

Repeated use of antibiotics linked to diabetes risk

March 25 2015, by Omar Jamshed

Repeated use of some types of antibiotics may put people at increased risk of developing type-2 diabetes by possibly altering their gut bacteria, according to a large observational study published today in the *European Journal of Endocrinology*. The findings emphasise the need to reduce unnecessary antibiotic prescriptions.

A team from the Departments of Gastroenterology and Medical Oncology at the University of Pennsylvania looked at the number of [antibiotic prescriptions](#) given out in the UK to over 200,000 diabetics at least one year before they were diagnosed with the disease, and compared this to the number given to 800,000 non-diabetic patients of the same age and sex.

They found that patients prescribed at least two courses of penicillins, cephalosporines, quinolones and macrolides were at higher risk of being diagnosed with type-2 diabetes. The risk increased with the number of antibiotic courses prescribed.

Patients prescribed 2-5 courses of penicillins increased their risk of diabetes by 8%, while for those with more than five penicillin courses this risk increased by 23%. For quinolones, diabetes risk increased by 15% among patients that were prescribed with 2-5 courses and by 37% for those with more than five courses. The risk was calculated after adjusting for other risk factors such as obesity, smoking history, heart disease and history of infections.

"Gut bacteria have been suggested to influence the mechanisms behind obesity, insulin resistance and diabetes in both animal and human models," said lead author of the study Dr Ben Boursi. "Previous studies have shown that [antibiotics](#) can alter the digestive ecosystem."

"While our study does not show cause and effect, we think changing levels and diversity of [gut bacteria](#) could explain the link between antibiotics and diabetes risk," said senior author Dr Yu-Xiao Yang.

There was no increase in risk associated with use of anti-virals or anti-fungal medications and the study found little evidence of a link between antibiotic use and the risk of type-1 diabetes.

"Over-prescription of antibiotics is already a problem around the world as bacteria become increasingly resistant to their effects" said Dr Boursi. "Our findings are important, not only for understanding how diabetes may develop, but as a warning to reduce unnecessary antibiotic treatments that might do more harm than good."

More information: "The effect of past antibiotic exposure on diabetes risk." *Eur J Endocrinol* EJE-14-1163, [DOI: 10.1530/EJE-14-1163](https://doi.org/10.1530/EJE-14-1163)

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