

Coexisting conditions signal future health trouble for girls

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Six per cent of participants had both conditions, which were associated with significantly higher adiposity (body fat)—measured by weight, BMI, waist circumference and thickness of fat directly under the skin. Credit: iStock

Researchers have found teenage girls with polycystic ovary syndrome (PCOS) are three-times more likely to have non-alcoholic fatty liver disease (NAFLD) than girls without PCOS.

They also determined that having both conditions may increase the individual's risk of future [liver](#) problems and diabetes.

NAFLD is the most prevalent chronic liver disorder in teenagers, affecting up to 17 per cent of the age group.

Linked previously to a western diet, including drinking large quantities of soft drink and inadequate physical activity, NAFLD has few symptoms but can lead to liver cirrhosis later in life.

While estimates vary, experts suggest 9–18 per cent of women aged 27–34 years have PCOS, which can cause disruptions to the menstrual cycle and fertility problems, as well as weight gain, acne and hair loss.

In the University of Western Australia-led study, researchers screened 199 [adolescent girls](#) from the WA Pregnancy Cohort (Raine) Study and found 16.1 per cent had PCOS and 18.6 per cent had NAFLD.

Six per cent of participants had both conditions, which were associated with significantly higher adiposity (body fat)—measured by weight, BMI, waist circumference and thickness of fat directly under the skin.

"Obesity was the dominant characteristic of girls with NAFLD plus PCOS," Murdoch University Professor John Olynyk says.

"The co-existence of these conditions in women may increase the risk of progressive [liver disease](#) and adverse metabolic outcomes, including non-alcoholic steatohepatitis (NASH)-associated cirrhosis."

In the second part of the study, researchers tested the hypothesis that girls with NAFLD plus PCOS would have metabolic similarities to boys with NAFLD.

This was due to girls with PCOS often producing excess insulin, which is linked to high levels of androgens, a hormone group that includes testosterone.

Researchers believed these increased androgen levels would lead female bodies to behave more like their male counterparts.

In a screening of 578 adolescent girls and 592 adolescent boys, they found this was generally the case.

Like boys with NAFLD, girls with PCOS plus NAFLD had higher serum high-sensitivity C-reactive protein (hs-CRP) and higher insulin resistance, suggesting both groups had an increased risk of cardiovascular disease and type-2 diabetes.

Prof Olynyk says weight and obesity and not hormone levels are the best indicator of a co-existing condition, as androgen levels were not significantly higher than those found in [girls](#) with PCOS alone.

The good news is that a healthy diet, exercise and maintaining a healthy weight reduces the risks of PCOS and NAFLD.

More information: William Nseir. Soft drinks consumption and nonalcoholic fatty liver disease, *World Journal of Gastroenterology* (2010). [DOI: 10.3748/wjg.v16.i21.2579](https://doi.org/10.3748/wjg.v16.i21.2579)

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