

Delayed Sleep–Wake Phase Disorder

WHAT IS DELAYED SLEEP–WAKE PHASE DISORDER?

Delayed sleep–wake phase disorder (DSWPD) is a common sleep problem in teenagers and young adults. It is caused by a shift, or delay, in the normal sleep–wake pattern (internal clock) by 2 or more hours. For example, rather than falling asleep at 10:00 p.m. and waking up at 7:00 a.m., an adolescent with DSWPD will not be able to fall asleep until midnight or later. He also will have a “built-in” morning wake time of 9:00 or 10:00 a.m. (or later). If a child or adolescent is allowed to sleep on his own “natural” schedule, like on school vacations, sleep is normal. Your child will then feel rested and can function well. However, because most teens have schedules that require them to get up early, adolescents with DSWPD have great difficulty waking up in the morning for school. Also, because they fall asleep so late, they usually do not get enough sleep. This leads to them being chronically sleep deprived. On weekends or holidays, when they can “sleep in,” they get enough sleep. Most children and adolescents with DSWPD describe themselves as “night owls.” They usually feel and function their best in the late evening.

DSWPD can cause significant problems, especially if a child cannot get up for school. This often results in frequently missing school or being late for school.

WHAT CAUSES DELAYED SLEEP–WAKE PHASE DISORDER?

DSWPD usually develops during adolescence but can start in childhood. It affects about 7% to 16% of teens. Although the cause of DSWPD is not completely known, it is likely an exaggerated form of the normal shift in sleep and wake times that occurs in all adolescents around the time of puberty. While all adolescents experience a delay in their internal clock of about 2 hours, in those with DSWPD they may shift even more. Children who are natural “night owls” are also more at risk to develop DSWPD. There also may be a genetic link, as DSWPD sometimes runs in families.

It is important to realize that DSWPD involves a biological shift. This is different from a teen who is able to fall asleep at a reasonable bedtime, but *chooses* to stay up later to do things like socialize or finish homework. A teen with DSWPD *wants* to fall asleep earlier, but cannot. Unfortunately, many adolescents with DSWPD end up getting labeled as noncompliant, lazy, or truant.

WHAT ARE THE SYMPTOMS OF DELAYED SLEEP–WAKE PHASE DISORDER?

A child or adolescent with DSWPD often experiences the following:

- **Daytime sleepiness:** Children and adolescents with DSWPD often experience daytime sleepiness as a result of not getting enough sleep.
- **Inability to fall asleep at the desired time:** On nights that children or adolescents with DSWPD try to go to sleep at a “normal” time, they are unable to do so. This often leads to a complaint of “insomnia.” However, if they were to go to bed at their usual fall-asleep time, they would have no problems falling asleep.

- **Inability to wake up at the desired time:** As a result of falling asleep so late, many children and adolescents with DSWPD have extreme difficulty getting up in the morning. This leads to them being frequently late for or missing school.
- **No other sleep complaints:** Once asleep, children and adolescents with DSWPD sleep well. They usually do not wake up during the night. On days that they are able to sleep as long as they wish, such as on weekends or holidays, sleep is normal and they are not sleepy during the day.
- **Other daytime symptoms:** Some children and adolescents with DSWPD experience other problems. They may be irritable. They may have problems concentrating and school problems. They may also have behavior problems. These are the result of the daytime sleepiness and missing school. While some teens with DSWPD manage, others cannot and fall further and further behind in school. These teens may become very discouraged. It can lead to a vicious cycle, in that they become less and less motivated to get up in time for school. Sometimes school refusal or depression is also a problem.

HOW IS DELAYED SLEEP-WAKE PHASE DISORDER DIAGNOSED?

There is no definitive test for DSWPD. The diagnosis is made based on a description of the problem. Keeping a sleep diary over several weeks can be very helpful in identifying DSWPD. The typical pattern is a much later bedtime and wake time on weekends, with no difficulty falling asleep. An overnight sleep study may be recommended to be sure that there are no other sleep problems. But, a study is not necessary to diagnose DSWPD.

HOW IS DELAYED SLEEP-WAKE PHASE DISORDER TREATED?

DSWPD can be a challenge to successfully treat. It requires significant effort and commitment on the part of the child or adolescent. For treatment to be successful, the child or adolescent has to be very motivated to fix the problem. The goal of treatment is to “reset” the internal clock to a more normal schedule.

There are usually several phases of treatment. These include an initial period in which the sleep-wake cycle is moved gradually earlier. This is followed by a longer phase during which the change in sleep schedule needs to be maintained. Making the initial shift is often easier. Maintaining that change is hard as it is easy to “slip” back to a later sleep schedule. Many teens with DSWPD have a tendency to “drift” to a later bed and wake time.

Treatment of DSWPD may involve the following:

- **Healthy sleep habits:** Good sleep habits are especially important for children and adolescents with DSWPD. These include the following:
 - A regular sleep schedule, including going to bed and waking up at the same time every day, both on school and nonschool days.
 - Avoiding caffeine, smoking, and other stimulant drugs.
 - A bedroom that is cool, quiet, and comfortable.
 - A bedtime routine that is calm and sleep inducing.
 - Avoiding stimulating activities before bed, such as using a computer and watching television.
 - It is also very important to avoid attempting to catch up on sleep either on weekends or by napping during the day. This will only make things worse.
- **Shifting the internal clock:** Treatment for DSWPD often involves steadily advancing or delaying bedtime on successive nights.
 - **Advancing the sleep-wake schedule:** Advancing the sleep schedule involves moving bedtime earlier by 15 minutes or so every few nights. For example, if your child usually falls asleep at 12:30 a.m., then bedtime is set for 12:15 a.m. for several nights until your child is able to fall asleep easily at the new earlier time. Bedtime is then moved to 12:00 a.m.,

then to 11:45 p.m., and so on, until the target bedtime (such as 10:30 p.m.) is reached. A key factor in being successful is also shifting the wake time earlier. This will help your child fall asleep earlier the next night.

- **Delaying the sleep–wake schedule:** Delaying the sleep schedule (also called “chronotherapy”) can be used to reset bedtime and wake time in those with a very delayed natural fall asleep time (for example, 2:00 or 3:00 a.m.). Chronotherapy involves going to bed 2 to 3 hours later each successive night. For example, if your child usually falls asleep at 2:00 a.m. and naturally wakes at 11:00 a.m., delay bedtime until 4:00 a.m. and wake time until 1:00 p.m. on day one. On day two, shift to a 6:00 a.m. bedtime and 3:00 p.m. wake time, and so on until the desired bedtime is reached (e.g., 10:30 p.m.). This generally takes 7 to 10 days to accomplish. This strategy works because it is easier to make yourself stay up later than to try and fall asleep earlier. However, chronotherapy obviously involves a period of several days during which your child is sleeping during the day and is up at night. This is ideally done over a school or summer vacation.
- **Sticking with it:** Once the desired bedtime and wake time are reached, your child must be strict about keeping the same schedule, weekdays and weekends, for at least several months. Even one night of late night studying or socializing can shift the internal clock back. Eventually, the schedule can become a bit more flexible.
- **Adjusting the daytime and evening schedule:** Many teens with DSWPD also have a delayed daytime schedule. For example, they eat breakfast at lunchtime and do activities like playing computer games late at night. It is also important to shift daytime activities, such as eating meals and doing homework earlier.
- **Melatonin:** The body produces a hormone called melatonin. It sets the internal clock. Melatonin is normally produced in the evening, in response to darkness. It is shut off in the morning by exposure to light. In individuals with DSWPD, melatonin is also delayed. Taking melatonin in the evening may help. The amount of melatonin and the time to take it are both important. Be sure to discuss these with your child’s doctor. Melatonin is available without a prescription. Melatonin typically does not have any side effects, but may include being groggy in the morning and headache.
- **Bright light:** A person’s internal clock is controlled by light. Therefore, it is best for teens with DSWPD to avoid bright light in the evening before bedtime. They should only have dim lights on and avoid bright television and screen time. They should also be exposed to bright light in the morning. For example, they can eat breakfast in a sunny spot. Sometimes treatment with a “light box,” which delivers intense light, is recommended. This involves sitting in front of a light box for 20 to 30 minutes right after getting up in the morning. The light box should be about 16 to 20 inches away. There is no need to stare directly at the box, especially as it may irritate the eyes. Light boxes or visors are portable and can be obtained online at such sites as www.litebook.com and www.lighttherapyproducts.com.