



iDAPT
SOLUTIONS

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Challenging Environment Assessment Laboratory (CEAL)



People with disabilities and those affected by age often find their physical environment a major barrier to living a full, safe and independent life. Research using iDAPT's Challenging Environment Assessment Laboratory (CEAL) will find practical solutions to help people overcome these barriers.

Considered the centrepiece of iDAPT, CEAL will feature the world's first motion simulator that can mimic everyday environmental conditions that challenge older people and those with disabling injury or illness. CEAL will be able to recreate conditions such as ice and snow, different terrain and slopes, and vehicular motion to safely and accurately measure the difficulties encountered in the real world.

The multi-million dollar CEAL simulator will also be able to disturb a test subject's balance precisely and safely to provide researchers with valuable insight into the mechanics of falls and the necessary knowledge to develop practical preventative solutions. This functionality will enable researchers to evaluate improvements in peoples' lives resulting from new treatments, invented devices or technologies developed at iDAPT.

What makes CEAL unique is that different testing environments, or payloads, can be lifted by overhead crane onto the simulator platform with ease and precision. In fact, adjacent to the platform will be five payload bays where research environments can be constructed and calibrated. As a result, CEAL will be able to support many projects simultaneously.

CEAL will be used to create:

- a chamber where sub-zero temperatures can be maintained and snow and icy surfaces can be created;
- instrumented and adjustable stairways, steps and curbs;
- a platform to test the effects of hazardous driving conditions; and
- a visual surround and virtual reality system that allow research to be conducted safely in simulated environments that would otherwise be challenging and possibly hazardous.

Results from these simulation studies will help researchers create new products and interventions that will be developed and tested in iDAPT's prototyping workshops and research labs, and then shared worldwide so that age and disability will no longer represent so many barriers to living a fuller life.

For more information on CEAL and iDAPT at Toronto Rehab, please visit www.torontorehab.com.

iDAPT is Toronto Rehab's \$36 million initiative to develop one of the world's most advanced rehabilitation research facilities where new therapies and assistive technologies will be developed for older people and those living with disabling injury or illness.

