

Study finds new class of androgens play key role in polycystic ovary syndrome

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Scientists led by the University of Birmingham have discovered that a new class of male sex hormones known as androgens plays a key role in the development of polycystic ovary syndrome (PCOS).

The research, published online in the *Journal of Clinical Endocrinology and Metabolism*, shows that these novel androgens make up more than half of the androgen pool in women with [polycystic ovary syndrome](#).

- A common condition, believed to affect at least one in ten women in the UK, PCOS has significant impact on the life of affected women, causing symptoms which may include the following:
 - Irregular periods: in which the ovaries do not regularly release eggs (PCOS is the most common cause of infertility in the UK)
 - Polycystic ovaries – in which the ovaries enlarge as more and more follicles develop but fail to release a mature egg
 - High levels of androgens: [male sex hormones](#) such as testosterone, which may cause physical signs such as excess facial or body hair

While previous research exclusively focused on the role of the classic androgen, testosterone, in PCOS, this research breaks new ground by showing that a novel class of androgens, known as 11-oxygenated C19 steroids, is the major contributor to androgen excess in women with PCOS.

'Androgens are important as drivers of metabolic risk in PCOS and we can show that more than half of circulating androgens in PCOS patients consists of the previously unrecognised androgen class, the so-called 11-oxygenated androgens,' explains research lead Professor Wiebke Arlt, Director of the Institute of Metabolism and Systems Research (IMSR) at the University of Birmingham.

These results are significant because as research from one of the study's lead authors, Karl Storbeck - a Newton Advanced Fellow at Birmingham in collaboration with his home University, Stellenbosch University in South Africa - has shown, some 11-oxygenated androgens are similarly powerful androgens as testosterone.

Previous work by the Birmingham group had shown that the pattern of androgens in blood predicts the metabolic risk associated with PCOS, a condition now increasingly recognised as a metabolic disorder, with increased rates of obesity, diabetes, [high blood pressure](#) and cardiovascular disease.

Dr Michael O'Reilly, from the University of Birmingham, first author on both those publications, explains: 'This recent paper adds to the puzzle that needs solving: how male hormones increase the risk of metabolic disease in PCOS.'

More information: Michael W. O'Reilly et al. 11-oxygenated C19 steroids are the predominant androgens in polycystic ovary syndrome, *The Journal of Clinical Endocrinology & Metabolism* (2016). [DOI: 10.1210/jc.2016-3285](https://doi.org/10.1210/jc.2016-3285)

Provided by University of Birmingham

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