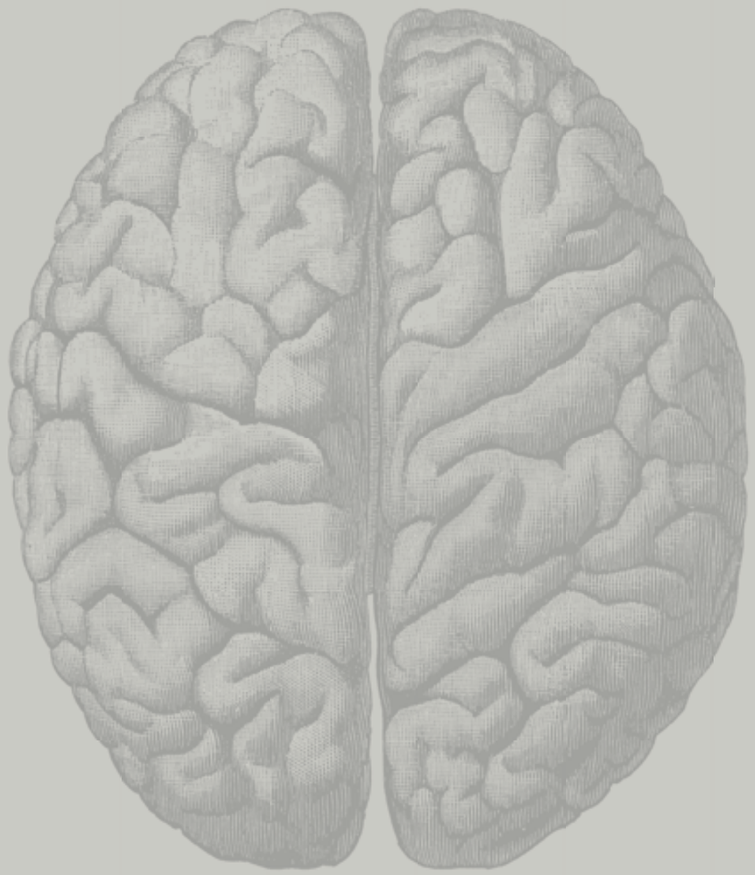
TOGETHER WE CAN ACCELERATE THE UNDERSTANDING, TREATMENT AND CARE OF BRAIN DISORDERS

HURVITZ BRAIN SCIENCES CENTRE

Sunnybrook

The Hurvitz Brain Sciences Program aims to confront one of the largest health threats of our time: disorders of the brain, including stroke, dementia, mood and anxiety disorders.



To address these devastating diseases we are building a state-of-the-art facility that will cause an acceleration of the understanding, treatment and care of brain disorders. Through unprecedented collaboration and cutting-edge treatment, the Hurvitz Brain Sciences Centre will be a global hub of discovery and innovation.

We are very ambitious.
We need to be.

"A disorder or an injury to the brain or nervous system will affect one in three Canadians at some point in their lives. By 2020, brain disorders will become the leading cause of death and disability in Canada. These complex medical conditions demand a focused, collaborative response and long-term action."

Dr. Anthony Levitt
Chief
Hurvitz Brain Sciences Program

That action is already underway at Sunnybrook. Our specialists are breaking new ground on the understanding of how the brain, our most complex and least understood organ, works – and stops working. We invite you to join us as we revolutionize treatment and change outcomes.

COLLABORATION

Dr. Sandra Black
Research Director
Hurvitz Brain Sciences
Research Program

An effort of this magnitude starts with a powerful vision. At Sunnybrook our vision is founded in the understanding that these highly complex disorders require a multi-disciplinary approach.

Brain disorders cross many medical disciplines, and will never be fully understood through the work of just one specialty. That's why collaboration resides at the very heart of the Hurvitz Brain Sciences Program. The talent we've assembled in the fields of psychiatry, neurology, imaging, pharmacology, ophthalmology, otolaryngology, neuropsychology, neurosurgery, and geriatric medicine are world-class. Bringing them together in this Centre will foster a culture of interaction. It will accelerate research, deepen our understanding and lead to improved treatments. What we harness here will have a profound effect on patients and their families.

“ How is mood affected by stroke? How is cognition affected by heart disease? How can dementia cause depression? Our whole team thinks along that line. You ask those questions because you are thinking of the brain.”

Dr. Sandra Black
Research Director
Hurvitz Brain Sciences
Research Program

Tiffany was just 31 years old, and 29 weeks pregnant, when she had a massive, life-threatening stroke. Teams from obstetrics and our stroke unit worked to save her and her baby. While her daughter Clementine did not survive, Tiffany fought to recover. After several days in a coma, she awoke but had lost her ability to comprehend, to remember and to speak. Her right arm and leg were incapacitated by paralysis. She later experienced post-stroke psychiatric issues. Thanks to Sunnybrook’s collaborative, cross-disciplinary approach and two months in rehabilitation re-learning to walk and talk, Tiffany would go home. Today, she’s active again and even participating in running and cycling fundraisers.

COLLABORATION

What does collaboration look like at Sunnybrook in the throes of a massive stroke?

AN INTEGRATED APPROACH

Dr. Isabelle Aubert
Senior Scientist
Hurvitz Brain Sciences
Research Program

Jessica Jordão
PhD student

Jessica Truong
Student

At the Hurvitz Brain Sciences Program we treat mental illness as we would any other critical medical condition. That may not sound significant but it is, absolutely. Historically, the field of psychiatry has been isolated from medicine.

Rather than differentiate between physical and mental health concerns, we take an integrated approach to better understand those irrefutable connections between the brain and body. The Hurvitz Brain Sciences Centre will not be the psychiatric hospital of yesterday but a world-class facility in the heart of a major academic health sciences centre. This will have a seismic impact on patient care.

"Psychiatry is embedded within Brain Sciences because of our recognition that major mental disorders are rooted in abnormalities of brain function. All brain disorders have significant psychological, behavioural and social consequences."

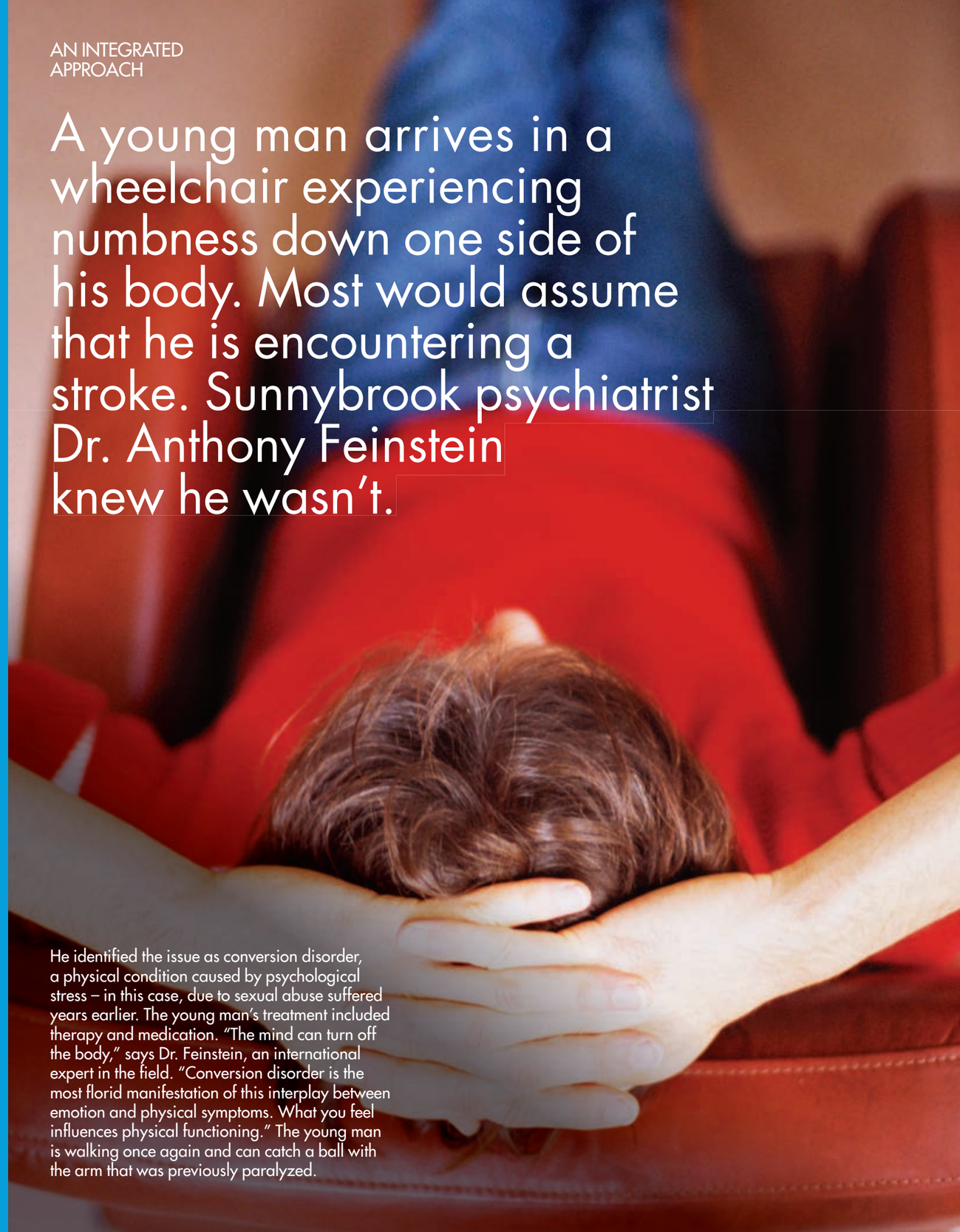
Dr. Ari Zaretsky
Psychiatrist-in-Chief and
Vice-President, Education

Research Breakthrough

Sunnybrook neuropsychopharmacologist **Dr. Krista Lanctôt** and psychiatrist **Dr. Nathan Herrmann** are seeking to understand why people with coronary artery disease (CAD) have a stronger risk of depression and cognitive decline. They believe one of the reasons is that certain byproducts of fat breakdown involved in the development of CAD, called ceramides, can harm brain cells. The results of their study may help develop new treatments to prevent memory decline in these patients.

AN INTEGRATED
APPROACH

A young man arrives in a wheelchair experiencing numbness down one side of his body. Most would assume that he is encountering a stroke. Sunnybrook psychiatrist Dr. Anthony Feinstein knew he wasn't.



He identified the issue as conversion disorder, a physical condition caused by psychological stress – in this case, due to sexual abuse suffered years earlier. The young man's treatment included therapy and medication. "The mind can turn off the body," says Dr. Feinstein, an international expert in the field. "Conversion disorder is the most florid manifestation of this interplay between emotion and physical symptoms. What you feel influences physical functioning." The young man is walking once again and can catch a ball with the arm that was previously paralyzed.

Cynthia Danells
Research Physiotherapist

CARE ACROSS THE LIFESPAN

While some brain disorders are more commonly associated with aging, all age groups are vulnerable to mental illness and brain injury. Our experts at the Hurvitz Brain Sciences Program care for people at all stages of life.

Through our youth psychiatry division we provide leading care for adolescents with mental illness. Our one-of-a-kind clinic for women who are faced with mood and anxiety disorders in their reproductive years is a life-changing resource. Elderly patients benefit from our expertise in dementia, depression or post-stroke disability.

In a field that presents countless challenges with little regard for the age of those affected, we're committed to improving lives through better diagnosis, treatment and enduring care.

EMBEDDING RESEARCH AND EDUCATION IN CARE

Dr. Gregory Hawryluk
Resident
Division of Neurosurgery

Dr. Mahmood Fazl
Neurosurgeon
Division of Neurosurgery

To take a leading role in this field is to give our patients all the benefits that new advances in treatment can provide. As part of our mandate we will shrink the gap between research and its conversion into practice.

As an academic health sciences centre, we successfully incorporate research and education into leading-edge care. This is the model for the Hurvitz Brain Sciences Program.

What arises from a cross-pollination of capabilities will contribute to training the next generation of clinicians, researchers and health-care professionals. As we grow and share that knowledge, we discover new treatments and ways to prevent disease. Ultimately, we improve brain health here and around the world.

“How do we discover new treatments? By constantly searching, observing and sharing. Patient needs propel research and research enhances care.”

Dr. James Perry
Head
Division of Neurology

Research Breakthrough

Researchers at the Frederick W. Thompson Anxiety Disorders Centre are collecting DNA of people with obsessive-compulsive disorder and measuring their drug responses. Working with a team of international collaborators, the study will reveal how the differences in genetic makeup can determine individual response to medication. The findings will help guide a new era of personalized medicine.

EMBEDDING RESEARCH
AND EDUCATION IN CARE

What does pairing research and patient care look like at Sunnybrook?

Diagnosed with early-onset Alzheimer’s disease at age 55, Carol does not carry the gene for familial Alzheimer’s. Her case was considered ‘sporadic.’ That alone offered Carol reassurance, given she has two grown daughters and three grandchildren, but it also encouraged her to let people know that despite perceptions, this disease can strike younger people, too. Carol now participates in clinical trials at Sunnybrook. While she realizes that her outcome may or may not be influenced, it is her hope that by participating she will impact the quality of life for future Alzheimer’s patients.

IMAGINE THE POSSIBILITIES

Dr. Kullervo Hynynen
Director
Physical Sciences Platform

Dr. Michael Schwartz
Neurosurgeon

Yuexi Huang
Senior Research
Physicist

The Hurvitz Brain Sciences Program at Sunnybrook is recognized internationally for its revolutionary research and treatment.

Among its achievements: scalpel-free brain surgery to treat essential tremor; breaking through the blood brain barrier to deliver therapies to parts of the brain previously considered unreachable; and, pioneering new methods of managing the progression of Alzheimer's disease.

We are home to centres of research and care that don't exist anywhere else in the country. These include the Slaight Centre for Image-Guided Brain Therapy and Repair, the Frederick W. Thompson Anxiety Disorders Centre, and the Centre for Youth Bipolar Disorder. We're also home to Canada's largest youth psychiatry division. Picture the possibilities once this collection of talent and resources is provided with a facility where this work can grow to its full potential.

Research Breakthrough

Patients at risk of dementia and stroke may soon benefit from a revolutionary procedure that is being pioneered at Sunnybrook. It's called MRI-guided, high-intensity focused ultrasound (HIFU). As neurosurgeon **Dr. Michael Schwartz** explains, "We essentially cut the brain without using a scalpel." To date, the procedure has been used successfully to treat essential tremor, a genetic condition that causes debilitating shaking in the arms and hands.

The Hurvitz Brain Sciences Centre will be a catalyst for accelerated discovery and innovation while providing a healing environment that will improve the health of our patients and speed their recovery.

Hurvitz Brain Sciences Centre lobby.

Patient classroom
A modern classroom for the Fresh Start Day Treatment Program will assist with transitioning high school students with a mood or anxiety disorder back to school.

Inpatient suite
Private inpatient rooms will provide a home-like setting during treatment and recovery. The youth, adult and geriatric patient programs provide assessment and treatment of mood disorders and other brain health issues.

Exercise facility
A fully-equipped facility will provide inpatients with a space to engage in exercise therapy. Within the facility, staff will conduct clinical research into the benefits of exercise for patients with a variety of brain disorders.

Rooftop garden
Designed with wellness in mind, the rooftop garden will provide an outdoor therapy space.

Rooftop garden

Brain disorders are among the greatest risks to the health of Canadians, posing a health-care challenge that will only grow in magnitude in the years ahead. While we have the expertise and determination to meet this challenge head on, we need your help to build the Hurvitz Brain Sciences Centre. With your help we will accelerate the understanding, treatment and care of brain disorders. With your help, we will change countless lives.

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