

SNORING'S

Obstructive sleep apnea is a factor in a host of health problems

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EVIL TWIN

“I stopped breathing almost 200 times during the night,” says Montreal resident Beverley Baird, 67, recalling her stint in a sleep lab a year and a half ago. Beverley was diagnosed with obstructive sleep apnea (OSA). “But I didn’t believe the staff. I thought I was just drained and exhausted. I thought I had asthma,” she says.

WHAT IS OBSTRUCTIVE SLEEP APNEA?

Beverley is typical of people who suffer from OSA — a serious, at times even life-threatening, condition in which, during sleep, breathing is partially or wholly blocked for periods usually lasting from 10 to 30 seconds.

Like Beverley, most apnea sufferers are not aware of their sleep problems and their bodies’ nightly struggle to maintain basic functions. The temporary cessation of breathing reduces blood oxygen levels and raises carbon dioxide levels, depriving vital organs of oxygenated blood and putting stress on the lungs, heart, brain and immune system. Diabetes, hypertension and acid reflux are all associated with sleep apnea, and Beverley has all three. Depression is another associated symptom but, luckily, Beverley is fine on that score.

“There are other types of apnea, but OSA is the most common,” says Dr. John Fleetham, a professor in the department of medicine at the University of British Columbia and the Vancouver Hospital. OSA can occur hundreds of times in a night.

It’s as if somebody repetitively puts a pillow over your face. “This has the same effect on the body as driving a



car in heavy traffic — the constant stop-and-go wears the body out,” he says.

This transient suffocation is often caused by a crowded upper airway. The airway may be blocked by extra fatty tissue in the throat, by soft tissue, such as the uvula (the fleshy appendage that hangs from the soft palate on the roof of the mouth), by the tonsils and adenoids or by a larger-than-average tongue.

Furthermore, vibrations from years of snoring can damage the nerves that activate the throat muscles, making them weaker and impairing their reflex ability

so they fail to remain open during inhalation. Apneic events occur more frequently in rapid eye movement (REM) sleep, the dreaming phase in which the throat muscles are most relaxed.

When oxygen levels drop, inflammatory changes occur, both locally in the nose and throat, and also systemically throughout the body. C-reactive protein, a sensitive marker for inflammation, increases. This inflammatory response means that apnea is part of a generalized syndrome and not simply a localized mechanical or structural problem of the throat.

Symptoms and complications

“The most common signs of OSA are loud snoring followed by silent pauses,” says Fleetham. Other signs are morning headaches, irritability, mood changes, poor concentration and low sex drive. “This common condition needs to have the same level of public awareness as diabetes and high blood pressure,” he says. All three are linked to obesity and work independently and together to cause serious health problems.”

CARDIOVASCULAR CONDITIONS

OSA is associated with systemic hypertension, pulmonary hypertension, coronary artery disease, stroke, congestive heart failure, ischemia, cardiac arrhythmia, myocardial infarction and sudden cardiac death. Heart function is reduced in direct proportion to the severity of sleep apnea.

More than half of those with untreated sleep apnea have high blood pressure. In others, blood pressure may be normal during the day with an increase only during sleep, as the body struggles to regain its proper oxygen levels. Sleep apnea sufferers are three times

more likely to have a heart attack or stroke, and OSA increases the risk of stroke even in the absence of high blood pressure.

In addition, about one-third of all patients with heart failure have sleep apnea. A study at Mount Sinai Hospital in Toronto found that heart failure patients are twice as likely to die if they also have sleep apnea. Interestingly, a younger age increases risk: according to a European study of nearly 15,000 men, males in their 20s have 10 times the risk of dying and males in their 30s have three times the risk of dying from the cardiovascular complications of sleep apnea than apneic men over age 50.

SLEEP DEPRIVATION

With each gasp to restart breathing, the person wakes, causing sleep deprivation. The snoring and snorting may cause bed partners and roommates to be sleep-deprived, too. When Sean Kerklaan, now a 31-year-old Vancouver resident, was in college, his roommate used to throw a pillow at him to stop his snoring. Sean would wake up about 30 times an hour. Later, his snoring and the ill effects of insufficient sleep would cost him his marriage.

SURGICAL COMPLICATIONS

Extra caution is required in the administration of sedatives and anaesthesia. OSA patients experience greater complications after surgery, are more likely to be admitted to intensive-care units and require longer hospital stays.

AIR TRAVEL RISK

An Australian study reported that since air travellers with sleep apnea have to work harder to run core body functions, half would require in-flight supplemental

ABOUT APNEA

- ◆ Mild sleep apnea affects one in five adults
- ◆ Moderate to severe sleep apnea affects one in 15 adults

APNEA STRIKES...

- ◆ 1% to 3% of children
- ◆ 4% of adult males
- ◆ 2% of adult females
- ◆ Two to three times as many adults over age 65 as under

COULD YOU HAVE SLEEP APNEA?

- ◆ Has anyone mentioned that during sleep you snore loudly and have completely silent pauses followed by gasping or choking?
- ◆ Do you often have dreams of drowning, choking or not being able to breathe?
- ◆ Do you suffer from extreme daytime drowsiness?
- ◆ Do you have morning headaches?



oxygen if current guidelines for people with lung disease were strictly followed.

MOTOR ACCIDENTS

“People with sleep apnea are up to seven times more likely to have a car crash,” says Fleetham. But, adds Marion Laroque, a respiratory therapist with the Lung Association of Saskatchewan in Saskatoon, “once patients begin treatment, they can drive safely again.”

HIGH BLOOD SUGAR

To restart breathing, the body releases the stress hormone adrenalin, which increases carbohydrate metabolism and is likely the cause of increased levels of blood glucose in apnea sufferers. More than a third of those with type 2 diabetes also have sleep apnea. One study found that men with apnea were five times more likely to have insulin resistance and other metabolic disorders than their non-apneic counterparts.

DEPRESSION

Depression, sleep deprivation and sleep apnea share many of the same symptoms: disrupted sleep, fatigue, poor concentration, irritability and lack of interest in previously enjoyed activities. “There’s a direct link between the symptoms of depression and sleep apnea,” says Laroque. Low levels of the brain chemical serotonin are involved in both depression and sleep problems.

Adds Dr. Anu Tandon, a respirologist at Toronto’s Sunnybrook Health Sciences Centre and the New Women’s College Hospital, “Depression can mask the symptoms of sleep apnea. Many women being tested in sleep clinics are on antidepressant drugs.” Women are three times more likely than men to have been diagnosed with depression before being diagnosed with sleep apnea. And at the time of OSA diagnosis, says Tandon, “women are also more likely to be undergoing treatment for depression, insomnia or hypothyroidism.”

RYAN LANE/ISTOCKPHOTO

Who’s susceptible?

THOSE WHOSE RELATIVES HAVE OSA

There may be some inherited genes that increase risk.

THE OVERWEIGHT

“We used to think it was only overweight men who got sleep apnea; then, we found it was men of normal weight. Later, we found it affects women, and now we know it can also affect children,” says Fleetham, who also chairs the Ottawa-based Canadian Thoracic Society’s sleep apnea committee.

The stereotype of an apnea sufferer is a heavysset person with a short, thick bull neck, and this is often the case. Take hefty football players, for example. While only 4% of men in the general population have sleep apnea, among 400 randomly selected and apparently healthy National Football League players, 14% of all the players and 34% of the linemen had sleep apnea.

“A 10% increase in weight leads to a sixfold risk increase for OSA. And if OSA is already present, that leads to a 30% worsening in severity,” says Tandon.

MALES MORE THAN FEMALES

Men are two to three times more likely than women to have OSA. “Early studies were done on military veterans, so the information base excluded women,” says Tandon. “Men were thought to have obstructive sleep apnea at a 10-to-one ratio to women. Today, men are still being referred to sleep clinics at a 10-to-one ratio, but we should really be seeing referrals at a three-to-one ratio.”

Women are more likely to experience sleep apnea in perimenopause and after menopause. And women present with different symptoms. “A woman may complain of insomnia, swollen ankles, a sensation of her heart skipping a beat or depression,” says Tandon. “More women wake up with headaches, whereas more men report a level of

fatigue that adversely affects their normal daytime functioning.”

Although most apnea sufferers are overweight, this is not necessarily true of post-menopausal women. In this group, the loss of the possibly protective effects of the hormones estrogen and progesterone may play a role.

CERTAIN ETHNIC GROUPS

Sleep apnea is more common in those of Far Eastern and African ancestry.

OSA IN CHILDREN

“Large tonsils are the most common cause of sleep apnea in children,” says Fleetham. Pediatric symptoms include daytime drowsiness, bedwetting, behaviour problems, attention deficits and hyperactivity. “These children sometimes present with failure to grow and failure to thrive,” he adds. Sleep apnea is twice as common in children and teens who get migraines, compared with those who get other types of headaches.

During sleep, children with OSA may be restless or very still. Odd sleeping positions are common — anything from lying over the edge of the bed to lying with the body arched as though the child is about to stand on his head. Even when moved, OSA children return to their awkward positions, presumably to try to maximize air intake.

The Canadian Lung Association suggests videotaping children suspected of having sleep disorders to document abnormalities of breathing, movement and position.



BLOWN AWAY

A Swiss study looked at normal-weight men with mild to moderate sleep apnea who drank little alcohol. It found that regular blowing on a didgeridoo, a large wind instrument played by Aboriginals in Australia, improved daytime sleepiness and reduced the number of nightly apneic events. Improvement came after practising for 20 minutes a day, five days a week for four months.

The face of OSA

A Vancouver Coastal Health study compared facial and cranial structures in 239 male and female patients at sleep clinics in Vancouver and Hong Kong. It concluded that a crowded or narrowed air passage at the back of the tongue and soft palate and an angular, steeply rising jawline were the best predictors of OSA — regardless of ethnic group or degree of obesity.

When he was diagnosed with OSA, Sean was a fit and healthy 24-year-old of normal weight. “Now, with the knowledge I have, I realize that sleeping on your back versus your side can dramatically affect the severity of sleep apnea,” Sean says. He’s the creator of the REM-A-TEE Anti-Snore Shirt, a T-shirt with foam inserts in the back that treats apnea by encouraging people to sleep on their sides. “I have a narrow air passage, and my apnea is related to sleeping position.” When he sleeps in the supine position, gravity causes his tongue to fall backwards and close his airway.

ANATOMICAL RISK FACTORS

MEN

- ◆ Neck larger than 17 inches (43 centimetres) in circumference
- ◆ Waist larger than 40 inches (102 centimetres)

WOMEN

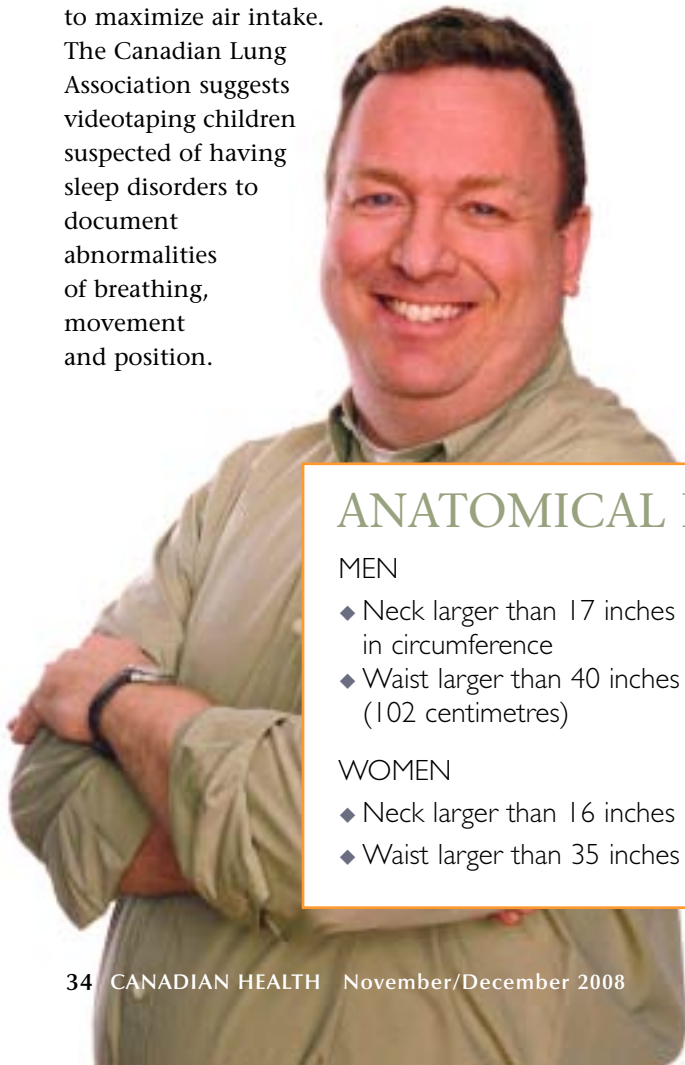
- ◆ Neck larger than 16 inches (41 centimetres)
- ◆ Waist larger than 35 inches (89 centimetres)

BOTH GENDERS

- ◆ Crowded or narrow air passage at the back of the tongue and soft palate
- ◆ Angular jawline (regardless of obesity level)

CHILDREN

- ◆ Enlarged adenoids and/or tonsils



Diagnosis

According to the Canadian Lung Association, the average person waits seven years between the onset of symptoms to the time she or he is referred to a specialist for assessment. People who sleep alone are less likely to seek treatment because they have no bed partner who hears the snoring and pauses in breathing.

Diagnosis in a sleep lab involves nocturnal polysomnography, an overnight test that monitors the sleeper's heart, lungs and brain, as well as the movements of his eyes, chin, chest, abdomen, arms and legs. Also monitored are the times the patient falls asleep and wakes from sleep, his stages of sleep, blood oxygen levels and the sounds he makes during sleep. Sometimes the patient is videotaped.

Some provincial health insurance plans cover the costs of sleep-lab testing. Check with your ministry of health.

Treatment

Treatments designed to curb snoring — such as nasal strips that keep the nose open — do not help OSA, which is caused by relaxed throat muscles or tongue blockage. Moreover, oil-based anti-snoring sprays may be inhaled into the lungs and may worsen breathing.

MILD APNEA

(five to 15 events per hour of sleep)

“The good news,” says Fleetham, “is that treatment is simple and very effective.” Your doctor may recommend lifestyle changes such as losing weight, getting regular exercise, quitting smoking, and avoiding alcohol, sleeping pills and sleeping on your back.

For every 10% of excess weight lost, there's a 26% decrease in symptoms. Quitting smoking helps because smoking causes greater inflammation and fluid retention in the airways, allowing less air to pass through. Sedatives and alcohol relax the throat muscles, making them more collapsible. Sleeping on your side instead of your back helps to keep your tongue from sliding back and blocking your throat.

MODERATE AND SEVERE APNEA

Moderate (15 to 30 events per hour)

Severe (more than 30 events per hour)

CONTINUOUS POSITIVE AIR PRESSURE Treatment combines lifestyle changes with nightly use of a continuous positive air pressure (CPAP) machine. Pressurized filtered room air (sometimes humidified) flows non-stop through a mask into the nose to keep the upper airways open. Each machine is individually calibrated and must be adjusted for weight gain or loss.

CPAP relieves OSA and improves cardiac function by significantly lowering nocturnal blood pressure and decreasing heart rate. It may even decrease the size of an enlarged heart. This therapy also reduces local and systemic inflammation and lowers blood glucose levels. CPAP treatment helps relieve depression as well, possibly by improving sleep and the ability to concentrate.



But some apnea sufferers — Beverley for one — find it takes time to get used to the mask. At first she felt claustrophobic and hated having the confining mask over her nose. And since she tends to breathe through her mouth, she had to use a chin strap to keep her mouth closed. “But with my CPAP machine, as soon as I hit the pillow, I’ve gone to sleep,” says Beverley, who used to toss and turn and cough and choke all night. “During the day, just going downstairs would make me tired. Now I can walk 10 blocks. Now I’m peppy.”

ORAL DEVICES There are more than 40 different types of mouth appliances designed to keep the throat open. One type forces the jaw and tongue to move forward during sleep, thereby opening the airway.

SURGERY Surgery on the jaw, nose, soft palate, uvula or tongue is sometimes performed to reduce the amount of extra tissue or to move the jaw forward.

CPAP remains the most reliable choice but is sometimes hard to access. “If sleep apnea is so common, its effects so devastating and its treatment effective and relatively simple, why isn’t there more funding for treating this debilitating disorder?” asks Fleetham.

For information and support, call The Lung Association at | 888 566 5864 or go to www.lung.ca. 