KERRY: All right. Tonight we have Marc Becker. Marc Becker founded Ironguides in 1999 with the aim of making simple, effective training methods available to accomplished and new triathletes. Marc has nearly 25 years of first-hand experience in working with some of the best coaches in the world during that time. The foundations of the method are Ironguides unique, highly-effective training approach. Marc has been a certified triathlon Canadian coach since 1992 and coaches Ironguides for clients and running the business behind the scenes. Marc has tons and tons of triathlon experience and he's also a very accomplished athlete. With that I welcome Marc Becker to the call. How are you doing Marc?

MARC: Hey, pretty good. Thanks, Kerry, for that. Thanks for having me on the Triathlon Summit. It's great that you're putting this together for folks.

KERRY: I'm very happy to have you on. I'm sure a lot of other people are too. Let's start off with the first question. Can you tell us a little bit about yourself and about Ironguides?

MARC: Yeah, sure. Ironguides was founded, as you said, in the late 90s, 1998, in Calgary, Canada, where I'm from originally. I live in Europe now. I've been taking part in triathlon as an athlete and as a coach since the late 80s. I started in 1987. I got into it like most people, dabbled a little bit at the age-group level. Started with a sprint and worked up, by the end of the first season, to Ironman. Little by little I just kind of got hooked. A few years later I ended up making the Canadian team and ended up at the World Championships on the podium with some of the other elite team members after we won the 1992 World Championships. That was sort of a very early highlight in my triathlon career.

From there I was a sub150 Olympic-distance non-drafting athlete. So four hours for the Half-Ironman and did a 9:03 in Kona one year. That is sort of the summary of my participation in the sport. I did the sport for about 15 years full-on until I retired in 2003 and focused more on the coaching side of it. I was an athlete and a coach for a while.

In 2006 I retired from working at other jobs and decided to give it a go at Ironguides as a fulltime coach. Since then I've been focusing on building up the business and really servicing our premium clients while coaching coaches and certifying them in how I perceive triathlon training to be applied. That's sort of the background on how Ironguides evolved over the last 10 or 11 years.

We have about 13 coaches now in different locations around the world. We run training squads from their locations. They invite people to come

and train with them, not just online. We have a huge group of almost 40 athletes from San Diego, for example. There's some just starting up in Edmonton in Canada. We've got people we're talking to in Scotland actually, in Attenborough. There's someone in Germany starting up. There's somebody new I Australia. Somebody in Bangkok. One in Rio de Janiero. And a bunch of people starting up all across the states right now.

Everybody shares one thing and that is they apply the method, which is what I call our approach to training. They do this online and face-to-face with people. That's roughly the short history version of Ironguides.

KERRY: Awesome, good deal. You guys are spreading out, for sure. So, you've done a lot of work with Bret Sutton. Can you tell us a little bit about that and tell us about the involvement you have with team TBB?

MARC: Yeah, team TBB. Sure. I met Bret back around 2002 or so. I basically got a hold of him, I'd met him once before in the 90s at a race in Ontario. I got a hold of him because I was coaching somebody and I wanted just a little bit more information about what might be optimal for them. I'd heard of him here and there and wasn't quite sure how to get a hold of him for my own training. So I never got coached by Bret. But after 2002 he and I started up a running dialogue that was basically email correspondence every day for say a good five years solid. I just basically learned an entirely new perspective on what triathlon training could be.

Back in Canada where I'd learned to be a triathlete and where triathlon coaching was sort of first introduced to me. I'd come across the basic mode of triathlon coaching that we know in North America, that is zone training, power-based training. It had become sort of a generic form of coaching people. The more I talked to Bret the more I learned that what he did really had nothing at all in common with what we were learning in North America at the time.

So starting in 2002 I started asking him a lot of questions and he started giving me a lot of answers. I started learning what I'd been doing wrong as an athlete and why I was experiencing certain failures or disappointments in my training despite really putting out massive hours and taking the sport to a fairly high level. I won a couple of Canadian Half-Ironman championships. I came off the bike at 13th place in Kona one year and just had an abysmal run and ended up 44th, despite putting in 35-40 hour training weeks all summer long and having some really solid sub-3 hour marathon results in training, big volume weights and so on. I was kind of confused. Why was I training so hard and why was it going nowhere when it came down to it? Why was I so tired all the time? Why did I feel like a broken wreck at the end of the season?

About a year or two after these experiences I met Bret and we started sharing information. In the end about four or five years later through a friend of mine in Singapore I learned of a guy who was starting up a new bike shop in Singapore and spoke to him briefly. I realized that he was looking for somebody to help him promote the bike store in a new way in Asia and also to promote the sport triathlon and cycling in Asia. Everything he described really sounded like what Bret had already done in Brazil. So I put the two of them together and Alec and Bret started up Team TBB and launched their squad through training in Asia and promoting the sport there and trying to replicate what Bret had done in Brazil. I don't know if people are familiar but Bret really developed a lot of Brazil's top athletes from a background where there was very little exposure to top-end knowledge.

To make a long story short, the experience I had in North America as an athlete was very, very different and came from a completely different view on triathlon than what I learned from Bret as a coach. What Bret really taught me was really the other side of the coin. In North America we tend to be very, very focused on aerobic conditioning, for better or worse. He tends to be very, very focused on skills acquisition. I like to call it programming the red meat computer.

One analogy we use at Iron guides a lot in our training of athletes is the phrase "wax on, wax off" from "The Karate Kid." A lot of what Bret has done with athletes is applied as wax on, wax off kind of perspective on training and teach motor skills. He's done that with young, driven athletes who go on to be world champions, which are really the most open to this approach. I watched from afar and listened over the years to how he trained people and how different it was. Gradually over time I started recognizing the pattern and recognizing the language of the body and how his training principles were received by the body and how that correlated to the mistakes I made and the different approach in thinking about triathlon training that we have in North America through zone-based and power-based training.

So my involvement at Team TBB evolved after Bret and Alec got together. They were looking for somebody to apply a similar coaching approach to age-group athletes. I got onboard and I worked for a brief time with Team TBB to deliver age-group coaching and training advice. Over time I realized working with them that age-group athletes and professional triathletes have extremely different needs, not just different needs but very, very different needs. So what I learned was that what worked very well for elite athletes in one context didn't really work so well for age-group athletes. I wasn't really trying to apply so much what Bret was doing with pros to age-groups. I really had my own ideas. In the end I decided it was probably better that I was going to apply my ideas. I did

that on my foundation. So that's why Ironguides is no longer with Team TBB. But they're doing well in their thing and we wish them well in their thing and we're doing well with ours. And we've made a few changes to our approach.

KERRY: Good deal. All right. So you've been talking a lot about the method. Why don't you tell us what the method is and how it's different from most triathlon training out there that you're talking about there, with zones and things.

MARC: Sure, yeah. The method is not a formulaic approach to training. We can't say to an athlete, "Well, here's your heart rate," or "Here's your lactate threshold," or "Here's your critical power output." The method is more a set of principles and guidelines and perspectives on triathlon training that Ironguides coaches use to train their athletes. I've collected this into an approach that takes a long time to learn. What we're actually working against is a set of conditioned ideas that we have acquired, especially in North America. A little in the UK as well and maybe in Germany and Australia also. But in those places where the Internet has really taken hold along with that, in parallel, there's been this approach to triathlon training that has taken hold. I've really come to see and witness that it's not necessarily the most effective way to train.

The method teaches rather than thinking about training as a way to get aerobically fitter, we say training is a way to acquire skills and strength, power and get aerobically fit anyway. We really de-emphasize the focus on getting aerobically fit. Our perspective is that a properly-structured training plan, for triathlon or any sport really, you're going to get aerobically fit regardless, as long as you focus on sport-specific skills and you do the appropriate volume and duration that your races demand.

We take the view that skills, strength and speed are very neglected in triathlon training. We look at building a mix of triathlon training sessions during the week that focus on developing skills, strength, speed, also tolerance, what some people call anaerobic threshold training, which is a loose term these days, or lactate threshold training, which is also a loose term, and endurance. Just call the former tolerance. By balancing training across these five systems - skills, strength, speed, tolerance, threshold and endurance - we enable athletes to train very consistently without getting overwhelmed by fatigue like I experienced in my training.

So we apply this approach to training, balanced across the five systems, to a principle of repetition. We really believe that athletes need to have a repeatable plan, something that they do over and over and over again. Within that plan the sessions rely a lot on repetition, not just in swimming. We're all familiar with swim-training based on interval training. But we

also apply this to cycling, to a lesser degree to running as well, where we have an approach that's based on repetition of certain sessions.

The next emphasis that we include in the method is that training is structured so that recovery is optimized. You're only as good in your training as you are recovered from the previous session. So we look at the training as, "How can I train most effectively today based on what I did yesterday without compromising what I need to do tomorrow?" To get a better understanding of what that question really entails, we look at training for triathlon as largely a catabolic profit. That is, triathlon training strips the body down. If you look at a top pro, for example, you can see they are reduced to the bare necessitates to get the job of triathlon done with the maximum ability possible. That sounds a little complicated but it's not. What I'm basically saying is that triathlon training strips the body down and we need to figure out how to build the body up as quickly as possible. So that I'm not so tired the next day from this breaking-down process.

So by breaking up our sessions into these five systems, a coach at Ironguides is always looking out for, "What happened to the body yesterday? How did the body get broken down? What was the catabolic effect on the body? Were we breaking muscles down? Were we really working the fast-twitch muscles? Were we working slow-twitch muscles? Were we really taxing the aerobic system? How were we taxing it? Were we taxing it in a tolerance way or an endurance way? If it's taxed what can the guy do, or the woman do, that can still train them hard without further taxing the aerobic system? Or, if the muscles are really tired today from what we did yesterday, how can we still work the body hard without taxing those muscles more? So we look at it in terms of five systems and not just three sports. We don't just say, "Easy day followed by a hard day," and rotate around that way. In fact, if you structure training appropriately, you can have a training plan that works you hard every day. You're going to feel recovered the next day because this training is so focused on one particular aspect or system and it is so thought-out that the next day's session doesn't tax you in the same way the previous session of the same day did.

So by looking at this catabolic process we can almost start looking at the body as in equilibrium between anabolic and catabolic hormones in your body. I spoke earlier about the language of the body. The language of the body is really transferred through hormones in the body, a catabolic process on the body, a stripping down of the body, in response to the training stimulus is communicated through the body, throughout the body, by hormones. We know about things like cortisol, testosterone. We know how these hormones balance out in the system or respond to the stimulus on it.

There was a study done in 1995, I'm sorry I don't remember the writers of the study, the researchers, but basically they showed that the only really reliable marker of overtraining or overreaching, as we refer to it as well, is the ratio of cortisol to testosterone in the human body. As we immerse ourselves in a more catabolic environment from training, the cortisol levels in our body increase and testosterone decreases, number one. If you really, really train hard, you can reduce your testosterone levels so much that as a male you start shaving less often, for example. Less testosterone means you break your body down, the muscles break down. You're not building muscle mass as quickly or as readily. You might put on fat a little more easily and so on. There's all kinds of ways of measuring this or feeling it in the human body.

So without going to extremes that you're training that hard as I did and many athletes in this sport have, where you are actually interfering with normal hormone levels, without going to that extent you can still look at your training from that angle. Say, "Okay, hard training in this way reduces testosterone, increases cortisol." That's also a stress response in the body. You can take a guy and expose him to highly emotionally stressful or mentally stressful events and get the same effect. So we start looking at the human body now as how the athletes stress levels, from an emotional and mental standpoint, or sleep deprivation or diet, how does that combine with their training? All those things, those five ways of stressing the human body, all have influences on the same hormonal ratios in the body. That's a really key component of not necessarily building training times but thinking about building them.

Where we differ, where we zone one, zone two, zone three, the only stress is really doing a lot of zone one or really working hard in zone four and I just have to worry about not getting my heart rate up or down. We don't say that at all. In fact we say a lot of zone one work can be deadly on your health and performance as an athlete. You're going to be exposing yourself to very high volume of consistent training without stimulating other systems in your body that might actually improve recovery from that one-note charley kind of approach.

From that balance across these five systems and thinking of it as anabolic or catabolic stimulus on the body, is how we build our approach to training. We ignore power output, except as maybe a reference by an athlete. We know through repetition you've got a benchmark every week. That's another principle. We know through his feedback to us, based on intuitive understanding, because he's repeating the training a lot, he's going to get more and more familiar with the same sessions every week. He's going to understand how stress, how sleep deprivation, how changing diet, how extra rest, influences his training. He'll develop a better feel for

how the training affects him and how his life affects the training. These are all principles of the method. I can't say there's a formula to it.

KERRY: All right, good stuff. What does the method say about periodization and why do you generally not prescribe days off to your athletes?

MARC: Good question. It's very common in triathlon these days to think about periodization using the standard base-building, pre-season, competitive season, recovery, approach. We don't take that view on things. We think about athletes in the age-group spectrum, of having really one main enemy, especially once you're into your 30s and especially after 40, you lose motor skills very, very quickly. You lose strength quite quickly. So we like to keep all these five systems firing constantly throughout the year, with appropriate rest. We're not going to tell somebody to go out for a hard workout the day after Ironman or the week after. What we really focus on is insuring that all five systems are constantly stimulated. Rather than having a long, two-month base building with lots of easy training and so on, we would say, "Okay, you're going to reduce the volume in the winter. You're going to focus on skills acquisition and we're going to make sure you're not training at such a high volume that you're actually building a lot of fatigue. We're just going to work on getting your motor skills up, rebuilding strength from the season and actually working on speed and not long distance."

We've all heard about polarization and all these things. We don't pay attention to that component because there are other factors that come into training that make a much bigger impact. Age-group athletes, especially after the age of 40, lose motor skills quite quickly, especially in the pool. Anything you haven't done a lot in your life, by the time you're 40 and you try to learn it, these new skills are difficult to acquire. You have to practice them frequently. We'd rather have people frequently swimming than doing a lot of work on the bike or a lot of work on long, slow runs.

Like I said earlier, we get the aerobic conditioning anyway. We focus on building up these skills and building a really strong, reasonably skilled athlete. The other reason we do that is that what we've found is that the more volume people do, the more tired they tend to be. The more tired they are the less hard they can actually train in training. The less hard they can train the less they develop power and strength and the less they can focus on reasonable form or technique in all three sports. So yeah, there's some aerobic development benefit, but we have a mechanism, a body and mind, that can't really apply the benefits of this big engine that they're building. We say, "Let's not worry so much about the engine. We're going to get the engine anyway. Let's train in a structured way that really focus on these other systems."

Periodization is less of a concept that we worry about compared to zone training, for example.

KERRY: Right. Okay. Why don't you tell me a little bit about what you mean when you talk about training structure and how it can help recovery.

MARC: Okay, sure. I guess in a nutshell the method probably answers one question. It's, "How do I optimally combine the acquisition of sports-specific skills with maximal aerobic conditioning?" So the greatest fatigue your body can experience, from our view, is when you're training for aerobic gain. If you're thinking exclusively about getting aerobically fitter, we say, endurance training and high-end, sustained, aerobic training is the main enemy of the body. That's what is going to tax you most. That's what's going to create the greatest catabolic response and wipe you out.

You hear about people always training like they're racing and they get wiped out or plateau very early in the season, or it's not even the season yet. They're also called the Kings of January in cycling. They're training really hard when they've recovered in December and in January they're flying. Come April when the first race of the season hits, they're no where. They've just blown themselves up. So this kind of high-end, intense training and the deep fatigue you get from long aerobic training - seven-hour bike rides, three-hour runs and so on - we cannot focus on that kind of training.

We have a few ways of making sure athletes don't go into this overload, highly catabolic state from high-end or long aerobic training. One I've already mentioned. That is, we train one system while the others rest. That is part of an optimally-built training plan. It should not stress systems that are stressed from training earlier that day or from the day before. We also build in insurance to each training session that does require the athlete to work hard and intense for longer periods.

So for example, we have a standard run set. It's a negative-split run set. It depends on the ability of the athlete. We build them up over time to roughly 20 minutes moderate, 20 minutes reasonably uncomfortable, but not all out, and then 20 minutes of roughly 10K pace. If you think about that session, if properly warmed up for over 40 minutes, you've done a little bit of work before the session starts, by the time they get to their 10K effort. We know that 10K race pace is basically an effort that somebody can do for 10K. That's the definition, right? So if we're doing 20 minutes of that, after you've already been working for 40 minutes, you're starting when you're quite tired already. There's no way you can hold it for 40 minutes. Your body is tired from running 40 minutes already. You do 20 minutes of 10K you don't really have much left over at the end of that session. But, you also haven't raced a 10K. Your body has not perceived

10 kilometers of 10K race effort. So you haven't actually taxed your body like a 10K race at all. You've built an insurance by fatiguing the body before you actually began that level of effort.

So we do that kind of stuff throughout a weekly session. Somebody might have a four-hour ride or a six-hour ride, depending on where they are in the year and what they're training for, what level they're at and we'll say, "Okay, the final hour of your six-hour ride, go as hard as you want." We know there's no way the person can hurt themselves or go over the top. A lot of people out there doing zone-training or other power-based sessions might say, "Well, they're so tired from five hours of riding already, that's going to put them over the top and destroy their week." Well, the opposite is true. There's no way they can go hard enough after riding five hours to really risk destroying themselves. Remember, aerobic effort is where you've got to really watch about destroying the body. Muscles recover a lot faster than the aerobic system. People who get over-trained or who go really flat training, overreach, that tends to take place because of too much high-end aerobic work and too much volume or too much endurance.

That's a couple of examples of how the right mix can be built into a plan. Work one system while the other is resting. As long as we remember that muscles are going to be giving out from one kind of effort before the aerobic system will, we can use that knowledge that the muscles are tired and have somebody work really hard with tired muscles, knowing that they're not going to stress their aerobic system as much as they could if they were fresh. We use that understanding throughout our training.

KERRY: Great. Let's talk a little bit about training volume then. I'm assuming that you guys don't do a ton of volume. How do you decide the best volume and training frequency for an athlete?

MARC: Good question. We really treat everybody as different. We don't just look at their age and say, "Here's your zones." If I were to take an athlete as a zone-based coach and say, "What's your age?" Subtract it from 220 or 225, or have them run a max heart rate, subtract the heart rate we derive there, subtract their basal resting rate and come up with the range of heart rate beats they can work with, if you do that logic dictates that between 20 and 80, 60 years of age there, you've got roughly 60 different heart rate zones or structures of zones to work with. That's not the way the human body works. We're not 60 different kinds of people just because we're 60 different ages. You follow what I'm saying?

We go a little bit beyond that. We say, "Well, first of all, we've got to know your time available. We've got to know your life commitment. What stress and responsibilities do you have in your life? Where is your time going? Your age matters a lot but from a motor-skills perspective.

What's your gender." A muscular male, for example, can't train nearly as hard, in terms of intensity, as somebody that's not quite as muscular, as a lean, very wiry athlete, because he's got so much muscle mass when he's training hard he's doing a lot more damage to his body. So an athlete like that, we have to take them and train them a lot more moderately. He might be better off doing a bit more volume rather than speed work. He's going to be really destroyed by a lot of tolerance or threshold work. We look at their past experience. We look at their skills, where are you at right now in each sport. And we look at their goals and say, "What's attainable given all this?" Then we decide on volume and training frequency.

By and large volume is less than with most other training protocols. Frequency is probably higher. So they train more often, but less volume. Day to day people are more recovered. We don't assign 'off' days yet we find people are feeling more rested and they recover faster from races without actually having built-in recovery in their training. The reason for that is that, when I referred earlier to hormonal levels in the body, we like to think of keeping a nice even keel, always having a stable equilibrium in the body. So when you're in training-mode we want to keep you in training-mode. We don't want you resting every week for a day. What happens is the muscles bind up, you lose mobility, your hormone balances change. You get a little recovery, because the muscles are actually recovering, of course. But if the training plan is structured, they could be recovering in a completely different way while you're working another system.

What we've found is that people can train six weeks, four weeks, eight weeks. We have a 75 year old guy in California training eight weeks straight without a day off. A lot of this feedback tells us what we've long suspected, motor skills really, really matter. Even if you're not improving to the point of being perfect, that doesn't matter. Your body is getting used to a certain motion and it becomes easier and easier to do it. That analogy - wax on, wax off, the Karate Kid got out there in the tournament and all that sanding of the deck, the polishing of the car that he'd done, it all came out in these motions that were just second nature. A piano player, same thing. The same principles are at work.

In triathlon we neglect that. We think it's all about lungs and heart. Those are important, but if you have a really efficient machine that knows by second nature how to move, that engine is going to be way more effective, or you can do a lot more with a smaller engine.

KERRY: Right, okay. You don't really rely on power meters and heart rate monitors or lactic testing. Why is that?

MARC: Great question. It sounds a bit old-school because we poke fun at these

things. But let me say clearly that all these tools are great tools, if they're used appropriately. They can be very effective. Start from the identity of your typical triathlete. Most triathletes already have a lot of commitments elsewhere. Your age-group triathletes have family and jobs, they don't have much time leftover. So for one, we would prefer that our athletes are either spending time with family or doing other things they like doing instead of crunching data, or they're training. That's one reason we don't introduce data-based training tools. We use other tools but not ones that generate data like this.

Another reason is that triathletes tend to be a little bit type A, as a rule, in their personality. If we're always feeding a certain personality type something they're already good at, it's not going to work its weakness. There's people who are very good at focusing on quantitative analysis and details in our sport. There's many of them. But, there also can be people who aren't very focused when it comes to pain and can't manage pain tolerance because they're so fixated on the data. So what happens is often data will come across and rather than confirming and increasing their motivation, they'll say, "I'm not hitting my numbers." And boom, the world falls apart and the rug is pulled out from under their feet. They're actually getting negative feedback from these tools. That's not everybody, but it does happen to some people. So that's another reason not to use it.

Thirdly, most importantly, they don't tell us anything we need to know. That's the main reason. If your training plan is structured appropriately for somebody at that fitness level and gender and all the other factors I mentioned, the training plan itself will take care of generating the fitness in each of the systems and get you the results. We have people going an hour, hour and a half faster after just three or four months coaching, on an Ironman that they'd done the year before, simply because we are asking them to focus their mind on training aspects of their body they haven't trained before. They're not just thinking about making a zone and holding it there. It really is about thinking about what I'm doing.

Not using power meters, heart rate monitors or lactic testing, which isn't done very much anyway, not using those things works best if you have a repeating training plan. So by repeating training plan I mean we set up our plan for seven days. So people work the same Monday session every Monday, for four to six weeks, maybe eight weeks, sometimes longer depending on how much interruption they've had, sometimes less. But by and large they get a repeated plan that they build into and then they repeat those weeks.

What happens is that they're tuning out a lot of noise out there. There's less distraction. Rather than focusing on heart rate or power, what they end up doing is focusing on form more. Or they'll see, as I mentioned earlier,

how change of diet or lack of sleep or more stress at work, how that affects training. “It affects my training like this. I had a great session anyway, even though I felt like hell. But okay, it was what I ate. Or maybe it was my sleep.” So people learn they can work through these feelings of discomfort and still achieve Prs in training or out in racing, without needing to resort to an external reference point like power or heart rate. It becomes much clearer, what’s actually going on in the body because they’re listening to the body. We’ve shifted their focus.

It’s a very good question and it’s a very important part of how we coach people. We really want people to get back to the sincerity of what the sport was about, through this spirit of exploration, really internal exploration almost. Have a feel for the thrill and the spirit of triathlon and not be slave to the numbers.

KERRY: All right. Despite not using a lot of quantitative tools, you do make use of a large variety of equipment in your coaching, such as paddles for swimming, buoys for swimming as well, spin bikes for cycling, treadmills for running, and even a metronome. Can you explain how you use these? And why, too?

MARC: Sure. Yeah, of course. That’s a good question. People wonder if we’re all about the spirit of triathlon and just going out and doing it, why am I not out in the woods running and why am I on the treadmill? And why am I not on my bike outside and I’m on a spin bike instead. It comes down to a choice, for one. Do you want to make the maximum use of your time and really strive for those performances? Then we use these tools because they enable us to achieve certain things we can’t do without them.

So paddles and pull buoys for example. If you’re applying paddles to a swimmer, one thing you do is tire his muscles out. Remember what I said earlier about building insurance into your training session. If you tire someone’s muscles out, once the muscles are tired, you can quite faithfully have them train at all out effort without risking that they’re going to destroy their aerobic system from that effort. The reason for that is they can’t push to maximum because they’re muscles are too tired to push them there. So in swimming we’ll tire people out using paddles. We’ll throw a pull buoy on because, in triathlons, which you know as well as a coach, most people’s weakness is their swim. They’re not very skilled at the swim because it’s a very technique-laden sport to learn and they’re starting late in life. The new motor patterns are very difficult to acquire. We put a pull buoy on them to get their body higher in the water without struggle. Right away they can focus on aspects of their swimming that are much more important in a race than having the perfect kick. You’re going to wear a wetsuit anyway, nine times out of ten. The pull buoy lets their mind not worry about struggling in the water and plowing through it.

They're going to be in a horizontal position automatically. Their stroke is going to be improved from that and they don't have to worry about the 100 things their body is screaming at them when they're trying to breathe and their legs are sinking to the bottom of the pool.

The right shape of paddle can make a big difference. The right choice in paddles for swimmers can teach them better stroke simply from how it forces the arm through the water. A really flat, wide paddle will create automatically, a glide effect. So a person doesn't have to think about that. It's such a technically difficult sport to master and we can only really think about one or two things at once. On top of that, when you are learning a new skill, you need to focus on those one or two things for weeks if not months at a time, before it really gets picked up by the body and you can apply the next little bit of technique mastering to that swimmer. So we use these tools in the pool to help people learn proper technique a little quicker.

We use spin bikes so that people can harness strength a little bit more and really work against super-high resistance at such levels that you just can't get on a road bike. Even on the steepest hill what happens is that you really compromise technique and position if you're climbing a 20 percent grade. And there's still always a little forward momentum. There's a little dead spot in the pedal stroke that you can get rid of on a spin bike and you can really focus.

We use a treadmill because treadmills let you run at a faster speed at a given aerobic load, than you could do on land. A slight, very slight, one or two percent decline, downhill on land, or a strong tailwind, has the same effect. The good thing about that is we're training motor skills at a high speed. We're training those while we have some assistance in dealing with the aerobic load. The treadmill does a little bit of the work for us. It carries our foot backwards. So it's a great way to do the wax on, wax off thing for running. So there's a rough idea of the tools we use.

KERRY: All right. Let's talk about running a little bit. You emphasize running with a stride rate of 96. Why 96 and how did you come up with this exact number? Is there any science to it?

MARC: Sure. Good question. We break it up into 96 strides per minute as a goal, as a target. It's about training for something. We're not saying running at 96 is optimal. Different body types will ease into different stride rates. But 96 is just a simple number to use when you are running because it divides easily into so many things, so many numbers divide easily into it. You can easily track over 15 seconds, 20 seconds, 30 seconds, 12 seconds, 8 seconds or 6 seconds, how many strides you're running and understand how much that is per minute. Six divides into 96 16 times, so I can

multiply by 10 into a minute. I can get my 9.6 stride rate immediately dialed down.

The point here to understand here is that if 96 is a goal, it's not what you need to race at. By repeating the training over and over, always remembering, "I'm striving for a fast stride rate, roughly around 96," I'm teaching my motor neurons to fire at that rate, over and over and over again until it becomes second nature. Or at least until it becomes second nature to think about it. In the longer races our legs are really tired and they cannot do the explosive contractions that you can running a fresh run race.

We want to break the workload down. It's important to understand cycling from this perspective as well. The workload a triathlete runner has to do comes on dead legs that cannot take as long a stride. If you think of the work as the 10K distance that you're moving your body through, you want to break that work up into more smaller, manageable pieces, rather than trying to do it in less, bigger pieces. It's like taking a big boulder that's sitting in the yard and trying to get it from one side of the yard to the other. You break it down with a pick axe into a whole bunch of little pieces and you use the wheelbarrow many times to take that boulder across the yard in pieces, over and over again, until the work is done, rather than struggling against this huge boulder that you can't shift. Running at a fast stride rate is particularly important for triathletes because of the tired legs that they're running on.

KERRY: All right. Good stuff. In terms of what you use what the method, it's an approach that's been used what a lot of Ironman triathletes at the elite level and they've gotten a lot of great results. Can this work for the average triathlete too? How can they benefit, if at all?

MARC: Oh yeah, absolutely. I've got a recent email here in front of me from a guy who was top three pro in Hawaii a few years ago. I think this gives a little bit of an illustration into how elites are using these ideas and how it applies, also, to beginner or intermediate athletes. We're definitely about the intermediate or beginner athlete and not the pro. We don't coach very many pros actually. It's all about making optimal use of very limited training time, not piling on 30-40 hours a week.

Here's what he said, "I'm in the middle of a big turnaround where I'm repairing and rebuilding my body after six years of too little rest, too much of the same training and as a consequence, several injuries that I am in the process of healing. I can only agree with you on the assumption that most Ironman athletes are doing too much of the same and training too long. Ironguides 20-week training plan has been good inspiration for the path I want to follow from here. Your ideas on recovery of hormonal changes

and motor skills especially. So my team and I will adopt your ideas in my training." The point here is, here's somebody at the cutting edge of triathlon knowledge and applying it, getting more and more tired, getting injured from doing too much of the same and too much volume. If as a beginning athlete we can avoid making those mistakes, we're already at least six years ahead of the curve.

If we want to get rid of this notion that, "I have to do a lot of volume training to do an Ironman effectively," we need to look for an alternative. I really think that that's what we provide. We're not sending people out, just building an aerobic engine. We're sending them out building a strong, mechanical infrastructure so that a little smaller engine is way more effective. We're not out there building V12s, we're building really effective V4s.

KERRY: Right. Good stuff. Can you use the method with short-course training and triathlons as well?

MARC: Oh yeah, absolutely. We train a lot with short-course athletes. We sell packaged and pre-built training plans on the Ironguides website that are tailored to sprint or Olympic distance. We get some really nice feedback from people too. We had a guy last year in Cyprus buy one of our Olympic training plans and he ended up going eight minutes faster. He went for 2:07 to 1:59 at the same race. He wrote us this nice email. It was great to hear because he said, "I credit it all to that structure of training because I didn't make any other changes. The same equipment, same race, same diet, same workload, same stress levels. Everything else was the same." He took eight minutes off and went from 2:07 to 1:59. He ended up winning the race when he was usually just back of the podium with his results.

So these principles apply. The point that's important to understand is that we're not setting out the formula "you have to do exactly this workout and that workout and this workout." What we're providing is a way of looking at triathlon and triathlon performance and applying a categorization of workload to the athlete. Saying, "You're going to be doing this so you need to do this and this and this, based on sleep, stress, diet, family, other commitments you have and the goals you want to achieve in your race." Whether that's a sprint or an Ironman, it doesn't really matter. Whether you're a beginning athlete or an elite-level pro, it also doesn't matter. We had a guy who did 8:41 in his races at Ironman distance a few years ago and then started training more and more and more and got slower and slower and slower. He came across one of our plans, did it for 12 weeks and went 8:28, after 3 years of going slower. I think that was Chris Dmitri. He was in WA last December.

It's this way of giving the body opportunity to rest by not stressing it all at once and not stressing it for months and months and months in volumes that are just not humanly sustainable. Give it a break and work it more consistent. I like to tell people that it's like a drip, drip, drip of Chinese water torture or a chip, chip, chip of a stone mason chipping away at a statue rather than big sledgehammer blows of training. We really are against things like epic camp [?] or massive over-volume training for Ironman. You don't need it. You recover a lot faster from the races if you don't do that, and you get better results in the long-term.

KERRY: Right on. So if you had one piece of advice to give to triathletes out there that would affect their performance, what would it be?

MARC: Ride through the rough spots. Everybody gets tired. Having a routine, a steady routine, a weekly routine that's predictable. And tune out the noise so that you can see where the rough spots, what's causing you to feel rough that day. If you have a constantly changing training plan, you're never sure if it's the training plan itself, if it's this new session or that new distance or that new training route that is causing this change in your fatigue level. Get used to having a routine. Make sure it's structure well and follow it. Then start becoming more aware of what's causing the fatigue. You'll probably start building better nutrition habits, better sleep habits, maybe take a load off at work a little bit. Ride through the rough spots and have a routine so that you can better gauge where these rough spots are.

KERRY: All right. Good stuff. You hear a lot of times people talking about the need to eat more carbs and they do carb loading before a race. What are your thoughts on diet during training, racing and recovery?

MARC: Yeah, sure.. Good question. We have a coach named Vinny Santana. He's our Bangkok-based coach. He used to be on Team TBB for a while. He's from Brazil originally. Vinny's got the distinction of being the fastest diabetic Ironman, so far. He went 8:50 in Brazil one year when he was 22 years old. What we've all learned from Vinny, which is really interesting, isn't really out there in the textbooks and manuals. Vinny had to learn himself how his diabetes could be managed while racing an Ironman. Like how do you inject insulin during an Ironman race without giving up time to the competition. He had to figure these things out. How much insulin? How about in a taper?

Some of the information he collected is on our blog at Ironguides and it applies to all athletes, not just diabetics. What diabetics have the benefit of, that we who don't have diabetes don't, is awareness. They see how training and diet and stress and lack of sleep and travel, how all these things immediately affect blood sugar levels.

One great example. Vinny came to the end of his work phase before Ironman Brazil one year. He had about an eight to ten day taper or so. From the end of heavy training, over the course of the next week and a half, the amount of insulin he had to inject into his body to deal with the carbs and food he was eating, was three times higher. So triple the amount by the end of the taper, he had to inject into his body than at the start of the taper.

Now that happens to a typical athlete as well except instead of a needle we have something called the pancreas that is injecting insulin into the body constantly. The way to interpret this information is that as your training volume comes down, your body is injecting more and more insulin into the system because you're so used to training… You know that glycogen window we have after training, that is when our body is receptive to soaking up carbs. We don't need insulin for that. Our body, through exercise, opens that window that insulin normally does. That's why the pancreas produces the insulin, to open the cells up, to soak up the nutrients that are in the bloodstream including sugar.

We hear cases of people who, for example, put on a lot of weight during the taper. I heard an anecdotal piece of evidence once that somebody put on 14 pounds during their taper. That's a lot. We have athletes that have done that before they come to us, put on ten pounds in a couple of weeks. They go through these cravings. That's just massive insulin flux happening in their body.

Our views on diet are to take into account your training and understand that as soon as you reduce training you're going to get these cravings. You can reduce those cravings by avoiding increasing insulin through the intake of carbs. So we're saying stay clear of heavy carbo loading during your taper. Eat more protein. Avoid the starches. You're not training as much, for one. You don't need it. For another, there's already a pretty heavy insulin affect going on. There was this study done a few years ago in Sweden that showed that men especially can develop diabetes through stress alone. So all things being equal - exercise, sleep and so on - stress levels alone can induce diabetes. So look at your stress levels during your taper. Often we're getting pretty anxious. We're traveling, we're wrapping up last-minute stuff at work, we've got commitments to our family because we know we're going to be super-focused and withdrawn a bit for the race. So all these stresses are coming at us. A diabetic on race morning can see their blood sugar levels going wild. We don't pay attention to that.

So look at your stress levels, watch your diet. Look at your sleep levels. If you don't sleep much, boom, residual insulin level in the body goes up. We metabolize insulin during sleep. So look at your sleep levels. All these

things I mentioned. We sleep less if we're under stress. We're eating poorly anyway. This is like a spiraling effect. So we say watch out on the carbs during your taper. The advice is correct from one perspective. Carbo-loading works. But you don't really need to carbo-load specifically anymore if you've already reduced your training. Your body has soaked up and rebuilt its glycogen stores. Don't avoid carbs, just do it in moderation.

KERRY: Got ya. You mentioned balancing training loads with athletes' stress levels. How do you do that, exactly?

MARC: Oh, good question. Again, it relates back to what I mentioned very early in the call how we induce a catabolic effect and cortisol and insulin are related. They have catabolic effect on the body. Stress has a very catabolic effect on the body as well. If you take it back to this perspective of, "How do I balance the catabolic effect on the body? Well, I balance it with an anabolic effect." What's an anabolic effect? An anabolic effect is something that builds your body up. Weight-training, really high resistance, short efforts on the bike with a lot of rest. By short I mean less than a minute, not long enough to really jack the heart rate up for a long time. High resistance so it's strength and muscular recruitment effort. That's an anabolic effect on the body. It mitigates stress.

So if you have somebody under a lot of work stress, sleep deprivation, dietary stress, emotional stress, they can still train. They don't need to go out for an easy jog. That might be the worst thing for them. They might need to go to the weight room, if they're doing weights already. Or they might need to do very short, 30 second to 1` minute power intervals with equal rest on the bike. Again, super-high resistance. So high you can't turn your cranks over faster than 40Ks.

We offer something like that to athletes every Monday or Tuesday because most of them have done a lot of endurance work during the weekend. Endurance is very catabolic. It strips the body down. Look at marathoners, ultra-cyclists, Ironmen - very stripped down bodies. So Monday, Tuesday, we give them something more over in the anabolic spectrum of things. It's still catabolic in a sense, but it does mitigate another catabolic workout. It mitigates the catabolic effect of throwing another aerobically intense session at them.

KERRY: Let's actually talk a little bit about weight-training. How do you use it in the method?

MARC: Good question. For the most part, we believe you should optimize your training time by being sport-specific. So we use paddles in the pool, a bit of strength stimulus there. We use a spin bike, as I said and offer people

this 1 minute or 30 second hard, big gear work to build strength specifically. But for people getting on, over the age of 40, and especially in the retired athletes and people who are training over the age of 60,over the age of 50, that's where weight-training really starts to matter. It's for the same reason. There's less testosterone in males as they age. So their ability to rebuild muscle mass and recover from very catabolic Ironman and triathlon training, is reduced. So we hit them with an anabolic spectrum workout. They go to the weight room basically for that stimulus, to recover. It's not just to get stronger and build muscle mass. Remember, building muscle mass comes from increasing testosterone in the system. The body responds to heavy weight training by increasing testosterone. But, if you're already recovering in other ways, you need to recover in other ways from catabolic effects, like a long bike ride, going to the weight room will help you recover from the bike ride faster, irregardless of if it's also building muscle mass. You'll recover from your long ride faster by doing some weights.

So the older the athletes get the more that needs to be built into the program. Then you also have to look at it in context of what is that person's goals, how much muscle mass do they have, how much time do they have, how close are the facilities. They're only training 10 hours a week, do I really want to spend 3 hours in the weight room of that time? No, not really. We can get some strength effect out of the spin bike, big paddles if they're a proficient swimmer, reasonable sized paddles if they're not. Okay?

KERRY: Yeah. Good stuff. You hear a lot about athletes who are worried about their weight and they don't think they can ever get into shape. Can the method help these people lose weight faster and more consistently than regular training methods?

MARC: Yeah, absolutely. For the same reasons I mentioned earlier. Again, it goes back into understanding training effects on the human body from the perspective of how is hormonal equilibrium affected? A lot of long, slow distance, inappropriately timed, or inappropriate durations of high-end intensity work, not enough strength work, not enough speed work, very, very short, what we might even call VO2 max work. We don't think of it in terms of VO2 max training, we think of it as explosive, full-power, full muscle recruitment efforts. These things can reduce the catabolic tendency of triathlon training. If we look again at cortisol or insulin, these will cause you, if the levels are too high, you work too long, they will cause you to put on fat and you won't rebuild muscle, or not as easily. If people are in a constantly stressed, highly sleep deprived, poor diet environment, and they're training a lot of endurance work, a lot of long, slow distance, and they're throwing themselves at their workout in race mode and racing through the rest of their workouts, or all of them, they've done a lot of

things right there to shift the hormonal equilibrium to catabolic, high cortisol, high insulin level state. That puts on fat.

If you move away from this catabolic spectrum and start thinking more about the structure of your training, how can we emphasize these systems that aren't being worked, how can we create a more anabolic response on some of these days to mitigate the endurance training, to mitigate the high-end aerobic training, what we see then is a shift towards a more steady state, a less catabolic state in the body. That, in turn, means you're putting on more muscle and you're not in this tendency towards putting on body fat. So yeah, people lose weight faster.

KERRY: All right. Good stuff. That's all the questions I've got for you. Do you have anything you'd like to add on to that?

MARC: I invite people to visit Ironguides.net and take a look around at some of the articles we have there and just snoop around the site and see what they think. Feel free to drop us a line. I really appreciate the opportunity here to speak to everybody on the Triathlon Summit.

KERRY: Thanks for coming on. Again, what's your website?

MARC: It's Ironguides.net.

KERRY: Awesome. I will email that out to everyone, as well. So Marc, thanks a lot for coming on.

MARC: You bet. Thank you, Kerry.

KERRY: Thank you. Good deal.