

Vitamin D improves heart function, study finds

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A daily dose of vitamin D3 improves heart function in people with chronic heart failure, a five-year University of Leeds research project has found.

Dr Klaus Witte, from the School of Medicine and Consultant Cardiologist at Leeds Teaching Hospitals NHS Trust, led the study, known as VINDICATE.

He said: "This is a significant breakthrough for [patients](#). It is the first evidence that [vitamin D3](#) can improve [heart function](#) of people with heart muscle weakness - known as [heart failure](#). These findings could make a significant difference to the care of heart failure patients."

Vitamin D3 can be boosted by exposure to sunlight, but heart failure patients are often deficient in it even during the summer because older

people make less vitamin D3 in response to sunlight than younger people. Vitamin D3 production in the skin is also reduced by sunscreen.

The study, which was funded by the Medical Research Council, involved more than 160 patients from Leeds who were already being treated for their heart failure using proven treatments including beta-blockers, ACE-inhibitors and pacemakers.

Participants were asked to take vitamin D3 or a dummy (placebo) tablet for one year. Those patients who took vitamin D3 experienced an improvement in heart function which was not seen in those who took a placebo.

Changes in heart function were measured by cardiac ultrasound. Heart specialists measure heart function by taking an ultrasound scan of the heart (known as an echocardiogram) and measuring how much blood pumps from the heart with each heartbeat, known as ejection fraction.

The ejection fraction of a healthy person is usually between 60% and 70%. In heart failure patients, the ejection fraction is often significantly impaired - in the patients enrolled into the VINDICATE study the average [ejection fraction](#) was 26%.

In the 80 patients who took Vitamin D3, the heart's pumping function improved from 26% to 34%. In the others, who took placebo, there was no change in cardiac function.

This means that for some heart disease patients, taking vitamin D3 regularly may lessen the need for them to be fitted with an implantable cardioverter defibrillator (ICD), a device which detects dangerous irregular heart rhythms and can shock the heart to restore a normal rhythm.

"ICDs are expensive and involve an operation" said Dr Witte. "If we can avoid an ICD implant in just a few patients, then that is a boost to patients and the NHS as a whole."

One key aspect of this study is that the researchers avoided using a calcium-based supplement, as calcium can cause further problems for heart failure patients.

The findings from the VINDICATE study will be presented at the American College of Cardiology 65th Annual Scientific Session & Expo in Chicago on April 4.

Heart failure affects about 900,000 people in the UK and more than 23 million worldwide.

The condition can affect people of all ages, but it is more common in older people - more than half of all people globally with heart failure are over the age of 75.

Provided by University of Leeds

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