

Melatonin linked to improved brain function in child concussion

19 August 2020, by Kartik Iyer



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Melatonin could improve brain functions related to sleep quality in children recovering from concussion, according to a University of Queensland study.

Using the latest brain mapping techniques, researchers examined Magnetic Resonance Imaging (MRI) scans from 62 children before and after taking melatonin or a placebo in a randomized clinical trial.

Child Health Research Center's Dr. Kartik Iyer said the study revealed that concussed children who received 3mg or 10mg of melatonin over a four-week period experienced significant improvement in whole-[brain function](#) and gray matter—[brain regions](#) which are essential for sleep control and cognition.

Dr. Iyer said the MRI scans enabled the team to rapidly assess millions of neural connections to help guide treatment response.

"We identified a specific 'network' of brain connections that positively responded to melatonin

treatment, compared with placebo," Dr. Iyer said.

"The results suggest melatonin, when taken by children with concussion, compensated for normal brain functions that may have been interrupted due to injury."

One of the most common complaints after childhood concussion is sleep disturbance and fatigue, which can persist for years.

Dr. Iyer said this could have a detrimental effect on brain function and anatomy and potentially hinder progress to normal development.

"A good night's sleep is essential for children as it allows them to consolidate what they've learned throughout the day and restore energy for the day ahead," he said.

"Our study shows that melatonin, when taken orally over several weeks, may reduce [sleep disturbances](#) and improve sleep quality."

However the team found solving sleep problems may only be part of the answer in aiding recovery.

"A surprising aspect of the study was that not all [children](#) made a full recovery from concussion just by taking melatonin," Dr. Iyer said.

"Even though increases in brain functions and gray matter corresponded with decreases in sleep disturbance and fatigue, the supplement didn't resolve other common concussion symptoms such as memory problems, anxiety and depression."

Parents are advised to consult their doctor or neurologist if their child is having sustained sleeping problems following a concussion to assess their suitability for short-term use of melatonin.

This paper was published in the *Journal of Neurotrauma*.

More information: Kartik Iyer et al. Neural signatures of sleep recovery following melatonin treatment for pediatric concussion, *Journal of Neurotrauma* (2020). DOI: [10.1089/neu.2020.7200](https://doi.org/10.1089/neu.2020.7200)

Provided by University of Queensland

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