

McDougall Newsletter

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Sleep Apnea: Too Fat to Breathe

The delivery of air to the lungs by an electrical pump system is a commonly prescribed treatment known as continuous positive airway pressure (CPAP). When air is provided at a pressure that is above that of normal atmospheric pressure, it relieves some of the bedtime suffocation that sleep apnea patients suffer. In my experience, this treatment has been life changing for about half of those who try it. A temporary inability to breathe, referred to as apnea, exceeding 10 seconds in duration, and snoring can be reduced after patients are successfully attached to a CPAP machine. Their nights become more



Strapped to a Mask or Weight Loss?

restful and their days more energetic. Relief of incapacitating fatigue is one of the most rewarding benefits, which translates into documented reductions in traffic accidents.¹ Claims have also been made about improvements in patients' moods and mental functions.² Bed partners welcome the exchange of thunderous snoring and the multiple frightening episodes of apnea hourly for the softer mechanical rumblings of a CPAP machine.

Since the original scientific publication citing the benefits of CPAP in the British medical journal, the Lancet, in 1981 there has been published research showing that this treatment can also result in very small reductions in blood pressure (less than 3 mmHg) and can prolong the lives of patients with heart failure.³⁻⁵

CPAP works by overinflating the entire breathing system during both inhalation and exhalation. While inhaling, the intake of air is increased by the actions of the pump and the tight-fitting mask. At the other end of the breathing cycle, full exhalation to atmospheric pressure is prevented. The goal is to

keep the airway, from the throat to the smallest bronchial tubes, from collapsing as much as usual, thereby improving overall respiratory function.⁶

However, living a CPAP-dependent life is not easy. Adverse effects such as nasal congestion, dry mouth, or skin irritation occur in approximately half of CPAP users. Anxiety and claustrophobia are common reactions to the mask. Even with established benefits and the absence of any serious adverse effects, compliance is the overwhelming problem: fewer than half of people who start CPAP treatment actually continue to wear the mask and use the machine as prescribed by their doctors.⁷

The most common type of sleep apnea, and the focus of this article, is medically termed as obstructive sleep apnea (OSA).

Obesity Equals Sleep Apnea

Anyone who is overweight (having a BMI greater than 25 Kg/m²) should consider himself or herself at risk of developing sleep apnea, which is now as common as type-2 diabetes and affects more than 12 million Americans. Men are affected more often than women, and sleep apnea increases with age. Sleep apnea occurs in 4% of men and 2% of women who are between 30 and 60 years old.⁸ Obese people (having a BMI greater than 30 kg/m²) will more commonly develop breathing problems while asleep. Approximately 70% of people with sleep apnea are obese (not just overweight), and conversely, 40 percent of obese people have the condition.⁹ Among the severely obese (having a BMI greater than 40 Kg/m²), the prevalence of sleep apnea ranges from 55% to 100%. A 10% increase in body weight in four years is associated with a six-fold higher risk of developing sleep apnea.¹⁰

Obesity impairs breathing in many ways, including:¹¹

- Fat deposited in the chest area inhibits the ability of the lungs to expand.
- Fat accumulated in the abdomen pushes up on the diaphragm, preventing an easy expansion of the lungs.
- Most importantly, fat deposited in the soft tissues of the neck causes obstruction of the upper airway.

The analogy between diabetes and sleep apnea is apropos since both are caused by the obeseogenic effects of the rich Western diet. The fatter people are, the more they suffer from sleep apnea and type-2 diabetes.¹² Over 1.6 billion adults worldwide are overweight, of which 400 million are obese. The rates are increasing as people from underdeveloped countries become sufficiently wealthy to afford meat and dairy to replace their calories from rice, beans, and potatoes.

How Do You Know If You Have Sleep Apnea?

Most people are unaware that they have sleep apnea until after they are told by their bedroom companion that they "stopped breathing" during the night. If you feel excessively tired during the daytime in spite of being in bed and asleep for five to eight hours, then you might suspect sleep apnea. Snoring,

restless nights, and daytime fatigue are important warnings of compromised breathing while asleep. Relief of these symptoms after being placed on a CPAP machine is an important positive confirmation of the disorder.

The definitive diagnosis is made after a formal, medically supervised sleep study. This hodgepodge of tests, known collectively as a polysomnography, records physical changes that happen during sleep over a period of one to two nights. Brain activity (EEG), eye movements, heart rhythm, blood oxygen and carbon dioxide, muscular activity, and respiratory efforts are electronically monitored in a "bedroom" in a medical laboratory. A least 22 wires are attached to the patient's body. Electronic belts are placed around the chest and abdomen and a video camera records the patient's movements. During some studies, the effects of a CPAP machine are also evaluated. Efforts are made to make the patients as comfortable as possible, with rooms varying from a typical hospital room to those resembling a hotel room with a private bathroom, TV, and big bed. The average cost for a one night sleep study is \$2,625.¹³

Doctors are now prescribing a more abbreviated outpatient study for sleep apnea. Headgear is worn at home throughout the night that measures blood oxygen, pulse rate, airflow, respiratory effort, snoring levels, and head movements. A self-contained computer records the readings for later analysis by a technician and a sleep medicine trained physician. Some insurance policies specifically exclude coverage for the diagnosis and/or treatment of sleep disorders, and some do not cover medical equipment, such as CPAP machines. In almost all cases, a sleep study is a prerequisite to purchasing a CPAP machine.

A CPAP Machine Is Your Mainstay Therapy

Legally a prescription from a doctor is an absolute requirement in order to purchase this simple machine. Prices vary from less than \$300 to more than \$5,000. However, \$800 should buy a good, basic CPAP machine. Twice as much will be spent for a more advanced model that provides two different pressures during the breathing cycle. A lower exhalation pressure makes the machine more tolerable for some people; this kind of unit is called a BI-level Positive Airway Pressure (BiPAP) machine.

Paradoxically, one side effect from the use of a CPAP machine has been weight gain.¹⁴ Obese people, especially those who are severely obese, expend a lot of energy during sleep just to keep themselves from suffocating. A CPAP machine reduces energy expenditure and those extra calories may now turn into more body fat. In turn, fat accumulation aggravates the underlying causes of sleep apnea. Thus the analogy with type-2 diabetes continues into treatment: medications for diabetes and the CPAP for sleep apnea make the patient fatter, cause adverse effects, are fraught with noncompliance, are expensive, and do nothing to cure the disorder.¹⁵

Obesity Surgery Is Effective

Surgeons at the famous Cleveland Clinic claim, "bariatric surgery is the most effective treatment for obstructive sleep apnea, causing remission in 80 to 85% of cases."¹⁶ They consider surgery a lasting cure

for sleep apnea, and patients can be taken off of their CPAP machines. However, a recent analysis of 12 studies representing 342 patients was more pessimistic and concluded that patients undergoing bariatric surgery should not expect a cure of their sleep apnea after surgical weight loss, and that many will likely need continued treatment for sleep apnea to minimize its complications.¹⁷

Most surgical procedures are performed using a laparoscopic approach, which requires several small incisions in the patient's abdomen through which scopes and instruments are passed. The three common forms of surgery are designed to reduce the amount of food a person can consume by effectively reducing the size of the stomach. These surgeries are gastric bypass, Lap-Band, and a sleeve procedure. The average cost for weight loss surgery ranges from \$17,000 to \$35,000.¹⁸ Improvements of obstructive sleep apnea symptoms occur as early as one month postoperatively. The more weight lost, the better the results.

Many times insurance companies will cover part of the expense if proper documentation is provided by the physician and the procedure is deemed medically necessary because of extreme obesity, diabetes, or heart disease. Candidates must also have tried and failed to lose weight through traditional methods of behavior modification with diet and exercise. The risks of anesthesia and surgery are substantial, especially considering the overall poor health of most severely obese patients.

There are other medical/dental procedures for sleep apnea. Oral appliances that move the lower jaw forward have been shown to be of benefit; however, CPAP is still considered to be more effective than oral appliances in reducing respiratory disturbances in most people.¹⁹ But the majority of patients prefer oral appliances to CPAP, even when both are found effective.²⁰ Overall, studies do not provide evidence to support the use of oral surgery (vulopalatopharyngoplasty) in sleep apnea.²¹ The use of medications has been found to be largely ineffective for sleep apnea.²² In summary, CPAP and weight loss surgeries are the mainstay for the treatment for sleep apnea.

Successful Dietary Treatment of Sleep Apnea

The threat of having a mask strapped to your face for one-third of the rest of your life and the risks of major surgery should be sufficient motivations to lose excess weight. The only healthy way to permanently lose excess body fat is to reverse the cause with a low-fat, starch-based diet.²³ The effectiveness of this approach has been demonstrated in severely obese patients using the famous Rice Diet from Duke University.²⁴ The average weight loss was 141 pounds (63.9 Kg).

Well-designed research has recently demonstrated the benefits of a moderately fat-reduced diet, emphasizing plant foods, for people suffering with sleep apnea. After an initial 12 weeks on a very low-calorie diet, participants were advised "to reduce fat to no more than 30% of total energy by increasing their intake of fruits, vegetables, poultry, fish, and lean meat, and by limiting dairy fats, fatty meat, sweets, pastries, and desserts."²⁵ Seventy-two mild to moderately obese adults lost almost 22 pounds (11 Kg) over a period of one year. At the end of the study 22 of 35 patients (63%) in the diet group were reported "cured" of their sleep apnea.²⁶ Improvement has been shown to continue for at least two years with this dietary intervention.²⁷ The researchers reported, "The lifestyle intervention was found to

effectively reduce all these common symptoms related to OSA (sleep apnea), and therefore to improve quality of life for the patients and their bedfellow." The benefits in breathing were strongly associated with reductions in weight and waist circumference.

Better breathing for children losing weight has also been shown.²⁸ Six severely obese adolescents (having BMIs of 60 Kg/m²) were treated with a 700-calorie, low-fat, low-carbohydrate, high-protein diet. In eight weeks the average weight loss was 34 pounds (15.4 Kg). Improvements in sleep abnormalities associated with sleep apnea were demonstrated. However, in this short period of time, a worrisome increase in calcium excretion and a loss of bone was also seen (due to the diet of high-protein foods.)

Dr. McDougall's Approach to Sleep Apnea

The ultimate goal of any medical therapy is a cure. Sleep apnea is primarily the result of excess body fat accumulation from eating the Western diet. I start my patients with the same traditional low-fat, starch-based diet that has kept billions of people trim, strong, healthy, and active for eons.²⁹ A weight loss of two to four pounds a week can be expected until you are close to your trim body weight. For many patients this could mean, even at this steady rate, a year or two before they are finally trim and fit.

In addition to weight loss, a low-fat diet also increases the oxygen content of the blood by 20% and improves the general circulation to the lungs, heart, brain, and the entire body.³⁰ The same diet can stop the acid reflux that causes asthma and reduce inflammation of the airways.³⁰ These benefits from the McDougall Diet, irrespective of weight loss, are seen in a few short days.

I introduce exercise carefully. Because of the massive obesity, the gravitational strain on the joints of the lower extremities can destroy the hips, knees, and ankles. Weight-dependent exercises, such as power walking and running, can quickly turn a mobile person into an invalid. I usually recommend non- and low-weight-bearing exercise only, such as swimming, rowing, and bicycling, until substantial weight loss is achieved.

Two simple recommendations for sleeping position are important. Raising the head of the bed is a highly effective step for improving sleep apnea.³¹ I find that a four-inch block placed under the head posts is a good elevation to begin with. You should be lying flat with gravity pulling everything towards the feet. Bending the bed at the waist, as done by adjustable beds, can make matters worse by compressing the lungs. Raising the head of the bed also plays a key role in stopping asthma-inducing acid reflux.³⁰ Sleeping on your side rather than your back or front also reduces the number of episodes of apnea.³²

While I do recommend CPAP therapy, I long for a reduction in medicalization of this effective treatment. My observations lead me to conclude that the mandatory sleep studies are a means to enhance the profits of doctors and hospitals and rarely offer anything meaningful for the patients' care. CPAP is so simple and safe that general doctors should be prescribing the treatment without having to refer to a sleep medicine specialist and putting their patients through stressful and expensive tests. Maybe a fair-

er day will come when CPAP machines will be sold as an over-the-counter treatment, not requiring any medical prescription at all.

The evidence that dietary-induced weight loss works should cause enthusiasm among doctors and patients for this simple, cost-free approach. Unfortunately, you are on your own when it comes to the language of dietary intervention, which is foreign to almost all doctors. Fortunately, you can experience the benefits yourself, and quite immediately, which will reinforce dietary compliance.

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