

Melatonin can help you get a good night's sleep in a noisy environment

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Using melatonin could provide more and better quality sleep compared to using an eye mask and earplugs in a simulated noisy and illuminated environment, according to research published in open access journal *Critical Care*. This study was carried out on healthy subjects but could have future implications for intensive care unit (ICU) patients.

Melatonin is the hormone secreted by the body to regulate [sleep](#), usually in periods of darkness. Synthetically produced melatonin is used to boost the body's own melatonin levels to treat some [sleep disorders](#), and sometimes as a means of overcoming jet lag. In ICUs, disturbances throughout the night, caused by noise and light, have been linked to slower recovery. This has led clinicians to investigate ways of reducing sleep disturbances.

Researchers from Capital Medical University in Beijing recruited 40 healthy participants to study the effects simulated ICU conditions had on [sleep patterns](#). The research was conducted in the sleep lab of Fuzhou Children's Hospital of Fujian Province in collaboration with Professor Ling Shen. For the first four nights all participants underwent a baseline/adjustment period. During this time they slept in a sleep laboratory where on alternating nights a recording from a typical night shift at an ICU was played and light levels were the same as in the hospital.

After the first four nights the participants were randomly divided into four equal groups but continued to sleep in the simulated ICU. The first

group did not receive any sleep aid. The second were provided with eye masks and earplugs. The third group took 1mg of fast-release oral melatonin when going to bed. The final group of participants was given a placebo. The participants did not know if they were receiving melatonin or placebo.

During the study period all participants' melatonin levels were tested hourly by taking blood samples. The quality of sleep was assessed using specialist equipment that measured brain activity, eye movement and muscle tension. Anxiety levels and [sleep quality](#) were also evaluated by getting participants to self-evaluate the following morning.

It was found that all sleep patterns were disturbed by exposure to the simulated ICU environment. This resulted in feelings of anxiety and reduced quality of sleep. Those participants that used either eye masks and earplugs or oral melatonin had improved sleep. Those who took melatonin were found to have decreased awakenings during the night even compared to the eye mask and earplugs group. The quality of the sleep was also found to be much improved for those taking melatonin, with reported lower anxiety levels and increased REM sleep - thought to be linked to improved cognitive restoration.

As this study was carried out on a small number of healthy subjects over a nine-hour period it may not give a full representation of the various [sleep disturbances](#) that can occur in an ICU over 24 hours. They say future studies will need to be carried out on a larger group of diverse participants. Consideration would also need to be given for the administration of oral melatonin to critically ill patients who may also be taking other medications.

Lead researcher, Professor Xiu-Ming Xi from Fuxing Hospital, Capital Medical University, says: "Both use of oral melatonin and use of earplugs and eye masks improve sleep quality at different levels,

especially melatonin. Discomfort from use of earplugs and eye masks might affect sleep quality, which wasn't reported with melatonin. Therefore, compared to earplugs and eye masks, [melatonin](#) showed up the better performance in effectiveness and the tolerance of [participants](#)."

More information: Effect of oral melatonin and wearing earplugs and eye masks on nocturnal sleep in healthy subjects in a simulated intensive care unit environment: which might be a more promising strategy for ICU sleep deprivation? Hua-Wei Huang, Bo-Lu Zheng, Li Jiang, Zong-Tong Lin, Guo-Bin Zhang, Ling Shen and Xiu-Ming Xi
Critical Care , [DOI: 10.1186/s13054-015-0842-8](https://doi.org/10.1186/s13054-015-0842-8)

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