

MELATONIN --- 2018

Your NUTRI-SPEC manual highlights the many potential problems from melatonin supplementation. Critically important are its effects on hormone balance --- since it can oppose both thyroid function and progesterone function, and increase prolactin.

Most notable among the side effects from melatonin supplementation is that it can cause insomnia --- which is particularly problematic since most people who take melatonin do so seeking a sleep aid. ----- However --- there are now studies showing that many of the problems associated with melatonin supplementation derive simply from taking an overdose. Research done primarily at MIT (Department of Brain and Cognitive Sciences) shows that the ideal physiological quantity of melatonin supplementation is in the range of 0.2 to 1.0, while most melatonin supplements available at health food stores provide between 10 times and even 150 times that physiological quantity.

Supplementation with a physiological dose of melatonin enhances, even in the elderly (who are most at risk for melatonin insufficiency because of pineal gland atrophy or calcification), the natural rectangular distribution response. In other words, the melatonin level in the brain increases by a factor of 10 very suddenly sometime between 9 and 11 pm, then decreases back to daytime baseline level very suddenly sometime between 6 and 8 am. A bedtime supplemental dose of melatonin in the 0.2 to 1.0 range duplicates exactly that rectangular response in those who are shown to be melatonin deficient. The melatonin increases, plateaus, and then decreases, as in healthy young volunteers with ideal natural melatonin output.

The melatonin released at night by the pineal gland activates two brain receptors, M1 and M2, located in the suprachiasmatic nucleus. That brain center is known to control sleep and circadian rhythm. In those who are melatonin deficient, a physiological supplementation dose very definitely has two effects --- sleep promotion + entrainment of circadian rhythms.

Taking a megadose of the typical health food industry melatonin supplement causes hypothermia, hyperprolactinemia, morning grogginess --- and --- desensitization of the M1 and M2 melatonin receptors. This desensitization can occur after just one or two nights of melatonin use, and results in insomnia.

Unlike the GABA-activating sleeping pills (benzodiazepines, etc.), melatonin, while working on the suprachiasmatic nucleus rather than the GABA receptors, does not suppress REM sleep. Nor does it alter the distribution of sleep stages.

Proper melatonin supplementation at bedtime very definitely aids in decreasing sleep latency, and makes it easier to fall back to sleep for those who typically wake up in the middle of the night and cannot go back to sleep. Studies show that for those who do wake up prematurely, a second small dose of melatonin aids in getting back to sleep quickly. ----- Recommended supplementation is 0.25 to 0.5 mg at bedtime, and if necessary, another 0.25 to 0.5 mg upon waking up in the middle of the night. ----- If getting to sleep is still a problem, then the bedtime dose can be increased to an absolute maximum of 1.0 mg.

If the maximum physiological dose of melatonin (1.0 mg) does not significantly help sleep, then the insomnia is due to a cause other than melatonin insufficiency. NUTRI-SPEC has identified several other common causes of insomnia --- all of which can be revealed by one of the NUTRI-SPEC testing protocols. These include:

- Dysaerobic Imbalance
- Sympathetic Imbalance (β 1, β 2 &/or β 3 receptor stress)
- Metabolic Alkalosis or Respiratory Alkalosis
- Histamine Excess
- Prostaglandin E2 Excess
- Hypothyroid or Thyroid Insufficiency
- Progesterone Insufficiency