



We contacted Keith Nothacker, founder of BACtrack, which is the company that produces and sells the BACtrack Breathalyzer products (A breathalyzer is classically used by law enforcement to test an individual's blood alcohol concentration or content (BAC) from a deep lung expiration of air.). After graduating from the University of Pennsylvania with a BA degree in Economics, Keith moved to California in 2001 and started BACtrack. Initially, the business was a purchasing, importing, and reselling company.

The major turning point in the company's focus came one day with an "epiphany" Keith had. He juxtaposed selling breathalyzers to a church organization who wanted to test individuals' BACs coming to the soup kitchen.

The same day, the company got a call from the Howard Stern show asking for samples of the device.

The "ahha" moment was the idea to design and sell breathalyzers for individual use - no one had done this before.

In 2004, BACtrack received FDA approval or 510(k) clearance to market breath alcohol testers directly to consumers for personal use. Breathalyzers require a deep lung air sample. In the semi-conductor model, other alcohols such as ketones from diabetics can confound the sample causing false readings.

The BACtrack Pro models use novel fuel cell technology that can specifically test ethanol levels within 0.005 at 0.1% blood alcohol content. BACtrack sells several products based on fuel cell and sensor technology

Keith sent the WineDoctors the BACtrack S-75 Pro model. Earlier this month, we took this breathalyzer on a California Central Coast wine tasting excursion and found it easy-to-use, behavior modifying, fun, and a conversation piece.

Our first stop was Laetitia Winery in Arroyo Grande.

It was about 230 pm and we both had had nothing to eat all day and had jogged and played tennis.

We tasted 5 sparkling wines.

By that, I mean that we swished and spit – the adage on swishing and spitting and not swallowing is that 20 swish and spits is equivalent to drinking one glass of wine (let's assume 5 ounces of 12% wine containing 14.4 grams of alcohol but we know in California, that is as rare as not chaptalizing a wine made from French grapes!).

Anyway, we waited 20 minutes after our last tasting and each blew into the Breathalyzer: BACs = .028 vs. 0.00 and we both felt a little buzz.

Needless to say, our designated driver changed!

Let's back-up and discuss alcohol metabolism since we are entering March, which is National Nutrition month. Alcohol is metabolized in the body mainly by the liver. The brain, pancreas, and stomach also metabolize alcohol. Ethanol is metabolized to acetaldehyde by alcohol dehydrogenase (more on that next month) and finally to acetate by aldehyde dehydrogenase. Factors affecting blood alcohol concentration include: ethanol concentration; carbonation (i.e., champagne, soda increase BAC); food; gender, liver size; body weight; exercise and variations in enzymes, which metabolize ethanol.

Next stop was Tangent Winery in Edna Valley. Once there, 23 minutes later, the Breathalyzer clocked us at 0.00 and 0.00. So, we had a fresh start on our 5 still white wine tastings.

Twenty minutes after that, our blood alcohol concentrations were 0.00 and 0.00.

We chose to stick with the same designated driver.

Lastly, with the responsibility of driving and operating other heavy machinery gone until the next day, we drank a bottle of sparkling wine with dinner over a period of 1 hour. Our blood alcohol concentrations were as follows: 20 minutes after the following amounts of 12.5% alcohol: 2 ounce pour - 0.03 and; a 5 ounce pour - .075; 40 minutes later and after completion of the 750 ml bottle- .064 and .062; 30 minutes and no more alcohol later, .023 and .051; 45 minutes and 3 ounces of a 15% dessert wine later, .024 and .052.

We had to challenge what we knew physiologically would be a false reading and blew 1 minute after taking a sip of dessert wine – 0.142- no way- we all were lucid and having fun! Equilibration between blood alcohol content and breath alcohol content takes at least 20 minutes AFTER the last swallow of ethanol.

Wait! What kind of impairment does an individual have at given BACs? As of August 2005, all states have a 0.08% per se law, the legal definition of driving under the influence (DUI) impairment for persons 21 and older.

This information is provided to each of us by our respective state's Department of Motor Vehicles and is also stated on the BACtrack website:

0.02-0.03: no loss of coordination, slight euphoria, and loss of shyness; depressant effects are not apparent; mildly relaxed and maybe a little light-headed.

0.04-0.06: feeling of well-being, relaxation, lower inhibitions, sensation of warmth; euphoria; minor impairment of reasoning and memory; lowering of caution; behavior is exaggerated and emotions intensified.

0.07-0.09: slight impairment of balance, speech, vision, reaction time, and hearing; euphoria; judgment and self-control are reduced; caution, reason, and memory are impaired.

0.142: gross motor impairment and lack of physical control; blurred vision; major loss of balance; euphoria is reduced and dysphoria is beginning to appear; judgment and perception are severely impaired.

≥ 0.40 : coma and death

The BACtrack Breathalyzer products are useful to determine whether someone has been drinking and one's judgment and safety to operate heavy machinery like a car. Additionally, it is fun and a conversation piece.

Keith uses the following analogy: If the speed limit is 55 MPH and you are going faster, you know to slow down.

With the BACtrack Breathalyzer products, you know where you stand.

Keith is a wine lover and a fan of Cakebread Cabernet and Arrowood Syrah. Keith relates, “I have tested my BAC possibly more times than anyone in the world. This is what I do for a living, and I’m regularly testing new models and new features. I can usually guess my BAC within +/- 0.005 of the actual result of one of our high-end BACtrack units. I never drink and drive, but it’s always interesting to know what your BAC is. It’s also a very social item – everyone wants to use the BACtrack if I bring one to a bar or party.”

Please note that both the WineDoctors and Keith Nothacker and BACtrack recommend that you drink responsibly. The WineDoctors do not have any disclosures to make about BACtrack Breathalyzer products.