



CASES EXPERT STATEMENT

THE CASES EXPERT STATEMENT ON PHYSICAL ACTIVITY AND EXERCISE FOR THE MANAGEMENT OF POLYCYSTIC OVARY SYNDROME (PCOS)

Produced on behalf of the Chartered Association of Sport and Exercise Sciences by Prof David Broom HonFCASES, Dr Ruth Ashton, Dr Chris Kite, Dr Ioannis Kyrou, Prof Harpal Randeva, Brent Robbins and Dr Amie Woodward.

Polycystic Ovary/Ovarian Syndrome (PCOS) is the most common endocrine condition in reproductive aged women, affecting approximately 1 in 8 women in the UK according to Verity (PCOS Charity). According to the Rotterdam criteria, a clinical diagnosis is made when, after excluding other relevant conditions, two of the following are present: 1) clinical or biochemical hyperandrogenism (excess androgens e.g., testosterone) 2) oligo-ovulation and/or anovulation and/or 3) polycystic ovarian morphology identified by ultrasound. See - <https://cks.nice.org.uk/topics/polycystic-ovary-syndrome/diagnosis/diagnosis/>

The topic is important because a recent UK parliamentary report (www.pcosappg.co.uk/2025-report-breaking-the-cycle) highlighted over a third of women with suspected PCOS waited more than four years for a diagnosis and ethnic disparities were noted.

Black and Asian women are up to 2.5 times more likely to be diagnosed compared to White women, often with more severe symptoms. Thirty-eight percent of women received no resources or guidance after diagnosis which is alarming as simply promoting an active lifestyle would be beneficial.

Undertaking exercise and physical activity has many benefits as it directly targets multiple mechanisms associated with the development and presentation of PCOS (Woodward *et al.*, 2020). Encouraging physical activity should be a first-line intervention as identified in the most recent evidence-based guidelines (Teede *et al.*, 2023). Sport and Exercise Science therefore plays a critical and multifaceted role in the management of PCOS, offering evidence-based strategies that address both the physiological and psychological dimensions of the condition.

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BACKGROUND AND EVIDENCE

PCOS is frequently associated with increased risk of excess visceral fat accumulation and insulin resistance, further increasing the risk of reproductive and cardiometabolic complications. Excess weight is prevalent in 60% of women living with PCOS and cardiovascular disease risk is increased. Impaired mental health and well-being is also frequently present due to fertility problems, androgenetic alopecia, weight-based stigma, and concerns about the PCOS-related long-term health risks (Teede *et al.*, 2023).

Existing evidence demonstrates that lifestyle interventions represent an effective means to support improvements in the health and wellbeing of women with PCOS. Whilst there is no single definitive treatment for PCOS, exercise has been shown to be beneficial, with our systematic review and meta-analysis of randomised controlled trials (RCTs) identifying statistically favourable effects for several health-related outcomes (Kite *et al.*, 2019). Based on this data, women with PCOS who completed an exercise intervention had improved fasting insulin and cardiorespiratory fitness, and reduced insulin resistance, total cholesterol, low-density lipoprotein cholesterol, triglycerides, waist circumference, and body fat percentage, when compared to those receiving no intervention. Of

note, the most successful exercise interventions were those which were supervised and of a shorter duration (<12 weeks) (Kite *et al.*, 2019). Our recent trial has further indicated that supervised aerobic exercise and lifestyle physical activity interventions are feasible (Woodward *et al.*, 2022).

Woodward *et al.* (2024) note the participants found the interventions acceptable; though suggestions for improving both the current intervention (and other physical activity interventions) include embedding behaviour change techniques to ensure that intervention functions are incorporated at the outset. This will lead to increased priority of physical activity, which is relevant for adherence and long-term uptake. Educational and psychological support components could improve empowerment and self-management of PCOS through providing important knowledge, opportunity and promoting emotional wellbeing. Finally, incorporating social connectivity and support in a way that does not exacerbate shame and negative self-image will provide additional benefits to participants during the intervention and beyond (Woodward *et al.*, 2024).

Resistance training programmes may also be beneficial to the health and wellbeing of women living with PCOS as well as for improving functional fitness, strength and body

image. They may represent a viable method of exercise to those who are deconditioned or unable to tolerate aerobic exercise, however, the current published evidence to support this is limited, with few primary studies at the time our scoping review was published (Kite *et al.*, 2022). A meta-analysis is required to ascertain the value of resistance exercise which our research group is undertaking. Participant voice and personal experiences of women living with PCOS is also essential to guide the codesign and coproduction of interventions with ongoing work by us and Cardiff Metropolitan University in progress.

CONCLUSIONS AND RECOMMENDATIONS

Lifestyle interventions, be it exercise alone or multicomponent diet combined with exercise and behavioural strategies are recommended for improving metabolic health, central adiposity lipid profile and mental health. CASES members and practitioners have a significant role in improving the health of women living with PCOS. However, there is not enough evidence to convincingly provide an optimum prescription.

The latest international evidence-based guideline for PCOS (Teede *et al.*, 2023), suggests that healthcare professionals should be aware that there is a lack of evidence supporting

optimum prescription (i.e. frequency, intensity, time, or type) for the management of key outcomes in PCOS. It is therefore suggested that women living with PCOS should follow general population physical activity guidelines.

CASES members should therefore promote at least 150 minutes of moderate intensity physical activity per week or 75 minutes of vigorous intensity physical activity per week or a combination of both. Physical activity can be accumulated in bouts of any length as "every minute counts". Women living with PCOS should include strength building activities on 2 days per week.

It is important to minimise sedentary time and break up long periods of sitting. Additionally, Teede *et al.* (2023) suggest that self-monitoring, including with fitness tracking devices and technologies for step count and exercise intensity, could be considered as an adjunct to support and promote active lifestyles and minimise sedentary behaviours.

To encourage weight loss, a tailored energy deficit through diet and exercise should be prescribed, considering individual energy requirements, body weight, and physical activity

behaviour. To prevent weight gain, 250 minutes per week of moderate intensity physical activity or 150 minutes per week of vigorous intensity physical activity is needed.

At a time when the role of Clinical Exercise Physiologists (CEP) is becoming increasingly important, CEPs, exercise physiologists and sport and exercise scientists are vital in:

- Designing **individualised and person-centred programmes** based on specific PCOS phenotype, interests, experience, fitness, motivation and goals.
- Addressing the many different and interacting **comorbidities and psychological barriers**.
- Promoting **behavioural change** towards an active lifestyle and **long-term adherence** by implementing effective behavioural change techniques.

More rigorously designed, multi-centred, long-term, and sufficiently powered RCTs are needed so that efficacy and effectiveness can be determined. Mechanistic studies that try to ascertain optimal prescriptions examining different modes of physical activity are also essential. ■



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