

Delayed Sleep Phase Syndrome

WHAT IS DELAYED SLEEP PHASE SYNDROME?

Delayed sleep phase syndrome (DSPS) is a disorder in which the person's sleep-wake cycle (internal clock) is delayed by 2 or more hours. Basically, it is a shift of the internal clock by 2 or more hours, in that sleep is postponed. For example, rather than falling asleep at 10 PM and waking at 7 AM, an adolescent with DSPS will not fall asleep until 12 AM or later and then has great difficulty awakening at 7 AM for school or work. If the child or adolescent is allowed to sleep until late in the morning, he will feel rested and can function well. Most children and adolescents with DSPS describe themselves as "night owls" and usually feel and function their best in the evening and nighttime hours. They usually get much less sleep on weekdays than on weekends or holidays.

Having DSPS, especially for children and adolescents who attend school, can cause significant problems, as they are unable to get up for school, often resulting in multiple school absences and tardiness.

WHAT CAUSES DELAYED SLEEP PHASE SYNDROME?

Delayed sleep phase syndrome usually develops during adolescence but can start in childhood. It seldom occurs after the age of 30. Although the cause of DSPS is not completely known, it likely is an exaggerated reaction to the normal shift in sleep times that occurs during adolescence. All adolescents have a shift in their internal clock after puberty of about 2 hours. In those with DSPS, the clock shifts even more. In addition, for children who already had a tendency to go to bed late, this normal 2-hour shift results in a significantly shifted internal clock. It is important to realize that this shift in sleep is not caused by deliberate behavior. Unfortunately, many adolescents with DSPS get labeled as noncompliant and truants. Approximately 7% of adolescents have DSPS; thus, it is a common disorder.

WHAT ARE THE SYMPTOMS OF DELAYED SLEEP PHASE SYNDROME?

A child or adolescent with DSPS often experiences the following symptoms:

- **Daytime sleepiness.** Because of the late sleep-onset times and the usual requirement to get up earlier than desired for school or work, children and adolescents with DSPS often experience daytime sleepiness as the result of not getting enough sleep.
- **Inability to fall asleep at the desired time.** On nights that children or adolescents with DSPS try to go to sleep at a "normal" time, they are unable to do so. However, if they were to go to bed at their usual fall-asleep time, they would have no problem falling asleep.
- **Inability to wake up at the desired time.** As a result of the late sleep-onset time, many children and adolescents with DSPS are unable to wake up in the morning for school or other activities. This can result in many absences or latenesses.

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- **No other sleep complaints.** Because the internal clock is simply shifted in children and adolescents with DSPS, once asleep they sleep well with few or no awakenings. In addition, on days that they are able to sleep as long as they wish, especially on weekends or holidays, sleep is normal, and daytime sleepiness is not experienced.
- **Other daytime symptoms.** Some children and adolescents with DSPS experience problems with depression and other behavior problems as a result of the daytime sleepiness and the effects of missing school and social activities. In addition, there are a percentage of children and adolescents with DSPS who have school refusal, which complicates both diagnosis and treatment.

HOW IS DELAYED SLEEP PHASE SYNDROME DIAGNOSED?

There is no definitive test for DSPS, so the diagnosis is made based on a description of the problem. An overnight sleep study may be recommended to ensure that no other sleep disorder is present, such as obstructive sleep apnea or restless legs syndrome.

HOW IS DELAYED SLEEP PHASE SYNDROME TREATED?

Delayed sleep phase syndrome is a difficult disorder to treat and requires significant effort on the part of the child or adolescent. Thus, for treatment to be successful, the child or adolescent has to be very motivated. The goal of treatment is to retrain the internal clock to a more regular schedule. However, making the initial shift in the sleep-wake cycle is easier than maintaining that change. Treatment can involve the following:

- **Sleep hygiene.** Good sleep habits are especially important for children and adolescents with DSPS. These habits should include a regular sleep schedule that encompasses going to bed and waking up at the same time every day; avoidance of caffeine, smoking, and other drugs; a bedroom environment that is cool, quiet, and comfortable; a bedtime routine that is calm and sleep inducing; and avoidance of all stimulating activities before bed, such as computer games and television.
- **Shifting the internal clock.** Treatment for DSPS involves systematically advancing or delaying bedtime on successive nights.

Phase advancement. Phase advancement involves moving the bedtime earlier by 15 minutes on successive nights. If the adolescent usually falls asleep at 12:30, then bedtime is set for 12:15 for one or two nights, 12:00 for one to two nights, and so on.

Phase delay (chronotherapy). Phase delay is chosen if the adolescent's naturally occurring bedtime is 3 or more hours later than desired. Bedtime is delayed by 2 to 3 hours on successive nights. For example, if an adolescent usually falls asleep at 2 AM, bedtime is delayed until 4 AM on night one, 6 AM on night two, and so on until the desired bedtime is reached (e.g., 10:30 PM). Given that it is much easier for the body to adjust to a later bedtime than an earlier one, it is often recommended to delay bedtime rather than try to advance it.

Sticking with it. Once the desired bedtime is reached, the adolescent must stick with it on a nightly basis. Even one night of late-night studying or socializing can return the internal clock to the delayed state. However, usually after several months the schedule can become a bit more flexible.

- **Bright-light therapy.** Sometimes bright-light therapy is recommended, which involves exposing the child to bright light in the morning for approximately 20 to 30 minutes, and avoiding bright light in the evening. Bright light in the morning helps to reset the body's internal clock. Special light boxes must be purchased for this treatment.