

## The difference between household CPAP machine and oxygen generator?

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**Nowadays, home ventilators and oxygen concentrators are relatively popular home medical equipment. Many people don't know the difference between ventilators and oxygen concentrators. They regard the ventilator as an oxygen concentrator and mistakenly believe that the ventilator can also produce oxygen. In fact, the ventilator and the oxygen generator are two essentially different medical devices. So, what is the difference between a home ventilator and an oxygen generator?**



The difference between home ventilator and oxygen concentrator is that they use different principles.

The principle of the home ventilator: Inhalation action produces negative pressure in the chest cavity during autonomous ventilation, and negative pressure in the alveoli and airway occurs through passive expansion of the lung, which constitutes the pressure difference between the airway orifice and the alveoli to complete the inhalation; the chest and lungs after inhalation retract elastically and produce an opposite pressure difference to complete exhalation. Therefore, normal breathing is due to the "active negative pressure difference" between the alveoli and the airway orifice generated by the body through the breathing action to complete the inhalation. After the inhalation, the thoracic and lung elastic contraction produces a passive positive pressure difference between the alveoli and the airway orifice and exhales. To meet the needs of physiological ventilation.

The principle of the oxygen generator: the use of molecular sieve physical adsorption and desorption technology. The oxygen generator is filled with molecular sieves, which can absorb nitrogen in the air when pressurized, and the remaining unabsorbed oxygen is collected, and after purification treatment, it becomes high-purity oxygen, which is generally not suitable for critically ill patients!

By understanding the principles of home ventilator and oxygen concentrator, it is easy to distinguish between ventilator and oxygen concentrator. Simply put, the concept of a ventilator is different from an oxygen concentrator. The ventilator is like an air compressor, providing air flow like an electric fan, and is used to help and replace human breathing. The oxygen generator is like a sieve, filtering out the oxygen in the air. In hospitals, there are also two kinds of machines that are used together to treat more serious diseases such as pulmonary disease and heart failure.

The main users of household ventilators are: obese, abnormal nose development, hypertrophy and thick pharynx, uvula blocked passage, tonsil hypertrophy, abnormal thyroid function, giant tongue, congenital micrognathia, etc. Use it for symptoms such as snoring, sleep apnea and sleep apnea!

### **Should COPD use an oxygen concentrator or a ventilator?**

Patients with chronic obstructive pulmonary disease will have varying degrees of lung function decline according to the severity of the disease. The symptoms of lung function decline include chest tightness and shortness of breath. When reading articles, many patients saw that some people recommended the use of ventilators for home treatment, and some people recommended the use of oxygen concentrators. So how effective are these two medical devices for patients with COPD?

#### **1. You can choose an oxygen generator for simple hypoxia without carbon dioxide retention**

Many lung diseases have only hypoxia symptoms in the early stage, but no carbon dioxide retention. This is because the diffusion rate of carbon dioxide is 20 times that of oxygen, so carbon dioxide exchanges more than oxygen in the same time. As long as there is no serious ventilation problem, it is normal. There will be no carbon dioxide retention problem. This stage is generally called type 1 respiratory failure. So if the lung function is reduced but there is no carbon dioxide retention problem, then at this stage you can buy an oxygen generator and go back for oxygen therapy.

#### **2. Both hypoxia and carbon dioxide retention need to use a ventilator**

If the lung function is further reduced and the lung ventilation capacity is further reduced, then not only will there be a problem of hypoxia, but also carbon dioxide retention. This stage is called type II respiratory failure. At this stage, the patient's small airways are severely obstructed and gas exchange is difficult. At this stage, oxygen inhalation alone cannot solve everything. Because insufficient ventilation is easy to retain carbon dioxide in the body, it is necessary to use a ventilator to increase it at this stage. Ventilation, it is best to use a ventilator and an oxygen generator together for the best effect.

#### **3. How do I know if there is carbon dioxide retention?**

If you want to know whether there is carbon dioxide retention, you can do an arterial blood gas analysis. Through blood gas analysis, you can know the carbon dioxide partial pressure, [oxygen partial pressure](#) and other indicators.

Frequently asked questions about ventilator and oxygen generator

#### **1. Are there any side effects and dependence on the ventilator?**

Under reasonable parameters and modes, the ventilator has no side effects. You can understand that the home ventilator is an auxiliary device. After wearing it, the fan provides the patient with breathing pressure and assists the patient to breathe normally. Normally, breathing is done by humans. To control, the ventilator will not replace the patient's breathing. The ventilator just makes the patient breathe more easily, improves the patient's ventilation, and reduces the chance of carbon dioxide retention.

**2.How much is the flow rate of the oxygen generator?**

For home oxygen therapy, the flow rate of the oxygen generator is generally below 2L/min. Patients with good ventilation can be higher, but not too high. If combined with a ventilator to inhale oxygen, it is also possible to adjust the oxygen flow to 5L/min in this case.