



Institute for Women's Health Research *Putting Women's Health First*

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Dear Friends and Colleagues,

The most recent statistics on the women who participate in our [Illinois Women's Health Registry](#), indicate that sleep is a significant issue in their lives. Among the most current women who are enrolled in our registry, 11% report difficulties getting to sleep, 12% have a hard time staying asleep, 15% wake up feeling fatigued, 13% report they are getting too little sleep for what they need, and 8% wake too early and cannot get back to sleep.

We hope you find the information on sleep below helpful and if you have not already enrolled in our Registry or updated your registry profile this year, please do! As of July 30, 4,660 women are currently participating in the [Illinois Women's Health Registry](#). We hope that you will help us reach 5,000 by September 1, 2010 by inviting your friends and relatives to sign up.

The Institute Staff



INSTITUTE FOR
WOMEN'S HEALTH
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AT NORTHWESTERN UNIVERSITY

Sleep, Sex Differences and Women's Health

Sleep is as important for good health as diet and exercise. Research shows that too little sleep results in daytime sleepiness, increased accidents, decreased concentration, poor performance at work and at school, and possibly, increased sickness and weight gain. Women are twice as likely as men to have difficulties falling asleep or staying asleep. According to the National Sleep Foundation, most people need seven to nine hours of sleep to function well the next day, but the average 30-60 year old woman sleeps only six hours and forty-one minutes.

Most Common Sleep Disorders

Insomnia is the most prevalent sleep problem and can be described as having trouble falling or staying asleep. It is reported more often by women than by men. At puberty, the insomnia incidence rates for girls are almost triple those for boys. As women age, they have a 41% greater risk for insomnia as compared with



age, they have a 41% greater risk for insomnia as compared with men and by age 65 years, their risk is 73% greater than men. It can be chronic (at least 3 nights a week for at least a month) or acute (symptoms lasting 1-3 weeks). Risk factors include: conditions that cause chronic pain, like arthritis and headaches; breathing problems; overactive thyroid; gastrointestinal disorders such as gastric reflux; stroke; sleep disorders; menopause; certain medications; caffeine, stimulants, tobacco, alcohol and sedatives.

Narcolepsy is a chronic neurological disorder that affects approximately one in 2,000 people. Symptoms frequently appear in teen years and include excessive daytime sleepiness, sudden overwhelming need to sleep, and sudden loss of muscle tone or strength. It is more prevalent in males and affects all races and cultures.

Restless Leg Syndrome (RLS) and Periodic Limb Movement Disorder (PLMD) affect up to 10% of the population. These are neurological movement disorders that usually occur before sleep onset that cause leg discomfort which is relieved by movement that causes arousal from sleep. Symptoms of RLS are more frequently reported by women than men. A substantial number of women develop RLS during pregnancy with prevalence rates between 11-23%.

Sleep Disordered Breathing (SDB) can result from upper airway obstruction, ranging in severity from upper airway resistance syndrome (UARS) to obstructive sleep apnea (OSA). Obesity is a known risk factor and women have a higher rate of obesity than men. The prevalence and severity of OSA in women changes around menopause, with postmenopausal women having twice the rate of OSA as compared to premenopausal women.

Circadian Rhythm Disorders (disturbance of the biological clock) include delayed sleep phase syndrome (DSPS) with typical onset at puberty. It is characterized by a 3-4 hour delay in both bedtime and wake time in the presence of a normal overall total sleep time. It often results in an increase in nighttime activity and is more prevalent in men. Sex hormones are known to have an influence on circadian rhythm.

Sex and Gender Based Research

Our limited knowledge in sex differences is due to the fact that women are underrepresented in studies of sleep and its disorders. The National Sleep Disorders Research Plan, released in 2003 by the National Center on Sleep Disorders Research reported that 75% of sleep research has been conducted in men. While more recent sleep studies have included women, the small sample sizes limit sex comparisons. However, there is a growing body of evidence that sex hormones influence sleep and circadian rhythms, and further neuroendocrine studies are needed.

Sleep and Hormones

In general, sex steroids play a role in the etiology of sleep disorders in women, either by having a direct effect on sleep processes or through their effect on mood and emotional state. Sleep disturbances occur in young females and are part of the diagnostic profile of premenstrual syndrome (PMS). There are also sleep changes that occur during pregnancy with an increase in total sleep time and daytime sleepiness in the first trimester, followed by a decrease in sleep/awake patterns in the third trimester (Hertz and Cataletto, 2008). During menopause, there is an increase in insomnia and sleep disordered breathing and as women age, sleep becomes lighter and more fragmented.

Diagnosing Sleep Disorders

Women who suffer sleep problems that last longer than 3-4 weeks and interfere with daily activities, should seek medical advice.

An evaluation for a sleep disorder should begin with a comprehensive medical assessment that includes family history, symptoms, menstrual and pregnancy history, work life, habits and lifestyle followed by a physical examination that may include blood work that will look for underlying problems like hyperthyroidism. A sleep study may be ordered and can include a variety of tests that may be done in the hospital, clinical or home. These may include:

- *Polysomnography*: Overnight sleep study that monitors your brain activity and sleep patterns, breathing, heart, eye movements, and changes in muscle tone.
- *Multiple Sleep Latency Test (MSLT)*: measures the level of daytime sleepiness. It is performed during the day following an overnight polysomnogram.
- *Sleep log*: A diary of your sleep-wake cycles that you keep for two weeks

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Treatment

Treatment is aimed towards finding and managing the underlying cause of sleeplessness. Medications are generally used for short-term treatment (2-4 weeks) and may include benzodiazepine and non-benzodiazepine drugs. However, tolerance to these drugs occurs quickly requiring higher dosages that could lead to dependency. Drugs that stimulate melatonin which impacts circadian rhythm are sometimes used..

Long term treatment generally treats both the medical and psychological conditions that are causing the sleep disorder. For example, hormone replacement therapy improves sleep by reducing menopausal hot flashes. Antidepressants are prescribed to women with chronic insomnia related to depressive disorders. Restless Leg Syndrome is often treated with dopamine agonists that release dopamine in the brain.

Non-medical treatments include cognitive behavioral therapies like sleep hygiene (see Health Tip below), relaxation training, stimulus control, and sleep restriction therapy.

Sources:

[National Sleep Foundation](#)

[National Heart Lung and Blood Institute](#)

[Hertz G, Cataletto M. Sleep Dysfunction in Women.](#)

[Sleep Disorders in Women](#)

[National Sleep Disorders Research Plan](#), National Center on Sleep Disorders Research, NHLBI. (2003)

Resources

The Sleep Clinic in the Department of Neurology is a multidisciplinary practice within Northwestern Memorial Faculty Foundation that evaluates all sleep disorders utilizing a team of neurologists, pulmonologists and psychologists who use both medical and behavioral interventions. To make an appointment, call 312-695-7950.

[Your Guide to Healthy Sleep](#) is a booklet provided by the National Institutes of Health.

Upcoming Events

Registration opens August 2, 2010 for Northwestern Memorial Hospital's fitness classes that will begin in the fall. To view a list of classes and to register, [click here](#).

Save the date:

September 21, 2010

Institute for Women's Health Research Monthly Forum

Untangling the Web of Women, Smoking and Weight with guest speaker, Bonnie Spring, MD.

(Registration will open in September)

Health Tip:

Sleep hygiene refers to habits and lifestyle changes that promote healthy sleep and are something you can do at home.

- Try to wake up at the same time every day, regardless of when you go to bed.
- Avoid long daytime naps, but brief naps may help.
- Exercise daily but not several hours before bedtime.
- Use the bed only for sleeping or sex; do not read or watch TV in bed.
- Avoid heavy or spicy meals, alcohol, caffeine and nicotine before bedtime.
- Control your nighttime environment with comfortable temperature, noise, and light levels.

If unable to sleep within 30 minutes, get out of bed and performing a relaxing activity like reading or listening to music

listening to music.

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