#### 2018 REVIEW



# MORE



# HEALTH







# MEDICINE

## ENGAGED INCLUSIVE INNOVATIVE COLLABORATIVE

ur mission is "More Health, Less Medicine" by leading the complex shift in health care from primarily caring for the sick to keeping people healthy, fit, and resilient by developing and implementing innovative science and educating the next generation of practitioners and researchers. Our research vision is to be a nationally recognized leader in the creation and dissemination of knowledge on health, wellness, and rehabilitation.



David Perrin, PhD, dean, with Yda Smith, PhD, OTR/L, associate professor and chair of the College's Diversity and Inclusion Committee.

To achieve this vision, we have recruited several new faculty who have brought funded research programs to the College and provided junior faculty mentoring through the Vice President's Clinical and Translational Scholars' Program. During FY2018 we had unprecedented success, winning over \$40 million dollars of new grants from a variety of federal agencies and private foundations.

We have completely realigned the College from seven departments and divisions to five departments and have launched a number of new academic programs, including a PhD in Nutrition and Integrative Physiology. In support of undergraduate student success, we adopted centralized academic advising with creation of the Sorenson Legacy Foundation Center for Student Success. Participation in the U's Undergraduate Research Opportunities Program continues to be a priority for our faculty – providing this transformative experience for many of our undergraduate students.

Our community engagement activities serve as a template for what our new president, Ruth Watkins, calls "the University of Utah and the University for Utah." Connect2Health (See page 46) serves the needs of underserved and homeless populations in Salt Lake City and the



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region; Driving Out Diabetes and the Center for Community Nutrition initiatives (See pages 48 and 50) seek to improve the quality of lives through sound nutritional practices and physical activity; our faculty and students engage in refugee resettlement fieldwork (See page 10) and provide pro bono rehabilitation services throughout the region.

We are fully committed to creating a diverse and inclusive environment in the College of Health. Our Diversity and Inclusion Committee is among the most active in the College – writing new mission and vision statements, creating faculty, staff, and student Inclusive Excellence Awards, addressing microaggressions in the classroom, and adopting an Inclusive Excellence in Admissions policy. We are also participating in the U's Pacific Islander Diversity Initiative, having recruited a national leader in Pacific Islander health to our faculty. (See profiles of new faculty, pages 23-25)

President Watkins has set "One University" as her top priority – leveraging the strengths and close proximity of the Main Campus and our academic medical center. The College of Health is uniquely positioned to lead the way – with 2,500 undergraduate students and 650 graduate and clinical doctoral students – we already live in both worlds of the U. In our unwavering commitment to more health, less medicine, we are dedicated to building value, pioneering innovation, and harnessing expertise to redefine and prepare future health care professionals.



David H. Perin

David H. Perrin, dean



"U OF U HEALTH IS UNIQUELY POISED TO CHANGE HEALTH CARE, SCIENCE, AND EDUCATION IN PROFOUND AND MEANING WAYS. THE COLLEGE OF HEALTH IS AN IMPORTANT PARTNER IN THIS CHANGE."

MICHAEL GOOD, MD, PHD
CEO, UNIVERSITY OF UTAH HEALTH
DEAN, SCHOOL OF MEDICINE
SENIOR VICE PRESIDENT FOR HEALTH SCIENCES



# THE COLLEGE

s health care in America undergoes a major transformation, University of Utah's College of Health is pioneering an integrated, comprehensive, individualized, and systemic approach to health and wellness through prevention, rehabilitation, and health maintenance. Through its research, discovery, and educational training, the College is focused on preventable disease and evidence-based rehabilitation, helping University of Utah Health link metabolism, physical activity, the neurosciences, and other components of our complex human systems to the prevention and treatment of diabetes, cancer, and other chronic diseases.



Physical Therapy and Athletic Training

With practice-based curriculum and advanced leadership training, the College is producing more than graduates. It is educating future health leaders who will tackle our most difficult health care needs. The College's world-renowned faculty conduct research that furthers understanding of treatment, and both faculty and students apply that knowledge to serve the Salt Lake community.



2,500 undergraduate students

(One of U of U's largest colleges)

650 GRADUATE STUDENTS

18 BACCALAUREATE-DEGREE PROGRAMS

> 16 MASTER'S-LEVEL PROGRAMS

> > 5 Phd programs

CLINICAL DOCTORATES

34 LABORATORIES AND CLINICS

### DEPARTMENTS



#### HEALTH, KINESIOLOGY, AND RECREATION

HKR integrates specialized training in biological, environmental, psychological, social, physical, and medical sciences to help people, communities, and societies adopt and maintain healthy lifestyles. Researchers impact all aspects of medicine from orthopaedics to brain activity.

"WE TRULY CHANGE LIVES." - A. MARK WILLIAMS, CHAIR



Occupational Therapy graduate programs and the Recreational Therapy baccalaureate program help students investigate and advance knowledge to help those with physical, cognitive, or mental health problems develop or regain independence and restore their ability to perform living and working skills and participate in activities that are meaningful for their quality of life.

"WHAT HAVE WE GAINED FROM OT? SIMPLY PUT, I HAVE MY SON, AGAIN." - MOTHER OF CLIENT



#### PHYSICAL THERAPY AND ATHLETIC TRAINING

Leading-edge research in PTAT ranges from cellular-level investigations into damaged muscle responses to far-reaching innovations in care. Students and faculty strive to identify, alleviate, and prevent impairment and disability so that patients throughout Utah and beyond can more easily return to their regular lives and activities.

"THE RESEARCH PORTFOLIO FOR THE DEPARTMENT COMPRISES OVER \$19 MILLION DOLLARS IN EXTERNAL GRANT SUPPORT. RECENT AWARDS FOR FACULTY AND STUDENTS IN SERVICE AND RESEARCH DEMONSTRATE THE MEANING OF THE WORK WE ARE DOING." – SCOTT WARD, CHAIR



#### NUTRITION AND INTEGRATIVE PHYSIOLOGY

NUIP explores how metabolic health can combat the development and progression of chronic diseases such as diabetes, heart disease, and cancer. This advanced research and modeling bridges the human biology sciences from anatomy and biochemistry to epidemiology and genetics. NUIP translates new research findings into clinical procedures and community outreach programs that improve quality of life.

"THE RESEARCH INFRASTRUCTURE PRESENTS FANTASTIC OPPORTUNITIES FOR TESTING BIG IDEAS AND FOR TRANSLATING DISCOVERIES FROM BENCH TO BEDSIDE." – SCOTT SUMMERS, CHAIR



#### COMMUNICATION SCIENCES AND DISORDERS

From the earliest mastery of speech and language in toddlers to the loss of hearing as we age, faculty, researchers, and students in CSD study the most significant attribute of our human world – our ability to communicate. Faculty and students apply linguistic, biomedical, psychological, and physical principles to treat the speech, language, hearing, and cognitive communication problems caused by disease, injury, disability, and age.

"OUR STUTTERING CLINIC HAS DRAMATICALLY CHANGED LIVES." - MICHAEL BLOMGREN, CHAIR

## DIVERSITY & INCLUSION

The College of Health strives to promote diversity and inclusion among its students, faculty, and staff. Diverse perspectives and life experiences strengthen our academic community in multiple ways. For example, the College provides exceptional educational opportunities to students in non-traditional, community-based settings through the Department of Occupational and Recreational Therapies' Immigration & Refugee Resettlement Fieldwork Program. It assists newly arrived immigrants – particularly those who arrived in the United States with refugee status – in successfully adapting and adjusting to life in America.



### "I CONSIDER IT TO BE A MORAL OBLIGATION TO REACH OUT TO THIS POPULATION."

- YDA SMITH, PHD

Yda Smith, PhD, OTR/L, director of the program, was interviewed by OT Practice, the magazine of the American Occupational Therapy Association.

### OT Practice: How would you summarize your work with refugees?

Smith: It's about the valuable role that OT can have working with this population. We don't need to travel to another country to have a culturally rich global experience. We can stay right here. From an occupational justice perspective, I consider it to be a moral obligation to reach out to this population and support them in their efforts to be successful in this new environment. It's a really great fit with our skill set.

### OT Practice: Do refugees in the Salt Lake area come from a variety of places?

Smith: There's always a mix of where people are coming from, and they are sent all over the United States. In 2003 to 2004, the Somali Bantu of Kenya were identified by the U.N. High Commission for Refugees as a group that really needed help. So a lot of them came to the United States. Right now people from the Congo seem to be the largest group being brought in. Most of the time they're coming from rural, agrarian areas. They were farmers, and they may have lived in refugee camps for 10 to 20 years. Then they get plopped into these urban environments with brand new concepts like riding the bus. Some don't know how an oven works. OT Practice: Are there particular skills that OT helps them with, or is it a wide range of things? Smith: It's a range of things. We start with basic life skills of interacting with the community. Then we focus on health care issues. There's the basic skill of just getting to the appointment. They may also have specific physical disabilities – maybe shrapnel wounds or maybe they were just in a car accident. The agencies support them with case management, but their staff don't have the same skills we do to address these other issues. This is why the medical OT work that we do also fits in. Medication management is huge, and then often there are mental health issues. Many of the refugees have been tortured or were witnesses to really violent things and have lived in fear for long periods of time.

#### OT Practice: So they may have PTSD?

Smith: PTSD is common. Issues with not sleeping at night are rampant. Sometimes they have major depression, and we see a lot of people with anxiety disorders. They don't all have those problems but they're not uncommon. We're using our mental-health background with the folks who have those issues.

#### OT Practice: So it's university faculty members and students who are working with refugees in the area?

Smith: Right. I'm the faculty member, and then there are Level I and Level II fieldwork students really doing the work.

#### OT Practice: Is there a timeline – do you wind up helping people for a period of years or does it vary?

Smith: It varies enormously in terms of what skills people bring with them or how challenged they are – and also their social environment. If they have a community of people from their country that they can get support from or if they have family here, they tend to need fewer services. Some people are really on their own. OT Practice: Are there similar programs around the country? Do you speak much with other faculty doing something similar in other cities?

Smith: I definitely have a little network of people who do this kind of work. But as far as I know there's no other program that's nearly as involved as this one.

#### OT Practice: What potential does the program have? Is there a lot of interest from other people?

Smith: Yes, but financing is an issue, along with finding faculty with time to do it. But there's a lot of interest. I can't fill all the spots I have throughout the year with students from our own school. In the fall, we don't have Level II, so I started recruiting students from other schools, and they've been coming in from all over the country.

#### OT Practice: Is there anything you'd say about the personal reward of doing this work?

Smith: I absolutely love doing this. Part of it is the different people you meet - the cultural diversity. The resilience of these people is absolutely astonishing. Also, what's really nice about it is that everything is in the community and everything is occupation-based. You can't help but be 100 percent client-centered and occupation based when you're in their community, you're in their homes, and you see the complexity of their life situations and all these different factors that influence their ability to participate in occupations that they care about. If you're working in other environments, like a hospital or skilled nursing, you just don't see all that. So it's a really rich, fantastic environment for occupational therapy practitioners to be working in. Everyone who comes through here is struck by how powerful that experience is.





Peter Lawson and Kelly Bricker, PhD, director of Parks, Recreation, and Tourism, tour his farm outside of Moab, Utah. Lawson graduated from the University of Utah with a degree in commercial recreation in 1980.

(Bill Keshlear, College of Health)

#### A FOUNDATION OF THE COLLEGE

**Parks, Recreation, and Tourism** evolved from one of three units that split from the College of Education in 1968 to form the College of Health. The current name for the department was approved in 1995. The program contributes to individual, community, and environmental health through education, research, and action informed by the preventive, developmental, and restorative properties of nature. Among notable graduates of the program are world-renowned mountaineer Conrad Anker, University of Utah Commencement speaker in 2017, and Peter Lawson, whose family founded Alta ski resort. Lawson was general manager of Alta until the early 1990s. He currently operates a solar-powered farm near Moab, Utah. (See profile below)



### HARNESSING THE SUN

A 1980 College of Health graduate has been on a journey of personal transformation over several decades – from running a world-renowned ski resort to experimenting with what could be a sustainable, off-the-grid prototype of rural life.

#### By Bill Keshlear, College of Health

**ROFESSOR VALLEY, Utah** – Peter Lawson relaxes outside his ranch house about 20 miles east of Moab, Utah, on a crisp summer morning perfect for ruminating. Recent storms had stalled the season-ending ritual of gathering the freshly cut hay he sells to race-horse breeders in Kentucky. "The hay is wet," he says. "It's the monsoon season."

Sage and red-rock castles contrast with fields that are green only because of reliable flow diverted from a nearby creek, high-pressure pumps, a Tesla solar system, and a techno-tinkerer's single-minded curiosity.

Birds bobbed and chattered in the cottonwood trees. One of the birds, however, apparently mistaking a reflection in one of the home's windows for sky, smashed into it and fluttered to the ground. Lawson put on his work gloves, investigated, and calmed the dazed swallow. Then, he let it be.

The 1980 graduate of what is now Parks, Recreation, and Tourism with a degree in commercial recreation and passion for conservation has a spiritual connection to the land and its wildlife shared by anyone who has made a random discovery of 1,000-year-old artifacts of human habitation in the cranny of a cliff, trekked to a plateau overlooking Canyonlands or Arches national parks at sunset, or spent a deathly silent, crystalline night starring at the canopy of Creation.



Peter Lawson with his wife, Anne Wilson, at their Professor Valley Ranch near Moab, Utah. A statue of his mother, philanthropist Janet Quinney Lawson, is in the background. (Bill Keshlear, College of Health)

JANET QUINNEY LAWSON, Peter's mother, was a pioneering river runner, avid skier, and philanthropist. His grandfather, S.J. Quinney, was a founding partner of the law firm Ray Quinney & Nebeker, benefactor to University of Utah's law school, and founder of Alta ski resort. His brother, Rick Lawson, is a former dean of the Episcopal Cathedral in Salt Lake City. He married Anne Wilson, the daughter of Bates Wilson, the first superintendent of Canyonlands National Park. They have two boys.

Lawson says he must've done something pretty good in a previous life; he doesn't dismiss the possibility of reincarnation, grabbing a coffee-table book on the life and work of Edward Curtis. The goateed adventurer of the late 19th century – rakish in the spirit of Teddy Roosevelt – and photo documentarian of a vanishing Native American way of life, bears more than a passing resemblance to the Professor Valley glider pilot who soars on Canyon Country thermals, powder hound, river runner, and now farmer harnessing the sun.

After comforting the dazed bird, Lawson talks candidly about parenting (Guide them along a path they determine); a perspective on wealth (Foster the common good knowing this too shall pass); and a sober life (How much did I miss and how much have I gained?). SINCE THE EARLY 1990s, Lawson has been on a journey of personal transformation – from running a world-renowned ski resort to experimenting with what could be a completely sustainable, off-thegrid prototype of rural life. It's an all-consuming passion.

Kelly Bricker, PhD, director of the Parks, Recreation, and Tourism program, and a group of her graduate students recently visited Lawson's 300acre operation, just across Utah Highway 128 from the Colorado River.

"We visited a living laboratory of possibility in southern Utah," said Bricker. "Research has demonstrated innovation is critical in addressing sustainability challenges of our day. We were able to witness innovation in real time."

Lawson has driven PistenBullies through blizzards at 10,000 feet, rescued skiers on the 40-degree slopes above Alta, and repaired lifts under bone-chilling conditions. The researcher who accumulated and preserved 40 years of avalanche data in Little Cottonwood Canyon is savoring a few minutes with students taking a deep dive beyond the classroom into complications of environmental sustainability.

He's talking about roof-mounted solar arrays that generate a whopping 300 kilowatt-hours of power, according to the system's contractor, Helix Electric, and shelter heavy-duty farm implements.

The Tesla battery storage system has a 2,100 kwh capacity.

Dozens of high-pressure sprinklers monitored and controlled from a centralized iMac-based system and a diversion from Professor Creek keep hay green and growing, ready for cutting four times a year. Technician Damian Bollerman works out a few glitches, and a drone that will analyze moisture content in the field remains grounded. By September, it was airborne.

A steel-framed climate-controlled barn ("barn" is an understatement) stores hay for shipment to customers across the country. A steel-framed



Edward Curtis was a late 19th century photographer who documented a vanishing Native American way of life.

maintenance shed ("shed" is a gross understatement) stores fuel recycled from cooking oil used in Moab restaurants and a battery-powered dirt bike and ATV.

LAWSON'S LIFELONG COMMITMENT to conservation is significant. He's been at the forefront of efforts to protect land from condo and ranchette development that sprawls over much of the landscape in and around Moab – keeping at least Professor Valley a place the "professor" might recognize. A mail carrier by the name of Sylvester Richardson homesteaded the valley in the 1880s. He was the professor. Story goes Richardson derived his nickname from a supposedly encyclopedic knowledge of all things based on a post-Civil War life rambling around the West with a book under his arm.

Lawson's vocation is to look after the valley's irrigated agricultural land, including a pistachio orchard and other fruit and nut trees as well as





Damian Bollermann, a consultant, explains the workings of the farm's irrigation system.

Tesla batteries store energy from several arrays of photovoltaics atop shelters that protect farm implements.

(Bill Keshlear, College of Health)

natural shrub land, and riparian habitat along Professor Creek and irrigation canals.

The property forms a substantial part of the historical viewscape from the Upper Colorado River Scenic Byway, unspoiled by motels and tourist attractions along the river. The hayfield and cottonwood trees provide hints of early agricultural traditions as well as preserve open space. Irrigated crops and adjacent areas provide sanctuary for wildlife, including both large and small mammals, birds, reptiles, amphibians, and invertebrates. Mule deer move in nightly.

Lawson's farm taps surface water sources, not an aquifer, that if unused would flow into the Colorado

River then to lakes Powell or Mead and possibly just evaporate at some point along the way – a large and continuing problem in the Colorado River Basin. About 500 billion gallons evaporate from the two reservoirs annually, according to University of Colorado-Boulder Assistant Professor Ben Livneh of the Department of Civil, Environmental and Architectural Engineering and a fellow at the Cooperative Institute for Research in Environmental Science.

The number represents roughly 10 percent of the total natural flow of the Colorado River Basin, or about five to 10 times the amount of Denver's annual water use.

Anne Wilson, who grew up on the property, be-

lieves less water is used now than during earlier periods because of Lawson's pattern of only turning on the sprinkers at night and the farm's computerized efficiency. Professor Creek used to regularly run dry, a rarity nowadays.

#### LAWSON HAS PARTNERED WITH UTAH OPEN LANDS,

a nonprofit whose mission is "to preserve and protect open space in order to maintain Utah's natural heritage and quality of life." It's an extraordinarily successful organization of 64 projects across the state that so far has shielded about 60,000 acres from development. Prominent projects in northern Utah include the Hi-Ute Ranch, the High Uinta Ranch, and the Swaner Preserve adjacent to Park City.

Closer to home, the University of Utah created its Heritage Preserve with the assistance of Utah Open Lands in 2002. It preserved over 480 acres of undeveloped land bordering the eastern edge of the campus and Research Park. The university's donation of a conservation easement represented a commitment to preserving one of the state's unique assets: the balance between urban living and the natural environment. Under the agreement, the university and the general public have access to the preserve for hiking, non-motorized biking, photography, and nature study – theoretically forever.

Lawson's acquisition of a 1,280-acre parcel at the mouth of Mary Jane Canyon, which spans almost the entire Professor Valley, and his subsequent donation to Utah Open Lands is among the organization's most significant partnerships.

According to Utah Open Lands, "The area comprises sandy washes and deep slot canyons that funnel water into Professor Creek which crosses the property. The eroded waterways and windways are defined by intricate formations, shifting light and shadow, patterns of water, animal tracks, pockets of dense vegetation, and the sounds of birds, water and wind that change with weather and seasons."

In 2003, Utah's School and Institutional Trust Lands Administration put the land up for sale. SITLA manages about 3.5 million acres of land in the state, portions of which it sells to raise money for schools. Oil and gas, mining, and real-estate development inter-



Mary Jane Canyon, which is now protected by a Utah Open Lands conservation easement, comprises sandy washes and deep slot canyons.

ests typically buy the parcels. In this case, Peter and Anne got out their checkbook to keep it pristine. "The prospect of having this canyon we love so much have houses run through it was more than we could stand," said Lawson, quoted in a High Country News account.

Dale Cruse, PhD, who was head of what is now Parks, Recreation, and Tourism when Peter was an undergraduate, said the couple have "done more to protect the land we live in than anyone else I know."

The nearby Canyonlands Field Institute offers outdoor classes on the environment and frequently uses the area. Lawson said the purchase allows students to continue to use an "irreplaceable laboratory." He likely would deliver a similar message to students attending his alma mater, perhaps with a slight nod to his spiritual underpinnings, palms prayerfully brought together: "Namaste." I salute the god within you.

AFTER AN HOUR OR SO, Anne joins the conversation. She notices the bird that had smashed into their patio-facing window, quiet now under a table. She gently holds it, smooths its feathers, and it flies away.

## WHAT ADDS UP TO HEALTH?

t's much more than an apple a day or a trip to the doctor's office. A person's overall health is a complex mix of whether they got grandma's genes, went to college, or live in a food desert.

While our health care system has focused on building a remarkable array of clinics, hospitals and ICUs, health care providers only affect about 20 percent of what determines health.

Many students, researchers, and clinicians at the College of Health are focused upon individual behaviors and social and environmental factors. (from Algorithms)

> income community and dir and woter quality) DETERMINANTS OF HEALTH



social/environmental factors Crecies nutrion education

60%

#### CLINICAL CARE AT THE COLLEGE OF HEALTH

- Physical Therapy's Balance & Mobility Clinic provides services to help patients stay balanced, recover from a concussion, and prevent urinary incontinence.
- O **Communication Sciences and Disorders' Speech-Language-Hearing Clinic** provides speech-language evaluations and therapy services for children of all ages with speech/language disorders and delays as well as for children and adults with developmental disabilities such as Autism Spectrum Disorders, Down Syndrome, Cerebral Palsy, etc.
- O Occupational and Recreational Therapies' Life Skills Clinic provides classes, experiences, and occupational therapy to help patients improve their quality of life. It helps them meet goals such as basic self-care, return to work, and life participation. (See below)

## **'TIC-TASTIC'** THERAPY

#### By Pamela Manson

here was a time when the involuntary tics of Tourette Syndrome seemed to control 10-year-old Micah's body.

Now the boy manages them, thanks to the help he received at the University of Utah's Occupational and Recreational Therapies Life Skills Clinic. Just months after the boy began treatment in April in the clinic's Comprehensive Behavioral Intervention for Tics and Life Function program, most of the more than 18 tics are gone.

"We just feel very grateful to have found this clinic," Micah's mother, Carrie, said. "It has been a life-changer."

Occupational therapists Heidi A. Woolley, OTD, OTR/L, director of the Life Skills Clinic, and Sarah Gray teach participants in the CBIT non-medication treatment program to make an opposing movement when they feel the urge to tic, such as tensing the neck for a head shaking tic. The "competing response," which makes the tic more difficult to do, can reduce the severity of a tic or even eliminate it.

The Life Skills Clinic recently moved into a bigger space with new equipment, including a sensory room, and expanded the CBIT program in collaboration with the Tourette Association of America. In addition to CBIT, the clinic has programs for children with autism and people who have suffered strokes, among others.

Tourette Syndrome is a neurodevelopmental disorder that becomes evident in early childhood or adolescence and is characterized by motor and vocal tics, according to the Tourette Association of America. The association says an estimated 1 out of every 160 children in the United States between the ages of 5 to 17 has the disorder.

Micah's symptoms included deep blinks, winks, shoulder shrugs, neck juts, pursed lips, grimaces, twitches, elbow nudges and vocal squeaks. He does not have coprolalia, the involuntary outburst of obscene words or inappropriate remarks, which affects only a minority of people with Tourette.

In CBIT training, the client is first taught to become more aware of when the urge to tic is starting. The next step is to come up with the competing response that is the opposite of the tic.

The third major component in reducing tics is to employ stress-reducing strategies and adopt life balance techniques.

The competing response is based on where the tic starts, according to Woolley, who is clinic director and an assistant professor at the College of Health.

"We have to find the first muscle that is ticcing and then we stop it right at that first movement," Woolley said, adding that Micah is the master of coming up with a competing response that works.

For example, when Micah feels as if he's about to scowl and lift an eyebrow, he purses his lips and brings his eyebrows together.

Not only does Micah help create his responses, he names them – one is called Voldemort, after a character in the Harry Potter novels – so he can remember which one to use for which tic. When his parents see their son experience a tic, they use the code words to quickly remind him how to react.

Micah, a straight-A fifth-grader who is in a gifted program at school, was diagnosed with Tourette Syndrome in January. By then, the boy was blinking so hard and deep that reading was painful and his parents began researching how to help him.

Eventually, they heard about the Life Skills Center and Micah began the CBIT therapy in April.

"Finding resources for your child with Tourette's Syndrome is like the equivalent of being in the desert and



Heidi Woolley, OTD, OTR/L, director of OTRT's Life Skills Clinic, monitors Micah's progress. (Bill Keshlear, College of Health)

looking for water," Carrie said. "Then we came in and it was like finding the waterfall in the desert."

Dad Seth said the changes in his son, who also has attention deficit hyperactivity disorder, have been remarkable.

"To be only 10 and be able to do that, I'm really impressed," Seth said.

Micah also shines at self-advocacy, which is one of his goals in the CBIT program. When asked by Woolley what he would say if someone at school called attention to his tics or told him to stop, he replied, "I can't control it."

And what should his classmates do? "Ignore it," Micah said.

In the fourth grade, Micah gave a "Tic-Tastic" talk to

his class about Tourette Syndrome, complete with a Power-Point presentation. He also led his classmates in an exercise to give them an idea of what the disorder feels like.

"You have to write the Pledge of Allegiance but every time I clap, they have to blink hard and shrug their shoulders," Micah told his classmates.

Adding to the difficulty, the students had to cross out every third word in the pledge.

"You had Tourette's for like 90 seconds," Micah told the class – and emphasized that he has known his whole life what it's like to have the disorder. He plans to give the same presentation to his fifth-grade class soon.

The CBIT program also was a life-changer for Taryn Davis. She was diagnosed with Tourette Syndrome when she was 14 and tried different therapies and medications for years but nothing stopped her tics.

"I was very discouraged not having control over what my body was doing," Davis said.

Then she came to the clinic a few years ago and now at age 24, she has found a way to control her tics.

"It was the biggest blessing," Davis said. "It's amazing how it works."

Other programs at the clinic offer help for children with autism and their families, including drama therapy to improve the social skills of preschool kids; preparation for youths transitioning to adulthood; and occupational therapy for 5- to 12-year-olds who have trouble getting through dental visits. In addition, couples coping with stroke can get help improving their quality of life.

The clinic provides interdisciplinary training to doctoral students in occupational therapy, speech language pathology and education psychology and gathers data from the programs for research projects.

For more information about the programs, call the clinic at 801.585.6837.



Treatment of autism at Occupational and Recreational Therapies' new Life Skills Clinic in Research Park includes an array of visual and tactile stimulation tools. (Bill Keshlear, College of Health)

#### AN INVESTMENT IN HEALTH CARE

By investing in the College's faculty, students, and clinicians, donors help ensure Utah plays a major role in meeting the nation's health care needs. Join us in finding solutions. For more information, contact Courtney Garay, Advancement Director, at 801.585.3205 or courtney.garay@hsc.utah.edu.

### BENCHMARKS

National rankings of Parks, Recreation, and Tourism's traditional and online (hospitality management) bachelor's degrees, respectively (College Factual.com; Best Colleges.com)

> National ranking of Occupational Therapies' online doctoral program (Best Colleges.com)

National ranking of the Department of Nutrition and Integrative Physiology's online master's in nutrition (Best Colleges.com)

15 | 20 | 30

National rankings for the Health Promotion and Education, Physical Therapy, and Speech Language Pathology programs, respectively (Top Master's in Health Care Education; U.S. News & World Report) 56

Number of grants awarded to College of Health researchers between July 1, 2017, and Oct. 31, 2018 (See pages 34-37)



Number of students trained per year in pre-hospital emergency medical care, disaster paramedic, and wilderness medicine at Health Promotion and Education's Utah Center for Emergency Programs



Number of non-majors

enrolled in College courses

each semester



Students taking fitness and recreation classes

### THROUGH THE YEARS: A 126-YEAR LEGACY AT THE UNIVERSITY OF UTAH



In 1892, Maud May Babcock became the first female member of University of Utah's faculty. She established the first physical education curriculum, of which speech and dramatics were a part for several years. She was also a suffragist and a crusader against wasp-waist corsets.



Babcock leads a Physical Culture class and an early 1900s production of "Midsummer Night's Dream."

## MEET THE FUTURE

The College of Health has set its sights on being a nationally recognized leader in the creation and dissemination of knowledge on health, wellness, and rehabilitation. These faculty members recently have joined the College to help meet that goal.



#### NIA AITAOTO NUTRITION AND INTEGRATIVE PHYSIOLOGY

Nia is currently an associate professor (clinical) in the Department of Nutrition and Integrative Physiology and an adjunct associate professor in the School of Medicine's Health Systems Innovation and Research Division. She has over 20 years of experience in the health and education field with a focus on cancer, diabetes, cultural competency, physical activity, nutrition, medication adherence, and tobacco-related initiatives. Nia specializes in providing technical assistance, data assessment, and evaluation support to ministries of health and community groups in Hawaii, American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Republic of Palau, and the Republic of the Marshall Islands.



#### RYAN BURNS HEALTH, KINESIOLOGY, AND RECREATION

Ryan received an undergraduate degree in neuroscience from the University of Pittsburgh, a master's degree in exercise physiology from the University of Texas Arlington, and a PhD in exercise science from the University of Utah. Ryan's research interests are in school health, specifically physical activity interventions to improve children's health behaviors and cognitive functioning. He also has interests in the statistical and measurement issues related to health behavior assessment in the pediatric population.



#### ADRIANNA COLETTA HEALTH, KINESIOLOGY, AND RECREATION

Adrianna is a registered dietitian and exercise physiologist. She earned an undergraduate degree in nutrition from Penn State and a master's in nutrition at the University of Tennessee. She then worked as a pediatric dietitian at the Johns Hopkins Children's Center before earning her PhD in kinesiology at Texas A&M University. Adriana completed her postdoctoral fellowship at Houston's MD Anderson Cancer Center in behavioral science and cancer prevention. Adriana's research program consists of implementing principles from exercise science and sports nutrition across the cancer continuum to improve body composition and related biomarkers linked with cancer risk and progression.

#### PETER FINO HEALTH, KINESIOLOGY, AND RECREATION



Peter comes from Oregon Health & Science University where he was a postdoctoral scholar in the Balance Disorders Lab within the Department of Neurology. He earned a PhD from Virginia Tech and his bachelor's of science, engineering, from Case Western Reserve University, both in mechanical engineering. His research focuses on the intersection of biomechanics and neural control during real-world locomotion to improve the diagnosis, treatment, and functional rehabilitation of people with traumatic brain injuries or neurological diseases.



#### KATSU FUNAI PHYSICAL THERAPY AND ATHLETIC TRAINING

Katsu received his bachelor's and master's in physiology from Boston University, a PhD in kinesiology from University of Michigan, and postdoctoral training in endocrinology from Washington University in St. Louis. He served as the director for the Bioenergetics PhD program at East Carolina University. His research involves studying the molecular mechanisms that regulate skeletal muscle metabolism. He uses cell culture, mouse models, and clinical studies to understand how lipid molecules mediate the effect that obesity or exercise has on cellular homeostasis.

#### TANYA HALLIDAY HEALTH, KINESIOLOGY, AND RECREATION



Tanya received her undergraduate degree in dietetics from the University of Wyoming and performed her dietetic internship at the University of Houston. She went on to receive her PhD in clinical physiology and metabolism from Virginia Tech. She performed her postdoctoral research fellowship at University of Colorado's Anschutz Medical Campus. Her research interests include how exercise influences appetite and energy intake regulation, cardiometabolic health, weight loss, and weight loss maintenance.



#### WILL HOLLAND NUTRITION AND INTEGRATIVE PHYSIOLOGY

Will completed graduate work at the University of Colorado, Colorado State University, and the University of Utah. His current research focuses on protecting fragile insulin producing beta cells and heart muscle cells from the lipid burden encountered in diabetic individuals; evaluating mechanisms by which adiponectin and FGF21 promote beta cell survival and regeneration; evaluating novel means of opposing glucagon's hyperglycemic effects in diabetes; and understanding the complex biophysical and signaling components by which the sphingolipid ceramide impairs insulin action and promotes cell death.



#### YOUNGWON KIM HEALTH, KINESIOLOGY, AND RECREATION

As a physical activity epidemiologist, Youngwon has focused his research on understanding the preventive role of physical activity from an epidemiological perspective. Before joining the University of Utah, he was a post-doctoral fellow of the Physical Activity Epidemiology program in the MRC Epidemiology Unit at the University of Cambridge School of Clinical Medicine, UK. He received his PhD in kinesiology and a minor in statistics from Iowa State University; a master's degree in exercise science from the University of South Carolina Arnold School of Public Health; and a bachelor's degree in business administration from Hanyang University, ERICA, South Korea.

#### MARY PLAYDON NUTRITION AND INTEGRATIVE PHYSIOLOGY



Originally from Australia, Mary completed her doctoral studies as part of the Yale University/National Cancer Institute partnership training program in Cancer Prevention, and continued her postdoctoral research in the Metabolic Epidemiology Branch, Division of Cancer Epidemiology and Genetics, NCI. She is a nutritional and cancer epidemiologist whose research focuses on the role of modifiable lifestyle factors like diet and obesity in the development of cancer and cancer survivorship.



#### JUSTIN RIGBY PHYSICAL THERAPY AND ATHLETIC TRAINING

Justin is an associate professor (clinical) in the Department of Physical Therapy and Athletic Training. He earned a bachelor's in exercise science with an athletic training emphasis from the University of Utah, a master's in athletic training from Texas State University, and a PhD in exercise science from Brigham Young University. While an undergraduate at the U, he was a Bill Bean Outstanding Athletic Training Student recipient.

#### DOROTHY SCHMALZ HEALTH, KINESIOLOGY, AND RECREATION



Dorothy holds a bachelor's from The College of Wooster in history with a concentration in environmental sciences and a master's and PhD from Penn State in leisure studies with a minor in health and sport psychology. She was a research associate at Penn State and an associate professor in the Department of Parks, Recreation, and Tourism Management at Clemson University. Her research focuses on the influence of prejudice, discrimination, and stigma on the adoption of and engagement in leisure-related health behaviors.



#### MELISSA ZAHL OCCUPATIONAL AND RECREATIONAL THERAPIES

Melissa is a recreational therapy practitioner and educator. Previous academic appointments include associate professor at Oklahoma State University and assistant professor at Illinois State University. She currently serves as chair on the board of directors of the National Council for Therapeutic Recreation Certification. Melissa holds a bachelor's in recreation and leisure science (therapeutic recreation emphasis) from the University of North Dakota and both a master's and PhD in Parks, Recreation, and Tourism from the University of Utah.



#### LAURA ZDZIARSKI-HORODYSKI

#### PHYSICAL THERAPY AND ATHLETIC TRAINING

Laura received an undergraduate degree in athletic training from Roanoke College and her PhD in rehabilitation sciences from the University of Florida. Her research interests include the relationship between objective and patient-perceived physical function post orthopaedic trauma/injury, as well as pre-hospital care of traumatic spine injuries.

Staff employed by the College of Health (includes 38 students)

Number of academic staff (includes adjunct faculty, graduate assistants,

postdoctoral students, research assistants, and instructors)

Number of tenured and career line faculty



# RESEARCH

he College of Health has a commitment to conducting transformative and innovative research. Consistent with its mission, College faculty examine questions to help people heal and facilitate wellness. They collaborate broadly with peers from other disciplines and are leaders locally, nationally, and internationally in efforts to promote more health, less medicine.



RESEARCH GRANTS AWARDED TO COLLEGE OF HEALTH RESEARCHERS (July 2017-October 2018)

### A NON-DRUG APPROACH

By Libby Mitchell, U of U Health

he College of Health is part of a multimillion-dollar, multicomponent research project looking at improving pain management for active-duty members of the military and veterans. Julie Fritz, PhD, associate dean of research for the College of Health, leads the effort.

Fritz's team will be working with patients using a stepped approach — starting with broad and less costly treatments that could benefit a wide range of patients. Those who do not respond to those treatments will then be treated with more intensive therapies.

"We are trying to take a really holistic approach. We will start with patient education, sleep management, exercise, and stress reduction," Fritz said. "For those who don't respond right away, we may move into mindfulness, acupuncture, and other nonpharmacological treatments."

As Fritz's research progresses, it will be placed alongside additional research projects with the goal of creating a collaboration of cost-effective, largescale, real-world research on nondrug approaches for pain management. The hope is that the work of the 12 research projects can build on each other to provide better care for military members and veterans. "We can learn from each other," said Fritz. "The goal is to conduct complementary research studies that address this common topic from many angles."

The research will take place over six years.



"WE ARE TRYING TO TAKE A REALLY HOLISTIC APPROACH. WE WILL START WITH PATIENT EDUCATION, SLEEP MANAGEMENT, EXERCISE AND STRESS REDUCTION." – JULIE FRITZ

### DISABILITY No.1

#### Many patients suffering low back pain don't receive effective treatment

#### By Bill Keshlear, College of Health

ow back pain is the No. 1 cause of disability worldwide, but overuse of inappropriate tests and treatments such as imaging, opioids, and surgery means patients are not receiving the right care and resources are wasted, according to Julie Fritz, PhD, associate dean of research at the College and co-author of a three-article series in the prestigious medical journal, The Lancet.

While great progress has been made in tackling many causes of death and disability around the world, the global burden of low back pain is continuing to worsen. In the U.S., that burden has increased by more than 50 percent since 1990 and is expected to increase even further as the population ages.

Australia.

The Global Burden of Disease study (2017) found that low back pain is the leading cause of disability in almost all high-income countries as well as central Europe, eastern Europe, North Africa and the Middle East, and parts of Latin America. Every year, a total of 1 million years of productive life is lost in the UK because of disability from low back pain; 3 million in the U.S.; and 300,000 in

"The sobering statistics about the global impact of low back pain on people's function, ability to earn a living, and overall quality of life clearly indicate a failure of health systems throughout the world," said Fritz.

The Lancet project highlights the extent to which the condition is mistreated, often against best practice treatment guidelines.

"Numerous practice guidelines for managing low back pain exist and consistently advocate for an emphasis on remaining active, providing positive expectations of recovery for patients, while avoiding excessive rest, reliance on pain medication, and unnecessary use of imaging tests," says Fritz. "Actual care provided for patients who seek care for low back pain, however, falls far short of these recommendations."

Instead of offering solutions to stem this epidemic, health care systems frequently exacerbate the burden of low back pain. Health care providers in the U.S. too



often rely on pain medication, particularly opioids, which have marginal benefit and a high risk for side effects. A 2009 study found that opioids were prescribed in connection with about 60 percent of emergency department visits for low back pain.

What's more, low value services, including spinal

surgery, injections and imaging are overused while high value services such as exercise, behavioral, and psychological interventions are underutilized.

Low back pain mostly affects adults of working age. Evidence suggests that psychological and economic factors are important in the persistence of low back pain.

The authors highlight the need to address widespread misconceptions in the population and among health professionals about the causes, prognosis, and effectiveness of different treatments for low back pain.

"Protection of the public from unproven or harmful approaches to managing low back pain requires that governments and health care leaders tackle entrenched and counterproductive reimbursement strategies, vested interests, and financial and professional incentives that maintain the status quo," says co-author Professor Jan Hartvigsen, University of Southern Denmark.

### A BETTER WAY

Bilingual children can suffer when language impairment is misdiagnosed



Robert Kraemer, PhD, associate professor, Communication Sciences and Disorders

#### By Pamela Manson

hile providing services for K-12 schools in southern Arizona, then-doctoral student Robert Kraemer noticed students whose first language was not English were being placed in special education and speech-language pathology programs disproportionately to their school enrollment.

Kraemer, PhD, CCC-SLP, an associate professor of Communication Sciences and Disorders, believed bilingual and English language learning children were being misdiagnosed because many of the tools used to identify a language impairment were English-only. He has been researching current assessment methods and giving presentations at school districts to encourage speech-language pathologists to change how they do assessments.

To get a correct diagnosis, the impairment must be present in the child's first language, Kraemer said. Otherwise, the identification of an impairment might be due to the fact that the child is still learning English, he said.

"They were in essence testing their English language skills versus how they process linguistic information," said Kraemer, who is director of the Speech-Language Pathology Graduate Program.

The key to identifying a language impairment is assessing bilingual children in both their first language – whether it be Spanish or Korean or another language – and English with the help of translators, Kraemer said. He also recommends using an interpreter to interview parents, who can provide valuable information about how their kids process language.

Kraemer said children can suffer serious consequences when they are misdiagnosed.

Students who are pulled out of class for services could miss vital content and lose the opportunity to learn social skills in the classroom, including making friends, he said. Kids put in language services or special ed in the third or fourth grade might remain in the program for years and eventually drop out.

The bottom line, Kraemer said, is that "we can't assess bilingual kids the way we assess English-speaking kids."

"It's not an easy task to assess a bilingual child," he added. "It takes a little more work."



Mark Williams, PhD, chair, Health, Kinesiology, and Recreation

#### THE RESEARCH QUESTION

What can sports science tell us about perennial World Cup soccer powerhouses?

#### A POSSIBILITY

Many of the factors that contributed to France's success this summer are the same as those that contributed to success in previous tournaments.

First of all, France possesses a cultural passion for the sport that finds expression in "street soccer" – paramount in player development because it enables the hours of practice required for enhanced game intelligence and ball mastery.

France, like other European nations, has a well-established coach education system complemented by wealthy clubs with sports science support that puts many university departments to shame. Sports science is the most popular undergraduate degree in the UK; it's a glamorous lifestyle.

Popularity of the sport ensures that money is usually not a barrier, particularly in England. Six of the top 10 richest soccer clubs in the world are English. The English Premier League has the most lucrative television deal in professional soccer generating around \$5 billion each year to be distributed among all 20 of the league's clubs. Over the past two years, Manchester City has spent almost \$400 million on strengthening its defense alone. That's more than 52 countries spent on their national defense last year.

Perhaps the more interesting question is why didn't England win the World Cup?

Williams' research interests include identifying and developing high-performance athletes.



Glenn Richardson, PhD, professor, Health Promotion and Education

#### THE RESEARCH QUESTION

How can resiliency training overcome what life throws our way?

#### A POSSIBILITY

Each new life challenge will result in a predictable process that carries with it the agency to choose the outcome. People can embrace challenging experiences as opportunities to grow and progress, just try to get past it, or choose to be disgruntled and discouraged.

Resiliency training initially focuses on understanding the nature of life's challenge – what life throws at us. It is skill-based, helping learners gain perspective, control, and direction over those challenges. The second and most impactful part of the training focuses on how to access personal resilience, the drive to thrive. Innate energy sources within everyone includes a person's childlike resilience (sense of adventure, play, curiosity, humor, etc.); noble resilience (self-worth through the mechanism of altruism); and character resilience (energy conservation through living within a personally chosen moral code). Interdependent sources of energy include a person's ecological resilience (insights and wisdom from sources of strength beyond one's normal consciousness).

Thriving despite what life throws at you also includes intellectual resilience (creative problem solving) and essential resilience (nurturing and maximizing one's physical potentials).

Through resilience training, participants acquire skills and perspectives that can be applied personally, to their families, in their communities, and in their professional world.

Richardson is author of "Proactive and Applied Resilience: The Sixteen Experiences." (2017)

## TOUGH TRANSITION

#### 'It's probably like the scariest thing I've ever had looming ahead of me'

#### Ivanhoe Broadcast News

hat does adulthood look like to teenagers with autism? A researcher at the College of Health went straight to the kids to see what they wanted their futures to look like.

Aaron Newman was about to graduate from high school. He worries about impending adulthood. "It's probably like the scariest thing I've ever had looming ahead of me. It's kind of this big unknown," Aaron explained.

He was part of the research project to see how autistic teens understand the transition into adulthood. Occupational and Recreational Therapies' Anne Kirby, PhD, interviewed 27 students. The results were published in the premiere issue of the journal Autism in Adulthood.

"Autism is often studied as a childhood disorder, but these kids grow up to be adults," Kirby said. "So much research is about people on the autism spectrum, but it's not focused on them. It's not talking to them; it's not hearing their own voices and their own ideas."

What did these kids have to say?

In response to the question "How will you know when you are an adult," one respondent said, "when you are required to make all of the decisions on your own."

They told Kirby they want good jobs, college, and families, but they didn't always grasp how to get there or challenges their disability could bring.

Aaron's mother, Jennifer, knows all about that. Her two older children also are autistic. "It's just all those other coping skills, that executive functioning, the planning, the ability to handle the stress."

She and Kirby agree that adulthood is a more subjective place for kids with autism and that preparing them should start early. "We want to work with teens and families and service systems to help start as early as possible," Kirby said.

### METABOLOMICS CORE TAPS NUIP, SCIENTISTS ACROSS THE U

#### By Stacy Kish, U of U Health

S cott Summers, PhD, departmental chair of Nutrition and Integrative Physiology, was drawn to research to understand why his father, a dedicated, fit runner, was battling diabetes. Through his investigations, he began to appreciate the role metabolism played in the development of the disease. He knew he was on to something big, but in the early 2000s University of Utah lacked the facilities to advance his work.

"I left (the U) in 2008 because we didn't have a means to measure metabolites, which I needed for my research," Summers said. In this quest, he moved to Australia and finally Singapore to establish his own research facility, but his efforts were soon overshadowed by James Cox, PhD, who established the Metabolomics Core at U of U Health. It was that bit of serendipity that drew Summers back to the university in 2016.

Metabolomics is the study of the unique chemical fingerprint left by cells. The Metabolomics Core empowers researchers to study metabolites in order to develop new treatments.

Currently, Summers uses the Core in his study of ceramides, waxy lipids that cause dysfunction in other lipids in the body. Summers has drawn a link between ceramides and diabetes and fatty liver disease. He is now examining how drug or behavioral interventions influence ceramide levels with an eye toward developing new therapies to treat diabetes and other metabolic diseases.

## AN **AGGRESSIVE** RESEARCH AGENDA



Grant submissions by College of Health researchers have been on the increase over the past several years.



Fiscal year 2018 saw a dramatic increase in grants awarded to College of Health researchers.



### GRANTS (Awarded July 1, 2017 - Oct. 31, 2018)

PRINCIPAL INVESTIGATOR	TITLE	AMOUNT
Kathy Chapman CSD	A comparative effectiveness study of speech and surgical treatments using a Cleft Palate Registry/Research Outcomes Network	\$6,250,564
Sean Redmond CSD	Developmental course of language impair- ments, attention deficits, and their co-oc- currence	\$1,620,315
Sean Redmond CSD	Pediatric HIV/AIDS cohort study Coordinating Center	\$19,633
Jeff Rose and Nate Thurman HKR	Wasatch Front Urban Rangers Program – Jordan River Commission	\$10,000
Jeff Rose and Nate Thurman HKR	Wasatch Front Urban Rangers Program – Utah Department of Natural Resources	\$5,000
Robert Sibthorp HKR	Understanding semester schools as trans- formative learning expereinces	\$57,500
Robert Sibthorp HKR	Fixed cost oversample survey, data analysis, reporting	\$99,000
Tanya Halliday HKR	The effects of resistance training on appetite suppression	\$11,094
A. Mark Williams HKR	Developmental pathways in Alpine skiing: Exploring factors that influence superior performance, injury risk/recovery, and burn	\$24,000
Sihem Boudina NUIP	The role of Stra6L in obesity related inflam- mation and insulin resistance	\$50,000
Bhagirath Chaurasia NUIP	Role of ceramide accumulation in effector T and Treg cells in development of insulin resistance	\$60,800
Bhagirath Chaurasia NUIP	How adipose ceramides modulate adipose tissue browing/beiging	\$33,250
Anandh Pon Velayutham NUIP	Blueberry and healthy vascular aging	\$75,000
Anandh Pon Velayutham NUIP	Dietary strawberry prevents vascular inflammation	\$150,000

	PRINCIPAL INVESTIGATOR	TITLE	AMOUNT
	Anandh Pon Velayutham NUIP	Biological signatures of blueberry derived microbial metabolites	\$1,520,879
	Dave Symons NUIP	Autophagy maintains vascular function through a novel glycolysis-linked pathway regulating eNOS	\$1,743,899
	Dave Symons NUIP	Repressed autophagy impairs nitric oxide generation by human endothelial cells	\$103,328
	Julie Metos NUIP	Sprouts Neighborhood Grant	\$10,000
	Julie Metos NUIP	Driving Out Diabetes	\$930,000
	Mary C. Playdon NUIP	Blood metabolite profiles and risk of developing endometrial cancer	\$747,000
	Mary C. Playdon NUIP	Cancer control and population sciences	\$30,000
	Scott Summers NUIP	Genes, environment, and diabetes- convergence on ceramides	\$600,000
	Scott Summers NUIP	The role of ceramides in skeletal muscle	\$3,583,770
	Scott Summers NUIP	The role of portal ceramides in hepatic steatosis	\$154,000
	Scott Summers NUIP	The role of ceramides in skeletal muscle – administrative supplement	\$78,516
	Scott Summers NUIP	Role of cermides in the intestinal epithelium	\$47,500
	Will Holland NUIP	Lipid sensing in the pancreatic alpha cell	\$1,029,375
	Will Holland NUIP	Glucagon receptor antagonism in beta cell survival and regeneration	\$22,165
	Will Holland NUIP	Sphingolipid-Mediated Dysregulation of Glucose and Energy Homeostasis in the CNS	\$1,093,500
	William Holland NUIP	Sphingosine kinases in beta cell survival and proliferation	\$700,000

PRINCIPAL INVESTIGATOR	TITLE	AMOUNT
Nia Aitaoto NUIP	Engaging Pacific Islander perspectives on mental illness and mental health services	\$56,866
Nia Aitaoto NUIP	Developing a prevention model of alcohol use disorder for Pacific Islander young adults	\$50,679
Nia Aitaoto NUIP	Pacific Islander Health Research Network	\$153,896
Alex Terrill OTRT	Resilience through adaptive recreation in stroke survivors: a biophysical approach	\$38,938
Anne Thackeray PTAT	Building Referrals Into Care Delivery to Improve enGagement in Exercise and Self-Management (BRIDGES)	\$49,989
Anne Thackeray PTAT	Optimizing physical therapy to improve physical activity in chronic MSK conditions	\$73,824
Anne Thackeray PTAT	Developing a program for sustaining physical in older adults with chronic MSK	\$305,000
Bo Foreman PTAT	VA GAIT Project	\$13,500
Heather Hayes PTAT	National descriptive study of the home health physical therapy environment	\$12,344
Jake Magel PTAT	CoHSTAR part-time fellowship	\$47,450
Jake Magel PTAT	Predictors of lumbar surgery in patients with low back pain	\$25,000
Julie Fritz PTAT	SMART stepped care management for low back pain in military health system	\$6,446,369
Julie Fritz PTAT	Optimizing treatment sequencing for patients with chronic, non-specific low back pain	\$9,453,662
Katsu Funai PTAT	PE methylation in skeletal muscle energy efficiency	\$1,681,436
Katsu Funai PTAT	Skeletal muscle mitochondrial phospholipids and aerobic capacity	\$90,507
Katsu Funai PTAT	Mechanisms for skeletal muscle contractily dysfunction in type 2 diabetes	\$40,760

PRINCIPAL INVESTIGATOR	TITLE	AMOUNT
Katsu Funai PTAT	Muscle phospholipid methylation modulates SERCA energy efficiency to alter susceptibility for obesity	\$53,688
Katsu Funai PTAT	Skeletal muscle mitochondrial phosphatidy- lethanolamine and respiratory capacity	\$61,174
Lee Dibble PTAT	Gaze and postural stability in persons with MS at risk for falls: Characterizing deficits and response to treatment	\$436,220
Lee Dibble PTAT	Intramural funding for doctoral students	\$24,000
Micah Drummond PTAT	Use of Metformin to offset to offset impaired muscle recovery in mice	\$30,000
Micah Drummond PTAT	Insights into the role of skeletal muscle macrophages and age-related regeneration	\$113,760
Micah Drummond PTAT	Metformin to prevent inactivity-induced loss of muscle health during aging	\$92,058
Robin Marcus PTAT	A population health model for monitoring physical function following acute hospitalization	\$24,991
Robin Marcus PTAT	100% Tobacco-Free U	\$19,830
Robin Marcus PTAT	Linking acute care physical therapist practice and patient characteristics with patient-centered outcomes	\$5,000

TOTAL: \$40,261,028





# ADVANCEMENT

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#### LEGACY OF PHYSICAL EDUCATION

## A MODEL OF HEALTHY LIVING

By Bill Keshlear, College of Health

B arbara West has always enjoyed physical education – a passion that continues. Many mornings, you'll find the former physical education professor in a PEAK Health and Fitness circuit training class along with fitness buffs 40, 50, 60 even 70 years her junior.

However, she took a break a couple of years ago. The 95-year-old played tennis at the Huntsman Senior Games instead. "She's good," said Betty Helland, her doubles partner who is a few years younger. "I can't move as fast as she can, so she covers a lot of the balls that I can't. And she does a fantastic job."

Helland said West has a strong backhand too.

Mike Martinez runs Coach Mike's Tennis Academy on Salt Lake City's East Bench. "Barbara's taught me how to stay young," he says. "And that is working out, do the physical work, and that's what keeps you young – not the mental." He's helped West up her game by focusing on form. He's in his 70s, and she was his health education instructor when he went to college at the U.

Several years after graduating from college and finding a teaching job at East High School in Salt Lake City, Barbara finished a master's degree then an EdD in 1964. Barbara became co-chair of the Physical Education Division of Health, Physical Education, and Recreation several years after that.



### 'A LOT OF THE **ILLS OF SOCIETY** ... CAN BE TRACED TO NOT LIVING A HEALTHY LIFESTYLE.' – BARBARA WEST

In some ways, it was a time of tremendous change. By 1967, there were over \$61 million worth of building projects underway on campus, including the Health, Physical Education, and Recreation complex completed in 1969. It's no wonder many students and faculty complained that the University of Utah campus consisted of "dirt, rocks, and mud."

"Oh, it was absolutely wonderful. To go from that building with two little gyms with roof-support poles down one side," she said.

The first waves of the baby-boom generation caused rapid growth in enrollment. Protests against the Vietnam War were beginning to take place on campuses all across the nation, and the University of Utah was no exception.

In other ways, nothing changed. Even though Barbara was in charge of professional programs and activities courses with hundreds of students, her salary was considerably less than her male peers even with the same terminal degree, a doctorate in education. "Yes, well, I thought it took me the same amount of money to get it and the same amount of effort. Why should I be getting less?"

Barbara received tenure and taught at the university until she retired in 1989 as professor emeritus. She taught classes in the Salt Lake City School District until 1995.

"My whole philosophy, as I said, is the Movement Education experience. A lot of the ills of society, such as obesity, diabetes, heart disease, and so on can be traced to not living a healthy lifestyle. I'm concerned when we see young people on playgrounds or in the community who are obese. They are not exercising, not even during recess at school. We've lost a lot. We need to lead the fight for healthy living."

INCREASE IN PRIVATE PHILANTHROPIC SUPPORT OVER FISCAL YEAR 2017

#### LEGACY OF PHYSICAL THERAPY AND ATHLETIC TRAINING

For the ski seasons leading to the 2018 South Korean Olympics then through the Games and the grueling World Cup series, College of Health graduate Lyndsay Young was "physio" for one of the U.S. Ski Team's best-ever racers.

### OLYMPIC ROAD TRIP



Lyndsay poses in front of a video display at U.S. Ski Association headquarters in Park City, Utah. The video shows Mikaela Shiffrin crossing the finish line to win a gold medal in the 2014 Olympics. (Bill Keshlear, College of Health)

#### By Bill Keshlear, College of Health

video focuses on Mikaela Shiffrin as she blasts out of the starting gate in Courchevel, France, and threads her way to another win on last year's FIS World Cup circuit. The 22-year-old ski-racing phenomenon is all smiles as she hockey stops past the finish line.

The video then jumps from Shiffrin to capture a more subdued reaction. Lyndsay Young (Doctor of Physical Therapy, University of Utah, 2014; Bachelor of Applied Science, Athletic Training, University of Utah, 2010) is beaming. Young's reaction reflects the sensibility of her profession: engaged, supportive, unobtrusive. Shiffrin's success is also Young's success.

Young, 30, was part of an elite team – including two coaches, an equipment technician, and Shiffrin's parents – behind the development of possibly the best ski racer in the world.

Young tapped her unique skills as part of that team on the night of Dec. 12, 2015. She stood at the top of a slope in Are, Sweden, while Shiffrin took a free-skiing warm-up run before a World Cup giant slalom. Her two-way radio squawked. Shiffrin had fallen. Young was the first responder.

"All of these things go through your head,"

Young said. "This is her career. This is her life's work that could be at risk. In those moments, you just have to remember your training."

Young assessed Shiffrin's injury, helped get her off the slope, activated the U.S. Ski Team's Global Rescue medical evacuation protocol to get the ski racer back to the United States, and assisted in her recovery at home in Colorado.

A headline in the Denver Post a couple days later read "Mikaela Shiffrin 'unlikely' to resume racing this season after knee injury." However, after what Shiffrin called "dawn to dusk rehab" on a medial collateral ligament tear, hairline fracture, and bone bruise in her right knee, she returned to winning form two months later. No one else on Shiffrin's team could've done what Young did.

YOUNG STARTED WORKING for the U.S. Ski and Snowboard Association out of its Center of Excellence in Park City as a student intern. She landed a full-time job there after completing an advanced degree. The U of U-trained physical therapist ("physiotherapist" in Europe or just "physio") and athletic trainer eventually became part of the "family," traveling the world with Shiffrin, developing and constantly revising a balance, strength, agility, and flexibility regime to help her stay at the top of a sport in which the difference between winning and placing 10th is measured in hundredths of seconds.

"There are very few people in the world who understand what Mikaela needs in order to succeed from a balance and motion perspective and, at the same time, care as deeply for the sport as Lyndsay," said Scott Ward, chair of the College of Health's Physical Therapy and Athletic Training Department.

Young analyzes the racer's posture, movement, and stress on joints and muscles through thousands of twists and turns, flexes and gyrations on slopes even double-black diamond skiers would be anxious about and offers prescriptions to get stronger, quicker, better. It involves myriad techniques.

"On the day of the race with Mikaela, we'll start with a really good warmup. She'll do a 15-minute bike ride to get her heart rate up. Then we'll do dynamic mobility exercises and some reactive work to make sure her nervous system is firing and ready to go," Young said.

Young has adopted various strategies to get Shiffrin to "live in the moment" instead of focusing on marketing, news media interviews, Olympic expectations, travel, or the possible career-ending consequences of missing a pre-jump in a downhill race and being thrown into the air at 70 miles per hour.

"Last year, I had some trouble with nerves," Shiffrin told the Denver Post in November 2017. One day last season, Young stepped in to prevent a cameraman from shooting video of her vomiting before a race.

In 2016, Shiffrin posted a video on her Instagram page of a tap-dancing routine from summer training in Chile. Mikaela and Lyndsay were loosening up to Parov Stelar's "Booty Swing," choreographed by Young. So far, the video has gotten over 61,000 views.

IT'S DOUBTFUL WHETHER YOUNG PICKED UP THE SUBTLETIES of Euro electro-swing choreography in a U of U PT course, but she was a good student at the U, open to possibilities. "Engaged" is a word Ward used to describe Lyndsay's student career. That's an understatement.

"I learned that if you put the work in, you can get where you want to go," said Young.

A ski racer who learned the turns at tiny Ausblick ski area in Sussex, Wis., but spent family vacations in Park City, Young was a coach at Rowland Hall's Rowmark Ski Academy in Salt Lake City for part of her academic career.

Young also was class vice-president (Doctorate of Physical Therapy); senior class president (Athletic Training Education Program); sophomore and junior vice-president (ATEP); president of Athletic Training Student Association; Rocky Mountain Athletic Trainers' Association student representative; and recipient of the Bill Bean Most Outstanding Student Athletic Trainer Award. She received numerous clinical internships working as a student physical therapist. In one, she gained experience with patients by participating in their rehabilitation from strokes, brain injuries, or spinal cord injuries. In another, hands-on, patient-centered care focused on manual therapy, neuro re-education.

"I was really involved in the University of Utah," Young said. "Man, I don't know how I did all that," Young said, suggesting with a wink and a nod in her voice that maybe the pressure cooker called the FIS ski circuit – which begins at the end of October and doesn't let up until March, with close to 40 races across Europe and North America and the Olympics sandwiched in – was by comparison a glide down a bunny slope at Ausblick.

## A HEALTH CARE TRANSFORMATION

"More health, less medicine" summarizes the College of Health's role in the transformation of health care – from primarily caring for the sick to keeping people healthy, fit, and resilient. And it is making significant contributions:

- A rapidly changing health care landscape parallels the College's strengths – disease prevention and management, nutrition, rehabilitation, and wellness.
- Our five departments are pioneering disease prevention, restoration of brain and body health, minimizing disease progression, improving quality of life for those recovering from chronic illness and accidents, and preparing students for roles in health care leadership.

Tuition is spiraling upward, creating less opportunity for many students and a burden for their families. However, we believe it's important to help students achieve their professional goals.

Currently, the College offers \$300,000 in scholarships that help about 150, or 5 percent, of our students. We want to increase that number to 220 and establish the first fellowships in the College as a way to continue interprofessional research within U of U Health and recruit top students from around the country and world.

In the preceding pages, there were stories of students, graduates, clinicians, researchers, and fac-



Courtney Garay with David Perrin, dean, College of Health

ulty – snapshots in an evolution of health care. Please support their efforts by sharing your success, time, and resources.

After all, more health, less medicine is a goal all of us can support.

Thank you, Courtney Garay advancement director, College of Health

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#### COLLEGE OF HEALTH-AFFILIATED PROGRAMS

- O In partnership with the Larry H. and Gail Miller Family Foundation, **Driving out Diabetes** is an interdisciplinary initiative to battle diabetes in the state of Utah and across the region through education and prevention, outreach, innovations in clinical care, and cutting-edge research. (See Page 48)
- O **The University of Utah Center For Community Nutrition** designs customized nutrition education programs for a variety of Utah organizations. Its vision is to be a leader that creates and evaluates innovative ways to overcome barriers to healthful eating. (See Page 50)
- O PEAK Health and Fitness is a partnership between the College of Health and the Office of Wellness & Integrative Health at the University of Utah. PEAK offers workshops and seminars, health assessment and fitness testing, nutrition services, continuing education opportunities, and employee fitness classes. (See Page 51)
- Connect2Health is a nonprofit whose volunteers work in medical clinics, serving as a bridge between local community resources and underserved patients. (See below)



## A BRIDGE TO HEALTH & DIGNITY

Student volunteers help address social determinants of health

or a patient who hasn't had a full meal in two days, medical care may not be the only thing they need. That's where Connect2Health comes in.

Working closely with clinical staff, Connect2Health helps meet patients most basic social needs. Connect2Health volunteers, generally undergraduate students headed toward careers in medicine, nursing, public health, social work or related fields, are recruited, selected, trained and placed at one of several partner community clinics and hospital units.

These "health mentors" meet individually with patients to better understand their needs and to create a "resource prescription." Empowered with information, patients can obtain resources offered by social service organizations. A resource prescription might include housing, food, clothing, prescription assistance and many other resources available across the Salt Lake Valley. Connect2Health volunteers are committed to meeting each patient where they are. If a patient is food insecure, a volunteer may direct them to a local food pantry, or help them enroll on Meals on Wheels, whatever a patient needs.

Conceived in an Honors College Praxis Lab, Connect2Health has been serving the homeless population of Salt Lake at the 4th Street Clinic since 2012. The program launched a partnership with University of Utah Health in 2014, and has continued to grow ever since, with the newest team serving on the Wellness Bus (See page 48). Now housed in the College of Health, Connect2Health advances the mission of "more health, less medicine" by addressing social determinants of health. (See page 18)



#### C2H VOLUNTEERS BY COLLEGE



S, O Z Number of patients and families helped

#### PATIENTS BY CLINIC

CLINIC	2016	2017
4th Street	2,262	1,486
Internal Medicine	96	249
Mother /Baby	80	169
PEDS / OBGYN	120	137
Peds Specialty	159	948
SUPeRAD	-	23
TOTAL	2,717	3,012



Number of community resource referrals

16,137

#### REFERRALS FOR ...





### A PROMISING START

he Larry H. and Gail Miller Family Foundation and University of Utah Health share a vision to save and improve lives: an interdisciplinary initiative that battles diabetes in the state of Utah and across the region while establishing a national model that adds a real-life component to improvements to health and well-being created by research.

To turn this vision into reality, the Miller Family Foundation committed \$5.29 million in 2017. In year one, U of U Health has engaged its might – as an academic health center, a hub for science, and a caring community – to launch Driving Out Diabetes, a Larry H. Miller Family Wellness Initiative.

In starting up the initiative, the project team built new ave-

nues for diabetes prevention and outreach. Going beyond the U of U campus and clinics, it put special focus on reaching out to higher-risk people where they live and work.

The program has cultivated innovations in clinical care with a multidisciplinary team assembled to aid patients in diabetes management. Meanwhile, the Driving Out Diabetes Initiative also screened for dangerous complications before they affect people's lives and directed those patients to the right help.

And with the future in mind, project leaders backed early stage research by seasoned scientists and up-and-coming researchers to promote the type of breakthroughs it will take to defeat diabetes.





Angie Fagerlin, PhD, director, Driving Out Diabetes, a Larry H. Miller Family Wellness Initiative; professor and chair, Population Health Sciences Miller Family Wellness Initiative; professor and chair, Population Health Sciences



**Robin Marcus**, PhD, PT, Leadership Team, Driving Out Diabetes, a Larry H. Miller Family Wellness Initiative; U of U chief wellness officer; professor, Physical Therapy and Athletic Training



Julie Metos, PhD, MPH, RD, Leadership Team, Driving Out Diabetes, a Larry H. Miller Family Wellness Initiative; associate chair & assistant professor, Nutrition and Integrative Physiology; executive director of the Utah Center for Community Nutrition

Currently, four underserved Salt Lake communities regularly benefit from the services of the Wellness Bus. Hundreds of Utahns have taken part in the National Diabetes Prevention Program or personalized health coaching. And thousands of schoolchildren learned from Driving Out Diabetes childhood prevention programs.

### LEVELS OF IMPACT: THE ROAD AHEAD



#### **PREVENTION AND OUTREACH**

Driving Out Diabetes will identify people who have higher chances of developing diabetes and target this population for primary diabetes prevention strategies.

#### CLINICAL CARE

Driving Out Diabetes will deliver new models of clinical care to those who already have diabetes to help people better manage their diabetes and prevent health complications.

#### **DISCOVERY, INNOVATION, IMPACT**

Driving Out Diabetes will invest in innovative research to discover scientific breakthroughs that will lead to improved treatments – and eventually cures – for people with diabetes in Utah and beyond.

#### AWARDEES

College of Health researchers were awarded seed grants of up to \$50,000 for one year, graduate student fellowship awards will receive \$25,000 for two years and postdoctoral fellowship awards will receive \$50,000 for one year.

#### SIHEM BOUDINA, PhD

(Nutrition and Integrative Physiology) Dr. Boudina's study aims to characterize the cells within fat tissue involved in visceral obesity, a risk factor for developing type 2 diabetes. (seed grant)

#### KATSUHIKO FUNAI, PhD

(Physical Therapy & Athletic Training) Dr. Funai obtained funds to support Patrick Ferrara, whose work explores the link between proteins' importance in lipid signaling and skeletal muscle insulin resistance.

(graduate student fellowship)

#### TANYA HALLIDAY, PhD

(Health, Kinesiology, and Recreation) Dr. Halliday's study will explore the mechanisms that control appetite responses to exercise to prevent type 2 diabetes in at-risk people. (seed grant)

#### ROBIN MARCUS, PhD (Physical Therapy & Athletic Training)

Dr. Marcus' study aims to evaluate the Utah Early Neuropathy Scale tool for screening nerve injury that affects the feet and lower legs and the effectiveness of exercise and dietary counseling in improving nerve symptoms. (seed grant)





#### U of U CENTER FOR COMMUNITY NUTRITION

### HEALTHFUL FOOD CHOICES, **SIMPLY**

The University of Utah Center for Community Nutrition designs customized nutrition education programs for a variety of Utah organizations. Its vision is to be a leader that creates and evaluates innovative ways to overcome barriers to healthful eating. It's committed to sharing knowledge through community outreach using nutrition and health education to improve our population's health.

#### CURRENT PROGRAMS

**Crush Diabetes:** Encourages healthy habits in middle school students and their families. Students watch a 40-minute documentary, Sugar Babies, that includes education on the physiology of diabetes and features youth coping with diabetes.

**Culinary Medicine:** An academic course that teaches students the basics of evidence based nutrition. Classes take place in a cooking kitchen where students prepare and enjoy meals while discussing the science of nutrition and how to apply that to patient discussions.

**Team Thrive:** An innovative approach to nutrition education for high school students. Under the guidance of UUCCN, a student leadership team will develop and implement curriculum and programs to address local needs in a positive and engaging way.

**Food, Movement & You:** Teaches healthy eating habits to families in partnering homeless and transitional housing shelters. The curriculum includes food demonstrations and recipes that are low-cost, require minimal preparation, and are centralized on canned or seasonal ingredients.

**Community Outreach:** Provides tailored educational outreach to meet the needs of various organizations. Previous events include free nutrition consultations at the 25th Annual Junior League CARE Fair, culinary workshops for the Federal TRIO Program at the University of Utah, and services at various health fairs.

For more information call 801.581.6730 or email nutrition@health.utah.edu.



#### PEAK FITNESS, WELLNESS & INTEGRATIVE HEALTH

### BUILDING HEALTHY LIVES

PEAK Health and Fitness is a partnership between the College of Health and Wellness & Integrative Health at the University of Utah. PEAK offers workshops and seminars, health assessment and fitness testing, nutrition services, continuing education opportunities, and employee fitness classes. Its core responsibility is to provide practical training and education for undergraduate and graduate students in the College. These types of opportunities foster the development of knowledge, skills, and abilities for students and provide professional-level health, fitness, and wellness services to the university and university community. For more information about PEAK, call 801.585.7325 or email peakfitness@hsc.utah.edu.

Other programs offered under Wellness & Integrative Health include the following:

#### **BUILD A BONE**

This program is a four-part series of two-hour classes where participants learn how to care for and strengthen their bones and optimize bone health. It also focuses on treating and preventing low bone density or osteoporosis.

#### CORPORATE WELLNESS

This program aspires to help organizations create an environment to empower their employees to make healthy choices that promote a healthy lifestyle – which helps employers reduce costs, improve productivity, and increase employee satisfaction.

#### INTENSIVE LIFESTYLE PROGRAM

This program looks at the components of a healthy lifestyle to get participants started on their way to feeling great – improving sleep, energy, mood, and focus.

#### **RECREATION SERVICES**

One-on-one leisure consultations are aimed at educating individuals on their leisure and recreation as a whole and providing the tools to assist individuals in attaining a more well-rounded work/life/leisure balance.

#### SUPERVISED WELLNESS GYM

Membership promotes a physically active lifestyle in a supportive group atmosphere. Most participants are referred by their physicians.

Call 801.213.8720 for more information about these programs.



### STAY CONNECTED

- O Share your professional journey through an alumni profile.
- O Come back to the U as a guest lecturer.
- O Volunteer. Help plan alumni events.
- O Engage on social media.

Email Courtney Garay, Advancement Director, courtney.garay@hsc.utah.edu

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#### MORE HEALTH, LESS MEDICINE

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