

Middle-aged women with poor muscle strength face twice the risk of diabetes: Study

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A study of 1,170 women between the ages of 45 and 69 has found that those with poor muscle strength had more than two times the risk of developing diabetes, compared with those with normal muscle strength.

Conducted by researchers from the National University Hospital (NUH) and the National University of Singapore's Yong Loo Lin School of Medicine, the study found that this link was independent of other diabetes risk factors such as race, smoking and obesity.

Participants in the study were assessed on their upper body muscle strength by having their handgrip strength measured using a handheld hydraulic dynamometer, a device that measures force.

The participants – who were of Chinese, Malay and Indian ethnicities – also had their lower limb strength tested by making them sit and stand five times in a row with their arms folded across their chest.

Of the 1,170 participants, 12 per cent had diabetes, which was confirmed through a fasting blood glucose test.

The study – which was published in October 2022 in the *International Journal of Environmental Research*

and Public Health – falls under the National University Health System's Integrated Women's Health Programme, which studies the links between menopause and age-related health issues in midlife women in Singapore.

It found that low hand grip strength of less than 18kg was more common in women with diabetes.

Those who took more than 12 seconds to stand during the lower limb strength test were also more likely to have diabetes.

The study supports the growing recognition of the important role of muscle strength in preventing diabetes, said Professor Yong Eu Leong, emeritus consultant at the NUH Department of Obstetrics and Gynaecology.

A composite muscle strength index – which combines both upper and lower body muscle strength – could help assess the risk of diabetes, he said.

“As a public health measure, women in Singapore should be encouraged to include resistance exercises in their daily regime to increase muscle strength,” added Prof Yong.

A simple way of doing this would be to use filled water bottles to act as weights, he suggested.

Study participant Allimah Beevi, a 57-year-old part-time school bus attendant, noted her blood sugar levels went down after she started exercising more regularly.

Dr Susan Logan, a senior consultant with the NUH Department of Obstetrics and Gynaecology, noted that menopause causes a fall in levels of oestrogen – the hormone which plays a key role in female reproductive health – which in turn results in a decrease in muscle mass.

Middle-aged women may also be less inclined to build muscle, she added.

Further longitudinal studies – which look at the same variables over a longer period of time – are required to better understand the relationship between muscle strength and diabetes, the researchers said.

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From far left: NUH Department of Obstetrics and Gynaecology research assistant Beverly Wong; Professor Yong Eu Leong; study participants Allimah Beevi and Serena Ang; and Dr Susan Logan. PHOTO: NATIONAL UNIVERSITY HEALTH SYSTEM

PREVENTING DIABETES

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