Improve Your Fitness With Breath Analysis Tech Transcript

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Introduction to PNOu0112 and Breath Analysis

Well. Hello, everybody. Welcome. A real treat we're bringing you sort of from Greece via Miami, a topic we've never covered before. On Reversing Heart Disease Naturally Summit And it's about time we talk about measuring for your benefit.

Everybody listening. You might want to know how to upgrade your nutrition for your health and welfare. You might want to change your exercise for your health and welfare, and you have to measure where you're at, and then you can make changes in every measure.

So our guest, Panos Papadiamantis, and that is a beautiful name, but father of the mountains, Panos is living in Miami area. Did I say it right? Diamonds, Father of Diamonds.

Diamonds. Diamonds. I apologize. He is living in the Miami area, but he represents a really interesting company that has technology to help everybody listening call PNO? P N O ? you can see it on his jacket PNO? It comes in the root, the Latin root for breath like think of the word pneumonia or pneumatic, PNEU for pneumonia, of course.

And he measures breath. He's fascinated with breath. He's got an engineering and business background, but it's a very large company now that has over 3000 installations where you can go and get your breath measured for something called your resting metabolic.

And if you're on a treadmill, your peak metabolic rates. I had the pleasure in southern Florida of PNO? coming over with a briefcase, little briefcase and measured by resting metabolic rate.

He may talk about that. I didn't have a treadmill handy to do a maximal measurement. Some of you know from your gym they may offer a mask treadmill test that all the oxygen and carbon dioxide is measured and that's kind of what we're talking about.

So anyways, enough introduction. Thank you for being on this Summit. Panos. Thank you. Dr. Kahn. Thank you so much for having me. Pleasure and honor are all mine, as you said.

Yes, I've spent my six years, the last six years of my life on democratizing breath analysis. We started, along with my co-founder Apostolos, also from Greece about 6-7 years ago, with a mission of making breath analysis, something that is accessible to everyone.

Now, breath analysis, also known as VO2 max testing or metabolic testing, is an assessment that has been around for about 100 years, and it is one that has been extensively studied and researched in clinical and peer reviewed research.

How Portable Metabolic Testing Works

But until recently, due to the fact that devices were expensive, difficult to operate, and also the data coming out of these devices were very time consuming to analyze and it had remained in the sidelines.

So what we've done as a company is we have created the world's first portable, low cost, easy to use, but still clinically accurate breath analysis device that is also coupled with a comprehensive service that analyzes the data, produces reports patients can understand, and also, very importantly, produces a personalized nutrition and training program that is individualized to one's metabolism.

In essence, we do what doctors would have to do without all the technology we have created now. Fantastic. I just want to say, in case anybody has to leave early, you go to pnoe.com, you'll see that this company has extensive

endorsements from places as academic as M. I. T.

and UCLA to as available as Equinox Gyms and Raffles Hotel and resorts. Because this is so portable, it's showing up in bars and offices and in chiropractic doctor offices and in nutrition offices.

It's very easy, but I think you have a little presentation of five or six slides to share, because I'll say for the audience, I served as medical director of two cardiac rehab programs combined over 15 years, and I still have time putting my head around the fact that there's a better way to do, you know, testing.

And that's what Panos is telling us. And I've been through, you know, the treadmill mask test probably half a dozen times in my life. But go ahead and take the lead.

If you want to share a couple slides for us, I'm going to learn. 100% if you can enable the sharing settings. Oh, yeah, that is. Everybody hang tight.

So if I go to share screen, multiple participants go for it. Also work. Now. Once on second. Anybody is wondering, Panos is only 33 years old. But my biological age is way less so.

Good for you as far as I know he's single and won't put his phone number in the chat. Okay, so you're sharing you're looking for a presentation, a secondary desktop.

Everybody hang tight. So again, I just sat down in a chair, put a mask on my face and breathe quietly for 10 minutes. And I got some interesting data about Yeah, here we go.

We've got the report. So pretty much, you know, this is what breath analysis used to look like before we came along. As they said, like it's been around for about 100 years.

This is what it looked like, you know, almost a hundred years ago. And, you know, on the right hand side, you can see how it used to be in most clinical settings.

And what we've been able to do is shrink it down to this small portable device that you can operate through your iPad or iPhone and get real time metabolic information from your patients.

We collect all of this information to the cloud. We analyze it and then produce reports that identify what the problems are with someone's biology and then specify what kind of nutrition, training and wellness regimen they should follow.

Now, to understand why breath analysis such a holistic assessment and why it is considered one of the most valuable but underutilized assessments in medicine, we should first understand the concept of aerobic metabolism, which is the foundation for every form of animal life on earth are robbing.

Metabolism is basically the concept of using oxygen to burn nutrients and release the energy they contain. Because aerobic metabolism is something that releases significantly greater amounts of energy compared to other biological processes.

Life on earth had the energy it needed to evolve from single celled organisms to complex organisms like humans and other mammalian life.

Metabolic Biomarkers and Health Insights

Now, because aerobic metabolism is such an important thing, our body, as well as that of pretty much any other creature on earth, developed the mechanism to absorb oxygen and utilize oxygen.

We could build lungs to absorb oxygen, blood and hearts to pump it, and then cells with my mitochondria to use it. And this is what we like to call the oxygen chain.

And it's not a coincidence that every deadly and costly chronic condition, with the exception of cancer, is either manifested or caused by a disruption of oxygen transport in one or more parts of that oxygen chain.

Now, breath analysis at a fundamental level looks at three signals oxygen concentration. CO2 concentration and flow volume that you're measuring on a continuous basis in every breath that you take.

And what you produce from these three sensors are CO2 and O2. And a flow sensor is these waveforms, which is literally how breath changes from inhalation to exhalation.

Now, by analyzing these waveforms in addition to heart rate variability, heart rate and our output, which is how much faster going on the treadmill you produce 23 biomarkers.

Some of these biomarkers are things that are quite popular. For instance, VO2 max, a lot of people know VO2 max or metabolic rates, but others are way less popular.

But equally important, for instance, O2 pulse, although you know, a big thing in cardiology is how much oxygen our heart is able to pump into our body per heartbeat.

This is O2 Pulse, and it's actually one of the most key indicators for identifying non-invasively ischemic heart disease and a quarter coronary artery disease.

Now, by taking this 23 biomarkers and grouping them into specific categories, we can start to understand the health of the systems comprising the oxygen chain, heart, lungs and cells, but also that of other systems that are immediately affected by how we breathe.

For instance, our brain, our nervous system and our posture. And one other very important thing that breath analysis gives us is our biological age. VO2 max, according to the American heart Association, is considered one of the most reliable indicators of how long and well someone is going to live because it produces one of the best measures for the likelihood of mortality and morbidity.

And as a result, it can tell you how old you really are. Now, the beauty of breath analysis because of all of this is that it provides probably the best combination of a diagnostic spectrum.

It covers a lot of different systems that are critical, but also diagnostic specificity and sensitivity, meaning that for the systems that that it is actually able to analyze, it gives you a very high degree of certainty whether there's a problem or not.

And it does so noninvasive link without any bloodwork or specimen and as a result in a very cost effective way. In addition to that breath analysis, as I said earlier, is the gold standard for understanding how many calories your body is burning.

So if you have a slower metabolism or a faster metabolism, it's the most reliable way of understanding that. And it's also the only way that we have to understand fat and carbohydrate metabolism in the human body.

As a result, it is considered the most foundational assessment for prescribing personalized nutrition, training and breath work regimens. So that's kind of the science behind breath analysis because, you know, a lot of people, you know, are like, okay, I do this test.

Do I just get my bill to Max or do I just get my metabolic rate? Nope. There's actually a lot more to it. And this is the basic science that allows us to derive all of these insights.

Okay, well, that was excellent. And maybe you stop sharing, which is great. And so, I mean, functionally, like I've said a couple of times, there's a resting component and then there can be a maximal treadmill component or I imagine you could probably do it on an exercise bike if somebody has a problem with a treadmill because of the situation of you bringing this small briefcase to my home, I only did the resting put. No, there was no treadmill and I

got from you a very easy to read report.

I was wondering if it said I would estimate about 15, 18 pages.

Resting Test Results and Nutrition Recommendations

I'm looking at it and I got a lot of green bars. I was happy to see that resting metabolic rate, my fat burning efficiency, my metabolic fatness higher than as lung fitness.

Breathing, fitness and breathing and posture fitness and and put me at low metabolic risk would say, you know, you you have health coaches and nutrition coaches that can work with people who have a piano.

And I'll say it's a quite inexpensive test overall. We're talking in the low hundreds of dollars. If you find one of the 3000 locations that offers this, maybe you want to go to one of these resorts and spa, or maybe you have a caretaker health care professional in your area that's offering it.

Do you usually counsel people on the resting alone or do you often, you know, require the peak exercise in addition to get the full picture? Great question, Doctor.

So most of the people start with the resting test because it is a much lower barrier to entry. So people get an understanding of what they're there is potentially a problem.

And one of the areas that we assess and in case there is there is great motivation for people to follow up with with an exercise test. Now, this is the case with our affiliates, our clinics that deal with the general population, where the typical goal of the person visiting the facility would be either weight loss or longevity.

These two groups of people comprise about 80 to 90% of the people conducting our test. Now, obviously, we do work with professional athletes. We do work with four professional teams.

And in that case, we see almost in every case people doing both resting and exercise test because this population is way more familiar with VO2 max testing and stress testing.

But yeah, that's typically how the how the sequence of testing works. Excellent. And, you know, some people might be interested. I'm looking again, I'm using my report only as an example because it's the only panel we report I'd seen.

My metabolic fitness was rated as good, but there is a section for excellent. I didn't quite make it. So this report has recommendations on exercise. I should increase my resistance, my arrival of my endurance training, and I'll say I work out every day, but there's room for increasing timewise.

Now I want everybody to listen. They made three nutrition recommendations and I'll ask you panelist why I should add more flaxseeds to my diet, more lentils to my diet, and more dark chocolate to my diet.

Everybody's going to love that third one. And frankly, I'm pretty regular and disciplined about flaxseed and lentils. And, you know, once or twice a week, I have a little square of dark chocolate.

Why do you think those three nutrition recommendations came up? So all of the nutrition, exercise and lifestyle recommendations were provided in the reports are science based tools in order to improve the metric that we put them under.

So for instance, if you're looking at these recommendations under your resting metabolic rate or your fat burning efficiency, these are foods that have proven to have some sort of impact in improving these metrics.

Are they're making you burn more calories or helping you with mitochondrial biogenesis, mitochondrial function, which ultimately leads to better to better fat oxidation.

Ultimately, your metabolic fitness score is a combination of how many calories you're burning, but also how effective you are in burning fat as a fuel source.

Combine these two together and you have a very, very good understanding of how good your metabolic fitness is, which is kind of a segue way to them. Metabolic.

So what I was saying is that all the recommendations you see there in terms of nutrition, exercise or lifestyle or science based recommendations that are known to improve the metric that we have, place them under, for example, these specific nutrients have been shown to improve metabolic rate.

So improve like, you know, how many calories you are burning and or how effective you are in utilizing fat as a fuel source by improving mitochondrial function.

What I was going to say is also that this is a segue way to the metabolic dysfunction risk score that we provide. This is something that we get asked a lot about.

Studies have shown that for people getting measured at arresting states and also the fact that states who present reduced fat oxidation below a certain level are at much greater risk of developing type two diabetes.

And that is something that occurs even before elevated blood glucose levels start to occur. So by looking at how effectively you're burning fat and carbohydrates at a resting and fasted state can give you quite a bit of insight into whether your cells are in a trajectory to develop some sort of metabolic dysfunction, such as type two diabetes.

Now, in addition to that, like metabolism is one of the things that we measure. Another thing that we look at is lung fitness and heart fitness. These are typically the areas where if we see some sort of issue, we will direct someone to a exercise test.

Exercise Testing and Cardiopulmonary Assessment

Because just like the traditional EKG, stress testing, when you put the system under stress, you can understand a lot a lot more about its, you know, underlying pathology, if there is one. And yeah, that's that's pretty much it.

It's interesting because I'm flipping through my report and, you know, different parameters. Almost all the nutrition recommendations, everything but one comment about fatty fish are actually plant based recommendations.

All correct is seeds, cinnamon, broccoli, fermented foods, Swiss chard, match avocados. And, you know, there's heart disease reversing salmon is largely a whole food plant based, diet oriented group.

Is that the predominant data that your cardiopulmonary fitness can improve largely from plant based foods? This is what exists in the literature. You know, we're not coming up with, you know, any of our recommendations ourselves.

It's like we have an extensive document that outlines all of the, you know, peer reviewed research that backs our recommendations. And the reality is that, yes, plant based diet is perhaps one of the most effective ones in terms of improving cardio respiratory health.

And, you know, we use cardiorespiratory health as a term because, you know, these two go hand in hand. And which is another, you know, big thing about breath analysis.

And a lot of people show up with, you know, either dyspnea or, you know, chest pain or inability to move and workout. But with traditional cardiac testing, you're not really seeing if it's a pulmonary problem versus a cardiovascular problem.

And really, the only way to identify which underlying system is a problem and triage accordingly is a cardio pulmonary exercise test. Two last questions for the general audience.

You have again on your website, no EPA, no ecom. Step one is getting a test. Step two is consultation. I can't believe every person with 3000 locations gets a consultation with a piano employee.

Is it the center that they're at provides them a consultation or how does that work? So as a company, we do provide consultation and services for many of the clinics that work with us, but many others choose to do the consultations on their own.

We do not interfere with the business operation of how the clinic is run right. What we do provide, in case you don't want to do a consultation with one of our members, is the ability to get sort of like a cheat sheet, quote unquote, or talking points that you can use in your discussion with your patient.

We fully understand that a lot of our clinics want to maintain the client facing aspect of their business, and we do not interfere with that, but we still provide them with the background they need in order to have a meaningful conversation with their patients.

Okay. And the last question I have for the general group is 3000 locations, summer resorts, not around the corner. You're adding a location function to your website and or Stan so you can put it in, I presume, your zip code and find where you can go have a piano because many people say they've never had one.

Most people I've never had this kind of testing they want to and that will be up and running soon. And so, I mean, people can use that same expectation.

Absolutely. Yeah. We're we're going to start helping people to find a local facility. And that's going to be happening later on this year. Right. I think that will make it much easier, though.

Again, you might find that you've told me there are some health and wellness clinics. I mean, medical clinics. Spas, actually, I think you said there's even a few nail salons that are into health and wellness.

So absolutely. Fantastic. I'm sure there's, you know, chiropractor offices, as we said. So a great range. All right. Well, Panos, don't go anywhere. We're going to come back with the premium group and go just a little deeper on a few topics.

This man, wonderful. And I can tell you firsthand, it's a very simple test and a very powerful test. If you just get the resting test, there are still 23 biomarkers that are measured on that test.

Yeah, the 23 biomarkers are basically what you are constantly analyzing when you're putting the mask on. The big difference is whether you're measuring the at a resting and or exercise stage.

All right, Panos, tell us a little bit about the we didn't talk a lot about the exercise aspect. We get referred to a piano, a clinic that has a treadmill.

Should you come with your gym shorts and your gym shoes and you're ready to knock it out? Is this generally a maximal stress test? Well, we typically recommend is you take people to about 70 to 80% of their maximal capacity, which is indicated by a specific metric that you're measuring with a device called our air respiratory exchange ratio.

When this thing hits one, you are very close to your anaerobic threshold. We took 80% of the maximal effort. This is enough data to provide someone with a very comprehensive cardiopulmonary assessment.

And so we typically it of that. Now there's obviously people that really want to see like what their VO2 max, the absolute max they can achieve truly years and these people will push it further.

But for us to be able to tell you that, hey, here's a comprehensive report that is a very good overview of your health.

Biological Age, Retesting, and Closing Remarks

Going up to 70 to 80% is typically okay. Okay, good deal. And since you have this big funding knowledge, tell us a little bit about, as you said, it's one of the most important people are doing, you know, biologic age testing, checks, blood work, one sitting at my desk at home that I'm going to be doing.

But just the general understanding about how a peak oxygen consumption test like piano offers, if there's a treadmill around, will offer that insight.

Sure. Yeah. So when it comes to assessing your biological age, which is, you know, a metric that has come into our lives quite recently, we're effectively talking about how likely it is for you to die in the next ten years or a specific timeframe.

So all of the different biomarkers that we have that are there to quantify our biological age are effectively an assessment of the risk for dying in the next decade.

VO2 max is something that has been widely studied even before DNA testing, DNA sequencing, all of that stuff became a thing. And there are dozens of longitudinal decades long studies that have looked into the likelihood of mortality and morbidity based on view to max.

The way that works is you test a group of people, you see what their VO2 max is, right? And then you track them over a period of ten, 20, 30 years, and you actually start to see how these people start to get sick or die.

And that basically creates you the risk profile based on the different levels of VO2 max that these people achieve VO2 max through all of this body of research turns out to be one of the most reliable indicators for how long and will and well, someone is going to live as a result.

It is a very good indicator of risk of mortality and morbidity. And this is why the American Heart Association and multiple different organizations around the world are actively pushing for its institution a as part of our annual physical, but also be as part of stratifying risk in the health insurance world and elsewhere.

So this is kind of the fundamental science and principle behind how we are able to derive a biological age score based on VO2 Max. And I will say, for those of you still listening, I scroll down closer to the bottom of my report, and some of you may say again, why do I want a PNO? exam?

And it tells me right here that on days I don't workout my resting breath test said I burn 2300 calories a day and I want to lose weight. I probably should eat about 2000 calories a day to get a sustained, healthy weight loss.

And the days I workout, I'm burning about 2700 calories a day. And if I want to workout and lose weight, I probably should eat about 2300 calories a day.

And of course, there are ways to measure this with various apps and the rest and says there are about 60% of my gallery should be fats and 40% carbohydrates.

Protein doesn't fit in here because it's not a major source of energy production, just fuels other parts of our brain. And some you're going to say that's higher than I'd be willing to eat because we have a whole audience that's a lower fact.

You know, Dr. Ornish, Dr. Esselstyn, 10 to 15% of calories in the diet from fat. So you may have to modify that a bit if you're on a reversal program and all.

But it's absolutely fascinating, simple data. And I think a lot of people are going to want to schedule this simple test, having had the other kind resting.

And all this is I can tell you firsthand, a major technology advance. The report is a major education advance. And I really want to thank you and your partner and your team that scatter all over the world with many members in Greece that are supporting all this.

Thanks for bringing this breath analysis to, you know, mom and pop people around the place, physical therapy centers, wellness centers, doctor offices and other locations, but great.

Any last words panels? Thank you so much. Nothing else on my end. Yeah. I appreciate the opportunity and your time. Well, one last question. I have been tested and I want to change my program.

Maybe adding in more fasting, maybe I up my exercise, maybe I eat more lentils and dark chocolate. God knows that sounds fun. How long would you suggest you wait to be retested?

Because it is so simple to get retested. Great question. So depends on how acute the changes are in your life. So if you're doing like, say, a very intense diet program, like you're cutting calories pretty aggressively and you're also working out a lot or just one of the two, then we would recommend like getting tested in about one month to maybe, you know, 45 days if things are more mild and how you're changing things in your nutrition and training, then three months is, you know, what I would go for in terms of retesting, period.

And then at a minimum, again, based on the American Heart Association recommendations, getting once you're getting a test once a year is the absolute minimum because it is information that should be part of your annual physical.

All right. Very good. We've got the expert and the Father of Diamonds, Papadiamantis. First name, Panos And we got so much to learn, but this has been fascinating.

Thank you for sharing and look forward to that location finders. So we can all easily schedule. Absolutely. Thank you, doctor. Thank you.