

Study links marijuana use to poor blood sugar control in middle age

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New research published in *Diabetologia* (the journal of the European Association for the Study of Diabetes) shows that current and former users of marijuana are more likely to have prediabetes—the state of poor blood sugar control that can progress to type 2 diabetes—than never users of marijuana. However the researchers, led by Mike Bancks (University of Minnesota School of Public Health, Minneapolis, MN, USA) failed to establish a direct link between marijuana use and type 2 diabetes.

Marijuana is the most frequently used illicit drug in America (and is estimated to be so globally), with an estimated 18.9 million people aged 12 or older in the USA identifying as current users in 2012. The prevalence of [marijuana](#) use for these individuals has increased since

2002. This trend can be expected to continue as states across the USA enact policies to permit medicinal or recreational use. Despite the growing movement to legalise marijuana, little is known about its effect on metabolic health. Previous studies on this subject have revealed conflicting results, with some suggesting marijuana can reduce the risk of [diabetes](#), despite others showing that the drug is associated with an increased calorie consumption.

In this new study, the authors investigated the association between self-reported marijuana use and concurrent and incident prediabetes and full blown type 2 diabetes, considering both quantity used and status of current use. They also aimed to examine the role of [body mass index](#) (BMI) and waist circumference as potential confounding and/or mediating factors to these associations. Lastly, given the varying diabetes risk profiles by race and gender, they looked at the effects of sex and race on the associations.

Data from the community-based Coronary Artery Risk Development in Young Adults (CARDIA) study were used to determine marijuana use and presence of prediabetes and diabetes. Individuals in the CARDIA study were 18-30 years of age at study recruitment in 1985-1986 and are currently in their 30th year of observation. The association between marijuana use and prevalence of prediabetes and diabetes was examined in 3,034 participants at CARDIA exam Year 25 (2010-2011) and incidence of prediabetes and diabetes according to previous marijuana use was assessed in 3,151 individuals free from prediabetes and diabetes at Year 7 (1992-1993) who returned for at least one of the four subsequent follow-up examinations over the next 18 years.

The percentage of individuals who self-reported current use of marijuana declined over follow-up, from 28% in 1985-1986 to 12% in 2010-2011. After adjustment for behavioural/lifestyle and physiological characteristics, there was a 65% increased odds of currently having

prediabetes in individuals who reported current use of marijuana, and a 49% increased odds of currently having prediabetes in individuals who reported lifetime use of 100 times or more, in both cases compared to individuals who reported never using marijuana. However, there was no association between marijuana use and full blown type 2 diabetes at CARDIA exam Year 25. In the case of these results, the researchers did not distinguish which came first, marijuana use or prediabetes, and it was not possible to take into account if individuals choose to alter their marijuana use because of concern for their health status.

The authors then did further analyses where marijuana use was assessed prior to the development or not of prediabetes. Over 18 years follow-up, a 40% greater risk for developing prediabetes (but not diabetes) was found for individuals who reported lifetime use of 100 times or more compared to individuals who reported never using marijuana. BMI and waist circumference did not affect the associations.

"It is unclear how marijuana use could place an individual at increased risk for prediabetes yet not diabetes," say the authors. But they suggest that it could be because individuals excluded from the study (due to missing information on important factors) generally had higher levels of marijuana use and greater potential for development of diabetes, or that marijuana may have a greater effect on [blood sugar control](#) in the prediabetic range than for full blown type 2 diabetes, when other traditional diabetes risk factor levels are exceedingly less favourable.

The authors conclude: "In conclusion, marijuana use, by status or lifetime frequency, was not associated with incidence or presence of diabetes after adjustment for potential confounding factors. However, marijuana use was associated with the development and prevalence of prediabetes after adjustment. Specifically, occurrence of prediabetes in middle adulthood was significantly elevated for individuals who reported using marijuana in excess of 100 times by young adulthood. These

results contrast with those previously reported on marijuana use and metabolic health. Future studies should look to objectively measure mode and quantity of marijuana use in relation to prospective metabolic health."

More information: *Diabetologia*, [link.springer.com/article/10.1 ... 07/s00125-015-3740-3](https://link.springer.com/article/10.1007/s00125-015-3740-3)

Provided by Diabetologia

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