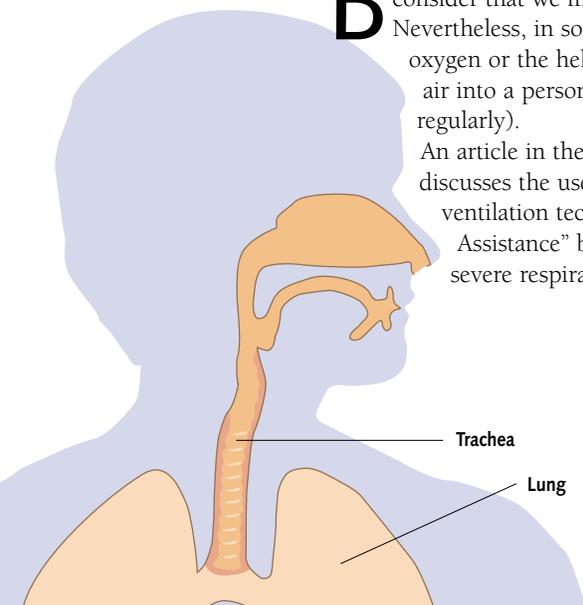


# Assisted Breathing

**B**reathing comes so naturally for most of us that we never consider that we might ever need assistance breathing. Nevertheless, in some situations a person may need extra oxygen or the help of a **ventilator** (a device that pumps air into a person's lungs and helps him or her breathe regularly).

An article in the November 8, 2000, issue of *JAMA* discusses the use of invasive and noninvasive mechanical ventilation techniques (see "Types of Breathing Assistance" below) for individuals hospitalized with severe respiratory problems.



## WHAT IS RESPIRATORY FAILURE?

A life-threatening situation in which the respiratory system stops functioning properly may be referred to as **respiratory failure**. During respiratory failure there is an imbalance in the normal exchange of oxygen and carbon dioxide. There may be a decrease in the levels of oxygen causing **hypoxemia** (too little oxygen in the blood) and/or an increase in the levels of carbon dioxide in the blood causing **hypercapnia** (too much carbon dioxide in the blood).

## WHAT IS RESPIRATORY DISTRESS?

**Respiratory distress** is a term used to describe a condition in which there is not enough oxygen in the blood due to problems with the ability of the lungs to take in oxygen. Respiratory distress can lead to respiratory failure.

## SYMPTOMS OF RESPIRATORY DISTRESS AND FAILURE:

Every individual is different and he or she may experience some symptoms and not others, partly based on the cause of respiratory distress.

- Breathing rate becomes quicker
- Breathing becomes more difficult
- Heart rate becomes quicker
- Sweating
- Turning blue from lack of oxygen in the blood. This is the most serious symptom of respiratory failure; emergency action must be taken.

*Seek emergency help immediately if you suspect someone is experiencing respiratory failure.*

## TYPES OF BREATHING ASSISTANCE:

- **Mouth-to-mouth resuscitation** – a short-term method to help someone breathe in an emergency situation
- **Oxygen therapy** – providing oxygen-enriched air to a person
- **Invasive mechanical ventilation** – use of a machine to help a person breathe through a tube inserted down the **trachea** (the windpipe); sometimes a **tracheotomy** (a surgical operation to create a hole in the trachea) is performed
- **Noninvasive mechanical ventilation** – use of machine to help a person breathe by providing oxygen through a mask over the face or nose

## CONDITIONS THAT MAY LEAD TO RESPIRATORY DISTRESS OR FAILURE:

The following diseases may progress to respiratory distress or failure

- Severe forms of asthma
- **Chronic obstructive pulmonary disease** – a term used for lung conditions that involve obstruction to the airflow in the respiratory system, including chronic bronchitis and emphysema
- **Cystic fibrosis** – a genetic disease of the body's mucus and sweat-producing glands; mucus-accumulates in the digestive system and the lungs.
- Heart failure
- Pneumonia and other lung infections

Respiratory distress or failure can also be caused by other circumstances

- Lungs injured by smoke, steam, or toxic gases (such as during a house fire)
- Lungs injured by a trauma (such as trauma caused in an automobile collision)
- Nearly drowning
- Inhaling vomit
- Inhaling an irritant, such as toxic gases
- Drug overdose

## FOR MORE INFORMATION:

- National Heart, Lung, and Blood Institute (NHLBI)  
NHLBI Information Center  
301 592-8573 or [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)
- American College of Chest Physicians  
Patient Education Guide: Mechanical Ventilation  
847 498-1400 or [www.chestnet.org](http://www.chestnet.org)
- American Lung Association  
800 LUNG USA  
[www.lungusa.org](http://www.lungusa.org)

## INFORM YOURSELF:

To find this and previous *JAMA* Patient Pages, check out the AMA's Web site at [www.ama-assn.org/consumer.htm](http://www.ama-assn.org/consumer.htm).

Additional Sources: National Heart, Lung, and Blood Institute, American College of Chest Physicians, The AMA Home Medical Library, The AMA Family Medical Guide, The AMA Encyclopedia of Medicine

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