

Dr. Erin Mulvihill



COMPLICATIONS | BIOMEDICAL RESEARCH

Project: The Role of Sleep Disruption and Stress in Metabolic Dysfunction in Women

Thanks to our generous donors and together with our funding partner, the River Philip Foundation, we are supporting critical research that will end diabetes.

Through your support, Dr. Erin Mulvihill, Director of the Energy Substrate Metabolism Research Laboratory at the University of Ottawa Heart Institute, and Associate Professor, Department of Biochemistry, Microbiology and Immunology in the Faculty of Medicine at the University of Ottawa, is bringing us one step closer to improving heart health in women with diabetes.

Working with people living with diabetes, Dr. Mulvihill has identified a critically unaddressed area of health research: the impact of elevated stress levels and sleep issues on the heart health of women living with diabetes.

These women often face a higher risk of heart disease compared to men, but we are not sure why. Women also report having higher stress levels and sleep issues than men, and these problems also seem to cause more damage to women's heart health.

The human body naturally produce two hormones called GLP1 and GIP that help manage blood sugar levels. These hormones are also important in heart and blood vessel health. Research has shown that stress and poor sleep decrease these hormone levels.

Dr. Mulvihill's project will explore how stress and sleep disruption affect the severity of heart disease in female mice with diabetes. Dr. Mulvihill and her team will first see if stress and sleep problems change the levels of GLP1 and GIP in mice with diabetes, and how stress and sleep issues affect cardiovascular risk. The team will then study existing diabetes medications, Ozempic/Wegovy and Mounjaro, which mimic GLP1 and GIP in our bodies to determine if these medications may help prevent heart disease in these mice.

Dr. Mulvihill hopes this research will lead to better ways to manage diabetes and heart risk in women, so that fewer women with diabetes will eventually develop heart problems. Since the medications her team will study are already approved by Health Canada, they can work quickly to get treatment guidelines changed by generating evidence to support clinical trials.

These guidelines will improve the heart health of women living with diabetes.