



## 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 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.<sup>1</sup> Claims have also been made about improvements in patients' moods and mental functions.<sup>2</sup> 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.

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## Featured Recipes

Tiffany Hobson

Tiffany is the executive assistant to the McDougall's. She heads operations for all McDougall Programs and is the tour director for McDougall Adventures. Tiffany has a BA in Rhetoric from University of California, Berkeley and is nationally certified as a Pharmacy Technician. She has the pleasure of assisting Dr. McDougall when seeing patients. Most recently, Tiffany has started helping Mary with recipe development.

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more energetic. Relief of incapacitating fatigue is one of the most rewarding benefits, which translates into documented reductions in traffic accidents.<sup>1</sup> Claims have also been made about improvements in patients' moods and mental functions.<sup>2</sup> 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.<sup>3-5</sup>

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.<sup>6</sup>

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.<sup>7</sup>

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/m<sup>2</sup>) 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.<sup>8</sup> Obese people (having a BMI greater than 30 kg/m<sup>2</sup>) 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.<sup>9</sup> Among the severely obese (having a BMI greater than 40 Kg/m<sup>2</sup>), 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.<sup>10</sup>

Obesity impairs breathing in many ways, including:<sup>11</sup>

- 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.<sup>12</sup> 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.<sup>13</sup>

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.<sup>14</sup> 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.<sup>15</sup>

### **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."<sup>16</sup> 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.<sup>17</sup>

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 com-

mon 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.<sup>18</sup> 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.<sup>19</sup> But the majority of patients prefer oral appliances to CPAP, even when both are found effective.<sup>20</sup> Overall, studies do not provide evidence to support the use of oral surgery (vulopalatopharyngoplasty) in sleep apnea.<sup>21</sup> The use of medications has been found to be largely ineffective for sleep apnea.<sup>22</sup> 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.<sup>23</sup> The effectiveness of this approach has been demonstrated in severely obese patients using the famous Rice Diet from Duke University.<sup>24</sup> 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."<sup>25</sup> 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.<sup>26</sup> Improvement has been shown to continue for at least two years with this dietary intervention.<sup>27</sup> 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.<sup>28</sup> Six severely obese adolescents (having BMIs of 60 Kg/m<sup>2</sup>) 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 abnor-

malities 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.<sup>29</sup> 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.<sup>30</sup> The same diet can stop the acid reflux that causes asthma and reduce inflammation of the airways.<sup>30</sup> 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.<sup>31</sup> 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.<sup>30</sup> Sleeping on your side rather than your back or front also reduces the number of episodes of apnea.<sup>32</sup>

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 fairer 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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## Featured Recipes

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### Peasant Soup

Preparation Time: 10-20 minutes

Cooking Time: 50-55 minutes

Servings: 6-8

8 cups No-Chicken Broth, Veggie Broth or water  
1 large white onion, diced  
1 head of garlic, minced  
7 purple potatoes, chopped  
7-10 carrots, chopped  
2 bunches of lacinato kale, stripped and chopped  
3 teaspoons powdered thyme  
1 teaspoon marjoram  
Several twists of freshly ground black pepper  
Sea salt to taste

Place ½ cup of No-Chicken Broth in a large soup pot. Add the onion and garlic. Cook, stirring occasionally, on medium heat, for 4-5 minutes until the onions appear translucent. Add the thyme, marjoram and several twists of freshly ground black pepper. Mix well. Add the remaining broth, purple potatoes and carrots. Bring to a boil, reduce heat, cover and simmer for 40-45 minutes, until the potatoes may be pierced with a knife easily. Add the kale and mix well. Continue cooking on low heat for an additional 10 minutes. Serve hot. Before serving, season with a bit of sea salt, if desired.

### Fabulous Stir Fry

Preparation Time: 20-30 minutes

Cooking Time: 30 minutes

Servings: 6-8

1 ¼ - 1 ½ cups No Chicken Broth or Veggie Broth  
2 bunches of scallions, white parts chopped  
6 cloves garlic, minced  
2 cups pea pods, whole  
1 large red bell pepper (or 2 small ones), chopped  
1 large zucchini (or 2 small ones), chopped  
4 to 6 carrots, chopped  
2 cups bean sprouts

1/2 - 3/4 cup soy sauce  
3 tablespoons - 1/4 cup mirin  
3 to 6 dashes of Hot Pepper Sesame Oil or 1-3 teaspoons of crushed red peppers (optional items, I just like my food hot and spicy)  
10 ounces Tofu, cubed  
1 tablespoon cornstarch and enough water to cover it  
12 ounces Japanese Udon Noodles or Chinese Chow Mein Noodles (see Hint)

Place a 1/4 cup of No Chicken Broth in a large pot. Add the scallions and garlic. Cook on medium heat, stirring occasionally, for 4-5 minutes. Add dashes of hot pepper sesame oil or crushed red peppers, along with 1/2 cup of soy sauce and 3 tablespoons of mirin. Mix well. Add another 1/2 cup of broth with the red bell pepper, zucchini, carrots and tofu. Mix well. Cover and let cook for 5 to 10 minutes, stirring occasionally. You want to make sure you do not over cook the vegetables; it is what gives the dish such a beautiful flavor! When the vegetables have cooked, but are still crispy and fresh, add the pea pods and bean sprouts and mix well. You may add more soy sauce and mirin at this point if you feel it needs more, just make sure you add it in small amounts (you do not want these flavors to over power your dish). In a small bowl, add the cornstarch and enough water to cover it. Using your fingers (yes, your fingers) mix the cornstarch with the water until completely dissolved. Add this mixture to your stir fry. This will give your stir fry a nice glaze. You want to make sure you do not have more liquid than you need, the vegetables will sweat out a lot of water. Add broth only if needed at this point. In another pan over medium heat, cook noodles per package instructions. Once they are done, drain in a colander and rinse with cold water to stop any excess cooking. Add the noodles to the stir fry. Serve hot.

Hint: The noodles I typically use are from the company O'Hana House. They have a variety of noodles to choose from, are fully cooked and can be found in the refrigerated section of many stores. If using these with this recipe, I would add these noodles with the vegetables in the beginning to the bottom of the pan.

### **Fettuccine Alfredo with Asparagus, Chanterelle and Black Trumpet Mushrooms**

Preparation Time: 1 -1 1/2 hours

Cooking Time: 1-1 1/2 hours

Servings: 6-8

A decadant treat for any festive occasion to share with family and friends. There are many parts to this recipe, the following break down is the easiest way I have found to help me prepare everything without overwhelming myself!

### **Roasted Garlic**

3 - 5 heads of garlic, excess paper removed and the tops cut off

3/4 - 1 cup No Chicken Broth or Veggie Broth

Preheat the oven to 375 degrees. Place the broth in a small bowl. With the exposed side of the garlic tops, soak them in the broth for a few minutes. When finished, place them in a small baking pan and pour the remaining broth over the tops. Cover with aluminum foil, using parchment paper in between the garlic and foil, and bake for 1 hour. The garlic should look "burnt."

**Cashew Cream**

3 cups raw cashews

3 cups water

Blend 1 cup of cashews and water at a time in a blender or Vitamix. If using a blender, you will need to sift out the fine pieces of cashews through a strainer. You want your consistency to be very smooth; there should be no grit in your fingers when you test to see if you need to continue blending. When finished, set the cream aside until needed for the Alfredo sauce.

**Asparagus**

1 bunch of asparagus

Wash the asparagus and snap off the ends. This is done by holding the asparagus and snapping it as if it were a wish-bone. This takes the guess work out of which part of the stalk is not bitter. Steam the asparagus, drain and cut into small pieces. Set aside until needed for the Alfredo sauce.

**Chanterelle and Black Trumpet Mushrooms**

2 cups Chanterelle mushrooms

2 cups Black Trumpet mushrooms

¼ - ¾ cup No Chicken Broth or Veggie Broth

3-4 shallots, diced

Take a pairing knife and scrape off all the dirt from the Chanterelle mushrooms. Cut the Chanterelle's vertically. Place the Black Trumpet mushrooms in a small bowl of water and shake them to release dirt. Drain them through a strainer and check to make sure there is no sand left. Depending on how dirty the mushrooms are, you may do this a few times. Do this as quickly as possible; you do not want the mushrooms sitting in water for too long. In a non-stick pan, add ¼ cup of veggie broth and the shallots. Sauté together on medium heat for a few minutes and add in the Chanterelle and Black Trumpet mushrooms. You want to make sure you do not put in too much broth at one time. The mushrooms should be sautéed lightly in broth; the pan should not look like it has too much liquid in it. Continually stir the mushrooms and cook for 5 to 7 minutes. Set aside until needed for the Alfredo sauce.

**Fettuccini**

1 package of dried or fresh fettuccini noodles

4 to 8 quarts water

Bring water to a boil. Read the package directions for how long you should cook the pasta. If using dried pasta, it usually takes about 8-14 minutes to get it to an al dente consistency. If using fresh pasta, cooking time is usually 5-10 minutes. Drain pasta in a colander and rinse with cold water. This will stop the pasta from cooking. Set aside until needed for the Alfredo sauce.

**Alfredo Sauce**

3 – 4 cups Cashew Cream, from above  
4 ½ cups No Chicken Broth or Veggie Broth  
3-5 heads of Roasted Garlic (depending on how much garlic you like)  
12 tablespoons of Nutritional Yeast Flakes  
1 ½ pounds of cooked Fettuccine (see Hint)  
Steamed Asparagus, from above  
Sautéed Chanterelle and Black Trumpet Mushrooms, from above  
Sea salt to taste  
Freshly ground black pepper

Place the roasted garlic in a big pan and heat over medium heat with about ¼ cup of broth. With the back of a wooden spoon, mash up the roasted garlic. The garlic should look like a paste. As the garlic starts to perfume, add in another ½ cup of stock to 2 cups of cashew cream and 8 tablespoons of nutritional yeast flakes. Stirring constantly, you want to taste the sauce after a few minutes of cooking. You want to have about a 1:4 ratio of stock to cashew cream. As you add in more nutritional yeast flakes, you will also add more cashew cream and use the broth as a flavor enhancer. Continue cooking until the sauce becomes thicker. When you have your desired flavor, add the Fettuccine, asparagus, Chanterelle and Black Trumpet Mushrooms and mix well. Serve hot with sea salt and several twists of freshly ground black pepper.

Hint: When I decided to try and make this recipe, I had my most wonderful friends Dylan and Tobe Sheldon over to taste test! They told me of an easy recipe they use to make homemade pasta. Take a few cups of flour and open a bottle of red wine. Use a little wine at a time and mix in with the flour. Eventually, with much kneading, you get a beautiful consistency with the dough. This can be stretched and cut for an easy homemade pasta, cooking it al dente in about 5-10 minutes. They also use this same recipe for their thin crust pizza dough. Instead of making a pizza with this thin crust, you may try it with a favorite topping or spread.

**Elegant Berries**

Preparation Time: 10-15 minutes

Cooking Time: None

Servings: 6-8

2 cups each of fresh Strawberries, Raspberries, Blueberries  
1-3 teaspoons Chambord  
Several fresh mint leaves

Wash the berries well and lightly pat dry the excess water with a paper towel. Mix the berries in a bowl. Place the berries in a small serving dish (a Martini glass works well). Drizzle enough Chambord over them where the berries are lightly coated. Add 2 to 3 mint leaves along the side. Serve immediately or chill in a refrigerator for 5 to 10 minutes.

Hint: This is also paired beautifully with an assortment of sorbets. My favorites for this dish are raspberry, strawberry or lemon. Use one small scoop of sorbet at the bottom and follow the recipe above.

**Chocolate Delights**

Be careful you do not eat these in one sitting! This is a lovely side accompaniment to the Elegant Berries recipe above.

Preparation Time: 20-30 minutes

Cooking Time: 10 minutes

Servings: 6-8

2 packages Medjool dates

1 large package of raw almonds

1 package of dark chocolate chips

¼ -1 cup of water, Port, Madeira or Late Harvest Riesling

Sea salt

Place parchment paper on a large cooking sheet. Pit the Medjool dates. Add 1 to 3 raw almonds in the pitted dates, depending on their size. You do not want the almonds jammed in together on top of each other; they should lie next to each other nicely. On the stove top, make a double boiler and add in the chocolate chips over medium to medium high heat. Constantly stir the chocolate chips. As the chips are melting, you may notice that the chocolate consistency is a bit clumpy; you want it to be easily pourable without the clumps. Slowly add in a very small amount of water at a time. This will help the chocolate turn into the pourable consistency you need. If you would like to have a little more richness to this, instead of adding water use Port, Madeira or a Late Harvest Riesling. Pour and cover the dates with the melted chocolate. Place the cooking sheet in a freezer for 30-60 minutes to harden the chocolate. This may be served chilled, or at room temperature. You may also add a pinch of sea salt on the top, if desired.