

2023

ANNUAL REPORT



Solutions for
Mobility
Activity
Rehabilitation
Technology
agingsmart.ca

MESSAGE FROM THE CO-DIRECTORS

2023 was a year of firsts at the Centre for Aging SMART at Vancouver Coastal Health. For starters, it was our first year operating under a new name after merging the Centre for Hip Health and Mobility with the Rehabilitation Research Program. There was much to do and action was the theme as the Aging SMART management team engaged with our larger community to advance the goals laid out in our strategic plan.

We invested in collaborative research through the introduction of two well-attended annual events: the Interdisciplinary Conference in Rehabilitation Science of BC (INCREASE BC) and the Aging SMART Annual Research Day. We also held our first competition for the Edith Winnifred Hopper Endowment Award, which funded five research projects focusing on nutrition and/or diagnostic services.

We increased our research capacity by welcoming a number of new members, and we launched the NSERC-funded Care Anywhere training program in September. We were also proud to be selected to host the 2024 CIHR Summer Program in Aging, which took place this June.

Our Trainee Committee continued its great work in building the Centre's culture. The committee planned and hosted

several Lunch & Learns and social events, and was awarded funding to organize a year-long Healthy Workplace Initiatives Program.

Finally, we introduced some exciting initiatives directed towards ensuring the Centre's long-term sustainability, including our inaugural Vancouver Summer Program course and a popular Falls Prevention workshop for clinical practitioners.

Looking ahead, we have more exciting plans on the horizon. Along with our partners at the VGH Foundation, SBME, and ICORD, we have two key hires in progress: the Innovations in Aging Research Chair and the Canada Research Chair in Neuromodulation. We're also planning big changes at the GF Strong site thanks to our successful SMART labs CFI bid.

You can read about all of these accomplishments and more in the following report. Thank you to our thriving and enthusiastic community of faculty, staff, and trainees for continuing to promote the Aging SMART vision—a world where people of all ages and abilities enjoy a life of quality.

Sincerely,
Drs Janice Eng & Teresa Liu-Ambrose

The **Centre for Aging SMART at Vancouver Coastal Health (VCH)** is a University of British Columbia affiliated, internationally recognized research centre to accelerate discoveries and new knowledge to improve the lives of an aging population and individuals living with a disability. We are focused on developing novel **Solutions for Mobility, Activity, Rehabilitation and Technology** so that people living with the effects of aging or disability can live a high quality of life. The vision of the Centre for Aging SMART is to ensure that people of all ages and abilities enjoy a life with quality.

The Centre for Aging SMART at VCH is one of the 15 Major Research Programs supported by the Vancouver Coastal Health Research Institute and one of 23 Senate approved centres and institutes within the Faculty of Medicine (FOM) at UBC.



ABOUT THE CENTRE

Our interdisciplinary team of researchers, clinicians, students, staff and community partners, work together to evaluate, implement, and disseminate solutions to some of our health care system's most pressing and expensive problems. Our researchers develop and test innovative treatments to improve the lives of older adults or people living with a disability. These treatments include exercise prescriptions, surgical innovations, chronic disease management, pharmacological regimes, assistive technology and sensor technologies.

The partnerships between the Centre for Aging SMART, Vancouver Coastal Health and the University of British Columbia are key to developing health care innovations that can be rapidly moved into practice and policies to improve the lives of patients and families today.

Aging SMART acknowledges with gratitude and respect that we are located on the traditional, ancestral, and unceded territory of the Coast Salish Peoples, including the territories of the x^wməθk^wəyəm (Musqueam), Sk^wxwú7mesh (Squamish), and səliwətał (Tsleil-Waututh) Nations.

MEMBERS AT A GLANCE

Core Faculty Members
36 (+5 in 2023)

Associate Faculty Members
20 (+5 in 2023)

Trainees
140+



EVENTS

- INCREASE BC
- VCHRI 20 Years of Research
- Falls Prevention Workshop
- UBC Vancouver Summer Program
- Aging SMART Research Day
- Seasonal Social

Lunch and Learns
• **8 in 2023**

Trainee Committee hosted

- **Trainee Town Hall**
- **Go By Bike Week**
- **Pick Your Peak Stair Challenge**
- **Summer BBQ**
- **Healthy Workplace Initiative Program**
- **Wine & Cheese Fall Welcome Back Event**



RESEARCH HIGHLIGHTS

\$22 million in
grant funding
awarded in 2023

325+ Publications

New Appointments:

Dr Linda Li, Scientific Director, Health Research BC

Dr Nelson Greidanus, Associate Head, Education, Orthopaedics

Dr Pierre Guy, President of the Canadian Orthopaedic Association

Canada Research Chairs: Tier 2 appointments, **Dr Amir Ardestani-Jaafari**

Dr Guy Faulkner inducted as **Fellow of the Canadian Academy of Health Sciences**

Dr Kathleen Martin Ginis named a **Fellow of the Royal Society of Canada**

Dr Ben Mortenson received the **CIHR IMHA Inclusive Research Excellence Prize** and the **2023 UBC Faculty of Medicine Distinguished Achievement Award in Overall Excellence**

Heart and Stroke Foundation New Investigator Award: **Dr Brodie Sakakibara**. Project title: Virtual health innovations for secondary prevention after stroke

Dr Kishore Mulpuri received the **Canadian Orthopaedic Association 2023 Changemaker Award**

Michael Smith Health Research BC:

- **2023 Scholars:** **Dr Calvin Kuo**. Project title: Errors, uncertainties, and ambiguities in wearable health monitoring systems; **Dr Julia Schmidt**. Project title: Transforming health services following traumatic brain injury through peer-support
- **2023 Reach Awards:** **Dr Janice Eng**. Project title: Primary Care and Spinal Cord Injury – Filling the Knowledge Gap with Continuing Medical Education and Partnership; **Dr Lillian Hung**. Project title: Sharing knowledge to connect, collaborate and co-create Dementia-inclusive Spaces for Community Access, Participation, and Engagement (DemSCAPE); **Dr Teresa Liu-Ambrose**. Project title: Exercise for Healthy Aging: Mobilizing Knowledge with Users and Clinicians in BC. **Dr Meghan Winters**. Project title: Youth.hood: Mobilizing research to achieve healthier built environments for youth in under-resourced neighbourhoods
- **2023 C2 Award:** **Dr Kishore Mulpuri**. Project title: Establishing a Patient/Family-Partner Hip Dysplasia Advisory Group

RESEARCH HIGHLIGHTS CIHR FUNDING

CIHR Institute of Aging Summer Program in Aging on the topic of Ageism and Health Research, Delivery, and Outcomes in Older Adults will be lead by **Drs Teresa Liu-Ambrose** and **Jennifer Davis** and hosted by the Centre for Aging SMART at UBC in 2024.

CIHR Priority Announcement Grants:

- PI: **Dr Janice Eng** Co-Leads: **Drs Courtney Pollock & Brodie Sakakibara. Priority Announcement - Patient Oriented Research.** Project title: Implementation research to improve scale-up of the delivery of evidence-based community exercise programs for stroke
- PI: **Dr Teresa Liu-Ambrose** Co-Lead: **Dr Linda Li. Priority Announcement - Aging.** Project title: EPIC Health: Exercise in Perimenopause to Improve Cognitive Health
- PI: **Dr Jackie Whittaker. Priority Announcement - Female Athlete Health.** Project title: The Stop Osteoarthritis (SOAR) Hybrid Effectiveness-Implementation Type 1 Randomized Controlled Trial for Young People at-High-Risk of Early Onset Knee Osteoarthritis

CIHR Project Grants:

- PI: **Dr Michael Cox.** Project title: Understanding epigenetic regulation and modulation of cell stress responses by the cholesterol transporter, scavenger receptor-B1 as a novel target for treating advanced prostate cancer
- PI: **Dr Peter Crompton.** Project title: Neck Muscle and Head-Neck Dynamics in Rollover Crashes
- PI: **Drs Teresa Liu-Ambrose, Linda Li** and **Kenneth Madden** Co-Leads: **Drs Jennifer Davis, Ryan Falck.** Project title: ACTIVE: Adding Life to Years in Cognitive Frailty by Preventing Falls
- PI: **Dr Kishore Mulpuri.** Project title: Comparing observation vs. bracing in radiologically dysplastic, stable hips in infants with developmental dysplasia of the hip. An International Multi-Centre Non-Inferiority Randomized Control Trial





UBC 2023 Killam Prize:

- **Dr Alex Scott** - Killam Teaching Prize
- **Dr Linda Li** - Killam Research Prize

Vancouver Coastal Health Research Institute 2023 Research Excellence Staff Awards:

- **Chihya Hung**
- **Dr Lindsay Nettlefold**

Alzheimer Society Research Program: Proof of Concept Grant awarded to **Dr Lillian Hung**. Project Title: Bring joy and happiness to long-term care by co-building an immersive experience program.

Dr Julia Schmidt received a three-year **SSHRC Partnership Engage Grant**. Project title: Developing peer-support programs across British Columbia for people with brain injury.

Dr Eitan Prisman was awarded the **2023 Terry Fox New Frontiers Program Project Grant** to lead a team of multidisciplinary researchers developing advanced surgical planning to enhance outcomes for patients undergoing jawbone reconstructive surgeries due to oral cancer.

2023 NSERC Discovery Research Grants:

- **Dr Ilker Hacihaliloglu** Project title: On-Device Continual Learning Methods for Point of Care Ultrasound
- **Dr Courtney Pollock** Project title: Interaction between physiological arousal, attention and motor learning when walking is challenged

UBC Vice-President, Research & Innovation (VPRI) Research Facilities Support Grant: Aging SMART received \$50,000 from this highly competitive internal grant to support upgrades to Centre equipment. Lead by **Drs Rizhi Wang** and **Pierre Guy** and Aging SMART operations staff, **Amanda Main** and **Dr Danmei Liu**,

RESEARCH HIGHLIGHTS

TRAINEE AWARD HIGHLIGHTS

2023 Banting Postdoctoral Fellow:

Dr Jesse Charlton (Supervisors: **Drs Jean-Sébastien Blouin** and **Calvin Kuo**)

Biomedical Engineering. Project title: Exploration and exploitation. A stimulus-response model of movement variability and motor adaptation during human ambulation.

Michael Smith Health Research BC 2023 Trainee Award Recipients:

- **Dr Kelcey Bland** (Supervisor: **Dr Kristin Campbell**). Project title: Development of a patient-centred decision aid for rehabilitation in the advanced cancer setting
- **Dr Stanley Hung** (Supervisor: **Dr Janice Eng**). Project title: Development of a patient-centred decision aid for rehabilitation in the advanced cancer setting

Vancouver Coastal Health Research Institute Rising Star Award 2023:

Dr Kohle Merry (Supervisor: **Dr Alex Scott**) Area of research: Musculoskeletal rehabilitation.

CIHR Canada Canada Graduate Scholarships — Master's program:

- **Victoria Cirone** (Supervisor: **Dr Teresa Liu-Ambrose**)
- **Janna Griffioen** (Supervisor: **Dr Julia Schmidt**)
- **Ryu Lien** (Supervisor: **Dr Teresa Liu-Ambrose**)
- **Christine Seo** (Supervisor: **Dr Teresa Liu-Ambrose**)
- **Jammy Zou** (Supervisor: **Dr Teresa Liu-Ambrose**)

UBC Four Year Doctoral Fellowship:

- **Jasleen Grewal** (Supervisor: **Dr Julia Schmidt**)
- **Rebeca Hernández Gamboa** (Supervisor: **Dr Teresa Liu-Ambrose**)
- **Brittany Pousett** (Supervisor: **Dr Bill Miller**)

Arthritis Society Top 10 research advances of 2023:

Carly Jones (Supervisor: **Dr David Wilson**). Area of research: Hip cartilage health in young adults

The Prostate Cancer Foundation Class of 2023 Young Investigator Award: **Dr Felipe Eltit**

(Supervisors: **Drs Rizhi Wang** and **Michael Cox**). Project title: Investigating how Prostate Cancer causes Sclerotic Metastatic Bone Lesions and Impact Fracture Risk using Cellular and Materials Sciences Approaches

Alzheimer Society Research Program: Doctoral Grant awarded to **Rebeca Hernández Gamboa**

(Supervisor: **Dr Teresa Liu-Ambrose**). Project Title: Refining exercise prescription to promote cognitive health in mild cognitive impairment: understanding the what and the how



CFI INNOVATION FUND SMART LABS

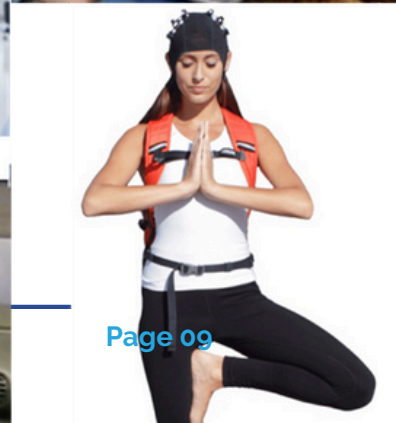
SMART Labs, led by Dr Janice Eng, receives \$5.3 million in funding, with \$2.1 million from the Canadian Foundation of Innovation (CFI)

Devastating injuries such as stroke, spinal cord injury, head injury, hip fracture and limb amputation require hospital rehabilitation that costs over \$1 billion per year in Canada. SMART Labs will develop innovative, evidence-based treatments that are guided by measurable biomarkers, and use activities simulating real-world function through advanced technologies. These lab facilities will be located at the Centre for Aging SMART GF Strong Rehab Centre site. This research will improve the recovery and quality of life of individuals needing rehabilitation, and will reduce the cost of health services.

The team will address three grand challenges to: 1) develop innovative treatments, such as brain and spinal cord stimulation treatments, to maximize recovery; 2) create simulated real-world activities using technology (e.g., virtual reality, driver simulation) that ensure treatment benefits are transferred to everyday life; and 3) transform the delivery of rehabilitation through innovative programs to increase access, especially in rural regions (e.g., e-health coupled with sensors to monitor health).

SMART Labs will have direct health, quality of life, and economic benefits for Canadians. Cutting-edge research will improve patient recovery, reduce hospital length of stay, and increase independence of those who have experienced life-altering injuries or diseases so they can return to all aspects of living, including work, education, parenting, leisure and volunteering, among others.

Aging SMART faculty that contributed to the success of this application include **Drs Courtney Pollock, Bill Miller, Teresa Liu-Ambrose, Julia Schmidt, Ben Mortenson, Noah Silverberg, Jennifer Yao, and Andrea Townson**



NSERC CREATE GRANT CARE ANYWHERE

Care Anywhere: Smart Biosensors to Promote Healthy Aging and Transform Healthcare

Launched in 2023, the Care Anywhere: training program will drive new biosensing technology designs, implementations, applications and collaborations in digital and wearable technologies to help treat the often complex health care needs of British Columbia's aging population.

Funded through an **NSERC Collaborative Research and Training Experience program CREATE)** grant of \$1.65 million, the program is lead by **Drs Tony Hodgson, Calvin Kuo, Lyndia Wu, and Janice Eng**. Care Anywhere's mission is to train the next generation of engineers, computer scientists and health researchers to design, implement and apply biosensing technologies to transform healthcare.

www.careanywhere.ubc.ca

AGING SMART EDITH WINIFRED HOPPER ENDOWMENT FUND

In 2023, Aging SMART held the first internal granting pool for the **Edith Winifred Hopper Endowment Fund**. These one time grants of \$15,000 support salary and research expenses. These generously donated funds were awarded to five grants, with three led by early career researchers.

Diagnostics Category

- Lead PI: **Dr Molly Cairncross**
Co-Applicants: **Drs Noah Silverberg, Julia Schmidt, Quynh Doan, Medha Nair**
- Lead PI: **Dr Ilker Hacihaliloglu**
Co-Applicants: **Drs David Wilson, David Liu, Maziar Badii**
- Lead PI: **Dr David Wilson**
Co-Applicants: **Drs Ilker Hacihaliloglu, Parth Lodhia**

Nutrition Category

- Lead PI: **Dr Brodie Sakakibara**
Co-Applicants: **Drs Maureen Ashe, Tricia Tang, Sarah Purcell, Michelle Yang**
- Lead PI: **Dr Alex Scott**
Co-Applicants: **Drs Linda Li, Anna Brisco, Tamara Cohen**



**WE THANK CENTRE FOR AGING
SMART FACULTY, STAFF, AND
TRAINEES, AND OUR MANY CLINICAL
AND COMMUNITY PARTNERS FOR
THEIR CONTRIBUTIONS TO RESEARCH
EXCELLENCE AT THE CENTRE**



**THE UNIVERSITY
OF BRITISH COLUMBIA**

**Vancouver
CoastalHealth**

Research Institute

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