

Maternal stress at conception linked to children's stress response at age 11

A new study published in the Journal of Developmental Origins of Health and Disease finds that mothers' stress levels at the moment they conceive their children are linked to the way children respond to life challenges at age 11. SFU health sciences professor Pablo Nopomnaschy led an interdisciplinary research team on this first cohort study.

Researchers measured cortisol levels from mothers-to-be starting before pregnancy and continuing through the first eight weeks of gestation, and then years later from their children. Their goal is to understand the associations between maternal biological stress around the time of conception and the development of their children's stress physiology, according to medicalpress.com.

Using urine samples to measure reproductive hormones, the researchers identified the day children were conceived, as well as the moms' cortisol levels, a biomarker of physiological stress, during the first eight weeks after conception.

Twelve years later, they studied how these children reacted to the start of a new school year (a well known 'natural' stressor) and to a public-speaking challenge (a frequently used 'experimental' stressor).

Maternal cortisol following conception was associated with different facets of the children's cortisol responses to those challenges, and many of these associations differed between boys and girls.

Study lead author Cindy Barha, who worked under Nopomnaschy as a doctoral student, reported that sons of mothers who had higher cortisol in gestational week two had higher cortisol reactions to the experimental public-speaking challenge, but this association was not observed in daughters. In contrast, mothers with higher



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cortisol in gestational week five had daughters with higher 'basal' cortisol before the start of a new school term, but not sons.

However, both sons and daughters had higher cortisol responses to the start of a new school term, and in response to the experimental public speaking challenge, if their mothers had higher cortisol during gestational week five. The biological mechanisms mediating these associations are not yet known, but are likely to involve genetics and epigenetics as well as environmental and cultural factors shared by moms and their

children. "Stress plays a critical role not only in children's ability to respond to social and academic challenges, but also in their development and health as adults," said Nopomnaschy. The researchers will continue their investigations into the connection between maternal and child stress from the moment of conception onwards. The findings will help to develop successful programs and interventions that prepare children to live healthy and fulfilling lives and realize their full potential.

First baby born after deceased womb transplant

A healthy baby girl has been born using a womb transplanted from a dead body.

The 10-hour transplant operation – and later fertility treatment – took place in São Paulo, Brazil, in 2016. The mother, 32, was born without a womb, BBC reported.

There have been 39 womb transplants using a live donor, including mothers donating their womb to their daughter, resulting in 11 babies.

But the 10 previous transplants from a dead donor have failed or resulted in miscarriage.



REUTERS

Given drugs

In this case, the womb donor was a mother of three in her mid-40s who died from bleeding on the brain.

The recipient had Mayer-Rokitansky-Küster-Hauser syndrome, which affects about one in every 4,500 women and results in the vagina and uterus (womb) failing to form properly.

However, her ovaries were fine. And doctors were able to remove eggs, fertilize them with the father-to-be's sperm and freeze them.

The woman was given drugs that weakened her immune system to prevent her body attacking and rejecting the transplant.

Medical milestone

And about six weeks later, she started having periods.

After seven months, the fertilized eggs were implanted.

And, after a normal pregnancy, a 6lb (2.5kg) baby was delivered by Caesarean section on 15 December 2017.

Dr. Dani Ejzenberg, from Hospital das Clinicas in São Paulo, said: "The first uterus transplants from live donors were a medical milestone, creating the possibility of childbirth for many infertile women with access to suitable donors and the needed medical facilities."

Extremely exciting

"However, the need for a live donor is a major limitation as donors are rare, typically being willing and eligible family members or close friends."

Dr. Srdjan Saso, from Imperial College London, said the results were 'extremely exciting'.

"It enables use of a much wider potential donor population, applies lower costs and avoids live donors' surgical risks."

Five million healthy Britons will be tracked to detect disease sooner

Five million healthy Britons will be tracked for years in attempt to develop artificial intelligence which spots signs of cancer and dementia far earlier.

Ministers said the measures – part of Britain's industrial strategy – will form the largest ever study of its kind, according to The Telegraph.

The program to accelerate detection of disease will track detailed clinical information – such as genetic records, scans and samples – from one million volunteers, while regularly questioning a further four million patients in order to build a detailed picture.

The plans aim to speed up cancer diagnosis, potentially resulting in 22,000 fewer deaths a year within five years, as well as making breakthroughs detecting other major diseases far sooner.

Officials said the changes could save tens of thousands of lives by spotting deadly diseases long



PA

before symptoms even appear. The technology will be developed by a new partnership between government and industry using artificial intelligence (AI) to develop the next generation of treatments.

The plans – the second part of the Government's Life Science's Sector Deal – will see more than £1.3b investment between the public and private sectors.

Business Secretary Greg Clark said: "From the first vaccine to the discovery of DNA, the UK has always been at the forefront of medical endeavor and healthcare innovations. That is why we are building on our unique strengths by placing life sciences at the center of our modern Industrial Strategy, backed by the biggest increase in public research and development investment in UK history."

In a meeting with industry leaders at No10, the Business Secretary announced that as part of the deal, a new £150 to 200 million research and development facility of global biopharmaceutical company UCB will be built in the UK as part of a total investment of around £1 billion over the next 5 years.

Neighborhoods with more green space may mean less heart disease

People who live in leafy, green neighborhoods may have a lower risk of developing heart disease and strokes, according to new research published in the Journal of the American Heart Association.

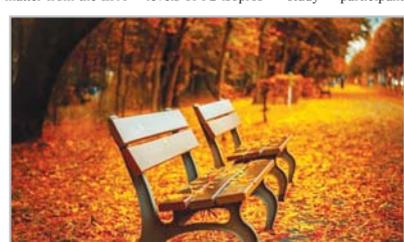
In this study, the first of its kind, researchers from the University of Louisville investigated the impact of neighborhood greenspaces on individual-level markers of stress and cardiovascular disease risk, medicalpress.com wrote.

Over five-years, blood and urine samples were collected from 408 people of varying ages, ethnicities and

socioeconomic levels, then assessed for biomarkers of blood vessel injury and the risk of having cardiovascular disease. Risk was calculated using biomarkers measured from blood and urine samples. The participants were recruited from the University of Louisville's outpatient cardiology clinic and were largely at elevated risk for developing cardiovascular diseases.

The density of the greenspaces near the participants' residences were measured using the Normalized Difference Vegetation Index (NDVI), a tool that indicates levels of vegetation density created from satellite

imagery collected by NASA and USGS. Air pollution levels were also assessed using particulate matter from the EPA



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and roadway exposure measurements. Researchers found living in areas with more green vegetation was associated with:

- lower urinary levels of epinephrine, indicating lower levels of stress;
- lower urinary levels of F2-isopros-

They also found that associations with epinephrine were stronger among women, study participants

not taking beta-blockers – which reduce the heart's workload and lower blood pressure – and people who had not previously had a

heart attack. "Our study showed that living in a neighborhood dense with trees, bushes and other green vegetation may be good for the health of your heart and blood vessels," said Aruni Bhatnagar, Ph.D., lead study author and professor of medicine and director of the University of Louisville Diabetes and Obesity Center. "Indeed, increasing the amount of vegetation in a neighborhood may be an unrecognized environmental influence on cardiovascular health and a potentially significant public health intervention."

The findings were independent of age, sex, ethnicity, smoking status, neighborhood deprivation, use of statin medications and roadway exposure. Previous studies have also suggested that neighborhood greenspaces are associated with positive effects on overall physical and psychosocial health and well-being, as well as reduced rates of death from cardiovascular and respiratory diseases, and improved rates of stroke survival, according to Bhatnagar. However, these reports are largely limited by their reliance on self-reported questionnaires and area-level records and evaluations, said Bhatnagar.

When your collar size reveals hypertension risk

High blood pressure affects more than 25 percent of all adults in the UK.

It's caused by following an unhealthy diet, not doing enough exercise, or by having a family history of the condition, express.co.uk wrote. You could also be at risk of the condition, which is also known as hypertension, if you don't get enough sleep.

A large neck size could be an early warning sign of high blood pressure. Anything larger than 17 inches could indicate hypertension.

Having a large neck size, with a collar size of greater than 43cm (17"), could lead to sleep apnoea, warned the NHS.

Obstructive sleep apnoea is caused by the throat relaxing and narrowing during sleep, which interrupts normal breathing.

The body therefore struggles to get enough oxygen, which damages blood vessels and raises the risk of high blood pressure.



GETTY IMAGES

"[Sleep apnoea] may lead to regularly interrupted sleep, which can have a big impact on quality of life and increases the risk of developing certain conditions," said the NHS.

"People with obstructive sleep apnoea may experience repeated episodes of apnoea and hypopnoea throughout the night.

"These events may occur around once every one or two minutes in severe cases."

The Mayo Clinic added: "Not getting enough oxygen may damage the lining of the blood vessel walls, which may make your blood vessels less effective in regulating your blood pressure."

"In addition, sleep apnea causes part of the nervous system to be overactive and release certain chemicals that increase blood pressure."

You should speak to your doctor if you think you may have sleep apnoea. Your GP can arrange for you to have a sleep assessment in a local sleep center.

The condition often goes undiagnosed, as it's not always possible to notice if you have sleep apnoea.

Controlling your blood pressure is very important, as it increases the risk of some deadly complications, including heart attacks and strokes.

Many people have hypertension without even knowing it, because it rarely has any noticeable symptoms. But those with extremely high blood pressure may have some tell-tale signs. Common high blood pressure symptoms include chest pain, headaches and nosebleeds.

Speak to a GP or pharmacist to have your blood pressure checked. All adults over 40 years old should check their blood pressure at least every five years.