

## **PRESS RELEASE**

**27 NOVEMBER 2023 | FOR IMMEDIATE RELEASE**

### **Building a global, multi-disciplinary platform to promote women's health: Global Centre for Asian Women's Health**

***The Global Centre for Asian Women's Health at the Yong Loo Lin School of Medicine, National University of Singapore, has multiple research initiatives over women's lifespan and across generations under its belt***

*Singapore, 27 November 2023*—What do retinal scans and eating meals rich in greens, whole grains, legumes, and nuts, and moderate amount of fish, have to do with health of women and children?

They are highly correlated, according to recent academic research conducted at the Global Centre for Asian Women's Health (GloW) at the Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine). A major multi-disciplinary research centre based in Asia, running a population health programme, GloW focuses specifically on the health and well-being of Asian women worldwide, through a holistic and systematic approach to health, in relation to emerging public and family concerns.

In the first study, by systematically reviewing findings involving more than 100,000 female study subjects, the investigators from GloW found that women whose diets consisted largely of fruits, nuts, whole grains, vegetables, legumes, healthy fats such as those present in fish, while eating limited amounts of red meat had markedly lower rates of gestational hypertension and diabetes, preeclampsia and preterm birth. Existing research has shown this dietary pattern to be effective in reducing the risk of cardiovascular diseases and encouraging healthy ageing.

In the second study, the narrowing of the tiny blood vessels in a woman's retina before pregnancy was found to be intricately linked to suboptimal fetal growth during gestation. Specifically, this was seen as reduced growth in fetal abdominal circumference and thigh bone length from mid- to late-pregnancy.

#### **Mediterranean diet, promising for improving female reproductive and maternal health**

Nutrition and diet are priorities to good health, and this study demonstrates that consuming a diet with Mediterranean elements has benefits on female reproductive health.

Originating in Mediterranean regions, the diet is characterised by an elevated consumption of fruits, vegetables, nuts, legumes, whole grains, and healthy fats, olive oil, with an emphasis

on extra virgin olive oil. It also involves the moderate intake of dairy products, fish, and poultry, while limiting red and processed meat consumption. Additionally, it encourages moderate wine consumption. At the same time, the diet is low in saturated fats, rich in unsaturated fats, and high in complex carbohydrates and fibers, while providing key vitamins and minerals.

Several studies have been done to examine the impacts of the diet on female reproductive health, yielding positive results. Existing research has shown this dietary pattern to be effective in reducing the risk of cardiovascular diseases and encouraging healthy ageing.

Recognising the shared mechanisms between the occurrence of cardiovascular diseases, and female reproductive and maternal health conditions, the research team at GloW, led by Professor Cuilin Zhang embarked on a mission to review and summarise evidence-based data effects of the Mediterranean diet on common female reproductive health outcomes.

The review, published in the [American Journal of Obstetrics and Gynecology](#), included 32 studies involving more than 100,000 predominantly white women. The review concluded that in randomised controlled trials - studies that randomly assigned participants to the intervention and compared them to those who had not - women who adhered to the Mediterranean diet had a 26% lower risk of developing gestational diabetes, a 55% lower risk of preterm birth, a 29% lower risk of gestational hypertension, and an 18% lower risk of preeclampsia. There was also suggestive evidence of favorable associations between the adherence to a Mediterranean diet, fertility, and gestational weight management.

“In addition to its known health benefits in weight management, mental well-being, cardio-metabolic profile, some cancer diseases, and cognitive ageing, the Mediterranean diet may hold promising benefits for female reproductive health throughout the reproductive span. Given the high burdens of female reproductive health issues in Asia, further research and efforts to investigate and, if proven beneficial, to promote the roles of localised Mediterranean-like diets would hold significant public health importance in the local context,” said Dr Yang Jiayi, the lead author of this review, and the programme lead for nutrition and lifestyle studies at GloW at NUS Medicine.

### **Association of narrowing of retinal arterioles before conception with fetal growth during pregnancy**

This pioneering study, led by Assistant Professor Li Ling-Jun from the Department of Obstetrics and Gynaecology at NUS Medicine and Assistant Director of GloW, turned its attention to retinal imaging as a means of gaining invaluable insights into maternal vascular health, which has a unique angle to indicate fetal development in the womb.

Retinal arterioles, which are the tiny arteries nestled within the intricate structure of the eye's retina, are an important marker of an individual's health. Anomalies in these blood vessels, such as the narrowing of retinal arterioles, have been associated with an increased risk of cardiometabolic risks and systemic diseases, such as high blood pressure and diabetes.

In the realm of maternal and fetal health, the journey of fetal development in the mother's womb serves as a critical indicator of the baby's well-being, with far-reaching implications for both the mother and child's health in the long run.

This significant process of fetal growth is profoundly influenced by the placenta's essential function, which is the vital task of supplying the foetus with oxygen and nutrients. The effectiveness of the placenta in carrying out this crucial function is intertwined with the mother's own vascular health, which refers to the vessels. However, despite its pivotal role,

reliable and consistent methods for evaluating blood flow within the maternal womb has remained elusive.

This non-invasive technique, which involves a retinal examination, has garnered acclaim for its ability to yield reproducible results when examining circulation within the body's smaller blood vessels. The examination is done in a dark room, where photos of the individual's eyes will be taken.

Published in the [British Journal of Obstetrics and Gynaecology](#), this study meticulously observed a cohort of 369 women in Singapore, drawn from the Singapore PRE-conception Study of Long-Term maternal and child Outcomes (SPRESTO) study cohort. This study has been investigating pre-pregnancy influences on maternal and child health since 2015.

Asst Prof Li and her team unearthed a significant correlation, that the narrowing of a mother's retinal arterioles before pregnancy was intricately linked to suboptimal fetal growth during gestation. Specifically, this manifested as reduced growth in fetal abdominal circumference and thigh bone length from mid- to late-pregnancy.

"Using preconception retinal arteriolar narrowing as an indicator, this novel finding indirectly suggests that a compromised blood circulation system of the mother before conception might indicate suboptimal fetal development in the subsequent pregnancy," said Asst Prof Li.

As suboptimal fetal growth could be predicted as early as before conception, the use of retinal imaging holds potential as an early screening tool.

### **One of the major centres focusing on Asian women's health issues in the world**

Both studies hark back to the aim of GloW, dedicated to the advancement of women's health and longevity. Established under the auspices of NUS Medicine, GloW conducts cutting-edge research on the health and well-being of women and their families and aims to narrow the gaps between research, policy and practice.

The centre was officially launched by Ms Indranee Rajah, Minister in the Prime Minister's Office and Second Minister for Finance and National Development at its inaugural three-day Women's Health Conference from 9-11 November 2023, which spanned heft discussions on maternal and child health, healthy longevity, public health, omics technology, and nutrition.

"At GloW, we strive to build a multi-disciplinary population health platform to explore cutting-edge research, engage in thought-provoking discussions, and form global collaborations that address major health problems that concern women. Our ultimate mission is to improve the health and wellbeing of women in this and future generations in Asia and beyond," said Prof Zhang Cuilin, Founding Director of GloW.

---

For media enquiries, please contact:

Natalie TAN  
Senior Executive, Communications  
Yong Loo Lin School of Medicine  
National University of Singapore  
DID: +65 9011 1459  
Email: [nat\\_tan1@nus.edu.sg](mailto:nat_tan1@nus.edu.sg)

## **About National University of Singapore (NUS)**

The National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education, research and entrepreneurship, with a focus on Asian perspectives and expertise. We have 16 colleges, faculties and schools across three campuses in Singapore, with more than 40,000 students from 100 countries enriching our vibrant and diverse campus community. We have also established more than 20 NUS Overseas Colleges entrepreneurial hubs around the world.

Our multidisciplinary and real-world approach to education, research and entrepreneurship enables us to work closely with industry, governments and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, research centres of excellence, corporate labs and more than 30 university-level research institutes focus on themes that include energy; environmental and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research and cybersecurity.

For more information on NUS, please visit [nus.edu.sg](https://nus.edu.sg).

## **About the NUS Yong Loo Lin School of Medicine (NUS Medicine)**

The NUS Yong Loo Lin School of Medicine is Singapore's first and largest medical school. Our enduring mission centres on nurturing highly competent, values-driven and inspired healthcare professionals to transform the practice of medicine and improve health around the world.

Through a dynamic and future-oriented five-year curriculum that is inter-disciplinary and inter-professional in nature, our students undergo a holistic learning experience that exposes them to multiple facets of healthcare and prepares them to become visionary leaders and compassionate doctors and nurses of tomorrow. Since the School's founding in 1905, more than 12,000 graduates have passed through our doors.

In our pursuit of health for all, our strategic research programmes focus on innovative, cutting-edge biomedical research with collaborators around the world to deliver high impact solutions to benefit human lives.

The School is the oldest institution of higher learning in the National University of Singapore and a founding institutional member of the National University Health System. It is one of the leading medical schools in Asia and ranks among the best in the world (Times Higher Education World University Rankings 2023 by subject and the Quacquarelli Symonds (QS) World University Rankings by subject 2023).

For more information about NUS Medicine, please visit <https://medicine.nus.edu.sg/>