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SLEEP



Sleep apnea How it is tied to bigger health complications



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November 2012

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TIP

WE RECOMMEND Don't let your sleep condition

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Learn the key to a good night's rest.

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Sleep plays a vital role in our overall health. It has been proven that a majority of Canadians are sleep-deprived. 60 percent of Canadian adults feel tired most of the time, 75 percent of us have sleep difficulties, and 30 percent of adults get fewer than six hours a night; although research suggests we need more.





Make sleep a Your health den nds on it)er

he health complications and risk factors that arise from too little sleep, restless sleep and sleep disorders have beco-

me hot topics in the media over the past decade. However, the question of why we need to sleep is often left unanswered. There has been much research done which looks at the consequences of not having enough sleep or having restless sleep. From these studies we can deduce that sleep is very important to cognitive, metabolic and physical recovery. Essentially, sleep is a state of recovery that is necessary for optimal daily function.

Physical

Every day we wake up and begin to put our bodies through stress. Through the rigours of day to day life factors such as emotional stress, daily activity and exercise, the body is worn down little by little. Physically, the human body is a series of systems all working together to create an, ideally, healthy individual. The only way to restore this series of systems is through sleep. There is a great deal of inter-individual difference in how much, when and how well one needs to sleep in order to function and feel good and often people can function well for periods of time on a limited amount of sleep. However, eventually if left unrestored, the systems will fail. Without sleep a person's ability to perform complex tasks decreases, they become irritable, moody, lack concentration and are more susceptible to contracting illnesses.

Metabolic

Studies have shown that long term lack of sleep or restless sleep causes one's insulin sensitivity to decrease. Metabolically, sleep greatly affects the body's ability to utilize energy, in particular sugars. Lower insulin sensitivity reduces one's glucose tolerance and this can cau-



se glucose to be deposited as fat. Furthermore, several studies have linked higher secretion of the hormone ghrelin to a lack of sleep and non-restorative sleep. This leads to the consumption of high-calorie dense foods and the central deposition of fat. As a result of these hormone imbalances people who do not sleep are at a higher risk of becoming obese and for contracting Diabetes, but, it often takes years of little restorative sleep to become obese and contract Diabetes.

Cognitive

One of the first things affected from a lack of sleep is one's cognitive function. Sleep is necessary for learning, memory consolidation and concentration. Often after as little as one night of reduced or no sleep

we feel these cognitive effects start to take place. In day to day life people feel themselves become forgetful and have a harder time making decisions at work and in daily life. As well, the lack of sleep makes it harder to make judgements about one's own level of impairment which can lead to dangerous behaviours like driving drowsy.

All of this can make a bad night's sleep look very grim. But, if you get the amount of sleep you need, take short naps to make up sleep debt, feel rested when you wake in the morning and sleep when you're tired rather than when you think you should go to bed your body and mind will be well restored. Remember every day you build a sleep debt that needs to be recovered at night in order to function well physically and mentally.

> **DR CHARLES H. SAMUELS** editorial@mediaplanet.com

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INSIGHT



Sleep apnea, an uncommonly common disease

leep apnea is a condition where someone repeatedly stops breathing or almost stops breathing while asleep. Even though this irregular breathing is easily noticed by the casual observer, we have on-

by the casual observer, we have only recently discovered that the fundamental problem is obstruction of the throat air passage, referred to as the pharynx. This structure which is used for swallowing, breathing and talking, becomes narrowed in some people. In these individuals the air passage is held open while awake and breathing is normal at this time. Upon falling asleep, however, things change, and the pharynx closes completely or narrows severely. This means that breathing is interrupted and picks up again only after the body senses that the oxygen in the blood has declined.

At this time, sleep is disturbed. In other words, sleep apnea involves repeated obstruction of breathing which causes low blood oxygen and disturbed sleep.

The most amazing fact about sleep apnea is that it is extremely common. It affects almost 20% of adults, making it, one of the most common chronic, non-communicable disease in industrialized societies, as common as diabetes, high blood pressure, and asthma. Not surprisingly, it compromises one's quality of life, causing sleepiness, headaches and depression, but this is not always so. Many victims feel well and are unaware that they have the disease.

Sleep apnea causes problems for the heart and circulation, such as, heart attack, stroke, high blood pressure and irregular heart beat. Thus, the disease is a risk factor for other diseases, whether you feel bad or not. Sleep apnea is more common in men than women, and it occurs in children. It is promoted by being over weight, and the current obesity epidemic is partly responsible for the high prevalence of sleep apnea.

Diagnosis is traditionally made by an overnight sleep test performed in the hospital with a technician present, not a particularly pleasant experience. Furthermore, such an expensive and cumbersome test is ill-suited for managing the public health challenges posed by such a common disease. In collaboration with Calgary's medical community and local respiratory home care providers, sleep physicians at the University of Calgary and Foothills Medical Center pioneered an alternative diagnostic practice using of a portable monitor in the home. This less expensive and more convenient approach has been a remarka-



ble success and is now being adopted throughout Canada, the United States and Europe.

Treatment of sleep apnea has also been an evolving process and Calgary has played a pioneering role. Standard treatment is continuous positive airway pressure, or CPAP which involves sleeping with a mask over the nose. Sleep physicians and engineers at the University of Calgary invented the first electronically controlled CPAP, a device that has provided lifesaving therapy to millions. Members of the same team later invented autoC-PAP, which allows initiation of therapy in the home, once again avoiding the overnight in-hospital

sleep study. More recently, the U of C group partnered with a local Calgary start-up company, Zephyr Sleep Technologies Inc, to support the development of innovative diagnostics and therapeutics focused on oral appliance therapy for sleep apnea. The MATRx has been most recently been created for identifying sleep apnea patients that will be a successful candidate for oral appliance treatment.

Calgary has made a name for itself as a hub for both researchers and clinics that are on the forefront of technology and sleep apnea solutions. These innovations, combined with education and awareness, are the start to well-rested residents and a healthy city.

> **DR. JOHN REMMERS** editorial@mediaplanet.com

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INSPIRATION



Don't let your sleep complications turn into a nightmare

ow is the time to wake up and start taking sleep apnea seriously. Not getting the right amount of shut eye is often more than

just restlessness, it's time to take sleep problems seriously—your state of health depends on it. Calgary's researchers are leading the way.

We've all joked about the person we know who snores. But that snoring could be the sign of a much more serious condition, sleep apnea, which causes people to stop breathing intermittently. In fact, patients can stop breathing hundreds of times per night. This not only results in severe sleep deprivation, but hypoxia can also occur, a condition in which the body is deprived of adequate oxygen supply.

Leading research is being done out

of the University of Calgary, which is taking a deeper look at the connection between sleep apnea and other serious chronic conditions, such as high blood pressure, kidney disease, stroke, and neurological disorders. It's not known yet if treating sleep apnea will prevent stroke or the progression of other chronic conditions, but researchers and clinicians know there is a definite association. Further study is needed to better understand the connection.

Get tested – Your health depends on it

"This is a very serious condition, and more common than people think," says Dr. Patrick Hanly, director of the Sleep Centre at Calgary's Foothills Hospital, "It's estimated that close to 20 percent of the population has some form of sleep apnea, and our research suggests that it's much higher for those with chronic medical conditions." Hanly adds that sleep apnea, just one of several sleeping disorders, can often develop gradually and many people don't even know they have it. But it can have a serious impact on one's health, and the negative consequences often present themselves years down the road.

While one's sleep partner may be aware of some of the symptoms unexpected reasons for waking up during the night, gasping or choking sounds while sleeping, the most compelling symptoms are often noticed during the daytime. Waking unrefreshed, falling asleep while at work or driving, and increased irritability and mood swings. "These symptoms should prompt further investigation by your doctor," says Hanly. "Not only is one's health at risk without diagnosis and treatment, but there are some serious safety concerns if people with



this condition fall asleep while driving, or at work."

Breathing your way to better health

The Lung Association of Canada has long been an advocate of sleep apnea, because it's a breathing disorder that is linked to a number of chronic diseases, including COPD (a condition that obstructs the airways) and asthma. "It is estimated that 100,000 Albertans have Obstructive Sleep Apnea (OSA) and approximately 80% have not been diagnosed, so they remain untreated," says Gina Ibach VP Health Initiatives, The Lung Association, Alberta and NWT. "The challenge is increasing the awareness amongst the public, but also with health professionals." A large part of their advocacy has also been working with the government to get funding for targeted populations, such as low income seniors so they can access CPAP treatment, which is still the gold standard, but it can be prohibitive for those on low income or those who don't have third party insurance."

Ibach adds that a more integrated network of care needs to happen to better support those with sleep apnea. "There is still a stigma around sleeping disorders, and they don't have the same profile as other diseases," she says. "But when people receive treatment it is extremely positive."

> KEN DONOHUE editorial@mediaplanet.com





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NEWS



In addition to those being diagnosed with sleep apnea, **over 1 in 4 adults** report symptoms and risk factors associated with the disease.

Proper treatment is the first step to effectively combat sleep apnea

leep apnea is a chronic medical condition with serious health consequences, yet it's hugely under-diagnosed. This is of great concern to those working and doing research in the field.

Some of the best work in North America around the diagnosis, treatment and care for sleep apnea is being done in Calgary. "Like any other chronic disease, there are different forms of treatment for sleep apnea," says Shouresh Charkhandeh, a leading researcher in the field, and Chief Dental Officer for Zephyr Sleep Technologies. "It's important that a multidisciplinary team be part of the treatment, including a sleep doctor, dentist, with training in this area, an ear, nose, and throat specialist, and CPAP providers."

There are really three approaches to treatment—CPAP, oral appliance, and surgery. CPAP, which stands for continuous positive airway pressure is considered by most to be the gold standard for treating sleep apnea. The patient wears a mask, and is tethered to a small, portable bedside unit, which uses room air under mild pressure to keep the airway open. CPAP allows patients and care providers to get a read out of the therapy's effectiveness, and compliance software is built into the system. This is a very effective form of treatment to yield proper results and health benefits. Compliance is shown to improve if time is spent educating the patient face to face, at a clinic or with a knowledgeable professional.



Another popular and effective form of treatment is oral appliance therapy in which a custom-fabricated device, made by a sleep-trained dentist, is worn while sleeping and kept in place by the teeth. The appliance gently positions the lower jaw and tongue slightly forward, reducing tissue obstruction and keeping the airway open. The reported patient compliance is very high with this form of therapy. While many patients seem to prefer this due to the convenience and comfort factor, not everyone is a good candidate for it and an evaluation needs to be done by a sleep specialist as well as a sleep trained dentist.

Surgery is another form of treatment that could involve removing the adenoids and tonsils with the aim of reducing the amount of tissue in the back of the throat, or it could mean breaking and then moving the upper and lower jaw to increase flow through the airways. Given the invasive nature of surgical therapy it's only used in very few and select cases.

Like all forms of treatment for chronic conditions there are benefits and drawbacks. "We often can't tell by looking at someone or talking to them whether CPAP or an oral appliance would be the best form of treatment," says John Remmers, a pioneer in the study of sleep apnea, who has been working and researching in this area for the past 30 years. "It's a bit of a crap shoot, because currently there isn't a diagnostic test to determine the best form of treatment, and this can be costly for the patient, both financially and also for their health."



Remmers and his team have been working for the past decade on developing a simple test that can determine if one can successfully be treated with an oral appliance. This will better inform patients and care providers to determine if CPAP or an oral appliance will be more effective. "The test will soon be available in Canada and has good predictive capability," says Remmers. "This will allow us to individualize treatment."

But whatever the treatment, it's only good if people are diagnosed. People don't know they have sleep apnea, and with little awareness of the condition amongst family doctors, and the general population, most just end up unsuccessfully treating the symptoms instead of the disease.

> KEN DONOHUE editorial@mediaplanet.com



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Sleep tips

Take your TV, computer and smart phone out of the bedroom. Your bedroom should be for sleeping and intimacy only.

Turn your alarm clock around so that you can't see it from the bed. Otherwise you will count down until morning and definitely ruin your sleep.

Don't lie awake in bed! If you can't get to sleep, then get up and do something quiet and non-stimulating until you feel sleepy, then try again.

Consider a referral to a sleep center directed by a sleep medicine specialist.

Exercise daily, but no closer than 4 hours before your bed time.

DR. ATUL KHULLAR

Learn the key to a good night's rest

he morning coffee is the java jolt most of us start with to get us going. It's not really a surprise that 90% of North Ame-

ricans hit the caffeine on a daily basis. While our sleep needs change over the years (for example, teenagers need more and the elderly need slightly less), society's norms and our busy schedules mean that most people on average are getting one hour of sleep less a night than they should. An hour might not seem like a lot—it's a TV show or some Web browsing, but getting even an extra 15-20 minutes of sleep daily can make a huge difference in

your mood and energy levels.

So, how do we get a better night sleep?

Technology is one of the biggest deterrents to a good night's sleep. The majority of adults have a television in their bedroom and maybe their smart phone is sitting on their bedside table. Their children not only have TVs in their rooms as well, but also computers, videogames, and their own smart phones. Shockingly, even 30% of children under the age of two have TV's in their rooms. Is it any surprise that sleep problems seem to be epidemic?

Research has linked television in the bedroom to higher rates of

obesity and unsatisfactory sex lives; two excellent reasons to ditch the flat screen on the dresser. As for your smart phone, nobody really needs to check their e-mail 24/7. And a restful night is probably more fulfilling than any texts during sleep hours. Leave these things in the living room, not the bedroom. Use an alarm clock if needed, but don't have your phone wake you up!

What's next?

If you're still struggling with sleep problems after improving your "sleep behaviors," then it is time to talk to your physician. Sleep problems are commonly related to conditions such as depression,



anxiety, or disorders such as sleep apnea, where you regularly stop breathing in your sleep. Keep in mind that medication isn't always the answer. Prescriptions and over the counter medications often make sleep worse.

Your family doctor may refer you to a sleep clinic, where specialists can do further testing and help you pinpoint the problem. Some accept self referrals. When preparing to go to a sleep clinic, do a little information gathering first as appro-

priate regulation is currently limited in Alberta. You should always look for a clinic that is directed by a board-certified sleep medicine doctor with access to both portable (in-home) and polysomnographic (in-lab) sleep testing to cover the range of sleep disorders.

The bottom line is that you don't have to live your life in a fog of fatigue, fueled by double doubles from Tim Horton's. Getting enough sleep is one of the best things you can do for your body and mind, and we spend a third of our life doing it, so why settle for less?

> **DR. ATUL KHULLAR** editorial@mediaplanet.com



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