# Smokerlyzer® Breath CO Test Results

Date: _____

Name/ID: _____

CO Level in PPM (Parts Per Million) _____

%COHb (Carboxyhemoglobin) _____

%fetalCOHb (Fetal Carboxyhemoglobin) _____

## What is carbon monoxide (CO)?

Carbon monoxide (CO) is an odorless, colorless, poisonous gas produced by burning organic material. CO, tar and nicotine are the main constituents of tobacco smoke. All represent some risk to your health. Carbon monoxide mainly affects the lungs, heart, and blood vessels, and in pregnant women passes into the blood of the fetus, reducing its oxygen supply. The carbon monoxide found in cigarette smoke is the same carbon monoxide found in atmospheric pollution and vehicle exhaust. The levels absorbed by the body from pollution, however, are very low compared with the amount in tobacco smoke.

## What does a carbon monoxide (CO) breath test show?

It shows the amount of carbon monoxide (CO) in your lungs and blood. This is an indirect, non-invasive measure of blood Carboxyhemoglobin (%COHb), which is the level of CO in your blood. Breath CO also acts as an indicator of the levels of some *7000* toxic substances present in cigarette smoke, approximately *69* of which are known to cause cancer. Your CO reading doesn't tell you exactly how many cigarettes you are smoking, rather it tells you how much smoke you are inhaling and how much of the cigarette you are smoking. Therefore, the CO breath test is an indicator of your dependence to nicotine. Your reading is typically going to be high immediately after smoking a cigarette, and it will be at its highest later in the day, when you have smoked most or all of your daily ration of cigarettes and you have built up a high CO level.

## If I cut down on smoking, will this reduce my breath CO by an equivalent amount?

Probably not. A smoker may smoke fewer cigarettes, but will require the same amount of nicotine. Thus, you may smoke a smaller number of cigarettes more aggressively, and hence inhale more smoke than expected. As a consequence, you may continue to receive similar amounts of CO.

## How does carbon monoxide (CO) harm my body?

When tobacco smoke is inhaled into the lungs, CO passes through the lining of the lung into the blood, where it becomes attached to the hemoglobin (Hb) - the oxygen carrier on red blood cells. These red blood cells normally carry oxygen, however, their chemical attraction to CO is greater than to oxygen (CO binds to hemoglobin in red blood cells about *200 times* as readily as oxygen). So, any CO in the blood pushes out oxygen, forming Carboxyhemoglobin (%COHb), thus putting extra strain on the heart. The percentage of COHb is the proportion of red blood cells carrying CO instead of oxygen. If your Smokerlyzer® reading is 5% (about 30 ppm), it means 5% of your red blood cells are carrying CO instead of oxygen. This creates a shortage of oxygen, and the body needs oxygen to live.

## Carbon monoxide (CO) & the toxins that follow

Consider that you put this extra strain on your body every time you smoke a cigarette. This extra strain on your body will add up over time. Every time you get a test on the Smokerlyzer®, you get to see the effects of your smoking habit on your body. Remember that the Smokerlyzer® is measuring one constituent of tobacco smoke - CO. However, if you have CO from smoking in your body, it's well documented that you will also have all of the other *6999* constituents of tobacco smoke as well - CO is just the one component that we're measuring with the Smokerlyzer®.

## Health problems caused by carbon monoxide

- **Heart:** To compensate for the shortage of oxygen, the heart has to *work harder* (beat faster) to get enough oxygen to all parts of the body. The heart itself gets less oxygen, increasing the risk of heart damage.
- **Circulation:** COHb causes the blood to thicken and the arteries to get coated with a thick, fatty substance. This causes circulation problems and high blood pressure, with increased risk of heart attack and stroke. Hands and feet become colder as less blood circulates to the extremities.

- **Breathing:** With any increase in physical activity, the reduced supply of oxygen leads to shortness of breath since there is no extra oxygen available for the increased demand. Decreased oxygen availability can also cause tiredness and lack of concentration.
- **Pregnancy:** Availability of oxygen, necessary for healthy fetal growth, is reduced when the pregnant mother smokes. The risk of low birth weight and cleft palate birth defect are increased. After birth, the risk of Sudden Infant Death Syndrome is higher for babies exposed to tobacco smoke.

## The good news

When you stop smoking the level of carbon monoxide in your blood falls almost immediately. It will be the same as a non-smoker's within a couple of days. This is the first positive benefit that demonstrates your body is healing from some of the damage caused by smoking. Your blood will carry more oxygen. You'll have more energy, better circulation and increased concentration.

**Smoking Range | 100+**
These levels are very rare and are generally seen in the heaviest of smokers and in particular, cigar smokers.

**Smoking Range | 50-99**
This range is typically seen in smokers consuming 2 or more packs of cigarettes (40+) per day. Smokers at this level are rarely seen not smoking and are bombarding their bodies with an almost constant onslaught of 7,000 poisonous chemicals and toxins. Recent marijuana smoking tends to result in CO readings in this range, as well as the previous range due to the manner in which marijuana is smoked.

**Smoking Range | 36-49**
This range is generally associated with smokers who consume approximately a pack and a half of cigarettes (35) per day, however, keep in mind that at this level of smoking, the lines begin to blur between the exact number of cigarettes smoked precise CO level.

**Smoking Range | 20-35**
This range is generally associated with smokers who consume approximately one pack of cigarettes (20) per day.

**Smoking Range | 11-19**
Years of testing data indicates that smokers who regularly test in this range may be consuming just around or under a pack of cigarettes (20) per day.

**Smoking Range | 7-10**
Smokers who regularly test in this range may only be consuming a small number of cigarettes per day but their level of nicotine dependence may still be high, particularly if they are they are getting their nicotine from multiple sources. Consuming a fewer number of cigarettes per day should not be viewed as less damaging or safer – the dangerous effects of cigarettes remain the same.

**Non-Smoker Range | 0-6**
This is the range for non-smokers and those who've recently stopped smoking. Your reading will fluctuate within this range from day to day and hour to hour.

| COppm | %COHb | Pregnancy Conversion: Mother CO ppm | Pregnancy Conversion: Baby %Fetal COHb |
|---|---|---|---|
| 60+ | 10.23 | | |
| 59 | 10.07 | | |
| 58 | 9.91 | | |
| 57 | 9.75 | | |
| 56 | 9.59 | | |
| 55 | 9.43 | | |
| 54 | 9.27 | | |
| 53 | 9.11 | | |
| 52 | 8.95 | | |
| 51 | 8.79 | | |
| 50 | 8.63 | | |
| 49 | 8.47 | | |
| 48 | 8.31 | | |
| 47 | 8.15 | | |
| 46 | 7.99 | | |
| 45 | 7.83 | | |
| 44 | 7.67 | | |
| 43 | 7.51 | | |
| 42 | 7.35 | | |
| 41 | 7.19 | | |
| 40 | 7.03 | | |
| 39 | 6.87 | | |
| 38 | 6.71 | | |
| 37 | 6.55 | | |
| 36 | 6.39 | | |
| 35 | 6.23 | | |
| 34 | 6.07 | | |
| 33 | 5.91 | | |
| 32 | 5.75 | | |
| 31 | 5.59 | 20+ | 5.66 |
| 30 | 5.43 | | |
| 29 | 5.27 | 19 | 5.38 |
| 28 | 5.11 | | |
| 27 | 4.95 | 18 | 5.09 |
| 26 | 4.79 | | |
| 25 | 4.63 | 17 | 4.81 |
| 24 | 4.47 | | |
| 23 | 4.31 | 16 | 4.53 |
| 22 | 4.15 | | |
| 21 | 3.99 | 15 | 4.25 |
| 20 | 3.83 | | |
| 19 | 3.67 | 14 | 3.96 |
| 18 | 3.51 | | |
| 17 | 3.35 | 13 | 3.68 |
| 16 | 3.19 | | |
| 15 | 3.03 | 12 | 3.40 |
| 14 | 2.87 | | |
| 13 | 2.71 | 11 | 3.11 |
| 12 | 2.55 | | |
| 11 | 2.39 | 10 | 2.83 |
| 10 | 2.23 | | |
| 9 | 2.07 | 09 | 2.55 |
| 8 | 1.91 | | |
| 7 | 1.75 | 08 | 2.26 |
| 6 | 1.59 | | |
| 5 | 1.43 | 07 | 1.98 |
| 4 | 1.27 | | |
| 3 | 1.11 | 06 | 1.70 |
| 2 | 0.95 | | |
| 1 | 0.79 | 05 | 1.42 |
| | | 04 | 1.13 |
| | | 03 | 0.85 |
| | | 02 | 0.57 |
| | | 01 | 0.28 |

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