

ABOUT MEDSLEEP

Founded in 2004, MedSleep is a network of Canadian sleep clinics committed to providing the highest quality sleep medicine services.

MedSleep clinics provide clinical consultation, diagnostic services (sleep testing) and treatment for the full spectrum of sleep disorders. Our management and technologist teams have had extensive experience providing sleep testing and training across Canada.

Limestone City Sleep Lab joined MedSleep in 2012 and we are excited to have the opportunity to continue to provide high quality sleep medicine services in Kingston and the surrounding area.

What is REM-sleep Behavioural Disorder (RBD)?

RAPID EYE MOVEMENT (REM) sleep behaviour disorder (RBD) is a sleep disorder (more specifically a parasomnia disorder) that involves abnormal behaviour during periods of REM sleep. It was first described by a group of medical scientists in Minnesota in 1986.

One of the key physiologic features of REM-sleep is atonia, which involves all major muscle groups. In fact, the only muscles that are spared are the extra-ocular muscles and the diaphragm. Since many parts of the brain are actually more active during REM-sleep, and dream imagery is so vivid, atonia is required to ensure that the sleeper remains quiescent and physically inactive. The only abnormal feature of RBD is a release from this muscle atonia (paralysis), during otherwise intact and normal REM sleep. This motor dis-inhibition leads to a wide spectrum of behavioural manifestations during sleep. This ranges from simple limb twitches to more complex integrated movements in which patients appear to be unconsciously acting out their dreams. These behaviours can be violent in nature and in some cases will result in injury to either the patient or the bed partner.

Sleep-related behaviours associated with this condition often involve kicking, screaming, punching, grabbing, and even jumping out of bed. When awoken, the patient can usually recall the dream, which will match the actions they were performing. In a normal sleep cycle, REM sleep cycles occur approximately every 90-minutes, and each episode becomes longer as the night progresses. This means that REM-sleep is predominant in the second half of the sleep period. Consequently, RBD episodes may occur several times a night, but are more likely to occur late in the sleep cycle.

The exact cause of RBD remains unknown. It can be related to adverse reactions associated with certain drugs or during drug withdrawal. However, it is most often seen in the elderly, and in those with neurodegenerative disorders such as Parkinson's disease, multiple system atrophy and Lewy Body Dementia. Anecdotally, patients with a history of alcoholism also appear to be at increased risk.

RBD is treatable. Various medications are prescribed for RBD based on varying symptoms. Low dose of clonazepam is most effective, with a 90% success rate. How this drug works to restore REM atonia is unclear, however it is thought to suppress arousability, rather than directly restoring atonia. For those with Parkinson's and RBD, Levodopa or pramipexole can be effective treatment options.

In addition to medication, it is wise to secure the sleeper's environment in preparation for episodes by removing potentially dangerous objects from the bedroom. In addition, placing cushions around the bed or moving the mattress to the floor may provide added protection against injuries. It is best to maintain a normal sleep schedule and to avoid sleep restriction or deprivation. It is also crucial to avoid alcohol consumption. Also, regulating comorbid neurologic symptoms and treating any other specific sleep disorders (i.e., sleep apnea) that would interfere with sleep. ♦

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SLEEP AND NEUROLOGICAL DISORDERS

SLEEP DISTURBANCES AND SLEEP DISORDERS are commonly associated with neurological diseases. Many neurological disorders are now recognized to cause disruptions of the sleep-wake cycle, and the nature of this disruption may tell us something about the brain circuitry involved in sleep regulation. For example, pathological sleepiness is associated with neurological and neurodegenerative disorders such as Parkinson's disease (PD), Alzheimer's disease (AD), and progressive supranuclear palsy. Pathological sleepiness is also associated with neuromuscular disorders such as myotonic dystrophy, inflammatory conditions such as encephalitis or multiple sclerosis, and with traumatic or ischemic injury to the brain. In addition, conditions such as REM Sleep Behavior Disorder (RBD) are recognized as precursors of Parkinson's disease. Conversely, Fatal Familial Insomnia (FFI), a prion

disorder related to Creutzfeldt-Jakob disease, causes prolonged wakefulness.

Sleep is a powerful modulator of epilepsy, with some epilepsy syndromes occurring exclusively or predominantly during sleep. These include benign childhood epilepsy with centrotemporal spikes, autosomal dominant nocturnal frontal lobe epilepsy, and continuous spike-wave activity during sleep. Sleep deprivation has also been described as a risk factor for epileptic seizures. Treatment of sleep disorders that fragment sleep, such as sleep apnea, has been shown to improved seizure control in some patients.

Sleep disorders can also occur as a consequence of treating neurological disorders. For example, pathological sleepiness may occur during treatment of Parkinson's disease and other movement disorders with dopamine-related drugs. In addition, many drugs used

to treat neurological disorders can cause excessive sleepiness or wakefulness.

Sleep disorders also interact in complex ways with neurological disorders, and are frequent after head trauma, stroke, encephalitis or in association with neuromuscular disorders. For example, stroke has been shown to be associated with sleep apnea (central and obstructive), and apnea has been shown to decrease potential for recovery in stroke patients. Similarly, the intermittent hypoxia that accompanies sleep apnea may hasten the neurodegenerative cascade in disorders such as Parkinson's and Alzheimer's.

Neurological disorders provide models for understanding sleep circuitry in the brain. In addition, ruling out underlying sleep disorders may be integral for the most effective management of these neurological diseases. ❖

Headline News

Mortality Risks Associated with Sleeping Pills

THE MEDICAL AND SCIENTIFIC TEAM at MedSleep reviewed the recent paper published by Dr. Daniel Kripke in the *British Medical Journal* (BMJ Open 2012;2:1-8). Dr. Kripke has been speaking out about the use of sedative-hypnotics since the early 80's. This study claims to show that the use of these medications (even a few pills per year) is linked to increased mortality. This assertion became a major media item about 2 months ago. The study is flawed in many ways, but especially for not

properly accounting for anxiety and depression in the "user" group. The paper also includes other medications, such as sedating anti-histamines and melatonin analogues (AKA: anything that promotes sleep). Lorazepam, clonazepam and trazodone are not mentioned! The question then becomes, would the data be similar for people taking any medication, no matter what the mechanism of action or indication? Also, cohort studies demonstrating association do not necessarily imply causality. It

could just as easily be argued that prolonged sleep problems lead to increased risk of anxiety, depression and other medical morbidities, therefore increasing the risk of mortality, independent of hypnotic use. Although these data are telling us something, the tabloid-style conclusions in this article are premature. The problem now is that physicians may be afraid to provide anything to patients, or worse, start prescribing medications which are not indicated for insomnia, which often have more associated risks. ❖

Some people do not need much sleep

People who claim to not require much sleep are often deluding themselves. This claim is often made by highly driven individuals, who may consider sleep rather a waste of time. They are often the first at work and the last to leave. What they do not realize is they are often working less efficiently and making more frequent mistakes than their well-rested counterparts.

Everyone needs 8 hours of sleep

This is a very rough estimate of a general sleep requirement. However, some people require as few as 6 hours per night in order to feel fully rested, while others may require 9 hours. There is a genetic predisposition for an average sleep requirement. It can be honed, but is cannot be dramatically changed without sacrificing daytime functioning.

Sleep before midnight is the most important

This is one of those old wives tales. Somehow the “old wives” just knew certain things, but without physiologic data. Without artificial light, bedtime for most would have occurred an hour or two after sunset. We now know that most slow-wave sleep (restorative sleep) occurs within the first few hours of the overnight sleep period. With an early enough bedtime, most of the physically restorative sleep does indeed occur before midnight.

Dreams are in black & white

This was an early dream theory. It is difficult to prove or disprove. It is likely that colours are “present” when they are somehow relevant to the context of the dream.

Dreams occur instantaneously

Environmental stimuli can be incorporated into dream mentation. We have all awakened to the sound of our alarm clocks, which can be incorporated into our last dream as a fire alarm, a school bell, or other interpretation relevant to the dream. Scientists have conducted studies which introduce sound signals into the environment of a sleeping subject. They keep track of the time elapsed between signals. Then they awaken the sleeping subject from dream sleep. As the subject recalls their dream, they often recall a dream image related to the sound stimuli, and their estimates of elapsed time between sounds in their dream was always similar to the interval between experimental sounds. Thus, dreams likely unravel in real time.



SLEEP MYTHS

REM-sleep in the most important sleep stage

All sleep stages are important. Most patients question sleep clinicians specifically about their REM-sleep, and have the impression that this stage is more important. The balance of sleep stages (sleep architecture) is more important than any particular stage. Sleep continuity has proven to be the most important aspect of sleep.

The older you get, the less sleep you require

The adult sleep requirement is fairly fixed and only slightly affected by age. Older people often sleep less at night but for a variety of reasons. Specific sleep disorders can disrupt sleep, as can various medical disorders. However, this should not affect sleep requirement. Seniors often make up for sleep loss by taking frequent naps during the day.

Teenagers sleep in because they are lazy

With the onset of adolescence, there is a natural tendency for a delayed sleep phase, and a slightly increased sleep requirement. Therefore, the tendency for going to bed late and sleeping late has some physiological correlates. However, this is combined with an increased need for emancipation, and a choice of sleep schedule is often the first freedom that a teen experiences. Consideration of both factors is always important.

Milk at bedtime makes you sleepy

100 mg of milk contains 0.8 grams of tryptophan. Exogenous tryptophan must be taken at relatively massive doses to have a sleep-promoting effect. This is mainly due to competitive uptake with other amino acids in order to cross the blood-brain-barrier. The same is true for turkey. It is more likely the situations and associations are more important for the perceived sleep-promoting effects rather than the presence of small amounts of tryptophan.

You can catch-up with sleep loss on weekends

Irregular sleep schedules and sleep restriction during the week will quickly lead to impaired daytime function. “Catching-up” on the weekend may improve functioning on Saturday and Sunday, but will only last as long as the improved schedule. Compensation for sleep restriction by sleeping in on weekends can actually further impair daytime functioning, and create sleep-onset insomnia in the early work-week.

The brain rests during sleep

Sleep is a very active process. For example, in REM-sleep many parts of the brain are actually more active than during wake. There is nothing “passive” about sleep. The central nervous system is simply in a state of existence that restores equilibrium in order to optimize waking function. ❖

Caffeine

- Coffee, brewed 40 to 180 mg. per cup
- Coffee, instant 30 to 120 mg. per cup
- Coffee, decaffeinated 3 to 5 mg. per cup
- Tea, brewed American 20 to 90 mg. per cup
- Tea, brewed imported 25 to 110 mg. per cup
- Tea, instant..... 28 mg. per cup
- Cocoa 4 mg. per cup
- Chocolate, milk 3 to 6 mg. per ounce
- Chocolate - bittersweet 25 mg. per ounce
- Cola and other soft drinks, containing caffeine 36 to 90 mg. per 12 ounces
- Cola and other soft drinks, decaffeinated 0 mg. per 12 ounces

DID YOU KNOW that after oil, caffeine is the second-most traded commodity in the world?

Caffeine amounts of 250 mg may cause intoxication in some individuals – with restlessness, nervousness, excitement, flushed face, gastrointestinal symptoms, and diuresis

Due to tolerance, individuals may become accustomed to high doses without any symptoms

Doses above 1 g may be associated with more severe symptoms including insomnia, dyspnea, delirium and arrhythmias

Caffeine's half life is 3-7 hours, however the duration of effects may last up to 14 hours.

(from Principles and Practice of Sleep Medicine, 2005, Ch. 115)



MedSleep

DEDICATED TO ACHIEVING EXCELLENCE

in both the diagnosis and treatment of the full spectrum of sleep disorders, providing comprehensive evaluation and integrative treatment.

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