

Delayed Sleep Phase Syndrome

SDA Fact Sheet AT11

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Everyone differs in their need for sleep and their sleeping habits but once we have adapted to a particular sleeping pattern, most of us are able to keep to that schedule. People who suffer from Delayed Sleep Phase Syndrome are unable to get their sleep pattern back in line with what is considered normal and even if they do, they are not able to maintain this. This is a significant problem to the person suffering from DSPS, leading to insomnia and depression

What is Delayed Sleep Phase Syndrome? DSPS is believed to be a disorder of the body's timing system - the biological clock. DSPS sufferers have difficulty falling asleep and difficulty waking because their biological clocks are out of phase with the sleeping and waking times expected of them.

What is the circadian rhythm and what is normal? Each day the body's biological clock goes through a cycle where various chemicals or hormones are produced to control the body's function. This is called the circadian rhythm or circadian cycle and causes the person to feel sleepy at night time. There is also a sleepy phase in mid afternoon, which is why siestas are popular in some countries. This cycle is linked to the day-night cycle by external cues, such as sun-rise, alarm clocks or even television programs. Amongst people with normal circadian rhythms, there are some "morning people" who prefer to wake early and go to bed early, and there are "evening people" who prefer to wake later and stay up at night. These differences may be biologically driven or just an adaptation to lifestyle requirements. However, whether they are a morning person or an evening person, when needed they can sleep at a different time. People with DSPS cannot do that.

What are the symptoms of DSPS? People with DSPS have sleep onset insomnia, that is, they have great difficulty falling asleep. This may mean that they do not fall asleep until the early hours of the morning. If they need to wake up for school or work the next day, they will not get enough sleep and feel extremely tired. As the day progresses they feel less tired and the next night, rather than catching up the sleep they missed by going to sleep early, they will again have trouble falling asleep. This cycle goes on indefinitely. When allowed to sleep longer, for example, at the weekend, they may sleep until the afternoon and wake refreshed. DSPS doesn't bother everyone who has it. Some people are happy and healthy with a late sleeping schedule, and have found ways to adjust their lifestyle to it.

Is DSPS like Jet-Lag? In jet lag the "sleep phase" becomes shifted because the body's biological clock retains the rhythm that it was used to in the home country. If you travel to the other side of the world this means that your body expects to be asleep when you need to be awake and vice versa. Jet lag lasts only a few days at most and is generally overcome by forcing yourself to sleep at the time expected in the new country. Traveling eastwards, even from Perth to Sydney, may make it difficult to fall asleep for a few nights but this usually resolves quickly.

Who suffers from DSPS? Teenagers are particularly susceptible. This may be from the conflict between stresses of school or university and the peer pressure to maintain an active social life although new research suggests that at least some teenagers are programmed to sleep and wake late. DSPS has been estimated to affect about 7% of adolescents but it can occur at any age.

What causes DSPS? It is thought that DSPS may be caused by an inability to reset the sleep/wake cycle in response to the environmental time cues - perhaps the biological clocks of DSPS sufferers have an unusually long cycle, or perhaps they are not sensitive enough to time cues. There may be an imbalance in some of the hormones that help to maintain this sleep/wake cycle, particularly melatonin, which may be used to treat the disorder.

How is DSPS diagnosed? DSPS is a sleeping pattern and there is no simple diagnostic test that will show whether the person has DSPS. Referral to a sleep specialist is usually necessary. The sleep specialist may ask detailed questions about sleep pattern and ask the person to keep a sleep diary for a couple of weeks. This involves a daily recording of:-

- The time they tried to fall asleep
- The time they think they fell asleep
- Any night-time awakenings
- The time they woke up
- The time they got out of bed
- The time they had to be up
- Whether they woke up naturally
- Any daytime naps - how long and when
- What medications are used

Is there a link between DSPS and depression? People with DSPS often suffer from depression. In fact, depression is likely in any form of insomnia. It is not clear whether the insomnia is the result of depression or whether the depression is the result of insomnia. Treating any underlying depression will be important in a long term control of DSPS.

How is DSPS treated? DSPS may eventually get better by itself however, in the short term the sleep specialist may suggest one of four main ways that may be effective in keeping DSPS under control.

1. Exposure to bright light in the early morning will help to advance the sleep phase and maintain a more regular sleeping pattern. Taking a walk in the early morning sunlight or reading the newspaper outside may help but bright light units may be required. These are available for hire and are used for an hour or more after awakening. They must be used in combination with manipulation of sleeping times to try and establish an acceptable pattern.
2. Psychological or psychiatric help to address underlying depression and provide advice on good sleep habits may be recommended.
3. Melatonin is a naturally occurring hormone that is produced in response to light and has been shown to have a role in maintaining circadian rhythm. It also acts as a sleep promoter and taken about 30 minutes before bedtime may be helpful in allowing the DSPS sufferer to maintain a reasonable sleep pattern. The treatment is new and long term effects are not known at this time. It should only be taken under a doctor's supervision.
4. Chronotherapy used to be the mainstay of treatment for DSPS but newer treatments are less intrusive. For DSPS, chronotherapy usually consists of delaying sleep for about three hours each night and then sleeping for a normal time. This is repeated for about one week until sleep is occurring at approximately the correct time.

Do sleeping tablets have a place in the treatment of DSPS? Sleeping tablets may help in the short term but will not help to reset the body clock and have no long term role.

Are there things that can be done to lessen the impact of DSPS? Lifestyle adjustment may be necessary in coming to terms with DSPS. Working the evening or night shift, or working at home, can make DSPS less of an obstacle. Some people nap, even taking four hours of sleep in the day and four at night. Significant modifications to sleep patterns should only be done under the supervision of a sleep specialist and if daytime sleepiness is a problem, driving or operating dangerous machinery should be avoided.

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