Treating sleep apnea

It could save your life

What’s it like to feel rested when you wake in the morning? You haven’t felt that way in years and have just chalked it up to getting older. Your wife says you snore — a lot and loudly. Yet, you don’t recall any of this.

The explanation may be obstructive sleep apnea. Left untreated, this nighttime breathing disorder not only causes ongoing sleepiness, but also can contribute to cardiovascular problems and possibly sudden death.

Once the condition is identified, treatments for obstructive sleep apnea can be very effective, ranging from simple lifestyle changes to specialized breathing masks or even surgery.

Breathtaking concerns

Obstructive sleep apnea is by far the most common type of sleep apnea. Obstructive sleep apnea occurs when muscles at the back of the throat relax and obstruct airflow.

These muscles normally support your tonsils and tongue, the soft palate on the roof of your mouth, and the uvula, which hangs from the soft palate at the back of your mouth. However, when these muscles relax, your normal airway can narrow too.
much or even close as you reach the end of an exhalation, and breathing may actually stop momentarily.

This pattern of obstructed breathing may result in lower blood oxygen levels. Increasingly strenuous efforts to breathe despite the narrowed throat airway may eventually rouse you from sleep in order to restore normal breathing.

Obstructive sleep apnea affects young and old, but it’s most common in adults ages 45 to 65. Although obstructive sleep apnea is seen more often in men than in women, the risk rises among women who are past menopause.

Risk of obstructive sleep apnea may be increased due to:
- Excess weight
- High blood pressure
- Having a naturally narrowed throat or enlarged tonsils or adenoids
- A family history of obstructive sleep apnea
- Using substances that cause throat muscle relaxation, such as alcohol, sedatives or tranquilizers
- Smoking
- Chronic nasal congestion

Not to be ignored
Obstructive sleep apnea isn’t merely a snoring problem. It’s considered a serious medical problem, particularly as it relates to cardiovascular health.

Sudden drops in blood oxygen levels due to obstructive sleep apnea put a strain on your cardiovascular system, putting you at considerably greater risk of high blood pressure (hypertension).

Over time, obstructive sleep apnea may increase risk of other cardiovascular conditions, such as congestive heart failure, irregular heart rhythms, stroke or sudden cardiac death. Studies indicate obstructive sleep apnea also may be associated with the occurrence of some eye diseases, including glaucoma.

The most common signs and symptoms of obstructive sleep apnea may include waking up feeling unrefreshed, being excessively sleepy during the day, loud snoring, breathing cessation while sleeping, morning headaches and startled awakenings with shortness of breath. If you experience any of these, talk to your doctor. Some other common signs and symptoms include a dry mouth or sore throat upon awakening and trouble staying asleep.

Your doctor may refer you to a sleep specialist for possible overnight monitoring of your breathing and other functions while you sleep.

The air … you breathe
In milder cases of obstructive sleep apnea, lifestyle changes — such as losing weight or stopping smoking — may be helpful. But if these changes aren’t successful, or if you have moderate to severe obstructive sleep apnea, other treatment options designed to open a blocked airway may be of help. These include:

- Continuous positive airway pressure (CPAP) machines — These are generally the preferred treatment method. CPAP (SEE-pap) devices deliver air pressure through a mask while you sleep. The machines create air pressure that keeps the upper airway open. Adjusting to CPAP can be a challenge. You may need to try different mask types to find one best suited for you. Your sleep specialist can help modify your mask and air pressure settings as needed.
- Adjustable positive airway pressure devices — These are alternatives to standard CPAP machines that automatically adjust air pressure while you sleep.
- Oral appliances — These are designed to keep your throat open — for instance, some bring the jaw...
forward. Oral appliances are typically recommended for people with mild to moderate obstructive sleep apnea. Oral appliances are available from dentists.

**Upper airway surgery**

For some, surgery is the best treatment for obstructive sleep apnea. Among the procedures that may help clear or enlarge air passages are the removal of nasal polyps, straightening cartilage between the nostrils (deviated nasal septum repair), and removing enlarged tonsils or adenoids. Other surgical options that may be considered are:

- **Maxillomandibular advancement** — Done under general anesthesia, this procedure enlarges the space behind the tongue and soft palate. This is done by moving the upper and lower part of the jaw forward from the facial bones so that airway obstruction is less likely.

- **Uvulopalatopharyngoplasty (UPPP)** — Done under general anesthesia, this procedure involves removing tissue from the rear of the mouth and top of the throat. Typically, tonsils and adenoids also are removed. The procedure usually works to stop vibrations of the throat structures that cause snoring. However, it may not treat sleep apnea if tissue at other sites block the airway.

- **Pillar procedure** — This surgical procedure is usually done with local anesthesia. It involves placing three tiny polyester rods in the soft palate. The rods stiffen and support tissue at the back of the mouth and help reduce upper airway collapse and snoring. The procedure is generally used only for mild obstructive sleep apnea.

- **Tracheostomy** — This is typically an option of last resort if other treatments have failed or you have severe, life-threatening sleep apnea. Your surgeon makes a small opening in your neck and a metal or plastic tube is inserted. The opening is covered during the day. At night it’s uncovered allowing you to breathe by bypassing blocked air passages in the throat.

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**Neck circumference as a measure of risk**

In determining risk of sleep apnea, one measurement that may be predictive is your neck circumference.

Start by measuring your neck’s circumference. The actual formula to determine risk uses centimeters (cm), but approximate equivalents in inches are included here:

- If you have or are treated for high blood pressure, add 4 cm (about 1 1/2 inches) to the neck measurement.
- If you snore more than three nights a week, add an additional 3 cm (about 1 1/4 inches).
- If you’re known to choke or gasp most nights, add an additional 3 cm (about 1 1/4 inches).

If the final adjusted neck circumference is 43 cm (about 17 inches) to 48 cm (about 19 inches) your risk of sleep apnea is moderate. And if the adjusted measurement is more than 48 cm (about 19 inches) there’s a high probability of sleep apnea. Talk to your doctor about whether you might have sleep apnea.

However, if your neck measurement is less than 43 cm (about 17 inches), but you have severe symptoms of sleep apnea, it’s also important to speak with your doctor, as there might be some other treatable condition responsible for your symptoms.

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**Health tips**

**Taking fish oil**

If you don’t like eating fish, but want the heart-health benefits of omega-3 fatty acids, fish oil supplements are often recommended. In addition, fish oil supplements are commonly prescribed for those who have survived a heart attack, as they help prevent future heart problems and may be prescribed for those with high triglycerides or other conditions.

The most common complaint about taking fish oil supplements is of the fishy burps or aftertaste. You can often avoid this side effect by:

- **Taking the capsule frozen** — This slows the breakdown of fish oil in your stomach, often reducing fishy burps. Yet, the fish oil is still digested just as effectively.

- **Taking the capsule at the start of a meal** — The food traps the fish oil in the stomach, and they mix together, buffering the odor.

- **Trying an “odorless” supplement** — These have a protective (enteric) coating, allowing the capsule to pass through your stomach and dissolve in your intestines.

- **Switching brands** — Pure omega-3 fatty acids don’t have a fishy taste. Since some manufacturers of fish oil do a better job of purifying omega-3 fatty acids than do others, you may find less of a fishy aftertaste with another brand. However, fish oil products advertising greater purity are likely to be more expensive than are standard fish oil products.
News and our views

Activity benefits the aging mind and body
Need more evidence that it’s worth staying active as you age? A recent study of women in their 80s found a direct correlation between activity level and cognitive function — meaning how well the women were able to plan and accomplish their daily tasks.

The study appeared in the September 2008 issue of the Journal of the American Geriatrics Society and involved 2,736 women. The women — who had no evidence of memory problems — wore a specialized, watch-like device (actigraph) on their wrist for several days. The actigraph measured daytime wrist movements, essentially capturing movements as small as fidgeting to larger physical activities tied to things such as gardening or cleaning. The women also took several standard cognitive tests.

Researchers found that those who were most active scored better on the cognitive tests than did the least active women.

Mayo Clinic doctors say the results add to the growing number of studies that point to the apparent benefits activity has for not only the body, but also the brain. In general, aim for at least 30 minutes of activity on most days of the week for a healthy body and mind.

Fruit juice may cut Alzheimer’s risk
A recent study suggests that if you start your day with a glass of fruit or vegetable juice, you may also be reducing Alzheimer’s risk.

The study, published in The American Journal of Medicine, focused on a class of antioxidant substances called polyphenols. These are most abundant in the peels and outer sections of fruits and vegetables. They’re also abundant in 100 percent grape, apple and citrus juices, as well as in red wine and tea.

Researchers obtained dietary information from about 1,600 men and women age 65 or older. All were of Japanese descent, and none had Alzheimer’s or any other form of dementia. After an average of six years, follow-up surveys found that 63 participants had developed Alzheimer’s.

After adjusting for age, sex, education and other relevant factors, those who reported drinking at least three glasses of juice a week had a 76 percent lower risk of developing Alzheimer’s than did those who reported drinking juice less than once a week. Tea drinking was not associated with reduced Alzheimer’s risk.

Mayo Clinic experts say that this preliminary research is far from conclusive, but it may help guide future research. Unfortunately, many substances have initially shown promise in preventing Alzheimer’s, only to be proved ineffective by further inquiry.

However, when combined with other health habits such as regular exercise, a diet rich in fruits and vegetables — and possibly fruit or vegetable juice — is certainly good for your cardiovascular health. This helps reduce your risk of small or large strokes, which frequently set the stage for certain forms of dementia.

Hip resurfacing

Occasionally, an alternative to replacement
Just weeks before your hip replacement surgery, you saw a TV program about a “new” way to fix the hip joint. It involved simply covering the “ball” part of the joint with a metal cap — much like a tooth is capped. You wonder why your doctor didn’t mention this alternative.

The procedure — called hip resurfacing — was approved by the Food and Drug Administration in 2006. Since then interest has surged, as it has gained the reputation of being a more conservative procedure than is standard total hip replacement, allowing people to resume a more active lifestyle.

Unfortunately, this common perception is at odds with the facts. Hip resurfacing does “conserv[e]” more leg (femur) bone, but surgery to implant the device is likely to be slightly more extensive than with standard hip replacement.

This may be a worthwhile trade-off for a small percentage of people. However, when it comes to pain relief, hip function, hardware durability, or being more active or athletic, there’s no evidence that hip resurfacing offers any advantages over standard hip replacement.

The procedures
Standard hip replacement and hip resurfacing are both extensive procedures. Both involve incisions of varying lengths in the hip area and the separation of muscles, ligaments and tendons to expose the ball-and-socket hip joint. In addition, both involve removing diseased or damaged cartilage and bone in the hip socket before securing an artificial socket into place. In resurfacing, the weight-bearing surface of the socket is polished metal.
total hip replacement, the weight-bearing surface of the socket may be metal, plastic or ceramic.

The main difference between the two procedures is with the ball of the hip joint. In resurfacing, the hip ball is shaved to a rounded shape and covered with a polished metal cap. With total hip replacement, the ball is sawed off and the top part of the femur is hollowed out so that a metal stem with an attached ball can be inserted.

**The pros**

Over 95 percent of standard hip replacement procedures result in marked improvement in pain and hip function. For most people, a standard hip replacement will last for decades. For many, it will last a lifetime. That makes it tough to beat in terms of effectiveness.

Hip resurfacing appears to match that success rate — at least in the short term. In addition, conserving femur may be an important advantage for younger adults. In the rare event that resurfacing hardware wears out or needs to be fixed for any reason, a standard total hip replacement can be performed much like it would be in someone who was having their natural hip replaced — with similar short-term rates of success. In contrast, a second total hip replacement — also a rare event — can be a more complex procedure.

**The cons**

A major limitation of hip resurfacing is that not many people are candidates for the procedure. Good candidates typically:

- Are 60 and under, and younger is generally better.
- Have good bone quality and size. Men, who typically don’t get osteoporosis at as early an age as women, are often better candidates.
- Are able to tolerate microscopic metal particles that may enter the bloodstream from wear of the artificial joint surfaces.
- Don’t have any bone abnormalities on the femur head or a significant leg-length discrepancy, since resurfacing doesn’t correct differences in leg length.

Over the past three years, only about 6 percent of people who had their hips replaced qualified for resurfacing arthroplasty. In contrast, total hip replacement can be performed on most people.

One unique risk of hip resurfacing is the potential for a fracture at the top end of the femur. It’s the main reason why good bone quality is a necessity. For adults over 60, the risk of having a fracture at the end of the femur increases the overall risk of having artificial hip failure within the first 10 years after surgery. That’s a risk you don’t have with standard hip replacement. And since standard hip replacement in adults over 60 is likely to last for life, hip resurfacing generally adds risk while the main advantage — ease of revision — is negated.

An additional concern with hip resurfacing is that the rubbing together of the metal ball and socket produces microscopic metal particles that are absorbed into the blood. The long-term effect of these particles isn’t known. However, a very small percentage of people may develop a metal allergy.

In addition, because the kidneys eliminate the metal particles, resurfacing isn’t recommended for those with impaired kidney function. It can also be a concern for women with childbearing potential, because there could be a risk to the child.

The potential release of particles — whether plastic, ceramic or metal — is also a concern for those receiving standard hip replacement.

Since modern hip resurfacing has only been available for a few years in the United States, long-term results aren’t known. If you’re considering hip resurfacing, the potential risk of additional surgeries to fix an unanticipated problem is one more consideration to weigh against the potential advantages.

**Refinements**

Hip resurfacing is still in its early stages. Mayo Clinic doctors say that in coming decades, new materials and possibly new surgical techniques may make its advantages available to more people.

Still, standard hip replacement is a very successful procedure that’s expected to remain the replacement procedure of choice for the vast majority of people well into the foreseeable future.

**Selecting a surgeon**

Many surgeons who routinely perform hip resurfacing say the procedure is difficult to master. Slight technical errors are easy to make and can lead to increases in risk of fracture and other complications. If you’re considering hip resurfacing, Mayo Clinic doctors recommend asking how many of these procedures your surgeon has performed, as well as the outcomes of those surgeries.
High potassium

Too much of a good thing

You've got diabetes, so you try to do good things for your heart. One thing you thought would help was putting a salt substitute containing potassium in your saltshaker.

Imagine your surprise when a routine blood test showed too much potassium. Your doctor said it was a potentially serious problem, but that adjustments in medication and diet usually bring potassium levels back within the normal range.

With potassium, balance is the key. In healthy adults, the body regulates the amount of potassium in the blood to within a narrow range.

Complex regulation

Potassium is an electrolyte that's especially important for controlling the electrical impulses that sustain a normal heart rhythm. Factors that may elevate potassium include:

- Diminished kidney function — Elevated potassium levels most often occur in those with kidney failure or chronic kidney disease — especially when it's related to diabetes. A condition called renal tubular acidosis can also be a cause.
- Adrenal gland problems such as Addison's disease — Low levels of adrenal hormones can interfere with potassium regulation.
- Numerous medications — Some of the most prominent include angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs), which are classes of blood pressure drugs that are also important for slowing the progression of kidney disease.

Another is the diuretic spironolactone (Aldactone, others) — which is often used in combination with ACE inhibitors or ARBs by those with heart failure. It's a "potassium-sparing" diuretic, meaning it causes your body to retain potassium. Other potassium-sparing diuretics include amiloride and triamterene, which is found in combination products such as Dyazide and others.

In addition, other drugs, such as beta blockers, used to treat various conditions such as high blood pressure, glaucoma and migraines, can affect potassium levels, as can non-steroidal anti-inflammatory drugs such as ibuprofen (Advil, Motrin, others) and naproxen (Naprosyn).

Flush the system

Mild to moderately high potassium levels usually don't cause any signs and symptoms. They're often discovered during a blood test for some other reason. If your potassium level isn't too high, it can probably be normalized by:

- Reducing potassium consumption — This is often the focus, because stopping or changing the drugs that are causing the problem may not be an option. You'll need to stop consuming concentrated sources of potassium such as "light" salt or salt substitutes. In addition, you may need to avoid or limit high-potassium foods such as sweet potatoes, acorn squash, white potatoes, spinach, tomato juice, cantaloupe, bananas and orange juice.
- Adjusting medications — If a certain drug is contributing to your elevated potassium, a substitute drug with similar benefits — but without the potassium risk — may be available. However, if it's a drug that you can't stop taking, your doctor may decide to lower the dose or prescribe a type of diuretic drug such as furosemide (Lasix, others) that flushes potassium from your system.
- Eliminating excess potassium through the bowels — A resin called sodium polystyrene sulfonate (Kayexalate, others) absorbs potassium in the gut, allowing it to be excreted in stool. This oral product may be used short term to bring down moderately high potassium levels as dietary and medication adjustments are initiated.

Severe cases

Signs and symptoms of high potassium usually don't appear until potassium in the bloodstream reaches severe levels. They include muscle fatigue, weakness, cramping and abnormal heart rhythms.

But even without symptoms, moderate to severely elevated potassium can be life-threatening. An abnormally high potassium level or the presence of an irregular heartbeat typically indicates the need for emergency treatment.
Personal health records

Take charge of your health information

How organized is your personal health information? Do you know if your last tetanus booster was more than 10 years ago? Do you know dosage amounts for the drugs you take, the specific names of your prescription drugs, or even how long you’ve been on certain medications?

You may have the answers written down somewhere, but that likely won’t do you much good if you’re the focus of an emergency medical situation away from home.

What if there was a way you could efficiently store, retrieve and manage your own health information? Personal health records (PHRs) may be the answer.

Essentially, a PHR is an electronic file or record of your health information that can be stored — usually on the Internet — in a place that you or your doctor, with your permission, can easily access.

Many health insurance plans are offering PHRs to their members in an effort to get them more involved in their health.

A place for everything

Computers and the Internet have opened up new avenues for communication in health care. Many doctors and medical centers now offer online services that allow you to schedule appointments, request a prescription refill or ask a medical question. Increasingly, medical providers are offering password-protected Web pages (portals) that allow you direct access to your own electronic medical file.

The growing availability of electronic health records is expected to play a big part in the creation and maintenance of PHRs. Most PHRs are connected to existing electronic health records that contain your health information as provided by your health care provider or insurance plan.

Other PHRs are designed to stand alone, so that you have more control over and responsibility for what’s included in your PHR. Basically, you can give your health care providers permission to direct medical information — such as test results or prescription drug information — to your electronic PHR, to which you may also add new or relevant health data on your own.

For example, you might track your progress in managing high blood pressure by recording daily blood pressure readings. Interactive features of some PHRs may include screening test reminders or alerts about your health conditions.

Look for value-added features

According to one estimate, only 30 percent of people who use the Internet keep track of their health information. And most of them store health information in paper files or on home computers. Only 3 percent use Internet-based (online) PHRs.

What will it take to move more people toward online PHRs? The answer is value in the form of:

- **Accessibility and convenience** — Unlike paper records, a PHR’s main benefit is its accessibility.
- **Control of information** — This may be especially helpful if you see multiple doctors or have a condition requiring daily medication and regular monitoring or testing.
- **Portfolio viewability** — The ability to permit your adult children to view information helps them advocate for and communicate with you regarding your health care.
- **Personalized, clinically validated information** — Few, if any products offer this now, but you can expect to see PHRs evolve beyond being storage locations. Systems ultimately will provide personalized information that promotes behavior change that can reduce health risks.
- **A high level of security** — Ensure the security of your information by using a reputable source and understanding privacy policies.

More choices ahead

Personal health records (PHRs) are already offered through health plans and care providers, but now newer and more open PHR systems are being designed.

The entrance of Google Health and Microsoft HealthVault to the market has accelerated the pace at which new PHRs are being created. The goal of these Internet companies is to provide options for people who don’t wish to have their health information tied to a health insurance provider or employer. They have made it possible to gather patient data from multiple sources and place it on the Internet in a single, secure location.

This capability has inspired more organizations to begin offering ways for health consumers to retrieve their personal health information for use in their individual PHRs.
Second opinion

Questions and our answers

Q: I love popcorn. What’s the healthiest way to prepare it?

A: Your best bets are unbuttered, air-popped popcorn or popcorn made in a microwave popper without oil. Not only are these types nearly fat-free, but popcorn’s natural, whole-grain goodness nets you a healthy amount of fiber — about 3.5 grams (g) in a 3-cup serving. And it’s only 93 calories.

If you’re preparing popcorn on the stove top or in a home popper that requires oil, avoid using saturated oils or trans fats — also called trans-fatty acids — such as coconut or palm oil, butter, margarine or shortening. These can raise your blood cholesterol level. Instead, use a monounsaturated fat such as canola, olive or peanut oil. Vegetable oils such as safflower, corn and sunflower oils also are good. Keep in mind that all oils contain about 120 calories per tablespoon, so your 3-cup serving that was popped using 1/2 tablespoon of oil will have about 165 calories.

If you can’t resist flavoring your popcorn, try substituting salt with healthier alternatives, such as butter-flavored, garlic or onion powders. You may want to try a salt-free seasoning blend of herbs and spices. If you like buttered popcorn, you might try a butter-substitute spray with 4 calories per five sprays. If you want to steer clear of real butter, try one of the margarine-like spreads that contain added plant stanols or sterols. When used as directed, products such as Benecol and Promise Activ spreads can help lower cholesterol.

As for microwave or pre-popped popcorn, read the labels carefully. Look for “light” varieties that feature no more than 2 g of total fat, 0 g of trans fat and 200 milligrams of sodium in a 3-cup serving.

Q: I accidentally disturbed a bee hive in my yard and was stung extensively. It was a frightening experience, but it amazingly seems to have cured my arthritis. Is there any medical basis for this?

A: Yes and no. There have been numerous reports of bee stings dramatically improving symptoms of osteoarthritis, also known as wear-and- tear arthritis. In fact, there’s even a name for using bee stings as a treatment — apitherapy. It involves using injected bee venom — or actual bee stings — or honey, pollen and other products of the common honeybee to treat a wide variety of conditions such as multiple sclerosis, back pain, rheumatoid arthritis and wounds.

Within the mainstream medical community, bee venom has been studied because it can cause a life-threatening allergic reaction in some people. The Food and Drug Administration has approved the use of purified bee venom for desensitizing people who have severe allergies to bee stings.

Based on this, it’s possible to theorize how the varying chemical components of bee venom — particularly those with anti-inflammatory or immune-altering properties — may reduce osteoarthritis symptoms. However, studies that have tried to duplicate what has occurred in the anecdotal reports have been conflicting at best, and most haven’t shown any benefit.

It’s still possible that something about an accidental bee sting incident may lead to improvement in osteoarthritis symptoms in some people. Reports of sudden symptom improvement suggest that there may be more to osteoarthritis development than irreversible wear and tear. Perhaps a better understanding of sting reactions could lead to new methods of prevention or treatment.

Still, until more is known, purposely allowing yourself to be stung by bees or injected with bee venom outside of a medical setting isn’t recommended. It’s hardly risk-free and has no proven benefit.

Have a question or comment?

We appreciate every letter sent to Second Opinion but cannot publish an answer to each question or respond to requests for consultation on individual medical conditions. Editorial comments can be directed to:

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