

The Power of Poo

2000 pre-pregnant women donate poo samples to Study

EXCLUSIVE

Two thousand women will take part in a world first pregnancy study at UNSW Sydney. The MothersBabies Study, will determine the importance of gut health for pregnant women and its implications for their babies. It is set to launch with 2000 women from across NSW involved in the world-first trial.

The MothersBabies Study, which will involve women who are pregnant or planning to become pregnant, will be the definitive Australian study in its field, with the findings set to reveal how the maternal gut influences the health of the mother, the infant's microbiome and the long-term health of the child.

"The MothersBabies Study is harnessing the science of the microbes in our gut, the human microbiome, and its link to how our body and our immune system function to prevent and reduce complications and diseases for pregnant women and their babies," says lead researcher Professor Emad El-Omar, Professor of Medicine at UNSW Sydney and the Director of the Microbiome Research Centre.

"We now understand that the microbiome might be the link between genetic disposition and environmental factors in some illnesses. The results of the MothersBabies Study could reveal how we can prevent or control diseases that unborn babies could otherwise

experience throughout their lives," says Professor El-Omar.

Many common diseases and illnesses such as asthma, autism, diabetes, obesity, allergies, eczema, depression and autoimmune conditions are associated with the health of microbes in our gut, but much research is still needed to explain the mechanisms and offer a basis for clinical intervention.

The first stage of the MothersBabies Study, which will commence in mid-2019, will look to understand how microbial imbalance, known as dysbiosis, may lead to complications and diseases for women and their babies.

In 2018, Prime Minister Scott Morrison committed a further \$4 million to the Microbiome Research Centre (MRC) at UNSW Sydney's St George & Sutherland Clinical School, based at St George Hospital. \$1 million was dedicated to the MothersBabies Study.

"This research, once fully accomplished, will offer a real opportunity for women to alleviate or prevent adverse outcomes of pregnancy and some diseases in their children. It will give women the information they need to ensure that their babies are the healthiest they possibly can be," said Professor El-Omar.

"The importance of gut health and the function of the microbiome and its implications for pregnancy are being explored in studies all around the world. We have the opportunity in Australia to

conduct the definitive study that will provide the answers that will impact on the health of the next generation of mothers and babies in Australia and beyond," said Professor El-Omar.

A preliminary study conducted at the MRC, called the MUMS Study, has been conducted as a precursor to the MothersBabies Study.

The MUMS Study, led by Dr Amanda Henry, Senior Lecturer in Obstetrics and Gynaecology at UNSW and an obstetrician at St George Public Hospital and the Royal Hospital for Women, and conducted by Dr Daniella Susic, a PhD candidate at the MRC, is investigating the impact of gut health on the pregnancies and pregnancy complications of 100 women. Dr Susic is an obstetrician and attended the births of all 100 women.

"I hope that, in time, our findings will assist in the protection of mums from short and long-term risks associated with pregnancy like pre-eclampsia," said Dr Susic.

"While we are good at managing clinical situations and keeping women safe, we still lack understanding of certain elements that may contribute to the driving force behind why it happens in the first place. This preliminary study will inform the MothersBabies Study," she said.

"We believe the MothersBabies Study will be at the forefront of preventive medicine world-wide." Professor El-Omar said.



Dr Daniella Susic and her daughter Abi, 4, who has allergies, asthma and eczema.



Professor El-Omar, Professor of Medicine at UNSW Sydney and the Director of the Microbiome Research Centre.

How the MothersBabies Study works

Samples taken from 2000 volunteer participants across NSW and potentially across Australia.

Pre-pregnant woman who then proceeds to pregnancy - samples taken at 12 time points pre-pregnancy, pregnancy and postnatal - stool, oral, vaginal and skin.

Woman's partner in pregnancy - sample taken once - stool, oral and skin.

Woman's baby - samples taken at 5 time points in the first year of life - stool, oral, skin.

