

Metformin and SGLT2 inhibitors together effectively reduce the blood sugar levels

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Metformin and SGLT2 inhibitors together reduce the blood sugar levels considerably more effectively than either drug alone. Scientists from the Helmholtz Zentrum München, partner in the German Center for Diabetes Research, report in the journal '*Diabetes*' that this is due to a synergetic mechanism.

Various active substances in oral antidiabetic agents are frequently combined in the treatment of diabetes in order to achieve an effective reduction in the blood sugar. A new, very promising approach combines the substances metformin and SGLT2 inhibitors, the latter were just approved in 2012. Scientists headed by Dr. Susanne Neschen and Prof. Dr. Martin Hrab? de Angelis from the Helmholtz Zentrum München, in cooperation with Ludwig-Maximilians-Universität München and drug manufacturer Sanofi Aventis, have discovered how the two substances reinforce each other.

Medicinal chain reaction

SGLT2 inhibitors promote the elimination of sugar in the urine and consequently reduce the blood sugar. However, paradoxically the body reacts to this with increased sugar production in the liver. And this is where metformin comes in: it slows down the body's own [sugar production](#). The interaction of the two [substances](#) causes a drop in blood sugar levels that is effective and prolonged, and the reduction is greater than with either substance administered on its own.

Combination effective with minimal side effects

"The combination of drugs effectively reduces the blood sugar, and particularly also the blood sugar peaks after meals. In diabetic mice, the double therapy produced an improvement in the long-term [blood sugar](#) level HbA1c within only two weeks," reports first author Neschen. "The duo consequently constitutes an effective treatment strategy for type 2 diabetes while also producing

minimal side effects," adds Hrab? de Angelis.

Type 2 [diabetes](#) is a metabolic disorder that affects around 6 million people in Germany, and that number is steadily increasing. The Helmholtz Zentrum München focuses on developing new approaches for the prevention, diagnosis and treatment of major widespread diseases.

More information: Neschen, S. et al (2014). "Metformin supports the antidiabetic effect of a sodium glucose cotransporter 2 (SGLT2) inhibitor by suppressing endogenous glucose production in diabetic mice," *Diabetes*, [DOI: 10.2337/db14-0393](#)

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