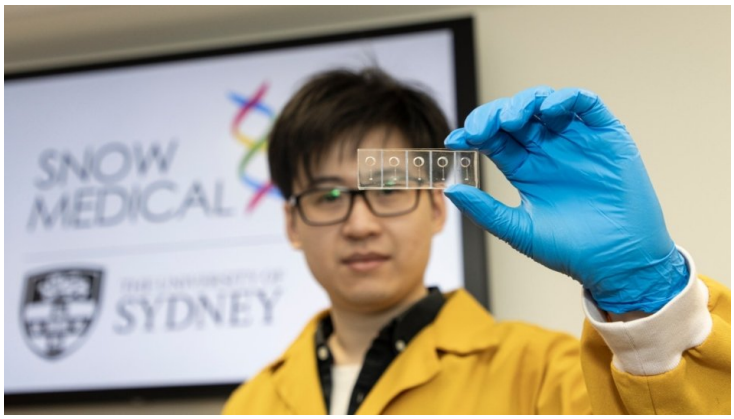
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ASIA EDITION

Australia studies 3D printed blood vessels to unravel secrets of strokes

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The device so far has helped researchers study blood clots that lead to stroke



3D printed blood vessels on glass that mimic blood vessel anatomy and the fluid dynamics of blood flow could be an invaluable tool in studying the causes of stroke, new research from Australia's University of Sydney team has found and it has already led to important insights.

The technology, published in Advanced Materials, could also help test new medications tailored to patients with specific health conditions.

Cardiovascular disease is currently the leading cause of mortality in Australia, with one person losing their life from heart disease approximately every 12 minutes.

Although there are well established diagnosis methods for cardiovascular diseases, there is no method to predict early events that lead to blood clots in carotid arteries.

The model re-creates anatomically accurate replicas of healthy and diseased areas of blood vessels. This includes delicate blood vessel anatomy, and dents and divots on the damaged lining of the blood vessel wall, a pathology commonly seen in stroke patients.

“This is the first-of-its-kind bioengineering endeavour in Australia, and our work is aiming to solve two crucial gaps in heart disease diagnosis and prevention, without animal testing. Our next frontier is integrating artificial intelligence with our biofabrication platform to create true 'digital twins' that can predict stroke events before they happen, moving from reactive treatment to proactive prevention,” said the researchers.