

# life



Mr Adrian Teo did not go for medical check-ups until he felt unwell after running. Blood tests revealed that he had high levels of Lipoprotein (a), which is a risk factor for cardiac disease.  
ST PHOTO: LIM YAOHUI

## BEYOND BASIC BLOOD TESTS

New, precise tests can identify health risks early, but consult doctors first to avoid overtesting



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Mr Adrian Teo did not go for regular health screenings until his late 30s, when he experienced breathlessness and an unusually fast heartbeat after a run.

“I thought it might be heart-stroke,” recalls the 43-year-old, who works in administration. “But I was running at night and this was during the cool-down.”

At the time, he was a regular runner and had completed a familiar 4km route around Bedok Reservoir.

Soon after this episode, he went for a full-body check-up. A blood test revealed that his cholesterol levels were unusually high.

“The doctor called me and said I had to take medicine,” Mr Teo says. “I didn’t even know what LDL or cholesterol build-up meant.”

LDL or low-density lipoprotein is often referred to as “bad” cholesterol. It can lead to plaque build-up in the arteries and increase the risk of cardiac disease and stroke.

Mr Teo was started on a high dose of statins to manage his cholesterol. He began experiencing side effects such as muscle aches, low energy and fatigue.

Seeking a second opinion, he visited a polyclinic and was referred to Changi General Hospital (CGH).

A specialist recommended a second blood test, which revealed

that, apart from high LDL, Mr Teo also had elevated levels of another molecule, Lipoprotein (a), or Lp(a).

Lp(a) differs from LDL and can also increase the risk of cardiac disease and stroke. It is managed differently.

Mr Teo is now seeing a specialist at CGH, and taking a lower dose of statins plus other medicines to lower his LDL and Lp(a). He no longer experiences side effects.

He advises people to take their health seriously.

“Before that episode of breathlessness, I didn’t have any medical check-ups. I hope other people can go for blood tests earlier. If I had known about my condition earlier, I might have been able to take preventive action.”

A health screening, including blood tests, revealed that Mr Teo had high cholesterol, while a more specialised blood test has helped him manage it without side effects.

What can blood tests in health screenings reveal about you and which additional tests you should get?

Here is what doctors say.

### BLOOD TESTS DEPEND ON THE INDIVIDUAL

Doctors explain that blood tests are ordered to get an idea of a patient’s current state of health

and to identify risks of future health problems.

Dr Rachel Chin, in-house doctor at DA MedSuites, says most basic health screening packages will include tests for a full blood count, blood glucose, cholesterol levels and kidney and liver function.

All these tests are done to identify abnormalities. For example, the full blood count analyses the white blood cells to identify any recent or ongoing inflammation, and the red blood cells to identify iron deficiency or other conditions. Blood glucose tests look for symptoms of diabetes or pre-diabetes.

Patients may require other blood tests, depending on their age, gender, current symptoms and medical history.

A family history of cardiac disease, for example, might prompt a doctor to recommend blood cholesterol tests in younger people.

Mr Teo’s father and paternal grandfather both died of heart attacks and he was told during his national service medical check-up that his cholesterol was a bit high.

“I didn’t take note of it then,” he says.

Dr Patricia Chia, associate consultant at SingHealth Polyclinics, says patients should speak to their family physician to determine the type of tests they require.

She recommends that Singapo-

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DR TAN WEI JIE, general practitioner at private practice DTAP Clinic@Orchard

reans enrol in Healthier SG so that their doctor can assess them and devise a health plan suited to their needs.

This is a national initiative by the Ministry of Health to help Singaporeans prevent the onset of chronic diseases.

The type of tests recommended, and one’s eligibility for subsidised screening under Healthier SG, depends on factors such as age, gender and pre-existing conditions. For example, people aged 40 and older are encouraged to go for clinical screening for diabetes, but people aged 18 to 39 can complete a self-administered diabetes risk assessment first.

Dr Tan Wei Jie, general practitioner at private practice DTAP Clinic@Orchard, says: “There is no one-size-fits-all health screening package.”

Occupational and environmental factors can increase your risk of certain health problems, as can lifestyle and behavioural factors, he says.

He gives the example of a vege-

tarian or vegan with symptoms of chronic fatigue, weakness, numbness or tingling. He might order a vitamin level check for such a patient, to look for potential vitamin B12 deficiency. Plant foods do not contain this vitamin, unless fortified. “Every individual’s health screening plan should be tailored to the person’s unique risks,” he adds. “It’s important to know your risk profile. It’s also important to engage with your family physician, who knows your family history well.”

### SHOULD YOU TEST FOR LP(A)?

Dr Loh Wann Jia, senior consultant at CGH’s department of endocrinology, treats Mr Teo and led a study into Lp(a) published in 2022 in the journal *Atherosclerosis*.

Her research – which studied a predominantly male cohort – found that elevated levels of Lp(a) could predict coronary artery disease and myocardial infarction.

She says one in five people worldwide have elevated levels of Lp(a).

Lp(a) levels are primarily determined by genetics and tend to stay stable over time. This means someone who is found to have low or normal levels of Lp(a) need not repeat the test as the levels are unlikely to change significantly.

CONTINUED on C2



# Early tests may reduce risk of adverse outcomes

FROM C1

“It is possible for individuals with healthy lifestyles to have high Lp(a) levels,” Dr Loh says. “They may not present with symptoms until they have a serious event such as a heart attack or stroke.”

Early detection through testing can lead to intervention to reduce the risk of adverse outcomes.

She considers Lp(a) testing a priority for people with a history of heart attack, coronary artery disease or stroke; or those with a family history of premature onset of heart disease.

Lp(a) testing should also be a priority for people with a known family history of high Lp(a), or those with the inherited condition familial hypercholesterolemia.

CGH has been testing Lp(a) levels in patients with high cardiovascular risk since 2021, and since 2023 has tested Lp(a) in all patients admitted due to a heart attack.

## WHEN DOCTORS INTRODUCE NEW TESTS

In June, researchers from the National University Hospital (NUH) and National University of Singapore (NUS) announced that a relatively inexpensive blood test – about \$100 – could indicate a woman’s muscle mass and also predict it.

This would be useful for menopausal and post-menopausal women, who tend to experience loss of muscle.

The new test measures the ratio of creatinine to cystatin C in the blood, both compounds that are routinely tested to analyse kidney function.

Professor Yong Eu Leong, who leads the Integrated Women’s Health Programme at NUH and the NUS Yong Loo Lin School of Medicine, says: “The test helps the clinician screen for suspicion of weak muscles before using more expensive tests.”

Other tests of muscle mass include magnetic resonance

imaging, which is expensive, or objective measurements of muscle strength and physical performance, which can be time-consuming.

“This test can give an indication of the muscle mass and physical performance of a woman now and even six years later,” adds Prof Yong, who is also head and emeritus consultant at NUH’s division of benign gynaecology at the department of obstetrics and gynaecology.

Should all women opt for this test? Prof Yong says it is being introduced for suitable patients.

Doctors look at various factors before introducing new diagnostic or screening tests into clinical care. They consider validation across diverse patient groups, cost-effec-

tiveness and how the test adds value alongside existing tools.

“At least one patient has specifically asked for this test and her clinician has found the results to be useful and reassuring of the patient’s health,” adds Prof Yong.

## SHOULD YOU TEST FOR TUMOUR MARKERS?

Doctors say more comprehensive health screening packages often offer tests for various tumour markers. These tests generally look for proteins or fragments of DNA that are produced by cancerous cells.

Detecting cancers early can lead to earlier treatment. That is why social service association 365

Cancer Prevention Society offered free multi-cancer screening in August to clients who were cancer-free for at least five years, as well as eligible first-degree relatives. The risk of developing cancer is higher if you have a parent, sibling or child with cancer.

However, doctors say that before opting for such tests, patients should discuss it with their primary healthcare providers.

Dr Chin says elevated tumour markers can also be seen in non-cancerous conditions and in healthy individuals. “Elevated tumour markers do not always mean there is cancer,” she says.

Dr Tan says blood tests for tumour markers are not usually used for general screening. He

gives the example of the CEA test – which measures the level of carcinoembryonic antigen – for colorectal cancer.

Raised levels of CEA in the blood do not mean an automatic diagnosis of colorectal cancer. Further tests are required.

A negative test does not mean the absence of cancer either, as tumour markers are typically raised in the later stages of cancer.

Tumour marker tests are recommended for high-risk cases, or to monitor the effectiveness of cancer treatment, or to monitor for cancer recurrence, he adds.

“A lot of people want to do these cancer marker tests, but we need to think about why we’re doing the test,” he says.

## TIPS FOR YOUR NEXT BLOOD TEST

- Sign up for Healthier SG and check your eligibility for subsidised screening at [str.sg/BMm5](http://str.sg/BMm5)
- Discuss your risk profile with your family doctor. Your age, gender, medical history, lifestyle, occupation and environment can affect your chances of developing chronic conditions.
- Know your family medical history and discuss it with your family doctor.
- Follow up on the test results with your doctor.

Blood tests are ordered to get an idea of a patient’s current state of health and to identify risks of future health problems. PHOTO: ISTOCKPHOTO

## OVERTESTING CAN LEAD TO ANXIETY

Beyond the clinic, patients are increasingly influenced by social media and internet trends. Dr Tan says more online discussion about tumour marker tests and tests for Lp(a) have led to more patients inquiring about such blood tests.

Dr Chin also says health trends on social media often cause patients to request certain blood tests.

In such cases, she first explains what the test can or cannot do, and also discusses the risks and benefits of testing.

“If the patient makes an informed decision with all the information given, I will respect his or her decision and move forward with the said test,” she says.

People often seem to think that the more blood tests they have, the better. Dr Tan disagrees.

He says some blood tests may not be necessary and could also be costly. The results may unreasonably spike anxiety.

“It’s easy to do blood tests, but we need to know what these tests are for,” Dr Tan says. “It is always best to speak to your doctor about the recommended health screening tests to do. Overtesting may bring more harm than good.”

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