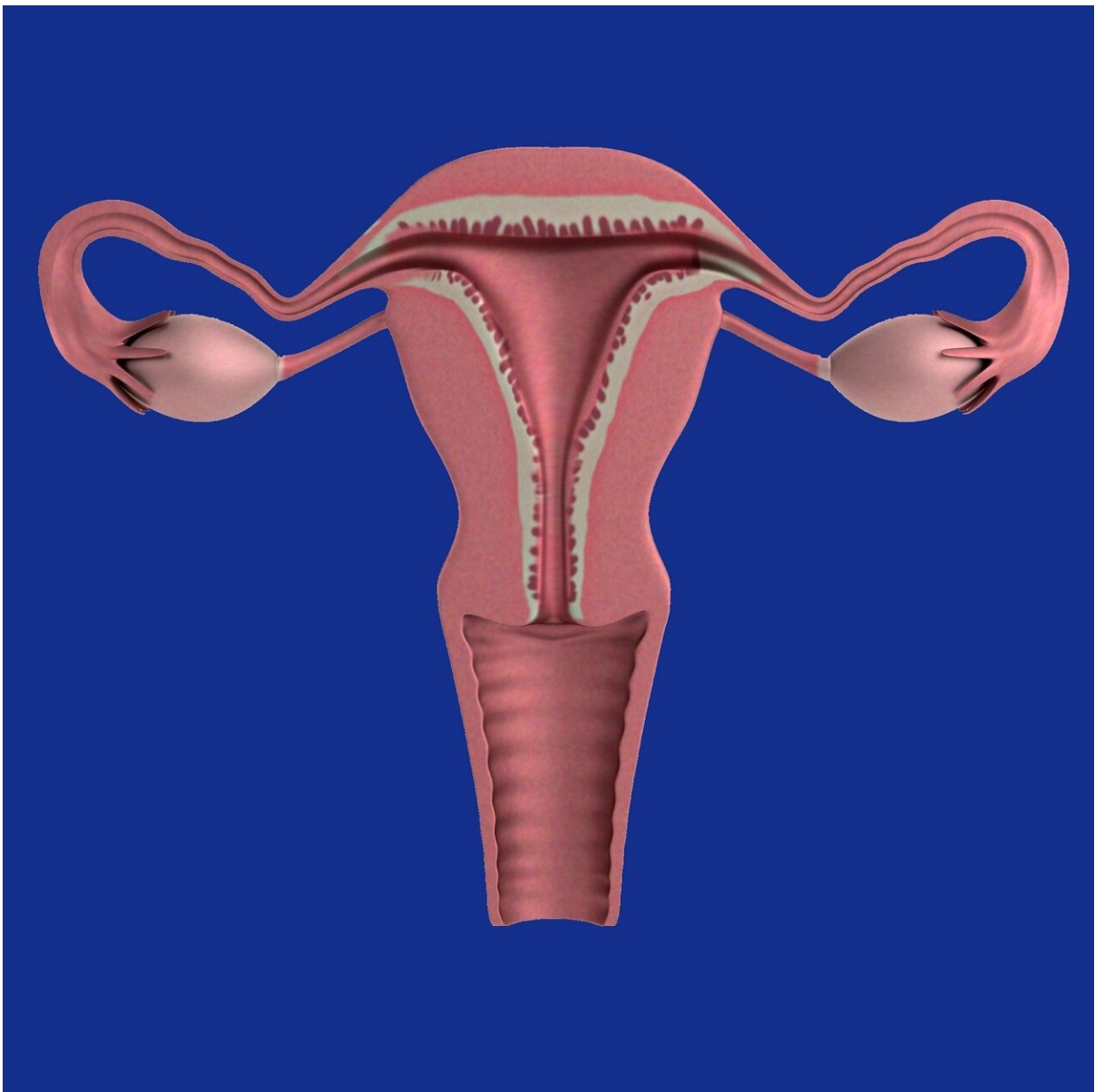


# Study finds increased risk of type 2 diabetes after hysterectomy especially in younger women

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Women (especially those aged younger than 45 years) who have undergone a hysterectomy may be at greater risk of developing type 2 diabetes (T2D), according to a study of more than 83,000 middle-aged French women who were followed for an average of 16 years, being presented at this year's European Association for the Study of Diabetes (EASD) Annual Meeting in Stockholm, Sweden (19-23 Sept).

All the women were taking part in the French E3N study, which is investigating risk factors associated with cancer and other major non-communicable diseases in almost 100,000 women born between 1925 and 1950.

"The findings from this large French cohort suggest that women who undergo hysterectomy before the age of 45 have a 52% increased risk of developing incident [type 2 diabetes](#)," says lead author Professor Fabrice Bonnet from CHU de Rennes and The Centre for Research in Epidemiology and Population Health, France. "Importantly, this risk of diabetes is higher when both [ovaries](#) are removed, but this increased risk remains even when both ovaries are conserved, and is not explained by an unhealthy diet or physical inactivity."

Hysterectomy may be recommended as a treatment for heavy periods, fibroids, endometriosis, and gynecological cancers. The surgery removes the [uterus](#) (or womb), sometimes along with the fallopian tubes, ovaries or cervix.

More than 400,000 hysterectomies are performed each year in the U.S.,

80,000 in France and around 55,000 in the UK, mostly for benign disease, in women aged between 40-50 years old.

Previous studies (and in particular in the same French cohort) have reported that hysterectomy is associated with increased risk of high blood pressure, cardiovascular diseases such as stroke, especially when accompanied by ovary removal. But few studies have examined the link between hysterectomy and the risk of T2D. And most of these have involved post-menopausal women and did not look at the potential influence of diet and physical activity.

To investigate this further, researchers followed 83,582 women (average age 51 years; range 45-60 years at inclusion) who were free of diabetes when the study began. Researchers analyzed data collected every two years by questionnaire addressing lifestyle factors, including physical activity, dietary habits, body mass index, smoking status, age at first period (puberty), menopausal status, age at menopause, use of oral contraceptives, together with medical diagnosis of T2D.

They also investigated whether an unhealthy lifestyle influenced the risk of T2D among women who had a hysterectomy. Women with gynecological cancers were excluded from the analyses.

During an average follow-up of 16 years, 17,141 women underwent a hysterectomy and 2,672 women developed T2D.

Compared to women who did not undergo a hysterectomy, those who did were 27% more likely to develop T2D, after adjusting for factors likely to influence the results including educational level, smoking status, and family history of diabetes.

This association was not altered significantly after further adjustment for reproductive factors (e.g., age at first period [puberty], menopausal

status) and hormonal treatments (e.g., use of oral contraceptives, HRT).

And type of diet quality and level of physical activity did not change the relationship between hysterectomy and incident T2D.

Furthermore, the authors found no association between overweight (BMI $\geq$ 25 kg/m<sup>2</sup>) and an higher risk of diabetes.

Interestingly, the findings suggested that having a hysterectomy with the ovaries left intact was still associated with a 13% increased risk of diabetes, compared to a 26% higher risk following both a hysterectomy and [oophorectomy](#).

"This indicates that ovarian preservation might be beneficial in reducing the risk of type 2 diabetes," says Professor Bonnet. "Our findings also suggest that women who had a hysterectomy were more often depressed (assessed by self-administrated questionnaire). It is well known that [depression](#) is associated with the risk of diabetes. And our data suggest that increased depressive traits may play a role in the association between hysterectomy and an increased risk of diabetes."

Importantly, among women who had a hysterectomy before the age of 45 years, the overall risk of T2D was 52% higher than in those without a hysterectomy in this age group. There was no statistically significant increased risk among women who had a hysterectomy after aged 45.

"There are circumstances when a hysterectomy is the best choice for a woman, but we need to make sure that patients are aware of the potential health risks associated with this procedure, particularly before the age of 45, and are informed about the nonsurgical alternative therapies for fibroids, endometriosis, and prolapse, which are the leading reasons for hysterectomy," says Professor Bonnet. "More research also needs to be done to determine the underlying mechanisms leading to diabetes in

these women."

The authors acknowledge that their findings do not suggest that all women under the age of 45 who have a [hysterectomy](#) will develop T2D; rather they indicate an association of moderate risk, and they cannot rule out the possibility that other unmeasured factors or missing data may have affected the results. They also note that the study relied on self-reports of lifestyle factors, BMI and disease diagnosis (which might not be accurate).

Provided by Diabetologia

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