

The association between obstructive sleep apnea and metabolic abnormalities in women with polycystic ovary syndrome: a systematic review and meta-analysis

Hassan Kahal, Ioannis Kyrrou, Olalekan Uthman, Anna Brown, Samantha Johnson, Peter Wall, Andrew Metcalfe, Abd A Tahrani, Harpal S Randeva

Sleep, Volume 41, Issue 7, July 2018, zsy085, <https://doi.org/10.1093/sleep/zsy085>

Published: 02 May 2018 [Article history](#) ▼

[Views](#) ▼ [Cite](#) [Permissions](#) [Share](#) ▼

Abstract

Study Objectives

In this systematic review and meta-analysis, we aimed to examine the relationship between obstructive sleep apnea (OSA) and metabolic abnormalities in women with polycystic ovary syndrome (PCOS).

Methods

Electronic databases (Medline, Embase, Cinahl, PsycInfo, Scopus, Web of Science, Opengrey, and CENTRAL), conference abstracts, and reference lists of relevant articles were searched. No restriction was applied for language or publication status.

Results

Six studies involving 252 participants were included. Women with PCOS and OSA had significantly higher body mass index (mean difference [MD]: 6.01 kg/m², 95% confidence intervals [CI]: 4.69–7.33), waist circumference (MD: 10.93 cm, 95% CI: 8.03–13.83), insulin resistance, systolic and diastolic blood pressure, and worse lipids' profile and impaired glucose regulation compared with women with PCOS without OSA. Most studies did not adjust for weight in their between-groups analysis. Total and free testosterone levels were not significantly different between the two groups. The majority of studies were found to be at high risk of selection bias, did not account for important confounders, were conducted in one country (United States), and used different methodologies to assess testosterone levels (preventing a meta-analysis for this specific outcome).

Conclusions

OSA is associated with obesity and worse metabolic profiles in women with PCOS. However, whether the effects of OSA are independent of obesity remain unclear. As OSA is a treatable condition, research focused on the independent effects of OSA on key clinical outcomes in women with PCOS, including fertility, psychological health, type 2 diabetes, and cardiovascular risk, is lacking and needed.

PROSPERO registration number: CRD42016048587.

[polycystic ovary syndrome](#), [obstructive sleep apnea](#), [hyperandrogenism](#), [obesity](#), [insulin resistance](#)

Topic:

[obesity](#)

[polycystic ovary syndrome](#)

[insulin resistance](#)

[obstructive sleep apnea](#)

Issue Section: [Sleep Disordered Breathing](#)

You do not currently have access to this article.

Sign in

Don't already have an Oxford Academic account? [Register](#)

Oxford Academic account

Email address / Username [?](#)

Password

[Sign In](#)

[Forgot password?](#)

[Don't have an account?](#)

Sleep Research Society members



[Sign in via society site](#)

American Academy of Sleep Medicine members



[Sign in via society site](#)

Sign in via your Institution

[Sign in](#)

Purchase

[Subscription prices and ordering](#)

Short-term Access

To purchase short term access, please sign in to your Oxford Academic account above.

Don't already have an Oxford Academic account? [Register](#)

The association between obstructive sleep apnea and metabolic abnormalities in women with polycystic ovary syndrome: a systematic review and meta-analysis - 24 Hours access

EUR €36.00

GBP £28.00

USD \$45.00

Rental



This article is also available for rental through DeepDyve.

[View Metrics](#)

Email alerts

[New issue alert](#)

[Advance article alerts](#)

[Article activity alert](#)

[Subject alert](#)

[Receive exclusive offers and updates from Oxford Academic](#)

Related articles in

[Web of Science](#)

[Google Scholar](#)

Related articles in PubMed

Health Competency Standards in Physical Therapist Practice.

Analysis of Post-Sample Collection EDTA Effects on Mean Platelet Volume Values in Relation to Overweight and Obese Patient Status.

Obstructive Sleep Apnea and Structural/Functional Properties of the Thoracic Ascending Aorta: The Multi-Ethnic Study of Atherosclerosis (MESA).

Novel mechanisms for the metabolic control of puberty: implications for pubertal alterations in early-onset obesity and malnutrition.

Citing articles via

Web of Science (3)

Google Scholar

CrossRef

Latest | **Most Read** | **Most Cited**

Characterization of the sleep disorder of anti-IgGON5 disease

Actigraphic detection of periodic limb movements: development and validation of a potential device-independent algorithm. A proof of concept study

Simultaneous tonic and phasic REM sleep without atonia best predicts early phenocconversion to neurodegenerative disease in idiopathic REM sleep behavior disorder

Residual symptoms after natural remission of insomnia: associations with relapse over 4 years

Sleep duration and fragmentation in relation to leukocyte DNA methylation in adolescents

Looking for your next opportunity?

Chair of Pain Research
Boston, Massachusetts

PEDIATRIC EMERGENCY PHYSICIAN
Saskatoon Shines, Saskatchewan

Endowed Chair of Occupational
Health/Medicine
Saint John, New Brunswick

CHIEF OF THE DIVISION OF ALLERGY,
IMMUNOLOGY AND INFECTIOUS
DISEASE
New Brunswick, New Jersey

[View all jobs](#)

OXFORD
UNIVERSITY PRESS

[About SLEEP](#)

[Editorial Board](#)

[Author Guidelines](#)

[Facebook](#)

[Twitter](#)

[Contact Us](#)

[Purchase](#)

[Recommend to your Library](#)

[Advertising and Corporate Services](#)

[Journals Career Network](#)

Online ISSN 1550-9109

Print ISSN 0161-8105

Copyright © 2019 Sleep Research Society

[About Us](#)

[Contact Us](#)

[Careers](#)

[Help](#)

[Access & Purchase](#)

[Rights & Permissions](#)

[Open Access](#)

Connect

[Join Our Mailing List](#)

[OUPblog](#)

[Twitter](#)

[Facebook](#)

[YouTube](#)

[Tumblr](#)

Resources

[Authors](#)

[Librarians](#)

[Societies](#)

[Sponsors & Advertisers](#)

[Press & Media](#)

[Agents](#)

Explore

[Shop OUP Academic](#)

[Oxford Dictionaries](#)

[Oxford Index](#)

[Epigeum](#)

[OUP Worldwide](#)

[University of Oxford](#)

*further the University's objective of excellence in research, scholarship,
and education by publishing worldwide*

Copyright © 2019 Oxford University Press
Accessibility

[Get Adobe Reader](#)

[Cookie Policy](#)

[Privacy Policy](#)

[Legal Notice](#)

[Site Map](#)