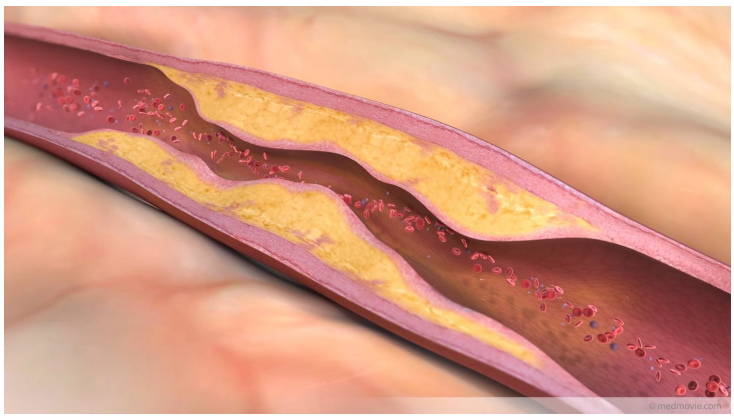
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Innovative synthetic nanofibre may reverse atherosclerosis

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Atherosclerosis is characterised by a narrowing of arteries and blood vessels caused by a build-up of a hard, waxy substance called plaque, which is rich in cholesterol



A single shot of synthetically designed nanofibres might one day help break up as well as reverse the arterial plaque a hallmark of atherosclerosis, said researchers led by one of an Indian-origin.

Atherosclerosis is characterised by a narrowing of arteries and blood vessels caused by a build-up of a hard, waxy substance called plaque, which is rich in cholesterol.

Targeting the vessel wall with peptide-based nanofibres developed in the laboratory can non-invasively and non-surgically, halt and reverse the disease, the researchers said.

The results "demonstrate that a novel targeted nanofibre binds specifically to atherosclerotic lesions and reduces plaque burden after a short treatment," said lead author Neel A. Mansukhani, an integrated vascular surgery fellow at Northwestern University in Chicago, US.

The findings were presented at the American Heart Association's Vascular Discovery: From Genes to Medicine Scientific Sessions 2018 in San Francisco.

The tiny fibres contained an amino acid sequence that promotes the cholesterol to dissolve and helped remove deposits from the plaque in the artery walls.

To test the noninvasive therapy, mice were genetically modified to rapidly develop atherosclerosis, then fed high fat diets for 14 weeks and after which the mice received biweekly injections of either the peptide amphile nanofibre or saline for 8 weeks.

After 8 weeks of treatment, plaque area in the arteries of the male mice was reduced by 11 per cent and in the female mice by 9 per cent.

However, more research is needed before this new approach can be tested in humans, he noted.