APPLIED HEALTH SCIENCES | IMPACT REPORT

HEALTH IN 3D

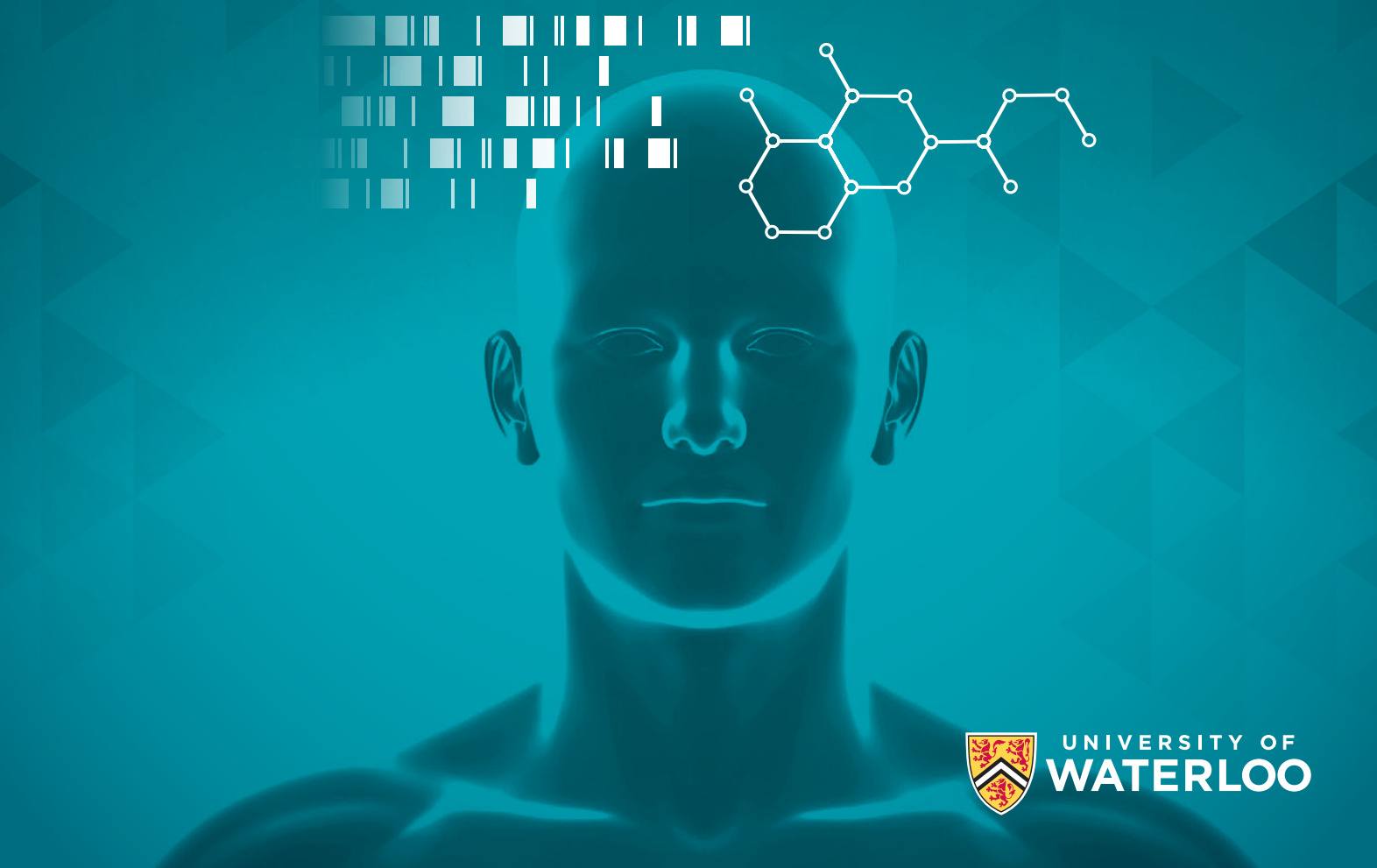
population health

UNIVERSITY OF WATERLOO

APPLIED HEALTH SCIENCES | IMPACT REPORT

HEALTH IN 3D

individual health



UNIVERSITY OF WATERLOO

APPLIED HEALTH SCIENCES | IMPACT REPORT

HEALTH IN 3D

community health

UNIVERSITY OF WATERLOO

OUR VISION

Global leadership in protecting and promoting individual, community and population health and well-being; preventing illness and injury; and optimizing abilities across the life course for all.

THE FACULTY OF APPLIED HEALTH SCIENCES IN NUMBERS:

76 active researchers

$14.5M in external research funding per year on average

$3.2M in Tri-Council research funding per year on average

More than **13,190** degrees conferred

$4.5M in Faculty support to students per year on average

480+ articles in peer-reviewed journals per year

OVER 2,850 STUDENTS IN:

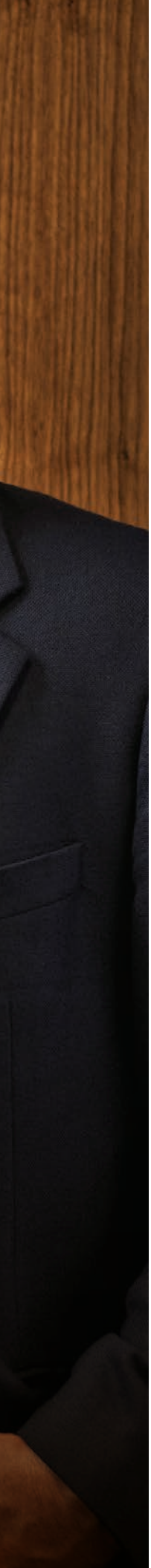
7 undergraduate programs
11 graduate programs

12 RESEARCH CHAIRS INCLUDING:

4 Canada Research Chairs

3 Fellows of the Canadian Academy of Health Sciences

5 Early Researcher Award holders



health in 3D

THREE ACADEMIC UNITS. THREE LEVELS OF HEALTH. ONE VISION.

Health is not simply the absence of disease. As the World Health Organization outlined in its 1946 constitution, health is a state of complete physical, mental and social well-being. In the Faculty of Applied Health Sciences, we are inspired and energized by this belief that health encompasses more than one dimension. For us, understanding health and well-being is about viewing the complete picture, seeing it as we do the world around us: in three dimensions. This belief informs our approach, catalyzes our collaborations and shapes our strategies for tackling some of today's most pressing health problems. Not only do we have **three academic units** — the Department of Kinesiology, the Department of Recreation and Leisure Studies and the School of Public Health and Health Systems — with each providing a different framework for viewing health and well-being, but as a Faculty we are working to enhance quality of life on **three distinct levels**: for individuals, communities and populations. It is exactly this three-dimensional paradigm that equips us to address complex problems at their roots and work towards **our vision** of protecting and promoting health and well-being and preventing illness and injury across the life course.

Our distinctive approach is buoyed by our interdisciplinary faculty and a diversity of funding sources. Collaborating with industry partners, government agencies and not-for-profit organizations, our researchers are working from cell to society to develop interventions and turn knowledge into action. As a Faculty, we boast high rates of scholarly productivity and one of the highest levels of funding per researcher at the University of Waterloo. But metrics only paint half the picture. Much of our impact is found in the stories behind the numbers. This report synthesizes our emerging and established areas of strength and tells those stories. As you read, you can reference small shadow icons, like the ones on this page, connecting each research story to an individual, community or population health impact.

Complementing our robust research is the belief that to build a healthy future, we need to train the leaders of tomorrow. Our seven undergraduate and 11 graduate programs continue to attract the top students in the country and produce alumni that are equipped to find solutions for some of the biggest health and well-being challenges of our time. As a Faculty, we are committed to high-impact teaching, experiential learning and developing critical thinking skills for a rapidly changing world. At the graduate level, we are leading the way in academic programming, offering innovative online, blended and research-based programs. Our curriculum is informed by and responsive to society's needs, leveraging the University of Waterloo's institutional strengths in research, academics and co-operative education to integrate knowledge transfer and problem solving in both the classroom and workplace.

As we embark on our next 50 years of teaching and research, we look back with pride at our accomplishments, are galvanized by our current successes and work towards a future of improved health and well-being. We will continue to strengthen partnerships, advance innovation in health technology and increase our international impact in order to improve quality of life for individuals, communities and populations, both in Canada and around the world.

James W.E. Rush

DEAN, FACULTY OF APPLIED HEALTH SCIENCES

» INDIVIDUAL HEALTH

» COMMUNITY HEALTH

» POPULATION HEALTH

» Find and share enhanced content at
uwaterloo.ca/healthin3d | #Healthin3D

THE DEPARTMENT OF

kinesiology

AREAS OF FOCUS

» BIOMECHANICS

» NEUROSCIENCE

» PHYSIOLOGY

» NUTRITION

» AGING AND DEVELOPMENT

» CHRONIC DISEASE

» WORKPLACE HEALTH AND INJURY PREVENTION

» LIFESTYLE AND HEALTH

» EXERCISE AND PHYSICAL ACTIVITY

» BIOMEDICAL SCIENCES

» REHABILITATION SCIENCES

» HEALTH TECHNOLOGY

IN 1967 WE REDEFINED WHAT IT MEANS TO STUDY HUMAN MOVEMENT BY FOUNDING THE WORLD'S FIRST DEPARTMENT OF KINESIOLOGY.

Today, we are building on that tradition of innovation by igniting an interdisciplinary approach to the prevention of and recovery from injury and disease. Whether exploring the molecular and cellular determinants of health or the complexities of the nervous, musculoskeletal and cardiorespiratory systems, our team of internationally recognized faculty are at the forefront of pioneering new ways to understand and enhance the biological systems that drive the way we move, think and live.

STATE-OF-THE-ART LABORATORIES

The Department of Kinesiology continues to grow and develop state-of-the-art laboratories that serve as the foundation for excellence in teaching and research. With a $4.5 million investment from the Canada Foundation for Innovation (CFI), our labs house some of the most cutting-edge pieces of equipment in the country. Spanning areas from ergonomics to genomics, these specialized laboratories give researchers the tools to accelerate discovery and develop solutions linked to major physiological problems.

$5.3M

in external research funding per year on average

3 CANADA RESEARCH CHAIRS

» spine biomechanics and injury prevention

» shoulder mechanics

» nutritional lipidomics

RANKED TOP KINESIOLOGY DEPARTMENT

in Canada for research impact*

* Higher Education Strategy Associates (2012)

THE DEPARTMENT OF

recreation and leisure studies

AS THE HIGHEST RANKING LEISURE STUDIES DEPARTMENT IN NORTH AMERICA SINCE 1990,* OUR RESEARCHERS ARE LEADERS IN EXPLORING THE INTERSECTION OF RECREATION AND HEALTH.

We are pushing frontiers in fields like recreation and sport management, therapeutic recreation and tourism development to better understand the complex social and psychological factors that drive health and well-being. By combining theory and practice, we are deepening our understanding of both the positive and negative aspects of leisure and developing new ways to enhance quality of life for individuals, families and communities.

EXCELLENCE IN LEISURE SCIENCES

The Department of Recreation and Leisure Studies is home to the largest and most diverse cohort of researchers in leisure sciences. Since 1980, 13 of our faculty members have been inducted as fellows of the Academy of Leisure Sciences for their significant impacts in research and teaching. With scholars specializing in social marketing, human development and aging, gender studies, and social justice, our comprehensive approach is setting a standard of excellence in leisure sciences and providing unparalleled insights into the way recreation affects physical and mental health.

AREAS OF FOCUS

» THERAPEUTIC RECREATION

» TOURISM DEVELOPMENT

» RECREATION AND SPORT BUSINESS

» COMMUNITY, ENVIRONMENT, HEALTH AND WELL-BEING

» IDENTITY AND DIVERSITY

» ORGANIZATIONS, SERVICE AND POLICY

#1

ranked leisure studies department for research productivity**

** Journal of Leisure Research (2011)

WORLD'S LARGEST

recreation and leisure co-op program

CANADA'S FIRST

MA and PhD in leisure studies

* Leisure Sciences (2004) and Journal of Leisure Research (2011)

THE SCHOOL OF

public health and health systems

AREAS OF FOCUS

- » EPIDEMIOLOGY AND APPLIED BIOSTATISTICS
- » NUTRITIONAL PUBLIC HEALTH
- » HEALTH PROMOTION
- » HEALTH PROGRAM EVALUATION
- » HEALTH POLICY
- » GERONTOLOGY
- » YOUTH HEALTH
- » INFECTIOUS DISEASES
- » GLOBAL HEALTH
- » HEALTH INFORMATICS AND BIG DATA

A HEALTHIER FUTURE BEGINS BY PREVENTING DISEASE BEFORE IT STARTS.

In the School of Public Health and Health Systems (SPHHS), our researchers are working to reduce the global burden of illness through health promotion, disease surveillance and the implementation of healthy public policy. We are using big data to help inform clinical practice, refining policies and processes to expedite care and assessing the confluence of factors that comprise health and well-being.

COMMITTED TO REDUCING THE HEALTH IMPACTS OF CLIMATE CHANGE

From extreme heat and life-threatening storms to the availability of safe water and food, climate change is presenting new health concerns for people around the world. Recognizing the need for highly trained health specialists, SPHHS signed the **Health Educators Climate Commitment**, an international accord launched by the White House to enhance post-secondary education around the growing and profound health impacts of climate change.

OVER
$5.2M
in external funding per year on average

CANADA'S FIRST
BSc in Health Studies

FIRST
online Master of Health Informatics in Canada

2 CIHR-IPPH Trailblazer Award in Population Health Solutions winners

2 CIHR-Public Health Agency Chairs in Applied Public Health Research

propel

CENTRE FOR POPULATION HEALTH IMPACT

A UNIVERSITY OF WATERLOO SENATE-APPROVED RESEARCH CENTRE

Canadian Cancer Society / Société canadienne du cancer

The Propel Centre for Population Health Impact in Applied Health Sciences aspires to a Canada that is free from preventable cancers, other chronic diseases and their causes. A national research program of the Canadian Cancer Society, Propel's three scientific programs — tobacco control, healthy living and capacity development — leverage collaboration between researchers and policy-makers to solve complex health problems and reduce rates of disease. The Centre's pioneering survey tools capture rates of tobacco, drug and alcohol use among teenagers and provide governments and communities with information to improve policy and programs.

RECENT IMPACTS

» **Bans on flavoured tobacco products:** Teenagers who use menthol cigarettes smoke more cigarettes — an average of 43 per week — than youth who use unflavoured products. Propel evidence helped Nova Scotia, Quebec, Ontario, Alberta and New Brunswick successfully pass flavoured tobacco bans to curb rates of youth smoking.

» **Championing population health intervention research:** One in every two Canadian adults is living with a chronic disease. As secretariat for the Population Health Intervention Research Initiative for Canada (PHIRIC), Propel is increasing our nation's ability to conduct and use research on the effectiveness of programs and policies that reduce rates of disease and improve the health of Canadians.

» **Evidence for healthy living policy and programming:** Half of all cancers are preventable. Propel's Cancer Risk Assessment in Youth Survey (CRAYS) is a surveillance tool for tobacco use, eating behaviours and ultraviolet radiation exposure among 14 to 18 year olds. It's helping advocates for nutrition and tanning bed legislation make stronger cases for laws that will protect younger generations from a future of disease.

» **Promoting physical literacy:** Only 13 per cent of Canadian boys and six per cent of girls meet recommended guidelines for daily physical activity. As an evaluator of national physical activity programs like Build Our Kids' Success and RBC's Learn to Play, Propel is working to improve physical literacy and activity among youth, both inside and outside the classroom.

50+

active research and evaluation projects

OVER

$3.2M

in funding per year on average

450+

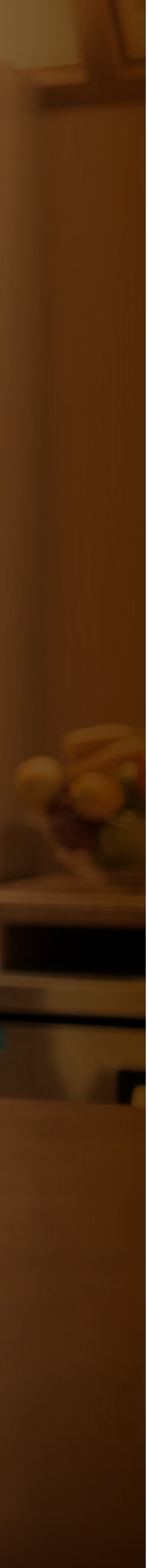
collaborators from research, policy and practice sectors across Canada and beyond

aging, health and well-being

THE GLOBAL POPULATION IS AGING FASTER THAN EVER BEFORE. BY 2040, MORE THAN ONE BILLION PEOPLE WILL BE OVER THE AGE OF 65.

For the first time in history, seniors are outnumbering children. Around the world, longer life expectancies, smaller family sizes and aging baby boomers are creating new and increasingly urgent challenges for caregivers, communities and governments. Researchers in the Faculty of Applied Health Sciences are tackling some of the most pressing aging-related issues to improve quality of life for older adults today and refine health-care systems and policies for future generations.

HEATHER KELLER
LEADING A PIONEERING STUDY SPANNING 32 LONG-TERM CARE HOMES ACROSS CANADA



PARTNERSHIPS THAT DRIVE INNOVATION

Fueled by a common vision for a healthier future, our researchers are breaking down barriers and forging partnerships across disciplines and organizations:

» Through the **Schlegel-UW Research Institute for Aging,** researchers are collaborating with clinicians and residents in long-term care homes to tangibly improve seniors' quality of life. From exploring how **reductions in blood pressure are related to dizziness and risk of falls** to **preventing falls and fractures with different flooring** and **implementing inter-professional care practices to reduce hospitalizations**, a hands-on approach to collaboration is catalyzing discoveries and putting aging-related research into practice.

» When it comes to aging well, your financial health can be just as important as your physical health. With at least a third of Canada's workforce eligible to retire over the next five years, our **RBC Retirement Research Centre** supports research that develops insights and ideas related to retirement planning, health and well-being.

» Committed to enhancing collaboration across our own university campus, Applied Health Sciences hosts the **Network for Aging Research (NAR)** — a group of researchers from varying disciplines dedicated to improving quality of life for older adults. To inspire cross-disciplinary research, NAR runs grant programs and networking events to mobilize new, highly focused, collaborative research initiatives in aging.

IMPROVING FOOD INTAKE IN LONG-TERM CARE

Many older adults living in long-term care homes have poor food intake, leading to malnutrition and frailty. Professor **Heather Keller** is leading a pioneering study spanning 32 long-term care homes across Canada to understand why so many residents do not eat enough or the right types of food. Working in a state-of-the-art kitchen at the Schlegel-UW Research Institute for Aging, Professor Keller is also developing new nutrient-rich food combinations to make mealtime more appealing for residents and promote better health and well-being. **DEPARTMENT OF KINESIOLOGY**

USING CHILDHOOD TO PREDICT HEALTH IN OLD AGE

Aging begins the moment we are born. Scientists have long thought that factors in childhood may set the stage for better brain functioning later in life. Professor **Suzanne Tyas** is using 100 years' worth of data from the Nun Study — an internationally recognized collection of data spanning the lifetimes of 678 nuns — to determine factors that impact a person's ability to resist cognitive decline even though their brain may show Alzheimer-type damage. Whether it's educational experience, emotions or genes, identifying factors linked to improved brain functioning could enhance quality of life across the life course and reduce strains on health-care systems worldwide. **SCHOOL OF PUBLIC HEALTH AND HEALTH SYSTEMS**

CHANGING THE CULTURE OF DEMENTIA CARE

By 2031, more than 1.4 million Canadians will be living with dementia — the most feared disease after cancer. With public misconceptions and stigmas still widespread, people living with dementia are often treated differently by care staff, friends and even family. Professor **Sherry Dupuis**, co-lead of the Partnerships in Dementia Care Alliance, is working to change the way we think about dementia using the arts. A new research-based drama, Cracked: New Light on Dementia, raises questions about many of the dehumanizing practices that still prevail in care settings and inspires new ways of interacting with persons living with dementia for family members and staff. **DEPARTMENT OF RECREATION AND LEISURE STUDIES**

chronic disease prevention

NONCOMMUNICABLE OR CHRONIC DISEASES ARE THE NUMBER-ONE CAUSE OF DEATH AND DISABILITY IN THE WORLD. BY 2020, CHRONIC CONDITIONS LIKE LUNG DISEASE, HEART DISEASE AND CANCER WILL ACCOUNT FOR MORE THAN 75 PER CENT OF DEATHS WORLDWIDE. THE SAME YEAR, IT IS ESTIMATED ONE IN THREE CANADIANS WILL SUFFER FROM TYPE II DIABETES.

Researchers in Applied Health Sciences are working to curb these trajectories. Through population-level data analysis, development of new programs to treat and prevent chronic illnesses, and collaboration with both the public and private sectors, our researchers are addressing issues that are taxing the health-care system and ending millions of lives too soon.

DAVID HAMMOND
TACKLING THE GLOBAL TOBACCO EPIDEMIC

PROTECTING YOUTH HEALTH

A healthier future begins with our youth. At the root of all major chronic diseases are factors like unhealthy diets, sedentary lifestyles and tobacco use. Whether **implementing physical activity programs in schools** or **advocating for stronger smoking legislation**, our researchers are tackling some of the biggest health concerns that can resonate across a lifetime:

» In the world's largest and most comprehensive study focused on chronic disease prevention among youth, researchers in the School of Public Health and Health Systems are following more than 50,000 high-school students annually to evaluate how changes in programs, policies or environments are related to disease risk factors like tobacco and alcohol use, drug use and obesity. By showing how even simple changes can reduce risk factors, the **COMPASS study** is providing educators and policy-makers with information to protect our youth from a future of chronic disease and improve health outcomes.

» Studies suggest that children who exercise in the morning have greater activity levels and better academic performance and behaviour than their inactive peers. Active children may also have a lower risk of chronic disease later in life. In partnership with the Reebok Canada Fitness Foundation, the Public Health Agency of Canada and the Canadian Football League, Propel researchers are evaluating **Build Our Kids' Success (BOKS)**, a before-school physical activity program that aims to get elementary-school kids moving and their brains ready for a day of learning. The five-year initiative will observe BOKS in schools across the country to measure its impact on student attitudes, skills, physical activity, behaviour and learning.

PREVENTING FRACTURES AND FALLS

Older adults often get advice to move more to prevent falls and broken bones, but Professor **Lora Giangregorio** thinks we can do better. Her exercise recommendations, called Too Fit to Fracture, emphasize a shift away from aerobic-only exercise to programs that include strength and balance training. Developed in partnership with Osteoporosis Canada and a team of international researchers, the recommendations are the foundation for new patient education tools and continuing education for health-care professionals. By improving balance and building strong bones, the multifaceted approach gives older adults an effective way to avoid fall-related fractures, a leading cause of hospitalization among seniors. **DEPARTMENT OF KINESIOLOGY**

EVIDENCE FOR STRONGER TOBACCO CONTROL

Tobacco remains the leading cause of premature death in the world — killing more than six million people each year. Despite the known health risks, cigarettes are just as addictive and harmful as 50 years ago. Working with governments around the world, Professor **David Hammond** is tackling the global tobacco epidemic through stronger control laws and new prevention measures. His research on the effects of plain packaging, low-nicotine cigarettes and youth consumption of tobacco products provides decision-makers with the best evidence to tighten legislation and develop new policies to protect the health of populations. **SCHOOL OF PUBLIC HEALTH AND HEALTH SYSTEMS**

SETTINGS OF SUPPORT FOR CANCER PATIENTS

For individuals living with cancer, finding places of support can be crucial to recovery. Professor **Troy Glover** is exploring this intersection of place and health to better understand how different settings can enhance well-being. A study on Gilda's Club, a non-institutional facility for people living with cancer, found that the organization provided members with the physical, social and emotional support needed to confront their illnesses and acted as a vital refuge from hospital and home. By examining the social and physical dimensions of place, Professor Glover is hoping to enhance settings that are engaging, healing and therapeutic across communities. **DEPARTMENT OF RECREATION AND LEISURE STUDIES**

technology and health

INNOVATION IS IN WATERLOO'S DNA. WITH A PROGRESSIVE UNIVERSITY INTELLECTUAL PROPERTY POLICY, WATERLOO RESEARCHERS RETAIN FULL OWNERSHIP OF ALL THEIR IDEAS AND INVENTIONS. AT WATERLOO, THOSE WHO CREATE IT, OWN IT.

This entrepreneurial-minded approach encourages collaboration with industry and fosters an environment where new technology can move quickly from the lab to the marketplace. Whether it's developing technology to identify lipids linked with brain injuries or creating mobile health solutions to help older adults manage their health at home, Applied Health Sciences researchers are at the forefront of pioneering new technologies to improve health and well-being for individuals, communities and populations.

BILL MCILROY
DEVELOPING WEARABLE TOOLS TO ASSESS STROKE SURVIVORS

A TECHNOLOGY POWERHOUSE FOR HEALTH RESEARCH

Each day, subtle and simultaneous changes to our metabolic, neurologic, cardiovascular and musculoskeletal systems set us on a course for either health or disease later in life. In a specialized health research centre run by the Department of Kinesiology, our researchers are collaborating with clinicians, engineers, industry leaders and members of the community to develop the next generation of personalized health care.

Home to one of the country's most comprehensive collections of research equipment focused on aging, the centre is a place where disciplines cross and health technology is pioneered. From **wearable devices that monitor small changes in a person's nervous system** to **new diagnostic tools and therapies**, our researchers are generating technological advances that will set a gold standard for early disease detection, injury prevention and best practices for healthy aging.

WEARABLE TECHNOLOGIES TO IMPROVE STROKE REHABILITATION

Stroke is the third major cause of death and the leading cause of adult neurologic disability in Canada. As researchers work to prevent the causes, new wearable devices are being used to speed recovery. Work by Professor **Bill McIlroy** is focused on developing wearable tools to assess a stroke survivor's cardiovascular system, nervous system, balance and gait. The devices send data to clinicians in real time, allowing for assessments that span 24 hours a day, rather than just half an hour in a check-up. Personalized diagnostic reports give clinicians information to make better health-care decisions and accelerate rehabilitation. **DEPARTMENT OF KINESIOLOGY**

ONLINE COMMUNITIES PREVENT POSTPARTUM DEPRESSION

New and experienced mothers often face isolation and loneliness after the birth of a child. But beating the baby blues may be just a click of a mouse away. Professor **Diana Parry** is investigating the roles online communities play in connecting and supporting women with children, especially during the crucial postpartum months. Looking at MomsTown.ca, a Canadian online community for mothers, Professor Parry found that membership in virtual communities not only provides women with missing support but can also prevent postpartum depression, an issue that affects one in five women. **DEPARTMENT OF RECREATION AND LEISURE STUDIES**

GETTING HEALTH TECHNOLOGY INTO SENIORS' HANDS

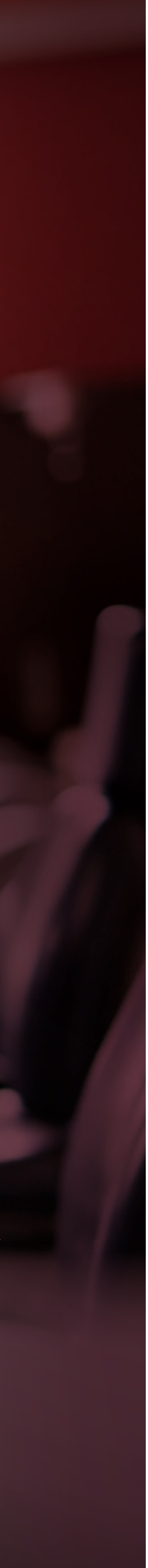
Innovations in health technology can dramatically improve quality of life for older adults. But it can take years before new devices are approved for use by those who would benefit the most. As part of a national multimillion-dollar project, Professor **Paul Stolee** is working with innovators, industry and government to develop policy recommendations that will expedite the regulation process for new technology benefiting seniors. By understanding barriers to health technology adoption, Professor Stolee is creating resources to help innovators better navigate the approval process, ensuring that seniors get faster access to devices that can increase their safety and security, support their independent living and enhance their overall well-being. **SCHOOL OF PUBLIC HEALTH AND HEALTH SYSTEMS**

brain health

THE BRAIN IS THE MOST COMPLEX ORGAN IN THE HUMAN BODY. FROM MAKING DECISIONS TO FEELING PAIN, ITS ONE BILLION NEURONS CONTROL EVERY ASPECT OF OUR DAILY LIVES.

With one in five people experiencing a mental illness in their lifetime and rates of dementia expected to double in the next 15 years, brain health affects more than the individuals — it has deep and lasting effects on families, communities and populations. In Applied Health Sciences, researchers are pushing the frontiers to understand and treat some of the biggest issues related to brain health. Whether it's looking at how to accelerate recovery from brain injury, understanding the neurobiology of dietary self-restraint or monitoring changes in perception and mobility during aging, our multi-dimensional approach underpins the belief that a healthy body starts with a healthy brain.

LAURA MIDDLETON
INVESTIGATING HOW EXERCISE CAN BE USED TO WARD OFF DEMENTIA



RESOURCES TO LIVE WELL WITH DEMENTIA

Dementia does not discriminate. It ignores social class, geographic boundaries and — increasingly — age. While scientists work to find a cure, the **Murray Alzheimer Research and Education Program (MAREP)** in Applied Health Sciences is on the front lines — providing those diagnosed with dementia and their families with the support and resources to live meaningful lives. Recognized around the world for a unique partnership approach, MAREP has set the standard for best practices in dementia care. MAREP's **By Us for Us Guides**, written by people living with dementia for people living with dementia, offer practical advice to manage tasks of daily living. The guides have been translated into French and Spanish and distributed in countries around world, including New Zealand, Germany and the United Kingdom.

PROTECTING CAREGIVERS FROM BURNOUT

The more hours people spend caring for an older adult, the worse their mental and physical health tends to be. But caring for a loved one doesn't have to end in burnout. Professor **Steven Mock** is exploring how involvement in municipal recreation activities can act as a crucial buffer against caregiver stress. Early findings show that the more caregivers participate in recreational pursuits, the more stable their mental health — even as their caregiving demands increase. With the number of Canadians over 65 expected to almost double in the next 20 years, protecting the health of caregivers is a key step in ensuring the best possible outcomes for our aging population. **DEPARTMENT OF RECREATION AND LEISURE STUDIES**

TOOLS TO HELP CLINICIANS ASSESS MENTAL HEALTH

This year, more than 100,000 Canadians will be admitted to hospitals for mental health issues. Providing the best care starts with accurate assessments. Professor **John Hirdes**, head of interRAI Canada, is working to develop new assessment tools that help mental health professionals more quickly evaluate conditions and record findings in a standardized way — allowing patients to be transferred from one setting to the next with comprehensive records that all health-care providers can understand. Based in the School of Public Health and Health Systems, interRAI Canada is part of a global research network focused on improving health-care assessment systems to improve service delivery and inform policy. **SCHOOL OF PUBLIC HEALTH AND HEALTH SYSTEMS**

USING EXERCISE TO WARD OFF DEMENTIA

What if exercise could prevent Alzheimer's disease? With clinical drug trials failing to live up to expectations, researchers are looking for new ways to prevent one of the most debilitating diseases affecting people over 65. Working with the Canadian Consortium on Neurodegeneration and Aging, Professor **Laura Middleton** is exploring how exercise can be used to ward off dementia in at-risk individuals. Physical activity is associated with a 40 per cent decrease in the risk of dementia, possibly due to growth of new neurons and blood vessels in the brain — making it a far more effective treatment than any drug on the market. **DEPARTMENT OF KINESIOLOGY**

environment and health

HUMANS DO NOT EXIST IN ISOLATION. WE ARE SHAPED BY THE WORLD AROUND US. FROM OUR WORKPLACES AND NEIGHBOURHOODS TO WATER AND FOOD SOURCES, OUR ENVIRONMENTS PROFOUNDLY IMPACT OUR HEALTH AND WELL-BEING.

This year alone, more than 12 million people around the world will die from causes linked to environmental factors like air pollution, water and soil contamination, chemical exposure and ultraviolet radiation. In Canada, more than a quarter million people will suffer a workplace injury; approximately 1,000 of these accidents will result in death.

Working at the environment-health nexus, researchers in Applied Health Sciences are developing new ways to prevent illness and injury and improve health for individuals at home, at work and in their communities. We are reducing back injuries in automotive factories, working to mitigate the public health impact of mining in vulnerable communities and addressing the health consequences of climate change globally. Through collaboration with organizations like the Canadian Armed Forces, the World Health Organization and Global Affairs Canada, our researchers are redefining the links between environment and health and accelerating strategies to protect populations.

BRYAN GRIMWOOD
EXPLORING HUMAN-LAND INTERACTIONS

PREVENTING WORKPLACE INJURY

Work-related injuries that affect the body's complex system of muscles, tendons, ligaments, nerves, discs and blood vessels are the single largest contributor to lost time claims and costs in Canada and around the world. Ranging from low-back pain to carpal tunnel syndrome and shoulder tendinitis, musculoskeletal disorders have sweeping social and economic consequences — affecting employers, industries and the larger health-care system.

The **Centre of Research Expertise for the Prevention of Musculoskeletal Disorders (CRE-MSD)** in Applied Health Sciences is working to reduce and prevent these painful disorders through multidisciplinary and cross-sector research. Funded by a grant from the Ontario Ministry of Labour, CRE-MSD brings together 43 researchers from 11 different universities and institutes to pioneer ways to keep the workforce healthy. Whether it's **redesigning police cruisers to minimize strain on officers' backs and necks** or **gaining a better understanding of shoulder injury mechanisms**, researchers are striving to make workplaces as safe as possible for employees through better design, education and training.

UNDERSTANDING HUMAN-LAND RELATIONSHIPS IN CANADA'S NORTH

In the Canadian Arctic, the wild landscape surrounding the 900-km Thelon River is both a homeland and a sacred place for Indigenous communities. Over time, tourism has redefined the space as a leisure landscape — simultaneously jeopardizing millennia-old heritage and creating new economic and cultural opportunities. Professor **Bryan Grimwood** is exploring these human-land interactions and advocating for social justice and responsible environmental management. His work is focused on ensuring sustainability and helping Indigenous communities maintain cultural livelihoods, land-based connections, health and well-being.

DEPARTMENT OF RECREATION AND LEISURE STUDIES

AVOIDING BACK PAIN AT SIT-STAND WORKSTATIONS

Excessive sitting behind a desk can double your risk of dying from cardiovascular conditions and increase musculoskeletal disorders. While experts have long been advising people to stand at their workstations for about 15 minutes an hour to reduce health risks, Professor **Jack Callaghan** is looking at what those recommendations mean for back pain. Early findings in his multi-year study reveal that integrating standing too quickly into your work routine can create clinical chronic back problems. His work will be used to create guidelines on optimal sit-stand ratios and help organizations more safely implement standing stations in the workplace.

DEPARTMENT OF KINESIOLOGY

MONITORING EXPOSURE TO FOOD CONTAMINANTS

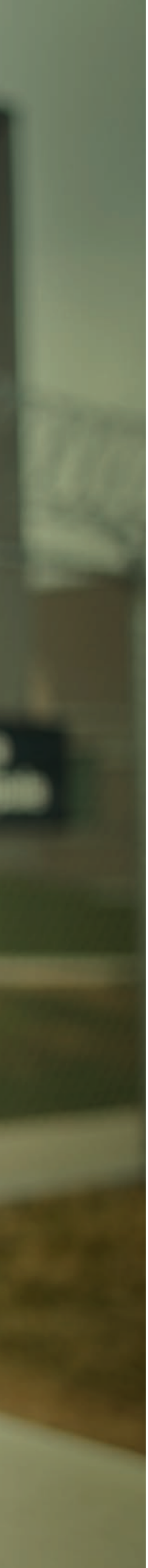
For Indigenous communities in the Northwest Territories, traditional foods like fish, moose and geese are both a vital source of nutrition and an integral part of culture and heritage. They can also be a pathway of exposure for environmental contaminants like mercury, cadmium and persistent organic pollutants. Professor **Brian Laird** is leading a biomonitoring project in Canada's subarctic to evaluate people's exposure to these contaminants and assess the risks to their health. By collecting blood, hair and urine samples, he is measuring toxicant levels in the human body and developing ways to sustain traditional food harvesting while reducing exposure to chemicals in the environment. **SCHOOL OF PUBLIC HEALTH AND HEALTH SYSTEMS**

healthy communities

AT THE HEART OF HEALTHY POPULATIONS ARE HEALTHY COMMUNITIES. RESEARCHERS IN APPLIED HEALTH SCIENCES ARE WORKING WITH COMMUNITIES AT HOME AND AROUND THE WORLD TO IMPROVE QUALITY OF LIFE THROUGH OUTREACH PROGRAMS, POLICY EVALUATIONS AND EDUCATION.

By understanding the social determinants of health, our researchers are not just laying the foundation for strong communities, they are improving individual lives and giving populations the tools they need to thrive.

HEATHER MAIR
EVALUATING SUPPORT SYSTEMS FOR PEOPLE LEAVING PRISON



MEASURING WHAT MATTERS TO COMMUNITIES

To be Canadian means that we value quality of life for ourselves, our communities and our country. While Canada's gross domestic product (GDP) measures the economic health of our country, it fails to account for many things that matter to Canadians — protecting our environment, having access to leisure and cultural opportunities, feeling a strong sense of belonging to our communities and achieving greater work-life balance. The **Canadian Index of Wellbeing (CIW)** in Applied Health Sciences conducts research and reports on the quality of life of Canadians using a comprehensive framework that incorporates eight interconnected domains Canadians have identified as important to their lives. By tracking trends over time, the regular reports released by the CIW provide evidence that policy-makers and community leaders can use to look beyond purely economic measures when tackling complex societal issues.

SUPPORTING RECOVERY FOR CANCER PATIENTS

After receiving a cancer diagnosis, maintaining an exercise routine is the last thing on most people's mind. But research shows that physical activity can help reduce the negative side-effects of cancer treatment and accelerate the road to recovery. The Faculty of Applied Health Sciences is home to **UW WELL-FIT**, a tailored exercise program for individuals undergoing treatment for cancer. With a referral from an oncologist, participants can work with certified exercise physiologists to gain strength, improve physical function and minimize side-effects from chemotherapy or radiation. The program follows the Cancer Care Ontario Exercise Program for Cancer Patients and provides all participants with a safe and supportive environment to enhance their quality of life, both during and after treatment.

IMPROVING TRANSITIONS FROM PRISON

After spending time in prison, many individuals re-enter the community lacking adequate support networks. As a result, they risk returning to the social circles and lifestyles that led to their incarceration. In partnership with the Grand Valley Institution for Women and Community Justice Initiatives, Professor **Heather Mair** is evaluating a program that matches women in prison with volunteers in the community to facilitate successful and lasting re-integration into society. By acting as a circle of support, these volunteers create a new social environment for women coming out of prison, helping them build different lives and stay outside of the corrections system for good.

DEPARTMENT OF RECREATION AND LEISURE STUDIES

PREVENTING MUSCLE LOSS IN CANCER PATIENTS

People with breast and prostate cancer typically lose muscle and gain fat, putting them at risk for other serious conditions like diabetes and cardiovascular disease. Professor **Marina Mourtzakis** is working to understand how these changes in body composition can be slowed or even avoided with nutrition and exercise during treatment. Working with UW WELL-FIT, she is assessing programs to see whether modifications to eating habits and physical activity levels can improve the way patients' bodies manage sugar and cholesterol. With current cancer treatment options resulting in increased survival rates, her research aims to help more patients become healthier survivors. **DEPARTMENT OF KINESIOLOGY**

EQUALIZING ACCESS TO HEALTHY FOODS

In remote Indigenous communities, access to healthy and affordable food can be limited. Factor in low income levels and poor living conditions, and many families struggle to meet basic nutritional guidelines. Professor **Rhona Hanning** is working with some of Canada's most isolated communities to enhance access to nutritious foods for youth while restoring and promoting cultural identity and traditions. Collaborating with community members, NGO partners and researchers, she aims to develop sustainable programs to expose children to healthier foods and break the cycle of diet-related disease.

SCHOOL OF PUBLIC HEALTH AND HEALTH SYSTEMS

fundamental research

DRIVING ALL LIFE-CHANGING INNOVATION IS FUNDAMENTAL RESEARCH. PUSHING THE BOUNDARIES OF KNOWLEDGE, THIS RESEARCH EXPLORES THE UNKNOWN, CHALLENGES ASSUMPTIONS AND SEEKS TO CREATE A DEEPER UNDERSTANDING OF PHENOMENA AROUND US.

Fundamental research gives researchers across disciplines the theory, evidence and methodology to develop solutions to pressing practical problems and improve lives. From exploring the effects of hypertension on blood vessel function to examining the cellular mechanisms of muscle diseases, researchers in Applied Health Sciences are at the forefront of changing how we understand the world today and setting the stage for the discoveries of tomorrow.

JOHN MIELKE
EXPLORING THE EFFECTS OF MATERNAL EXPERIENCES ON BRAIN DEVELOPMENT

fundamental research, *n.*

\ˌfən-də-ˈmen-təl\ rē-ˈsərch\

Also called basic or pure research, fundamental research is investigative research aimed at explaining or describing natural and social phenomena. It is the source of new scientific evidence, principles and theories, which form the basis for all applied science and practical interventions.

BRAIN HEALTH BEFORE BIRTH

The relationship between a mother's nutrition during pregnancy and the health of her child is well established. But what are the effects of her social experiences? Professor **John Mielke** is exploring how the experiences of mothers can impact brain development in their unborn children, putting them on a path towards health or disease later in life. By uncovering how stress and adversity imprint on the developing brain, his work illustrates how understanding neuroplasticity can help to establish the frameworks needed to protect the health of future generations.
SCHOOL OF PUBLIC HEALTH AND HEALTH SYSTEMS

APPROACHES TO QUALITATIVE RESEARCH

Not all fundamental research uses experiments, statistics and numbers. Inspired to enhance traditional approaches to research that instead use interviews, participant observations and focus groups, Professor **Lisbeth A. Berbary** is exploring more innovative ways to analyze and represent language-based data through creative practices. Her work gives both new and established qualitative researchers different perspectives on capturing the nuances and complexity of human experiences, ultimately making research more accessible for wider audiences. **DEPARTMENT OF RECREATION AND LEISURE STUDIES**

UNDERSTANDING CELL DEATH

Throughout our life damaged structures build up in our cells. Healthy cells remove and recycle this material through a process called autophagy. However, if this process becomes dysregulated, diseases can develop or our cells can waste away and die. Professor **Joe Quadrilatero** is exploring the mechanisms behind cell death and ways to keep cells healthy longer. By better understanding what causes cells to live or die, his research is laying the foundation for new strategies that could prevent and treat disease as well as slow the aging process.
DEPARTMENT OF KINESIOLOGY

inspiring student success

UNDERGRADUATE STUDIES

For us, education means inspiring students to think critically about the factors that drive health and well-being. With seven undergraduate programs and a commitment to high-impact teaching, we are preparing the next generation of health practitioners, scholars and advocates. Students learn from leaders in their fields and graduate equipped with the skills and confidence to take on some of the biggest health challenges of our time.

A CO-OP CULTURE

The University of Waterloo's co-op program is the largest post-secondary co-op program of its kind in the world, and its expansive network of employers connects our students with organizations tied to their fields of study. With over half of our undergraduate students enrolled in a co-op stream, we are accelerating their ability to tackle real-world health issues by providing meaningful and engaging workplace experiences.

"TEXTBOOKS AND THEORY ARE IMPORTANT — BUT BEING ENCOURAGED TO ENGAGE WITH THE WORLD AROUND YOU AND APPLY WHAT YOU'VE LEARNED TO CHALLENGES FIRST-HAND IS WHAT BUILDS A STRONG FOUNDATION FOR YOUR FUTURE."

- RACHEL MCDONALD, HEALTH STUDIES STUDENT, NATIONAL CO-OP STUDENT OF THE YEAR AWARD WINNER

UNDERGRADUATE STUDENT SPOTLIGHT: CANCER RESEARCH

During a co-op term at Sunnybrook Health Sciences Centre, **Rachel McDonald** worked alongside oncologists to provide patient care and develop research initiatives related to new radiation therapies for bone metastases. Her work looking at treatments to slow the spread of cancer is published in several peer-reviewed journals, including the International Journal of Radiation Oncology • Biology • Physics.

EXPERIENTIAL EDUCATION

The best learning happens by doing. In Applied Health Sciences we are focused on providing our students with real-world education — that means building opportunities for experiential education and research exposure right into our curriculum:

- In Applied Health Sciences, every first-year Kinesiology student gets the opportunity to work with human cadavers. Students in **KIN 100: Human Anatomy of the Limbs and Trunk** are able to see the way artificial heart valves work, how knee and hip replacements are linked to surrounding structures and the physiological impacts of gallstones. It's a unique undergraduate experience that builds foundational knowledge about the human body in ways textbooks simply can't match.
- Each year, Recreation and Leisure Studies students enrolled in **REC 120: Program Management and Evaluation** put on a day of family programming at the local public library and YMCA. The event teaches students how to plan, implement and evaluate a program with real-world impact. By conducting needs assessments and identifying gaps in current programming, students not only put theory into practice but also give local families an interactive way to spend the day together.
- In **HEALTH 448: Advanced Studies in Social Determinants of Health**, students learn about factors leading to homelessness by exploring the downtown core with a man who lived on the streets. The experience gives students the chance to speak directly with homeless people and hear first-hand where they sleep, how they eat and how they access medical care. By exposing students to the very real problem of homelessness, the course aims to change the way students think about the complex issues that lead some to such inequitable outcomes.
- Research exposure is a pillar of our undergraduate experience. Whether in lectures and labs or through independent research courses and theses, our students see connections between research and knowledge generation first-hand and have ample opportunities to participate in the process.

OUR UNDERGRADUATE PROGRAMS

- Kinesiology
- Health Studies
- Public Health
- Recreation and Leisure Studies
- Recreation and Sport Business
- Therapeutic Recreation
- Tourism Development

86%
employment rate 6 months after graduation

MORE THAN
2,200
current students

51%
in co-op stream

50% of students enter with an average above 90

building knowledge, refining focus

GRADUATE STUDIES

Building on foundational knowledge, our graduate programs put scholarship in the context of real-world issues. Whether the end goal is a career in academia or the public or private sector, our programs allow students to explore complex concepts, generate new knowledge and learn from a global network of researchers and organizations. We do more than just train the leaders of tomorrow — we connect them with the leaders of today.

"AS A PhD STUDENT IN APPLIED HEALTH SCIENCES, I'M NOT JUST DEVELOPING KNOWLEDGE TO BECOME AN EXPERT IN MY FIELD; I'M DEVELOPING INDUSTRY CONNECTIONS AND KNOWLEDGE TRANSLATION SKILLS TO MOVE MY RESEARCH BEYOND THE LAB AND IMPROVE LIVES."

– **JUAN JOSE ARISTIZABAL HENAO**, PhD CANDIDATE, KINESIOLOGY
EXPLORING WAYS TO MORE ACCURATELY MEASURE DIETARY INTAKE OF OMEGA-3S

GRADUATE RESEARCH SPOTLIGHT: NUTRITIONAL FORENSICS

One of the biggest problems with dietary interventions is low adherence rates — people fall off the bandwagon or don't follow the directions given by their health-care professional. While there are strong associations between the consumption of omega-3 fatty acids and good heart and brain function, they must be consumed regularly, either from fish or as supplements, to make a difference. **Juan Jose Aristizabal Henao** is exploring ways to more accurately measure dietary intake of omega-3s by identifying how fat molecules change in your blood, both short- and long-term. His work could mean that with a simple blood test your doctor could see if you've been taking your supplements regularly or adhering to dietary advice.

PROGRAMS THAT ACCELERATE CAREERS

With a changing academic landscape, more students are looking to continue their education while maintaining their careers. Home to **the first online Master of Health Informatics** in Canada, Applied Health Sciences' progressive approach to education allows students to enhance their knowledge in ways that fit their lifestyles and career goals:

- **ONLINE PROGRAMS:** In our online master's programs, students can complete their degree from anywhere in the world. Combining convenience with a global student body, these professional programs are designed to equip students with skills to become leaders in their industries.
- **BLENDED PROGRAMS:** Our blended programs offer an integrated learning experience with options to complete courses both online and on campus. The flexible approach allows students to customize their program to best suit their learning styles.
- **RESEARCH-BASED PROGRAMS:** Our traditional research-based graduate programs allow students to work closely with our world-class faculty members to produce original research and generate new discoveries and insights. Research-based programs can be completed on a full- or part-time basis.

OUR GRADUATE PROGRAMS

- Health Informatics (MHI)
- Public Health (MPH)
- Health Evaluation (MHE)
- Public Health and Health Systems (MSc)
- Kinesiology (MSc)
- Recreation and Leisure Studies (MA)
- Public Health and Health Systems (PhD)
- Kinesiology (PhD)
- Recreation and Leisure Studies (PhD)
- Collaborative program in Aging, Health and Well-being (PhD)
- Collaborative program in Work and Health (PhD)

650
current graduate students

AVERAGE OF
$3.9M
in TA and RA positions each year

OVER
$1.1M
in Tri-Council and OGS scholarships per year on average

entrepreneurship and innovation

SUPPORTING SOCIAL ENTREPRENEURSHIP

Social entrepreneurship is where innovation meets impact. In Applied Health Sciences, we are building on the University of Waterloo's long tradition of developing entrepreneurs by providing our students with resources and opportunities to tackle pressing social concerns linked to health and well-being. By fostering innovation outside traditional business models, we are sparking ideas for widespread impact and mobilizing solutions for healthier societies.

TINA CHAN
DEVELOPED THE PANIC, ANXIETY & STRESS SUPPORT (PASS) KIT

HACK4HEALTH

Each year, community members, students and researchers join Applied Health Sciences and the **Murray Alzheimer Research and Education Program** for a hack-a-thon to improve the lives of those living with degenerative neurological conditions. The 48-hour event drives the creation of software, hardware and social innovations that will enhance quality of life for people with multiple sclerosis, Alzheimer's disease and related dementias across a variety of care settings.

BIG IDEAS CHALLENGE FOR SOCIAL GOOD

In collaboration with Waterloo's social incubator St. Paul's GreenHouse, Applied Health Sciences launched the Big Ideas Challenge for Social Good. The annual pitch competition gives students the opportunity to present their concepts for social ventures to a panel of alumni, community members and established social entrepreneurs. By leveraging the power of competition to drive innovation, Big Ideas aims to both inspire and support the next generation of social entrepreneurs.

A FIRST-AID KIT FOR MENTAL HEALTH

As a first-year Health Studies student, **Tina Chan** struggled with anxiety and stress. While counselling helped, appointment times were often inconvenient and the week between sessions felt too long. What she really needed was a first-aid kit for mental health. Pitching the concept at the Big Ideas Challenge for Social Good, Chan won a spot at the University of Waterloo's social startup incubator, St. Paul's GreenHouse, and developed the Panic, Anxiety & Stress Support (PASS) Kit. Based on cognitive behavioural therapy research, each kit contains flashcards with concise, tweet-length advice to guide students through common pressures of university life. The kits also include chewing gum, a stress ball, ear plugs and an eye mask — items proven to engage and occupy the senses, thwart destructive coping behaviours and help break negative thought patterns. With incidences of anxiety and stress among post-secondary students on the rise, Chan hopes her kits will reduce stigma around mental health issues and give more students tools for success.

SAVING LABS TIME AND MONEY

Checking fat content on nutrition labels might be a routine part of deciding which food products you buy, but unbeknownst to most consumers, measuring trans and saturated fats can be a tedious and expensive process for manufacturers. As a post-doctoral student in the Department of Kinesiology, **Adam Metherel** wanted to give companies a faster and more cost-efficient option. Under the supervision of Professor **Ken Stark** and in partnership with Certo Labs Inc., he developed a specialized syringe that can quickly filter fatty acids in a one-step process. The invention saves lab technicians from manually pipetting samples and running them through a centrifuge to separate fat content. By refining the process into a single step, the syringe significantly cuts analysis time and can lower production costs. The invention won Metherel the Mitacs and NRC-IRAP Award for Commercialization and is now being distributed by MilliporeSigma to industrial labs around the world.

alumni

LEADERS IN HEALTH AND WELL-BEING

Across sectors, industries and countries, Applied Health Sciences alumni are working to improve lives and inspire health and well-being. They are trailblazers, game-changers and difference-makers united by the belief that achieving the highest attainable standard of health is a fundamental human right.

KEEPING LUNCHES CHEMICAL-FREE

When **Nita Tandon** couldn't find a chemical-free and hassle-free container to pack her daughter's lunches in, she created her own. Concerned about the prevalence of the hormone-disrupting chemical BPA (and its newest substitutes BPF and BPS) in lunch containers used by children, she founded **DALCINI stainless** with the mandate that all her containers be 100 per cent medical-grade stainless steel, dishwasher-safe, and extremely durable. While people of all ages can reap health benefits by switching to stainless steel, Tandon's goal is to provide a lunch-time solution for the five million Canadian elementary students who are being exposed to a cumulative daily dose of chemicals. On top of keeping chemicals out of our bodies, Tandon hopes her products will help keep mountains of plastic waste out of our landfills.

BA '93, RECREATION AND LEISURE STUDIES

NITA TANDON
CREATED CHEMICAL-FREE AND HASSLE-FREE CONTAINERS

GETTING LIFE-SAVING MEDICINE TO CHILDREN

In sub-Saharan Africa, diarrhea kills more than 750 children each day — more than AIDS and malaria combined. While parents in rural areas can easily find a bottle of Coca-Cola on their local store shelves, finding simple diarrhea treatments is much more difficult. For **Rohit Ramchandani**, an adjunct professor in the School of Public Health and Health Systems, the bizarreness of this situation was also part of the solution. Helping lead the social enterprise ColaLife, Professor Ramchandani and his partners developed the Kit Yamoyo, small treatment pods of oral rehydration salts and zinc that fit in the empty spaces between crated bottles of Coca-Cola. By emulating the private-sector value chains of products like Coca-Cola and leveraging the same distribution channels, he is working to bring life-saving treatment to some of the world's most remote communities. The project is being scaled up in Zambia, with plans to expand to other developing countries where children are still most at risk.

BSC '04, HEALTH STUDIES

PROTECTING THE HEALTH OF CANADA'S TROOPS

While commanding a field hospital in Afghanistan, **Colonel Jim Kile** experienced both the camaraderie and casualties associated with life on the front lines. Today, those experiences shape the way he approaches his most important role yet — protecting the health of all those who protect our freedom. As Director of Medical Policy for the Canadian Armed Forces, Colonel Kile is responsible for developing policies on the provision of health care across the Army, Navy and Air Force to ensure that Canada's 90,000 regular and reserve force members receive the optimum standard of care possible, both at home and abroad. Trained in emergency medicine, Colonel Kile also represents Canada on a NATO expert panel on military medicine, helping enhance combat care for troops in 28 member countries.

BSC '85, MSC '88, KINESIOLOGY

12,600+

ALUMNI, IN

40

COUNTRIES AROUND THE WORLD

expanding our impact

BUILDING ON EXCELLENCE

In a four-storey addition connecting B.C. Matthews Hall with the Lyle Hallman Institute for Health Promotion, ideas are coming to life. With ample work spaces and state-of-the art teaching and research labs, the 56,000 square-foot expansion is designed to support innovation and inspire collaboration. The 350-seat lecture theatre, one of the largest on campus, is allowing us to continue to expand our programming, while a floor dedicated to hands-on learning and the School of Anatomy supports our commitment to improving facilities for experiential education.

In our half-century of existence, the Faculty of Applied Health Sciences has led a bold and innovative approach to research and teaching — often breaking with convention in order to imagine new and better ways of promoting health at the individual, community and population levels. Help us expand our impact by supporting one of our top priority areas:

1. IMPROVING TEACHING AND RESEARCH INFRASTRUCTURE

With increased enrolment and new faculty members joining our departments, Applied Health Sciences is growing. Support our expansion projects and enhance space that facilitates collaboration.

2. TRAINING THE HEALTH LEADERS OF TOMORROW

Give to a student scholarship fund, or establish your own, and help support the next generation of health practitioners, leaders and advocates.

3. ADVANCING TRANSFORMATIVE RESEARCH

Accelerate the transformative research happening in Applied Health Sciences by supporting state-of-the-art labs and the development of new strategies to protect and promote health and well-being.

4. ENHANCING OUTREACH ACTIVITIES

From our annual Fun Run event to our UW WELL-FIT program for individuals undergoing cancer treatment, we are committed to improving well-being in our local community. Support one of our many outreach activities and help us build a healthier, more vibrant community.

TO MAKE A GIFT OR GET INVOLVED VISIT: UWATERLOO.CA/AHS/GET-INVOLVED

UNIVERSITY OF WATERLOO

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