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A look at the Krembil Brain Institute and some of the research it's doing on implants, depression and neurosurgeon education.

**5 THE SEARCH FOR AN ALZHEIMER'S CURE**

Doctors have been trying to find a treatment for years, but nothing has worked so far. Krembil researchers, though, may be getting close.

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We've all experienced pain, but questions still remain around why we feel what we feel. Could new imaging tests hold the answer?

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While doctors are working hard to find a Parkinson's cure, a supercomputer is calculating millions of drug combinations to find life-saving treatments.

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Many people with epilepsy feel discriminated against, but new developments could help reduce the stigma that comes with the disorder.

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Research, education, policy change and brain donors are all needed to stop the prevalence of sports-related head injuries.

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Mark Krembil talks about why he donates to brain research and how AI could change the way doctors work.

**NO ONE IN CANADA IS DOING MORE FOR BRAIN HEALTH THAN US**

Of all the organs in the human body none are more vital to determining who we are than the one located inside your head.

The brain is more complex and sophisticated than the world's most powerful supercomputers. While it only weighs about three pounds, it contains billions of brain cells that generate more than 50,000 thoughts per day.

Our brains are wired, literally, by a complicated network of connections that – if stretched end-to-end – would measure thousands of kilometres.

This web of connectivity is as unique as a fingerprint.

But the brain is also fragile. And it's easy to find evidence of this all around us. Just ask any one of the thousands of Canadians who experience a malfunctioning of basic brain function and health each year.

From dementia and Parkinson's disease, to stroke and epilepsy, the number of diseases, disorders and injuries of the brain, spinal cord and nervous system now exceeds 1,000.

The price tag for neurodegenerative diseases alone is about \$60 billion, and as our population ages, these expenses are only expected to grow.

It's for this reason University Health Network (UHN) has established the Krembil Brain Institute at Toronto Western Hospital.

This new institute brings together the doctors, nurses and other clinical care leaders at the world-renowned Krembil Neuroscience Centre with UHN's researchers and neuroscientists at the Krembil Research Institute.

In the pages ahead, you will read about how our teams, working side-by-side, are accelerating research discoveries in areas that improve clinical outcomes and standards of care.

The Krembil Brain Institute is home to the largest and most specialized group of experts in Canada working together to tackle brain-based problems. These experts are pursuing better treatments and cures for diseases of the brain, spine and nerves and seeking to discover innovative tools for early detection and prevention.



Dr. Gelareh Zadeh  
*Neurosurgeon, Senior Scientist,  
Program Medical Director,  
Co-director at the Krembil Brain Institute*



Dr. Donald Weaver  
*Neurologist,  
Senior Scientist, Research Director,  
Co-director at the Krembil Brain Institute*

It is estimated that one in three Canadians will be affected by a brain disease, disorder or injury in their lifetime, and that 3.6 million Canadians are currently affected by a neurological condition.

Establishment of the Krembil Brain Institute allows us to position ourselves as the predominant leader in brain health and research today, tomorrow and for years to come – and to develop treatments that can more rapidly go from the bench to the bedside, and ultimately, to humankind.

Sincerely,

Dr. Gelareh Zadeh      Dr. Donald Weaver

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KREMBIL BRAIN  
INSTITUTE

EDITOR  
Bryan Borzykowski

ART DIRECTOR  
Kamille Chin

PHOTOGRAPHY  
Tim Fraser

COVER ART  
Tony Lei

CONTRIBUTORS  
Sarah Barmak  
Claire Gagne  
Wendy Glauser  
Mark Mann  
Diane Peters  
Anna Sharratt  
Renee Sylvestre-Williams

**GLOBE CONTENT STUDIO**

MANAGING  
DIRECTOR  
Tracy Day

MANAGING  
EDITOR  
Sean Stanleigh

PROGRAM  
MANAGER  
Christina Lippa

PRODUCTION  
CO-ORDINATOR,  
THE GLOBE AND MAIL  
Isabelle Cabral