How PNOE is Transforming Health Through Breath Analysis | Apostolos Atsalakis | Ep. 25 Transcript

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Introduction to VO2 Max and Longevity

Vio2Max is a special one because it's undeniably the strongest predictor for human longevity. There have been so many studies that they literally took cohorts of hundreds of thousands of individuals and they followed them throughout their lifetime.

And they observed that the guys that had a higher view to max, they stay around longer. You need to be very strategic about your wellness. We're strategic, about so, many things in life.

Why not being strategic? About our wellness and about our longevity and how we can be strategic without data. Meet Apostolos Atsalakis, co-founder of Pinoy, who pivoted from his PhD studies at Cambridge to bring his vision to life.

Apostelos has grown Pinowy into a global leader, providing advanced breath analysis for fitness, wellness, and medical professionals worldwide. Stay tuned as we dive into the future of personalized health and the power of breath analyses.

We have the ability to actually see how many calories your body's burning. And then we have to ability actually customize a nutritional program based off of how much calories you're body actually needs.

We want to become better fat burners and there are various things that can help us do this. For example, there is a particular intensity when we work out that when train at this intensity we teach our body to start utilizing more fats than carb.

Welcome to another episode of a Healthy Point of View podcast. I'm your host, Sam Tahara. Today we got a special guest. You guys see us always talking about diving deep under the hood with all of the different diagnostics so we can really understand our patient's health.

So, you know, when you guys say some of content of Liquivita, we have people on a bike with a mask over the face, and also sometimes they're sitting down with that same mask, over their face and we're getting some kind of data.

So today what we have is the expert, the actual co-founder of Pinoy, which is that system, The VO2 Max and RMR. We have Apostolos Astalakis here. All right.

I tried, man. The name is not that easy to pronounce. I actually, I want the listeners to understand that I tried that like about six different times.

And you're from Greece, right? Yes, i was born in Greece. I spent, you know, the first two decades of my life in Then I went to the UK, I studied in Cambridge.

I did nanotechnology and sensing technologies. And Cambridge actually was the birthplace of the Panoi technology. Nice. In 2016, with my co-founder, Panos Papadiamadis, there's another difficult name.

Oh, boy. Yeah, not going to try that one.

Meet Apostolos Atsalakis and the Origin of PNOE

So we co-founded Pinoy then and we began our journey democratizing breath analysis and really preaching about

the value of VO2 max and how it's linked to our biological age and all these cool things that we can understand from by simply analyzing human breath.

So today we're gonna really get into the science of this stuff. We have thousands of doctors that buy the Liquivita product that tune into this podcast.

So I know a lot of them are gonna have questions that they're probably gonna get answered throughout this podcast. So the first part, I wanna ask you, what made you get into this here?

This type of testing, this technology. You didn't wake up one day and just say, oh, create a VO2 max technology, right? How did it happen? So essentially the story behind Pnoy was during my studies, I was in the space of nanotechnology and there was a big conference in Cambridge.

It was called like the next big thing. And they brought guys from Google, from Facebook, all the major tech companies and they were sharing their vision about how the 50 years will be.

There was a guy that mentioned how insightful breath analysis is, and for some reason I found that this is extremely cool to understand things by simply analyzing human breath in a non-invasive way, unlike blood.

And I started really researching the field of breath analyses. Turns out that every single biomarker that we have in our blood, it has a cousin biomarke in her breath.

But in many cases it's very difficult to detect these biomarcers. The concentrations that they can be found are like parts per trillion, so it's very, very difficult to sense them.

That's in blood? That is in breath. In breath, okay. So, however, metabolic analysis and view to max testing, this is called indirect calorimetry and this science has been established for almost a century.

So the biomarkers there are very established and unlike other applications of breath analysis, for example, we're trying to do lung cancer detection through breath.

But still the bio markers are we are in the process as humanity to understand which are the biomarker there. For metabolic analysis, there are very established biomarkers and we can understand the mechanism of human physiology by analyzing human breath.

So when I saw this application, being an engineer, I tried to develop a device. This was the period that people were really into quantifying things with their wearables and people who were becoming eager to understand how many calories they burn.

on a daily basis, whether, you know, what kind of macronutrients their body utilizes. And it turns out that indirect calorimetry, essentially the science behind Pinoy, is able to determine these things very accurately among others.

So in just eight minutes, we're able measure and quantify 23 biomarkers of human physiology. Nice. and provide actionable insights to our users. That's awesome.

What year was it that you decided to start developing this? This was 2015. Late 2016, we started the company with my co-founder Panos. At the time, he was studying at Stanford and we launched our product in 2018.

How Breath Analysis Works and What PNOE Measures

and it was after covid that we saw a very big Like the awareness around longevity, I'm sure that you see this, Sam, as well. The awareness a lot around the longevity is just, it has just increased a lots.

We're on an exponential growth. Yeah, and I've seen it. You know, going to the conferences, you guys are expanding and more people are implementing the technology in their clinics, right?

You know, I go way back from when I used to work at Cinegenics, and Cinergenic had a Parvo device for VO2 Max. And then I've also seen people with a different device called the Core device.

How is your device, your technology different than theirs? Yeah, so essentially it has to do with the actionability of the results because the big problem that we're solving, essentially metabolic analysis has a very established value.

Because the science is around for a hundred plus years, we understand the value of metabolic analysis. However, the problem was always the test itself.

It was difficult to administer the tests. and also the interpretation of the results was very difficult. Very complex, especially that parvo device. Like, I remember Dr.

Willix, who's a former heart surgeon. I mean, you get the person on the EKGs, You got the gas, it prints out this report. And most doctors that even worked for him couldn't interpret it.

It was a very, very complex. Now, obviously, the Pinoy report, this thing, a sixth grader can read it from how easy it is to read. So, what about the core device?

It's the same thing, kind of harder interpretation? Same thing. I mean, like these are some of the… So Pnobi measures oxygen and carbon dioxide on a breath-by-breath basis, which is really the gold standard way of doing metabolic analysis.

Our device has independently validated for its accuracy. But in terms of the action ability, this is one of areas that I know is very unique. Also, it's very user friendly.

Anyone could be trained to deliver the test in just 30 minutes. In the past, usually these were tools for exercise physiologists. or cardiologists with superpowers in metabolic analysis.

So we have entirely disrupted this and we've democratized this assessment and made it, because it's an easy to use tool with actionable results, it could be, in many cases it is part of the onboarding process for the patients of And definitely gives a good baseline.

And I agree that you guys have disrupted this process and I'm happy to be a part of that growth. So you said something about the validation. I think a lot of the doctors that are listening, that's one of questions like when we implemented the Pinoy, we wanted to make sure there's good validation and Dr.

Christopher Davis, I remember getting on the Zoom calls with you and he had a lotta questions as an interventional cardiologist. So let's talk about the validation, how you did it and why it's validated towards that today.

Absolutely. So essentially during the validation process, researchers took a big bulky metabolic card, one of the, let's call it traditional manufacturers of metabolic analysis, which is a non-portable equipment.

They connected it in line with a Pinoy device. The same breath sample was simultaneously analyzed by both devices. Okay. and they took 23-24 subjects through the process until they reached statistical significance and demonstrated that Pinoy measures both VO2 and VCO2 with the same accuracy as a big bulky metabolic heart.

That's awesome. So they compared essentially the output of the results and the fact that the sample was simultaneously analyzed by both devices. This is I think that their researchers went down the correct route of validating our equipment.

Nice, nice. So when we talk about research, what type of research or do you guys have studies that you guess have published or anything like that? Yes, so we work with many universities.

We work… UCLA is a special one because UCLA's actually the birthplace of metabolic analysis.

Validation, Research, and University Partnerships

The great Wasserman is the father of this field. And it's very special for us that the the place of the method is using today our tool for the research.

So UCLA has published a lot of studies around by using essentially Pinoy. We work with many universities. Columbia. And they're actually like the students running the studies.

Exactly. They're doing research with Pinoy, but this is definitely a small segment of our user base because we work with the fitness, with wellness and with a medical space.

Academia is, we're honored for being trusted by some leaders in academia, Yeah, I agree. Let's talk about the functional medicine space. You're starting to see more people, more doctors implement the technology within their practice.

So, Pinoy, what is it? What are we testing for? what are the type of results that we're getting from doing these types of tests? So the way I want to kind of start here is let's start off with the VO2 max.

What we looking at? Yes, so VO2Maxx is a special one because it's undeniably the strongest predictor for human longevity. So it predicts both the lifespan and the healthspam.

In other words, both of the quantity, the expected quantity and expected quality of our lives. And there have been so many studies that They literally took cohorts of hundreds of thousands of individuals and they followed them throughout their lifetime.

And they observed that the guys that had a higher view to Max, they stay around longer. This is what they observe. It really makes sense because view too Max is The maximum amount of oxygen, the maximum volume of Oxygen that our body can consume at peak exercise.

So the higher this number is, This, because oxygen interacts with many systems of our physiology, so for us to be able to consume a large, essentially a larger volume of oxygen, our lungs need to work perfectly, cardiovascular system needs to works perfectly.

Our mitochondria and metabolism needs be to able absorb this oxygen and metabolize it. So there are so many important systems of human physiology that interact with oxygen and this is why VO2 max is linked to our longevity.

We measure the biological age of our users by measuring their VO 2 max. And that biological age, I know some people kind of freak out about it. I'm only 35 years old, or 40 years, old.

It's gonna say I am 70. We were at the conference recently, and one of my good friends in the industry, Carlton, he was just like, should I do it here?

But it came out good. So doing that test, the importance of doing it. What would you say? Who should be doing these this type of test? Yeah, that's a great question.

And actually the American Heart Association has already answered this. In 2016, they unanimously said that every single American must do this test at least annually.

The VO2 max. Yes, for preventive purposes. I love that. It's so important. Yeah. Such a holistic assessment that we can understand so many things about our about our overall wellness.

So let me ask you this. For the longest, a lot of people would only connect the VO2 max with professional athletes for endurance and everything else. Why this shift of this is not just for professional athlete, this for everybody?

For everyone, yeah. So, that's a very good question. If you think about it, the data are equally important for an athlete and are equal important to an everyday wellness enthusiast because both of them They have something in common.

They want to go from point one to point two in a straight line in the most efficient way. So no matter if you are a professional athlete or if just started your wellness journey, your life transformation journey You want to take data-driven decisions.

VO2 Max, Biological Age, and Who Should Test

Absolutely. And VO2Max, and VO 2Max is just one of the 23 biomarkers that Panoi measures, actually. Yeah, I can't wait to get to the other ones. But VO to Max, people always ask questions.

It's a special one, it's special. It's, you know, it's just, uh, extremely insightful. And to your point, Sam, like, being able to see how the biological age is reversed, this is so motivating.

Right. We've seen clients reversing the biologic age by five years, by six years. That's amazing. By seven years! Fortunately, our physiology is structured in such a way and we get a lot of early gains.

There are many easy benefits. So if a sedentary person starts working out, for example, in just one month, they will be able to substantially increase their VO2 max and reverse their biological age and vice versa.

If a very active person just stops working, out their view to max would drop substantially. Yeah. And this is unfortunately what happens when an athlete is injured.

Right, okay. But then, because the body has memory, it quickly catches up. Interesting. Is there an age limit for people to do the VO2 Max? We've had literally, I think the oldest user that has taken VO2Max is 94 years old.

94? Yes. I'd like to see that picture. He won't have to put like pillows on the floor just in case, you know? He was very active. Wow. So no, no age limit.

It's something that's, because it's non-invasive. Can like teenagers do it as well? Yes, yes, for sure. In varsity teams and the view to Max is the exercise part of the test.

The most popular part is of test is resting part, the resting metabolic rate test that gives us a ton of insights about our physiology, about nutrition, how We need to eat, how we need- Let's talk about that.

The RMR, the resting metabolic rate. You said something earlier, you mentioned about the mitochondrial health, right? With all of this, and going back to the VO2 max, before we go to RRMR.

It was for the longest time and even still now, The VO 2 max was kind of the gold standard to test for mitochondria health. How does that work, the cellular health portion of it?

Yeah, so we're able to measure the ratio of carbon dioxide to oxygen in every single breath, actually. And it turns out that when our body's utilizing carb as a fuel source, we produce more carbon-dioxide than when we utilize fats as as fuel sources.

So on every single breath that is analyzed with the Pinoy system, we're able to understand the percentage of fats and carbs that someone consumed. A healthy metabolism is primarily utilizing fat as a fuel source.

It's healthier to rely on fats rather than carbs as fuel sources. And this is linked to metabolic health and essentially cellular health. higher mitochondrial density, better mitochondria function, all these important terms that we keep on hearing.

So we want to become better fat burners and there are various things that can help us do this. Zone two training,

for example, there is a particular intensity when we work out that when, we train at this intensity we teach our body to start utilizing more fats than carbs and we become better fat burners.

We need to have a balanced nutrition when it comes to micronutrients. This really helps with our fat burning efficiency. There are different modalities.

Red light therapy, for example, we've seen that it helps, with fat-burning efficiency, there are so many different treatments that can help the everyday wellness enthusiast to become better fat burners.

And the best part about this is we have a way to actually show with data that it's working. With the technology. So the RMR. Put us through the process.

There's obviously a certain preparation that people have to do. They have be fasting, right? Typically they have been fasting. So put us though the processes so people understand how it works.

You need to be fasted for three to five hours before the test. Okay. And you just wear the Pinoy mask and you breathe normally for eight minutes. Just relax for 8 minutes and we gather, we would analyze all the breaths, will capture all this information and provide a report where we will measure the resting metabolic rate, how many calories someone is burning on a daily basis.

And this is very important because we want to consume more calories.

RMR Testing, Fat Burning, and Personalized Nutrition

Turns out that our muscles are consuming more fat tissue so the more muscles we have the higher our metabolism is and essentially we're able to determine exactly how many calories we require on a daily basis and based on this tailor a personalized nutrition plan through our app based on the caloric needs of an individual.

Hold on, so let me get this right. And this gets me excited, right? Because it's all about precision and personalized to the individual, So when we do this test, and just correct me if I'm wrong, we have the ability to actually see how many calories your body's burning, And then we have the ability to actually customize a nutritional program based off of how many calories your body actually needs.

Right? Exactly. That's exactly right. Wow. Well, that's the future of medicine. I love that. And there are so many things that are important for our nutrition.

The supplements are extremely important. Through your supplements, you help so may patients. But it's also important to align the calories and the macronutrients and we're able to determine this through just an eight minute resting test.

And based on the habits, the goals and metabolic fingerprint that we measured through the Pinoy test, we are able provide a fully personalized nutrition plan that our team will generate for the patients.

So I know a lot of these doctors will ask the question, when we talk about the RMR, the rest of metabolic rate, what's the difference between doing that breath and analyzing test versus like the device like that Lumen device?

What's a difference? Yeah, so the Lumen device just checks essentially one of the biomarkers that we measure. It tries to measure the respiratory quotient of an individual.

So whether they're utilizing fats or carbs, the percentage of fats and carbs utilization, But we're able to see many more things, we are able see the calories that an individual is consuming, their heart fitness core, lung fitness, metabolic fitness.

How their breathing helps their cognitive capacity. capacity essentially or creates an obstacle to their cognitive capacity because we're able to determine the breathing frequency, how many breaths we take per minute, what is

the amount of carbon dioxide that we exhale on every breath, whether we hyperventilate, We're able to predict the biological age from just the resting test.

So there is so much more that we're to understand from these eight-minute tests. And this is good to know because, you know, and this has nothing against lumen, right?

It's comparing a car versus a pickup truck. The pickup trucks can do many different things. You know even when we do blood work, there's regular bloodwork, that's micronutrient-cess blood They're all good, but they're different.

So I think it's important for people to understand the difference. And I can assure you that Lumen has a lot of science behind their product, great people behind it.

But people have to understanding what's the different between both. Right, so with what we have here at Pernois, you're just getting more information and more data.

Yes, way more. It's much more extensive and we're able to provide actionable and personalized recommendations for the nutrition, for workout and the overall wellness essentially of our users.

I love that. Recently, you guys came out with a lot of the different nutrients, and we were talking about that for over a year, that you guess we're gonna get things to be able to give us more information, more data to select what IV trips are gonna be best for the patient.

So in the IV business world, this is a great tool to customize these IVs to the actual patient's need. Talk about it. Yes, so this is an exciting application and through just the resting test we're able to see some limitations or some areas of improvement if you want for the patient and recommend different micronutrients suggest a personalized IV cocktail that will enhance all these limitations that we observe from the test.

And then the tests could be repeated after two to three months to see the improvement. Yes, yes. And that's extremely motivating. Because everything works in combination.

If somebody also does some changes on their nutrition as well, on the workout, maybe have more personalized approaches there as we see massive changes.

Are you seeing physicians doing a lot of their own case studies? Yes, yes. We've seen, we have a lot of, We work with thousands of locations in the US and there are some biohacker doctors that, actually we had a doctor, he's a chiropractor in Denver and he was able to reverse his bio-wage by eight years.

Oh wow. By trying all these things. Following step-by-step. Exactly, exactly. Okay. He was following our nutrition plan, our workout plan. He was doing a lot of red light at the time.

And he was a personalized high-intensity interval training. So through the exercise test, you can determine your personalized training zones. Oh, wow.

You can create customized high intensity interval based on your personalized training zone. So you can spend like four minutes on you zone two, one minute on zone five.

Low intensity, high intensity. And it turns out that this modality skyrockets your VO2 max and reverses your biological age. So he tried all these things on himself, and he was surprised, actually.

And we were surprised with the amazing results of how he reversed his bio-age. Yeah, that's awesome. So you know the liquid Vita we have in Fort Lauderdale?

We have a fitness center next door, DeFit. My buddy Danny, I've known him since high school. He has a background degree in exercise science, so he understands VO2 max, RMR.

One of our partners, he's a silent partner, He's been training with Danny for quite a while.

Comparisons to Lumen and Expanded Biomarker Insights

And he hasn't been seeing the results that he's looking for. Danny's a great personal trainer. He came in to do the VO2 max, the client, not Danny. When we came back with the result and took it to Danny to de-fit, Danny looked at it and says, we're not pushing you hard enough.

We got to switch this whole thing up. Put a heart rate monitor on him for the training to make sure we are hitting certain targeted heart rates. And when I tell you his body has transformed, unbelievable.

But it would have never happened unless he would've done the test with Pinoy. That's an amazing case, actually. And we see like, and this data give confidence to the trainer and to essentially the client to push themselves on their limit and understand what they need to do and eventually see these massive transformations because it makes sense.

Like you need be very strategic about your wellness. I mean we're strategic so many things in life. Why not being strategic our wellness and about our longevity and how we can be strategic without data.

It's impossible. Data is everything. Yeah, I agree. So I tell people you can't just supplement to supplement. We've been doing that for way too long, right?

It has to be precision, it has be personalized to what your body needs. And for me, I talk about it all the time. I go on the news and talk it. Get your own personalized data.

Like I got my aura ring, and for that data is extremely important. For me blood work is important, understanding your buddy. It's not just once, you do the baseline but you trend it, Because sometimes, it's gonna go up.

Other times, its gonna down. It's going to get better. Its gonna get worse. Depending on lifestyle, how much stress you have going on. How you're eating, if you are traveling, and if your getting sick.

So data to me is like, without data. There was something that somebody said. They said, I remember them saying this. Trust in God, everybody else has to produce data, right?

So now, when we're talking about data and having good quantifiable data, I know Pinoy, you guys have put in a lot of effort into making sure that we can integrate a lotta this other data out there.

Just earlier you were telling me with InBody, that you have a strategic partnership where you can guys integrate the data from Inbody through the backend API, would I assume or something.

What other devices do you integrate with to have good, quantified data for those other device? Yes. So I fully agree with you, Sam. I mean, when it comes to data, the more the better.

And in many cases, our clients are doing like the Pnoy test would be the first test because it's very easy and someone would get instant results. But then they could do other things like blood analysis, like body composition.

And we can integrate all this data and visualize them through our report. We work with InBody, work also with Staikou and other body-composition manufacturer.

Do you guys integrate with ORWING? So essentially the data of an of most wearables on the market could be could fed to our app. So yes, like the data, your data some of from your ordering.

When you use the when you are up, you could essentially see this data and how they combine with with your Pnoy test. Right, right. Yeah. And then you kind of really understand, because I would only assume, right?

Actually, we don't even have to assume. We know, I'm in this field, that if people are following what the reports tell them to do, even your sleep is gonna get better.

And we'll be able to see it through the orary. for sure. And sleep is so important. Yeah, I mean, that's where you're recovering. But everything works hand in hand.

It's a sleep, it's nutrition, is a workout. Meditation, the medication. Everything needs to be there and everything needs personalized and also it needs to be easy and actionable and I think this is one of the uniquenesses of our product it's very easy to do the test like you walk in, like we have, I know that at your Fort Lauderdale location, you're also able to do the test at, the chairs that the IV is administered.

So it's very easy and very quick to the do test. Right, right. Yeah, and we mix every day. I mean, you know, obviously we're doing the DEXA scan, the in-body, we have it there.

Personalized IVs, Training Zones, and Case Studies

You know we, have the max pulse test. Yes. We do the comprehensive blood work. But for us, one of the very important components is, doing you the VO2 max and also doing an RMR.

Those reports are critical for our patients, for to understand their health. And that's what, when I say let's take a deep dive and look under the hood, this is part of it.

So where do you see Pinoy going in the next five years? Yeah, that's a good question. Because you guys are growing tremendously, man. So yeah, I know you got some big things happening.

We have some big things happening. So, yeah, we're growing pretty rapidly. Actually, We were recognized by the Financial Times as one of the fastest growing companies in the US.

Congrats, man. That's amazing. Thank you. In 2024. And I think, honestly, that, you know, I feel that this growth is just getting started because I think that we can help millions and millions of people out there by collaborating with our affiliates, by cooperating with with the doctors out their with their clinics, with personal trainers that use PNOWE, the fitness centers, and we provide to the consumers all these values.

In the future, we are essentially simplifying even further our testing. We want to make the Pinoy test as easy as possible, as quick as possibly, and as insightful as possibility.

In terms of making it more insightful, We could combine the breadth data with other data with blood, with body composition, what we discussed earlier, Sam.

So this is where we're heading as a company. I love it, man. If there's one biohacker or doctor or some kind of specialty out there that you would love to see utilizing your technology, let's say they listen to this podcast, who would it be?

Interesting. I think Dr. Peter Attia, he's really into, you know, view to me. He has, He really knows this space. And yeah, I would love to, for him to do a epinoid test, probably at one liquid.

Yeah, if it's at liquid Vita, like that we both win, right? Yeah. We'll get, we'll tag him on that, by the way. So yeah. That'd be awesome, man. So you're doing some big things, man.

I hope you take time to kind of reflect.

Integrations, Future Growth, and Closing Remarks

Sometimes business grows so quickly that we get stuck in the middle of the business and don't understand the big change that you are doing for people's health, their life, for the family members.

You're making a big with what you doing. No, that's a very good point. We often forget this with our day-to-day, but it's so important to take a moment and reflect.

It's team effort. I'm very proud of our team at Pinoy and we feel this impact. What we're doing is amplified with what you're are doing because we work hand-in-hand.

we always collaborate with their affiliates. to provide a turnkey solution, provide actionable insights and improve the lives of people. I love that, man.

And I tell everyone, this is part of our winnergy movement about us winning together. Yeah. Right? And part this, when we talk about changing the course of medicine, not where it's like, you know, right before this podcast, I want to go see a regular doctor.

Took me 45 minutes to get there. It took me an hour and a half of just waiting for my appointment to see the doctor for five minutes and not get any kind of results.

and then 45 minutes back. So I wasted half of my professional day to get nothing. You know, so what we're doing here is we are changing the course of medicine.

We're getting people, and this is what you've developed, you're giving people answers. The answers they've been looking for. Guidance of what they need to do to perfect their health.

It's amazing man, amazing. If people want to find you, how do they find it? So they can check our website that's pnowe.com, p-n-o-e. They could also follow us on Instagram, Pnowy Analytics, and they could book a meeting with our team and learn more about what we do.

Guys, make sure you guys do that. We're gonna go ahead and put all the different links. It's social media accounts, all of that stuff so you can follow them.

If you have questions, you know you could always reach out to the Liquivita team. we don't hold things for ourselves, we share it, so make you do it. Is there anybody you want to give a shout out too?

to Liquivita and to Sal. Liquavita, let's go. Love it, I appreciate it. Apostolo, it was a pleasure having you here on the podcast, man. This was very informative.

People need this. I hope more doctors implement this into the practice and we see more people making their patients well. Thank you, Sam, and thank you.

It was a real pleasure coming here today. Absolutely. Guys, thank for watching another episode of a Healthy Point of View podcast. Again, I'm your host, Samp Tahara.

Make sure you subscribe, follow, comment, share, do all the good stuff, And we'll see you for the next one.