

FACT SHEET: CIRCADIAN RHYTHMS AND JET LAG

KEY FACTS

- Sleep is an important biological function for mind and body health.
- Good sleep hygiene helps maintain the primary sleep functions.
- Light is the key driver for your circadian rhythm. Keep exposure low before bedtime.
- **MAKE SLEEP A PRIORITY!**



Q: WHAT IS CIRCADIAN RHYTHM?

A: It's your body's alertness clock. It is influenced most by the time you get up and exposure to light. The more light you are exposed to, the more alert you become. The less light you are exposed to, the less alert you are. For some reason, it takes a dip in the middle of the afternoon which is "siesta time" in some cultures. Your circadian rhythm is at its lowest at about 4 a.m. when it is almost impossible to stay awake.

The circadian rhythm works in concert with the homeostatic drive to maintain your sleep/wake balance. Homeostatic drive refers to the desire to sleep, which gradually increases with prolonged wakefulness, e.g., the longer you are awake, the more likely you are to fall asleep. Luckily, by the end of the day when this need to sleep is at its maximum, there is less light and your circadian rhythm is decreasing in alertness at the same time.....bedtime!

Q: WHAT IS JET LAG?

A: Jet lag occurs when your circadian rhythm becomes imbalanced from traveling to a different time zone. When you travel to a new time zone, your circadian rhythm is slow to adjust and remains on your original time schedule for several days. As a result, your body will think it is time to sleep when it may actually be inappropriate in the time zone where you have traveled, or your body may think it is time to stay awake, and it may be late at night in your new time zone. This imbalance in the sleep/wake cycle is known as jet lag.

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Q: WHAT ARE SOME OTHER COMMON CIRCADIAN RHYTHM DISORDERS?

A: There are six disorders identified by the International Classification of Sleep Disorders:

1. Delayed Sleep Phase Type
2. Advanced Sleep Phase Type
3. Irregular Sleep-Wake Type
4. Free-Running Type
5. Jet Lag
6. Shift Work Type

There are also disorders caused by illnesses, medications and some that have been described but not yet clearly identified.

Q: IF I SLEEP IN ON WEEKENDS WILL THAT DISRUPT MY CIRCADIAN RHYTHM?

A: Yes it can, especially if you are teenager. Remember, your wake up time has a big influence on your circadian rhythm. If you sleep in, it's like changing time zones or becoming jet lagged. The more days you sleep in, the tougher it is to get back to a regular school/work day. That said, it is always better to find ways to catch up on your sleep than to remain sleep deprived.

Q: DO CHILDREN SUFFER FROM CIRCADIAN RHYTHM DISORDERS?

A: YES! Exposure to the light of computer screens, tablets and night lights before bedtime can cause a "phase delay", which means falling asleep much later than desirable. Teens

are at risk because they already tend to have a phase delay due to normal physiological changes related to hormones. Most children and teens don't get enough sleep, which impacts learning as well as any activities requiring alertness.

Q: WHY IS IT IMPORTANT TO MAINTAIN A HEALTHY CIRCADIAN RHYTHM?

A: It is hard to get to sleep, stay asleep and be alert when you need to be if your body is not on a consistent schedule. Your body needs enough good quality sleep to function properly. Without the rest and recovery achieved from healthy sleep habits, your mind and body will function poorly and place you at risk for poor health and safety.

Q: WHAT CAN I DO TO MINIMIZE PROBLEMS WITH MY CIRCADIAN RHYTHM?

A: You can practice "GOOD SLEEP HYGIENE." This includes:

- Going to bed and more importantly, getting up on a regular schedule each day.
- Allowing 7.5 – 8.5 hours in bed for sleeping. Teens through early 20's need 8.5-9.5 hours and younger children should sleep 10-12 hours!
- Sleeping in an appropriate environment where the bedroom is dark and cool.
- Avoiding the use of laptops, smart phones, iPads or television in the bedroom.
- Minimizing exposure to light before bedtime to allow your body to start producing sleep-inducing substances needed for quality sleep.

FURTHER READING

1. <http://healthysleep.med.harvard.edu> Harvard University; Healthy sleep,. video tutorial.
2. International Classification of Sleep Disorders, second edition; American Academy of Sleep Medicine.
3. The Promise of Sleep; William C Dement, 1999, Delacorte Press
4. Fundamentals of Sleep Technology; 2012.Mattice, Brooks, Lee-Chiong; Lippincott