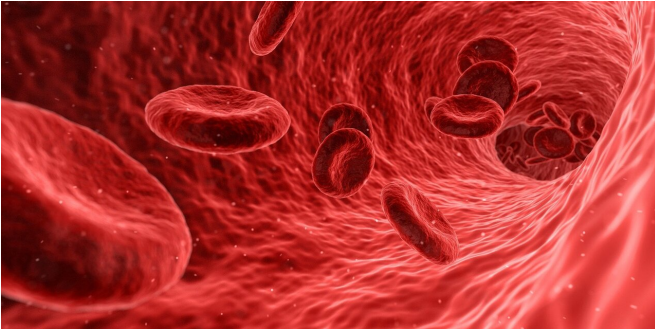


Zinc could be key to new diabetes treatments

1 March 2021



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Researchers at the University of St Andrews say a greater understanding of how zinc is handled in our body could lead to improved treatments for people with diabetes.

The team of scientists, funded by the British Heart Foundation (BHF), have been investigating the causes of potentially [dangerous blood clots](#) and why these more commonly occur in people with diabetes.

Diabetes is a major risk factor for [heart](#) and circulatory diseases. Around 300,000 adults have been diagnosed with diabetes in Scotland and it is estimated that thousands more people have undiagnosed type 2 diabetes.

Because of the damage it causes to the [blood vessels](#), people with diabetes are up to three times more likely to develop conditions like heart attacks, stroke and vascular dementia.

Researchers, led by Dr. Alan Stewart of the School of Medicine at the University of St Andrews, have been looking at the role of [zinc](#) in these processes. Zinc is an essential nutrient that serves many functions in the body. One of its functions is to help the [blood](#) clot after injury.

However, in some people with underlying health conditions, such as those with type 2 diabetes or obesity, clotting can occur more often when it's not required, causing damage to blood vessels and leading to serious [health conditions](#) such as stroke and thrombosis (DVT).

The research, published in *Chemical Science*, found that the transportation of zinc in the blood is compromised in those with type 2 diabetes due to the increased levels of fatty acids. These fatty acids prevent zinc being carried in the normal way allowing zinc to interact with clot-activating proteins and potentially triggering dangerous blood clots.

Although further research is needed, they believe their study identifies a new way that vascular problems can occur in certain individuals.

Principal investigator and Senior Lecturer, Dr. Stewart, said: "Our research suggests that by altering how zinc is handled, elevated levels of fatty acids in the circulation can contribute to the formation of unwanted and potentially dangerous blood clots.

"Ultimately, we hope that these findings will aid the development of new therapeutic strategies to reduce vascular disease risk in patients with type 2 [diabetes](#), as well as other diseases associated with high levels of plasma fatty acids.

The BHF is the largest independent funder of research into heart and circulatory diseases in the UK and this project is one of thousands funded by the BHF to help save and improve lives.

James Jopling, head of BHF Scotland, said: "Diabetes is a major risk factor for heart attacks and strokes—conditions which can severely affect quality of life.

"As such, it is vital we understand more about it and how to treat it. Research projects like this one in St

Andrews help inform how we treat patients, identify those at particular risk and ultimately find new ways to save and improve lives."

More information: Amélie I. S. Sobczak et al. Albumin-mediated alteration of plasma zinc speciation by fatty acids modulates blood clotting in type-2 diabetes, *Chemical Science* (2021). DOI: [10.1039/D0SC06605B](https://doi.org/10.1039/D0SC06605B)

Provided by University of St Andrews

APA citation: Zinc could be key to new diabetes treatments (2021, March 1) retrieved 2 May 2021 from <https://medicalxpress.com/news/2021-03-zinc-key-diabetes-treatments.html>

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