

**John Macgowan:** Hi, and welcome to another ICI/PRO podcast, I am John Macgowan your host, and joining me today is somebody who had been here for a little while, he was a very popular presenter at last fall's ICI/PRO conference. I am excited to have him back on the podcast, especially knowing that he is going to be joining us again next year. Tom Scotto, welcome.



**Tom Scotto:** John, thank you, it's great to be here.

**John Macgowan:** We had a lot of fun in Boston, didn't we?

**Tom Scotto:** We had a little bit too much fun, okay.

**John Macgowan:** Well, I know you were exhausted at the end of it, but --

**Tom Scotto:** It was, but it was a fun exhaustion.

**John Macgowan:** It was, and I heard nothing but, well I don't even want to use the word positive, reviews would be the best way to put it. I know the people that were there that got a chance to participate in your sessions just really enjoyed and felt like they just had a -- just brought it to a whole new level, so, thank you again.

**Tom Scotto:** You're welcome, it was great to -- I mean to get that kind of feedback, but it was also fun to meet listeners so to speak and members and you know kind of makes you feel whole lot more part of the community.

**John Macgowan:** Now, Tom, what you have got for us today is kind of like a hybrid of what we call a PRO podcast, which is an informational podcast specific to our members. And an audio profile, which is an actual class what you are going to be talking about today is aerobic base building, how do you bring that to your class, do I got that right?

**Tom Scotto:** You have it right, and you know I mean, I just don't like to be put in a box, so I guess we'll just have to create a hybrid category.

**John Macgowan:** All right, so, where do we start?

**Tom Scotto:** I think there is always lots of questions when it comes up particularly at the beginning of the years, it's time to build base again and you know it brings up a lot of different thoughts. You know some people associate base building with mind numbing hours at extremely low intensity wondering you know what it's actually producing. And of course, the outdoor rider and the indoor rider can view those very differently.

So, you know, maybe we can start just by talking about, you know sort of a more of a bigger picture and then how it really applies itself to the indoor cycling environment. There is two elements that we would generally look at, one is, you know, the overall picture of building aerobic endurance. And most of the time the outdoor rider, you know if they were a charity rider, century rider or competitive rider will spend number of hours in the saddle as we say at a time to build their base, to get their miles in their legs.

And there is a number of reasons for this, but it's not the only thing that we would do to build what we call our base in the beginning of the year. The length of time, which is usually, what butts up against the indoor cycling format, we kind of joke around as cycling coaches and say that we don't call training endurance unless it's been at least 90-minute ride. So, of course you know, for most indoor cycling classes, that's sort of a little challenging with the 45-minute an hour formats.

And, so, you know that could be a challenge for outdoor riders, who say, hey, I want to get my endurance base and I am going to co-take a 45 or 60-minute class, you know how do we make that happen. And then, you have the indoor cyclist, maybe someone that does also ride outdoors and maybe just a cycling enthusiast say, well, I don't want to do 45 or 60 minutes of very low intensity work to build my base. So, you know these are two things that we are battling against, the big picture, you know when you are trying to build base outdoors for endurance, again, a number of aspects, well, one of the key aspects is becoming better at burning fat or fuel or being more optimized for that.

And that really is something that happens during those longer times in the saddle, particularly, if you are riding for, you know over an hour, once you get beyond an hour, the fuel stores in the body start to deplete and then the body is forced to have to rely on fat, which is usually in abundance. And that's sort of the thinking behind that, but there is another way of or another aspect of building anaerobic base that's very applicable to the Indoor Cyclic studio. And the two categories that that breaks down into, which is what we'll talk about is aerobic development, drills and aerobic endurance drills.

Now, just so people know that there is the aerobic base is not the only thing that we develop in the early season. So, you know as instructors, we don't want to say well, the only thing I am going to be doing is all this aerobic endurance work, not, we don't want to forget that we have speed and pedal stroke work that's very important particularly for people that want to cycle outdoors to developing the muscular ability of the legs and just get our technique down. And also muscular endurance, which in a lot of ways translates to longer efforts with more force on the legs, which, you know are climbing and longer climbs.

But climbs is sort of without intensity, so let's not forget that we have those elements as well, what we are going to focus on is more of the aerobic quality the developing that initial aerobic ability and also some aerobic endurance, which will hopefully lead us to having that nice solid fitness base as we progress through the year. So, there is sort of two different elements or two different types of drills that you can do and I think this is what we talked about doing this is a hybrid.

Because most people who know me, I stay pretty focused when I am teaching a class or when I am doing training in, that probably has much to do with being a coach and having that focus

when I am with either a team or an individual rider. So, I want to make sure that instructors know that they can sort of take these drills and mix them together, they have to have a true, we call an aerobic development class and a true aerobic endurance class that they really their freedom to mix these up.

They, of course wanted to make sure that they know, you know what is the difference between them, how are riders going to respond and adapt to them, so they know how to build a real successful class. When we're talking about building an aerobic base, some people might be coming in from the winter hopefully, a little de-conditioned, I know it sounds like a bad word, but as coaches, we like to see our riders take some time off in the off-season. And that's going to require them to build back up again once January starts and hence we have the, called the base building.

Some may have good aerobic stamina left over from last year and others may not and we know that in our classes, we see a pretty wide demographic of fitness level, so, you know we have to take that into consideration as instructors. So, one of the things that will help people as they are building their initial aerobic base is having some shorter efforts that are going to stress the aerobic system. But not sort of provide too much stress for those that are just starting to ramp their fitness up again or maybe coming back in and have not build any fitness over the, of course in the last couple of hours.

**John Macgowan:** Let me interrupt --

**Tom Scotto:** All right, go ahead, I'll just keep going John, you know me.

**John Macgowan:** Oh, and I you know I watched it too. Tie this into the club athlete contrasted with the endurance athlete, if you understand the distinction, how is what we are doing applicable to, the random person that's coming into our class, contrasted with somebody who is really focused on their productivity come spring.

**Tom Scotto:** No, that's a great question and sort of what I was referring to when I talked about more of the outdoor, possibly endurance or competitive rider versus the person that participates mostly in indoor cycling classes. Well, I mean, having a good fitness base is important just in general into the health and fitness. For the outdoor rider that needs to spend more time at a given session, you know if they are out riding on a weekend or out touring or doing a cycling vacation, whatever it is they are doing, they are going to spend a lot more time than probably 45 or 60 minutes.

So, they are going to need to have this aerobic base to build upon, this is other aspects of their trainings, then they are need to have wait around much strength and etcetera to deal with their varying terrains. So, in order to do that, they are not going to spend all of their time and this is not the drug I am talking about, doing what we call LSD work, which used to considered Long Slow Distance, but with recent research in science, it's been redefined as Long Steady Distance.

So, we are not telling the outdoor rider or the rider you are talking about that endurance athlete to not go out and do their long steady distance, which is greater than an hour, but we also need them to do some aerobic interval type training to enhance their fitness. So, this is sort of

where both that endurance athlete and the indoor rider get a chance to train together and work together, because there is really no better place to do that kind of work particularly if you live in an area of the world where it's not favorable weather.

You get to do this type of intervals trainings indoors, it's a lot more fun, you know we as instructors get a chance to impart some of the wisdom of the base fitness. But we also get to have that group fitness environment, which passes those winter hours much better than if you were trying to do in your home in your basement, which is what a lot of athletes do or they do go out and just kind of, you know do at the outdoors as best as they can.

So, I think to your point John, this is one of the things that really allows the endurance athlete and the indoor cyclist who maybe is just solely indoors meet together. And a place where they are going to get some very sound training that's beneficial to either their just core fitness for helping them build out fitness platform for later endurance activities. There is always a building phase with everything, you can't expect someone without a good aerobic fitness or even a base aerobic fitness to jump into something that's more advanced.

So, like everything else we kind of ramp things up as people's fitness increases then we can also increase the length and the intensity and purpose of the drill. So, like I said earlier, we have, we call aerobic development drills, which are shorter and they are pretty much in interval format. And shorter being, they usually last between 30 and 90 seconds. And then we have aerobic endurance efforts, which are longer that are between two and six and they can be longer than six, but I think sometimes just for the sake of sanity indoors, going beyond six minutes for an aerobic endurance effort could be a little tough for some.

So, there is definitely a difference in the duration, it would be hard to put someone under the stress of an aerobic effort for four to six minutes if they really don't have any aerobic fitness base, are very little. So, hence we start with the aerobic development, the shorter efforts allows them to build and work their way towards the longer efforts. There is a couple of key things to kind of discuss here, one is, we need to know, well, how hard do we push during these efforts. Because we don't want to push so hard, you know which has been customary sometimes in a lot of indoor classes where we are gone beyond our ability to really stress the aerobic system properly.

And the other aspect is, which is tied to it is cadence, so cadence is probably the easier piece to discuss before we get into intensity. We have sort of drawn a line right about 80 RPM, 80 Rotations per Minute as the middle ground between stressing the body aerobically and stressing the body more from a muscular standpoint. And of course, you know it varies in different individuals, but you know just a ballpark, when someone is pedaling in 80 RPM or above with adequate resistance the tendencies for that faster leg speed to stress the aerobic system in a greater way.

And that's where we are going to want to do a lot more if not all of your aerobic base building. When your leg speed starts to drop below 80 RPM, there is a greater tendency for force on the muscles and it becomes more of a strength training endeavor and not an aerobic endurance endeavor. So, that's the one thing that instructors need to now is when they are designing these type of workouts that cadence is very important and it creates a balance of helping

instructors get their riders to that cadence, but also make sure they have appropriate resistance.

And you know, music is key, it's a little tougher I think from a music aspect, because most of the time I find music that's easy in that dance rhythm zone, you know so to a 60 RPM, 65 RPM, or you know 120, 130, depending on how you are counting it. So, it could be a little challenging, I'll just throw that warning out there right now, the fine music that's in the 80, 90 RPM range, but it's out there. And I am going to give some suggestions not only on drills, but also on some music selections that can be used for this as well.

So, outside of leg speed, the other thing we need to figure out is where do we train, as far as intensity. You know when we sometimes we say interval training, the thing, the first thing that comes to mind is that, you know very hard, can't breathe, short or maybe not so short effort. Simply for me, when I talk about interval training, it has many aspects, for me an interval it's just a period of time. So, you know, as instructors we need to even think, okay, beyond that threshold interval, you know there is speed intervals, there is aerobic intervals, there is strength intervals there is all types of intervals.

So, it's good to clarify that, because even our riders have they have been accustomed to interval trainings that's been on the brink of exploding, they might even get the wrong impression when we are going to do these drills. But I think the endurance has become a bad word in the Indoor Cycling studios, because unfortunately it's always been connected with these very long, low-intensity efforts. And what we really are able to do is, you know push a lot harder than we thought we could, we just have to understand what that range is and I know Jennifer has done some great podcast and teaching on thresholds and this falls right in line with that.

Our heart zones trainings identifies two thresholds that we use and we just threshold, we just abbreviate it as T, so the first one is hit is T1, Threshold One and then T2 is Threshold Two. And what are these, I mean, they are just the point in the body, a threshold is just a place that we cross to get from one place to the other, so it's a, it doesn't have to be super confusing. And the best way of course to find these thresholds is to do some VO2 testing and really identify them, but not everyone has that in their means.

So, there is two ways that we try to identify these if VO2 test thing is not available. The first thing we do is, we do it's what's called the Carl Foster Talk test, which can be done on a bike, slowly ramping up a rider and having them repeat a phrase various times and until they can either not say it or think they can't say it. And we can identify some places in their intensity where these thresholds exists, but I'll give you a simpler one that can be used, the first threshold T1 usually occurs when the rider notices a very steady breathing rhythm.

They ran not out of breath, but all of a sudden, they notice, well, my breathing has become noticeable and it's sustainable and that happens generally after the warm-up maybe after the first or second drill or so in class and they definitely feel like okay, I am in the workout now, and I am ready to go. The second threshold as we call it, as T2 is when breathing starts to get uncomfortable to the point where the breathing rhythm gets interrupted. So, you know you are trying to breath, and then, there is that like one moment where you take that breath in and it just doesn't stick with the pattern, you almost have to sort of reconnect with your breathing.

But you could still hangout, you are not going totally breathless yet, so, where can we go at our aerobic base training, we can actually go up to that second threshold that we are calling T2, so, it gives us quite a good range in indoor cycling for base work. We are not stuck in that, the old LSD model the Long Slow Distance, we actually the ability to expand, which is great news you know if you are indoor cycling instructor and you know you have been stuck in that rut. So, if you think about your aerobic development work, which are your shorter efforts, those 30 to 90-minute efforts.

We are taking someone from after they have warmed up and they have got a nice good breathing rhythm going and they have got some resistance on the bike. And they are pedaling it about 80 RPM or above, we are going to take them to the point where their breathing gets uncomfortable and then we are going to back and back down. And again, if it is a newer class or a newer group of riders, you know you have to gauge your own class and their fitness level, maybe start out with some 30-second efforts, you can call them surges; you can call them accelerations.

You know ... whatever words resonates with your class or whatever word resonates with you. And then, give them a one for one recovery, so, if you are going to push them for 30 seconds, just like standard interval training, you want to give them 30 seconds to allow the heart rate to come back down again before your hit them with another 30 seconds. And you can do these in sets of probably heading on the fitness level of your riders, three to five I even do an eight-minute aerobic development drill of 30-second efforts.

So, you know that can be very challenging, you know even though we are not breaking that second threshold, which maybe give it another definition comes at about 80% to 85% of someone's effort, perceived effort, you know that's still pretty challenging. And as you know John, I like to chart a lot of my classes and I come into my classes with these 11\*17 inch charts and I hang them up and sometimes, you know all my riders are conditioned. They walk and they go to the front room, they look at the chart, they kind of see what they are in for the day and they sit down.

And I remember early on before people got to know me really well, they'd look at the chart and I had these bars that went up that show you what intensity level we are going to get to in each drill and they saw that, the intensity only got up to about 80, just tickled over an 85%. And I could see some of them, they are like, man, this is going to be, it's not going to be a great workout. And of course by the end of the workout, they realize that it was but you know my comment to them was we always associate those workouts that are you know super killer as being the best.

What I told them is, the difference between an aerobic base building workout and maybe other interval training is that, there is very little recovery throughout the entire class, because we are trying to keep the heart rate up, we are trying to stress the aerobic system. So, the question I always post to my riders is, if you think this is an easy workout, go out and get a heart rate monitor and ride it at what you believe is 80% of your ability for an hour and then let me know how it went. And of course, you know you always get a couple of chuckles and they realize that the difficulty of the class is not the intensity level but the duration of time at the intensity.

So, it's great way to win your riders over, you do a few classes like that and they start getting the concept of endurance training and that it's not the wimpy workouts. So, as you progress on, you can set up a whole class of different drills like this, you can have them a seated drills where they accelerate for that 30 to 90 seconds and then give them that recovery time. You can have them come up out of the saddle, the one note is if you are going to have riders come up out of the saddle, you want to make sure they don't sow their legs down.

One of the things that we tend to do as humans, because we don't like the feelings is if we stand and our legs are going faster, we don't like it, it actually stresses our aerobic system and makes us feel uncomfortable in our breathing and what we do, we slow our legs down. So, that's one of the challenges is to, if we are going to come up out at a saddle, to do an acceleration or some type of a surge to raise the heart rate, we want to make sure, we are going to keep that leg speed consistent and again, right around 80 RPM depending on the skill level of your rider.

Of course, the challenge with this is also a lot of mis-definition of sprints, anytime someone comes up at a saddle with a faster in the 60 to 70 RPM leg speed, people think, oh, we are doing sprints, like now we are just holding a nice steady tempo out at a saddle. So, you know there is a couple of things you are going to have to just kind of keep an eye on with your riders in class and make sure they are not falling into old habits and pushing really hard and straining, but they are really keeping it in that aerobic zone.

Now, when we progress from there, the other aspect is aerobic endurance, now, we are not going to be doing the same level of aerobic endurance as we would do outdoors where out of those 90-minute sort of adventure rides. But there is a very valuable training in being able to hold a, what we call a steady effort for two plus minutes. And a lot of riders have a hard time with this, particularly, since we are actually trying to put some decent aerobic stress and I use the word stress as a good word, you know stress and adaptation on the rider.

And you know, this is why we build with the smaller efforts first and then work our way to the longer efforts. Holding a two to six-minute effort at about 85% to 80% of your ability with a faster leg speed of 80 RPM, you know I usually try not to go faster to 100 RPM because we do like to come up out of the saddle. And coming up out of the saddle with leg speeds above 90, 95, that is really challenging for people. But if you can hold a steady effort, that is a very tough, however long you want to do it, two to six minutes.

And people really start to see that this is -- even though I am working at 80% of my ability this is really, really tough, my breathing has been challenged for the entire time and they are going to need a lot more recovery. Now, I am probably not going to give someone who just does a four-minute effort, four minutes of recovery, we usually go to a two to one, model on this. So, if it's four minutes, I am going to give them two minutes to recover and this is a great way to find out if people are working are not, I have done this in a number of my classes, I call up my two-minute witness test for recovery.

And what happens is you'll push somebody for four to six minutes and then you'll say, okay we are going to recover for two minutes and then you ask them, if you are able to recover under a minute after that drill, you most likely were not working hard enough. And it helps people understand that sometimes particularly in the early season when we don't quite have our

fitness, there is this little battle going on between our brain and our body. And our brain is saying, no, no, no that's way too hard, I don't like this, and it starts to back things down and our body is saying, no, I think we can go a little harder.

So, I told them, this is a way of getting the two to come to an agreement. If you didn't need more than a minute to recover, let's work the effort a little harder, let's see if we can reprogram the brain a little bit to persevere and of course if that took you longer than two minutes to recover, you are probably overshoot it a little bit. So, it gives people something to work with during class, after each effort, you can even time the recovery for them to give them something to do. And it serves a lot of good purpose it inserts the recovery properly and it also gives instructors something to do during the recovery, because a lot of instructors avoid doing any recovery at all, it's sort of an uncomfortable time.

But, here is something that you can do pass your time while you are helping people recover. And as I said earlier, you can, the reason I think we were deciding to do this as a hybrid is because I personally tend to break my classes up, I'll do a full day on aerobic development and I'll do a full class on aerobic endurance. But I want instructors to know that they can mix these up, they can do a couple of aerobic endurance drills, they can do some aerobic development drills all in the same class.

Of course, you just want to make sure that your class can handle it and then that you give them adequate recovery. So, one last thought on the aerobic endurance piece is sometimes it can be a little challenging even mentally to sit in a saddle for, you know particularly the longer efforts when you are pushing for four to six minutes and you are trying to keep that steady effort. I mean, riders are going to be learning, you know what that steady effort is like, some of them might, you know overshoot their ability and get themselves in trouble, but it's a learning experience and as instructors, we want to encourage that.

One thing we can do which makes it very interesting for particularly outdoor riders and breaks up the monotony of a steady state effort for indoor riders, is I like to get my riders come up out of the saddle sometimes just for 10 seconds, the 15 seconds each minute. And you can paint the lot of visuals, I tend to be more of a visual instructor, I always have something in mind that I am visualizing when I am asking to do something as opposed to just come up out of the saddle. But frequently in Minnekhada Woods in New England, a lot of the roads are rolling, you know we don't have a whole lot of flat stretches, so, it's very uncommon to ride for very long time and not have any undulations.

So, what I'll usually give us a visual to say, look, we are going to be doing a steady state effort for let's say six minutes a nice long one, but every minute we are going to come up out at a saddle for about 10, 15 seconds. And we are just going to imagine it, it's just a small little hill, nothing of any consequence, but we are trying to stay aerobic, so we don't want to lose our speed and we don't want to lose our momentum. So, as we feel that hill come on, we are just going to come up out at a saddle, we are going to keep our cadence the same, we are going to roll over that hill. As soon the hill flattens out again, we are going to go back down on the saddle as if nothing ever happened, right back on target with our cadence.

And it's a really good way to have some fun with that, sometimes I've done in increasing measures, you know the first small rolling hill was 10 seconds, the second one is 15, the third

is 20 seconds, I usually won't go beyond that. Because people tend to explode to the higher heart rates when they are standing for a long period of time at the faster leg speeds. But a little caution just out there for us instructors is to make sure that our riders have enough resistance, because sometimes when they are on a steady flat road and they are asked to do a higher cadence, then they are used to holding, which you know, for a lot of beginners, 80 RPM is a fast cadence.

You know it was humbling to me when I first got coached a number of years ago and probably 20 years ago, my average cadence and you guys can all laugh, I can't hear you, but just go right ahead was 60 RPM and my coach at the time was a PRO rider told that I needed to change. And I am happy to report that today my cadence is between 90 and 100 RPM, but that's 20 years of work, so two things there, one is it's very tough and two it takes time so, be patient.

Put just a little caution to make sure that riders have enough resistance, one of the cues I give my class before we do an aerobic endurance effort is as you are adding that road on that you are going to hold for this length of time, I want you to have enough resistance so that you can stand. And I'll even have them check it, so you know we are kind of getting rolling here, go ahead and check your resistance once you know you can stand, that's probably a good base amount of workload to have on the bike.

And if you are going to join us out at a saddle which again you got to give people options, some of them might not feel comfortable standing particularly at that RPM that we should know that they have adequate resistance on the bike and they are not going to put themselves at risk. So, you know, two very simple aspects of aerobic conditioning, the aerobic development and the aerobic endurance, but I think they make with very some nice and dynamic early season training for us indoor cycling instructors.

**John Macgowan:** Perfect, now something very special is going to occur a week from now, so if you are hearing this, it's going to be published approximately the 9<sup>th</sup> of January. And for ICI/PRO members, you have something very special in store for them on Saturday 15<sup>th</sup>, tell us about that.

**Tom Scotto:** Absolutely, we have our winter training program and obviously, there is a number of great aspects for this, for many reasons. One is, lot of us that are indoor cycling instructors are also cyclists in our real life and we want to get in shape and we want to get training. But, what is great on top of us getting sort of physically trained ourselves is we get to see a lot of this aerobic base building and even the other aspects that I talked about early on the leg speed and pedal technique and the muscle endurance, we get to see this unfold.

Myself, Jean and a number of other fitness professionals will be teaching 12 weeks of training and each of the days is quite significant, it's a four-hour session every Saturday and it includes an hour of sort of lesson time, lecture time on the training concept. We are going to be using that day, as well as about two hours of riding and each one concludes with an hour of some type of mind body modality, whether is Pilates yoga or stretching or muscle release or something of that nature.

**John Macgowan:** And this will be simulcast live for people to actually sit at home or train at home and watch.

**Tom Scotto:** Yeah, absolutely, I mean, this is our development year with cycling fusion, of course, next year we have our winter training, we'll hope to have more physical locations that people can actually go and attend it live. But, yeah as you said, we'll have a simulcast option where people would be able to join in live and will be even able to chat with whoever the coach is. I'll be coaching a number of them and you can pretty much communicate with me in real time if you have questions about what's going on or maybe something that was said or a drill being done etcetera.

We also have another option where it's being held on Saturdays from a 11:00 to 3:00 which is Eastern Standard Time, you know we did a little later in the morning to accommodate our West Coast group, but if you can't make that time. And you know there is all kinds of things that come up at lot of our racers ski, so, some of the weekends are all tough, you can also go and get an on demand and watch it after the fact, you can also go on demand and review it. So, if you had a workout and you wanted to review it or concept, so, lot of great options for both the cycling enthusiast but also the instructor that wants to learn how to teach this type of training and also the training concepts that you need to know.

**John Macgowan:** Perfect, well, I am going to be sending out a link for all of our members to be able to participate in the first Saturday training on January 15<sup>th</sup> and you will be receiving that on Monday 10<sup>th</sup> and there will be sign up information for that. And you can join part of it or all of it just depending on their schedules, right?

**Tom Scotto:** Yeah, that's correct.

**John Macgowan:** All right, well Tom Scotto and I want to say Stage Five Cycling, but I am not, I am going to say Cycling Fusion.

**Tom Scotto:** There you go.

**John Macgowan:** Thank you for joining us.

**Tom Scotto:** John, thank you very much.