

# The good gut

The key to being well may be in your microbiome . . . do you even know what it is? PETA RASDIEN reports.

**F**orgot a magic pill. It seems a good gut may hold the secret to our health and happiness.

An explosion in interest in the hot research area of the microbiome has begun to uncover some startling relationships between the trillions of microbes we all carry around with us and an ever-growing list of conditions.

The balance and composition of the bugs that make up our microbiome, found in our guts and elsewhere in our bodies, can influence every aspect of our physical and mental health, according to Susan Prescott, a research leader.

**The health of your gut microbiome can play a big role in your mental health and is probably implicated in at least risk for significant mental health diseases like Alzheimer's, Parkinson's and memory.**

Jeffrey Keelan

Disturbances to the microbiome, or dysbiosis, have been linked to nearly every chronic non-communicable disease: allergy, obesity, diabetes, heart disease and even mental health problems.

Professor Prescott is a co-director of the Origins Project, a collaboration with Jondabup Health Campus researching how our early life environment influences the risk of a range of diseases.

A branch of this research, known as the Synba project, is looking specifically at improving our relationship with bacteria from the first moments of life.

"They play an integral role in our development and our functions throughout life including our metabolism, immunity and even our mood, appetite and behaviour," Professor Prescott said.

"We now know that a healthy

and diverse community of bacteria is particularly important in early life, and the mother's microbiome can influence her baby even before birth."

Diets rich in dietary fibre promote a healthy microbial ecosystem in our intestines and the Synba study is investigating whether feeding mothers a high-fibre diet can prevent allergic disease in her children.

It is thought that the anti-inflammatory microbial products produced during the digestion of dietary fibre will prove beneficial.

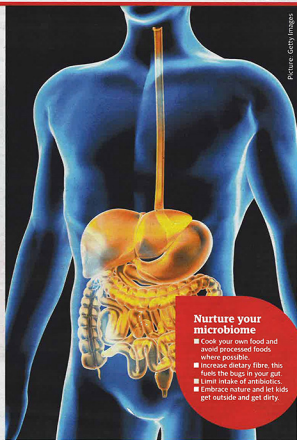
Jeffrey Keelan, co-director of the Microbiome Consortium of Western Australia, said, for him, one of the more surprising findings to come out of microbiome research was its relationship with mental health. "The health of your gut microbiome can play a big role in your mental health and is probably implicated in at least risk for significant mental health diseases like Alzheimer's, Parkinson's and memory.

"There are animal studies and developmental studies showing that our early microbiome programs the way that your mental health and cognitive function develop as you grow."

Professor Keelan, also a professor of obstetrics at the University of WA and deputy director of the Women and Infants Research Foundation, said our microbiome was a pretty much set from the time you were about one-year-old and would remain fairly similar throughout your life.

However, it could be influenced, negatively and positively, by the food you eat and also the use of antibiotics, which can have a devastating effect.

He said the obvious thing you could do to nurture your



## Nurture your microbiome

- Cook your own food and avoid processed foods where possible.
- Increase dietary fibre, this feeds the bugs in your gut.
- Limit intake of antibiotics.
- Embrace nature and let kids get outside and get dirty.

microbiome was to have a healthy, fibre and nutrient-rich diet.

"If you modify your diet to promote a good healthy microbiome, that's going to have a lot of positive effects through reducing inflammation and producing the beneficial metabolites that these bugs produce in your gut that interact with our immune system and other systems throughout our body to promote lifelong health," he said.

"You can either take pre-biotics which is like food for bugs, or you can do it more naturally by increasing the amount of fibre and pre-biotic containing foods and reducing synthetic or highly processed sugar-rich foods that don't have

a lot of value." Lifestyle changes would also have an effect.

He said for conditions such as obesity it was a two-way street: your microbiome could influence your weight and your weight could influence your microbiome.

There was also a connection between the body's stress response and the microbiome.

"There is a very strong connection between the brain and the gut in terms of nerves and signalling molecules," Professor Keelan said.

"When we are stressed, that affects our gut and that affects our microbiome and . . . vice versa: if you have an unhappy

# Important beginnings

New research questions beliefs about vaginal and caesarean births, writes PETA RASDIEN

**H**ow you come into the world can have an effect on your microbiome and your health.

Numerous studies have shown babies born via caesarean section are at greater risk of disease, including asthma, allergy, autoimmune disorders and obesity, than those born vaginally.

In a scientific review published last week, Jeffrey Keelan, deputy director of the Women and Infants Research Foundation, discounts a popular hypothesis that C-section babies miss out on the "bacterial baptism" of vaginal birth and that's why they have an "abnormal establishment" of the early life microbiome.

Instead, he and his colleagues

**C-section vulnerabilities**

Numerous studies have shown babies born via caesarean section are at greater risk of disease than those born vaginally. Those ailments include:

- Asthma
- Allergy
- Auto-immune disorders
- Obesity

suggest the real reason for the difference could be to do with why a woman has a caesarean delivery, use of antibiotics, absence of labour and differences in breastfeeding

behaviour, maternal obesity and age.

Professor Keelan said the findings called into question an increasingly popular practice of "vaginal seeding", asked for by some mothers who have caesarean deliveries.

This is where swabs of vaginal fluid are transferred to a newborn's mouth, eyes and skin to promote development of the microbiome.

"There's no evidence at all that the seeding process even works in terms of delivering vaginal microbes to the baby," Professor Keelan said.

"It probably doesn't work and even if it did work there is no evidence you need that and that it is helpful.

"In fact there is some risk so you could be transmitting some viruses and unknown bacteria pathogens to the baby deliberately rather than as a by-product of birth."

## Seeding for baby's good bugs

Many women who are preparing to give birth via caesarean section request vaginal seeding.

According to the Royal Australian and New Zealand College of Obstetricians and Gynaecologists the intention behind seeding is to expose the baby delivered by caesarean section to bacteria similar to that of babies born vaginally.

"Seeding is undertaken in women whose baby has been born by caesarean section. The mother's vaginal fluids are applied to the baby's mouth, face and body shortly after birth," the RANZOG explains on its website.

However, it notes that while the transfer of bacteria at the time of birth can alter developing microbiota, and babies will have a different exposure and balance of bacteria depending on their mode of birth, the health implications for babies requires further research.

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microbiome. It increases the levels of chemical stress in the body and that has a stress effect in our brains."

More research was needed on the effect of exercise. Although one study had noted that exercise changed the microbiome of athletes, other studies in non-athletes had shown little effect.

Professor Keelan said there was more to

learn about how the microbiome affected our wellbeing. One area of great interest was into how it influenced a person's response to medication.

"There are some new studies showing that the microbiome can dramatically affect whether you respond to a drug, and how effective it is. 25-30 per cent of drugs administered are in some way modulated by the microbiome, so that is pretty surprising and pretty interesting."

**'A healthy and diverse community of bacteria is particularly important in early life, and the mother's microbiome can influence her baby even before birth.'**

Susan Prescott



Picture: Getty Images