

PATIENT EDUCATION BROCHURE

Recognizing and Managing Shift Work Disorder, an Underdiagnosed Condition: *Improving Quality of Life*



Do You Have Shift Work Disorder?

- Do you often feel tired or sleepy at work?
- Do you have trouble getting to sleep or staying asleep?
- Do you do shift work?
- What are your work hours?
- What are your sleep times on work days? On days off?
- Do you often struggle to stay awake, or have you ever fallen asleep while driving to or from work?
- Does your tiredness cause difficulty with your concentration, memory, or ability to pay attention?

If you work a shift that involves a nonconventional sleep-wake schedule and have **excessive sleepiness** and/or **insomnia** for ≥ 1 month, you may have Shift Work Disorder.

What Are Shift Hours?

Shifts outside the traditional 9 AM to 5 PM:

- Early morning: ~6 AM - 2 PM
- Evening: ~3 PM - 11 PM
- Night: ~11 PM - 7 AM
- Rotating: Periodic time changes among days, evenings, nights
- Split: 2 distinct work periods per day



How Shift Work or Shift Work Disorder May Affect Your Quality of Life

- Fewer physically and mentally healthy days per month*¹
- Falling asleep at work*²
- Having an occupational accident in the past year*²
- Impatience²
- Avoiding interactions with coworkers²
- Missed family and social events¹³
- Depression¹³
- Marital instability⁴
- Job stress, emotional exhaustion⁵



*Shift work; ¹SWD.

1. Barnes-Farrell J, et al. *Appl Ergon*. 2008;39(5):589-596.
2. Swanson LM, et al. *J Sleep Res*. 2011;20:487-494.
3. Drake CL, et al. *Sleep*. 2004;27:1453-1462.
4. Davis KD, et al. *J Marriage Fam*. 2008;70(4):991-1003.
5. Jamal M. *Stress Health*. 2004;20:113-119.

Epworth Sleepiness Scale¹

How tired/sleepy are you?

Fill out the brief Epworth Sleepiness Scale and then discuss the results with your clinician.

A total score **higher than 10** indicates that you have **significant sleepiness**.²

Rate Your Chance of Dozing Off: 0 = None, 1 = Slight, 2 = Moderate, 3 = High

Situation	Chance of Dozing Off
Sitting and reading	
Watching TV	
Sitting inactive in a public place (eg, in a theater or at a meeting)	
As a passenger in a car for an hour without a break	
Lying down to rest in the afternoon when circumstances permit	
Sitting and talking to someone	
Sitting quietly after a lunch without alcohol	
In a car while stopped for a few minutes in traffic	
Total score	

1. Johns MW. *Sleep*. 1991;14:540-545.

2. Panossian LA, Avidan AY. *Med Clin North Am*. 2009;93:407-425.

How Managing Shift Work Disorder Can Improve Your Quality of Life

Managing shift work disorder symptoms can result in improved health and reduced risks for:

- Excessive sleepiness
- Insomnia
- Mood disturbance¹
- Impaired work performance²
- Poor concentration
- Low energy level
- Strained personal relationships
- Safety issues: drowsy driving, accidents, errors^{1,3,4}

And LOWER your risks for:

- Gastrointestinal problems^{1,5}
- Heart disease¹
- Stroke⁶
- Cardiovascular and metabolic dysfunction^{7,8}
- Overweight/obesity⁹
- Cancer¹⁰⁻¹²

Effectively managing your shift work disorder and getting proper sleep can **improve your quality of life**, including your health, functioning, and safety—at work, at home, and on the road.

1. Drake CL, et al. *Sleep*. 2004;27:1453-1462.

2. Smith MR, et al. *Sleep*. 2009;32:1481-1489.

3. Folkard S, et al. *Occup Med*. 2003;53(2):95-101.

4. National Highway Traffic Safety Administration/National Center on Sleep Disorders Research (NHTSA/NCSDR) http://www.nhtsa.gov/people/injury/drowsy_driving1/drowsy.html#Figure 3.

5. Lu ZW, et al. *Eur J Gastroenterol Hepatol*. 2006;18:623-627.

6. Brown DL, et al. *Am J Epidemiol*. 2009;169:1370-1377.

7. Bøggild H, Knutsson A. *Scand J Work Environ Health*. 1999;25:85-99.

8. Martino TA, Sole MJ. *Circ Res*. 2009;105:1047-1061.

9. Zhao I, et al. *J Occup Environ Med*. 2011;53(2):153-158.

10. Hansen J. *Epidemiology*. 2001;12:74-77.

11. Davis S, et al. *J Natl Cancer Inst*. 2001;93:1557-1562.

12. Kubo T, et al. *Am J Epidemiol*. 2006;164:549-555.

Treatment Options for Shift Work Disorder

Ask your clinician about which treatments are best for you.

For Insomnia¹ – to increase sleep duration

- Sleep/wake hygiene behaviors
- Hypnotic medication
 - Benzodiazepines, other benzodiazepine receptor agonists
 - Triazolam
 - Temazepam
- Melatonin (not FDA approved)

For Awake-Time Sleepiness – to increase alertness

- Naps²
- Caffeine³
- Armodafinil⁴/Modafinil⁵ (only FDA-approved agents)

For Circadian Rhythm Misalignment^{1,6} – to increase sleep duration and alertness

- Bright light during work
- Melatonin (bedtime during the day)
- Avoid morning bright light (bedtime during the day)

1. Morgenthaler TI, et al. *Sleep*. 2007;30:1445-1459.

2. Smith-Coggins R, et al. *Ann Emerg Med*. 2006;48:596-604.

3. Wyatt JK, et al. *Sleep*. 2004;2(3):374-381.

4. Czeisler CA, et al. *Mayo Clin Proc*. 2009;84(11):958-972.

5. Czeisler CA, et al. *N Engl J Med*. 2005;353:476-486.

6. Smith MR, et al. *Sleep*. 2009;32:1481-1489.

Bright Light Therapy for Shift Work Disorder

- Use bright lights (artificial lights) at work and during awake hours to help combat drowsiness and improve alertness
- Use bright lights from early in night shift through 2 hours before shift ends



- Wear sunglasses:
 - During your commute home in the morning after night shift
 - 1-2 hours before daylight bedtime
- Minimize light exposure prior to bedtime
- Avoid light during sleep hours

- Darken bedroom at home
 - Use light-blocking curtains or blinds
 - Dim lights in the bedroom, bathroom, and passage in between

Ask your clinician whether using a light box is right for you.

1. Morgenthaler TI, et al. *Sleep*. 2007;30:1445-1459.

2. Smith MR, et al. *Sleep*. 2009;32:1481-1489.

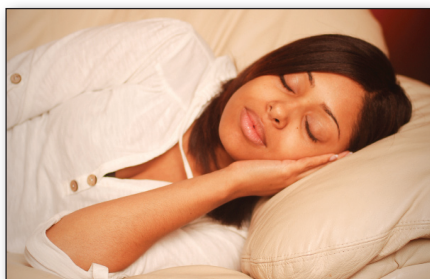
Planned Napping

Take naps:

- 20 minutes to one hour long
- Prior to night shift

Improvements seen with napping:

- Improved reaction times
- Increased alertness
- Fewer accidents
- Improved performance



Generally does not adversely affect daytime sleep

Sack RL, et al. *Sleep*. 2007;30:1460-1483.
Dinges DF, et al. *Sleep*. 1997;20:267-277.

Rosekind MR, et al. *Behav Med*. 1996;21:166-170.
Frey R, et al. *Crit Care Med*. 2002;30:2322-2329.

Caffeine

Strategic consumption is key to temporarily relieve sleepiness

Use frequent small doses during your shift

- Low-dose caffeine (0.3 mg/kg) every hour during extended wakefulness improves performance
- This equals roughly one-third of a cup of coffee or less per hour for a 155-lb (70-kg) person



Effects seen within 15 to 30 minutes

Wyatt JK, et al. *Sleep*. 2004;27:374-381.

The Dangers of Drowsy Driving

Getting less than 4 hours of sleep has an effect similar to that of legal intoxication.¹

Shift workers are:

- More likely to drive while drowsy as compared to the rest of the population, putting them at high risk for a collision²
- Significantly more likely to fall asleep at the wheel³

1. Roehrs T, Burduvali E, Bonahoom A, et al. Ethanol and sleep loss: a "dose" comparison of impairing effects. *Sleep*. 2003;26:981-985.

2. National Center on Sleep Disorder Research and the National Highway Traffic Safety Administration. *Drowsy Driving and Automobile Crashes*. National Highway Traffic Safety Administration Website. [http://www.nhtsa.gov/people/injury/drowsy_driving1/drowsy.html#Figure 3](http://www.nhtsa.gov/people/injury/drowsy_driving1/drowsy.html#Figure%203). Accessed August 1, 2011.

3. Barger LK, Cade BE, Ayas NT, et al. Extended work shifts and the risk of motor vehicle crashes among interns. *N Engl J Med*. 2005;352(2):125-134.

Drowsy Driving Tips

- Get adequate sleep (7 to 9 hours) before you hit the road
- Do not be too rushed to arrive at your destination
- For long drives, take a break every 100 miles or 2 hours: get a snack, switch drivers, or go for a run
- Take a nap—find a safe place to take a 15- to 20-minute nap, if you think you might fall asleep
- Avoid alcohol and medications that cause drowsiness as a side effect
- Consume caffeine—the equivalent of 2 cups of coffee can increase alertness for several hours
- Recognize signs of fatigue: drifting from your lane, hitting rumble strips, repeated yawning, difficulty focusing, tailgating, or missing road signs

Adapted from National Sleep Foundation's Countermeasures to Prevent Fall-Asleep Crashes.

RESOURCES

Articles

Griffen RM. The health risks of shift work.

<http://www.webmd.com/sleep-disorders/excessive-sleepiness-10/shift-work>.

Kam K. Sleep and the night shift: Could you have shift work sleep disorder?

<http://www.webmd.com/sleep-disorders/excessive-sleepiness-10/night-shift-sleep>.

Los Angeles Times. Sleep deprived pay the price for shift work.

<http://www.latimes.com/features/health/mentalhealth/la-he-sleep24-2008mar24,0,1684543.story?page=2>.

The New York Times. Working Nights, Sleeping Poorly.

<http://consults.blogs.nytimes.com/2010/08/13/when-work-hours-disrupt-sleep/?scp=4&sq=treating%20sleep%20disorder&st=cse>.

Zamora D. Sleep deprivation at the workplace.

<http://www.webmd.com/sleep-disorders/guide/sleep-deprivation-workplace>.

Books

Avidan AY, Zee PC. *Handbook of Sleep Medicine*. 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2011.

Dement WC. *The Promise of Sleep: A Pioneer in Sleep Medicine Explores the Vital Connection Between Health, Happiness, and a Good Night's Sleep*. New York, NY: Dell Publishing; 2000.

Foldvary-Schaefer N. *The Cleveland Clinic Guide to Sleep Disorders*. New York, NY: Kaplan Publishing; 2009.

Books (cont'd)

Hirshkowitz M, Smith PB. *Sleep Disorders for Dummies*. Hoboken, NJ: Wiley Publishing; 2004.
Schenck CH. *Sleep: A Groundbreaking Guide to the Mysteries, the Problems, and the Solutions*. New York, NY: Avery Trade (Penguin Group); 2008.

Web Sites

American Academy of Sleep Medicine www.aasmnet.org
Better Sleep Better Life <http://www.better-sleep-better-life.com/>
Circadian 24/7 Workforce Solutions http://www.circadian.com/index.cfm?redirect_yes
Drowsy Driving <http://drowsydriving.org>
HealthiNation. Shift Work Sleep Disorder. <http://www.healthination.com/Videos/Shift-Work-Sleep-Disorder>
Helpguide.org: Sleep Disorders and Sleeping Problems: Symptoms, Treatment, and Help for Common Sleep Disorders http://www.helpguide.org/life/sleep_disorders.htm
National Heart, Lung and Blood Institute, Diseases and Conditions Index: What is Insomnia? www.nhlbi.nih.gov/health/dci/Diseases/inso/inso_what.html
National Institutes of Health, National Center on Sleep Disorders Research (materials for clinician and patient) www.nhlbi.nih.gov/about/ncsdr/index.htm
National Sleep Foundation www.sleepfoundation.org
Talk About Sleep www.talkaboutslee.com

Be Alert for Signs You May Have Shift Work Disorder

- Insomnia or tiredness/sleepiness
- Poor concentration
- Impaired work performance
- Headache
- Irritability or depressed mood
- Motor vehicle accidents/near-misses
- Falls, injuries at work

Ask your clinician about steps you can take to improve your symptoms of excessive sleepiness and/or insomnia.

**Improve your quality of life.
Manage your Shift Work Disorder.**