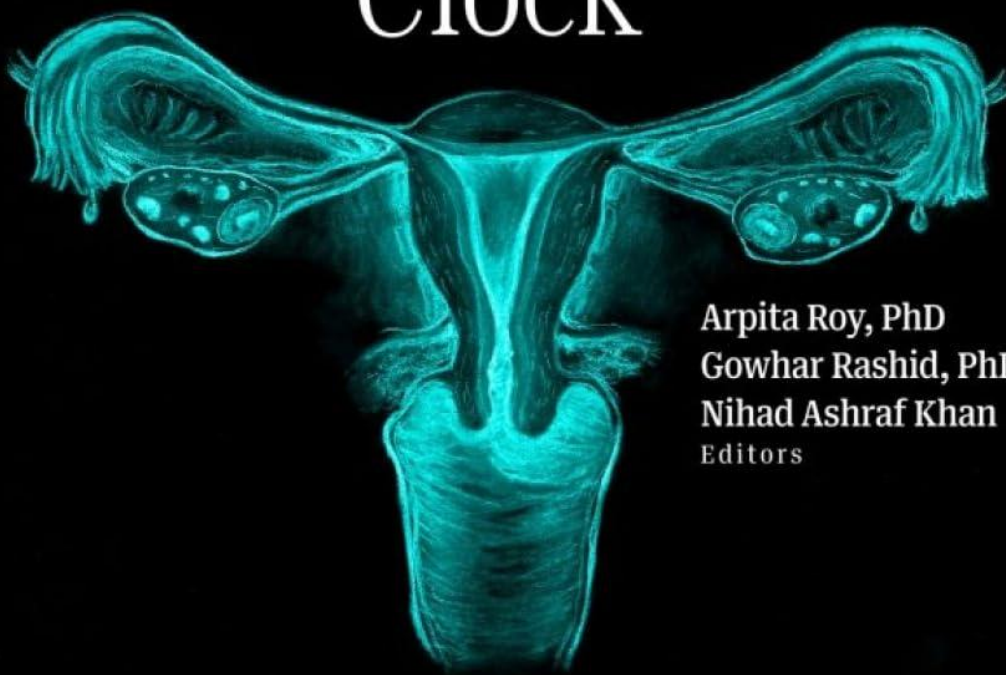


OBSTETRICS AND GYNECOLOGY ADVANCES

# Polycystic Ovarian Syndrome (PCOS) and Our Biological Clock

NOVA  
MEDICINE  
AND  
HEALTH



Arpita Roy, PhD  
Gowhar Rashid, PhD  
Nihad Ashraf Khan  
Editors

NOVA

## Document type

Book Chapter

## Source type


Book


## ISBN

979-889113212-2, 979-889113100-2

[View more](#)

# PCOS and Circadian rhythm: The imbalance and impact of the Melatonin hormone

 Khan, Nihad Ashraf<sup>a</sup>  ; Das, Sagnik<sup>b</sup>;

 Jad, Vitasta<sup>c</sup>; Seth, Namrata<sup>d</sup>
 Save all to author list

<sup>a</sup> Department of Biosciences, Faculty of Natural Science, Jamia Millia Islamia, Delhi, India

<sup>b</sup> Department of Environmental Studies, University of Delhi, New Delhi, India

<sup>c</sup> Department of Marine Biotechnology, University of Goa, Goa, India

<sup>d</sup> Department of Biotechnology, Indian Institute of Science and Technology, Bhopal, India

## Abstract

Melatonin is an indoleamine that serves as the primary hormone produced by the pineal gland for the regulation of circadian rhythm. It also plays a role in regulating various endocrine hormones associated with polycystic ovarian syndrome (PCOS). PCOS is characterized by several symptoms such as hyperandrogenism, insulin resistance (IR), obesity, menstrual irregularities, and anovulation. Maintaining the normal functioning of the female reproductive cycle involves various endocrine hormones such as luteinizing hormone, follicle-stimulating

PCOS and Circadian rhythm: The imbalance and impact of the...

[Full text options](#)  [Export](#) 

Abstract

### Author keywords

Sustainable Development

Goals

SciVal Topics

Metrics

these hormones in PCOS conditions. Melatonin receptors present in the ovary and intra-follicular fluid bind with melatonin hormone, which leads to ovarian follicular maturation and protects ovarian follicles from oxidative stress via anti-oxidative activities. Women with PCOS often exhibit an increased imbalance of melatonin hormone, resulting in sleep disturbances and abnormal sleep architecture. Melatonin's ability to act as an antioxidant and free-radical agent makes it a valuable addition to assisted reproductive techniques (ART). The exogenous administration of synthetic melatonin in women with PCOS could potentially mitigate the adverse effects of PCOS and regulate the endocrine hormones. However, the detailed relationship between circulating levels of melatonin, biomarkers of oxidative stress, and sleep quality in women with PCOS remains unclear. © 2023 Nova Science Publishers, Inc. All rights reserved.

## Author keywords

Circadian rhythm; Hyperandrogenism; Insulin resistance; Melatonin hormone; Menstrual irregularities; Obesity; Polycystic ovarian syndrome