American Swimming Coaches Association

Training for the Individual Medley by Joh Urbanchek (1995)

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My title today is individual medley training. I'm not sure why I was given this topic, I did not ask for it. The last time I appeared in front of this group was in San Diego in 1977 and my topic was "Coaching Water Polo in High School". I was a high school coach for seventeen years in Southern California where water polo is a very strong sport, and I enjoyed coaching both sports. In the fall it was water polo and I'd been very successful so ASCA asked me to come in to talk about it. Though one of my good swimmers, Rod Strachen had just won the gold medal the year before in world record time, well, I don't think whoever ran ASCA at that time really remembered that happened. They remembered me as a water polo coach. So I'm here to tell you about twenty years of individual medley training.

I still don't know exactly why we have so much success in individual medley, except if you look at the workouts, the way the workouts run, the distribution of the work probably speaks for itself. First of all, why individual medley? The only reason you swim IM is because you are probably not good at any one of those strokes. You are pretty good, but not very good.

My feeling in individual medley is that it's a good way to break up the workout. When I was the age group coach I spent fifteen minutes on every stroke and that's a good way to break up the monotony and keep the kids interested. Throughout my career, I ended up doing a lot of stroke work. I think because of that we had a lot of success with individual medley swimmers, plus I had a lot of not so talented swimmers in any one stroke, but if you put the four strokes together they were pretty good. Most of the individual medley swimmers in my mind were definitely work oriented. Perhaps you can call them blue collar types who liked to work, who liked to do as good as they could. Lets face it, if you show this chart (Chart 1) to Gary Hall, Gary will puke. He thinks this peak is the mountains up there in Arizona — maybe Flagstaff, or some place out there. So it's not for everybody.

Basically, the way I run the workouts, the way I made up the entire season plan is on this chart. If you actually look at this, it tells you everything that happens from day one. If you look at your copy of the chart, you can follow it very easily. It starts the first couple of weeks in September, and it tells you the progression of the mileage. As you look at the first two weeks in September we did absolutely nothing but increase the mileage and for the USS calculation for energy systems, I don't think we registered. We didn't do much on the pace clock. It was just drills, swimming, technique work. I'm finicky about technique. Jonty used the word "pretty", and I use it all the time. I like to see pretty swimmers. Pretty swimmers make me happy. And pretty swimmers sometimes are fast. We call them pretty fast. You put the two together.

Much of the season is done with just gradually building up yardage. We went about thirty thousand the first week. You see a definite change in my season.

If we talk about it scientifically, this is a megacycle. Then the first four months where you see the big drop down on the threshold curve on the chart, that is our first four months of training. Those of you who listened to me talk in the last ten years know this chart has not changed a lot, it is pretty much the same. I believe in a tremendous amount of work, a large volume of work. Remember, I'm not talking about the fifty, hundred, and two hundred swimmers, like Jonty deals with, I'm talking about people who swim two hundred and up. I don't want to discourage you in this thought, but this format which you see on this screen, the distribution of total yardage, and how much is threshold and how much is at VO2 max is pretty similar to what the other groups do. The only thing missing from this chart for the hundred and two hundred swimmers is their training for the VO2 max. We didn't mention the fifty because we don't concentrate on the fifty at all, though I think we have won more fifty NCAA championships than anyone sitting here, except for perhaps Nort. That's usually a by product of our training for the people swimming the fifty, hundred, and two hundred.

You see all this threshold on Chart 1. The bulk of the season is devoted to threshold. This is the weekly yardage, the highest peak we reach right there is almost ninety thousand meters, and it was in training camp. At the University of Michigan I don't think we can spend a whole lot more time than that. We try to shoot for eighty thousand a week, and that is pretty good. I don't think we can do a whole lot more. This does not represent our summer program. Once we come back in the summer we jump up real quick and put the threshold at May 1 and because our athletes are much more physically fit we can jump into much higher volume and much higher intensity. One of the many good things about the University of Michigan is that we get out of school about the 24th of April, so it gives us plenty of time to get ready for the summer season.

By May 1 we go double workouts and no mercy for the distance oriented people. They start out sixteen thousand the first day or so. We expect them to stay in the water at least for a single workout throughout the month of April. The reason our summer season is very successful is because we are starting at a higher fitness level. We don't have to worry about the kids coming in plus the kids who are in the summer program are there because they want to be there. We don't have to hold their hands or baby sit them. If you look at the fifty two week cycle (Chart 1) we would just jump right up and it would be a very steady downward trend for the taper. So if you go back to the two cycles in December, about the first of the year, you see the little dent in the yardage there. That was the first or perhaps the second week in January. That's the trip we take to the west coast, to swim our friends from Palo Alto, Stanford and Cal-Berkley. The decrease was not intentional. I would love to see the curve come up and level off, level off and make a sudden drop. That would be my goal, that's my dream. It just does not happen that way. You plan a season, there's always something that happens, where you have to cut back. We try not to cut back. If you look at this chart, six years ago we would dip down a little at Christmas, especially if you swim in the US Open. Even if you don't rest for the US Open, some of the athletes have what you call self-taper. They find a way to cut a workout or reduce intensity, so for that reason in our program we have one taper, and that's basically either for the Big Ten Championship for those who are at that level, and would try to go on to the NCAA.

So the second half of the season starts there on Chart 1, when you see the big drop in the threshold though the mileage stays up. The total yardage stays around eighty thousand, and that would be ten workouts at eight thousand in simple math. What you see in relationship to the total yardage, the VO2 max picks up. This is the highest VO2 max work we do. We very seldom do a whole lot of VO2 max work on a regular basis until after Christmas. That is why our kids just don't swim fast until after Christmas time. I don't see how some of the athletes can swim fast before Christmas. Ours just can't, and I

think the reason is we just keep them subdued so much with the volume of work and the big bulk of threshold work.

I know it's very difficult for our athletes to go four months and nothing but a lot of threshold work, and when I talk about threshold, its from EN1 (pink on USS charts). By the way, on Chart 3 we show the energy systems and the way our energy systems at the University of Michigan fits into the USS energy systems. We are getting closer and closer to getting on the same page. When the energy systems first came out ten years ago, they were not correct and so I decided to do our own and see if it was going to work and over the years we felt that it is working and now I feel the energy systems in USS Swimming is pretty much on par with the rest of the world now – and Michigan. Just a joke.

In our program an individual medley swimmer is also a distance swimmer. We're talking about 400 IM not 200 IM. Jason Lancaster came to us as an outstanding individual medley swimmer and tried the first five or six weeks to hang with the distance people, and we decided Jason's body was not appropriate for doing this type of work. I think we made the right move with him. We put him back into a middle distance type of program.

We think the key to our success, and I've been asked many times about this, is that the work is very demanding and you have to be consistent, and persistent, and you can't let off. I've seen it with athletes who periodically come back, if a kid complains, if they are tired, and so on, well, in order to have the super compensation the scientists talk about, we have to have an adequate amount of stress put on the body over a long period of time. Not for just a week or two or three, but a long period of time. We found that four

months of training from September until January gives us a tremendous amount of endurance background so we can take our athletes to another level. That is when we start picking up the VO2 max type of training. They are ready for VO2 max.

Actually I'm not ready for VO2 max. Actually the VO2 max on the chart is false. I sent all my workouts in to US Swimming to be put in the computer where it is available for anybody. From day one in September to the NCAA Championship, every single workout is in possession of US Swimming, and somehow this VO2 yardage is a mistake. There is no way I can do that much VO2 max unless I'm really crazy, and the kids sometimes tell me I'm crazy. Perhaps they are right. We do hit them a little hard in there, but I try not to bring the VO2 max up that fast or that long period of time. Then you see a big dip in our total volume on the chart and the intensity comes down about when we have the Big Ten Championships. Then about a month before the NCAA Championships we jump in mileage, not as high as during the season, but we reach at least one good week after Big Tens. We went up like in normal training and gradually back down again to the NCAA's. This would represent the total yardage, as you can see the distance swimmers went around 40,000 meters.

The first part of this season is almost totally long course meters. One or two out of the ten were short course, just to make sure we get some change of pace. Twice a week we go short course. We have the ability to switch back and forth. The first part of the season is basically long course, and with the Olympic year coming up we will probably keep the pool long course through out the season, but periodically go back to short course, perhaps three or four out of the ten. The short course will be very good for the 50, 100, 200 guys. We can't neglect them. In fact I think the biggest mistake we make is making our IM and distance swimmers a little bit special, and I don't want this to

happen. We have to meet the needs of the 50, 100, 200, 500 and 1650, because that is the way you are going to win all those events at NCAA's. For those of you who remember that, we did win all those events, and you have to meet the needs of everyone. You cannot differentiate one group, even though I think I'm biased or partial, and that's what I hear, towards the 1500 and 400 IM type people. I try to go out of my way, bend over backwards to make sure the other half of the pool is satisfied. Our job is different from Jonty, because we also have breaststroke and IM swimmers and we have the whole segment. Our workouts are a little more demanding as far as trying to organize them.

So basically what I'm telling you here is you don't need anything more from me. You can walk home today, but I would like to give you some ideas, because I give you two or three pages in the back so you know exactly what I mean by threshold. I think on one of the pages you can look up how fast the people have to go. I'm not going back to tell you how to determine what the threshold is. We've been talking about it for 10 years. I've gone back and forth in this country and all five continents, talking about T-30, and it seems when I die they will put it on my tombstone, T-30 or something. I strongly believe in it. We don't have, and most of you don't have the opportunity, as Jonty has, of having a tremendous support staff who can do all the lactate testing etc. Testing is great, I think US Swimming needs something like that. But most of us don't have the ability, know how, the money, or the time to spend on that especially if you have a large group to work with. I think a T-30, or whatever way you want to establish a continuous threshold will work.

If you want to understand the logic behind our program here, you have to understand what is the threshold for the that athlete. For example, I can tell you our better breaststrokers swim somewhere from 1:09 to 1:11 in our program. That is their continuous threshold and that is what they can hold for

30 minutes. Our fastest freestyle swimmer is Dolan, at about 56 low. All the distance freestylers are around 58 or so. All the IM swimmers are under 1:00 flat for continuous threshold. When you look at the charts, you can look up the swim times. If you look at Tom Dolan to see how fast he has to do VO2 max, based on a 56 threshold time, it tells you if he goes 200's he has to go 1:42 or 1:43. For Joe Somebody, who goes a 59 threshold, you can determine the workout for that time from the chart. The basic format for our program is right there. It is pretty much self explanatory for a college program from September to April. The rest of our program is a continuation for the three remaining months of May, June and July to sometime in August.

Here are some things you ought to know about IM people. For many of them it is a primary event. We treat IM almost like another stroke. Its a combination of the four. It is not just a secondary or third event. When you are in a championship, you have to find somebody. Royce Sharp is a backstroke swimmer and we had to find him a spot to score some points for Michigan, to earn his scholarship, so he had to swim the 400 IM. Some times you have to throw somebody in the IM who might not have one stroke. Royce has three but does not have a fourth stroke. We often have it for a secondary event, not a primary event. For most of the good guys we have, they are focussing on the IM as their stroke.

Jonty in his talk this morning said he was not totally satisfied at the outcome at the end. I'm glad Jonty discovered that now instead of perhaps in March. We always learn from what we do.

I'm going to keep referring back to this master chart, Chart 1, periodically. We have a second page in the packet, Chart 2, which is a weekly training cycle.

What Jonty was referring to, after they would get in good shape, was that he would go an energy system perhaps as long as three weeks. I find that very hard for our athletes to do. Basically what you see on Chart 2 is a one week cycle, microcycle if you want to be very scientific, and for the IM swimmers this would be an ideal workout, ten workouts, a total of 80,000 meters. We find that in our program, changing the energy systems daily is more beneficial and yields better results. We don't have to worry about someone breaking down. If I were to go three weeks of solid VO2 max, I don't think my guys would be able to survive, They barely survive as it is now. If you pound them with very fast VO2 max type of training I think it would destroy my guys. Besides that, I'm dealing with a little more aerobic athlete who may not need the lactate type of work that Jonty is using with the shorter distance people.

Believe it or not this chart does not change for the entire 52 weeks. You say John, you are so boring! My kids couldn't stand this! I hear this often, that if you go to Michigan, you are doing very monotonous type of work. Well, you have to see what has worked for you. If you are not seriously interested in swimming, and perhaps doing this for 52 weeks because it's boring, remember, it's boring for me to design the workouts. I try to stimulate myself to make them not so boring. But this is it. But if you refer back to the Chart 1, its not the same.

Everything is changing. The ratio of VO2 max, threshold, and below threshold, and speed work is fluctuating throughout the season. But I find the cycle where you do threshold work. Jonty said we have to look at aerobic and anaerobic systems. Okay, but we have to hit everything. We have to do aerobic work, anaerobic work, but the bulk of my work is between aerobic and anaerobic work and it's called threshold in our language in swimming. And the key is to determine it for every athlete, at least the people who swim the 200 and up. I don't think it's important for Gary Hall to know what his

threshold is. I don't think it's that important for a fifty or hundred guy. I think for someone who is going to swim a 200 and up, you must pinpoint, and the dividing line is a very narrow line there, when you cross over.

The threshold is what you try to establish with a 3000 swim or 2000 swim, or the four point test doing the 200's as Jonty did. Any one of those things will yield that continuous threshold pace which I mentioned to you earlier. Without it I couldn't function, because all of my work is based on that right now, and I hope I can use it for a while. If something works, you don't want to change. I often thought of dropping it, or doing something else, but I always feel bad for the new guys coming in who often make significant improvements in our program, and I think the reason for that is a combination of their background and putting them in a system of systematic training where we elevate their intensity level and they produce better swimming.

I always feel guilty to cater to some who have been with me 3, 4, or 5 or in two cases, going on their eighth year. It is very difficult for Eric Namesnik to do this for eight years in a row. You have to give credit to that young man to be able to stick with it as long as it works. I think it's just like a hungry rat, you put him in a test situation using electric shock, if a rat is hungry, he's going to go get the food. It doesn't make any difference how much it hurts. He is hungry and he wants it. A well fed rat isn't going to do anything. He stays in the corner. We humans aren't any different. If you have a need for it, if you are highly motivated, you are going to go for it, you are going to suffer through it. Those are the athletes whose needs we as coaches need to meet, because if we bring the level down to the mediocre, the happy, you are going to have a mediocre team. We try to build the program to meet the very best, the elite, in the program, and that will also bring the mediocre to do better, and

perhaps the lower end of the totem pole will come up a little higher within themselves. You have to gear your program for the very best swimmers.

The IM swimmers follow the distance program. On Monday they have a very long pulling set of 3 to 4000 meters that we expand on. Big paddles, bands, no bands, bands only, and no buoy. We do all kinds of changes. Much of this work is done at a very high level. The way US Swimming computes energy systems, we actually get a lot of threshold EN2 work out of that. We try to keep some part of the work aerobic with a lot of technique work. A lot of technique, a lot of "pretty" swimmers. Others regurgitate me. Threshold is the afternoon workout. I design the afternoon workout for the IM swimmers. They go with the distance people with a threshold set of anywhere from 50 to 70 minutes.

The warm up is usually short and quick. Warmup means warmup and we like to increase the intensity in the warmup. Warmup is not just floating. Everything is on intervals. By the time they finish the warmup they have a 6000 set to go. For that we need an hour and ten minutes or so with no extra rest between sets. You go an hour plus where your pulse is 150 and up, probably close to 175 or 180 and drops down to 150 during the 5 to 10 second rest you get. The key to threshold training is to keep the stress on the body at least for 45 minutes. No rest room breaks, no stops, no playing with the goggles. It is just something you have to do. The stress you put on the body for that long a time is what actually creates the adaptation.

On Tuesday we have what we call a subjective day. I use the energy systems when I design workouts only in the afternoon workouts. My morning workouts are not based on the energy systems. If you listened to me talk

before, I didn't have these EN, EN2, EN3 charts and I usually put "Gray" on them, because I was rebelling against US Swimming definitions. "Gray" means neither this nor that. When we talk about energy systems, there is so much overlap. We are only guessing how much EN1, EN2 and Sp1 and Sp2 is needed. The whole thing is guess, because we are not sure. All the energy systems are working all the time. Basically Tuesday is our subjective day.

Wednesday morning we don't do anything unless you miss a workout, when you are not there you must make it up. I have the greatest assistant coach in Alex Braunfeld who keeps track of who is and is not there. I'm glad I have someone tough like Alex, because I'm kind of puny when it comes to discipline. The afternoon workout is basically designed for VO2 max. You saw the very small VO2 graph on that chart. Now I have to tell you this. VO2 max is pretty much scientifically proven, ever since Madar and company came out with the threshold and all that stuff back in the late 70's and early 80's. We all picked it up and used it and we did a pretty good job, at least I did a pretty good job of designing lactate sets and how that projects into the final performance at the end of the season. But one thing which was missing from our training until about 4 or 5 years ago is this VO2 max type of training. When I say VO2 max it is scientifically not correct. That is VO2 max velocity. How we arrived at the VO2 max velocity from the threshold is this. I had been bugging John Troup for many years. I asked, "John, how much faster in velocity is VO2 max than threshold?" I bugged him for a few years, and I finally said "John, it's 7% faster." So I went back home and told Jim Richardson our women's coach we were going to take the threshold velocity we have and soup it up 7% and call it VO2 max. Jim is a computer genius and put in a program. It's not proven anywhere in the science. It's pretty much something I came up with and put together. We came up with it over the years, and actually, it's darn good. That's race pace. For example, VO2 max training, in my program, if I gave Tom Dolan hundreds at 1:20 or 1:15, based on his 56 threshold, he's going to have to hold about 50 flat. That's his race pace. He held exactly 50.2 on his 500 free race. So that has merit. I think that is very

important in our training, especially for our 200 and up people to do VO2 max type of training. We only call it VO2 max because that's the label I put on it. I'm not sure. I hope Rick Sharp and people at Colorado Springs with the elite athletes can validate that.

Again, it's not scientific. I'm not a scientist, I'm married to one. My wife is a physiologist and brings me great articles to read. I'm not a scientist but I like to use science and read short summaries of scientific studies for about as long as my mind can last, and then I try to make it practical. It doesn't matter what science gives us. What is important is what I can use with my athletes tomorrow morning when I go to practice. That is what I want to know. My area in this business is to try to bring in science and make it workable. If it doesn't work, it doesn't mean anything. You can prove any kind of hypotheses you have. Scientists do it all the time. For them it's either publish or perish. Our job is to take what they come up with and make it workable.

You see the colors written on Chart 3, and also on Charts 4, 5, and 6. White, pink, red, blue, purple, green. I got tired of US Swimming and everybody else in the world changing the energy systems. So I said the heck with you all. We are going to give it a color. When you do a warmup swim, the athletes are usually pale. Then when you go a little faster, the cheeks look pink. When you go real hard for a long time, they get red all over, right? When you go even faster, not enough air is taken in, you cross over the threshold, and you start turning blue. Then if you go beyond that, you are purple, perhaps passed out. And then we also have green, or what we usually call lactate type work where you have 3 or 4 or 10 minutes rest, where you get up and go fast until you puke! Then your face will turn green. We try to make it very elementary because in some respects they are not any different than the attention span of the second graders Skip Kenny was talking about this morning. Sometimes they show about that much mentality.

Basically what you see is half of one week on this chart. The second half of my week is basically is the same thing. We change the energy system. We do a lot of active rest type of stuff. Doc Counsilman wrote about Fartlek in his book. We find this day is a beautiful day, especially for IM athletes, who do a lot of stroke changing, especially back to breast; a lot of subjective stuff. Actually about 5 or 6 of my 10 workouts are objective. I tell them how fast to go and they have to do it. There are not too many workouts when the athlete can say they don't feel like doing that, or they want to do a descending set today, so two workouts a week they can do something subjective. Here we have a variation. Some kids swim out of their suits on those days, some just to survive, then we have kids like Eric Namesnik who goes hard all the time. Subjective days give them the latitude to do something different, so I'm not on their case all the time.

This is an IM type of workout. We do a lot of drills, a lot of fin work. Lately I like fins. I think fins help you get a better feel for the water, are good in technique work, and good when you incorporate them with drills or hypoxic work. We do a lot of hypoxic work everyday. I enjoy seeing them get blue in the face, and I think there is some benefit in doing hypoxic work. We do at least 1500 to 2000 a day.

I try not to get in the guy's head. I believe more in the physical training and I feel that if they swim well in practice, the mental part will come with it. Some coaches spend more time on mental preparation, I don't. I try not to get in any athlete's head. First, I'm not a shrink and second, I'm not sure I could penetrate some of their skulls. I've experienced that if the athlete has a weakness, you cannot hide it long course. Short course you can get by. We've seen a lot of short course IM'ers especially those not very good in backstroke

and breaststroke, and breaststroke is a must. If you have a swimmer who is not very good in breaststroke, I say forget it. It is very hard to teach breaststroke. It's almost impossible to teach breaststroke, if they don't have it they don't have it. Go swim something else. They are not going to be good. If you want to be world class now and if you can't go under 2:20 for 200 meter breast, forget it. I look at the 200 as a starting point for 400 IM swimmers. The 100's don't mean a lot. I had the good fortune to work with Bruce Furness back many years ago and Bruce could have been the world's greatest 400 IM'er because his hundreds in every stroke were very good, but he could never put it all together.

An IM'er should have some kind of a middle or long distance ability. They should love 400 or 1500 meters. Occasionally you might have a 400 IM person who does not to like to do distance. In our program, I prefer it if they love distance and identify with the distance people, and have a good sense of pace. We have some who have zero sense of pace. If they have no sense of pace we might as well send them somewhere else. It's frustrating. I work with them on how fast you need to go out as a percentage of the 100 time. A good age group background will probably help — someone who is well coached in all four strokes by the age group coach. I'm lucky because I work with kids who have already been prepared and I'm giving them a little extra. They make us look very good on the college level.

In teaching the 400 IM , I brainwash them. It's not a 400 IM. It's a 200 IM. It's the middle 200, the back and breast that counts. The first 100 and the last 100 doesn't matter. The first 100 is always there. If anything, you have to hold them back, so they don't go out too fast. We've seen that happen in the Olympic Games many times. People go out too hard, then can not come home at the end. You have to go out hard in the fly, breathing as much as you can, but the important thing is the back-breast leg. We spend a lot of

time just training back-breast. It's very important you spend a lot of time on the combination of 100 back, 100 breast, or any combination you want. And I also brainwash them. What you are going to do in the middle 200 is what is important. If you can go 2:10 in the middle, we're in good shape. If you go 2:10 in the middle, and go 1:00 in the fly and even if you come home in 1:00 at the end, that is 4:10, a piece of cake. I think we are going to see a 400 IM way under 4:10, I hope, by next year, or we should throw out the lesson plan.

Quite often, the afternoon workouts on Wednesdays are IM oriented. Then Thursdays we are back into the threshold sets. Friday is usually IM oriented, perhaps backstroke or a weak stroke. That means that on Tuesday if we go breaststroke that means the breaststroke swimmers go against the IM'ers. I was fortunate to have Barrowman in the program so I could dump my IM'ers in with Barrowman and have Mike work them over and it actually worked. Eric Namsnik made tremendous improvement over the years and I think it was because we had Mike around there. I think Mike could have been the world's best 400 IM'er, if we had given him the opportunity. However, he retired a little bit early before he had a chance to move on.

There is no magic at Michigan. I'm not a magician, I'm just a plain coach just like you are, trying to do the best I can. Trying to use some knowledge and a little bit of motivation here and there. The real reason we've been very successful is the amount of work we put in and nothing else.

I'm going to give you a couple of examples of workouts for those of you interested in what we do in practice. As I told you, you may get everyone of these workouts from September to January 1 from US Swimming. They are very good.

As an example, throughout the season I try to change the intensity. In September and October we based our training, the threshold work, on what we did in long course meters. On November 22 we shifted to short course work, and based our training on that. We only test 3 times a year. We used to test once a month but I don't think it's important. You need to go about 6 weeks overload, then you will see some improvement in it.

In 1977 I published an article in Swimming World called "The IM Classic Workout", and this year we did this workout on January 2. It is a threshold workout and it is long. The distance guys went 10,000 and the IM people went 9,500. The IM set is 6,400 in this workout, and I still use it. Not often, perhaps twice a year. The fly is descended, the IM and the freestyle is below threshold work, then a 400 straight at red pace. For most of my guys that is below 4:20.

The backstroke is descended, as are the IM, free, and breast. The object was to descend the 400 IM's, keeping the intensity at what we designated, red or white. White is very easy, by the way. The intervals were pretty tough, with not more than 5 to 15 seconds rest. That is one sample workout for the threshold.

Here is a workout for a Tuesday in November. It shows the warm up, and a pre-set, usually with all the strokes included as an extension of the warmup. By the time they are warmed up the body's core temperature comes up and I think it's important to get ready for the main set. This is a breaststroke day. We must do this hard. On this breaststroke drill we go three kicks hard, then pull breaststroke, then swim breast, on this interval. Then an active rest set. I love these sets where you go four 200's, after each 100 you go a 100 easy. This does not have an interval except the

first part where you go a 100 back on 1:20, then a 100 breast as hard as you can, then 100 easy at 1:40, then start over. Look at it as 4 times 300. Then 8 x 150 and after each 150 you have a 50 easy on 1:00, the first part is breast then you come back with a very hard free and try to descend as hard, harder, hardest etc. This is a subjective day so some guys go hard and some try to dog it. That is ok because that gets them ready for my next day where they go VO2 max. Then this workout is 4 X 50, we just cruise down, then turn and sprint back at pace. For example, for a 2:00 fly, the pace would be 30 seconds, so you go 4 times at 30 seconds pace, and perhaps 4 X 35 seconds for breast. Later in the season we might change to pace minus 1, or three rounds, with one at pace, pace plus 1, and pace minus 1. If your fly goal was 2:00, then we expect 29's on that last round, for a total of 1:56. That is for the subjective day.

You cannot always do a T-30 test. This is for November 8. I write my workouts by hand. We didn't have any threshold basis yet. I used the "guess test" for early threshold work. Converting from long course to short course is not very good. With the distance freestylers whose past thresholds were 56 to 57, 58 to 1:00, 1:01 to 1:03, and so on, you can come up with a very accurate set. Use 4 X 400 at 4:00 and for most of these guys it is not very hard, since they can go 3:48 or 3:50 or something like that, so they will get their 10 seconds rest. Then they go right into an 800 at about 8:20, pretty hard. Do it twice with no extra rest between. From that I went back and computed what the threshold would be if they hold 3:50 from the chart, perhaps a 57.2 or whatever the chart reads. Then we looked at the 800 continuous pace. If the guy went 7:35 on this, that was also a 57 or 58 pace on the chart. The we averaged out the pace to come up with the threshold. On this set, Dolan went 57.0 and Namesnik 57.7. About a week later, we did the real test.

This test is really not that far off, so use it if you have some athletes who don't want to go a 3000 straight. We also use this with the middle distance guys. For example 3 x 300 at 3:20 for the 100 and 200 freestyle guys, and 800 straight in 9:00. We averaged their time and came up with the threshold. Then we backed it up about a week later with a straight swim for them to see how it correlates, and it correlates real well. I think the 3000 is better. Some people do a little better on a straight swim. You just want to be sure you get the right velocity for the continuous swim, because for these people the threshold is very important. We're not saying that anaerobic is not important, but threshold is important.

This is how a workout will look like on a US Swimming chart. This is the December 10 workout, 2 days after the threshold test. We actually did some lactate work. For the IM'ers, 6 X 200 at 8:00 minutes with a swim down for a couple of minutes after the swim, active rest, and get up on the deck and sit down and rest. This workout really wasn't long, but you have to compromise. You can not have mileage if you have intensity. You have one or the other. If some coach looks at this, and say's he's not sending his kid to Michigan if they are only going 5000 meters, well, the energy expenditure that day was just as much as if I had gone 8 to 9000 meter workout. That is important, because we do want to swim fast, and I want to show you how the test actually relates to swimming.

This is a test we did, actually long course meters from another time. Like Jonty said, you must do some testing, but I don't test that much. I just use these workouts to push them for better performances. For the IM, for long course meters, when you do this 200 fly, 200 back, 200 breast and 3 X 200 freestyle at 8:00 from a dive, for a result of 200 fly 2:10, 200 back 2:12, 200 breast 2:28, and the 3 X 200 free average was 1:59, and if you calculate the velocity for all 6 swims, it comes out to 2:07.8. In my past experience, that

person could go 4:15.6, and I think that is what Eric did that summer. For the other guys who go 2:28, they pretty much fall into the same pattern. So a test like this for the 400 IM yards or meters might be a pretty good indication.

Sometimes tests can backfire on you, especially if you have an athlete who is not very stable, someone who might say the test is wrong and their season is gone, so you may or may not want share the test results with your athlete. You might just like to forget it and not talk about it. When an athlete comes up to me and says “John, what do you think I can go?”, and you tell him, and he does it. Suddenly John is a genius! I’m not a genius, but I’m listening to what the test results said. That is one example for the test.

Questions. When is the dryland work done?

Answer. Before the workout. Weights before practice on Tuesday, Thursday and Saturday. Saturday we do weights after practice.