



University of Michigan  
Depression Center

THE MICHIGAN DIFFERENCE®

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UNIVERSITY OF MICHIGAN  
DEPRESSION CENTER



# update

From the Nation's First Comprehensive Depression Center

FALL 2009

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## Understanding Sleep in People with Depressive Illnesses

### Why is good sleep important, especially for people who have depression?

Getting a good night's sleep has multiple benefits. One of the key benefits is the biological repair that contributes to immune system regulation, body cell work, blood cell repair and cardiovascular fitness. These biological mechanisms are functions of sleep and if you are chronically sleep-deprived, the repairs your body needs are not fully completed. Sleep disturbance increases the risk for cardiovascular disease and heart attack, and even susceptibility to the common cold. The loss of one to two hours of sleep, three or four nights a week, can cause chronic or long-term sleep deprivation.

Patients with depression tend to experience sleep disruption, poor sleep quality and insomnia, and those with major depression can suffer from perpetual sleep loss. This can have a cascading effect because an increase in sleep disruption can lead to a decrease in effective responses to treatments for depression. It can also mean an increase in depression-related episodes over a lifetime and greater time spent ill during those episodes. Even more concerning, those with chronic sleep disturbance are more likely to develop treatment resistant or difficult to treat depression.

### Can poor sleep cause depression?

We think of sleep as a core biological risk factor for depression in much the same way that high cholesterol is a risk factor for a heart attack. Not everyone with high cholesterol will progress to a heart attack, but it increases risk and very often requires an aggressive approach with statin

agents to reduce cholesterol. In much the same way, sleep disturbance is an important biological risk factor for depression and often requires an aggressive approach to treatment. While not everyone whose sleep is chronically disturbed will develop depression, the risk is estimated to be three to ten times greater than for those who do not experience persistent sleep problems. It is important to intervene early to improve sleep and reduce the risk of depression.

It is possible to develop depression without ever having had a sleep disturbance, although ninety percent of depressed patients report a sleep problem. Sleep disturbances seem to herald an episode of depression and tend to get significantly worse before an episode of depression—the longer the history of sleep disturbances, the greater the risk of depression. Severe sleep disturbance in young children is one of the best predictors of the onset of depression in later childhood and adolescence. Some depressed patients also sleep excessively.

### Can chronic sleep problems cause other disorders or co-morbid illnesses with depression?

Sleep problems can be a risk factor for a multitude of ailments. Chronic sleep loss can cause insulin resistance, a precursor for diabetes and obesity. In turn, diabetes can lead to an increased risk for depression. Sleep problems are also strongly linked to substance abuse, especially alcoholism. It is critical that patients get help for both their sleep problems and co-occurring illnesses such as depression, diabetes or substance abuse. These illnesses are closely linked, and treating one illness and not the others can sabotage a full recovery. In addition, it is important that we, as

*continued inside*



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# A Message From Our Director

Approximately one-third of our life is spent sleeping. This is an impressive starting point for this issue of UPDATE! Sleep is a complex, biological function closely regulated by a multitude of gene-brain interactions and strongly influenced by an array of external variables. Of relevance to this issue, sleep disturbances are closely linked with depression and bipolar illnesses. A cluster of examples will illustrate. First, sleep disruptions may be among the earliest clues about onset of clinical depression or bipolar disorder, sometimes because the individual is struggling with inadequate or poor sleep (insomnia or hyposomnia) or sometimes sleeping too much (hypersomnia). Second, sleep changes during periods of stability may be important warning signs about pending recurrences. Third, improvements in sleep are among the most reliable signs of “getting better” during treatment, explaining why clinicians so strongly encourage periodic completion of rating scales. It is important to monitor mood, sleep, suicide thoughts, and other variables weekly just as we monitor daily temperature for the flu. Fourth, sleep disturbances such as sleep apnea may make depression or bipolar worse or interfere with antidepressant or mood-stabilizing treatments. Finally, changes in sleep architecture determined in sleep laboratory studies may provide earlier identification of those at risk for developing subsequent depression or bipolar disorder. A reasonable goal is to start thinking how we might eventually use such information to intervene earlier and even prevent onset for some. To understand the close linkages between the brain, sleep, depression, bipolar, and treatment response, we must study sleep across the life cycle. Led by U-M Depression Center members Drs. Roseanne Armitage and Todd Arnedt, we are doing so in the Depression Center. They are leading a team to evaluate and develop improved treatments for those with co-occurring depression, bipolar, and sleep issues.

We all should be interested in sleep. I am. Indeed, I recently have been sporting this season's latest fashion accessory—a sleep actigraph. This tiny little device, easily mistaken for an inexpensive wrist watch, actually measures the amount of sleep and light exposure I receive during a 24-hour period while simultaneously compiling daytime activity and rest patterns. Drs. Armitage, Arnedt, and other colleagues use such information along with clinical data and sleep electroencephalography and other test results from patients and volunteer controls of all ages to better understand, better plan, better treat, and eventually, better prevent. As you will read in this issue, actigraphs are being used in several of their sleep studies, including a mom-and-baby study that links maternal depression to significant sleep disturbances in infants. Aided by a world-leading Sleep and Chronophysiology Laboratory we are learning so much about this vital part of our lives and this knowledge is integral to the mission of the Depression Center. (By the way, the Sleep Lab provides a wonderfully informative tour).

We hope you are having a wonderful autumn and thank you for your ongoing interest and support.

Merci,  
  
 John F. Greden, M.D.



*from Understanding Sleep, continued*

a culture, reevaluate our relationship with sleep. People tend to try to function with less and do not make the time for adequate, restful and restorative sleep. However, healthy sleep is very important to our daily lives and long-term health—it is as important as heart health. You would never hear someone say, “I’ll be fine with less heart function.”

The Sleep Lab faculty and staff work tirelessly (but they are getting their necessary sleep!) to better understand the connections between sleep, depressive and bipolar illnesses and substance abuse. They are conducting several important sleep studies of teens and depression, children of alcoholics, moms and babies, the use of sleep management as a treatment option, alcohol dependence, improving sleep quality without medication, sex differences, and light therapy. These studies need participants who are diagnosed with depression and related conditions as well as healthy individuals. To find out more or how to participate, please visit [www.depressioncenter.org/sleeplab/research](http://www.depressioncenter.org/sleeplab/research)

# International Sleep Conference

On August 31-September 1, 2009 the U-M Sleep and Chronophysiology Laboratory hosted an international "mini-conference" establishing a consortium on sleep and psychiatric illness in children and adolescents. Researchers attended from three American universities, including the University of Michigan, Brown University and the University of Texas Southwestern as well as from Canada and Australia. Future conferences hope to attract researchers from Europe and Asia.

The University of Michigan Depression Center has long promoted the value of creating networks such as the National Network of Depression Centers ([www.NNDC.org](http://www.NNDC.org)), which we catalyzed. The International Sleep Consortium is another illustration of the power of networks designed to plan and undertake better large-scale studies, share information more

readily with colleagues, and train research fellows in the expertise of different consortium member institutions. Sleep, depression and bipolar disorder need to be studied worldwide. The faster we get answers, the faster we can devise effective preventions and treatments.



## UMDC READING CORNER

Listed below are recommended books on the topic of sleep and depression. You can find these books, and many other resources, at the Friends Depression Education Resource Center, located in the east atrium of the Depression Center building.

***Quiet Your Mind and Get to Sleep: Solutions to Insomnia for Those With Depression, Anxiety or Chronic Pain***  
Carney, C., & Rachel, M. (2009)

***No More Sleepless Nights***  
Hourii, P., & Linde, S. (1996)

***The Harvard Medical School Guide to a Good Night's Sleep (Harvard Medical School Guides)***  
Epstein, L., & Mardon, S. (2006)

***Dead Tired (DVD)***  
Sleep documentary by Mindful Media (2008)

**Sleep disturbance complaints are the number one lasting symptom of depression in both depressed adults and adolescents.**

## A State-of-the Art Laboratory Housed at the Depression Center and Ambulatory Psychiatry Facility

Established in 2008, the University of Michigan Sleep and Chronophysiology Laboratory is leading the way in researching sleep and biological rhythms regulation from childhood through adulthood. The team of experts studies the relationship between sleep and different psychiatric disorders to provide earlier and more effective interventions for patients with depressive illnesses.



The Sleep and Chronophysiology Laboratory includes:

- two separate laboratories—a conventional sleep laboratory and an unique chronophysiology laboratory to study sleep and biological rhythms
- an advanced computer controlled light system which can recreate the

brightness, color and timing of sunlight (or artificial light) from any location on earth, on any day of the year

- an advanced temperature control system to maintain consistent temperatures for more reliable outcomes
- a control room equipped with ten computers for data collection and processing

- electrical activity shielding to prevent the interference of electrical currents and devices from interfering with data collection
- all the comforts of home including wonderful beds and linens, bathrooms with showers, a kitchenette, and a quiet and safe place to sleep with no interferences





# Sleep, Depression and an Overtaxed Brain

Individuals with depression have a tendency to ruminate or dwell on negative or unhelpful information. For example, while a healthy person who has a bad day might

feel frustrated for a short time but quickly recover, a depressed person will concentrate their thoughts on the bad day and continue to think about it in unproductive ways. Unfortunately, this unproductive form of cognition cannot be “filtered out” by the brain and it processes the information in the same

## Healthy Sleep Tips for



Healthy sleep practices, known as “sleep hygiene,” matter even more for people with depression. Keeping regular habits and a strict schedule are essential. People with depression need to maintain that consistent schedule and be aware that going off the schedule can be more detrimental to them than non-depressed individuals.

- Keep a regular daily activity and sleep schedule
- Eat regular meals every day

- Make the last hour before bed a “wind-down” time
- Do not consume caffeinated products (e.g. coffee, tea, many sodas, chocolate) in the evening
- Do not use alcohol to help you sleep or consume alcohol too close to bedtime
- Smoking and other drugs will disrupt your sleep
- Do not nap during the day
- Exercise regularly, but do not engage in activities that raise body temperature (e.g. hot bath) too close to bedtime
- Create a sleep-friendly bedroom environment
- Strive for bright light in the morning on awakening but limit exposure to bright light in the evening
- If you have depression, make sure you follow these sleep guidelines and also seek medical intervention if your sleep problems persist. Cognitive Behavioral Therapy for Insomnia (CBT-I)—which targets maladaptive behaviors and thought patterns that contribute to persistent insomnia—is highly effective for improving chronic sleep problems in patients with and without psychiatric conditions.

Source: American Academy of Sleep Medicine

For more sleep tips and further explanation of how to improve your sleep habits, please visit our Web site at [www.depressioncenter.org/sleeplab/](http://www.depressioncenter.org/sleeplab/)

## Important Research Studies in Need of Participants

Two research projects currently being studied at the Sleep Laboratory are in critical need of participants. Please read the brief descriptions and visit their Web listings for additional information or to sign-up.

### Sleep Differences in Depressed Teens

The purpose is to determine how depression and gender affects sleep in adolescence, and how delaying bedtime affects sleep regulation. This study, funded by the National Institutes of Health, is seeking teens between 13 and 18, with or without depression.

### Managing Sleep and Medication Therapy to Improve Depression Treatment Response

The purpose is to determine if reducing the amount of nightly sleep while taking an approved medication therapy for depression is safer and more effective than the medication with no sleep reduction. This study is seeking adults between 20 and 40, with depression who are not currently receiving medication for their illness or are in the process of being weaned off medication. Patients can be in behavioral or talk therapy.

[www.depressioncenter.org/sleeplab](http://www.depressioncenter.org/sleeplab)

way it does learning or positive reinforcement. This can be problematic in regards to a brain function called spindle activity that takes place while you are sleeping.

Spindle activity pattern is a brain wave configuration that happens only during sleep. It is an essential function of sleep and helpful to the brain because the spindle activity pattern acts as a "gatekeeper" for the information received by our brain's cortex. Our brains understand all the information received as activity—they can't decipher between "good" or "bad." Unfortunately, this extra activity can overwhelm the cortex (our brain's "filing cabinet") and to prevent essentially a "brain overload," the brain begins limiting the spindle activity. The consequence of limiting spindle

activity is that people cannot process information properly. This could help explain why depressed people, especially with sleep disturbances, complain of difficulty understanding information, trouble reading, confusion, and problems performing tasks with otherwise normal cognition.

Spindle activity is an important research topic currently being studied at the U-M Sleep and Chronophysiology Laboratory. It demonstrates the value of restorative sleep, and the overlapping need for sleep and depression therapy options. Researchers are especially interested in the spindle activity patterns in adolescents due to all the dramatic changes taking place at this stage in human development.

## The Behavioral Sleep Medicine (BSM) Clinic

The BSM Clinic conducts initial consultations and follow-up visits (individual and group therapy) for adults 18 years of age and older with sleep disorders, such as insomnia and circadian rhythm sleep disorders, that respond well to psychological approaches to treatment. The BSM Clinicians are licensed clinical psychologists and some have additional certification in BSM through the American Academy of Sleep Medicine. While our understanding of the critical role of treating sleep difficulties in patients with depression and bipolar illness is growing rapidly, we need to learn more. In addition to providing treatment, research faculty who are part of the clinic enroll patients, with consent, in important research studies focusing on sleep in those with depressive and bipolar illnesses. The clinic currently has openings for new patients and/or study participants. If interested in making an appointment in the BSM Clinic, please call 734-764-0231.

## Generous Supporters Help Make Sleep Research a Reality

Special thanks to the Cohen Family Fund and the Jack L. Berman, M.D. and Barbara A. Berman, Ph.D. Depression Research Fund at the University of Michigan for their enthusiastic support of depression-related sleep research.

## The Perfect Storm— Sleep, Depression and Substance Abuse

Sleep disorders, substance abuse and depression are strongly connected; they often cluster together. Having one disorder tends to increase the risk of having or developing the other two. Insomnia and substance abuse are well-known risk factors for depression if left untreated, but each can also be a risk factor for depression independently of the other. Depression and substance abuse also can cause insomnia, and treating them simultaneously is recommended.

Insomnia is common in people with depression. Alcohol and other drugs of abuse may seem at first to help people sleep and cope with depression and/or insomnia, but these substances do not treat the causes and actually make both

insomnia and depression worse. A vicious cycle develops between all three and symptoms of depression will continue to persist without the necessary interventions.

Two studies are ongoing to learn more about the relationship between sleep and alcoholism. Dr. Kirk Brower's team in the U-M Addiction Research Center (UMARC) is exploring the mechanisms of sleep disturbance in recovering alcohol dependent adults and whether a commonly prescribed neuroleptic (gabapentin) improves sleep.



The sleep disturbance, depression and substance abuse triad can negatively affect not only adults, but is highly likely to have repercussions for the children of those who suffer from these disorders. Another team at UMARC led by Dr. Deirdre Conroy is

actively working to understand whether the poor sleep of children of alcoholics is related to environment, genetics or a chaotic household and whether this poor sleep may play a role in later substance use or sleep problems. Their goal is to create interventions that will improve the health of both child and parent.

# The Unusual Sleep Pattern of Teens



There is a good reason why many teens stay up until 3 a.m. and sleep in until noon. It is because their circadian rhythms, or internal biological clock in the brain, literally have been put on snooze until their late 20's.

## Circadian Rhythms and Clock Genes

Our bodies are regulated by circadian rhythms, which are 24-hour cycles. We know

there are a series of genes, "clock genes," that are involved in the regulation of circadian rhythms, which interact with the body's exposure to light. There are many different genes involved in the timing of circadian rhythms whether you are on a 24.6 hour rhythm or 22 hour rhythm. Some of these genes are responsible for keeping you as close to 24 hours as possible. However, our internal body clock is typically slightly longer than 24 hours so we are constantly trying to adjust for the difference in time.

## Light Sensitive Genes

There are at least 35 known genes that are light sensitive, but there are

also "non-photoc" genes that tend to turn on later during development and infancy. These circadian genes regulate a whole host of biological functions such as heart rate, the gut and gastric cycle, and our biological need for sleep. Anyone who has tried to pull an "all-nighter" knows that our bodies have a deep drive for sleep. As a child grows, its body finds a healthy relationship between its internal clock and exposure to light. Our modern lifestyle filled with artificial light, however, creates sleep disturbances that can begin to cause problems for growing bodies.

## A Red Light at Night

**Melatonin**, or the "night hormone," helps the body prepare for sleep. Lights that are in the white and blue spectrum shut down the secretion of melatonin and actually alert the brain to respond, causing potential sleep problems. However, melatonin is not affected by lights in the red

spectrum so if you need to use a light for nighttime bathroom breaks or for checking on a child or infant, choose a red light bulb. A red light, even a really bright one, is a better choice for teens who often study late into the evening or for new parents providing nighttime baby feedings. A way to remember: "red lights may stop sleep problems as well as traffic."



## How the Science Relates to Teen Sleep Patterns

Major changes in circadian rhythms occur during adolescence causing night-owl-type behavior. The body clock begins to “phase delay” becoming sleepy at a later time. An adult’s natural biological preference for sleep usually begins around 11 p.m., but in adolescence this drifts to much later times. Eventually, most adults will adjust and grow out of this teen sleep behavior. A biological clock

that is not on a normal light/dark cycle becomes a risk factor for the development of depression. It is no coincidence that the greatest risk for the onset of depression is during the teens and years surrounding young adulthood when young bodies are transitioning to adulthood in many ways.

Unfortunately, the peak onset of depression and bipolar disorder occurs between 15 – 24 years of age, and this may be linked to the problematic sleep cycles of teens. In the last 25 years this sleep gap has worsened as

children are going to bed at least an hour later than they did a generation ago. “I’m tired, Mom,” may have an underlying biological basis.



# New Moms and Babies Need Good Sleep

While it is important to get adequate sleep during pregnancy, there never seems to be enough time for sleep after your little one arrives. Sleep disturbances are routine for the first few months of a new parent’s life. But when a new parent has trouble falling asleep during the time that baby is sleeping or begins waking too early in the morning with an inability to sleep later, it is time to consult with a health care provider. Healthy babies need healthy moms and dads.

It is especially important for new moms with depression to keep a careful eye

on their sleep behavior and to receive treatment for sleep disturbances as early as possible. Research at the U-M Sleep & Chronophysiology Laboratory has shown that depressed mothers’ sleep problems can have ill effects on the sleep patterns of their babies—and poor sleep of both the moms and babies can be a risk factor for depression as the children age. It is very important that moms and their partners plan ahead for the lack of sleep that befalls new parents. Moms should not be afraid to ask for help when they need it and to make sure they get the sleep their bodies require.

## Healthy Sleep Tips for New Moms (and Dads)

- Keep your nighttime sleep schedule as regular and consistent as you can, even on the weekends.
- Learn to nap (note the contrast with advice for those who are not new parents). Take naps when the baby is napping during the day. But, avoid naps too close to bedtime.
- The most important thing is for you to get solid, unbroken sleep.
- Whenever possible, share nighttime feedings with your partner. The best way to do this is for you and your partner to pick a “shift” during the night. Keep this shift as constant as possible so that you are sleeping during the same hours each night.
- Dim the lights two hours before bed. Use just enough light to see what you are doing.
- As emphasized previously, consider using a red light when you are feeding or attending to the baby at night. You can purchase red light bulbs from the hardware store.
- Get as much bright light (sunlight is best) during the day, especially in the morning.
- Remember, your sleep is only going to be disturbed for a period of time. You can manage daytime sleepiness and sleep loss.

## SUBSCRIBE TO THE DEPRESSION CENTER UPDATE

You've received this newsletter because you elected to be added to our mailing list, or because you have been identified as someone interested in advances in the treatment and prevention of illnesses.

If you want to be added to or deleted from our mailing list, please contact Kady Davenport at [kdavenpo@umich.edu](mailto:kdavenpo@umich.edu) or 734-936-8309.

Information about depression is available online. Please visit our Web site at [www.depressioncenter.org](http://www.depressioncenter.org).

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# Upcoming Events

### DEPRESSION CENTER BRIGHT NIGHTS EVENTS

Bright Nights are community forums providing the opportunity to obtain up-to-date information on a variety of topics related to depression. For the complete listing of Bright Nights programming, event information and locations, please visit the Depression Center Web site: [www.depressioncenter.org](http://www.depressioncenter.org).

#### Upcoming Bright Nights Events:

**December 16, 2009:** "Understanding Bipolar Disorder," Grosse Pointe Public Library, Woods Branch

**January 14, 2010:** "Understanding Adolescent Depression," Plymouth District Library

**January 26, 2010:** Topic has not yet been announced, Ann Arbor District Library

### DEPRESSION CENTER COLLOQUIUM SERIES

The U-M Depression Center Colloquium Series is designed for health professionals and researchers with an interest in depression and related illnesses. The Colloquia take place from 11:45 a.m. – 1:30 p.m. in the Depression Center auditorium. Lunch is served for those who pre-register, and there is no charge. Continuing

education credits are available for physicians, psychologists, and social workers. To register, please visit [www.depressioncenter.org](http://www.depressioncenter.org)

#### Upcoming Depression Center Colloquium Events:

**Friday, December 11, 2009:** Self-Image Concerns in Depression: Stigma and Interpersonal Relationships

**Friday, January 15, 2010:** Pharmacogenetics

*Funding for the Colloquium Series is provided by an educational grant from AstraZeneca.*

### SAVE THE DATE! DEPRESSION ON COLLEGE CAMPUSES CONFERENCE: Many Faces | A New Look

**March 10-11, 2010**

Rackham Graduate School  
915 East Washington Street  
Ann Arbor, Michigan

How can college campuses go beyond simply acknowledging the diversity of depression, and begin to implement effective programs? Join us to explore new research findings and discuss innovative strategies for identifying and treating depression across student identity groups.

The conference will feature a choice of intensive three-hour workshops in addition to keynote presentations, panel discussions, and concurrent sessions. Online registration is now open. To register, please visit [www.depressioncenter.org/docc](http://www.depressioncenter.org/docc). Registration is FREE for all students from any campus. The registration fee for non-students will be \$125 before March 1st, or \$140 after March 1st. The fee includes a reception on March 10 and continental breakfast on March 11.

**For more information, please visit [www.depressioncenter.org](http://www.depressioncenter.org) or contact Trish Meyer at 734-763-7495 or [meyerpa@umich.edu](mailto:meyerpa@umich.edu).**

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