

# Cheyne-Stokes Respirations: Causes and Treatment

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Cheyne-Stokes respirations are a pattern of breathing which is very irregular, and not surprisingly, is sometimes referred to as "agonal breathing." Breathing can be very deep and rapid (hyperpnea), followed by periods of slow shallow breaths, or interrupted by episodes of apnea, in which an individual stops breathing altogether for a period of time. Though Cheyne-Stokes breathing may appear erratic, it often occurs in cycles lasting between 30 seconds and two minutes.

This irregular, often uncomfortable-to-watch pattern of breathing is often seen in the last days and hours of life, but may also be seen in some people with congestive heart failure.

## Causes

Cheyne-Stokes breathing is commonly seen when people are in the dying process from any illness including cancer. This will be discussed first, but keep in mind that there are other causes discussed further below, and this breathing may occur in people who are not actively dying.

## Cheyne-Stokes Breathing as Part of the Dying Process

Irregular breathing may occur at the end of life and can be very disturbing to family members who are present. It's important to note that this breathing is **not** uncomfortable for the dying person, and it does not need to be treated for comfort purposes. In fact, it is probably a way that the body compensates in some way for other physical changes taking place at the end of life.

You may be wondering what else to expect in the final stages of dying. During this time it's not uncommon for people to talk of seeing loved ones who have died before, even seeming frustrated as they try to describe things for which they can't seem to find words. Your loved one may let you know she is dying in a kind of "near death awareness" in which she may tell you that she will miss you and say she is going away.

It can be painful for those who are dying to have their comments dismissed as hallucinations or to be corrected. Try to listen during moments your loved one is awake, and reassure her that you believe her and love her.

## Other Causes of Cheyne- Stokes Breathing

In addition to being an end-of-life occurrence, Cheyne-Stokes breathing may be seen with:

- Congestive heart failure - Heart failure occurs when the heart (as a muscle) becomes weakened and has difficulty pumping blood. Similar to other muscles, progressive weakening can lead to the progressive inability of the heart to function in blood circulation to supply oxygen and nutrients to the cells of the body.

- Carbon monoxide poisoning
- Hyponatremia (a low sodium level in the blood)
- Sleeping at high altitudes
- Stroke
- Traumatic brain injury
- Some medication overdoses such as morphine

### Physiology and Purpose

It's not known exactly why this type of central sleep apnea (breathing that is monitored by the central nervous system) occurs. Recent thought has been that Cheyne-Stokes breathing may be a way in which the body compensates in some way, rather than a problem in and of itself. It's thought that the pattern of waxing and waning may result first from deep breathing to increase oxygen level to the body (which decreases carbon dioxide levels in the blood) followed by periods of apnea (not breathing) as the body compensates for the decreased carbon dioxide by limiting breaths while the carbon dioxide in the blood increases.

### Cheyne-Stokes Breathing in Congestive Heart Failure

Cheyne-Stokes breathing is fairly common among people with congestive heart failure and is considered a poor prognostic sign. That said, some people with Cheyne-Stokes breathing secondary to heart failure go on to live for a long period of time.

### Treatment

Over the years a fair amount of research has been done on the right way to treat Cheyne-Stokes respiration. At the present time, the view is leaning towards believing that this is a physiological compensatory response that does not necessarily need to be treated per se.

Central sleep apnea such as this disordered breathing may alert doctors to examine other findings with regard to heart failure.

Home oxygen therapy, as well as continuous positive airway pressure (CPAP), are a few of the treatment options that have been used for this type of central sleep apnea.

### History

Cheyne-Stokes or Hunter-Cheyne-Stokes breathing was first defined in the 1800's by 2 physicians: Dr. John Cheyne and Dr. William Stokes.