

Heart protects itself from fat

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When you eat a fatty meal, a certain mechanism is activated in the heart, which prevents dangerous substances from being deposited in the heart muscle. This is one of the findings of research carried out at Wageningen University, The Netherlands, in association with the Dutch Heart Foundation.

It is thought that this defence mechanism is less effective in people with a high percentage of [body fat](#). The results will be published today on the website of the American journal '[Circulation Research](#)'.

The study provides important information about the fat balance in the heart. The heart muscle uses fat as a fuel to enable it to pump the blood around the body. But too much fat is detrimental as it causes dangerous and potentially damaging substances (oxy radicals) to be produced as a by-product of combustion. Damage to the heart muscle can cause all kinds of problems, including [fatigue](#) and tightness in the chest.

Sander Kersten is Associate professor of nutrition, metabolism and genomics at Wageningen University. While studying the fat balance in the heart, he and his team discovered that if mice are fed a piece of fat, a specific protein (Angptl4) is activated in the heart muscle.

This protein protects the heart from harmful particles that result from excess fat. "It's like a barrier that can open and close ", explains Kersten."The fat from the first couple of mouthfuls closes the barrier to the damaging effects of the fat that is on its way."

A wonderful mechanism, but does it mean that we can now eat as much fat as we like? Unfortunately not. Although your heart can cope with the odd fatty meal, eating too much fat on a long-term basis can compromise this handy defence mechanism.

Nutrition is not the only important factor; the amount of body fat also plays an important role. Kersten: "Now we know that fat tissue produces substances that affect the defence mechanism in the heart muscle, we are faced with the following question: what is the impact of too much body fat on the fat balance in the heart?"

At present, we cannot pinpoint the exact BMI (body mass index, an index used for assessing body weight) at which the [heart muscle](#) becomes compromised. "This is not an easy matter. Up until recently, it was impossible to measure the amount of [fat](#) in the hearts of living people, "explains Kersten." But new advanced technology, such as proton magnetic resonance spectroscopy, is making this easier and will provide a wealth of fresh information."

Provided by Wageningen University

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