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[Behav Brain Res.](#) 2001 Jun;121(1-2):167-72.

Early morning melatonin administration impairs psychomotor vigilance.

[Graw P](#), [Werth E](#), [Kräuchi K](#), [Gutzwiler F](#), [Cajochen C](#), [Wirz-Justice A](#).

Source

Centre for Chronobiology, Psychiatric University Clinic, Wilhelm Klein Strasse, 27, 4025 Basel, Switzerland. peter.graw@pukbasel.ch

Abstract

The acute soporific effect of melatonin in humans has been demonstrated in a range of studies. How alertness and performance are changed after melatonin given in the morning is not yet known. In a double-blind, placebo-controlled study of nine healthy young men, melatonin was given at 0700 h under controlled conditions of a modified constant routine protocol lasting 56 h (2 days, 3 nights with sleep). A clear decrement in neurobehavioral functions as measured by the Psychomotor Vigilance Test lasted for 6 h after melatonin administration (particularly in the lapse domain and median of the reaction time) without any effect on a letter cancellation task. A subjective soporific effect was present but less pronounced. Thus, melatonin taken in the morning requires caution in situations where high attention is needed.

PMID: 11275293 [PubMed - indexed for MEDLINE]

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[Melatonin and zopiclone as pharmacologic aids to facilitate crew rest.](#) [Aviat Space Environ Med. 2001]

[Effects of dextroamphetamine, caffeine and modafinil on psychomotor vigilance test performance after 44 h of continuous wakefulness.](#) [J Sleep Res. 2008]

Review [The acute soporific action of daytime melatonin administration: effects on the EEG during wakefulness and subjective alertness.](#) [J Biol Rhythms. 1997]

Review [\[Therapy of jet lag\].](#) [Wien Med Wochenschr. 1995]

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[Biol Signals Recept.](#) 1999 Jan-Apr;8(1-2):111-9.

Melatonin influences human balance.

[Fraschini E](#), [Cesarani A](#), [Alpini D](#), [Esposti D](#), [Stankov BM](#).

Source

Department of Pharmacology, University of Milan, Italy. f.fraschini@unimi.it

Abstract

In order to evaluate a possible correlation between melatonin, the cerebellum and, consequently, human balance, a double-blind pilot study was performed in 5 subjects with random administration of different doses of melatonin. Before and 1 h after a single administration, a complete otoneurological examination was performed. This first pilot study revealed that melatonin had effects on human equilibrium although these effects were not dosage related and were different in individual subjects. On the basis of these results, a second study was performed. Fourteen healthy volunteers were investigated before and 1 h after administration of a single dose of 10 mg melatonin. The otoneurological examination was restricted to the evaluation of: horizontal saccades, horizontal sinusoidal smooth pursuit, eyes open, eyes closed and head retroflexed static posturography. All subjects showed a decrease in posturographic performances, especially in the simplest test (eyes open) and half of them (6 out of 13) showed also impairment of eye movements. These results confirm the role of melatonin in the control of sensorimotor performances, and the cerebellar receptors might be correlated with the control of human balance.

PMID: 10085472 [PubMed - indexed for MEDLINE]

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[Aging and vestibular system: specific tests and role of melatonin in cognitive involvement.](#) [Arch Gerontol Geriatr Suppl. 2...]

[Spatial orientation and balance control changes induced by altered gravito-inertial force vectors.](#) [Exp Brain Res. 2001]

[Review Prospects of the clinical utilization of melatonin.](#) [Biol Signals Recept. 1998]

[Review Posture in otoneurology. Volume I.](#) [Acta Otorhinolaryngol Belg. 1990]

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[Evaluation of GPR50, hMel-1B, and ROR-alpha melatonin-related receptors and the etiology of adolescent idiopathic scoliosis.](#) [J Pediatr Orthop. 2010]

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[Behav Brain Res.](#) 2002 Apr 1;131(1-2):87-95.

Residual effects of daytime administration of melatonin on performance relevant to flight.

[Nave R](#), [Iani C](#), [Herer P](#), [Gopher D](#), [Lavie P](#).

Source

Sleep Research Laboratory, Faculty of Medicine, Technion-Israel Institute of Technology, Gutwirth Building, 32000, Haifa, Israel.

Abstract

There is a general consensus that melatonin possesses time-dependent hypnotic effects, but there is no information yet whether it has residual effects on neurobehavioral performance, especially after daytime administration. In the present study we investigated the possible residual effects of 3 mg melatonin on performance relevant to flight and on subjective feelings of sleepiness, arousal, activation and affect after a daytime nap, as a function of nap length. Fifteen reserve pilots of the Israeli Air Force participated in the study. The experiment consisted of four sessions during which either melatonin or placebo was administered at 16:00 h. In two conditions, subjects were allowed to sleep for 2 h (17:00-19:00 h) whereas in the other two only a 0.5-h nap was allowed. After the naps they started performing a flight simulator task every 2 h. Sleep efficiency significantly increased and sleep latency significantly decreased in both melatonin conditions compared to placebo. Flight performance was only mildly affected in the 0.5-h nap condition. Subjective assessment of sleepiness significantly differed between the two treatment conditions, only in the 0.5-h nap condition. Subjects felt sleepier 2-4 h after melatonin administration. To conclude, our data suggest that administration of melatonin before a brief daytime nap (about 0.5 h) may be associated with mild residual effects on psychomotor performance and may significantly affect subjective feeling of sleepiness for 2-4 h.

PMID: 11844575 [PubMed - indexed for MEDLINE]

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[Effects of melatonin administration on daytime sleep after simulated night shift work.](#) [J Sleep Res. 2001]

[Effect of inducing nocturnal serum melatonin concentrations in daytime on sleep, mood, body](#)

[temperature, and performance.](#) [Proc Natl Acad Sci U S A. 1994]

[Melatonin and zopiclone as pharmacologic aids to facilitate crew rest.](#) [Aviat Space Environ Med. 2001]

Review [Melatonin for the prevention and treatment of jet lag.](#) [Cochrane Database Syst Rev. 2002]

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[Brain Res Brain Res Rev.](#) 1991 Sep-Dec;16(3):245-56.

Melatonin binding sites in the central nervous system.

[Stankov B](#), [Fraschini E](#), [Reiter RJ](#).

Source

Chair of Chemotherapy, University of Milan, Italy.

PMID: 1665096 [PubMed - indexed for MEDLINE]

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[Review Melatonin binding sites: are they receptors?](#) [Mol Cell Endocrinol. 1992]

[Review N-acetyltransferase and melatonin in the retina: regulation, function and mode of action.](#) [Biochem Soc Trans. 1992]

[Review Melatonin receptors.](#) [Annu Rev Pharmacol Toxicol. 1991]

[Melatonin binding sites in the brain of sheep exposed to light or pinealectomized.](#) [Neurosci Lett. 1991]

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