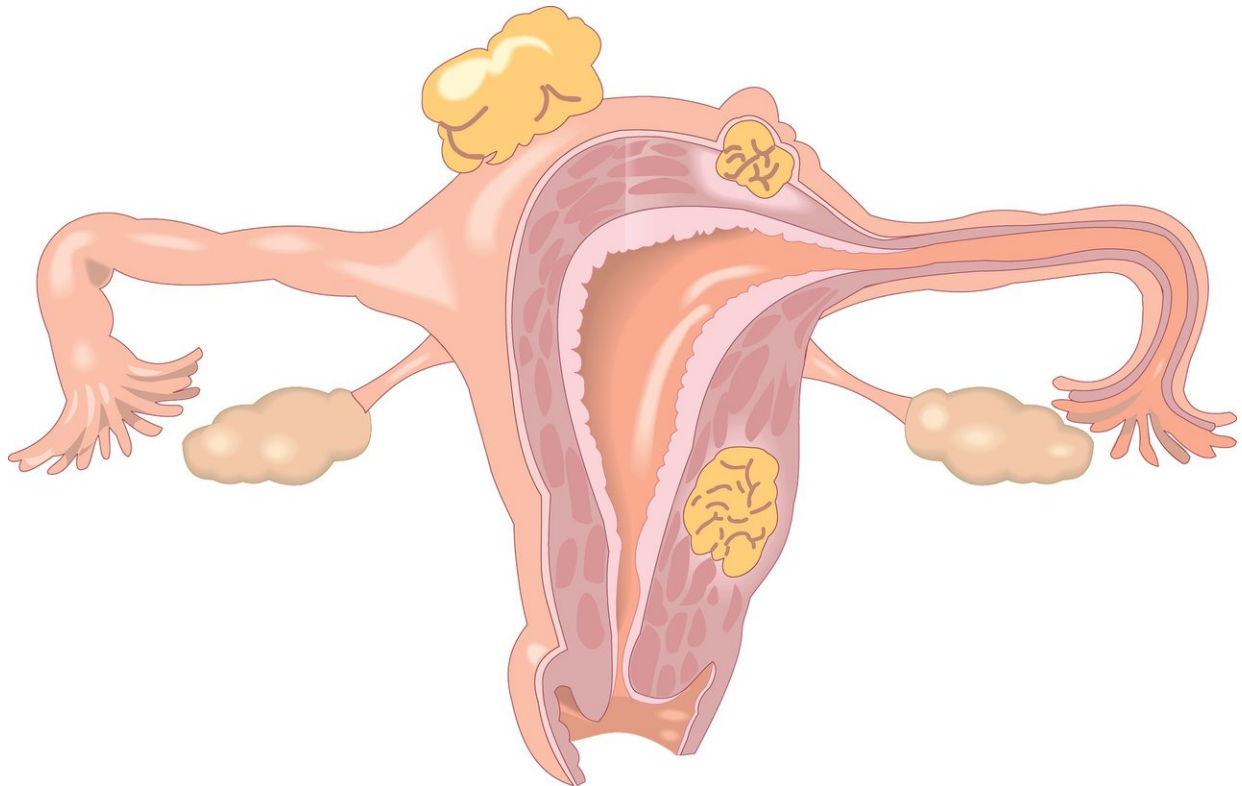


Women with polycystic ovary syndrome have double the risk of liver disease

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Scientists at the University of Birmingham have found that increased male hormones result in women with polycystic ovaries having a two-fold increased risk of developing non-alcoholic fatty liver disease.

Polycystic ovary syndrome (PCOS) affects 10 per cent of all [women](#) and is known to cause irregular periods, impaired fertility, male-pattern body hair growth and acne. Many women who have PCOS have higher levels of male hormones, are less sensitive to insulin and are overweight or obese.

Non-alcoholic fatty liver disease is an umbrella term for a range of liver conditions affecting people who drink little or no alcohol and is a major cause of liver disease worldwide. The main characteristic of non-alcoholic fatty liver disease is too much fat stored in liver cells. Experts don't know exactly why some people accumulate fat in the liver while others do not, however non-alcoholic fatty liver disease has been linked to obesity.

Given the obesity link to both PCOS and non-alcoholic fatty liver disease, there is a strong interest in exploring the relationship between the two conditions, both in terms of prevalence and cause.

Now scientists have discovered that women with PCOS are two to three times more likely to develop non-alcoholic fatty liver disease than women without PCOS. And, importantly, the research found that women with both PCOS and a high testosterone level are at an increased risk of non-alcoholic fatty liver disease regardless of their weight.

In the largest study of its kind—published today in *PLOS Medicine*—the scientists compare the health records of 63,000 women with PCOS to 120,000 women of similar age, body weight and background. They also specifically looked at two cohorts of women with PCOS and women with high levels of testosterone.

Dr Krish Nirantharakumar, of the University of Birmingham's Institute of Applied Health, said: "We observed a two-fold increased risk of fatty liver disease in women with PCOS and male [hormone](#) excess.

"Looking at the levels of the major male hormone testosterone, we found that having a high testosterone level increased the risk of fatty [liver](#) disease significantly, even in women who were of a normal healthy weight."

Professor Wiebke Arlt, Director of the University of Birmingham's Institute of Metabolism and Systems Research, said: "Our research has highlighted significant and previously unknown health risks in women with PCOS and increased male hormone levels.

"Our findings suggest that regular screening for [fatty liver disease](#) should be considered in these women, to make sure the [disease](#) is caught early."

"Our research shows that PCOS does not only affect fertility but also comes with significantly increased rates of metabolic complications."

"This means that women with PCOS need integrated health care throughout their life and not only when planning pregnancy."

More information: Kumarendran et al (2018). 'Polycystic ovary syndrome, androgen excess and risk of non-alcoholic fatty liver disease in women: longitudinal study based on a UK primary care database'. *PLOS Medicine*. doi.org/10.1371/journal.pmed.1002542

Provided by University of Birmingham

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