

# The Smokerlyzer® Breath CO Test Instructions and Tips

**Important: Please Read Before You Begin Using Your Smokerlyzer®**

This document is intended for treatment professionals,  
it is **NOT** a hand-out for smokers, patients or test subjects.

1. **This guide is broken into three sections:** “Pre-test Instructions”, “During the Test Instructions” and “Helpful Tips”. This information is designed to help you conduct a test and to obtain consistent results with each subject.
2. The **tips at the end of the document** address many common concerns.
3. Make time to **practice the test**. Deliver your instructions clearly and confidently.
4. **Remember, this is *your* test.** Do not let the test subject/participant dictate the performance of the test or the results. *You’re* in charge of the situation, not the test subject.
5. **Call coVita** at the number below for questions and support.

## Typical Smoking Ranges

Traffic Light Color	Description	Regular Daily (Non-Pregnant) Smokers Reading (ppm)	Pregnant Smokers Reading (ppm)
Green	Non-Smoker	0 – 6	0 – 3
Amber	Smoker	7 – 10	4 – 6
Red	Smoker	11+	7+

The “non-smoker ranges” are based on published data, while the other ranges provided are only meant to be guides of the typical expected levels.

Compensatory smoking and inhalation intensity make it difficult to classify smokers in exact ranges. When analyzing a reading, remember to consider non-cigarette sources of CO including marijuana, cigars or other burning substances.

The ranges below will be observed within 1-2 hours of smoking:

### Non-Smoker Ranges: 0-6 PPM | Pregnant 0-3 PPM

0 ppm is not the goal of the test as very few non-smokers will regularly register at 0 ppm or stay at that level consistently. Non-smokers and former smokers who are not pregnant typically register between 0-4 ppm, and while it is uncommon, you can have non-smokers up to 6 ppm. Subjects should be made aware that between 0-4 is considered normal and within this range, their level could fluctuate daily, up or down, within 1 to 2 ppm.



For pregnant individuals a cut-off of 0-3 ppm should be used because research indicates that the fetus absorbs some of the mother’s CO which would have the effect of lowering the mother’s CO level.

### Smoking < A Pack of Cigarettes - Range: 7-19 PPM

Typically observed when smoking under a pack of cigarettes a day.

### Smoking > A Pack of Cigarettes – Range: 20+ PPM

Typically observed when smoking over a pack of cigarettes a day. Remember to consider compensatory smoking. i.e. a smoker might cut back their smoking from a pack to half a pack of cigarettes a day but their body still requires the same amount of nicotine. To compensate, they smoke those fewer cigarettes harder leaving both their nicotine intake and CO level relatively unchanged.



# Test Instructions

## Instructions for Pre-Test and During the Test

**Use our 6 easy steps to successfully conduct tests with your Smokerlyzer®.**

Brief the subject with 3 pre-test instructions, then deliver 3 more instructions during the test.

We have provided the steps in a script format, to help you to convey these instructions to the subject being tested. You can adapt these instructions to a format that best suits your testing needs, but be sure to keep the basic elements of each step.

### Part 1: Pre-Test Instructions

**Explain the following before starting the test:**

#### **Step 1 – Define the Sample Needed**

Say: *“The goal of the test is for you to empty your lungs, by slowly pushing out as much air as possible.”*

#### **Step 2 – Explain Breath Hold and Countdown**

Say: *“When the test begins, you are going to take a deep breath in and I’m going to hand you the monitor to hold while the monitor counts down for a few seconds. Once started, please don’t talk until the test is finished.”*

#### **Step 3 – Describe the Exhalation Process**

Say: *“When you hear the three beeps, you are going to place your mouth over the mouthpiece and exhale slowly, pushing all of the air out of your lungs.”*

### Part 2: During the Test

#### **Step 1 – Breath Hold**

Say: *“Take a deep breath in and hold it.”*

Start the monitor’s countdown as they breathe in, then hand them the monitor to hold.

#### **Step 2 – Countdown**

As they hold their breath, say:

*“Don’t put your mouth on the mouthpiece until you’re ready to exhale and remember not to talk until the test is finished.”*

Listen for the three beeps to know when the countdown is finished and when the subject should be blowing into the monitor.

#### **Step 3 – Exhalation**

As you hear the third beep, say:

*“Put your mouth over the mouthpiece and begin exhaling slowly. Push all of the air out nice and slowly; try and empty your lungs.”*

When the subject is finished exhaling deeply and completely, they can hand the monitor back to you.

## Part 3: Helpful Tips

### 1. Deep Breath:

A deep breath means inhaling deeply, filling the lungs with air.

### 2. No Practice Breath Holds:

Practice breath holds could affect the concentration of CO in the sample.

### 3. End-Tidal Breath Sample:

This refers to the bottom air in the lungs, which will have the most significant effect on the reading. Pushing out as much air as possible, ensures that this portion of the sample is included. The slower the exhalation, the more likely it is that the participant will be able to provide an end-tidal breath sample.

### 4. Where to Take the Test:

Avoid testing in any area where there is the potential for interference from the presence of CO from other sources, or from chemical contamination (such as formaldehyde).

### 5. When to Take the Test:

Wait a minimum of 5-10 minutes after smoking a cigarette to avoid blowing smoke in to the monitor. Carbon monoxide can be detected in body for approximately 24 hours after smoking. Time of day for testing is up to the preference of the test provider.

### 6. Starting the Countdown:

As the subject takes a deep breath in, initiate the countdown by selecting the appropriate icon on the monitor's screen.

### 7. When to Exhale:

Three beeps occur at the end of the countdown timer, signifying that it is time to exhale. The most important part of the sample is the end-tidal portion, so don't worry if they blow a few seconds early.

### 8. Don't Reference the Breath Hold Period:

15 seconds sounds like a long time, so it's a good idea to avoid referencing the length of time. Help the countdown pass unnoticed by reminding the subject of what is expected of them when the countdown is finished.

### 9. Minimum Breath Hold Period:

Data supports a minimum of a 15 second breath hold.

## Part 3: Helpful Tips

### 10. Standing vs. Sitting:

Breathing may be restricted for some individuals while sitting, hindering their ability to take a deep breath and exhale fully. If a person can't stand, then have them sit as upright as possible.

### 11. Let the Subject Hold the Monitor:

After the countdown has been initiated, hand the monitor to the subject. Allow them to hold it while they are giving the breath sample, the test is less awkward that way.

### 12. No Talking:

Advise the subject not to talk once you start the test. This seems to be most effective when you say it while they are holding their breath and waiting for the countdown. Restart the test if they do talk.

### 13. Wait to Put the Mouthpiece into the Mouth:

Don't have them put their mouth on the mouthpiece until the countdown is finished. They can allow air to escape if the mouthpiece is in their mouth.

### 14. A Good Seal on the Mouthpiece:

When they are ready to exhale, the disposable mouthpiece should be placed inside the mouth, with the lips securely sealed around it to prevent any escape of the breath sample.

### 15. Exhale Slowly & Completely:

They should continue exhaling, slowly, until they can no longer push any more air out of their lungs. If the monitor beeps as they exhale, it is an indication that the reading has climbed above 10 ppm, and does not mean that they should stop exhaling. The monitor will continue to analyze the sample until the reading stabilizes. Slowing the exhalation will help the participant to achieve a 15-20 second exhalation, which is ideal.

### 16. Coaching the Subject:

Begin coaching immediately after the three beeps of the countdown as they begin to exhale, by saying something like this: *"Put your mouth over the mouthpiece and begin exhaling slowly. Push all of the air out nice and slow, try and empty your lungs."* Coaching will help set a pace as they exhale.

### 17. Infection Control:

Only use coVita alcohol-free hand sanitizers and wipes or approved products on or around the monitors to avoid interference with the monitor's electrochemical sensors. If you must use alcohol-based hand sanitizers on your hands, allow your hands to dry completely before handling the monitors.

**Please refer to your coVita | Bedfont Operating Manual  
for detailed instructions.**