



## Carbon Monoxide & Your Health

Carbon monoxide (CO) is a relatively common, colorless, odorless gas that is produced as a result of incomplete burning of carbon-containing fuels. CO is found in automobile exhaust, smoke from coal and wood fires, and smoke from tobacco products. When inhaled, CO can be hazardous to your health. However, it does not irritate the membranes of the nose, eyes, or cause coughing, so it may not be noticed. Smokers injure their health by inhaling tar and nicotine as well as by elevating the carbon monoxide (CO) levels in their blood.

Carbon monoxide in the air breathed alters natural processes of respirations. CO combines with the hemoglobin in red blood cells 250 times faster than oxygen. Therefore, when CO is in the lungs, the red blood cells pick it up before oxygen. CO combines with hemoglobin to create a stale compound called carboxyhemoglobin (COHb) which is released from the red blood cells much more slowly than oxygen. As more CO is inhaled, the blood becomes saturated with COHb and the amount of oxygen available to the cells is reduced.

Normally, people have a COHb level of less than 1% in the blood. As the CO dose and the time of exposure increases, the blood saturation level of COHb increases. Experiments show that smoking only one pack of cigarettes within an 8 hour period of time results in a 7 to 15 percent carbon monoxide saturation of the blood! Smokers, depending on the number and brand of cigarettes smoked, acquire a COHb level of 2-15% or more. A pack-a-day smoker may have a 3%-6% COHb level. Two pack-a-day smokers may have a 6%-10% COHb level. Three or more pack-a-day smokers can be as high as 20%. This reduces the amount of available oxygen in the body and hinders muscle action and mental function. The carbon monoxide literally “starves” the body of oxygen, which is so vital to our survival.

Breathing low levels of CO can cause fatigue and increased chest pain in people with chronic heart disease. In otherwise healthy people, breathing higher levels of carbon monoxide causes flu-like symptoms (with no fever) such as headaches, dizziness, weakness, sleepiness, nausea or vomiting, confusion, and disorientation. Individuals who are already experiencing effects from smoking through lung diseases such as emphysema, pneumonia, asthma, and congestive heart failure, and are functioning at a diminished lung capacity, are a tremendous risk group.

Carbon monoxide can be measured in two ways – the level in the blood is expressed as %COHb while level of CO in exhaled air is measured as PPM.

Blood Saturation Levels of COHb	Health Effects	Exhaled CO Levels in PPM
Less than 1%	Normal range	0-18 PPM
1%-5%	Reduction of oxygen supply in the blood, increase in heart rate	20 PPM
2%-15%	Exercise tolerance reduced	30 PPM
15%-20%	Headache, visual distortions	Above 30 PPM

**NOTE:** The information on the CO scale is intended to show the range of effects from CO and may vary from person to person. If you think you are experiencing any of the symptoms of CO exposure not related to smoking, get fresh air immediately. Open windows and doors for more ventilation, turn off any combustion appliances, and leave the area. Call your fire department and report your symptoms.

# Five Tips For Quitting

## 1. GET READY

- Make a list of reasons to smoke or chew and reasons to quit.
- Figure out when and why you smoke or chew. Write down every time you smoke or chew.
- Make a plan of what you could do during those times instead.
- Think about other times you have quit. What worked and what did not?
- Set a quit date and stick to it. Not even a single puff or chew!

Quit Date \_\_\_\_\_

## 2. GET SUPPORT AND ENCOURAGEMENT

- Pick someone you trust for support.
- Talk to your doctor or other health care provider about how to quit.
- Call a quit line or sign up for a program.

## 3. LEARN NEW SKILLS AND BEHAVIORS

- Keep tobacco away from you.
- Keep stress low.
- Stay away from places or people that make you want to smoke.
- Breathe in deeply and out slowly when you have the urge to smoke.
- Plan something fun to do every day.
- Drink a lot of water.
- Keep your hands busy.
- Out wait the urge to smoke. It will go away whether or not you smoke.
- Eat low calorie and healthy snacks.

## 4. GET MEDICATION AND USE IT CORRECTLY

- Talk with your healthcare provider about whether or not medication will help you quit.
- Bupropion SR (Zyban®) is a nicotine-free pill available by prescription that helps some people.
- Nicotine replacement is for people who are addicted to nicotine.
  - Nicotine patch. Buy at a pharmacy without a prescription.
  - Nicotine gum or lozenge. Buy at a pharmacy without a prescription.
  - Nicotine inhaler. Need a prescription.
  - Nicotine nasal spray. Need a prescription.
- All of these medicines work best when used with help from others.
- Ask your healthcare provider if other products are safe.

## 5. BE PREPARED FOR TROUBLE

- Stay away from alcohol or other things you do while smoking.
- Be careful around other smokers.
- Eat healthy and stay active.
- Have a plan for stressful times.
- Plan a reward for yourself for not smoking.
- If you start smoking again, pick another quit date and try again.