

DELAYED SLEEP PHASE SYNDROME



Delayed Sleep Phase Syndrome

Everyone differs in their need for sleep, but once we have adapted to a particular sleeping pattern, most of us are able to keep to a schedule. People who suffer from Delayed Sleep Phase Syndrome are unable to get their sleep pattern in line with what is considered normal, or even if they do, they are not able to maintain a normal pattern.

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. They tend to naturally fall asleep and wake up later than what is considered normal. They are unable to fall asleep until very late at night, or sometimes the early hours of the morning. They then do not wake up until late morning or the afternoon. This inability to fall asleep at a more typical bedtime can be mistaken for insomnia, but the difference is, if people with DSPS are allowed to follow their biological clock, they usually have no problem either falling asleep or waking up naturally, just not at the conventional times.

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 usually sleep at a different time. People with DSPS cannot do that because they cannot control their sleep onset.

What are the symptoms of DSPS? People with DSPS have great difficulty falling asleep at a typical bedtime, and naturally fall asleep much later. 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. Despite feeling tired for most of the day, people with DSPS will not be able to catch up by going to sleep early, but will again have trouble falling asleep. This cycle can go on indefinitely causing sufferers to experience extreme sleep deprivation. However, 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 find ways to adjust their lifestyle to a late sleeping schedule.

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? Adolescents have biologically different sleep and wake patterns compared to adults or children, which makes them particularly susceptible to DSPS. It has been estimated to affect about 7% of adolescents, however DSPS can occur at any age. While some teenagers will grow out of it, others can be affected for their whole life.

What causes DSPS? The cause of DSPS is not completely known. 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? Many people with DSPS also suffer from depression. It is not clear whether the DSPS is a symptom of their depression or whether the depression is the result of trying to manage with DSPS. Treating any underlying depression is important in gaining long term control of DSPS.

How is DSPS treated? For some people, DSPS may eventually improve by itself. Sleep specialists generally suggest one or more of the following may be effective in keeping DSPS under control.

- **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.
- **Psychological help** to address any underlying depression and to provide advice on good sleep habits may be recommended.
- **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. It should only be taken under a doctor's supervision.
- **Chronotherapy** used to be the mainstay of treatment for DSPS but newer treatments are less intrusive. For DSPS, chronotherapy usually involves going to bed later and later each night (and waking later each day, until the desired sleep time is eventually reached. This may work for some people, but others struggle and revert back to their body's preferred schedule. There is also a risk that this treatment may cause the DSPS to progress to a disorder called "non-24-hour sleep-wake disorder", which is a lot more difficult to live with.

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? For many people with DSPS, sleeping on a normal schedule may be difficult or even impossible and trying to do so can cause sleep deprivation and stress. In these cases, making lifestyle adjustments that allow them to live closer to their natural sleep schedule may be the best answer. This may include working the evening or night shift, or working flexible hours from home. Some people nap, or split their sleep into four hours 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.

DISCLAIMER - Information provided in this fact sheet is general in content and should not be seen as a substitute for professional medical advice. Concerns over sleep or other medical conditions should be discussed with your family doctor.