

# Women with sleeping problems far more likely to develop diabetes

January 28 2016

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New research published in *Diabetologia* (the journal of the European Association for the Study of Diabetes) shows that in women, sleeping problems are associated with an increased risk of developing type 2 diabetes, with the increased risk ranging from 47% for one sleep disorder to more than 4 times the risk for four different sleeping problems combined. The study is by Dr Yanping Li, Harvard T. H. Chan School of Public Health, Boston, MA, USA, and colleagues.

The researchers analysed data from 133,353 women without diabetes, cardiovascular disease and cancer at baseline in two major epidemiological studies—the Nurses' Health Study (NHS, 2000-2010) and the NHSII (2001-2011). Sleeping difficulty was assessed as having difficulty falling or staying asleep 'all of the time' or 'most of the time' at baseline (2000 in NHS and 2001 in NHSII).

A total of 6,407 cases of type 2 diabetes developed during up to 10 years of follow-up. After adjustment for lifestyle factors at baseline, comparing women with and without sleeping difficulty (one of the sleeping disorders studied), the [increased risk](#) for type 2 diabetes was 45%, which changed to 22% after further adjustment for hypertension, depression and BMI based on the updated repeated measurements. Women who reported two or more [sleep disorders](#) (sleeping difficulty, frequent snoring, sleep duration  $\leq$  6 h and sleep apnoea in NHS or rotating shift work in NHSII) had an increasing risk of developing type 2 diabetes. As compared with women without any of these sleep conditions, women who reported having any one of four sleeping

conditions had a 47% increased risk of developing type 2 diabetes, two conditions had around twice the risk of developing type 2 diabetes, while for three conditions it was around three times the risk, and for all four it was four times the risk.

When looking only at the relatively healthy population without obesity, hypertension or depression at baseline (n=82,903, 62% of the sample), the increased risk of type 2 diabetes during up to 10 years of follow-up was 44%, comparing [women](#) with and without sleeping difficulty after adjusting for lifestyle factors, socioeconomic status and baseline BMI, which decreased to 33% after further adjusting for incident hypertension, incident depression and updated BMI.

The authors say: "Sleeping difficulty was significantly associated with type 2 diabetes. This association was partially explained by associations with hypertension, BMI and depression symptoms, and was particularly strong when combined with other sleep disorders. Our findings highlight the importance of good sleeping patterns and having enough sleep for preventing type 2 diabetes...The findings provide evidence to clinical physicians and public health researchers for future [diabetes](#) prevention among a high risk population with multiple sleep disorders."

**More information:** Yanping Li et al. Association between sleeping difficulty and type 2 diabetes in women, *Diabetologia* (2016). [DOI: 10.1007/s00125-015-3860-9](#)

Provided by Diabetologia

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