

Letter from the Industrial Physician



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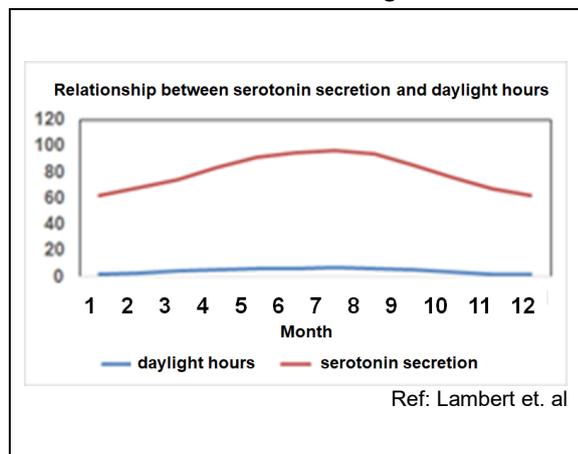
Let's get over “depression” on rainy days by increasing serotonin secretion!

The rainy season will soon be upon us. As the weather continues to be dull and dreary, it is easy to feel depressed and ill. If you have symptoms such as “I feel unmotivated for some reason” or “My sleep is shallow”, it may be related to “serotonin deficiency”. Serotonin is one of the neurotransmitters in the brain and plays an important role in influencing mood, motivation, and sleep quality. It is one of the so-called “happiness hormones”.

In this issue, we will introduce the relationship between sunlight hours and serotonin secretion based on actual research data. The graph below is based on a study conducted in Canada (Ref). This is the first paper to present evidence in humans that longer daylight hours are associated with higher serotonin activity in the brain. In this study, data show that serotonin activity (metabolite concentrations) in the brain tends to be higher during seasons of longer daylight hours.

It is thought that these physiological changes are related to the fact that people tend to feel depressed during the winter season.

Let us look at the hours of sunlight in Japan. Data from the Japan Meteorological Agency shows that the average hours of daylight in Tokyo over a 30-year period is 179.6 hours in May, 124.2 hours in June, but the average decreases to 174.2 hours in August, returning to the May level. Thus, Tokyo has the fewest hours of sunlight in June.



Lifestyle habits to boost serotonin

- ✓ Open the curtains in the morning and get some light (at least 15 minutes)
- ✓ Take light walks in the sunlight on your commute to work and lunch break
- ✓ Consciously incorporate rhythmic exercise (walking, stairs, chewing, etc.)
- ✓ Consume foods containing tryptophan (dairy products, natto, bananas, etc.), which is a source of serotonin

Why does the amount of serotonin secretion change depending on the hours of daylight? Light entering the eyes reaches the “suprachiasmatic nucleus,” the center of the body's internal clock, through the optic nerve. This stimulation activates the neural circuits that promote serotonin secretion. In addition, exposure to sunlight increases the activity of serotonin-synthesizing enzymes (tryptophan hydroxylase, etc.), which leads to the production of more serotonin.

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Since serotonin activity tends to decrease during the rainy season and winter, it is important to consciously supplement serotonin in our daily lives (see table above). During these times of increased mental illness, we urge you to be aware of the need for sun exposure and a review of your daily rhythm. Don't stay indoors all the time just because it is a rainy day. You may feel more energetic if you try to get a little natural light.

Ref: Lambert GW, Reid C, Kaye DM, Jennings GL, Esler MD. (2002). Effect of sunlight and season on serotonin turnover in the brain. *The Lancet*, 360 (9348), 1840-1842.