

## Finding ties between music, the brain and how we move

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A unique laboratory at [The University of Western Ontario](#) will help researchers study timing, rhythm and movement by understanding how the brain processes music. Researchers anticipate the facility will help them improve broad understandings of music and the human brain, while offering potential clinical treatments for movement and balance disorders like Parkinson's and Huntington's disease, stroke and traumatic brain injury.

Music and rhythm therapies have been shown to have a positive impact for some of these disorders, but benefits have been inconsistent between patients.

Led by psychology and music professor [Jessica Grahn](#) at Western's world-renowned [Brain and Mind Institute](#), this new facility will help researchers characterize how brain areas controlling movement play a deeper role in other fundamental processes, including timing and such uniquely human behaviours as musical rhythm perception.

"Despite the fact humans rapidly 'feel the beat' from a very young age in all known cultures, no non-human primate has ever demonstrated this capacity," Grahn says. "Thus, there is much we do not understand about how the brain processes rhythm."

Recruited from the University of Cambridge last year, Grahn hopes to answer fundamental questions about human rhythm abilities and behaviours, including how rhythm links to language and how musical training affects other nonmusical abilities.

She also hopes to fine-tune precise musical therapies for patients, which is particularly relevant for Canada's aging population as older people are disproportionately affected by gait disorders.

Grahn and her team received \$112,035 from the [Canada Foundation for Innovation's](#) (CFI) Leaders Opportunity Fund this morning to establish the lab. In addition to portable equipment that will allow for patient-centred research, the funding will also further enhance MRI facilities at the [Robarts Research Institute](#), which are among the best in the world.

Grahn's laboratory was one of six CFI-funded projects announced, totaling \$1,289,399 at Western and Lawson Health Research Institute this morning.

Other projects include:

- Xueliang Sun (Faculty of Engineering): \$335,606 – Facility for Applications of Advanced Nanomaterials in Energy Storage for Electric Vehicles;
- Wenxing Zhou (Faculty of Engineering): \$194,936 – High-capacity Dynamic Testing System for Energy Pipelines;
- Jeffrey Carson and Keith St. Lawrence (Lawson Health Research Institute and Schulich School of Medicine & Dentistry): \$265,241 – Hybrid biomedical Optical Platform for Improved Detection and Management of Brain Injury;

- ï¿½ Cheryl Forchuk (Lawson Health Research Institute and Faculty of Health Science): \$151,525 – Laboratory for Research to Study Community Integration of People with Mental Illness;
- ï¿½ Lakshman Gunaratnam and Alp Sener (Lawson Health Research Institute and Schulich School of Medicine & Dentistry): \$230,056 – Simulation and Imaging Laboratory for the Study of Ischemia Reperfusion Injury and Inflammation in Transplantation.