rates takes time, changing attitudes and actions about healthy living happens quickly when local residents are empowered to identify and implement their own solutions.

Obesity by the numbers

According to the latest U.S. Centers for Disease Control and Prevention statistics, the prevalence of obesity among U.S. adults is now at 39.8% — affecting 93.3 million people. It’s a major contributor to heart disease, Type 2 diabetes, stroke, cancer and hypertension, resulting in annual medical costs of \$147 billion. These health issues have a significant economic effect, too. A study recently published in the Journal of Occupational and Environmental Medicine estimates that obesity-related absenteeism costs the nation’s businesses \$8.65 billion a year. In Indiana, the numbers aren’t any better. In 2018, the United Health Foundation, which compiles national health data, ranked the state 39th in both obesity percentage and lack of physical activity among adults and 48th in state and federal dollars spent on public health.



A 2019 report from the Richard M. Fairbanks Foundation, an Indianapolis nonprofit, found that eight in 10 Indiana adults don’t get enough physical activity and nine in 10 don’t eat the recommended amount of fruits and vegetables — both leading causes of obesity. The study says absenteeism, productivity declines, rising health care costs and lost economic output caused by obesity are costing the state billions annually. “The consequences of not addressing this issue are going to lead to a host of chronic disease issues, poor quality of life and ultimately shorter lives,” says Tim Gavin, professor and head of the Department of Health and Kinesiology, who co-leads the community-based prevention project. “We can’t treat our way out of obesity — we must work to prevent it.”

Boots-on-the-ground approach

An opportunity to partner with communities on prevention presented itself in 2016, when the CDC put out a call to universities nationwide asking them to partner with their cooperative extension service programs to reduce adult obesity in counties with obesity rates above 40%. In Indiana, that included Jackson and Lawrence counties. Gavin teamed up with Angela Abbott, assistant dean in the college and associate director of HHS Extension, to respond to the CDC’s request. The CDC awarded them a two-year \$1.15 million grant for their project titled, “Reducing Obesity in Indiana Through Community Involvement to Increase Prevention.” Gavin and Abbott didn’t waste any time reaching out to community members. In fact, even before they formally applied for the grant, they worked with Purdue HHS Extension staff embedded

In 2016 the CDC put out a nationwide call to universities to partner with their cooperative extension service programs to reduce adult obesity in counties with obesity rates above 40%. In Indiana, that included Jackson and Lawrence counties.

in the counties to bring on board two existing organizations: Healthy Jackson County and Live Well Lawrence County. “We wanted to learn from them first, because they know best what’s working, what’s not working and what partnerships are already in place,” Abbott says. “We did not want to take the approach of the big university coming in and telling the community what to do.” That’s a common mistake, according to Pam Aaltonen, Purdue professor emerita of nursing, who now serves as president of the American Public Health Association. “Too often in the past, we’ve designed programs, brought them to a community, implemented them and then left. When you do that, you don’t build anything that will sustain once you’re gone,” she says. “This project took a different track, thanks to the collaboration with established HHS Extension offices in both counties. It’s the approach we need to take to effect real change in the health of communities.”

Building community coalitions

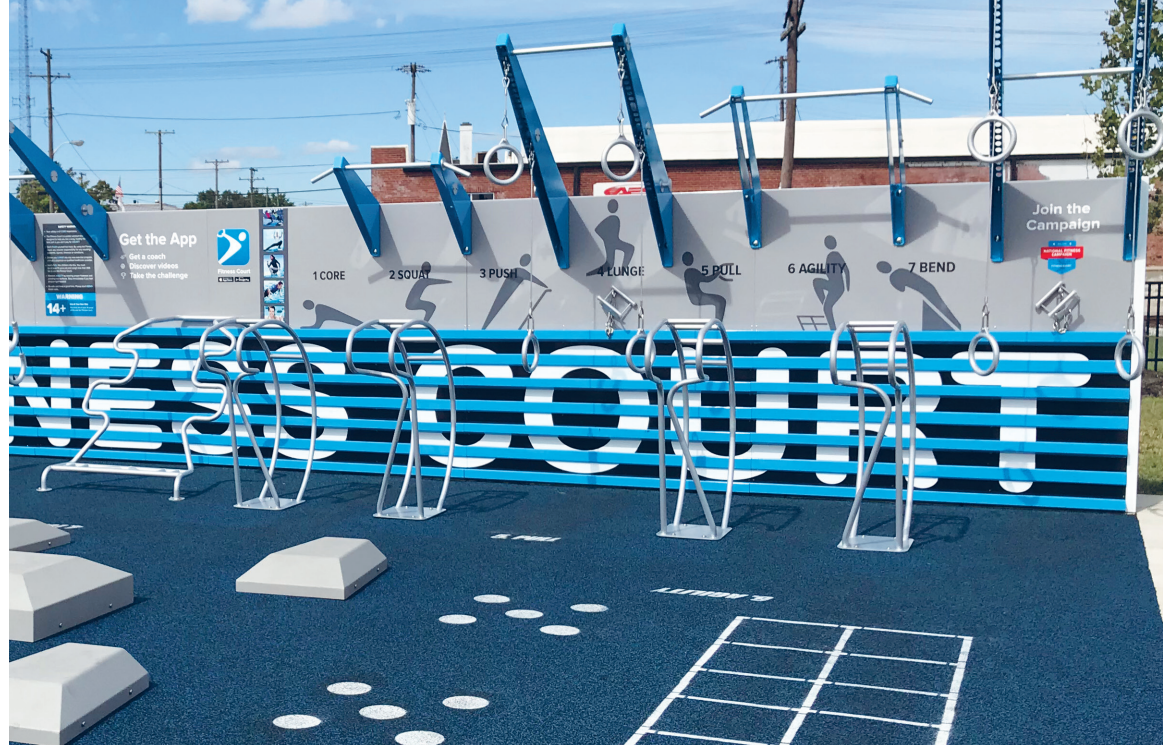
With community partners identified, Gavin and Abbott hit the ground running as soon as the grant was awarded. They assembled a team composed primarily of HHS Extension nutrition, health education and community development experts and used some of the grant money to hire community champions dedicated full-time to the obesity project. Team members worked with Healthy Jackson County, Live Well Lawrence County, elected officials and volunteers to establish community coalitions that facilitated sessions in which local residents worked together to determine what was driving obesity in their communities and how best to address it. The remainder of the CDC grant money was used to implement the solutions they identified. “The breadth of people who came together was amazing — elected officials, county health folks, even retirees,” Gavin says. “It just snowballed, and they quickly saw ways to make cost-effective changes that could have a big impact.” Those changes included simple ways to increase physical activity and access to healthy foods, which can be challenging in rural areas where poverty rates are high, availability of fresh fruits and vegetables is low, and finding a sidewalk or shoulder on which to walk, run or ride a bike is difficult. “So much of the work we see done in the area of health and obesity happens in urban and suburban settings,” Aaltonen says. “One of the nice things about this project is that it addresses issues that we see in rural communities across the country.”



A community vegetable garden in Jackson County. (Photo by Joan Crow)

Making the healthy choice the easy choice

Communities in both counties added bike lanes, improved crosswalks, installed fitness equipment and otherwise found ways to make it easy and safe for residents to get active. Lawrence County, for example, created the Bluejacket Trail by connecting 2.6 miles of existing walkways. “The Bluejacket Trail has two pluses,” says David Watson, a local resident who uses the trail often. “One is the physical activity and the other is the bonus of being able to reconnect with people I haven’t seen who are now on the trail.” In Jackson County, the Boys & Girls Club of Seymour built an indoor playground for young children to use in the mornings, which then becomes a “ninja warrior course” for older kids the rest of the day. “We’re already seeing over 40 families come on a regular basis,” says Ryon Wheeler, the organization’s executive director. “When it’s rainy and cold, they can come inside and find healthy outlets to continue to be active.” To promote healthier eating, several communities established vegetable gardens, including one in Mitchell with raised beds and accessible paths for those in wheelchairs. In Seymour, the Boys & Girls Club added healthier choices to its vending machines, and the parks and recreation department took that a step further, requiring vendors at local concession stands to provide healthy options.



“The breadth of people who came together was amazing — elected officials, county health folks, even retirees. It just snowballed, and they quickly saw ways to make cost-effective changes that could have a big impact.”

— Tim Gavin, professor and head of the Department of Health and Kinesiology



“We bid out that process so we wanted a policy change that says if you get this contract, you have to serve so many healthy items,” says Bob Tabeling, parks and recreation director.

Making it easier for people to make healthier choices sounds simple, but it’s a critical step in obesity prevention, Gavin says.

“What these communities were successful in doing was moving healthier options to the front and making them affordable,” he says. “Concession-stand operators agreed to sell water at a lower price than other drinks, which made water a cost-effective solution compared with soda.”

New connections, positive steps forward

Though it’s too soon for the data to show obesity rate reductions in Jackson and Lawrence counties, Gavin and Abbott shared some early successes during an HHS Learn & Lunch presentation in November 2018. Through Purdue HHS Extension, they’ll continue to track progress and provide support.

“We’ll follow up to make sure these groups are still together, working on their action plans and adjusting course when necessary,” Abbott says. “For us, a win is keeping these health

coalitions sustained over time.”

Community leaders are eager to keep moving forward as well.

“With the relationship we’ve developed with Purdue Extension and the city park board, we have seen a larger number of people outside using the Bluejacket Trail, going to the parks, taking breaks on the benches and using the bike racks,” says J.D. England, mayor of Mitchell. “We just hope that number continues to grow.”

For Gavin, the obesity project represented his first time working closely with Purdue HHS Extension, and it opened his eyes to the role the organization plays in local communities.

“Purdue Extension is a connector,” he says. “I was impressed with how trusted a partner they are.”

Abbott looks forward to continuing to make those connections, both on and off campus.

“When you take the world-class research and faculty we have here on campus and bring that to local communities, you can do great things,” she says. “This project is a perfect example of how we connect research with community assets to make lives better.”

To watch the HHS Learn & Lunch presentation visit tinyurl.com/y4jsuzpl

VIDEO MICRO-LECTURES BRING OBESITY PREVENTION COURSES TO EVERYONE

DOROTHY TEEGARDEN, professor of nutrition science and former HHS associate dean for research and graduate programs, led a team of obesity experts that created an online resource to help students, teachers and the general public learn more about childhood obesity and obesity prevention.

The Transdisciplinary Obesity Prevention Research Sciences website includes 10-minute video micro-lectures designed to provide an overview of topics related to obesity prevention. The curriculum is a “flip-the-classroom” format and the site offers 29 course modules covering topics relevant to obesity. Topics include epigenetics, feeding practices in the child care environment, family mealtimes, federal food policy and culturally tailored interventions. In addition to the micro-lectures, the site provides test questions, class activities and optional readings to inform the public or for instructors to use in a course.

The collaborative project was produced by Purdue University, University of Illinois at Urbana-Champaign and California State University, Fresno, and funded by the USDA. The website, <https://stemedhub.org/groups/toprs>, is housed at Purdue’s STEM edHUB.

Top Left: A stop on the Bluejacket Trail in Lawrence County. | Top Right: Outdoor exercise equipment in Jackson County. | Bottom Left: The Boys & Girls Club indoor playground in Jackson County. | Bottom Right: David Watson of Mitchell, Indiana, walks the Bluejacket Trail in Lawrence County. (All photos by Joan Crow)

GRADY EIFERT



EXCELLED ON THE COURT AND IN THE CLASSROOM

By Ken Thompson

Grady Eifert seemingly was destined to be a Boilermaker.

His father, Greg, was a starting forward for coach Gene Keady's first Big Ten Conference championship team in 1984. The Eifert family had Purdue basketball season tickets, and Grady made many trips to Mackey Arena from his hometown of Fort Wayne.

Unlike his father, Grady had to earn a scholarship after he arrived on campus. He was a preferred walk-on as a freshman and sophomore and wondered at times if he made the right decision.

"Those first two years were not always the easiest," Grady Eifert says. "I think every athlete goes through a time where school is tough and then basketball is tough as well. You think, 'Did I make the right decision?' But I think it's really how you react and can learn from those situations and get better, push through. I came into it with an open mind that this isn't going to be the easiest thing in the world. You've got to be able to take on the challenge when it's presented to you."

Not only did Grady meet that challenge, he triumphed.

Eifert was a team captain during the 2018-19 season, starting every game and helping the Boilermakers reach the NCAA tournament's Elite Eight for the first time since 2000.

Purdue has had a handful of outstanding walk-ons, including 1984 Big Ten Player of the Year Jim Rowinski, in the past four decades, but head coach Matt Painter says Eifert was not a typical nonscholarship player.



Photos provided by Purdue Athletics

"Every walk-on is different, but what set Grady apart was his physical attributes," Painter says. "Most walk-ons typically aren't physically and mentally ready to play in the Big Ten."

"He had good size (6-foot-6) when he arrived, and his family's background and athletic experience told us he had been around the game a long time. He was a selfless team player that would do anything it took to help Purdue be successful."

Now, Eifert is taking on a new challenge. He'll serve as one of two graduate assistants under Painter starting in the 2019-20 season, alongside former teammate P.J. Thompson.

Eifert is a leader by example, whether it's on the basketball court or in the classroom.

"I think I try as hard as I can," Eifert says. "I show up on time. I tried to do the small things to get those grades. As a student I always maintained over a 3.0 and I'm a two-time Academic All-Big Ten, so I think that shows the time you have to put in because it's not easily done."

One of his instructors, Anita Dale, says Eifert applied the same effort in her Fundamentals of Negotiations class as he does on the basketball court.

"Grady excelled in giving his best to each of the assignments," Dale says. "Grady also did a good job of applying what he learned in one case to another case of a different type."

Eifert earned his degree in selling and sales management in the College of Health and Human Sciences in May and until his recent decision to stay on campus, he considered following in another of his father's career paths.

"My dad is involved with sales," Eifert says. "It's a unique education to get here. Not a lot of schools offer it. I just think the experience it was able to give me was huge because it gave me real-life experience."

With his playing career ended, Eifert takes pride in having helped Purdue basketball regain its place among the Big Ten's elite.

"Being able to go to the NCAA tournament four years in a row, going to the Sweet 16, going to the Elite Eight and then winning two Big Ten championships — and having an unbelievable career against IU — will be something that I'll always remember," Eifert says. 🏀

Eifert is a leader by example, whether it's on the basketball court or in the classroom.

LEADER



Rendering courtesy of Simeone Deary Design Group and HKS Inc.



Recent Purdue graduate Summer Cerny (HTM '19) is just one of many students that Purdue alumnus and former trustee Bruce White and his wife, Beth, have helped over the years.

"During my last summer in 2018, I not only learned a lot, but I was able to develop leadership skills, which is very unusual for an intern," says Cerny,

who has enjoyed two internships with White

Lodging Services Corp. (of which Bruce White is founder and chairman). Cerny is now sales coordinator at the Autograph Otis AC by Marriott, in Austin, Texas. "White Lodging invested time and energy in me. I saw that even more when they offered me a full-time job as a Purdue graduate," she says.

The Whites and the Dean and Barbara White Foundation are helping Purdue and its students take another giant leap with a \$30 million donation to convert the Union Club Hotel into a world-class hotel and add a restaurant and bar. It also will provide a laboratory learning environment that will serve up training and leadership opportunities for students in the School of Hospitality and Tourism Management (HTM).

The transformation will include furnishings, amenities, and the overall look and feel, plus an expansion of some rooms to suite-type lodging. The entry to the hotel, located next to the Purdue Memorial Union, will be improved with a grand entrance and atrium. In addition to the guest rooms and lobby space, the project incorporates the renovation of another 8,500 square feet to add a restaurant and bar.

Work began June 3 and is expected to last approximately one year. The hotel is scheduled to reopen in August 2020.

UPGRADE

WHITE FAMILY GIFT TO TRANSFORM UNION CLUB HOTEL

By Greg McClure

Bruce White says Purdue's HTM program has served as a good source of employees and interns for his company.

"I really don't know (the number of Purdue graduates hired), but I would suspect the aggregate number ... certainly exceeds 500 and might be closer to 1,000," he says. "Purdue graduates tend to be grounded, well prepared and eager to grow responsibilities. They are an essential part of our staffing strategy to support White Lodging's aggressive growth and quality objectives."

Bruce graduated from Purdue in 1975 with a degree in management and served on the Purdue Board of Trustees from 2011 to 2015. Under his leadership, White Lodging Services Corp., based in Merrillville, Indiana, has grown to include more than 170 hotels in 21 states.

The Whites have been generous donors to Purdue. They helped establish an endowment fund for future HTM students at Purdue's West Lafayette campus. In addition, through the Bruce and Beth White Family Foundation and the Dean and Barbara White Family Foundation, Purdue University Northwest was able to expand and enhance its HTM program, now known as the White Lodging School of Hospitality and Tourism Management.

"The redevelopment of the hotel provides a unique opportunity to create a gathering place for alumni, faculty, students and visitors while also serving as a learning experience for HTM students," Bruce says.

In the former lab at the Union Club Hotel, students rotated through positions found in hotels — the front desk, housekeeping, laundry and sales or bookkeeping. The new hotel could be even more advantageous for future HTM students, Cerny says.

"It will enhance the experience students will have. This is a high-end hotel, and that caliber of learning opportunity will be awesome," she says. ■■■

HELLO!

When I joined the College of Health and Human Sciences (HHS) as chief development officer in July 2018, there was just one year remaining of Ever True: The Campaign for Purdue University. Now, it brings me great pleasure to report that contributions to the campaign, which concluded June 30, 2019, exceeded the University's goal of \$2.019 billion. Likewise, the College of Health and Human Sciences exceeded its goal of \$77,275,000 with more than \$87 million in contributions. Thank you for your support!

In my position as chief development officer, I oversee a team of eight alumni and development professionals dedicated to sharing the stories of HHS with alumni and friends, and connecting them to Purdue and HHS. Over the past year, we've held events in Washington, D.C.; Las Vegas; San Francisco; Lafayette, Indiana; and Florida (Sarasota, Orlando and Naples). At these events, Dean Marion K. Underwood presented her vision for the future of HHS, which includes establishing a new, shared "Nursing and Pharmacy Instructional Building" to house the School of Nursing and Purdue's College of Pharmacy, and a new "HHS Home" building. This building will be a place for our students to call home; with collaboration spaces; study lounges; Student Services advising offices; the Dean's Office; and HHS Business, Communications and IT offices. It will also serve as the home for our newest department, Public Health, and one of our oldest departments, Health and Kinesiology.

As the HHS development staff travels the country, I hope you'll consider meeting with us so we can personally share with you the activities taking place in HHS and the college's goals for the future. And, of course, we'd love to get your input and also hear your Purdue memories. We look forward to seeing you when we're in your area!

Aaron Kosdrosky
Chief Development Officer



CREATE A LEGACY. YOUR PLANNED GIFT MIGHT INCLUDE:



For more information about how you can support the College of Health and Human Sciences, please contact the HHS Office of Advancement at 765-494-7890 or hhsalums@purdue.edu.

AMPLIFY

[YOUR LIFE]

PURDUE **P** ALUMNI

TAP INTO THE POWER

The Purdue Alumni Association has the tools you need to amplify your personal, professional, and intellectual life. We harness the power of more than 630,000 alumni, in all stages of life, to help you get more of what matters to you.

MEMBERSHIPS START AT JUST OVER \$2/MONTH

LEARN MORE AT
PURDUEALUMNI.ORG/AMPLIFY-YOUR-LIFE

LIVE A
*Purdue*TM
STYLE

PURDUE
TEAM STORE
THE OFFICIAL STORE OF PURDUE UNIVERSITY

PurdueTeamStore.com



For 150 years, Purdue alumni and faculty have left footprints, making the world and our lives better — even reaching the moon. Such pursuits often begin with an act of bravery, a new path taken or a passion ignited. In celebration of the University's anniversary, we ask

“WHAT WAS A GIANT LEAP IN YOUR LIFE?”

“I had just finished my sophomore year at Purdue and was embarking on a study abroad experience in Florence, Italy. Little did I know that experience would **LAUNCH MY INTEREST** in global travel, international health research and intercultural development. Today, I create opportunities for my own students as a study abroad leader.”

Andrea DeMaria, Assistant Professor of Public Health

“The first was when I left Australia for Chicago to set up an office for Tourism Queensland. I traveled the United States, Canada and South America, gaining great experience in marketing. The second came after I became an academic and moved my focus from tourism marketing to sustainable tourism. That leap **GAVE ME NEW INSIGHTS** into how tourism can be used as a tool for good in an ever more crowded world.”

Jonathon Day, Associate Professor of Hospitality and Tourism Management

“Applying to a PhD program. I was a **FIRST-GENERATION COLLEGE STUDENT** and didn't know anyone with an advanced degree. I had no idea what to expect and quickly found I was underprepared. I was fortunate to be guided through the adjustment by Dr. Ginger Yang, an amazing researcher and mentor!”

Laura Schwab Reese, Assistant Professor of Health and Kinesiology

“I and my soon-to-be wife left a place we loved — Sarasota, Florida — and our jobs in biology/environmental science to pursue graduate degrees in nuclear engineering at the University of Illinois at Urbana-Champaign. This was an **EDUCATIONAL AREA NEW TO US** and it truly changed our lives, bringing us to where we are today!”

Jason Harris, Associate Professor of Health Sciences, Associate Dean for Graduate Programs and Online Education

See more responses and share your own at
WWW.PURDUE.EDU/HHS/LIFE360

ADMINISTRATION

Marion K. Underwood, Dean

Thomas Berndt, Senior Associate Dean for Academic Affairs and Administration

Liping Cai, Associate Dean for Diversity and International Programs

Jason Harris, Associate Dean for Graduate Programs and Online Education

Jessica Huber, Associate Dean for Research

Angie Abbott, Program Leader and Assistant Dean for HHS Extension

DIRECTORS

Carol Ben-Davies, Director of Diversity and Inclusion

Denise Buhrmester, Director of Communications

Shane Hawkins-Wilding, Director of Student Services

Mona Holdcraft, Director of Financial Affairs

Aaron Kosdrosky, Chief Development Officer

Anita Tuttle, Director of Information Technology

UNIT HEADS

Aaron Bowman, Health Sciences

Doran French, Human Development and Family Studies

Timothy Gavin, Health and Kinesiology

Rich Ghiselli, Hospitality and Tourism Management

Pam Karagory, Nursing (Interim)

Richard Mattes, Public Health

David Rollock, Psychological Sciences

Amanda Seidl, Nutrition Science (Interim)

Preeti Sivasankar, Speech, Language, and Hearing Sciences

Comments? Contact Denise Buhrmester, Director of Communications, dmbuhrmester@purdue.edu, 765-496-3663.

Moving? Send change-of-address notices to Development and Alumni Information Services, Purdue University, 403 W. Wood St., West Lafayette, IN 47907. Or email us at hhsalums@purdue.edu.

PRODUCTION STAFF

Elizabeth Gardner, Managing Editor

Olivia Sarault, Graphic Designer

Christina Bennett, Joan Crow, Brian Powell, Jessica H. Smith, Lisa Stein, John Underwood, Rebecca Wilcox, Steven Yang, Photographers

Jamie Ingersoll, Marketing Strategist

Phillip Fiorini, Dan Howell, Paula McKinney, Copy Editors

Eric Bender, Becky Brown, Denise Buhrmester, Phillip Fiorini, Elizabeth Gardner, Aaron Kosdrosky, Marti LaChance, Aaron Martin, Greg McClure, William Meiners, Lesa Petersen, Madison Sanneman, Ken Thompson, Marion K. Underwood, Brian Wallheimer, Brian Zink, Contributing Writers

© 2019 by the Purdue University College of Health and Human Sciences. Please request permission before reprinting any portion of this publication.

An equal access/equal opportunity university

Produced by Purdue Marketing and Media | HHS.18.11318





COLLEGE OF HEALTH AND HUMAN SCIENCES

700 W. State St., Room 110
West Lafayette, IN 47907-2059

www.purdue.edu/hhs

Non-Profit
Organization
U.S. Postage
PAID
Purdue University
Permit No. 221



College of Health and Human Sciences

Since its founding in 2009, HHS has elevated Purdue University's reputation in the health and human sciences. As we approach our 10-year anniversary, join us on social media to follow our next Giant Leaps.

 /HHSPurdue  @PurdueHHS  @PurdueHHS