

Exposure to the sun's UV radiation may have a positive effect on fertility in women aged 30–40

February 19 2024



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A research team from Tel Aviv University and the Sheba Medical Center at Tel Hashomer conducted an investigation of seasonal

fluctuations in AMH (anti-Müllerian hormone) levels. Their pioneering study revealed that during the summer, women of late reproductive age—between the ages of 30 and 40—experience increased secretion of the hormone from their ovaries.

This phenomenon is suggested to be attributed to heightened exposure to ultraviolet (UV) radiation from the sun. The research was led by Prof. Carmit Levy of the Department of Human Genetics and Biochemistry in a team effort of Ph.D. student Roma Parikh and Prof. Yftach Gepner of the School of Public Health, all from the Faculty of Medicine at Tel Aviv University and Dr. Ruth Percik from the Institute of Endocrinology at Sheba Medical Center.

The results of the study were [published](#) in the journal *Steroids*.

"The ovaries secrete the anti-Müllerian hormone, and its level in the bloodstream is linked to ovarian function," explains Dr. Percik. "While the hormone level is specific to an individual woman at a given point in time and does not provide a definitive assessment of the status of her fertility, evaluating its value, trend, and comparison to the age group is the best indicator of fertility that we have."

"For this reason, every woman who wants to get pregnant or is trying to is sent for an AMH test. In Israel, all of these tests are directed to the central laboratory in Sheba. Our research group investigated the seasonal variability of the AMH tests in order to gauge how the ovaries respond to UV radiation."

The researchers compared the AMH results of 2,235 Israeli women to the recorded levels of UV radiation. For younger women aged 20-29, no statistical relationship was found between UV exposure and AMH level. On the other hand, among older fertile women aged 30 to 40, a statistically significant seasonal pattern emerged: These women, whose

egg reserves are in decline, responded positively to sun exposure.

"Based on our prior studies, we can affirm that sun exposure increases metabolism, sexual appetite, and behavior, and, at least in animal models, enlarges the ovaries and extends the estrus period," explains Prof. Levy. "This is a preliminary, pioneering human epidemiological study, and we need to be cautious about inferring a [causal relationship](#) between fertility in women and exposure to UV radiation. Humans are not the same as mice."

"However, we are also animals; our hairless nature makes us even more sensitive to solar radiation. Our research suggests that the female reproductive system is indeed more fertile in the summer, but we still have no information on the mechanism or actual success rates."

Particularly interesting is the absence of this effect among [younger women](#) in their 20s. According to Dr. Percik, this may be attributed to the ample egg reserve found in young women. "Based on my interpretation of the findings, women at the onset of their reproductive age are less in need of signals from the sun, which affect hormonal pathways that have not yet been sufficiently studied. They are less impacted or dependent on the forces of nature in the context of fertility. In contrast, older ovaries need optimal environmental factors in order to function."

"In fact, this effect was even more pronounced among women aged 35 and older. Of course, there are caveats: Exposure to the sun's UV radiation should always be done in moderation, and further research is required in order to determine whether such exposure actually helps fertility, and how much exposure is needed."

More information: Roma Parikh et al, Seasonal AMH variability implies a positive effect of UV exposure on the deterioration of ovarian

follicles, *Steroids* (2023). DOI: [10.1016/j.steroids.2023.109307](https://doi.org/10.1016/j.steroids.2023.109307)

Provided by Tel Aviv University

Citation: Exposure to the sun's UV radiation may have a positive effect on fertility in women aged 30–40 (2024, February 19) retrieved 28 April 2024 from <https://medicalxpress.com/news/2024-02-exposure-sun-uv-positive-effect.html>

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