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29 February 2008

Dangers of skipping insulin

Women with type 1 diabetes who reduce their prescribed insulin doses have a three-fold increased risk of developing complications or dying, compared to those who do not skip insulin.

27 February 2008

Metformin cuts diabetes risk by 40 per cent

A new study into metformin has found that it can reduce the risk of type 2 diabetes by up to 40 per cent in those at risk of the disease.



[Home](#) > [Media & Publications](#) > [Research...](#)



Oral insulin a step closer

20 February 2008

For over 80 years, injections have been the only way of delivering insulin to people with diabetes, but new studies have brought oral insulin a step closer.

A major problem for oral insulin is that acids in the stomach destroy insulin before it can have a suitable effect on blood glucose.

The first study, by Syracuse University in New York and published in the December issue of journal *ChemMedChem*, tried to solve this problem by binding insulin to vitamin B-12. The vitamin B-12 carries and protects the insulin in the stomach, allowing the insulin to be absorbed into the blood through the small intestine.

While the results were promising, the researchers discovered that vitamin B-12 only had a limited capacity to be absorbed, meaning not enough insulin was being taken in to have sufficient effect.

The second and third studies, carried out by Indian researchers, took this idea further but rather than binding one insulin molecule to one vitamin B-12 molecule, they coated a nanoparticle with multiple B-12 molecules. This increased the ability of vitamin B-12 absorption in the intestine, therefore increasing the amount of insulin being absorbed into the blood.

Their findings, published in the *Journal of Controlled Release*, were that using this method, up to 36,000 insulin molecules can be taken up for every one vitamin B-12 molecule absorbed into the blood, resulting in blood glucose levels being lowered to the normal range.

So far, this method of oral insulin has only been tested in animals, with the researchers now preparing to move into human trials.

Overview

News

Media Releases

Media Contacts

Publications

Research Articles

Other new forms of insulin delivery are also being researched, such as inhaled insulin, but so far results have been mixed.

Sources:

- Petrus, Vortherms, Fairchild, Doyle. Vitamin B12 as a Carrier for the Oral Delivery of Insulin. *ChemMedChem*, Volume 2 Issue 12;1661-1838; 10 December, 2007
- Kishore et al. Effective oral delivery of insulin in animal models using vitamin B12-coated dextran nanoparticles. *Journal of Controlled Release*, Volume 122, Issue 2;141-150;26 September 2007

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