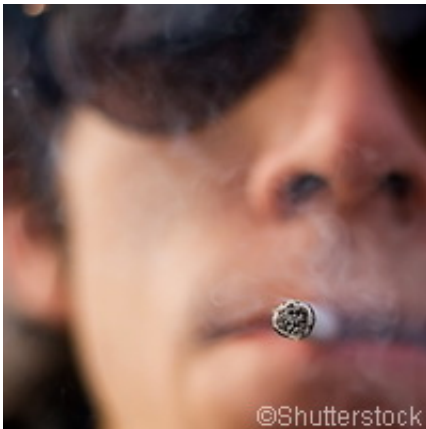


Insulin may influence body weight gain in former smokers

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It is probably safe to say that smokers refuse to give up their vice because they believe their waistlines will only get bigger. And while most researchers have long speculated that a metabolic link exists between butting out cigarettes and gaining weight, no study has been able to substantiate this... until now. A research team in Austria has found a link between insulin secretion and weight gain after smoking cessation.

Speaking to delegates at the 15th International Congress of Endocrinology (ICE) and the 14th European Congress of Endocrinology (ECE) in Florence, Italy on 8 May, Dr Marietta Stadler from the Hietzing Hospital in Vienna, Austria said she and her team have found that changes in insulin secretion could be related to [weight gain](#) after a

person stops smoking.

Study subjects were healthy smokers who took part in a [smoking cessation](#) programme. They underwent three-hour glucose tolerance tests (OGTT) while still smoking and after no less than three and six months of being cigarette-free. The researcher and her team also measured the subjects' [body composition](#).

The team measured the subjects' beta cell secretion of insulin while fasting and after being exposed to glucose. Their appetite levels were also assessed following their consumption of a free-choice buffet meal. The researchers also measured the fasting levels of several hormones that play a role in regulating [energy intake](#).

'We found that body weight and fat mass increased after 3 months of no smoking, by 4% and 22%, respectively,' said Dr Stadler, 'and after 6 months the increase was 5% and 35%, respectively.'

The researcher said the most striking metabolic findings were a rise in the first phase insulin secretion, following the glucose challenge, and a rise in carbohydrate intake following a buffet meal for patients who had stopped smoking for three months.

The subjects showed significant fasting [insulin resistance](#), where the normal response to an insulin dosage is reduced, at three months. The result was not the same at the six-month level. 'Dynamic insulin sensitivity (the sensitivity to insulin in the postprandial state) assessed during the OGTT remained unchanged throughout,' she said.

'Neuropeptide-Y (NPY) levels at fasting were increased at three months, but not at six months. We believe that the alterations in insulin secretion could possibly be related to the increased carbohydrate cravings and weight gain experienced by many smokers who give up. However, the increase in insulin secretion and [carbohydrate intake](#) seems to be a

transient effect of stopping smoking, as these changes were not seen any more after six months, even though the participants had gained more weight.'

The findings also show that increased [insulin secretion](#) was not as evident in the patients who were smoke-free for at least 6 months compared to patients who relapsed after only 90 days.

'All these factors are pointers to understanding the metabolic processes involved in weight gain after smoking cessation,' said Dr Stadler. 'The more we can understand the biological basis for the phenomenon, the higher our chances of being able to control it.'

The researchers next plan to match the study's subjects with a group of non-smokers of the same age. Their objective? To determine if beta cell function changes in those who continue to smoke and not just during the period of cessation.

In conclusion, Dr Stadler said: 'We also intend to discuss our results with experts in the field of addiction and behavioural medicine in order to gather ideas and hypotheses as to why smoking might exert these metabolic effects, in order that we can plan studies that bring together the many disciplines involved in this important field of research.'

Provided by CORDIS

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