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## Jab that can unblock fat-clogged arteries

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### Prevention: A new vaccine works by reversing the narrowing of the arteries

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A jab to prevent heart attacks could transform the treatment of heart disease. The new vaccine works by reversing the narrowing of the arteries, a leading cause of heart attacks.

The treatment will be tested in trials next spring, and if these are successful, it could be widely available in four to five years.

Coronary heart disease is Britain's biggest killer and is responsible for around 200,000 deaths every year.

Heart attacks are caused by a build-up of fatty deposits in the arteries. These deposits are largely made up of LDL, or bad cholesterol, and they cause the arteries to become narrowed or blocked, cutting off the blood supply.

The body's immune system tries to remove these fatty deposits, but goes into overdrive. Over time, this causes the blood vessels to become inflamed and scarred, and eventually the smaller arteries can rupture, causing blood clots and heart attack.

Now scientists have found a way to harness this immune response, boosting the natural removal of LDL but at the same time preventing the immune system overreacting.

First, they identified the substance in LDL which prompts the immune response. They then used this substance to produce the new vaccine.

This activates antibodies to remove the LDL, but also activates 'regulatory' cells which stop the immune system becoming aggressive

and causing inflammation.

The hope is that the CVX-210H vaccine, produced by Cardiovox, will be offered initially to high-risk patients to reverse the furring up of the arteries and prevent a second

heart attack. 'But one day we may even be able to offer it to everyone to prevent them developing heart disease,' says Professor Jan Nilsson of Lund University in Sweden, who is developing the vaccine together with a team from the Cedars-Sinai Medical Centre in Los Angeles.

The vaccine could also help patients with diabetes, who are at a raised risk of heart disease. A recent study in London found that 46 per cent of diabetic patients had 'silent' coronary artery disease, which was not causing symptoms.

Three years later, those patients had progressed to more severe disease and cardiac problems, including heart attacks and heart failure.

'The number of people with diabetes is rising fast, and coronary artery disease is a much greater problem among people with diabetes than previously thought, yet they are not routinely screened for heart disease,' says Professor Avijit Lahiri, consultant cardiologist at the Wellington Hospital, who ran the study.

'This vaccine may act on the small blood vessels, too.

'Diabetes can make the small blood vessels fur up early, before the large blood vessels are even affected, so this may be able to help to reverse the process before people develop coronary artery problems.'

He adds: 'If this succeeds, I think this work deserves the Nobel prize.'

Dr Klaus Witte, honorary consultant cardiologist at Leeds General Infirmary, is equally enthusiastic.

'This vaccine is potentially of great interest. If it can switch off or damp down the harmful immune response, it is an exciting development, though it is early days and most people with coronary disease will initially still need medication, too.'

- Flaxseed supplements are being used to treat patients with peripheral artery disease.

The condition is caused by a build-up of fatty deposits in the arteries in the legs, and sometimes the arms.

An estimated 2.7 million Britons over 55 suffer from it, with symptoms such as pain in the legs when walking or exercising. However, around half have no obvious symptoms until they suffer a heart attack or stroke.

In the two-year Canadian trial, patients will be given ground flaxseed to supplement their diet. Flaxseed is rich in antioxidants and alpha-linolenic acid (ALA), which is thought to slow the build-up of fatty deposits.

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Will watch this with great interest as I have been looking for a natural arterial plaque reversal process.

- Brian, Angus, 13/8/2009 08:18

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