

New research could lead to better treatments for cardiovascular disease

April 3 2012

Scientists at the University of Southampton have discovered a new process that controls the ability of arteries to regulate blood pressure.

Arteries are able to control blood pressure by relaxing and constricting. In healthy people, the ability of arteries to relax or constrict is kept in balance. However, this balance shifts in people who are at risk of developing high blood pressure or atherosclerosis. There is more constriction within the arteries so blood cannot flow freely increasing the risk of heart attacks and stroke.

Researchers in Southampton, led by Dr Graham Burdge, Reader in [Human Nutrition](#), have identified a new process that controls the ability of arteries to constrict, which could lead to a better understanding of the causes of cardiovascular disease and the development of new treatments.

In a study funded by the British Heart Foundation, which is published in [PLoS ONE](#) today (3 April 2012), researchers showed that polyunsaturated fats, which are converted into fat-like molecules called eicosanoids in order to make arteries constrict, are made by the [muscle cells](#) in the arteries rather than being taken up from blood, as previously thought.

By blocking the action of two enzymes that create polyunsaturated fats, the researchers were able to reduce the constriction of arteries allowing blood to flow more freely, therefore lowering the risk of high blood pressure.

The research also found that this process changed in arteries that showed the early signs of causing [high blood pressure](#). They found changes in the epigenetic 'switches' that control one of the key genes for making [polyunsaturated fats](#), while another gene over-compensated for this change.

Dr Burdge comments: "This is an important finding. Cardiovascular disease is an increasing public health issue. In 2009, over 180,000 people died from cardiovascular disease in the UK – that is one in three of all deaths.

"Discovering a new process which controls how [arteries](#) work, and finding that it can be modified in the laboratory, raises a strong possibility for developing new medicines that may lead to better ways of treating cardiovascular disease. Currently, it is difficult for doctors to screen people at risk of cardiovascular disease before symptoms develop. However, a test based on the epigenetic changes we have found could provide a new way of screening people for risk of cardiovascular disease, and, in time, it might also be possible to correct this epigenetic defect."

More information: [dx.plos.org/10.1371/journal.pone.0034492](https://doi.org/10.1371/journal.pone.0034492)

Provided by University of Southampton

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