

# New research: Night shift work is linked to menstrual irregularity, increased risk of developing endometriosis

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According to a study being presented at the 23rd European Congress of Endocrinology (e-ECE 2021) on Sunday 23 May, women working night shifts may be at a greater risk of menstrual irregularity and developing endometriosis. The research found a reduction in the expression of PER-2, CRY-1 and CLOCK genes along with an increase in REV-ERBb in ectopic compared to eutopic tissues. Prior to this research, there had been no previously published studies relating to the alterations in core clock-genes and the impact on women with endometriosis.

Endometriosis is a condition in which tissue similar to the lining of the womb starts to grow in other places, such as ovaries and fallopian tubes. Endometriosis affects roughly 10% (190 million) of reproductive-age women and girls globally. The symptoms of [endometriosis](#) can vary—some women are badly affected, while others might not have any noticeable symptoms. In severe cases, it can be very painful and can cause infertility,

miscarriages and ectopic pregnancies due to the probable effects of endometriosis on the pelvic cavity, ovaries, [fallopian tubes](#), or uterus.<sup>2</sup> Disruption of circadian rhythm in night shift workers has been associated with menstrual irregularity, as well as an increased chance of developing endometriosis and ovarian tumours.

Dr. Narjes Nasiri-Ansari, Dr. Aggeliki Karapanagioti, and a team of colleagues under the guidance and supervision of Professor Eva Kassi from the National and Kapodistrian University of Athens, Greece, investigated the expression of the core clock-related genes in paired eutopic and ectopic endometrial tissues. The study looked at 27 patients with confirmed ovarian endometriosis. Eleven (11) paired samples were collected from ovarian cysts (ectopic endometrial tissues) and normal endometrium (eutopic tissues), while a further eight (8) ectopic and eight (8) eutopic endometrial tissues were collected from 16 different patients with the same diagnosis.

"The [clinical evidence](#) that circadian rhythm disruptions can be associated with endometriosis is now confirmed at [tissue](#) level by the altered expression of local [clock genes](#) in ectopic endometrium. Understanding the causes and effects of endometriosis will improve our ability to detect, manage or even prevent the condition. These findings provide us with a better understanding of biological rhythm disturbances," commented Professor Eva Kassi.

The results from this study demonstrate an altered expression of CLOCK, CRY1, PER-2 and Rev-ERBb in normal endometrium tissues, as compared to ectopic endometrial tissues, indicating a disturbance of biological timing. However, the causal relationship of the altered expression pattern of these genes with the development of

endometriosis needs further investigation.

**More information:** Abstract 1394: Alterations in clock genes expression in Eutopic and Ectopic Endometrial Tissue, <http://www.ece2021.org>

Provided by European Society of Endocrinology

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