

Continuous Positive Airway Pressure (CPAP) Therapy for Obstructive Sleep Apnea

Treatment Overview

Continuous positive airway pressure therapy (CPAP) uses a machine to help a person who has obstructive sleep apnea (OSA) breathe more easily during sleep. A CPAP machine increases air pressure in your throat so that your airway doesn't collapse when you breathe in. When you use CPAP, your bed partner may sleep better too.



The advertisement features a man and a woman smiling outdoors. The text "NEW RELEASE!" is at the top left. The main product is the "AirSense™ 10 AutoSet™" machine, shown in two models: "AirSense 10 AutoSet for Her" (silver) and "AirSense 10 AutoSet for Him" (black). The ResMed logo and tagline "Changing lives with every breath" are at the bottom right. The website "cpapdirect.com.au" is at the bottom left, and a three-dot menu icon is on the right.

You use CPAP at home every night while you sleep. The CPAP machine will have one of the following:

- A mask that covers your nose and mouth.
- A mask that covers your nose only-called nasal continuous positive airway pressure, or NCPAP (this type of mask is most common).
- Prongs that fit into your nose.



What To Expect After Treatment

It may take time for you to become comfortable with using CPAP. If you can't get used to it, talk to your doctor. You might be able to try another type of mask or make other adjustments.

Why It Is Done

CPAP is the most effective nonsurgical treatment for obstructive sleep apnea. It is the first treatment choice for adults and the most widely used.

How Well It Works

CPAP is effective for treating sleep apnea:

- Research shows that continuous positive airway pressure (CPAP) decreases daytime sleepiness, especially in those who have moderate to severe sleep apnea.
- Studies show that in people who have moderate to severe sleep apnea, nasal continuous positive airway pressure (NCPAP) lowers blood pressure during both the day and the night.
- CPAP is better than other nonsurgical methods for treating obstructive sleep apnea.
- People with coronary artery disease who use CPAP for sleep apnea are less likely to have heart problems such as heart failure.

Risks

Problems that may occur with CPAP include:

- Excessive dreaming during early use.
- Dry nose and sore throat.
- Nasal congestion, runny nose, and sneezing.
- Irritation of the eyes and the skin on the face.
- Abdominal bloating.
- Leaks around the mask because it doesn't fit properly.

You can expect mild discomfort in the morning when you first start using CPAP. Talk with your doctor if you don't feel comfortable after a few days.

Relieving side effects

You may be able to limit or stop some of the side effects:

- If your nose is runny or congested, talk with your doctor about using decongestants or corticosteroid nasal spray medicines.
- Your doctor may be able to adjust your CPAP to reduce or eliminate problems.
- Be sure the mask or nasal prongs fit you properly. Air shouldn't leak around the mask.
- Use a humidifier or a corticosteroid nasal spray medicine to reduce nasal irritation and drainage.

- You may want to talk to your doctor about trying other types of CPAP machines.
 - One type of machine will start with a low air pressure and slowly increase the air pressure as you fall asleep. This kind of machine can help reduce discomfort caused by too much constant pressure in your nose.
 - A bilevel positive airway pressure machine (BiPAP) uses a different air pressure when you breathe in than when you breathe out. BiPAP may work better than standard CPAP for treating obstructive sleep apnea in people who have heart failure.⁸ You may find BiPAP more comfortable than CPAP because you can breathe out against a lower air pressure. As a result, you may be more likely to continue the treatment. You will have to spend the night at a sleep laboratory to find the air pressure levels that work best for you.
 - An auto-tiltrating continuous positive airway pressure (APAP) can automatically decrease or increase the air pressure as needed. This may make the machine more comfortable and easier to use.

What To Think About

When you are using CPAP, you need to see your doctor or sleep specialist regularly. You may also need more sleep studies to adjust the CPAP machine and check whether the treatment is working.

For best results, keep the machine clean. Follow the manufacturer's instructions for cleaning the equipment.

The most common problem with CPAP is that people don't use the machine every night. Or they take off the mask during the night because it becomes uncomfortable. Even one night of not using the machine can make you sleepy the next day. If you feel like you want to stop using CPAP for any reason, talk to your doctor. There may be other treatment options for you.

Finding the right CPAP mask is crucial to continuous positive airway pressure (CPAP) therapy. With so many different mask styles, shapes, and sizes, choosing the mask that works best for you can be a little challenging. There are three Main Categories of CPAP Mask Types:

1) Nasal Pillow Nasal pillow masks are among the most popular mask choices for CPAP users. They are the smallest of the CPAP masks, it blows pressurized air through two soft nasal tubes that insert into the nostrils, and is secured by straps that go around the head.

Benefits of Nasal Pillows:

- It is ideal for patients suffering from claustrophobia or those that simply feel uncomfortable with too much material touching their face.
- It offers a better field of vision than many of the other mask types.
- The direct airflow into the nasal passages reduce air leakage.
- Good for active sleepers who toss and turn a lot.
- Works best for users who have a lot of facial hair that may cause leakage in other mask types.

Drawbacks of Nasal Pillows:

- Often not ideal for patients with higher-pressure needs.
- Some users may have nasal dryness, and in some cases nose bleeds.
- Not ideal for mouth-breathers. If you're not accustomed to breathing through your nose, using a nasal pillow may feel unnatural or uncomfortable.



2) Nasal Mask

Nasal masks are triangular in shape and fit over the nose, covering the areas from the bridge of the nose down to the upper lip. They are popular among CPAP wearers because of the wide range of sizes and fits

Benefits of Nasal Masks:

- More natural airflow than nasal pillows as the delivered pressure isn't as direct.
- Better for higher-pressure settings than nasal pillows.
- Many different styles cater to a wide range of facial structures and features.

Drawbacks of Nasal Masks:

- Much like nasal pillows, nasal masks are not ideal for mouth-breathers unless accompanied by a chin-strap to keep the jaw closed.
- Some CPAP wearers complain about irritation caused by the pressure of the mask resting on the bridge of the nose or the forehead supports of some models.
- Not ideal for patients who frequently experience allergies or colds that cause blockage of the sinuses.
- Not recommended for patients who have difficulty breathing through the nose from medical conditions such as a deviated septum, enlarged turbinates, or a collapsed or narrowed nasal valve.



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3) Full Face Mask

CPAP full face masks cover the nose and mouth and all, or part, of the face with side straps that keep the mask in place.

Benefits of CPAP Face Masks:

- Face masks are ideal for mouth-breathers and those that haven't worked well with the nasal mask/chinstrap combination.
- Ideal for patients who have nasal obstructions or frequent congestion due to allergies or cold symptoms.
- Works well for very high CPAP pressure settings because the wide surface area of the mask makes it feel as if the pressure is more tolerable and less direct than with other masks.
- Works well for those that sleep on their back as the supine position is best for an optimal air seal. However.

Drawbacks of CPAP Face Masks:

- Because of the larger surface area, there is a higher chance of air leakage.
- Some users complain of air leakage near the top of the mask, causing dry, irritated eyes.
- Most claustrophobic patients can't tolerate the extra material and weight of the full face mask, although there are some exceptions.
- Full face masks make it difficult to read or watch TV in bed or wear glasses.
- If you're a stomach sleeper, the bulk of the mask will make it difficult to sleep comfortably on your abdomen.



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Caring for Equipment

CPAP Humidifier Cleaning and Replacement

Nearly all current CPAP machines now come stock with a heated humidification system that helps cut down on morning dry mouth as well as keeping your nasal turbinates from drying out and becoming irritated and inflamed. However, the **humidification chamber needs to be cleaned out daily** to prevent bacteria build-up as well as calcification. Here's how:

- Remove chamber from humidifier carefully so water doesn't enter your CPAP machine.
- Open chamber and wash with warm, soapy water.
- Rinse well with water and allow to dry on a clean cloth or paper towel out of direct sunlight.
- Fill with distilled or sterile water. **Do not use tap water** as it may contain minerals and chemicals that can damage components of the machine. It is also not recommended to use filtered water (i.e. through a Brita filter) for the same reasons.

- Once a week the humidifier chamber should be soaked in a solution of 1 part white vinegar to 3 parts water for approximately 15-20 minutes before rinsing thoroughly with distilled water.
- Some humidifier chambers are dishwasher safe, but make sure to check your CPAP machine's manual before cleaning in a dishwasher.
- Humidifier chambers should be replaced every 6 months or as needed.

CPAP Mask Cleaning and Replacement

Most CPAP mask cushions are made of silicone, a gentle, non-irritating material. However, while silicone is a very comfortable material for masks, it doesn't have a very long lifespan, and without proper care can breakdown quicker than expected. Therefore, cleaning your CPAP mask is crucial in making it efficient as possible. Here's some tips on CPAP mask cleaning and replacement:

- Wash mask daily with warm water and mild, non-fragrant soap, or purchase CPAP mask specific wipes and detergents.
- Rinse with water and allow to air dry on a clean cloth or paper towel out of direct sunlight.
- Before using mask at night, wash your face thoroughly and don't use facial moisturizers. **Facial oils and moisturizers can breakdown the silicone faster.**

- Once a week soak mask in solution of 1 part white vinegar 3 parts water before rinsing in distilled water.
- Headgear and chinstraps should be washed as needed by hand using warm soapy water, rinsed well, and air dried. **Do not place headgear or chinstraps in washing machine or dryer.**
- For replacement schedules of CPAP masks you should check both your manufacturer's recommendations and your insurance allowance. However, for most masks it is recommended that you replace the cushions 1-2 times per month, and the mask every 3-6 months.
- CPAP tubing should be cleaned weekly in a sink of warm, soapy water, rinsed well, and left to hang-dry out of direct sunlight.

General Maintenance and Cleaning Tips

- Make your CPAP equipment cleaning part of your morning routine, allowing the equipment ample time to dry during the day.
- Keep machine and accessories out of direct sunlight to avoid damaging them.
- Never use bleach to clean accessories.
- Other machine accessories such as power cords and data cards may need to be replaced due to equipment malfunctions.
- Place machine on a level surface away from objects such as curtains that may interfere with the air intake.
- Always use distilled or sterile water when cleaning components.
- Keep track of when you should order replacement parts for your mask and accessories so that you always get the most out of your therapy.

Q — What is the best method to clean my interface, and how often should I be doing this?

Ideally, you should clean your interface and humidifier chamber on a daily basis. Disassemble and apply a small amount of mild non-degreaser dish detergent or baby shampoo to your fingers and gently wash thoroughly with water. Rinse thoroughly with clear water to remove all soap. Place the wet parts on a towel and allow to air dry. Solutions containing fragrance, conditioners, or moisturizers will leave a residue. A disinfectant cloth approved for use on PAP equipment may be used in lieu of soap and water. *Caution: Do not clean any parts of the system with alcohol or cleaning solutions containing alcohol.*

On a weekly basis, you should disinfect your interface, bore tubing, and humidifier chamber. To disinfect your accessory equipment, you may use a cold sterilizing solution, following the manufacturer's directions closely. You may also use one part vinegar to three parts water. Allow all parts to soak for 30 minutes, rinse with warm water, and place on a towel or over the shower rod to dry. *Caution: Do not steam autoclave or gas sterilize your PAP equipment.* These processes may harden or deform the flexible plastic parts of your equipment and adversely affect their function.

It is recommended that you clean your headgear, chin strap, and shell retainer strap as needed or a minimum of once each month. To maximize the life of these items, hand washing with a standard laundry detergent is recommended, but you may use the gentle wash cycle for machine washing. Do not use bleach. Before washing, remove them from your interface and refasten the hook-and-loop tabs to protect other garments in the laundry. Air dry or machine dry with no heat because heat will shorten the life of the elastic. *Do not iron.*