

Early development comes under the microscope

August 11 2014, by Anika Rodgers

Western Australian researchers have joined forces to understand how stress can impact the development of children from gestation onwards, in the Peel region.

Scientists from Murdoch University, Curtin University, Edith Cowan University and the University of Western Australia collaborated on one of the largest cohort studies on biological embedding in Australia.

They examined a range of environmental, emotional and physical stressors that expectant mothers and their babies are exposed to.

Murdoch University senior lecturer in Pathology Dr Phil Stumbles says so far the study results reveal that early exposure to stress and predominantly elevated [cortisol levels](#) might negatively impact children's development.

"Early life exposures, particularly prenatal exposures can have an influence on the development of the foetus and also the development of the child," he says.

"The main physiological factor we're interested in is cortisol, so stress.

"The idea is that sustained maternal stress impacts the developing foetus and the way it grows."

Nearly 500 expectant mothers from the Peel region are involved in the

study, which began in 2008.

The researchers monitored the mothers from 18 weeks gestation by taking blood, saliva samples and extra detailed ultra sounds, along with a series of in-depth questionnaires of mothers and fathers.

This was done to get an indication of how stress is experienced by [mothers](#) and families, and the baby in the womb.

Dr Stumbles says the samples gathered will help them to understand the physiology of the children and how stress impacts the development of the nervous, endocrine and immune systems.

"After birth, we want to know how that (stress) affects the well being and development of the child.

How it develops physically and how it develops emotionally," he says.

The researchers chose the Peel region because it is one of the fastest growing areas in Australia, with participants coming from different social and economic backgrounds.

"The important thing when looking at biological embedding is we needed to look at a range of exposures that these mums would be exposed to.

"We looked at physical and emotional exposures, and the environment that they're living in," Dr Stumbles says.

He says the preliminary results of the study will help to define how chronic maternal [stress](#) negatively affects the physiological foetal [development](#).

"Elevated cortisol levels may affect neural sculpting and the way the baby's brain develops," he says.

The study was funded by the Australian Research Council (ARC), and the results are in the process of being analysed.

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