

Study links blue light from smartphones or tablets to early puberty

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Exposure to blue light, like that from smartphones or tablets, may lead to early puberty in male rats, according to research presented at the [61st Annual European Society for Pediatric Endocrinology Meeting](#) in The

Hague. The results of this study were also published in [Frontiers in Endocrinology](#).

This study is the first to investigate the association between [blue light](#) exposure and [early puberty](#) in [male rats](#), and sheds light on how [environmental factors](#), such as screen time, impact early puberty and testicular tissue, which could eventually lead to future prevention strategies for children.

Early puberty for most children does not have an obvious cause. Sometimes it is due to genetics, or there is a problem in the brain, such as an injury or tumor, or in the thyroid, adrenal or sex glands.

In recent years, several studies have reported increases in early puberty onset for both girls and boys, particularly during the COVID-19 pandemic. One factor may be the increased use of blue light-emitting devices, but this is very difficult to assess in children.

In this study, researchers from the Ankara Bilkent City Hospital and Gazi University in Turkey examined 18 male rats aged 21-days-old, divided into three groups of six and exposed to either a normal light cycle, to six hours or 12 hours of blue light.

The researchers found that the first signs of puberty occurred significantly earlier in male rats exposed to blue light. Additionally, the longer the rats were exposed to blue light, the earlier their puberty started, while they also showed suppressed sperm development and damaged testicular tissue.

A previous study from the same group has also shown an earlier onset of puberty in female rats due to blue light exposure. However, this association has never been studied in male rats before.

"For the first time, we found a [direct relationship](#) between blue light exposure and early puberty in male rats," said lead researcher Dr. Aylin Kılınç Uğurlu from Ankara Bilkent City Hospital. "Our findings align with our previous work on female rats, which also showed similar effects, thereby providing a more comprehensive view of how blue light may influence puberty in both male and female rats."

While the findings suggest that blue light exposure could potentially be a risk factor for earlier puberty onset, more research is needed. "I want to emphasize that this is a rat study and direct results cannot be interpreted for humans. However, we provide an experimental foundation to further investigate the health consequences of ever-increasing [screen time](#) in [modern society](#)," said Dr. Kılınç Uğurlu.

The researchers will next focus on assessing the impact of blue light exposure before puberty in adult rats. "We aim to expose both male and [female rats](#) to blue light before puberty and understand its long-term effects on reproductive organ damage and fertility," said Dr. Kılınç Uğurlu.

"Ultimately, this research could lead to [preventative measures](#) and contribute to the ongoing discourse on how modern lifestyles affect physiological development and long-term health."

More information: Aylin Kılınç Uğurlu et al, Is blue light exposure a cause of precocious puberty in male rats?, *Frontiers in Endocrinology* (2023). [DOI: 10.3389/fendo.2023.1190445](https://doi.org/10.3389/fendo.2023.1190445)

Abstract FC13.6 Effects of Blue Light Exposure and Exposure Duration on Male Rats Puberty Process

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