University of Lethbridge

NEWS RELEASE

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Studying the effects of maternal social isolation on the health of offspring

Dr. Gerlinde Metz, a University of Lethbridge neuroscientist, Dr. Gerald Giesbrecht from the University of Calgary and Dr. David Olson from the University of Alberta have received a One Child Every Child Strategic Catalyst Award worth $50,000 to look at maternal social isolation as a risk factor for adverse pregnancy outcomes and developmental trajectories in their offspring.

“We are extremely pleased to have received this award,” says Metz. “The more we know about the negative effects of prenatal stress on mothers and their children the better we can develop targeted strategies to mitigate those effects.”

The COVID-19 pandemic highlighted an urgent need to improve mental health during an extremely stressful time. Recent studies have shown that pregnant mothers are at higher risk of experiencing social isolation as a stressor, with potential effects on their offspring.

“Our work in rat models has confirmed these findings,” says Metz. “Pregnant female rats are especially vulnerable to social isolation, with lasting impacts on their mental and physical health and that of their offspring.”

Metz and her collaborators will use a rat model to identify the physiological and behavioural consequences of social isolation in rat mothers and their male and female offspring. They plan to study the effects of oxytocin, the bonding hormone, in interaction with sex hormones and how it changes during pregnancy. They’ll also look at the development and behaviours of their offspring. A second goal of the study is to determine if social enrichment in offspring can help build resilience against prenatal stress.

Women in rural and remote areas may face more social isolation, especially in northern communities. If they have to travel long distances to access prenatal care and deliver their babies, they experience significant social distancing from their families and communities.

“While we are not working with human populations, our study can help identify new ways to build resilience to stress through social supports,” says Metz. “Like rats, humans are a social species and the biomarkers we find using a rat model can be translated to human populations at risk.”

In addition, the research will provide transdisciplinary training in the field of developmental origins of health and disease (DOHaD), including virtual-reality and online tools for community engagement and the design and implementation of social support programs.

This news release is available online at maternal social isolation.

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Our University’s Blackfoot name is Iniskim, meaning Sacred Buffalo Stone. The University is located in traditional Blackfoot Confederacy territory. We honour the Blackfoot people and their traditional ways of knowing in caring for this land, as well as all Indigenous Peoples who have helped shape and continue to strengthen our University community.