

## 10 Lessons From History About What Makes a Truly Great Leader

BY ANDREW ROBERTS



George Washington crossing the River Delaware during the American Revolutionary War

With the 2020 presidential election approaching, America is bracing to choose its next leader in a time of incredible change and upheaval. How can we recognize the kind of person we'll need to lead us through these turbulent times? What are the qualities that a truly great American president needs? What can this person, regardless of political affiliation, learn from leaders of the past?

### ENERGY

Many of the greatest leaders in history have been workaholics—Churchill is perhaps the most famous, though Margaret Thatcher, Helmuth von Moltke the Elder, and Marshal Ivan Konev are other examples. Churchill melded his life entirely around his job during the Second World War, taking only eight days' proper holiday in the whole six years of conflict, six of those spent fishing in Canada and two swimming in Florida, but even on the latter trip he was attended by his red ministerial boxes and he read all the newspapers. Similarly, he was able to work almost throughout his two major bouts of pneumonia during the war. Energy is an almost demonic attribute, hard to characterize, and takes many forms. Churchill was undoubtedly energetic, and yet he often did not get out of bed until noon—and that was for a hot bath—although he had been hard working on his papers since before breakfast. "Concentration was one of the keys to his character," recalled James Stuart, Winston Churchill's chief whip. "It was not always obvious, but he never really thought of anything else but the job in hand."



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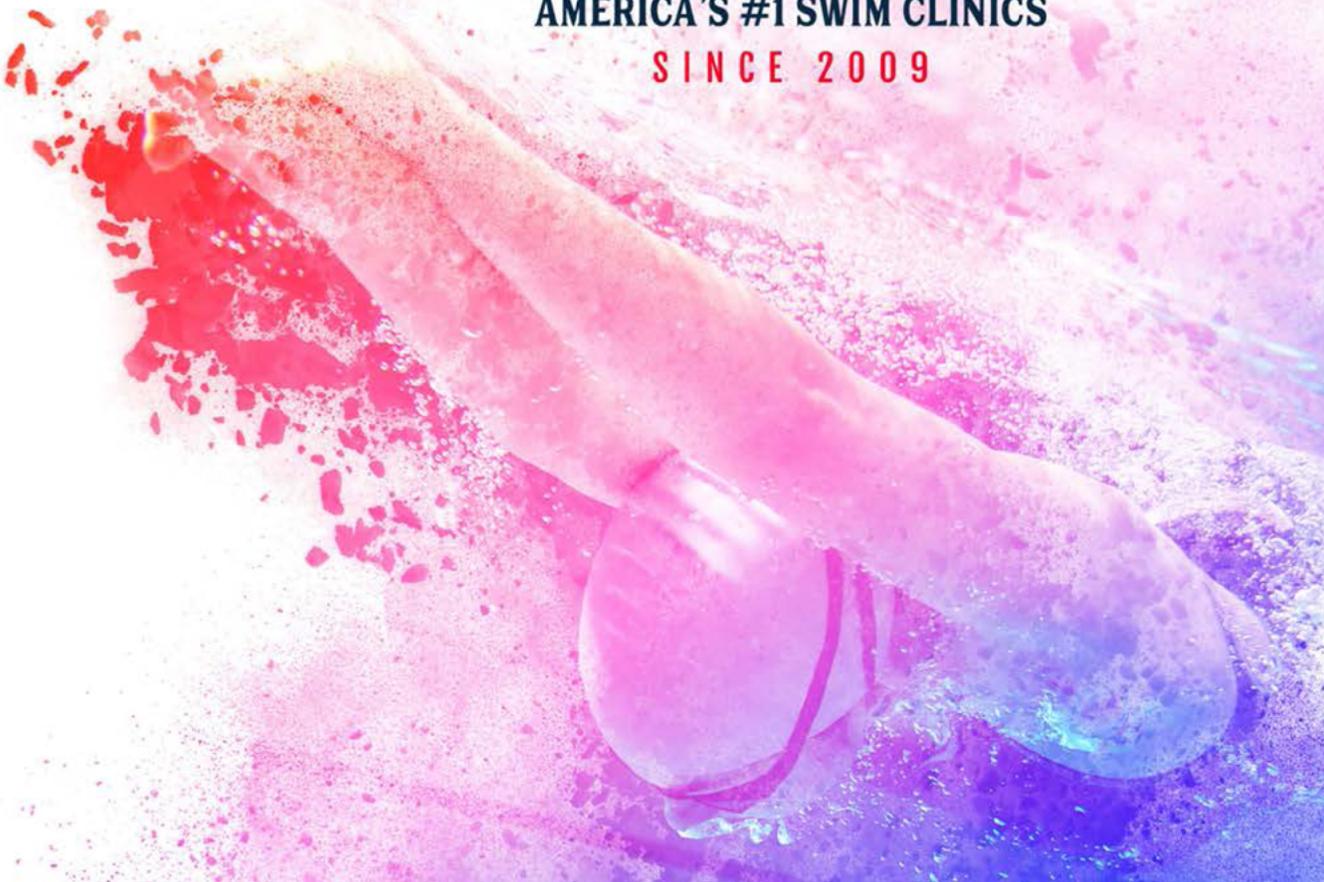
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## 10 Lessons From History About What Makes a Truly Great Leader

cont.

### ABILITY TO PLAN—AND ADAPT

A leader's ability to plan meticulously is important, despite Moltke's dictum that few plans last beyond the initial contact with the enemy. "Plans are worthless," agreed Eisenhower. "Planning is everything." It is often forgotten that one of the most successful war plans in modern history—Hitler's blitzkrieg against the West that succeeded in knocking out France, Belgium, Luxembourg, and Holland in six weeks in May and June 1940—was not the original one. When the first set of plans fell into Allied hands by accident only days before the assault was due to be launched, Erich von Manstein drew up a new one. It was this plan B that featured the famous sickle-cut maneuver, in which concentrated armor cut the Allies off from their supply bases, the Maginot Line was skirted, the mountainous Ardennes forest—hitherto thought impassable—was used as a conduit, and the Germans broke through at Sedan in six days and reached the Channel coast at Abbeville in only ten. Few plan Bs in history have been so successful.

### A GREAT MEMORY

For planning in particular and for leadership in general a good memory is useful, or failing that an excellent filing system. Churchill had a photographic memory, and not just for music-hall songs and Shakespeare. He would spend up to thirty hours memorizing his speeches and constantly practice them to make them word perfect, and would even make up ones he was not about to give but might be called upon to deliver sometime in the future. On occasion he would regale his entourage with speeches he would have given if he had been in the House of Commons at different periods of history. For a superb filing system one could hardly do better than Napoleon, who also had an excellent memory and who used his chief of staff, Marshal Berthier, to ensure that even in a carriage rattling along at full pace they were able to place geographically every unit in his army and send and receive messages as aides-de-camps rode up to the windows, grasp orders thrust through the windows, and rode off again to deliver them.

### LUCK

Although impossible to quantify or predict, leaders need to be lucky as well as brilliant. Before he appointed anyone to the marshalate, Napoleon also wanted to know whether his generals were lucky, and luck undoubtedly does play a large part in war leadership. The role of chance and contingency in history is worthy of an entire book in itself and undermines the Whig, Marxist, and Determinist theories of history in which mankind's progress through time are set on any definable tramlines.

## UNDERSTANDING PUBLIC SENTIMENT

A great leader has to appreciate the political and economic terrain over which he is to campaign. Franklin Roosevelt might have wanted to bring the United States into World War Two earlier than he eventually did—such was the isolationist sentiment at the time—but in the 1940 election he still had to make his promise in Boston to American parents that 'your boys are not going to be sent into any foreign wars,' in order to retain the White House and face the storm that was to come. A leader has to be a realist, albeit one who appreciates the precise moment when it is possible to change public sentiment. In the event of course there was nothing foreign about the war that the Japanese unleashed on America in Hawaii on December 7, 1941. FDR had kept to the letter of his campaign promise.

In this area, Abraham Lincoln was also a supreme war leader, easily the equal of any of the nine in this book. His almost preternatural sense of what the Union would be able to accept politically, and when it would accept it, of what he could ask for and what he simply could not at any particular time, and his willingness to ride political storms, do necessary deals, sack underperforming or disloyal generals, and employ oratory of the Periclean quality of the Gettysburg Address and the two inaugural speeches, makes him second to none as a war leader in the American pantheon.

### WELL-TIMED UNREASONABLENESS

"The reasonable man adapts himself to the world," wrote George Bernard Shaw in *Man and Superman*, "the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man." A talent for well-timed unreasonable ness is another attribute of the great leader. Queen Elizabeth I refused to name her successor despite continuous prompting from her Privy Council, thus protecting her country from the danger of civil war. She also refused to ratify the Treaty of Edinburgh early in her reign, despite the pleadings of her closest counsellor Lord Burghley, until the threat posed by the dukes of Guise had finally diminished. Elizabeth I had many of the attributes of a great war leader, in her oratory, in her determination and as a fine picker of men.

### STEADY NERVES

Having steady nerves in a crisis cannot be underestimated, but can be learned. Basil Liddell Hart wrote in his 1944 book *Thoughts on War* that "the two qualities of mental initiative and a strong personality, or determination, go a long way towards the power of command in war—they are, indeed, the hallmark of the Great Captains." Although Stalin had something approaching a mental breakdown when he heard about Operation Barbarossa on June 22, 1941, retiring to his dacha for days as the Red Army and Air Force were pounded on every front, by mid-October, when the Germans were at the gates of Moscow, his nerves had



steadied enough for him to stay and fight it out. Charles de Gaulle's behavior on August 25, 1944, when he attended the service of liberation in Notre-Dame while bullets were being fired within the cathedral itself, also showed rock-steady nerves. Margaret Thatcher during the Falklands crisis and after the IRA assassination attempt on her in October 1984, and Churchill throughout World War Two should similarly complete self-control in crisis moment, just as Napoleon had when his army retreated during the early stages of the Battle of Marengo. Such calm under pressure is the very quintessence of leadership.

## INSPIRING PERSISTENCE

In October 1944 Patton defined leadership as a capacity for "telling somebody who thinks he is beaten that he is not beaten." As wars are won by the victor of the last battle, the capacity for inspiring the losers of the penultimate battle is key. Here, the sheer doggedness of George Washington stands out supreme, alongside that of Churchill in 1940. Aside from the evacuation from Brooklyn across the East River in August 1776—where a weird combination of low mist and adverse wind direction somehow prevented the Royal Navy from scooping up a force that was down to only nine thousand—Washington enjoyed few successes in 1775 and 1776. As Churchill said of Dunkirk, "Wars are not won by evacuations," but, also like Dunkirk, the sheer fact of survival and escape was in itself a victory for the American revolutionaries. Simply surviving the hardships of Valley Forge through the winter kept the cause alive and could not have been achieved without George Washington's shining leadership by personal example. What Liddell Hart was to call "mental initiative and strong personality, or determination" was personified by Washington in that freezing winter of 1776-77, and in all the other leaders in this book. Except through heredity, one does not become a leader in the first place unless one has a strong personality.

## EMPATHY

Understanding the psychology of others is an important part of leadership. Today it seems to be assumed that in order to lead one's people one needs to have sprung from them, but that is not the case. Many of those who have exuded leadership ability hail from the leisured or moneyed class of their countries—Alexander the Great, Julius Caesar, Napoleon, Churchill, both Roosevelts, and John F. Kennedy among a long list of them—yet they all had a strong sense of what motivated soldiers and citizens who hailed from backgrounds far further down the social scale. A capacity to empathize is far more important than one's class background. Churchill was born in a palace the grandson of a duke, went to one of the top schools in the country, and never took a bus in his life, but he could speak directly to the needs of what he called the cottage home. When commanding in the trenches of the Great War, he put his earlier campaigning experience to good use in always trying

to ensure the men had their creature comforts, such as beer, fresh bread, and a good postal service to connect them with their families.

## POLITICAL AWARENESS

Leaders must have a sixth sense for politics, such as in the importance of having a feel for the coup d'œil, a sense of timing, an aptitude for observation, the gift of working out what is genuinely important as opposed to merely diversionary, a faculty for predicting an opponent's likely behavior in differing scenarios. Of course opportunism can never be underestimated. "A statesman must," in Otto von Bismarck's phrase, "wait and listen until he hears the steps of God sounding through events; then leap up and grasp the hem of His garment."

Sometimes, of course, having all these qualities is still not enough. Napoleon had a staggering number of impressive leadership qualities. He was able to compartmentalize his mind, plan meticulously with a well-trained staff under Marshal Alexandre Berthier, appreciate terrain and guess what was on the other side of the hill, time his attacks perfectly, exhibit steady nerves to his entourage, encourage esprit de corps, publish inspirational proclamations, control the news cycle, adapt to modern tactical concepts, ask the right questions, and show utter ruthlessness when necessary. His charisma was not artificially created, and until the end he enjoyed remarkable runs of good luck. Above all, perhaps, he was single-minded in spotting the moment when he could exploit a numerical advantage at the decisive point on the battlefield. Napoleon had all of these important leadership traits, but he still made the terrible error at Maloyaroslavets on October 25, 1812, of choosing the wrong direction by which to take his army out of Russia. However generous the sprites and fairies are when they gather around the great leader's cradle with their gifts, there always seems to be a malicious one present to snatch back one gift from the cornucopia.

If you want to know what will move hearts and command multitudes today and in the future, there is only one thing to do: Study the past. In May 1953 Churchill said, "Study history. Study history. In history lie all the secrets of statecraft," and the same is true of statecraft's vital subsection, war leadership. If there is one quality that all the great war leaders possessed, it is that which Lord St. Vincent ascribed to Horatio Nelson. St. Vincent did not much like his fellow admiral personally, but he readily admitted that Nelson "possessed the magic art of infusing his own spirit into others." Great leaders are able to make soldiers and civilians believe that they are part of a purpose that matters more than even their continued existence on the planet, and that the leader's spirit is infused into them. Whether it is a 'magic art' or 'sinister genius' can be decided by moralists, but in it lies the secret of successful leadership. ■

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# Power Eating: The Science of Nutrition

by Susan Kleiner

Dr. Susan Kleiner: Good afternoon. Well, it is really truly an honor to be here today with you at ASCA. I have never spoken here. I have been an exhibitor in the past, and will have a tiny little shout-out to the product that I work with at the very end, and let you know the coaches that I have worked with. But this is about the whole field of sports nutrition and how it applies to swimming.

The fact that you try and feed kids, adults, masters, athletes at all levels of competition before they dive into a pool is not an easy feat. Working with athletes in all sports, swimming is probably one of the most difficult. It doesn't have to be, but between information and misinformation, both received by parents and students, and lack of information I think that goes out to all of you as coaches, it becomes especially cumbersome to have a well-fueled athlete in the pool.

The first thing is where does some of this information come from that we access? Yes, I have my book. There are others that are by highly credible and qualified, such as myself, registered dietitians, who specialize in sports nutrition. But the mother load of information on nutrition comes out of the diet world, which has nothing to do with athletic performance. In fact, it's the opposite. The diet world is telling you how to tear your body down. Power eating and sports nutrition is about building your body up. This is my paradigm, you have to eat more to gain energy, so that you can train harder, recover better, build muscle, burn fat, and improve your performance. If you need to lose fat, you will, by doing everything else. But the focus is never on weight loss. I never take a client that comes to me with a mission of weight loss alone. It's always about performance. When we get things in balance, then if you need to lose weight, you will. But the focus is always on the performance aspect. So, this is the paradigm.

To really put your food to work for you, timing and combining, and then jumping in the pool or even doing dry land, timing is very important for combining of foods, meals and supplements to maximize mental- as well as physical- training and recovery to perform at your best. I always like to say, "Let's put your food to work for you." There's two concepts within this. We put it to work in our body to enhance all of the different needs that the body has for energy. To alter body composition is often a goal, we eat to recover, and we eat to enhance health. Those are the guiding concepts.

But when it comes to the brain, there are a few different factors than what would encompass sports nutrition for the body and fueling and feeding muscles. One that is often forgotten is that the whole point of food, of course, along with sustenance is to create relationships and connections between people and the enjoyment of food, also. I don't like to cut food down to only its pieces and parts. I like to talk about food as the whole food, but for the purpose of education, we do take food apart and talk about macronutrients and micronutrients and all the other parts of food. But then when I talk to my clients and when I'm working with an athlete, I keep a lot of that detail to myself because it stops them from the enjoyment of it. They start thinking about the practical parts about food and food groups and, 'Am I eating enough? Not how little am I eating?' Think about what you need to eat, not what you can't eat next.

So, first and foremost, our fluids; you have heard a lot about this. I am not going to focus a lot about hydration because it is so pervasive. But the well-known effects of hydration on mental and physical performance are

profound. It is also the number one factor in diminishing athletic performance. The easiest thing is to become dehydrated and it will have the greatest impact on performance right now, as well as tomorrow, and the next day. When we think about not just physical performance, but mental performance, it also has a profound effect on mental energy, on mental focus, on mood, and being able to cope with stress, being able to relax, and rest and sleep. Hydration is the number one factor that will impact all of those. A minimum of 12 cups of fluid a day and there are lots of ways to get that. Making at least five to six cups of water of all the fluids that you consume is important. What that does for you, aside from understanding about energy metabolism and regular functioning, is when we are trying to recover from exercise, when we are trying to build muscle, repair and grow, we need to volumize the cell. Water is critically a part of every single chemical reaction in the body, including muscle protein synthesis. And so, when we are dehydrated, a cell isn't what we call, "Fully-volumized, fully-hydrated." That means that you will not recover, repair, and grow, as well and as fast as you can. And so, for successive trainings day after day after day, you will never optimize your training protocols because your body cannot respond. These are the basics of fluids.

When I come down to macronutrients, I try and think of them as how they function in the body, what they do for us. And so, first and foremost, I think about fast energy fuel and those are carbohydrates. Recover, repair and grow is proteins. Functional fuel, the slow functional fuel that does much more for us than just providing fuel is fat. I categorize in this way, and this is when I'm teaching athletes, it's easy as one, two, three.

Let's start with protein and carbs. If I am going too fast, just yell out, but I am going to try and move through a two-hour lecture in 45 minutes. Protein and carbs together, think of them that way as a lovely marriage, between two very complimentary macronutrients. Protein is essential for muscle protein synthesis and muscle growth, of course, for the production of enzymes and hormones and all the cellular structure in our body. There are multiple functions within every system in the body. But when we think about physical performance and muscle growth, proteins are the building blocks. The amino acids become new proteins in the body and new cellular structures. This is how we recover, repair, and grow muscle.

But it's the carbohydrates that work in concert with protein to create what we call the "Anabolic hormonal environment" in the body. It is carbohydrates plus protein that stimulates growth hormone response, that stimulates the reproductive hormones to allow for the environment for muscle protein synthesis to move forward rapidly. When we eat them together, we get a great recovery, a great milieu for those muscle cells to recover, repair, and grow after exercise.

Together, protein enhances the work of carbohydrate in creating or recovering glycogen into the muscle cell. Glycogen is the storage form of carbohydrate in our muscle cells, it is a pure muscle fuel for high-intensity exercise. We use it up during the training session. We need to replace it; we don't store very much in the body, a little bit in our muscles, a little bit in our liver, and we have a little bit of glucose floating around in the bloodstream. When we have these together, we enhance both our fuel replenishment in the cell, as well as the muscle protein synthesis. So, every time you eat, if you can, eat them together because they enhance the function of each other.



Now, we will talk about right before exercise and right around exercise. That's a different moment in time- that pre, during workout time is a little different- but every other time you eat or have a snack, always think about protein and carbs together. We will go through all of these foods. I have all kinds of lists that you are going to see about good suggestions because it's really you are where the rubber meets the road.

The other part, as I said, of sports nutrition that has developed is fueling the brain and nourishing the brain because 50% of athletic performance when it comes to competition is mental. That is certainly the case at the elite levels of athletic performance, and so, making sure you have a well-fed brain is critically important. If you have an athlete that is highly trained, but not in the mood to get out of bed in the morning, it doesn't matter how elite they are. Believe me, I have worked with many athletes who are struggling emotionally, and what they eat matters. They become what they eat; really understand that what you put in your mouth becomes your body, becomes your brain, becomes your central nervous system, and becomes every cell that you're using. And so, what you eat will show up at some point.

When we want to have a happy mind, a well-fueled mood, lots of mental energy and focus, cognitive function for those student athletes that you're all working with, we want to have good levels of serotonin. Serotonin is the most abundant neurotransmitter in the brain. It's not found only in the brain. It's actually found in abundance in our gut, as well. You have that gut feeling. It really is something, and they talk to each other in that gut-brain access. But serotonin in the brain is what we call the "Good mood neurotransmitter." Now, there are certainly others that affect our mood, but serotonin is the most abundant. It is the most well-studied, it is what we understand the most about, and it is the most affected over the long-term with diet. And so, in order to manufacture serotonin in the brain, we must use a building block. There is an amino acid called tryptophan. Tryptophan is an essential amino acid, we must consume it in our diet, and it's in tons of proteins. If you have protein-rich foods, you are eating tryptophan.

The concern is the current diet trend to lower and all but eliminate carbohydrates, because the only way the tryptophan gets into the brain in appreciable amounts is when we have carbohydrates around. Tryptophan looks very similar in its chemical composition to seven other amino acids called large neutral amino acids, and they all compete with each other to get into the brain. They basically use one receptor, one vehicle to be ushered into the brain across the blood brain barrier that was set to recognize not just tryptophan, but those other seven large neutral amino acids.

Then, when you have a high protein diet and they all are competing with each other to get into the brain, a small amount of tryptophan gets in, but not an appreciable amount. The difference happens that when you have carbohydrate. When you consume carbohydrate, you respond with the hormone insulin. Insulin's job is to hook onto blood sugar and carry it to the muscle cells or the liver. When we have that insulin response, it also stimulates a cascade of biochemical events that take those other seven large neutral amino acids and move them to the muscle cell, which is where we want them for recovery, repair and growth. But, it leaves tryptophan out there by itself to hook onto the receptive molecule in the brain and raw serotonin levels rise. When we have very low levels of carbohydrates in the diet, it is highly common, almost expected, to have low brain serotonin levels and have someone with a low mood state. Typically, people who are on very low carbohydrate diets are not the person you want to be coaching, not the person you want to be married to, not your boss, not anybody that you have to deal with too much because they're usually not very happy. If you have experienced this yourself, you know it.

Now, of course, there are always outliers. There's always someone who says, 'I eat zero carbohydrates and I'm perfectly happy.' Maybe, maybe not on both sides of that equation. But, I can tell you an athlete is not going to want to perform very well. He is not going to want to do their training on a very low carb diet for one reason right here. Eating them together all the time is a great strategy.

Now, I have numerous lists and visuals on what are high performance carbs. This is one list. Believe me, we have got plenty. High performance means minimally processed, this is very important. Of course, not right around training, a high fiber carbohydrate is going to stay in your stomach and still be there and you will be out of the pool. Hours later, it will still hang around because fiber slows digestion time; slows stomach emptying. While I'm an all foods first person, around training, whole food is not your fastest fuel. We will talk about that, but the rest of the rich carbohydrate-based foods and as whole as possible and try to not forget the grains. These whole grains are critically important. There are gluten free whole grains, if that's something that you are interested in like buckwheat, amaranth, Quinoa, and then there's all these other wholegrains that are just as easy to cook as rice.

You can get them on Amazon, you can get them in the natural section of the boxed grains in your grocery store. You should be able to find a number of these, they add so much more than just carbohydrates. Today, we have data that in the United States of the diet related diseases, which is five out of 10 of the most common chronic diseases in this country. The number one diet related reason for those chronic diseases is not too much sugar, although that's a problem. It's not enough whole grains. I do a whole talk on whole grains and I do a whole talk on the fact that a 100% whole grain bread that you buy plastic wrapped in the grocery store is not a 100% whole grain. But if you can find these whole grains that you cook, and make salads out of them, great. This is a very critical part of the diet.

What about gas? People say, 'Well, I can't eat all these vegetables; I get too gassy.' Well, over the years of working with athletes, I have compiled a list of the foods that they tell me don't give them gas. Now some of you may say, "Oh, I know this one does." Well, then don't eat it. All of these are typically low gas forming foods. If you really have problems, this is a fab. Does anyone use DeNo? Have you ever heard of DeNo? Have you ever heard of Lactaid, right? People who are lactose intolerant are missing an enzyme, that enzyme is called lactase. So the product Lactaid is a lactase replacement product for the enzyme. When people take it, they can drink milk.

The same chemist came up with DeNo. DeNo is the most common enzyme missing in the guts of people who have trouble digesting things, which is most of us. Some of us have more or less problems; some of us react more or less to one. Some people have more problems with cruciferous vegetables like broccoli and cauliflower and cabbage. Some people have trouble and it doesn't matter what the vegetable is. So try DeNo, which you can get at any drugstore, any over-the-counter place; it's just an enzyme. There's no drug in there. You might find that it helps with digestion of either beans alone, or a number of my clients always have it with them whenever they have a vegetable rich meal. They use it and find that it's helpful. When the goal is to get strength or speed or power, which should be all the time for any athlete, increased calorie needs should come primarily from carbohydrates.

Carbohydrates are required for high intensity exercise. Human physiology has not changed in the past two decades, just because Madison Avenue wants you to think so. We must have carbohydrates to fuel high intensity exercise. If plant foods cause problems, try my low gas forming foods, try DeNo and then before, during and after training, we often need what I call fast carbs. That is not necessarily coming from food.



Some people can handle food and dive into a pool. But in my experience, most people cannot. I will show you timing on when you have had your last snack and how many hours typically you would need until that was in your bloodstream. This is what I'm looking at and it's a huge range. The amount of carbs, five to 10 plus grams per kilogram per day are translated into pounds. On the low end, that might be a small athlete doing light work. And on the high end, it might be a six foot, four Olympian.

These ranges are highly individualized according to where you fall and they are periodized with what time of the year in your training cycle you are in. Where are you in in your competitive season? What's the goal of the training about? Is it a rest day and you're not training at all? There's a lot of fluctuation here. These are not hard and fast numbers that stick all day long day-in and day-out, year-in and year-out. These are highly variable all the way to periodizing with each training bout.

But when it comes to young kids, you want to have a very similar protocol that they follow that works for them all the time. Something that follows them around, so that they're not trying to do too much micromanagement. Most athletes, as you see, 2.3 grams is the bottom. That's where most athletes are or below. That definitely will impact their performance. Let's talk about proteins. We talked about carbs.

Well, when you are in calorie balance, you need a moderate amount of protein. Protein needs will change based on how well fueled you are and the goal of the training. When your training is increased, even if you have an appropriate amount of calorie intake to meet the energy demand of the increased training, your protein needs go up because you are trying to build new muscle and take care of the increased damage that happens in each training bout. Protein needs increase. If you are hypercaloric, if you are not eating enough calories, if for some reason you are trying to shed some weight, then your protein needs go up because protein starts to be used as energy because we can take protein apart. We can shed the nitrogen and we use the rest of that molecule as carbohydrate, which is what it looks like. We begin to use protein for energy, but nothing else can replace the job that only protein can do when nitrogen is attached.

When we are under fueling, our protein needs go up. Here are suggestions of all these, what I call, high performance proteins for recovery, repair, and growth.

Now, people are often asking me, 'Well, I hear that you don't need milk' Well, think about what we just talked about protein and carbs together. They function both for muscle as well as mood. There isn't much on the planet better than milk as a combination of protein and carbohydrate together. Lactose has milk sugar, Whey, and Casein. Casein is both a very fast way and slowed, more time released protein source. Whey is high in tryptophan that lifts your mood, Lactalbumin also another smaller protein in dairy in particularly and milk is found to help decrease the anxiety and increase your ability to cope with stress.

Everything that you eat impacts your brain. In fact, the first thing that's affected is your brain. When you just look at food, you do not even have to put it in your mouth. You are reacting to it already, we will start to salivate, and we start to feel better when we are hungry because we know food is there. It's impacting our brain before we even put it in our mouth. We know that when we put carbohydrate in our mouth, our carbohydrate sensors are so powerful, it sends such a powerful message to the brain that we can swish and spit. We can improve very short, brief moments of high intensity exercise, it won't last. But the brain can say, 'Yeah, I can let the fuel gates open because I know that carbohydrate fuel has come into the body.' When you don't have fuel on board, those gates stay restricted.

So remember, not just animal protein, but there is a huge variety of plant proteins. Variety is the key philosophical, overlying concept of good nutrition. The more variety, the more nutrition you get from macronutrients, micronutrients, food factors, phytochemicals, fibers, and the hundreds, if not thousands, of components that we have yet to discover. Can you power eat, really? Well, yes, but you sure as hell better know what you are doing. You probably need somebody working for you and planning and shopping and cooking for you because those folks that you read about who may be elite athletes who are doing this, have people working for them because it's a job. When you think about that, I said that fiber will slow digestion. Almost every food that you eat that has fiber in it, unless it's a highly processed food because all plant foods have fiber. Now it is in everything that you eat and all your protein sources are full of fiber. So it slows digestion, it also keeps you feeling full. You don't often get enough calories, you are just too full to eat. If you are too full, how are you empty enough to train? So you're not fueling yourself well, unless you're eating an ultra-processed diet and you're depending on a lot of plant protein supplements and lots of supplements to help you do this. Now, if you have a philosophical reason to do it, then I help my athletes do what they truly believe they want to do. If the reason is that you think it's healthier, there's no data to prove that- not in athletes. I feel my job is to help my athletes perform at their highest. You can as a vegan, but you must know what you're doing and you can run into trouble if you don't.

Now, high performance fats have lots of important jobs. Calories are number one, body comp, hormone balance, anti-inflammatory, and heart health, all of these very important jobs. As I said, these are the functional energy sources in our diet. Has anyone ever seen a mammalian brain? Did you ever dissect the cow's brain or anything? It's very fatty, right? We actually are all fat heads, all of us sitting here- a bunch of fat heads. It's a compliment in my house. Our central nervous system and our brain are 60% fat by mass, not volume. We talk about 60% fluid volume, but 60% of the mass of the brain is fat and the fat that you consume matters. The fats that the brain wants to see are actually those marine oils, fish oils, EPA and DHA. That's what functions the best important for anti-inflammation. Important for keeping the brain cell and neurons throughout your body, what we call pliable, plastic, or fluid. Neuroscientists call it fluid, rather than rigid and stiff.

You can imagine that if a cell can move easily, that means that the electrical and chemical messages that move in moments of time from one cell to the next can move unimpeded. But when the brain cell gets rigid or hard, it stutters; that message stutters trying to get across from cell-to-cell. And so, it increases our risk of memory loss, of cognitive function, and of lowered mood. And so, those facts are critically important. If those fats are not around, it must substitute other fats in place of these very important polyunsaturated fats. When that happens, the structure gets rigid and inflamed, and so, increased risk of degenerative diseases of the brain, increased risk of depression, and increased risk of cognitive decline and memory loss. We know the diet plays a role here. These are your functional fuels for cellular structure, cellular function, cellular protection, and slow burning fuel. 800 meters or 10,000 meters swims- we know that we are not swimming at high speeds, that's an endurance race. But you do have to race to the finish, and you want to go as fast as you can. You are still using carbs, don't let anybody make you think that you are only using fat.

In fact, the body never uses only fat even when we eliminate carb from the diet. We will make carbohydrate in the body from protein to make sure that we still have some tiny level of glycogen in our muscle cells because our brain really prefers to burn carbohydrates. It will burn the remnants of fat called ketone bodies. But that's very secondary energy. Why would an athlete ever want to depend on a secondary system, if they didn't have to?

When we are doing endurance training, we are burning a majority of fat; a ratio larger on the fat side and lower on the carbohydrate side. But the fact is that when we are at that very high intensity exercise, short duration speed work, and the athlete is at that point of nearly puking or passing out- just about a 10 on a scale of one to 10- they are burning all carbohydrates. They will go to 100% carb, but we never go to 100% fat; there's always a low level of carb.

In general, sort of giving the best big picture, which I don't typically like to do but coaches always asked me this, but I stuck it in. In general, some 40 to 60 plus percent of the diet is carbohydrates, 25% to 30% is fat, and 15% to 30% total calories. You can see these ranges are enormous. Again, depends on the day. All depends on the goal of each training session and about the goal of the training protocol that you are periodized.

Seeds, again, as I said, are so much more than macros. I don't really like the reductionist view of food down the macros because then you can think, 'Oh, I can just cut out whole grains because vegetables give me carbs.' But vegetables don't give you the minerals and vitamins and phytochemicals and fibers and everything else that you get from whole grains. Fruits don't give you what vegetables give you. You want them all in the diet. We want a huge variety of plant foods. If you can have dairy, consume it.

Then, we do use supplements when we can benefit from them. I wrote a book called "The Good Mood Diet." It was asked by the publisher to make lists for magazines. And so, what I did was I created lists based on the research behind these foods. If a food had research or an ingredient had research, I put it on the list because any food in the world is a fuel great food, right? I needed a list. This is also the new power eating, it's a little updated from what was in the "Good Mood Diet."

Then, common anti-inflammatory foods give you enough time to take a shot there. But as I said, I will share this so you can get it in the book. We do have this tiny little list of feel bad foods, that when you have them once or twice, make you feel pretty good. You all know that, but when they become too much of a part of your diet- too frequently, too often- they become feel bad food. There's not much room for these. Think about what you mean to eat. All these foods that I have talked about, that's a lot of food to try and get in, not a list of what you can't eat next. There is room there, but not a lot of room.

Timing is really critical. I am going to go through this. There's so much that we need to be eating all day long. So much that the athletes need to have. They need breakfast and they need the fluids. They need frequent meals and snacks. They need to think about combining all these macronutrients. Then, how do we eat around exercise so that it empties from the stomach fast enough so that you can jump in the pool or do your land workout? And so, I have this. I have a morning training and an afternoon training. If you have got your morning training, most people don't have anything here. They wake up and they go to their training because they do not want to have anything on their stomach when they have to go train.

Or they maybe have a little banana and peanut butter, or they have a half a glass of orange juice or a few bites of yogurt, or maybe a slice of toast. That's it, not very much and not nearly enough to fuel this training. That's when the whole rest of the day comes, or you have afternoon training here at 5 o'clock, and you have had all your meals. But here's your last snack and here is training three hours and between here to here your blood sugar is starting to drop. Something has to happen because you have got this long training session. For some of you, it might be longer than this and it might be later.

I know for some of these young athletes, they won't eat dinner until it's 7:30. So what do we do to still fuel ourselves fully and feel empty enough to train? We have pre-exercise fluids. We have pre-exercise snacks or a pre-exercise meal. This is three to four hours beforehand. It's a lot of food, look at what this looks like for the high-performance meal. 560 calories. Can you eat this much before you train? Well, maybe four hours before.

But as I said, even if you ate this much in four hours, it is processing through when you are starting to get a blood sugar drop before you are going to go train or compete. Then there's that snack that might be 90 minutes 60 to 90 minutes before. It has all of these goals and functions. These are all options. And then, the post exercise recovery. Can you eat whole foods with a lot of variety at that time? Is it convenient? What if you can't eat food right away? I work with athletes who take a while to wind down. Can they fully recover? They can recover their protein, but immediately after exercise is when you have the best rate of glycogen recovery or the fuel in your muscles.

Athletes are notoriously under fueled and under-carbed. This goes across sports. But it is profound in swimming and at all levels. Whether I work with middle schools, or I'm working with the U.S. Olympic athletes, they are notoriously under-carbed. You may feel like you are fully fueled. You eat four hours before you feel pretty good. If you are fully fueled, your perception of how you train and the reality when we measure your work output, you are doing great when you are fully-fully fueled, not four hours before but you had something before you jumped in the pool.

When you are under fueled, but have 50% of the carbs that you need in your muscles, you will feel like you are training at a 9 or a 10. When we measure and you're below 50%, you feel like a 5 or 6, they are like, 'I'm training as hard as I can and I plateau, I never get anywhere. I'm working so hard. I know I'm at the highest intensity I can work out at and I'm not progressing,' you may be here with nutrition. Because your brain is not going to let loose and all the fuel that you have available to get to zero, it never will.

You have got to recognize that you are fully fueled to allow your perception and your reality to match. There's signs and symptoms of under-carbing and this is very important because it is so common. Very often you are going to get blamed that you are overtraining the athlete. If you leave this, you are going to go, 'Well, this seems like overtraining syndrome.' Yes. I call probably 60% to 70% of the overtraining syndrome that I get sent, it's under fueling. An athlete can withstand an awful lot. Now I'm not taking all the blame off of coaches, you do see problems occasionally. But most of what I see is due to diet and under fueling. So, this is critically important.

But what if you could fully feel your training, but never feel too full to train? That is the only reason that I work with this product because it has been a game-changer for me. It's not just me. It's the coaches who tell me so. This was a fuel where Coach Durden's talk last year had Vitargo in a number of his slides. He says whether it's a 14-event race schedule or a three-day NCAA championship or the grueling eight day meet at our Olympic trials, Vitargo is the product we rely on and I will let you read the rest. Keenan Robinson, USA Swimming National Team High Performance Director says many of the top Olympic swimmers in the world use Vitargo. Why?

Vitargo is a proven fast carbohydrate from mouth-to-muscle. First of all, we have all the data. Everything that you see on here is in peer reviewed published research studies conducted at universities where, no matter what, the data must be published. The original data came out of the Karolinska Institutet in Sweden where the original carbohydrate loading research was done. So here you see that you can refuel muscle glycogen depleting exercise.



Within two hours, we showed 10% to 23% enhanced performance. How many of you work with athletes, who train or swim and then swim again? Right, that's the nature of swimming. Let's start with what really matters, the performance data. This is not compared to water, which is the way most products are tested. This is compared to Maltodextrin in sugars, which is the most common sports drink out there. In fact, there is no other product today on the market that meets our data or even comes close.

Within 10 minutes, more than half is emptied from the stomach. So you can slam down Vitargo, do a 10-minute warmup, and jump in the pool and do a 10-minute warmup and then start your training. Greater muscle glycogen recovery and faster muscle glycogen recovery. The athletes can know for certain that their muscle carbohydrate has replenished from their morning trials to their afternoon finals. They have fully recovered. And then, before they jump in the pool, they can fully fuel their training and still feel empty enough to train. If you are doing a land workout for an hour and then jumping in the pool, you can have pre-workout Vitargo and then intro workout Vitargo, and then, for recovery as well.

We are fully tested, fully clean. All my drug-tested athletes trust Vitargo. This is a dosing schedule. I don't want to take any more time with that. Think about what you need to eat, I can't express that enough. Feed your brain and your body and fuel up. Thank you so much to ASCA for inviting me here. It has been my pleasure. And if you have any questions, this is how you can reach me and I'm happy to stay and answer questions. Thank you.

Male Speaker 1: Just curious on your thoughts on intermittent fasting?

Dr. Susan Kleiner: So the question is about intermittent fasting and the data is very interesting. If the goal of intermittent fasting is fat loss, which typically it is, right? The outcome is no different than going on a generally low-calorie diet that decreases the calories, the same amount that you have done with intermittent fasting. It's very individual. Some people prefer intermittent fasting, they just stick with it better. It makes them feel better than eating regularly all day long. Decreasing the total amount that they eat, they feel a little more freedom during the times that they are eating. It can be socially restrictive because if they need to finish eating by 5 o'clock or 6 o'clock and there's evening events that they go to, then they can't eat at those events, right? So it works for a fat loss equally well, if you stick to it.

Male Speaker 1: What about eating before bed?

Dr. Susan Kleiner: Some people say, "Well, I sleep better." Well, we don't want people having their last meal a half hour before they go to bed, if possible, right? That's telling the body to wake up, not go to sleep. It is giving the body all this work to do, all night long and digesting when we'd prefer the blood to be flowing out and working on all the rest of the body at that time. And so, intermittent fasting gives some structure for some people. That's what I mean for some people, it works for them for a while but typically the promotion for it is fat loss. It's no different than just a lower calorie diet, and as far as information, nothing. Yes.

Male Speaker 2: This product states for isolation?

Dr. Susan Kleiner: 100%. It's just starch. It's sugar free, it's just starch. There are no stimulants. We do have plain, so it's just starch, but it's not just any starch. You couldn't go get potato starch that would make you puke. It is an ultra-processed product. It is unique in the way it is a patented product; it comes from Sweden. It's very interesting. It's a farmer's coop that produces starch. They process it in this unique way. Vitargo is the only product in the world and it is worldwide.

It's very, very, very fast. Because it has a very high molecular weight, it is very low as morality meaning it doesn't pull fluid into the gut at all so you don't get an upset stomach. We have never measured hydration. But UFC is using it now after cutting and their claim to us is - and this is something we don't have research data on - but their claim to us is their athletes rehydrate faster. They do weigh them and test them and they think they rehydrate faster because more fluid is lost into the gut. It's stays in the bloodstream and in the cells, so that also helps with zero upset stomach, no discomfort at all. Some of our great Olympians in the past, I can tell you, one used 22 doses of Vitargo a day. Others have used 16-20 and it may depend on Vitargo. Our USA swim athletes have pushed the product and certainly Dave Durden's testimonial helped. Keenan Robinson's testimonial and also Greg Meehan because the women are using Vitargo as well. I have 10-year-old kids that use it, the moms are feeling like they need something. Now I may give them a small dose, you can try it because it's just a powder. That's what's so great about it, you can say, 'Well, I'll give you a half a scoop. Let's see.'

Alright, thank you everybody. ■



# THE EDUCATION ROAD TO LEVELS 3, 4, & 5



**First, if you are already certified at Levels 3-4-5 via your Athlete Achievement, Education and Experience, nothing changes. No need to do anything!**

As of February 1<sup>st</sup> 2018, ASCA now recognizes Education as its own Category!

The three legs of the certification stool have always been EDUCATION, EXPERIENCE, and ACHIEVEMENT. \*If you gain a Performance Level 3-4-5 certification, you will receive the traditional ASCA blue and gold certificate. If you do not yet have an athlete at the required Achievement Level, you can still have access to Levels 3-4-5. They will be termed: "Level 3 Education - USA-Swimming" (or whichever level you earn in whatever category you primarily coach.)

\*If you gain Education Level 3-4-5 certification, you will receive the new ASCA red and gold certificate.

## Requirements for Level 3 Education Category:

Completion of all Five Required Education Courses and 3 Continuing Education Courses of the available list.

## Requirements for Level 4 Education Category:

Completion of all Five Required Education Courses and 4 Continuing Education Courses of the available list.

## Requirements for Level 5 Education Category:

Completion of all Five Required Education Courses and 5 Continuing Education Courses of the available list.

So, no need to wait for an athlete achievement for access to our upper three Certification Levels. You can access them NOW through meeting the above requirements. This recognizes that you are highly educated coach and should be rewarded as such.

In this way, while you are still working on your athlete achievement levels, you can be recognized for your commitment to your profession through your education. Education is one of the tools on the way to being recognized as a Great Swimming Coach! (Think of it as the brain surgeon who hasn't done any operations yet, but has completed the highest level of study required to begin doing so.)

Remember there is \*NO change to the current 32 year system of Achievement-Based Levels 3-4-5. This is an opportunity for many more coaches to be recognized.

**\*Important information to know.**



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# ASCA CONTINUING EDUCATION COURSES

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1. Advanced Freestyle
2. Advanced Backstroke
3. Advanced Breaststroke
4. Advanced Butterfly
5. Dryland Training
6. Teaching Age Group Sports Psychology
7. Distance Training (Modules 1-2-3, each module counts as one course.)
8. Coaching 8 and under Swimmers
9. Training Age Group and Masters Swimmers - Maglischo
10. Strength and Flexibility Training for Swimmers - Maglischo
11. Vital Reading for Swimming Coaches
12. Drills and Games - Potts
13. Personal Organization for Coaches - Edson
14. Working Successfully with Swimming Parents - Leonard
15. Nutrition for Swimmers - Maglischo
16. Common Issues and Solutions in Age Group Swimming
17. How to Write Workouts - A Guide for Age Group Coaches - Edson



Tests must be submitted for credit to be earned. Please email tests to [certification@swimmingcoach.org](mailto:certification@swimmingcoach.org)  
\*Not all schools include a test; in this case, a summary of the course must be submitted to gain credits.

***For Level 3 Education, all five Required Schools and any three of the above CE Courses.***

***For Level 4 Education, all five Required Schools and any four of the above CE Courses.***

***For Level 5 Education, all five Required Schools and any five of the above CE Courses.***

## ASCA REQUIRED SCHOOLS

**All 5 ASCA Schools are required for  
3-4-5 Education Certification**

1. Level 1 - Foundations of Coaching
2. Level 2 - The Stroke School - The Teaching of Strokes, Starts and Turns.
3. Level 3 - The Planning and Execution of Training For Swimmers of All Ages
4. Level 4 - The Leadership School
5. Level 5 - The Administration School for Clubs, High School and College teams.



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## THOUGHT FOR THE DAY

“

If you want to know what will move hearts and command multitudes today and in the future, there is only one thing to do:

**STUDY THE PAST.**

In May 1953, Churchill said “study history, study history, study history” In History lie the secrets of statecraft.

”

*Adapted from “leadership in war ”*  
by **Andrew Roberts.**



# 52<sup>nd</sup> ASCA WORLD CLINIC

## SEPTEMBER 8 - 13

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52<sup>nd</sup> ASCA WORLD CLINIC  
ORLANDO, FL 2020

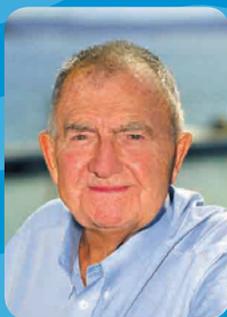


## THOUGHT FOR THE DAY

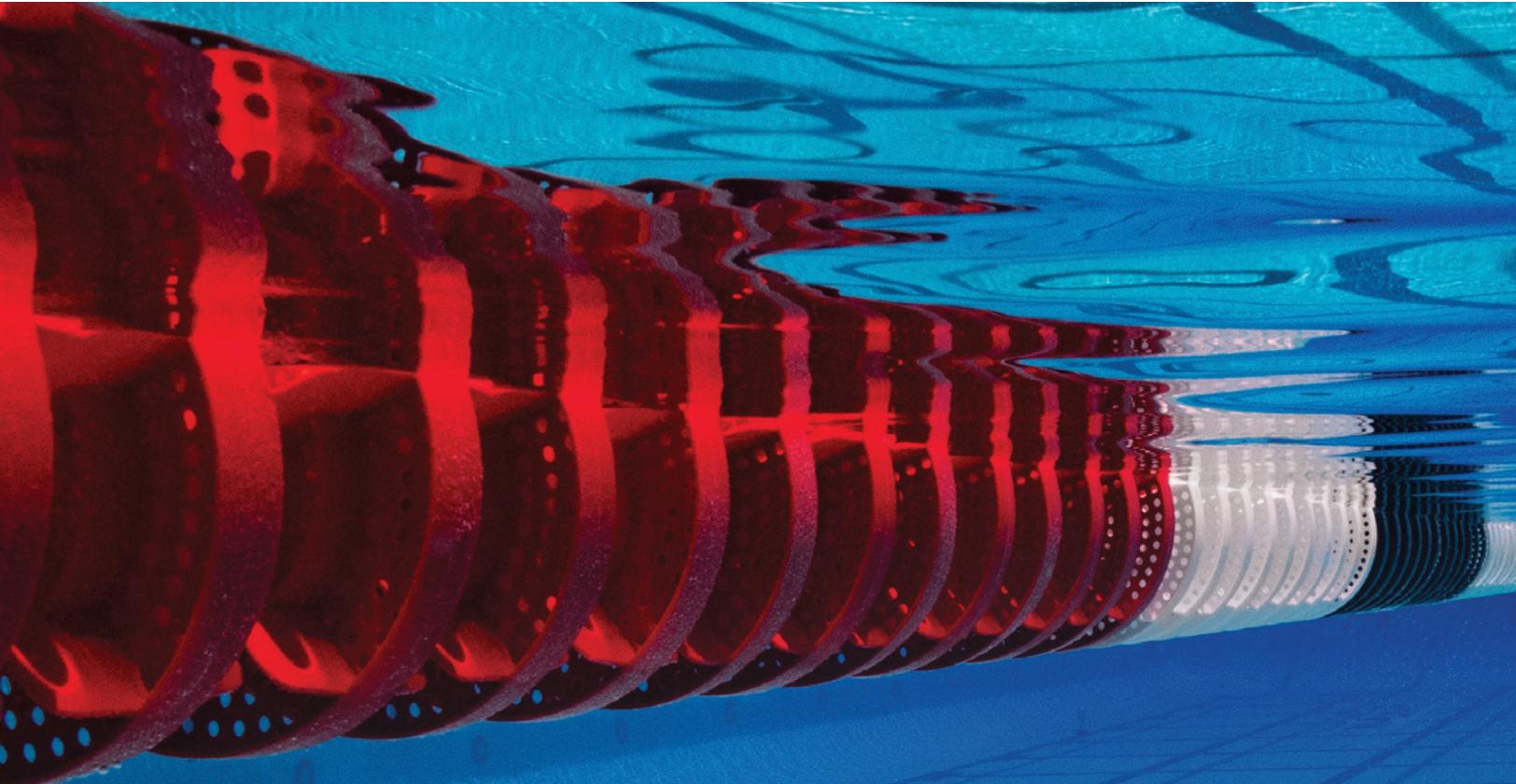
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*of course, the fact that these young ladies have a very streamlined water shape is a huge aid in both their training and their racing prowess. They can do things biomechanically such as an immediate catch, that a more mature female body might not be able to do and train the amount of volume necessary to set records in the 1500.*

”



The Legendary **FORBES CARLILE** of Australia  
(on the development of young ladies for world record holders in the 1500 free...)



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## LETTER TO THE

# EDITOR

John,

Thank you.

Thank you for directing the development of ASCA. I was there at the inception. I continue to marvel at how you worked with swim coaches, who typically worked hard on the deck but nowhere else, and turned ASCA into a professional, certified and politically active organization.

Thank you for your relentless “War” on drugs. Coaches and athletes have not had a more passionate, informed advocate for a clean sport.

Thank you for developing the ASCA Clinic. It is inspiring, informative, educational and collaborative for every level of our profession.

Thank you on behalf of the coaches (Including Mr. Hastings) whose clubs you visited. Jobs were saved, redefined and BODs were educated in ways that promoted better understanding between coaches and parent boards.

Thank you for the business and professional relationships that you pursued and developed for ASCA. It strengthened us.

Thank you for too many things to mention.

I realize that you credit a lot of people for assisting you with the rise of ASCA. I would not minimize them at all. However, in my opinion, in this particular case, it took your personal dedication to your vision that drove us.

Lastly, I am thankful that you are still with us professionally.

See you soon John.

Best regards,

Pete Raykovich



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# Impulse as Applied to Swimming Stroke Mechanics: The Elephant in the Room

by Dr. Jan Prins

Jan Prins: Let me play this here, when you see that ball that matches exactly how fast the swimmers going at every instant and we're filming at a hundred frames a second. A reminder, all of this afternoon, we want to keep in mind that we are looking at the consequences of what if something happens. When we see the graph going up and down that is what happens because of what the swimmer is doing, that's the key thing. I need swimmers to own their own control. We're not getting 10 swimmers and then, another 10 swimmers and say you do one thing and you do another, you can't do that with elite swimming. Elite swimmers have their own control and that's what we do. We watch the swimmer, we say, 'Okay, here's what's going on,' and see if you want to change it or not. It's up to you. But what we are doing is showing how fast you're doing things at the different parts of your stroke.

Now, we come to this, and again- I don't want to put you to sleep, but impulse is going to be very simple. It's how much force you apply over a period of time. We are interested in velocity, which is an element of time. In swimming, of course, we can apply forces, but here's an explanation for land-based impulse, just so that we understand what's going on. Impulse in weightlifting, is a very hard force in a very short time. That is land-based. You can have wrestling, which is a little more prolonged forces, but again, the impulse is the key factor here. In swimming, of course, we got two types of dragging. We are interested in propulsive drag. Propulsive drag, we push the water back, except for breaststroke. We now know that we are interested in going back. I will show you a lot more about that, but we're interested in pushing the water back. The more successful we do it, the better.

Here's a picture to remind us. When I gave the coaches at a practice run of this, he said, "We talk about paddles all the time." So, I hope you do too, but you're going to push the water back. I think this is a great picture to emphasize that. Impulse in this context is indirectly examined and therefore inferred. I don't want to sound too wordy but inferred means, we are not measuring force, but if you go faster at certain periods, you're obviously applying more force for a longer time. That's why we call it inferred.

So, we're ready. I am going to show you first the average freestyler's profile. The average freestyler's profile. We filmed lots of people for the last 12 years. You see the surge in velocity at the end, the last third of the underwater pool, and that is because we are responsible for that. We have told the swimmer to make sure that you push hard at the end. And so, here's what it looks like.

Let me scrub so it will bring the swimmer a little closer so the bar shows up. Now watch. Right at the end, push and it speeds up. Is this clear or you guys can see what's going on? All right, so that's what the average freestyler does. So, the question is can we do better? I wouldn't be standing up here, if it wasn't. Yes, certainly. Okay, some swimmers even without explicit reminders instinctively applying more impulse during an underwater pull. They do that because they think they can go faster, bingo. So, here's the swimmer. Another swimmer, peak velocity is here for approximately 29%. Now when you go back here, this swimmer actually got a high velocity only at 14% of the underwater stroke. Ain't that shocking? That's because the work was done only at the end, just pushing like crazy at the end. This is most successful, right? 29% and you can see this is flutter. We like to see that. I am going to show you Emily Seeböhm.

Okay, Emily came with her coach years ago and I just said, "Why don't we film you?" She was just swimming, she wasn't really trying to go fast. What you see is a very traumatic, but I don't think she will swim like this when she's swimming really fast, but it tells us what you can do. So, this is Emily. We will give her the benefit of the doubt, she was thinking about holding

the water because we were filming her, but look how flat her curve looks. This is very impressive. Again, she is probably not going to do that when she's swimming really fast and competing, but it's a very dramatically different curve because she's holding the water for a long way. We will give her the benefit of the doubt. But it's a very good example of what can be done. We are going to make a point of it as we go along.

Now, asymmetry is this business of knowing that we can't do the same thing on both sides; nobody is perfectly symmetrical. That's not going to happen. We see a significant difference in peak velocity between the right and left arms. All freestylers we have tested, the swimmers were asked to when we test we ask the swimmers, except for Emily as I said, we ask swimmers usually to go a 100%, no breathing. They're only swimming about 20 meters to the end of the camera. This is an example of asymmetry. You see this?

This is the left and the right. So, we play this and you'll see the right hand generating a very high impulse at the end, but it still shows a huge difference. 12% between the two arms. So, one hand is doing one thing and the other hand is doing the other thing. This is Michael Weiss. Some of you may know who he is. He was on an 800 free relay team at the World Champs and then, the 400 IM at the World Games. He still holds the 400 IM record. He's pretty good and he was there. We filmed him.

This is Michael just regular swimming. He's pulling a little wide, I think we can agree, but other than that, boy, he looks like a great swimmer. So, let me play that again. It's a small short clip because it would take too long, but you can see Michael looks like a world class swimmer except for that little wide pull. So, now, what's going on? This is what we see with Michael. You can look at the difference here. Nineteen percent difference between his left and right arm. Okay. We move up a little bit here. So, let's watch Michael here. That's his right arm and now you see his left arm, gigantic. Nineteen percent is nothing to sneeze at. Now, the funny thing, before we showed Michael this in the film and he said, "You know, I know my right arm is not doing the same thing as my left arm." He said, "When I went to the Colorado Springs Training Camp, they tested me out of the water with all these strength training, strength testing and my difference was quite dramatic."

I said, "Okay, I won't say anything. Let's just show you what's going on." So, guess what? Weiss is now aware of knowing that one arm is not doing as well, so he's going to get in the pool and start thinking about it. That's the point I am making today. Once you know if there's a difference of what the little things are going on, you're now aware what you're going to do. How you're going to change it? You guys are in the trenches. Don't look at me. I am just a carrier of good and bad news, but you have to do something with it. The idea is now you know what to do, otherwise, you're just going to look at people and say, "Okay, what's next?" So, this is what's next. What is an ideal scenario for peak propulsion for a longer duration and no differences in people velocity between right and left arms? The next example is similar peak velocities between right and left arm, however, marked differences between impulses.

I am going to show you Magnussen, who I did last time. He had just come, and the last time I was here was in '13 and this is in the 12th Olympics. They got on the plane a week after the Olympic trials and came over and he was in fantastic shape. He was the second fastest 100 free in the world at the time, so he was in fantastic shape. You're going to see his clips, and if you listen to me a couple of years ago you'd see the same slide or the same video clip, but, boy, this guy -- you can see the peak velocity on his right arm and he was going fast. He was swimming fast, and his coach made sure he was doing that.



Now, watch him. Look at that flat curve; he was holding the water early and really generating peak velocity at that time. This is Magnussen. However, this is what we saw when we have matched both the arms and you can see a difference in his impulse; not the peak velocity, that's the same. But how long he held it, and this is again, if you sat and listen to me a couple of years ago, you should have seen the same slide. But, this is his right arm and this is his left arm. So, what's the difference?

Here's a guy who was the fastest in the world, going into the Games with the fastest or second fastest time in the world. Look at the difference. Peak velocity almost identical, but the difference between the right and left arm has almost 50% difference. When he got out of the water and we were seeing this and he finished the work out that day, it was like six o'clock in the evening and everybody was ready for dinner. I said, "Okay, you know what I am going to tell you, right?" He said, "Oh, yeah." He got his suit back on and got right in the water and worked on it. I don't know how long he went, I went home and had dinner. But, next day, the guy pushed a 22.9 and he never broke 23. He pushed a 50, 22.9. Brad came up, he said, "Boy, just this one thing is worth coming all the way here." So, I use this because this is real life. I didn't invent this. But, he was in fantastic shape.

Now, let's talk about positioning of the hands. I got a couple of things as I said. Throughout the pulls, starting with the catch- the effect of hand pitch during the pull. Here's a quote from Barry Bixler who was a hydrodynamic engineer who was very interested in swimming. He co-wrote this handbook of medicine and science and a fantastic two chapters, but he said, "Regardless of the stroke angle at which the arm is moving keep the palm of the hand facing directly towards the feet to maximize propulsion." That's what Barry said and he was not a coach or anything, he was just a hydraulic engineer. Palm position during the freestyle and palms are maintaining higher above. This is just repeating what we have known for years. This is just a still picture to show that and we figured out a way to track the hands in real time, so that's all we did. This is higher above and then, of course, the infamous dropped elbow.

Now, I am going to show a video of what we did when we purposely ask the swimmer to swim with the dropped elbow. You can see the drop of 34% in dropped elbow. And so, I am going to hand scrub here so you can see what's happening. Everything is happening mentally and now, the dropped elbow, look at that. You can see from the side view what that looks like, so there's nothing mysterious about this. What I need to tell you is this draft shows the speed at which the hand is moving relative to the body. It's a whole different lecture, but what we are being paid to do is to make sure that the speed relative to the side of the pool is high. But when the hand speed is relative to the body high, you know one thing is going to happen and that's slipping. That's what's happening and that's why the speed relative to the body is just rough. No catch, nothing happening.

I am going to move on before we throw up. So, now, we'll talk a little bit about the catch, and again I always make sure we recognize Tom Topolski because it's his idea. He came up with this EVF and I always make it a point to give him credit for it. Now, this is what we can do. As I said, we have got to figure out a way- and I call it video enhancements- to track the path of any part of the body and that's kind of a nice colorful way to show how the path. This is a little wide, of course, with one hand versus the other. Let's move on and the average velocity profile of the catch. Most of the swimmers we have filmed appear not to engage the water early. Velocities go down in the first third of the underwater pull. Points of importance, and this again, I am talking as a coach or ex-coach, it's not enough to simply ensure the palms facing backwards. Common tendency is to let the hands drift backwards at a constant velocity.

No acceleration, no force. Swimmers are very happy, and if you watch a swimmer and you're filming them and they look like they're really getting the elbow up and they're holding the water and all that stuff, don't be satisfied because you don't know whether they're really holding the water and really generating propulsion. It may look great, but you see from the video clip of the graphs I showed you that that is not always the case. Here's

swimmer one, during the catch there's a there's a 38% drop off. Again, I will scrub so you can see where the drop off is. Right here, can you see at the catch right here, between here and here? I hope this is clear for you guys, especially if you're sitting in the back. Can you see what's going on?

Male Participant 1: Yes.

Jan Prins: Okay. You see between here and here the catch looks pretty normal, but not doing beans with the hands. Again, these graphs just do it. That's the catch with a normal swimmer. I am going to show you another swimmer. This is swimmer two, but the same thing, about 28% drop off. Looks like they're doing a good job, this is the swimmer I showed you about holding the impulse a little bit more, but look at the drop off right here. Between here, watch that hand, can you see it's just going a normal looking catch. I actually did a free swim here, so you can see. You can see the catch, but this body is not moving fast. And now, I am going to show you Anthony's catch. Here's a synopsis of what we saw- very deep entry, palms begin facing backwards and engaging the water relatively later.

Hip velocity increases only after the hands start facing backwards, so let's watch just the regular underwater view. This is why we really like that camera now that we put it right at the bottom of the pool pointing straight up. You're going to see Anthony right here, right from the bottom. So, you can see how he's holding the water and then, I will show it down and you can see a little bit more. Let me play it for you all the way through first. All right, so let's do it one more time and then, I will show you the graph, as well. So, here he comes, right there. Let's see his left arm, let's see his right arm and you actually see his right arm a little earlier too, right here.

Let's move on and I will show you some of the graphs that are associated with it. So, this is him. This is his regular freestyle. He's got a very dramatic peak right at the end. Right at the end of his stroke, he's got a very dramatic peak. Then, he put on some paddles and finished. You can see his flutter. See that right there? We made a big issue of making sure you are getting as flat as possible, but what he is doing right now is you see how he's engaging the water a little bit more. We talked about it and he said, "You know what? Because I am only swimming the 50, I want to turnover really fast and my concentration in this first third is trying to make sure my body stays high."

He's not worried about trying to get a lot of propulsive movement right at the beginning. He said, "I know this, but I want to make sure that I get down with that first part of the catch so my hips stay up high and I really crank it at the end." For a 50, it looks like that works. And then, there's another girl, Ivy Martin who was ranked in the top 20 in the world. She's now swimming for Wisconsin and you can see her. We are going to be filming her next week. She also has a very deep quick catch, but, boy, very powerful at the end. Anything more than a 50, I think, the bottom line is you better start engaging the water early just like you saw Magnussen. He can turn to a hundred, but I would treat the 50 as a little bit different animal just simply because what we saw with Anthony and then, we'll film Ivy, as well.

I am talking strictly just got some icing here as we go along and this is a good. This, again, with paddles or no paddles. This is what he looks like and you can see the graphs look different. So, when he had the paddles, he's obviously holding the water better. That's obvious from these. Can you see this? This is more effective and we all know that we can do that with the paddles. Let me play this here one more time for you. I think the early you get your palm facing back, the better. But, again, the 50 as I said looks like maybe it's a slightly different animal and I think it's a wonderful thing for us to hash around, but I can't give you a definitive answer, especially as we filmed Anthony.

Nort Thornton years ago said something that I've never forgotten. He said 'out of control fast, that's what I want to make sure my swimmers don't do.' He kept repeating it over and over again and this must have been in the '70s. I don't know if Rich is still here, but he kept saying that. I've never forgotten that because long before we started thinking about impulse and all that stuff, 'out of control fast' is a great way to say that your hands must



not exceed the ability to hold the water. That's what I am saying to you, force is mass times acceleration because the mass of the hand is fixed, so to control acceleration is essential. If you go too fast, that doesn't work. Here is Anthony's acceleration and velocity curves. I don't want to get too much on a tangent on science, but remember acceleration is the rate of change of velocity.

I am stopping it here at the peak acceleration, but it is showing the slope of the velocity and I was thinking about this when I was getting ready for the lecture this afternoon. If you just focus only on acceleration, that's a little dodgy because you can't just keep accelerating. If you tell your swimmers, 'I want you to keep accelerating,' it means you're expecting the velocity to keep increasing and increasing and increasing all the way. They're going to drop dead about three quarters through the race. So, don't do that. Make sure that it's in control. Again, am I making sense? Because if you keep going faster and faster with the acceleration, you put your foot on the accelerator, your car is just going to be catapulting and that's not the way a humans move. So, that's the business with acceleration. Gary and I have had lots of chats and Gary is on the right track here with the acceleration, so we will look forward to that.

You can see the rate of change of velocity, that is what acceleration is. The steep portion of these curves is where this changes. You don't want to be telling your swimmers to do that all the time and too much. So, remember, not out of control fast. Now, here are some implications. Fluctuations in velocity are directly related to the changes in dynamic inertia. Again, I don't want to put you to sleep, but when we change inertia, you're going to stay from static to dynamic, that's what takes a lot of work. Once you get in moving, it's less work metabolically. I am going to show you a couple of pictures. I had fun finding these. On land, you're pushing somebody with a swing, it doesn't matter if they're 500 pounds. They'll stop and you give a little shove and then, it goes. You change from static to dynamic inertia, you didn't have to work very hard. Then, I found a picture of this guy pushing this racing car. Just three or four people, they're just giving it a shove and then, it just goes. I wish it would be so simple doing it in the water.

I have found these two great pictures. I am going to hold it now so you can read the little title. But in the water, we have inertia constantly slowing us down. Tomorrow, I am going to talk about breaststroke and show you some incredible curves. You are going to walk out of here throwing up. I will show you back breast fly tomorrow, but I am going to show the same pictures. But you can imagine if you slow down any portion of your stroke it takes a heck of a lot of work to pick it up again. You want to maintain the inertia because the metabolic cause is changing inertia. Again, it's the same thing with going up steps. You are not going to walk up a step like this. Because every time you slow down and you have to work a little harder to go. It is much better to go up steps, your body is still the same, but your inertia is much more in control.

I always talk a little bit about the flutter kick and these are the contribution. We have this girl Jessica, she's a good 800 freestyler. This is the two-beat kick and here's the six-beat kick. Can you see how much longer the six-beat kick sustains? These are the comparisons of the two. And when you look at the impulse from a two-beat kick and the six-beat kick, you can see how much longer you can hold it for, we all know that. This is nothing we don't know, but what you can see is that there's a dramatic difference if you start kicking a little bit more sustained. Now, we can come to the infamous S-pull. This is a still picture and I am using this even though it looks real old. It is old because this is the one time in the Games in Beijing they held the underwater camera without tracking, because the only we can put these trails on is if the camera stays still. So this is Park.

Let's play Park and you can see we put the trails on and you can see what his hands are doing. So, this is Park and now I put the trails on so you can see this clear elliptical path. He looks like he's doing this S pull and he's the guy who won the gold medal; what the heck is going on? I alluded to this last time, but I want to do it again because we are all as guilty. We are trying to interpret a three-dimensional movement in two dimensions. When you

look at a flat piece of paper or a screen, you see this elliptical quality. I sat next to Doug for four years and Gary sat next to Doug for more than four years, he never said to do the S pull. He never said, "I want swimmers to go like this and this."

He said, "Look, Barry, this looks like an elliptical path." That's all he said. He didn't ask swimmers to do that. And unfortunately, there's some book that's come out by some young lady who published a book and she said, "Oh, some of the swimmers we know are doing the S pull and Doc Counsilman said so." Maybe he said it when I was not around, but I know that Doc never told anybody they need to go like this. He just noticed that that was happening, but again, we were all so tied into a two-dimensional depiction, that's what's happening. I am going to show you what's happening. This is a girl who we asked to purposely pull wide and do the S pull. I am going to scrub and watch what happens. Your hands are going to start hitting out and can you see how the velocity is dropping, right there. That is how far she's going. That bottom picture shows how far. Now, let me stop this here and I am going to show you pulling wide versus slipping.

When pulling wide, we assume the palms for brief intervals are pitched facing sideways. So, here is just a regular HD video to show a guy pulling sideways. This young lady is pulling sideways. This is a wide pull. Her palms for brief periods are actually facing the sides. Can we all agree with that that she is pulling wide because the palms are changing the pitch? I am going to come show you the slipping, where that's not the case. Here is what happens when we pull wide, look at the drop-off. Here she goes and now, watch the right hand. See that? Thirty-six percent, I like to get that in my bank account in interest, but this is terrible. You lose 36% of your speed every time you pull wide for her, every swimmer is probably going to be a little different, but it's not any trifling matter. When you pull wide, you get out of your alignment and you don't apply the force back. That's it.

This is something that you can describe using some different terms, but slipping is strictly when your lateral side of your hand is traveling, but your palm is still facing back. I think it's something that you need to be careful of and let's watch a girl slipping. Again, I will freeze the picture at the appropriate time, but watch it now. Let her come closer and you can see this even clearer. Watch now. Can you see her palm is still facing back, but she's not holding the water? You see that from the graph, and that's what I call slipping. Again, you're welcome to call it anything you like it, but this is not pulling wide. This is a different case. I made a still picture here just to put a few arrows in to make a point here. Palm is still facing back, however, every time she pulls, her hands go to the side. You'll see the graph go up. Look at that, right there.

I think we can agree that these are two different animals here, pulling wide versus slipping. Now, elbow mid stroke. Elbow bend, re-engineerable angles doing the middle third of the underwater pulls. Sprinter versus distance. Freestylers and trial leads. First is lead freestylers are, and have for many years, instinctively chosen to hold their arms at an obtuse angle greater than 90 degrees. This is an obtuse angle from what I show you. The question is why is that an advantage to maintaining a greater elbow angle as the hands progressed past the chest and the hips?

The answer is based on their angular motion. I apologize if I am throwing a little bit too much biomechanics out here, but the linear velocity of the hand increases as the hand rotates in the path further away from the access. Out of the water examples: you kick a penalty kick; your knee is straight. You're serving in tennis. You got to stretch your arm out because the angular velocity is the same, but the linear velocity is high because we are dealing with propulsive drag forces in the water. The critical factor is velocity.

That's why we paddle. You can't imagine shortening this area, right? Nobody is going to show up at a race saying, "Oh, you know what, I can move it a little easier, so I am going to show up with a shorter paddle." Oh, you're going to shoot yourself in the foot before you even step on the boat. The longer the radius, the higher the velocity. These still pictures- this is Magnussen, on the left-hand side and this is Anthony. That's his elbow angle

as he is passing the middle of his bow. And of course, we can't just be care-free about this. It's very stressful on the shoulders. First, let's agree that the straighter the arm when pulling, the greater the load. Then, again, I want to make sure we go very quickly here, but you can see if you want to do something on one side you have to exceed the forces on the inside. As I always say, I will be happy to elaborate on this later.

Where we see maximum hip velocities in the freestyle, this is the last thing. Peak velocity should be initiated during the middle third of the pull. Now, in 2010, I presented this at a conference and people thought I was nuts. They still think I am nuts, but that's all right. But can you see, I showed this and people said, "What the heck? You are telling us that the peak velocity is not at the end of the stroke?" I said, "Hey, I am not inventing this. I am just telling you this. This is what we saw." This is Magnussen again. Look at this, clearly initiating the middle of the stroke like that. I was watching the wilderness until these guys came up.

In 2015, they published this saying peak force appears to occur just after the swimmer's hand and forearm are close to a vertical position, that's what they came up with. This is what they said: 'the main propulsion phase along the base of the body is when the forearm is close to the perpendicular.' So, I breathed a sigh of relief but I shut my mouth ever since. They came up with the same thing. Now, I am going to play a short clip.

Jan Prins: Okay. This is Anthony and I have Magnussen just to show you since we're talking about elbow bend. Then, I have Katie and a couple of other swimmers from the U.S. as we go along. Can you see she's bending her elbows a little bit more? I think you're very familiar with what we are talking about right now. But the longer the distance, you better have them flexing outwards because those shoulders are going to get shot. Then, this is Jessica Ashwood who is still swimming. I think she's still swimming for Australia. She's bending her elbows almost at 90 degrees. I don't know if she's still doing that now. This is old footage.

Here's Mack Horton. Horton is going to be coming to Hawaii in February for us to film, but he is also a 90 degree. What I am going to do with his coach and his stroke? But I am going to ask Horton's coach, are we going to try having straightening swimming a little bit more with his trainer around and let's see what happens? This is the website that I am working on. Again, I will let you guys know when it's up and running. We have been working on it. I am going to put all these video clips on with my narration and all that stuff and it's going to have that and then, we'll have the high-speed stuff and other things with it. A shameless plug for what I am going to do in a couple of months.

Tomorrow's lecture: velocity for back, breast and fly. We are going to do get breakouts done and some great stuff. Then, we'll talk about flutter kick versus dolphin kick because of you know who and show you some things. Then, we'll talk a little bit about turns. To give you a little teaser, this is part of what I am going to show you at the breakout. This is what a good breakout looks like and you see how nice and gradual the speed goes. There's no break, what a beautiful breakout. I am going to show you some things with the early and late breakout tomorrow that are going to be dramatically different. I have to acknowledge everybody that helped and that's it. Thank you very much. Do we have questions?

Female Speaker: If you have some questions, now is a good time.

Jan Prins: We have 10 minutes. Let's start back there.

Male Participant 2: You mentioned the differences between the two arms. You mentioned dominant right arm people versus left handed and he keeps left hand straight. Are you saying that he is creating more impulse to his left hand versus right?

Jan Prins: Hard for me to say that definitively, but if we film that's what we would see. Now, if he straightened his arm a little straighter, obviously, because the velocity is higher you're going to expect something. But again,

velocity related to how long it can be sustained is what the important thing is, not just how high. We would love to be absolutely symmetric, but it isn't the case. That's what Magnussen was in the water tinkering with and then, Michael Weiss, boy, he got in the water and he said, "You know, I always thought that my left arm was better than my right." Go ahead.

Male Participant 3: Talking more about Anthony, you did mention that he can't reach his peak velocity until the latter half of the stroke. The oscillation with his freestyle has always been the reason to work solo for him is because he has his palm facing down in the inner stroke; he is using the first current stroke to generate lift versus drive.

Jan Prins: Yeah.

Male Participant 2: But you got to have the lift first and the drive is more effective. In my opinion, that's why his freestyle works...

Jan Prins: For the shorter distances, but remember he needs the lift because the guy is so muscular, he's not going to float and he knows that. He's got to stay up high. He says, "First to stay up high, then I can do what I have to do," so absolutely. Does anyone have question?

Male Participant 4: Yeah. Bubbles?

Jan Prins: Oh, bubbles. Those bubbles, he was just cranking. Anthony was not in great shape when we filmed him last September. He hadn't trained for a while. He was just cranking it.

Male Participant 4: But the bubbles are...?

Jan Prins: I have to see his wrist. If you look at this real footage of when he is really going, basically, I see he is getting a lot of bubbles. Bubbles, as we know, are not good. But, when we're filming, yeah, I notice that he has a lot of bubbles. There was no one who did not have bubbles.

Male Participant 5: Do you happen to notice on the weaker arm, does it have any correlation with the side they breath on?

Jan Prins: Yeah, we know that's a very important point and I can't give you a definitive answer.

Male Participant 5: When we talk next year, we'll take a look at that.

Jan Prins: Yeah, we'll take a look at that, but, no, this is a critical thing. I mean, Jim brings up, are we less conscious of what we do on the breathing side that on the side we don't breathe on? I would say yes, I would absolutely agree with you, John, definitely.

Male Participant 6: When you talk about slipping...?

Jan Prins: Yes. Now, tomorrow, I am going to show you an example of slipping in butterfly that's going to just shock you. Slipping means not holding the water, so absolutely you're slipping and the reason I chose this as an example is because if you just watch a swimmer and you see their palms are facing back, you say, "Oh, great." But, guess what? That's not working at all we can see. Now, tomorrow you'll see an example. I won't give you a hint, but you are going to see an example of slipping in fly, that's just going to haunt you for the rest of your career. Actually, the swimmer was able to correct it real quick. I mean, high school champ two weeks later and dropped time tremendously. I hope I gave you a few things to think about and I look forward to seeing you again. I will see you at 1 o'clock tomorrow and tell others we are going to talk about back, breast, fly, breakouts and turns. Thanks for coming. ■



## THOUGHT FOR THE DAY



*You have got to be open to Challenges. Coaches, we have to challenge ourselves. Not just the athletes, but ourselves, get out of our comfort zone. You start out coaching some small team somewhere trying to learn the trade a bit more. Don't stop at your local Senior Champs. Don't stop at Regionals, Don't stop at Futures. When you get to Futures, the next step was "I want to get to Juniors. Then "I want to get to Seniors....then the Trials. I want to get out of that comfort zone all the time. Then you have to convince your athletes to do the same thing. Many of them, today, don't want to be outside their comfort zone. You must make CHANGES for change in your athletes to occur. If nothing changes in your program, don't expect any change in the results. I learned that from Randy Reese*



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## THOUGHT FOR THE DAY

“

*“What?, So What?, Now What?”*

- 1. WHAT IS THE ISSUE YOU ARE DISCUSSING?*
- 2. SO What? – WHY DOES THIS MATTER TO THE AUDIENCE.*
- 3. NOW WHAT? – would you like me/us to do about it, now.*

”



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Mostafa Ali Mohammed	2	International Age Group
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Ibrahim Eid Ali Amin	2	International Age Group
Kaavyashri Anbumani	2	International Age Group
Chelsea Andrews	1	Age Group
Christopher Anonuevo	2	International Age Group
Evan Anthony	1	USA Swimming; NCAA II
Elvie D. Aquino	2	International Age Group
Ndikum Asue	2	International Age Group
Mahmoud Atef	2	International Age Group
Priya Aurora	1	Age Group; USA Swimming
Hisham Ahmed Awed Ahmed	2	International Age Group
M. D. Aworangajeb	1	International Age Group
Ahmed Ayad	2	International Age Group
Nadia Baghdadi	2	International Age Group
Ahmad Baghdadi	2	International Age Group
Mohammad Baghdadi	2	International Age Group
Shihong Bao	2	International Age Group
Leo Barajas	2	USA Swimming; Age Group
Juneffer Basa	2	International Age Group
Jenny Basye	1	Age Group; High School
Channaka Nishan		
Batawala Paththinia Ralalage	2	International Age Group
Hussein Baydoun	2	International Age Group
Corey Belcher	2	USA Swimming
Garson Benjamin	2	International Age Group
Svetlana Blazevic	2	International Age Group
Susan Bleecker	2	Age Group, High School
Laura Bob	2	International Age Group
Joe Bonk	1	USA Swimming; YMCA
Gordon Borde	2	International Age Group
Eric Bostard	1	USA Swimming; Age Group
Corey Botkin	1	USA Swimming; High School
Patrice Boucher	1	USA Swimming; High School
Michelle Bourne	2	International Age Group
Dirk Bovell	1	USA Swimming; High School
Jonathan Boyd	1	High School
Michael Bradley	1	High School
Adam Bransky	1	Age Group

# Congratulations to our newly Certified ASCA Coaches Since July 2019!

COACH	LEVEL	TYPE
Emily Braun	2	USA Swimming
Kyle Brawley	1	USA Swimming; High School
Heather Brewer-Scotti	1	USA Swimming
Sheona Bronkhorst	2	International Age Group
Leeanne Brown	1	International Age Group
Bridget Brown	2	USA Swimming
Alexis Brown	1	USA Swimming
Vladimir Bure	1	International Age Group
J.C. Cabrero	2	Age Group; High School
Maricel Cagas	1	International Age Group
Dylan Calhoon	1	Summer League
Ryan Callan	4	USA Swimming
Tiana Campbell	1	International Age Group and High School
LyAn Cantimbuhan	1	USA Swimming; Age Group
Jordan Capper	2	USA Swimming; Age Group
Paul Anthony Capule	2	International Age Group
Bryn Caraway	1	Summer League
Athena Carroll	2	International Age Group
Michael Andrew Castillo	1	International Age Group
Charmagne Castro	2	International Age Group
Kenneth Cawthon	1	USA Swimming; High School
Cesar Nunez Cazares	2	USA Swimming, Age Group; High School
Matthew Cervantes	1	USA Swimming
Farnaz Chamani	2	International Age Group
Cody Chan	1	International Age Group
Alliss Chan	1	International Age Group
Danny Chan	2	International Age Group
Nigel Chanorika	1	International Age Group
Megan Charles	2	International Age Group
Baldev Chaudhary	2	International Age Group
Lea Jean Chavez	2	International Age Group
Jacky Chen	1	International Age Group
Chuan Chen	2	International Age Group
Siyu Chen	2	International Age Group
Wei Chen	2	International Age Group
Peggy Chen	1	International Age Group; High School
Long Yu Cheng	2	International Age Group
Chong Kwong Chia	2	International Age Group
Kosamu Chibende	2	International Age Group
Kheng Chuan Chong	2	International Age Group
Steve Chow	2	International Age Group
Brandon Chua	2	International Age Group
Felicia Chua	2	International Age Group
Tre Clark	2	USA Swimming
Samantha Clark	1	USA Swimming; YMCA
Livia Clarke	1	International Age Group
Dianne Cobb	1	USA Swimming
De Sean Collins	1	International Age Group
David Colunga	1	USA Swimming; High School
Susanne Cooper	2	USA Swimming
Denny Crowell	1	USA Swimming; Age Group
Kristen Da Silva	2	International Age Group
Paul Da Silva	1	International Age Group
Jordan Dai	2	International Age Group
Fackson Daka	1	International Age Group
Peyman Darvish	2	International Age Group
Supipi Dassanayake	2	International Age Group
Debra Dauderman	2	USA Swimming; Age Group
Alecia Davis	1	USA Swimming; Age Group
Alpha Dyke De Bourgh	2	International Age Group
Shehan De Silva	2	International Age Group
Cecilia del Cueto Arzola	1	International Age Group
David del Cueto Jimenez	2	International Age Group
Allan Dela Cruz	2	International Age Group
Mohammad Deljoo	4	International Age Group
Ramon Delleguas	1	USA Swimming; Age Group
Jared Diallo	1	USA Swimming

# Congratulations to our newly Certified ASCA Coaches Since July 2019!

COACH	LEVEL	TYPE
Rochelle Dimatlanta	2	International Age Group
Ashley Donohoe	1	USA Swimming
Melissa Douglas	1	International Age Group
Alex Dowie	1	USA Swimming
Gordon Dowler	2	USA Swimming; Age Group
Daniel Dullien	2	USA Swimming
Israel Duran	1	International Age Group
Geralyn Eastman	2	Age Group
Ahmed Mosbah Abdelsalam Ebrahim	2	International Age Group
Kyle Edgar	2	USA Swimming; Age Group
Cheryl Edwards	2	Age Group
Yasmin Sherif El Sherbiny	2	International Age Group
Ahmed el Tantawy	2	International Age Group
Mohamed Elawam	2	International Age Group
Moustafa Eldahna	2	International Age Group
Spencer Eldred	2	USA Swimming; Age Group
Islam Elfeky	5	International Age Group
Basma Elhendawi	2	International Age Group
Tiitta Elias	2	USA Swimming
Seham El-Kerm	2	International Age Group
Shakkir Ellath	2	International Age Group
Soha Elnagar	2	International Age Group
Eslam Elshamy	2	International Age Group
Fatema Elshamy	2	International Age Group
Hosam Elshraidy	2	International Age Group
Kareem Ennab	2	International Age Group
Van X Tien Harz Fajardo	1	International Age Group
Laura Falsone	1	Age Group; High School
Andrew Farner	3;2	Education; USA Swimming
Farzan Farook	1	International Age Group
Kristen Farrington	1	International Age Group
Nour Fathe Soliman	2	International Age Group
Slava Fattakhov	2	USA Swimming
Ramil Faustino	2	International Age Group
Oleksandr Filimonov	2	USA Swimming
Taylor Filliben	2	USA Swimming
Jodi Fisher	2	USA Swimming
Nabil Foutouh	1	International Age Group
Daniela Fredrikkson	1	International Age Group
Julie Gallion	1	Age Group
Leizel Garalde	2	International Age Group
Vanessa Garcia	1	International Age Group
Emilio Garmendia	1	International Age Group
Ryan Gautschi	2	USA Swimming
Ampumuza Gervase	2	International Age Group
Dogan Karako Geyindiren	1	International Age Group
Aissam Ghetas	2	International Age Group
Richard Giffen	1	USA Swimming
Vivien Marie Ginlo	2	International Age Group
Shukhrat Gizatulin	2	International Age Group
Alice Godfred	1	USA Swimming
Sijie Goh	2	International Age Group
Dilekha Goonewardene	1	International Age Group
Elsa Govia	1	International Age Group
Kathryn Granley	1	Masters Jeffrey
Green	1	USA Swimming
Megan Kate Greenwood	1	Age Group; Masters
Debra-Anne Grell	2	International Age Group
Manjula Thushara Gunasinghe	2	International Age Group
Janice Guo	2	International Age Group
Kiran Gurung	2	International Age Group
Megh Raj Gurung	2	International Age Group
Eslam Ashraf Ahmed Habib	2	International Age Group
Heather Haese	1	YMCA
Dianna Haines	2	International Age Group
Hamza Halali	2	International Age Group
Ndu-bisi Hall	1	International Age Group

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COACH	LEVEL	TYPE
Rania Hamama Attia	2	International Age Group
Mohamed Hamdy	1	International Age Group
Islam Hamdy Mohamed Alielden	2	International Age Group
Ben Hammond	2	USA Swimming; High School
Xuz Han	2	International Age Group
Kristin Hardy	1	Age group
Glenn Scott Hargett	1	YMCA; Age Group
Hadeel Harraz	2	International Age Group
Samantha Harrison	1	International Age Group
Christie Harrison	1	International Age Group
Ariel Haskett	1	Age Group
Kerry Hayes	2	International Age Group
Inas Hejazi	2	International Age Group
Abdallah Nabil Helmy Mostafa Ali	2	International Age Group
Kenyon Hernandez	1	International Age Group
Wendy Hernandez	1	International Age Group
Bawanthi Hettiarachchi	2	International Age Group
Ryan Hinds	1	International Age Group
Kristen Hinton	1	Age Group
George Horvath	1	USA Swimming; Age Group
Maura Hose	2	USA Swimming
Adrian Huang	2	International Age Group
Kam To Hui	1	International Age Group
Selma Husagic	2	International Age Group
Shefin Ibrahim	2	International Age Group
Ahmed Id Bihi	2	International Age Group
Dejan Ilijoski	2	International Age Group
Fadli Iskandar	2	International Age Group
Kais Issa	2	International Age Group
Mirriam Jackson	2	International Age Group
Lindsey Jackson	1	USA Swimming; Age Group
Muhammad Adli Jainulabudin	2	International Age Group
Shauna-Kay James-Arthurs	1	International Age Group
Rami Jdeidani	1	International Age Group
Tim Jenkins	1	YMCA - Age Group
Jenil Jeyakumar	2	International Age Group
De Ji Jin	2	International Age Group
Ruoping Jin	2	International Age Group
Eric Johnson	1	USA Swimming; YMCA; High School
Jude Jones	1	International Age Group
Leslie Jordan	2	High School
Eric Judd	1	USA Swimming; Age Group
Divya Kammana	2	International Age Group
Khaled Kan'an	2	International Age Group
Marie Kane-Seitz	1	USA Swimming
Miao Kang	2	International Age Group
Areshi Christeen Karunarathne	1	International Age Group
Muhammad Kashif	2	International Age Group
Marwan Subhi Kastali	2	International Age Group
Himanshu Kataria	1	International Age Group
Kayla Kelly	1	USA Swimming
Engy Khaled	2	International Age Group
Hanan Khamis	2	International Age Group
Kale Kirchner	2	USA Swimming
Phylls Nduku Kitonyi	2	International Age Group
Peter Kolodziej	2	International Age Group
Wael Koubrousli	2	International Age Group
Kar Huat Kuah	2	International Age Group
Julian Kuan	1	International Age Group
Katsiaryna Kulpo	2	International Age Group
Chetan Kumar	2	International Age Group
Dinesh Kumara	2	International Age Group
Ka Fai Kwok	1	International Age Group
Swathy L. S.	2	International Age Group
Curtis LaGrone	2	USA Swimming; Age Group
Adel Lalla	1	International Age Group
Lindsay Lambert	1	USA Swimming

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COACH	LEVEL	TYPE
Lauren Landin	2	USA Swimming
Christian Lajara	1	USA Swimming; Age Group
Adel Lalla	1	International Age Group
Lindsay Lambert	1	USA Swimming
Lauren Landin	2	USA Swimming
Cheuk Hei Lau	1	International Age Group
Steve Lazaraton	2	USA Swimming
Mandy Lee	1	International Age Group
Benecia Lee	1	International Age Group
Jae Deuk Lee	2	International Age Group
Hua-Xing Lee	2	International Age Group
Patrick Lee Loy	2	International Age Group
Karen LeFebre	2	USA Swimming; Masters
James Leonard	2	USA Swimming
Zhan Rui Leong	2	International Age Group
Lee-Ann Lewis	1	International Age Group
Leigh Lewis	1	USA Swimming
Jia Ming Li	2	International Age Group
Lawrence Li	1	USA Swimming
Triston Lim	2	International Age Group
George Liu	2	International Age Group
Tricia Liverpool	1	International Age Group
Kasun Madusanka Liyana Arachchige	2	International Age Group
Bella Jean Llenos	2	International Age Group
Marina Lottering	1	International Age Group
Chrisna Lottering	1	International Age Group
Yan Lu	2	International Age Group
Sergio Luiz Mota	1	International Age Group
Chi Ting Ma	1	International Age Group
Rong Ma	2	International Age Group
Wendy MacLaughlin	1	USA Swimming; YMCA
Ronald Madoo	1	International Age Group
Ahmed Magdy	1	International Age Group
Eman Mahmoud	2	International Age Group
Amr Zakaria Mahmoud	2	International Age Group
Michael Mahrour	1	USA Swimming; Age Group
Nelba Malvan	2	International Age Group
Hussein Mansour	2	International Age Group
Brian Many	1	USA Swimming; YMCA
Felix Martinez Martinez	2	International Age Group
Madome Mathiba	2	International Age Group
Micah McLeod	1	International Age Group
Enrico McConney	2	International Age Group
Courtney McGovern	1	USA Swimming
Wendy McGrael	1	USA Swimming
Kelly McKechnie	1	USA Swimming; Age Group
Trey McKula	1	USA Swimming; Age Group
Megan McLain	2	USA Swimming
Karim Medhat	1	International Age Group
Joselle Dalene Rose Mendoza	1	International Age Group
Innah Socorro Mercader	2	International Age Group
Lee Anne Claire Mercado Mejia	1	International Age Group
Abeer Merza	2	International Age Group
Hanaa Meselhi Ali	2	International Age Group
Steve Metzdorf	2	USA Swimming, Masters
Tatiana Mikhailenko	1	USA Swimming
Zach Miller	2	USA Swimming; Age Group
Malissa Millington	1	International Age Group
Ian Mo	1	International Age Group
Rami Mohamed	1	International Age Group
Eslam Mohamed Mohamed Ali	2	International Age Group
Angham Mohamed Attia	2	International Age Group
Ijaz Mohammad	1	International Age Group
Rilwan Mohideen	2	International Age Group
Alberto Montero	1	International Age Group
Ian Moon	1	Age Group
Davy Moore	2	International Age Group

# Congratulations to our newly Certified ASCA Coaches Since July 2019!

COACH	LEVEL	TYPE
Linda Morash	1	High School
Ethel Moratto	1	International Age Group
Jason Morgan	1	USA Swimming
Richard Morris	2	Age Group
Ulrich Muller	1	International Age Group
Matt Muratore	1	USA Swimming; Age Group
Deanna Murlin	1	USA Swimming
Emily Murray	1	USA Swimming
Francis Isaac Wahinya Mwaura	2	International Age Group
Nayyar Nasir	2	International Age Group
Gihini Nawela	1	International Age Group
Rahab Muthoni Ndegwa	2	International Age Group
James Mbuthia Ndungu	2	International Age Group
Mahmoud Negm	2	International Age Group
Jair Nero	1	International Age Group
Abel Ng	2	International Age Group
Joel Ng	2	International Age Group
Leonard Ng	2	International Age Group
Shermaine Ng	2	International Age Group
Steven Ng	2	International Age Group
Veil Ng	2	International Age Group
Michael Ngai	1	Age Group
Phuc Sang Ngo	1	International Age Group
Lloyd Ngoh	2	International Age Group
Austen Nguyen	2	USA Swimming
Siyi Ning	2	International Age Group
Anna Nowell	5;2	Education; USA Swimming, Age Group
Antonio Nunez-Alvarez	1	USA Swimming
Nathaniel Ododo	2	International Age Group
Violet Ojong Menge	2	International Age Group
Lindy-Lee Olivier	2	International Age Group
Tamaryn Olivier	2	International Age Group
Fahad Omar	2	International Age Group
Brian Omondi	2	International Age Group
Francis Onyango	2	International Age Group
Leah Ortiz	1	USA Swimming
Laura Over	1	Age Group; High School
Edward Pacey	1	USA Swimming
Terry Papadopoulos	1	International Age Group
De Tian Peng	2	International Age Group
Kittisak Penkoksoong	1	International Age Group
Shawn Pereira	1	International Age Group
Dhanushka Perera	2	International Age Group
K.P. Amith Perera	2	International Age Group
Joel Perez	2	International Age Group
Brianna Peterson	1	USA Swimming; Age Group
Daniel Phun	2	International Age Group
Pengfei Pi	2	International Age Group
Greg Piatt	1	USA Swimming, Age Group and YMCA
Christopher Pierce	1	USA Swimming; Age Group
Julie Pinto	2	International Age Group
Ana Pizarro	2	USA Swimming; Age Group
Claire Pocock	2	International Age Group
Margaret Pozzo	2	USA Swimming; High School
Shehana Premachandra	2	International Age Group
Susan Principe	1	Age Group
Chao Qin	1	International Age Group
Guruprasad R.	1	International Age Group
Farhod Rahimov	2	International Age Group
Mohammad Abdur Rahman	2	International Age Group
Aaron Ram	2	International Age Group
Subramanian Ramasamy	2	International Age Group
Abbey Rasa	2	USA Swimming
Alex Rashed	2	International Age Group
Yasser Rayan	2	International Age Group
Daniel Redelinghuys	1	International Age Group
Mohamed Yehia Reyad	2	International Age Group

# Congratulations to our newly Certified ASCA Coaches Since July 2019!

COACH	LEVEL	TYPE
Austin Rider	1	USA Swimming; Age Group
Christian Riley	1	YMCA
Mona Rizk	2	International Age Group
Dwayne Roach	1	International Age Group
Nicola Roncaglia	1	International Age Group
Keith Rountree	2	USA Swimming; Age Group
Yvan Roustit	1	International Age Group
Lauren Rupp	1	USA Swimming; Age Group
Bill Rusch	1	USA Swimming; High School
Tammy Russell	2	USA Swimming, YMCA Age Group
Jim Ruth	2	Age Group
Sissy Rytting	1	Age Group
Jacob Saechao	2	Age Group
Jalal Said	2	International Age Group
Mohamad Sakr	5	International Age Group
Mark Anthony Salanguit	3	International Age Group
Samer Salih	2	International Age Group
Karama Samir Karama	2	International Age Group
Treston Sampson	1	International Age Group
Tishana Sankar-Marajh	1	International Age Group
Nithya Anand Saravanan	2	International Age Group
Chuck Sarcia	2	International Age Group
Subash Singh Saud	2	International Age Group
Hashan Eranda Savunda Marakkala	2	International Age Group
Robyn Scheepers	2	International Age Group
Dana Schweizer	2	YMCA
Amr Selim	2	International Age Group
Chamani Senevirathne	2	International Age Group
Boitshepo Setlhake	2	International Age Group
David Seto	2	International Age Group
Ahmed Shabana	2	International Age Group
Shady Shaker	2	International Age Group
Ramy Shalaby	2	International Age Group
Abdelrahman Shamso	1	International Age Group
Wei Shi	2	International Age Group
Jia Hui Siah	2	International Age Group
Zoe Sianis	1	USA Swimming; High School
Muthuranga Silva	2	International Age Group
Caio Silva	1	USA Swimming; High School
Roshen Ruvim Silva Amarasinhaghaga	2	International Age Group
Chin Chun Sim	2	International Age Group
Brianna Sims	2	USA Swimming; YMCA
Jim Singelyn	2	USA Swimming; High School
Leanne Sirup	2	International Age Group
Wai Yiu Siu	1	International Age Group
Matthew Skingsley	1	International Age Group
Johanna Slaysman	1	USA Swimming; Age Group
Sabine Slijm	2	International Age Group
Samantha Smith	1	International Age Group
John Smith	1	USA Swimming; Age Group
David Smith	1	USA Swimming; High School
Jamie Sobel	1	USA Swimming; YMCA
Mohamed Sobhy	1	International Age Group
Meleth Solina	2	International Age Group
Cassie Sorna	1	USA Swimming
Festovictor Ssenkooza	2	International Age Group
Catalin Ioan Stan	1	International Age Group
Sam Stankivicz	1	USA Swimming; High School
Miodrag Stankovic	1	International Age Group
Kevin Stephens	1	USA Swimming
Nemanja Stevanovic	1	International Age Group
Katina Straub	2	International Age Group
Maamun Suleiman	2	International Age Group
Mark Anthony Suliva	2	International Age Group
Sean Sullivan	1	USA Swimming
Emile Sunier	1	High School
Umadevi Sureshpandian	2	International Age Group

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COACH	LEVEL	TYPE
Maryanne Svoboda	2	USA Swimming
Kern Sydney	1	International Age Group
Fu Yuen Sze To	1	International Age Group
Christian Mark L. Tabuan	2	International Age Group
Soon Chai Tan	2	International Age Group
Hwee Keat Tan	2	International Age Group
Zhan Hong Tan	2	International Age Group
Christopher Steven Tan	2	International Age Group
Viviena Tan	2	International Age Group
Leek Ooi Tan	2	International Age Group
Thea Tang	2	International Age Group
Courtney Tarr	1	International Age Group
Thalia Tate	1	USA Swimming
Emad Tayeh	2	International Age Group
Luke Taylor	2	International Age Group
Jhesa Tayong	2	International Age Group
Stephen Telfer	2	International Age Group
Thayyullathil Kuyyandy Thahir	2	International Age Group
Jinu Thampy	2	International Age Group
Jing Hong Then	1	International Age Group
Jessi Thomas	1	USA Swimming
Sarah Thorn	1	USA Swimming; High School
Shamika Pramod Thuiyahandi	2	International Age Group
Xu Tian	1	International Age Group
Francesca Tinucci	1	USA Swimming; Age Group
Murat Togay	1	International Age Group
Song Choon Toh	2	International Age Group
Ahmed Tony	2	International Age Group
Kara Torrence-Burkhead	1	Summer League
Lois van Beek	2	International Age Group
Andrea Vasquez	2	International Age Group
Tetiana Veretelnyk	1	International Age Group
Jackson Vivencio	2	International Age Group
Jacob Wallis	1	USA Swimming
Sarah Walters-Wall	1	Age Group
Claire Walton	2	International Age Group
Jane Wamuyu Gateiya	2	International Age Group
Echo Wan	2	International Age Group
Lao Wan	2	International Age Group
Curtis Wang	1	International Age Group
Chunyan Wang	2	International Age Group
Edison Wang	2	International Age Group
Rebekah Ware	1	USA Swimming
Isaac Watts	2	USA Swimming
Joanna Wee	2	International Age Group
Talitha Joy Weiden	1	USA Swimming
Makinni Kevina Wellington	1	International Age Group
Julie Ann Wessler	2	NCAA II
Rebecca Westfall	1	USA Swimming; NCAA I
Denny Fernando Wibowo	1	International Age Group
Tyler Will	2	USA Swimming; YMCA
Winston Williams	1	High School
Kerry Williams	2	International Age Group
Gage Williams	1	USA Swimming
Margaret Williams	2	USA Swimming; High School
Parrish Wills	2	USA Swimming; Age Group
Ashley Wilson	2	USA Swimming
ValerieWong	2	International Age Group
Hao Tian Wu	2	International Age Group
Rajesh Kumar Yadav	2	International Age Group
Lisha Yang	2	International Age Group
Shaun Yap	2	International Age Group
Beng Song Yap	2	International Age Group
Valerie Yee	2	International Age Group
Kee Han Yeo	1	International Age Group
Adrian Yeong	2	International Age Group
Chris Young	1	International Age Group

# *Congratulations to our newly* **Certified ASCA Coaches Since July 2019!**

<b>COACH</b>	<b>LEVEL</b>	<b>TYPE</b>
Zhi Jie He Yuan	2	International Age Group
Muhammad Yamin Yusof	2	International Age Group
Syed Shahbaz Hussain Zadi	2	International Age Group
Yavor Zahariev	4	International Age Group
Magdi Zaher	2	International Age Group
Carol Zangla	2	International Age Group
Brianna Zappulla	1	USA Swimming; High School
Rafeeq Zarab	2	International Age Group
Tatyana Zavadovskaya	2	International Age Group
Guanglin Zeng	2	International Age Group
Nikki Zeravica	2	International Age Group
Kanat Zhantayev	3;1	International Age Group; USA Swimming
Li Qiang Zhao	2	International Age Group
Mei Rong Zhao	2	International Age Group
Natalie Zoldork	1	USA Swimming

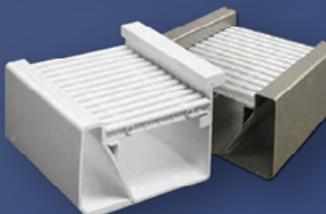


# Pools Built Right From The Start.™



## RenoSys PVC Pool Shell™

A **completely watertight** 60mil reinforced PVC membrane lines your pool to prevent leaks.



## DuraTech™ Gutters

Our **PVC gutters** are a cost-effective option for indoor pools. Also available in stainless steel.



## DuraTech™ Grating

Choose from 6 styles, including interlocking, I-Bar, T-Bar and our incredibly tough **HDPE PolyGrate™**



## RecDeck™ PVC Flooring

Keeps your pool deck and locker room floors watertight and helps to **prevent slips.**

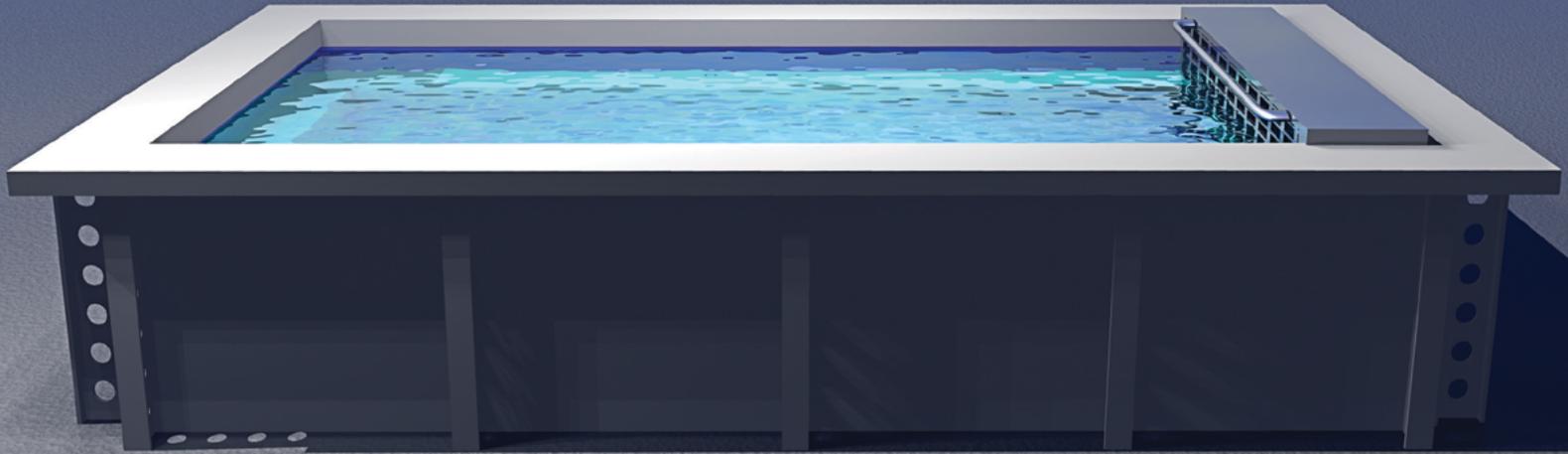


# RenoSys®

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# Powerfully Smooth



Since 1972 Sentry Pools has built thousands of commercial and residential pools around the world. Now, made with the finest craftsmanship and attention to detail, Sentry brings you one of the most unique swimming experiences on the planet — the perfect flow pool. It's unparalleled drive system allows it to run at slow trickle speeds and also as fast as the most elite swimmer — all at an affordable price.

## Unique design and operational features:

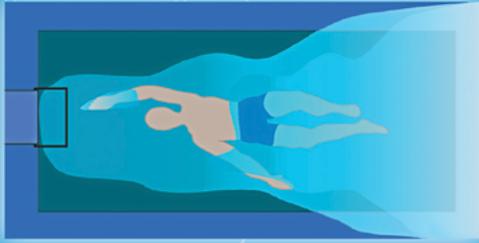
- Can be retrofitted into existing pools
- Perfect for swimming instruction
- Most advanced propulsion system in the world
- The ideal system for stroke analysis from beginner to elite swimmers
- Economical and easy to install
- Variable flow speeds from a slow flow that provides buoyancy to as fast as :40 per 100 yards
- Unparalleled engineering, materials, and construction
- Multiple models and sizes to choose from
- Customizable



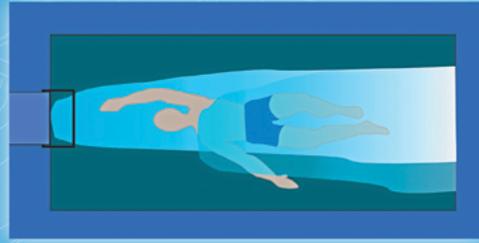
**SENTRY**  
RIVER POOL

[www.sentrypool.com](http://www.sentrypool.com)

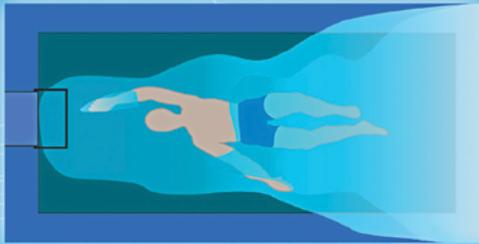
# Sentry vs Competitor



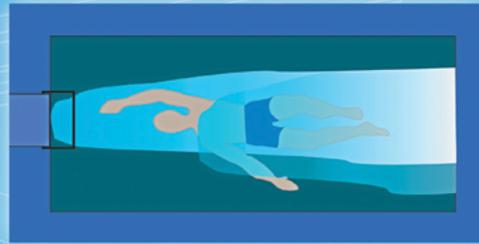
24" Walkway all around pool is standard



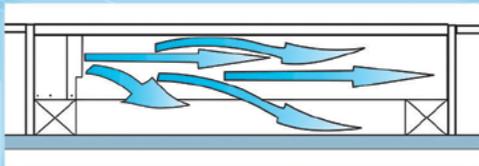
Construction does not allow for walkway unless a deck is attached off of the structure



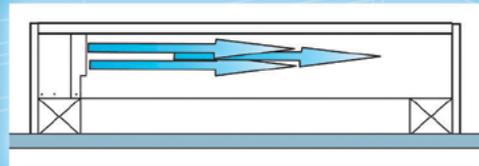
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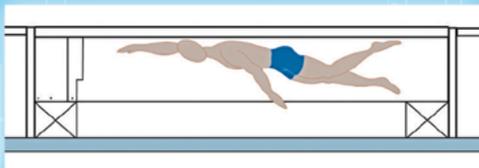
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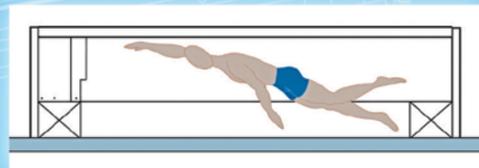
Deep Current from waterline to the bottom of the pool



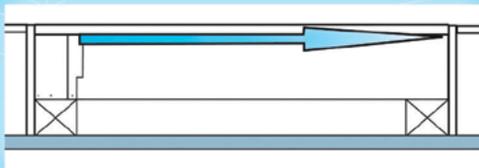
Current depth 12" from the waterline



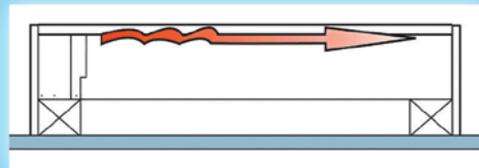
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# Katherine Baker's World Record Year

by David Marsh

Michael Lawrence: Everybody, please welcome Dave Marsh, who is the centerpiece here this morning. He is going to talk about the development of Kathleen Baker and the development from when she was young into the world record holder that she became. Dave, as most of you know, has been an NCAA Champion coach, coach of NCAA champions, Olympic champions, World champions, and there's not a whole lot that Dave hasn't done in the sport as a coach and not a whole lot that his athletes haven't accomplished. He's currently in a coaching Team Elite in San Diego, where he has a very diverse and very accomplished group of Olympians with their eyes set on 2020 in Tokyo. Dave's rooting for all of them, and secretly we root for all of them, but secretly we root for the Americans.

Our format this morning is a Q&A interview process here with our master interviewer. Chuck Warner, ASCA Board Member will be doing the honors this morning and he will be looking for you to ask some questions. So, without any further ado, if I could bring to the stage, Dave Marsh and Chuck Warner.

Chuck Warner: Coach Parratto, are you here? All right. "Even the best, learn from the best." Thank you guys for being here this morning. We're going to march through Kathleen's career and then want to have questions from you guys to Coach Marsh about whatever you'd like to ask, but let's start this way. David's had an incredible career of team championships, but world records are pretty special, and in this day and age, extremely unique.

Chuck Warner: All right, why don't we start? We're going to start talking a little bit about Kathleen's pre-pro swimming career. So, she started as a little girl in North Carolina, and she was the best swimmer on her team and didn't have much competition in practice.

Chuck Warner: Kathleen said that Chris Bowker, her coach, he would walk up and down the pool. That was the best competition that she had as her coach, and it was all the competition that she had in the pool. She was a good Age Group swimmer, but by the time she got to be 12- 13 years old, she was tired of just racing her coach up and down the pool. She wanted to go to a big program with faster swimmers and people that she could race against, and wanted to have the chance to go long course. So, she contacted SwimMAC. She finally talked her parents into letting her look at another program and how did that move transpire?

David Marsh: Yeah, these conversations are sometimes odd. I met her at a gas station with her parents and had a conversation about what she was doing. I didn't want her to come because we met when we were doing some clinics for the Team Elite group. We were doing clinics for some of the clubs in North Carolina and their club was taking advantage of it probably the most, so she got to meet the Team Elite swimmers, got to practice with them. She sort of got a little bit of the fever of what that's like.

Chris Bowker, by the way, ended up marrying one of the team Elite swimmers. So, he got something pretty good, too. I think the beginning of changing and uprooting from her home to Charlotte was a giant move because she and her family, they are homebodies. They are a close-knit family, and this was something that was going to really change the dynamic of their whole life. It was a hard decision. I didn't necessarily think she needed to do it because she did have a good coach there.

But one thing after coaching Kathleen now for more or less nine years, when Kathleen gets her mind on something, she won't let it go. She literally won't let it go. I told her, "You really need to be an attorney because you're going

to make people a lot of money," but she is really strong-minded at what she wants to get done. Even at 14 years old, she just convinced her parents what needed to be done. Just an interesting piece of this too, in that move, her dad who was a principal of one of the most distinguished high schools in Winston-Salem, he stepped away from that job to move down to Charlotte to live with her and take care of her. I just thought, when I walked in here and John Leonard was talking about the importance of fathers, Kathleen Baker has a great father. She has a wonderful father; has a great mother too, but just talking about the father moved down and I think in many ways that's been some of the backbone of a person who's gone through a whole career with built-in challenges. She's had challenges of typical aquatic background and challenges of different injuries and things, but she's had a lot to overcome.

Chuck Warner: Let's talk about that. When I contacted you and Terri McKeever about what was special about Kathleen, the first thing you both said is what you are starting into right here is 'assertive determination.' I talked to her on the phone the other day, and I reminded her that she's got a sister Rachel that's three years older than her, and she said, "I think I came out of the womb determined. I wanted to beat my sister at pushing the elevator button. I wanted to beat my sister at being the first one to the front door when the doorbell rang. I wanted to beat her at everything." Where did you see that determination at first? Was that when she came to you? Was that before then and how has that helped her?

David Marsh: I saw that the first time we did a clinic for the club. When Dean Smith talked about Michael Jordan, he said, "Well, biggest difference is that every time I had a teaching moment, he was listening not with his ears, but with his eyes." That was what Kathleen was like with these clinics. I mean, I could just see this girl and she was the one who wanted to volunteer to be the demonstrator. She's the one who wanted to be in the first in the lane, and closest, and asking questions afterwards. That eagerness was already there.

Then I would say, after a few years and later after she was a high school kid in the Team Elite Group, and we'll talk about that progression because that's a really key progression. When we play games, and we play a lot of games; we play Frisbee in the water, or Underwater Torpedo. The guys don't want to be near her because she literally attacks them. She doesn't lose. She just attacks with a vengeance, nails are coming at you, everything's coming at you; she is going to win the thing. You would never know when she gets out of the pool, she is pleasant as can be, and she is sort of proud to be girly. That's sort of her thing. But in the water, she is tough.

Chuck Warner: But then there's this flipside, and the flipside as she is got the incurable Crohn's disease- the definition of which I'm reading here. "Debilitating inflammation and scarring of the digestive track." She has times when she just physically can't do things. I saw a quote from her somewhere, "I'm good until I'm not," and that she said on the phone. All might be going well and then all of a sudden she's completely out of gas. When she came over to SwimMAC, you did not allow her to swim with Team Elite, except maybe one morning a week, correct? Monday mornings?

David Marsh: Yeah. By design, when she came she was 14, and we had a really good group already at SwimMAC. There was a really nice surge at that time because we had been working at the younger age groups long enough now to where a great group had moved up. There was a group that was coming through and we had designed a group called the Turbo Group. It was a place we would meet at a historically black college called Johnson C. Smith in a

three-and-a-half foot pool, water temperature is about 83, 84. This is where Team Elite also trained half the time, but we built this Turbo Groups to pair up with Team Elite, so that team lead would come in and then Turbo would be right after it. These younger kids that were high school aged kids would come in and swim right after the professionals were in there and, of course, the goal was to have them come in and see what the professionals were doing, and want that and lean into that. That was the year that I think in our 17-18 boys relays, we broke all the national records and I think that had a lot to do with it. The worst swimmer in the group there was Michael Chadwick. He was the worst of the Turbo Group and probably didn't deserve to be in the group, but I knew he was going to be a tall guy. His dad was a basketball player at UNC, so I gave him the nod. The one that wasn't in it oddly enough was my daughter. She had the cuts to be in it. She had the Junior National cuts, but she hadn't done much training so she didn't need that level of training. Pam Swan was giving her all of what she needed up in the North part of town and it was interesting how that dynamic worked out, but that group was perfect for Kathleen that first year because she was the best in the group most days, but there was enough competition at her age. The difference with Kathleen though, was she would come every day early, usually an hour and a half early, and she would sit on a bench and watch Team Elite all the time.

Occasionally, I would say, "Do you want to get in the water for the last half hour?" and she'd throw her clothes off as fast as she could she be in the water immediately whenever I gave her the opportunity to get in the water. I did that intentionally to give her little touches, but I didn't give her all of it. She was fast enough to train with Team Elite and her training ability was there, but we wanted to hold something back from her and that's part of what I have done with most of the better swimmers I've ever had- try to keep something back. That way there's something that they are still striving for and not give them everything all at once. Keep them hungry for the next level and not give them that sense that, 'Okay, I made it. I am a Junior National Champion. I've made it,' or, 'Okay. Futures qualifier- I've made it.' Build into where they see the end of the rainbow is their full potential, not some line in the sand. You do not want it predetermined by some cut qualifying time.

Chuck Warner: If you were in the Mike Parratto discussion yesterday, you heard almost exactly the same words where Mike was saying that he would take his team on a training trip to altitude in Colorado. It would be a beautiful outdoor long course pool and they would swim twice a day, but Regan Smith was made to sit for the second practice of the day. He would not allow her to do it and would have to go over and say, 'I know you could do it physically, but let's save this for later and keep holding that carrot over that training.'

David Marsh: I think when you know you have a pretty special athlete, they are very capable and want more. That is really the bigger factor because they are not going anywhere and there you can bring it in when you need to bring it in the next. You will get to it later. She didn't lift any weights until later on either and that was a big jump in her career when she added weightlifting into her program, but it was part of the plan. It was more like, 'We are going to run this until she needs a new stimulation and then we'll add it.' The unique thing with Kathleen, for sure, is the Crohn's disease is a huge thing because literally every day since she was a child, I had to adjust her training. Kathleen and I got to where I can look in her eyes and I can see what she has. She won't tell you if I just ask 'how are you doing today?' She'll say, 'Oh, fine,' fine means not good. Great means pretty good, and she doesn't have to say anything if she really is great because I can see when she walks in the door. Then she's on her toes and she's ready to go with energy in her eyes. That's a daily way I have to coach her. It has been that way since she was about 14 or 15.

Chuck Warner: 14 years old, she comes to SwimMAC. Once a day, six days a week, two hours. Is that about right?

David Marsh: Yeah, yeah.

Chuck Warner: What she did? She did some dry land, but not weights, per se.

David Marsh: No. Christopher has a great video of her when she first got there. If you see or know Chris Webb, he has a video of her first day when she arrived at SwimMAC because he'd put her through a little protocol that they use for testing and she was literally one of the worst in the entire group at being able to just do a basic squat. I mean, no dry land athleticism. Even though she had played soccer and she had played other sports. Thank goodness she found swimming or she was going to have five ACL surgeries because her tracking of her knees were all off. She wasn't strong, but she's also super hyper mobile like a lot of our best swimmers in the country. She had that water gift that wasn't a gift on land. Chuck Warner: She said in the first two weeks she was at SwimMAC, coach gave her seven, seven hundreds and she just started sprinting the first one and she said she almost died afterwards because she just couldn't sprint for that long. But, she also said that in those times where she might get in for that half hour or whatever it was with Team Elite and with the older kids that if you spoke to her she concentrated and listened because she said, 'I didn't know when I would get that feedback again. I wanted to glean and gain everything I could from what Coach Marsh was telling me at that time.' That's a pretty special athlete. Is that characteristic of a lot of the kids who coach or is this a part of becoming a world record holder?

David Marsh: Absolutely part of becoming a world record holder. But not just learning from me, I think it's like when she feels like she can gain information, she does. I don't know where I earned her trust at a young age, especially because I'd hadn't coached her before that, but she had a lot of trust in me early on. I think it's probably because she had seen me at these other moments where I was teaching and saw me as the person she wanted to learn from and that is still the case. I mean, probably the most interesting video I have is the Olympic Trials prelims. She swam a terrible prelim race. She way over-swam it, the tempo was way too fast the first 50. She trusted me enough to say, 'I want you to not try the first 50 of the semifinals. Don't even try.' That's pretty risky when you're going into semi-finals at Trials. But she trusted me enough to do that.

She was seeded maybe seventh or eighth after the prelims. She'd gone all out because she'd over revved and done that. Then that night, I didn't know what she went, 59 something? Then at night she got second place in the 100 backstroke, but that trust manifested itself at critical moments like that. Right then, if she didn't have that trust in me and she was searching the internet for what everybody else's tempos were and checking with the five coaches to reset, it wouldn't have gone well. I have that, too, with these pros. They'll go around and check with their college coach, check with their former club coach. Everybody wants to give you expert advice at the critical moments, but we were able to use me as home base and as such it's my responsibility to get the information from Bob Groseth and from Chris or from whoever we can get it. That way we are giving her the best information she can get.

Chuck Warner: I don't know how well you will be able to see this out there because of the font is so small, but these are her career best times from USA Swimming. The blue ones are the high school years. The yellow ones are the college years, and there's a few things that really stuck out to me. I wonder what you think David. One is 55.6, 2:01.4. I recall yesterday when we looked at Regan Smith, she was 55.2, 2:00 at 12 years old; almost exactly the same times at 12 years old. But the other thing was she swam the mile when she was 12 years old. She is swimming the 400 IM in college. She's swimming the 500 free. She's swimming different events and not just focused on backstroke. How did you set up her whole high school plan for her future?

David Marsh: Well, it was really her plan. It was really the plan I implemented at SwimMAC when I got there was that we were going to be an IM based



program. Everybody's developing all four strokes. She had good strokes and, as you can see, in all four strokes, but I always felt like her best event was the 200 IM. Not even the backstrokes because she had all these things, all these strokes and so, I wanted to see her continue to develop toward the IM. I knew other things would fall out from that and I'm not sure we have even found the best version of what she can do. Her IM probably may end up being our ultimate best event, but for right now that was critical. It is not anything new. I have really learned from when I coached Dynamo back in the late 80s, when I just made everybody a 4IMer, that's what we do. We do teams for 4IMer and you will find specialties around that. But we were going to start with that as the base event and SwimMAC did the same thing when I went there and just said, "Okay, we're all going to swim all four strokes. We're going to swim them basically this way. The stroke should look like this."

To some degree, Kathleen fit into that pretty well. I remember going into a pool deck with Nashville Aquatic Club when Paul Bergen was running the club at the highest level, I thought. I just remember to this day going to that club and everyone in the pool looked like each other in all four strokes. There wasn't much difference in lane eight and lane one and the way they swam the four strokes. I really believe that after being at Auburn all those years, after 17 years of going and visiting clubs all around the country, I would see sometimes, 'Okay, this club is swimming similar. There's obviously a way they're teaching strokes,' and other places where it was random. Some kids weren't kicking, some kids were kicking, people were overreaching, and kids were pulling back in breaststroke.

So I said, "Okay, we are in uniform for all this, and I am going to teach a certain way," and then at some age you get to be sort of creative and swim your own way, but at the start it needs to look more uniform. For me it happens with John Fedena and Russ Kasl, especially the age group coaches of the 11 and 12 year olds. That's where it happens guys; 11- 12 years old, 13-14 that's where the action is. If you don't get it right by that age, probably not going to get it right. Maybe they can throw some muscle on you in college and get you to do a short course 50 or 100 without a good stroke, but if you're going to go long course and you're going to progress like this, you better have stroke technique down or at least the fluidity in your strokes at a young age.

Chuck Warner: You had said to me that she may have won Junior Nationals in all four strokes when she was in high school and I was looking across this at 17. She was 2:00 200 meter free, 51 100 yard back or 1:00 100 meter back. She was 59.00 yard breaststroke and 52.00 butterfly. That's pretty great. IM 1:54 in the 200 IM as a senior in high school. She is developing in high school and long course. Where did long course fit in? She had not been able to do that much. You had long course water at SwimMAC. How much did you use it with her in high school? Was it summers only? Was it year-round?

David Marsh: Not much. There is only four long course pools in Charlotte in the entire city. We didn't have very much access because she lived up north. SwimMAC has a 50 meter pool down South, but pretty much if you lived up North, because of the traffic there, you don't go South very often. So, with the pool we used up there, we could get some mornings long course. There were times I would trade out her mornings for afternoon so that she could do some long course. But honestly I didn't think long course training was as critical as long course mentality. Her most important things she was trying to do was make the National Junior Team, she was trying to make Olympic Trials.

In fact, we must have been convincing at selling the IM and the versatility as one of our real standards that we would shoot for and would be holding the highest esteem. In the lead up to the Olympic Trials, she almost went too far because she was determined going into Trials to have the cut in every event up to the 800 freestyle. I was having to try extraordinarily to

convince her not to worry about the 800 free. I said, "You can try to get the 400, but let's not -" but she wanted that 800 freestyle and that's not easy for somebody who had Crohn's because that means I was going to lose her for the next two days. Now it probably wasn't going to help her 100 hundred backstroke. To become a solid, decent 800 hundred freestyler usually isn't a great 100 backstroker. But, that just tells you her mentality I had to tamp down a little bit.

Chuck Warner: So, long course emphasis meaning you said 'train for Olympic Trials, train for a National or World Junior Team,' and things like that. Is that just thinking about the year and that's where your goals are as opposed to thinking about the year and you are thinking high school championships or thinking Juniors short course? What is long course mentality?

David Marsh: Good question. A long course mentality is looking at what really matters in our sport. What really matters in our sport is long course, the Olympics, the World Championships, Pan Pacific's. Looking against the globe, the globe doesn't measure in short course yards. It measures in meters. It is one of those things that short course has given us an advantage in many ways for a lot of years. I'm not sure it has now because Europe has caught up to our fast starts and fast turns and now they are often faster than our starts and turns. But I think the key is that training mentality. Your training should be established at that sort of young age to be pointing toward summer season being the most important season. High school is important from a team aspect and it's important from a retention of young developing talent because they love high school swimming.

Kathleen, honestly, didn't care a whole lot about high school. There was some issue and home-schooler didn't get to swim in high school swimming when she came through. I do not know what Terri would say here or if she would agree with me. But I know from my perspective and talking to Kathleen, she was more excited about the summer season coming up after college that she was actually about what she's doing in college. Even when she won NCAA Swimmer of the Year that wasn't the best. The next thing for her was more important, which was, 'Am I ready to go this summer? How's this going to apply to the summer?' I do think some of the things she got to experience in college helped through with that, her next evolution and some cases what she liked and some cases what she didn't like. She got to understand more and it was a new dynamic.

Chuck Warner: That's long course mentality. What about long course strokes? The difference between training a swimmer in a short course pool with high turnover or whatever you think a short course stroke is versus thinking fluidity, thinking length, and thinking long course. Do you see a difference there between short courses strokes?

David Marsh: Oh yeah. We will just look at times right now. Compare the NCAA times right now to long course times. I mean 1:29.00 200 yard freestyle. You're kidding me. That should be 1:42 or a 1:43 long course, that shouldn't be 1:46- 1:47. If you go a 1:33, you're at 1:47 long course. Now we have learned how to use a much more aggressive tactic in a short course pool because you can bounce off walls and use the underwater kicks; and not that that's bad, but it's not transitioning back the long course. I think a long course mentality swimmer needs to make sure that they are with the right coach who also has a mentality. One of the things about the decision to go with Terri, and I don't know if you talked to her about it, but a lot of it was that Terri's coaching style is somewhat similar to mine in terms of the way she structures her training. She definitely values long course and has the international program, which is very important to Terri. We knew that it wouldn't be all about NCAAAs necessarily. With some college teams, you can tell when it's like, 'What did they do in April and May?' I mean if they're emotionally on break and not working, it's obvious. And this isn't what they do in their PowerPoint presentations at a clinic, this was about what are they

really doing in April, May.

That's what I'm talking about. What is the team culture in April and May? That's when you know there's a long course mentality. I did it both ways. It all burned. I really ran a short course oriented program. Then after having enough experience with professional swimmers, it's just part of the reason I ended up changing over to SwimMAC to more focus on the full development from a ten-year-old all the way through an Olympic medalist because the college portion is just a piece of it. It's not the whole thing and it's not even really the critical thing. The critical thing as I said is 13 to 15 years old, and they got to get it right by then if they're going to be globally a great swimmer, especially women's side where there are some late developers. On the women's side, they need to get their stroke technique down. Long course strokes to me- I wouldn't necessarily call them distance per stroke based- I mean, I'm an artist coach so my visual love is it is 'fluidity in the water.' Positioning in the water that they naturally build within lengths, the legs flow behind them, and they have the capacity to push them later on races. Those are things that I see in long course strokes.

Chuck Warner: Similarities at Cal. Terri trained her once a day in the pool, basically. She did dry land on a regular basis and then got more involved with weights after you added weights to her program her Senior year in high school. That was a big step forward. Can you explain what you did?

David Marsh: Yeah. Well, we as a group at SwimMAC, outsourced our dry land to a Breezy franchise. It was near where we were up in North Charlotte. Eric, who is here, was the one at the South team at that point. We had good dry land leadership, but it wasn't necessarily our strength as a program. Chris Webb was really good at dry land, so he did Kathleen's group in that year, but she was ready for the next steps. The coach that worked with her at Breezy moved and opened his own gym. She went with him and he was just a person with a really good personality that cared for her and took care of her individually. This is before she was anything super special. I think that's where she started layering on, I don't even want to say the word "CrossFit," but it was a gym that had a box over here and a CrossFit gym over here. She wasn't in the gym, but she was doing a cardio into power workout. It was mostly handling her own body weight type work during his senior year and that's really the progression she has had going since then. It was really led by the same coach this whole time on the dry land side and he has worked well in concert with me and he understands that she can't handle a heavy load and needs to back off when the Crohn's kicks in or when she overdoes it, and she'll overdo it because that's her nature. There's always that balance. But I do think that was a really important improvement moment for her, because Kathleen is not the most talented swimmer that I have coached.

Chuck Warner: Not very tall? How tall she is?

David Marsh: She is 5'6". I just love when it happens, but the smallest girl on the USA team had the best swims and the shortest sprinter male- not the smallest, he's probably as wide as he is tall- had the greatest swims on the men's side. So fortunately, maybe height isn't what we think it is, although we will all pick a taller summer if we have our choice. But Kathleen is not a brilliant land athlete. She's not tall. Her strokes are good, but I am still trying to get her to not breathe under her armpit in freestyle, but she is a student so she's always learning and always trying to figure out ways to go through it. She doesn't like going slow in meets. She is a little bit frustrating because when I will be trying to do stroke changes, she would not be willing to implement the stroke changes in meets because she cared a lot about our times. Even in small meets, she was very time based. I could get her to do the strokes I wanted her to do in practice, but as soon as she went to meet, she wouldn't swim with that stroke. There are times we would adjust or not let her do certain events if I didn't want her to swim that other stroke.

Chuck Warner: She has progressed more into heavy weights and Olympic

lifts hasn't she? Squats and things like that.

David Marsh: It is a little part of the program. I wouldn't say it's the cornerstone. One thing that she can do that is handstand pushups. Those are probably, to me, the indicator that she's really strong and she didn't use to be able to do anything close to that. Now, she can rip out handstand pushups. She can handle her body weight really well.

Chuck Warner: She said she will do a lift and then she will do something cardio based in between those lifts to keep raising her fitness level. I said to her, 'It sounds like the CrossFit philosophy,' and she cut me off and said, 'Don't say CrossFit because I don't want to get people get hurt doing that.' I think that is a more progressive thought towards strength training as it's like, 'My heart rate isn't coming all the way down in between exercises.' It is more like, 'do something to keep it.'

David Marsh: Yeah, she is a woman. As a woman, I think she wants to feel athletic. She understands she has to take care of her fitness and by doing some biking and different high intensity running stuff in a controlled environment, she can. She feels athletic when she's doing that. Honestly, historically from my perspective, I wouldn't have necessarily designed that for her. I would have done more periodized weight training, these phases for strength base, this is for moving into power and now stroke specific. She has sort of done a program that I wouldn't have created with my background. It is usually something I oversee and implement myself, and so I'm learning from her and the coaches as they do it too, but she feels athletic when she leaves there. I think feeling like she got a really good workout is important. I have to adjust the swimming practice a lot of times when she has a killer session. It has to be a ying and yang situation.

Chuck Warner: When she was at Cal, she got blood tested regularly and Crohn's disease was what they were looking for in the symptoms of it. But I was surprised, I was asking about ferritin levels and iron and this and that and the other thing. And going back to 1976 when Mark Schubert put his whole senior group into blood testing and they paid a lot of money to try to test white blood cell count. She said that's what they looked for the most was white blood cell count to see if it was rising. Something was coming that was going to be a problem and to try to catch it before it became a problem was key. Does she do that still? Do you have the resources in San Diego as well or do you do blood work at all?

David Marsh: It is interesting, so we're in San Diego and the short answer is no, we don't have that. I mean, as a club we don't have that resource as we are an independent team, Club Elite. We don't have specific support from USA Swimming or from any other sponsor that would create that. A lot of what we do is, just like we did in Charlotte, we try to build relationships. Now in Charlotte, Mark Schubert and Jeff Gackle had brought the concept of this Team Elite to Charlotte. It did have support from the Olympic Committee, and you'll see something quite a bit more in San Diego. We are really doing it on our own, which is a little bit of its own wildcat thing that we're doing.

David Marsh: Fortunately, I have a very generous guy, who pays for the team Elite's pool time that we rent, so that helps make it work. But recently I have just met a doctor in town, who Kathleen happened to go to when she had an acute issue and I think he's going to turn out to be our team doctor as well. But, I have to work those relationships all the time and that's what I did in Charlotte with a lot of different people.

Chuck Warner: Yeah.

David Marsh: We had a doctor named Jason Batley in Charlotte, who was fantastic and ended up being our team doctor. Those are the things we have to do to make it work in San Diego. There are a lot of high level

medical things going on.

Chuck Warner: Also back in 1976 and for a long time after, index cards were used for goal cards and things like that. Michael Phelps and other swimmers talk about that. Here's a minute or so of Kathleen Baker talking about setting the goal to break the world record or to swim as fast as she did.

Chuck Warner: What she was saying was she put in her phone a reminder that 58.10 or the world record and that she probably had it there a thousand times. She had listened to it over the course of the year thousands of times. Is this a David Marsh idea? Is this swimmer's coming up with it? Where does the goal setting come from to look at times like this and to change with the times?

David Marsh: No, we talked about this last night, which is interesting. I was going to give the example of Mel Stewart, who I coached when I was a young coach in my 30s and he came out to Las Vegas to swim. We wouldn't call it this back then, but it was an early pro group and when he first got there, he was already the American record holder. I said, "What are your goals for the summer?" "I don't do goals." I'm like, "Okay, well that's interesting," and so, over some time I was able to convince him and I said, "Just for the exercise, write down on a piece of paper what your splits would need to be to go to the time you'd like to go at the end of the season." He wrote some down just to amuse me. He wrote his splits he wanted to go and the minimum acceptable time he wanted to go at the Goodwill Games, as they were called back then.

It wasn't a big deal. I just made him do it. I kept the sheet and he didn't want it. I said, 'I'm keeping this,' and on a couple of his training sessions I would write down those splits somewhere on the paper that had the workout on it. At the end of the summer, he went a little bit faster than those goals, but split it almost exactly like that he had written down on that one thing. I have always been in favor of clear goals and having goals, but with Kathleen, I haven't had to ever talk about them. I have had to try to pull her away from goals, because like I said, she has goals for the 100 breaststroke, the 200 breaststroke, 200 IM, 400 IM, the 100 back, not the 200 fly, but the 100 fly. She has goals for all these things and then she has goals for even within the season what she wants to go, which as I already said, I don't want to have the goals in season. I just want her to execute a swim race strategy the way we want to do it and not worry about the time at the end of the race, but that is her nature and her a part of what has made her special.

Chuck Warner: So, let's get up to the world record. In the fall of 2017, she had mono. Here she is eight months from breaking the world record and she had mono and she said she that Terri kind of kept that quiet because they didn't want it to suggest to anybody in the NCAA world that she was vulnerable. But she came back in January from the mono and slowly built back into work. She also pointed out that she would get her exams proctored, so she could get back to long course training and back to Team Elite. She was also out of the germ environment that the college setting was. She said she had Scarlet Fever one year, too, is that just with Crohn's disease?

David Marsh: All that sticks, everything, yeah.

Chuck Warner: And this summer she had more issues but she gets to San Diego May 1st of 2018. Do you look at what she had done heavily at Berkeley and feel like that's your transition into what you are going to do now or what? Do you just go?

David Marsh: Yeah, I mean every time she came in, I had to take her where she was emotionally and physically. She was already pretty far along the line when she got back that that year. The first year she went to college, she had a bad year. She didn't make finals in the 100 or 200 backstroke at NAAs. That summer was more putting her back together emotionally, not

physically. That was the hardest job that year. Then she learned how to work with an understanding that not all 25 women are going to finish NAAs and three days from the end want to get back into water and start training and getting serious about summer swimming. That frustrated her, but it's normal for colleges. You are going to have a handful of people that are motivated, but a lot aren't and so she felt a little bit on an island. A lot of the most motivated people do it at colleges even when there is a group culture of training. They know their most important things are coming up now, so they are going to get really serious now.

So yeah, I just had to take her where she was. Moving down to San Diego was pretty smooth and I think it was in April because she still had to take her finals and stuff. One of the things she's really good at is she'll go to her professors and get exactly what she wants. She is able to convince professors to allow her to take finals from San Diego or have a proctor watch her finals and finish up her projects remotely. I don't think she actually ended up in Berkeley at the end of spring semester, ever. I think she was always getting out early.

Chuck Warner: Right.

David Marsh: Getting back to the Team Elite culture with the professionals is refreshing after college because it's just different. They know their biggest things are in the summer. It's not even close, the biggest thing is not March, for sure. Whereas your job as a college coach is to make March the biggest thing because that is what your Athletic Directors hold you accountable to and your salaries and maintaining your jobs are based on your results. The next most important thing is the recruits you can sign in the summer and fall and spring. Training maybe comes in after that, generically if you looked at what's most important to sustaining a college program.

Chuck Warner: She said that as well. She said she loved getting back in that pool where everybody was all training to make the World Championship team. She said that 2018 was a huge summer because it sets up your next year for this summer before the Olympics. 200 back once a week in practice just to get a feel for the pain that it would take to swim the 200 back. She said she had done that last summer with you?

David Marsh: Yeah.

Chuck Warner: Was there anything in particular that you did last summer that you felt like was spring-boarded from Berkeley or special that she was doing? She had some nice big training blocks last summer in 2018. She didn't have back injury or something?

David Marsh: From Berkeley, the best thing was the IM piece because they had her racing the 200 IM short course. Even her first year, they relied on her breaststroke quite a few times as the breaststroker on medleys. and I thought that was really good for IM as well. The variety you have in college was great. She swam a 500 freestyle in some of the dual meets and she was called on to do a lot of things because she was so versatile. I think that was pretty effective during her college years. One of the reasons we did the two hundreds was it was partly her idea. She has a lot of ideas of what she wants she wants to do too and sometimes I have to protect her from her own ideas. But this year we decided 200 back would be the primary training event and 100 back would come out of that. In the year she went the 58 100 back was because we did a lot more 200 race pace stuff than backend speed for the 100. She likes to hear times. She always wants to hear her times and I can't get away with fibbing to her because she knows what she went. She will go, 'No, it wasn't that fast.' I am going to be careful because my lying tolerance is very, very small with her because she knows what she went, generally.

We generally do 200 backstrokes descending and tried to have a fairly even



split 200 backstrokes because she also historically faded in the end of the 200 backstroke. She hasn't finished her backstrokes very well. I think that's because she is an anaerobic based swimmer, not an aerobic based swimmer. I mean she's a power swimmer that does 200s. By nature, she is not a 400 IMer, not a 400 freestyler. Her sweet spots are 100- 200 distances and I think that we trained in that zone, but you need to do a few things beyond that. But with her Chron's and with how hard she's lifting weights and all that, we couldn't overdo that amount of work, so that's part of why we built that in there.

Chuck Warner: But you had from May 1st, the month of May, the month of June, and virtually all of July to train last summer, which is not usual?

David Marsh: Yeah.

Chuck Warner: You had that nice space of time. Was that a big factor in her performance?

David Marsh: Well, honestly, she trained better the year before.

Chuck Warner: Really?

David Marsh: She was doing things in practice, the year before that I thought was better than this year. She was good, but she wasn't as on as the year before. Great swimmers are a combination of a hundred things. They are not great because you have got faster times on your stopwatch during practice. It's all the things, its emotion. It's how you feel. Why she went the world record swim was that reaction. With Kathleen, it was more a matter of not letting her beat herself up too much after 200 back when she didn't swim as well, knowing that we had talked about training more for the 200 that summer. But I think, if you train for 200s, it's better for your strokes for hundreds. In order to swim an effective 200, you are going to be trying to get a little bit more out of every stroke. When you are doing two hundreds, you don't miss the intensity of the walls starts and the details and you're missing your nervous system getting used to the tempos. You need to swim for a hundred, but as far as stroke technique and holding water and efficiency, you know the training for the 200 probably was great for her a 100.

The summer of 2017 was a great training summer. She goes back to school, she gets mono in the fall, but she's got that training behind her that helps carry her forward to have a good NCAAs that spring. She comes back and builds on that. So as you said, it's a combination of a lot of things for that one great swim, but certainly a lot of seasons too. It wasn't just last summer, right?

Chuck Warner: Right. So before the race, you said something to the effect of "Kathleen is not an outcome driven person. She is a process person. I don't generally do this, but I told her, "This crowd could use a world record tonight." Is that about the way it went?

David Marsh: Yeah, it was really odd because I would never say that to her. I would never say, "Why don't you go get a world record tonight?" The good thing is she is swim enough under the line. There was a camera line in the middle of the pool that was running a camera over the pool. She had done her 200 and she was used to that camera line now because she swims right next to the lane line to try to keep her from going all around the lane. She had figured out the camera line and the lane line now. She was feeling pretty comfortable with outdoor racing and from the prelims effort, she didn't have to go all out and she still went pretty fast. It felt way better, so she felt way better than her 200 race on that day. We were just sitting back there in warm up and she pushed off. I don't know what her time was, it was like 28 low or something, just going to push off a 50 trying to cruise. She just looked really good and we heard everyone in the background. I remember the story, but I don't remember who was racing. It might have been Katie, but she was on track to break the world record. The crowd was getting really

excited and then it hushed down because she didn't get it. Kathleen was warming up during that and I said, 'I think the crowd needs a world record because there had been no record set.'

If you remember that setting, Irvine was really cool. It had the theater setting there. But it was odd because I don't think I have ever had to challenged her to do something beyond what she's already challenged herself. I am usually trying to get her to think of things like just make sure you are not on your legs the first 50. That's probably the biggest comment I would make to her before a race because she's already lit up and fired up. The other thing I said was, "What did we have to lose?" I mean, she didn't have that good of a 200 backstroke compared to what she wanted. I mean, what is there to lose? Let's go, you know? Go ahead and go for it.

Chuck Warner: So, here's the video. You fixed her start from the morning, she said or something about that. What could be better with that start? What was better at night?

David Marsh: Well, her angle going in. She was still arching when she hit the water, so she just had to be a little flatter as she went in the water. It was somewhat of a minor change and usually I wouldn't make that change, but I was looking for anything. She definitely did hit the lane line, by the way.

When she was that close to the lane, I was always worried about that. I said, it seems like that'll slow you down being that close. But Bob Groseth, who is a master coach, gave me some assurance that the lane line flow issues would be okay with the water breaking there. She is pissed at this point. She might even be faster as long as she doesn't hit the lane line. I had never worried about it too much and she practices that in practice. We'll practice something next to the lane line in practice.

Chuck Warner: Do you guys have any questions? Somebody will ask a good one and then there'll be a whole bunch more. Yes, Jackson?

Male Speaker 3: Yeah. Coach, could you talk about your positives and negatives about planning for and training more professional athletes as the ISL picks up and they'll be doing more traveling?

David Marsh: Yes. With the ISL coming up, that's going to be an interesting topic now because even this fall, there is a lot more traveling by a lot more people. Part of why I took the ISL position with Lenny's team as the current coach is: one, because Brett Hawk and Jack Roach agreed to do it with me, but two: because that way when we go to these meets I'll be able to make sure they train when they go before they races. The biggest difference I would say with the professionals is they need the engagement. Just training doesn't cut it for most of the pros. Most of the pros aren't in the format of giving a six week training block without doing something else.

They are all looking for ways to keep things spicy. Reality is, as we all know, a lot of the meets are training. I think the big change right now is professional swimmers are racing more often and they are chasing money. There's nothing wrong with chasing money, but if they are chasing money, there's a result. I think we saw the result of that this summer when some of the athletes that had to chase money all summer, including Sarah in her 100 fly, incurred a cost at the end when they didn't have the taper effect they would have had because they were staying a little sharper throughout the entire season. Probably not going quite as deep in their training as they would have, but I think that is something that is going to be learned. I think it's something we are finding out that even though in the old days it would be, 'beat the hell out of everybody and then give you six weeks rest and see what happens on a taper,' we have certainly come a long way from that to where now.

We understand people can swim fast many times during the year, but there's



probably a tolerance on this by a number of times. Is it three? Is it four? It depends on the cycles and I am fortunate enough to be in San Diego, where Michael Andrews is training and so I have gone and watched his workouts just to see what he does and to try to see how he does it. I think this fall we are going to do some stuff with him and I am going to probably send a couple of swimmers to do some of the USRPT stuff with him on certain days. I think there's a place for some of that.

Now, I'm not full pendulum over here, but I'm certainly somewhere in between and I think that's a pretty sweet spot for professionals. There are 200 and down people. There's a whole other need for 200 up-based athletes. That's quite a bit different than that. It is an exciting time right now. We are super exciting. The fact that we have pros that will keep swimming, even if they are not necessarily medal contenders at the Olympics, they are keeping our sport fast and they are doing it more with more purpose now than I would say they were before. It is a good time for professional swimmers. The only thing we have got to figure out is as they are doing this, they need to be working at the next thing they are doing in life so they are not 28, 30 years old and skill-less. They have got to have other things are good at so they can enter the workforce and enter the community of people who are doing the hiring with a little more thorough reasoning.

Chuck Warner: Kathleen had told me that she would be traveling with you on the team you are coaching and you guys would do a little something each day at the meet. Is that your plan that you wouldn't just go and warm up and swim, but you'd do a little more during some of those dual meets?

David Marsh: Yeah, and I've asked for a long course water to where you can train long course the day before and the morning of the meet. A day before we will go something pretty hard and that morning and maybe we will just do an aerobic swim, but yeah, they'll be swimming all throughout. The ISL team might not and we have a great team. I think the Current might win, but if we don't win, it's not the biggest thing. Most important is we have something new started. We have something that is not allowing cheaters to compete in the event. It's independent of FINA to demonstrate to FINA that we can do something outside the FINA bubble and it could be really good. I don't know if it's turned out great or not, but hell, we haven't tried something like this. So finally, something's going to happen and I hope it ends up being a good thing. The athletes are excited and anxious about it at the same time because as the Olympic window closes in, they get more anxious about making sure they are preparing for the Olympics. In the U.S., we don't have to describe that. The Olympic year is the most important year. The athletes know that.

Audience Question: Just wanted to ask you something specific. I noticed it around her underwater travel. Can you elaborate on what she does?

David Marsh: Yeah. It's Bob Gillett stuff. Yep. It starts with Bob. We do the foundation as fish kicking, from fingertips to toes and then tighten it up per athlete depending on what their needs are- all the way down to 0.45 tempo like a lots of teams are doing now. Tennessee's who I take it from. The University of Tennessee is underwater kicking somewhere between 0.45 and 0.5, but I want her doing it from her ribs down and not from her knees. She's hyper mobile so she needs the crack the whip at the top and bottom because she gets a good benefit if she kicks all the way through. You guys have a lot of swimmers who don't kick all the way through and even some who are hypermobile, so they are not getting the benefit of the kick. They have to kick all the way through and finish the whip. Then, it's the speed of the change of direction that makes them a fast kicker and they have to have flexible ankles, too.

Audience Question: If you could pick one trait that's really helped her of late?

David Marsh: Yeah, the word that comes to mind is eagerness. I think a little bit because she is not able to do everything. She wants everything more, right? I think that's something that has played to her advantage to some degree until she gets in a situation like the summer where she ended up getting a cold that turned into pneumonia. The pneumonia turned into heavy coughing, which broke a rib. Five weeks of nothing after that. She couldn't breathe hard for five weeks so she had to do almost nothing. It comes off of that then just trying to get back quickly and then a herniated disc. Then she could do nothing again for three weeks so it was a big mess. That's the battle against herself and now we're dealing with the herniated disc. Now we have a different sort of training plan and have to consider that, as well. But eagerness, like I will gave you the example too of when she answers questions via text. When we text and she answers questions, I think every time she answers me, there's an exclamation point at the end of the answer.

I don't know what that really means. I think it means a lot though. And understand my relationship with her is unique because her dad's a great friend of mine. She's probably one of my daughter's best friends and so she is in and out of my house. When she was in high school and she's around us now, she's corrupting my daughter at times with certain things and my daughter's corrupting in her with things. We were going to church together. So, we have this personal relationship with our families and then we have the coaching relationship, and she's really good at keeping those things separate. I think that's something that's been a positive, as well.

I respect and I enjoy her as a human being. We are just starting a swim club in San Diego right now. We have 24 kids on the swim team. If I need a demonstrator to stay after practice a little longer, she's like, 'Mel!' I know I can always go to her and she'll do it without any question and I try not to because I try not to wear that out. Some of the older guys go, 'Ugh, I've got to stay around for 15 more minutes?' and she's never like that. She gets that her role and position and it is to give back the whole time. Again, we have to protect her from that because she can't do many clinics because flying to clinics takes a lot out of her. She'll give everything in the clinic. She will be bouncing off walls, giving the energy. She comes back like she went and just did three hard workouts, which she probably did.

Chuck Warner: Coach, go ahead?

Audience Question: Balancing the medical issues and the specific diagnosis and the training and all of that seems like a lot. Can you talk about building confidence in yourself with dealing with that many variables?

David Marsh: Yeah. With the Crohn's monitoring and the understanding Crohn's and understanding what she can do and can't do, her mom is her best doctor. Her mom has taken all the information and consolidated it into Kathleen's version of what she has, which is pretty extreme. With Crohn's it depends on the amount of the flare ups. You are always flared up to some degree. There is always some issue how bad it is and that can depend on what you eat and how much you've done. It can depend on nothing; sometimes you just woke up that way. It's not fair, it's not a fair illness. It's a really rough illness and she has learned to do better at nutrition as she's become a woman because she liked to eat junk food. 'I like to eat like everybody else,' you know? She wanted to be like everybody else, but her best monitor has been her mom the whole time. Honestly, she's better than even the doctors as far as I'm concerned. My monitoring her is just watching her individually and I coach that way anyways, so that's not all bad because I'll have the mood of the group and if I don't feel like they can press the pedal down as hard as I had in mind, I'll adjust and get them the next day. That is sort of how I flow as a coach, anyway. But with her individually it is even more so the case.

Audience Question: Can you tell us about what you want to see come out of



the teenage level into your elite groups?

David Marsh: Yeah. I love the question and I'm passionate about that question. I don't really care how big it is or if we beat anybody or anything like that. The club is focused on 11 to 15 year olds. That is the sweet spot we are going to try to nail down and focus on stroke technique. They are going to do things really well and they will get trained. They will get more training as they earn it through stroke technique.

Okay. So, backing up from there, your introduction to swimming is the experience; we're just trying to capture them. We wanted to love swimming when they are younger. Love it. That's all I care about it, just make sure they love it. Rowdy and I had the same experience with our children. Rowdy's daughter and my son, they very first swim practice they went into they were thrown into the masses. That was her last day of swimming. When the coach said four 200 hundreds to my son and he'd never done more than two laps in a row without stopping, his swimming career was over that day. When we get them young, your job is to just let them have fun. Teach them some fundamentals as 10 and unders. I want the racing instinct. If they swim like little water bugs at 10 when they race, go ahead. Then later on, teach them how to stretch out. 11 to 15 you are introducing and really solidifying stroke technique and adding some training. Then do it in the least duration you can get the job done and let them go do other stuff. Make sure they are doing some other sports and developing overall as an athlete. Martial arts and gymnastics are amazing; gymnastics till they're in level six. Do gymnastics when you hit level six and get the hell out before you get hurt.

They make great athletes. Then high school, thank you high school. High school keeps them excited. It keeps them motivated. We love high school, but high school is what high school is. Take full advantage of high school when they walk around the hallways at the high school and they have their varsity jacket on; they feel special. They feel like an athlete at the school. That's something swimmers don't get to feel like generally until a lot later. That's beginning to change, which is really cool, too. Make a college decision that is consistent with your ambitions and goals as a total person including the swimming part of it. There's something for everybody out there and there are wrong decisions for everybody out there to; is that thorough enough?

Oh, let me give you one more. Nobody's ever too fast of a kicker to be a great swimmer. Nobody has ever kicked too fast to be a great swimmer. So kick, kick, kick. If you see kids that are 12 years old and they don't have flexible ankles, do ankle stretching. Get the flexibility in there that they need because they are not going to be very fast. If they kicked like this, they are never going to be the good flutter kickers. Then if you have a 10 year old and you see that he or she is hypermobile, check them out. You've got an advantage. Make sure they stay in a sport because they are not great athletes, but they are really great in the water. They look more like seals. We went swimming yesterday with a Team Elite guys in the ocean and they saw some seals in the water where we swam in San Diego. It was like, 'Okay, I want you guys to be like that. That's your goal is to be like that.'

Chuck Warner: Coach. Do you have a question?

Audience Question: How closely do you as the swim coach communicate with that dryland person and try to make it align? I know you said that the periodization was a little different than you would generally, but what's your level of communication and dictation of how you want things to run? I guess just your thoughts on how close and communication should happen or how much you should let them do that thing?

David Marsh: Yes. Dryland is a critical part of it. For young kids, it's more like monkey bars and climbing and trees. It would be great and if we'd people

allow their kids to do that anymore. But I think for somebody like Kathleen, the communication is sort of general. I sat with her dryland coach three weeks ago, especially with the herniated disc. Now she's having to change a lot of things. The key now is instead of the priority being to develop power, it's now not getting injured as the priority. That sucks for her because that's not what you want to do, but that is going to have to be the main thing at first. Then she's got to build up to where she knows what her tolerance levels are. So, at a macro level and a micro level, I don't over communicate because she's so good at it. I can trust her to be communicating with the coach about what she's doing in the water and how that can tie into the dry land. So I could climb on the stage and say that I have a master plan and I'm always communicating, but I'm not. I mean I've probably see the strength coach a once a month, but she gives me a lot of feedback and he'll give me feedback as well. So just a quick text or note that they got beat up hard in the weight room is actually really valuable information and then don't beat them to where they cannot swim in the water.

Male Speaker 7: What are some of the things that you have done to get your staff and younger coaches ready? What are the incentives to focus on?

David Marsh: Yeah, probably not enough. I would say, I would give you an example. I was talking to Dave Cook, who came down to San Diego this past week and we were talking about what do we do with these people that are coming into the program? I said, 'Well, let's video them.' The first day they come try out, they'll get a hundred video of the last 25, when they are a little bit more tired. We get the real stroke then and then capture that. Then, over time, let's hold ourselves accountable to that becoming a beautiful stroke.

Okay. That's the high accountability piece. I think to some degree, in Charlotte, for me it was what I did maybe the best. You can ask Russell that because with the 11- 12 year old coaches, we were probably doing the best things there. We had both senior coaches, who were willing to go back and coach the younger kids because that was the priority of the club. And if you want to look at a great club, look at the 11-12 year old coaches. Don't even look at the senior coaches.

If they haven't been taught well at that age, if they don't still love it and if they're not still seeking new events, that could mean they weren't coached real well. I think that's probably the key. Then your job on the top-end is to have the ceiling be completely off. If your eyes and the program's eyes aren't seeing what true fast swimming is, your responsibility as a coach is to create that. I think Indiana does so well in swimming right now because of one major factors is the IUPUI natatorium. There's big events there. These kids go and see big, real fast swimmers and they know what real fast swimming is.

When they fill their pool up with 5,000 people for the Indiana state meet, at least the swimmers don't think that this is the biggest event in the history of the world at the high school state meet. They know there is other things because they have seen it at the IUPUI natatorium. I think that gives Indiana competitive advantage and you reverse-engineer that. Now they are knocking down 25 yard pools and building 50 meter pools at high schools in Indiana.

Chuck Warner: Thank you guys for being here. Thank you, Coach Marsh. ■



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# What I Have Learned from 40 World Clinics

by Ira Klein

Introduction: It gives me great pleasure to introduce Ira. Ira and I go back quite a long time, 36-37 years. I tried to coach for a few months, maybe a year, and I cannot do what you guys do. I could not then and I cannot now. Ira took me under his wing. He protected me when I was a nobody trying to coach. Since then, when I got back into swimming a year-and-a-half ago, one of the first people I contacted was Ira in Sarasota and told him I had this crazy idea. 'Can I come down and use this pool?' He, with open arms, invited me down. He let us test it there. He let me test it with his age group kids, his high school kids, and he was involved with ideas- as well as several other coaches that are dear to my heart and close to me. I think he has coached six Olympians and over 40 national champions. His credentials are strong. He has been here for 40 years. I asked him how many people were here and I thought he would say like 10, but he did say there was quite a few. But in all seriousness, I love Ira. I respect Ira and he is one of the finest human beings I have ever met in my life. I am just proud to have him helping me, guiding me, and advising me on a product that seriously can change your coaches' lives as well as your athletes' lives. Ira Klein.

Ira: I started coaching in 1975. A good friend of mine, Scott Colby, was coaching a different YMCA from me in the same town. We were a few miles apart. And in 1978, we used to have Thursday Night Coaches Meetings at the Tree House, as it was called. Scott told me that there is a clinic going on called the Eastern States with Peter Daland. I was, like, "The Peter Daland?" and he goes, "Yeah." "Go, yeah, let's go." So, we went down, and it was there that I learned about ASCA and that they have a clinic. We decided, "Hey, why don't we keep going? I'll go to that clinic." I believe it was in Chicago that year. I learned all about our organization. I am going to go through all this in a second, but a few things I want to talk about first.

I started in '78. The only year I missed this 2010. I didn't intend to go every year, but every year when I am saying, "Well, maybe I am going to skip this year," something comes up to help bring me to it, whether it's closer to me or some other reason. I kept going. My father, who was a World War II vet, came home from the war, got married, gave up his dream of going to college, and becoming a teacher because he had to take care of the family. He went to work, as he did before, in the family produce store and then eventually worked for a major chain. But, he was in a union. And in '83, my dad talked to me and he goes, "You know, it sounds like this organization is your union. My dad was a staunch union man because he knew that whatever he got in life through work was because of the union. We talked about it. And I go, Yeah, you know, you're right." This is where things happen. This is what makes us who we are.

So I decided, if this is what I am going to do, I am going to be part of it. I was always taught that if you are going to do something, do it the best you can and work to make it better. So, I tried running. I believe the first time was in '84 and I didn't get elected. I ran again in '85 and I did get elected. I have been on the Board until last year, for most of those years, except when you have to sit out a year or when I worked at USA Swimming. But, most of you don't know what your union has done for you over the years.

When I started in 1975, I do not think there was more than 10 full-time coaches in the country. Most coaches did another job; maybe they were a teacher, and even college coaches taught courses, even division one. Since John Leonard took over, we have created a code of conduct for coaches, the first one. We created education for coaches. We created certification for coaches. He

did those things because he believed that in doing that, we would increase the worth of coaches. In doing that, any of you that have a good paying job as a coach, you need to thank John, because it's those parts that made a difference. Last night, we had our banquet. It's kind of a changing of the guard. John is going to be- in a sense- retiring, although he won't be fully retired, but he won't be the CEO anymore. Steve Roush, is an excellent individual to be stepping in and taking over, but it was interesting watching last night and seeing what's going on. The young people sitting out here right now, we need you. We need you to step up. We need you to be involved, ? It should not be myself anymore. We need new ideas. We need to think of what it takes to be a swim coach- not in 2019, but for 2020, '30. I am hoping that more of you will step up. We elected a great slate, but it's very disappointing because there wasn't a single female on the slate. Half of the coaches in this country are female. We should have women sitting in that room. We have two. But two out of 15 isn't half. I know my math a little bit. So, I am hoping that more of you will step up and take a leadership role.

I am hoping I can impart some of the things that, whether it was in a talk or just things I observed over the years, that made a difference for me. Just being at the clinic, talking to individuals, it just gets me juiced every time. I get on the plane going home and I usually take my plan that I had and usually rip it up and start from scratch.

I want to start by congratulating. This is from yesterday. Mike Parratto, who was the ASCA Coach of the Year; ; Megan Oesting, who is the Age Group Coach of the Year; and the five great individuals, Jimmy Ellis, John Mattos, Kathy McKee, Mike Parratto, and Maureen Sheehan, who were inducted into the Hall of Fame. Let me tell you a little bit about Mike, because this is important. This is how we learn because you got to learn that you can do this too, because Mike and I go way back into the early 80s. We are both in the Northeast, but as other people have talked about, he went out and started his own team in a town called Dover, New Hampshire. I have been there. I have been to his six-lane pool. I even remember when the pool got flooded from one of the storms. But in that six-lane pool, he developed a young swimmer by the name of Jenny Thompson, who went on to be one of the greatest female swimmers of all time. And every year out of this small program, he along with his wife, Amy, continually create national level swimmers.

I can really relate to this because I have spent 10 years building a program myself. He was willing to give up his program to move to Indiana for his kids, so that his daughter can dive and she dove in Rio on the Olympic team. Then after that, he got the chance to go to Minnesota. He bought some more winter clothes and started another team with the help of a gentleman, who was running a swim school. And from that team, he developed Regan Smith.

Mike is a great guy and he is a great coach, but he is the same as all of us. I heard somebody just say the other day, "there is a potential Olympian in every pool, the problem is that we don't have a potential Olympic coach on every deck." All of you in the audience right now, that's why you're here. Not necessarily to be the next Olympic coach, but to be the best coach you could be and to learn.

I also want to point out Kathy McKee, I am so thrilled that she has been put into the Hall of Fame and she so greatly deserves it. Kathy is not a Senior coach. She has been the Age Group coach at Dynamo and at Mecklenburg. In her years, it's four or five went on to be Olympians. It is great that we are recognizing in our Hall of Fame, Age Group Coaches, who are really the backbone of what we do. Usually head coaches want to be the senior coach

and coach at the top; I still coach a junior group because, and I am going to be not humble here, I am the best coach on our staff. If I want my young swimmers to be the best swimmers they can be, I need to be involved with them. But if you can find an Age Group Coach, I used to have one in Sherwood Watts, who's far better than me with the young kids, then you put them in charge.

So, talking about things that made a difference. I am going to give you two talks that you need to go online, get, and listen to or read. The first one is the X Factor. I believe it was either '78 or '80 that he gave this talk. It was at a banquet and it was in Chicago. I was there with Scott and my friend, Terry Laughlin, and I think we were sitting in the balcony. The place was packed. I don't think there was a single coach at that clinic who was not at that talk. The X Factor is talking about that thing we need inside of each of us to make a difference in what we do. It's one of those talks that cerebrally is just going to blow you away and just change everything you are thinking about.

The other talk is by Don Swartz, Quantum Leap, the fact that you can take off and go into a plane that you have never been before. For those of us that are old enough to remember back into the '70s, and what was done with a team that Don coached; we are fortunate to have Don back in our ranks. It is one of those talks you need to listen to.

The other thing from Don is Cyclical Training. I was a swimmer still when I read about it. It's a training system that he used, going easy, medium, hard over three practices in a row that worked with a group that he coached very successfully to the '72 Olympics. I think it could help a lot of people today.

Another one is Bob Bowman's Training for Capacity versus Utilization. It's just talking about the different ways we can train and what we are going to get from that training. I believe the last one, is both, Paul Bergen and Bob Bowman talking about seasonal planning; macro and micro cycles in your planning. Plenty of coaches have said it, I heard it first from Paul. "You know, if you fail to plan, then you plan to fail." It's very, very intensive. I will be honest, I have never used it to that level, it's more than I can do. But it taught me that I need to be doing some type of planning so that each day is building in each week and each week for each month and each month into the season. The planning will vary by age and ability, but you need to plan. I have that with my age group coaches. I tell them, "If all you are planning is which days you are going to do which strokes, that's fine. But that way, at least you hit every stroke every week."

So, what do all these coaches have in common? These are one of the things I learned watching and listening, not necessarily from a talk. On the left-hand side are all coaches who put two or more swimmers onto the Olympic team out of a club situation; which is a lot harder today in the situation of trying to put high school swimmers on the team, but that's what all those coaches did at one time or another in the last 30-plus years. Every one of them built a program that did not exist before. Or else they took like when, David Salo took over Nova, it wasn't a Nova that all of you know today; he built it into that.

Same thing on the right-hand side. These are all coaches, who went into colleges. Not necessarily the best program in the country and produced multiple national team NCAA championships. Some of them even did it both on the men's side and the women's side. There are a lot of coaches, who have scholarships, who have not been able to reproduce that. There is something about the coaches and the desire and their commitment to the success that they want to fight.

So, in '78, and my first clinic, what I learned from Peter Daland, I had to learn it the hard way because he was maybe a little younger than I am now. I was

about the age of half of you out there today. He told us that, "No matter how much you think the parents might be your friends, how many times you've had dinner at their house, gone out and had a beer with them, they are not your friends. It's their child, first and last, and you'll never make the list." Those are his words.

Another one that he used to tell me besides, "Get a haircut," is, "Professional is as professional does." I was fortunate because I got to go to NCAA's to watch '72, '73, '75, and there probably wasn't a greater professional on deck both by dress and manner than Peter Daland.

The other thing he would tell us, at that time, was "Keep your hands off the girls." Probably a bigger thing today. One of my friends said I needed to include that because it's something everybody needs to be thinking about. We have to protect our children. It is a tough world out there. I think 99% of the coaches do all the right things, but the 1% of the coaches make it look bad for us.

Great coaching is anticipation, preparation, and dedication. My dad used to work 50-plus hours a week, that's why when some people ask about how much time I put in, I was always like, "I am not working as hard as my dad did." But I don't know what profession puts more time in than coaches. I mean, besides what we do every day on the deck, weekends when we're at swim meets and we are there for 8, 10, 12 hours? You got to love what you're doing. It has got to be that smile on that kid when they get done with making their first age group qualifying time or breaking a minute for the first time- that has to be worth every hour and every second that you spend on that deck.

I am coaching only because of one man and that's Terry Laughlin. He was both a friend and a mentor. He offered me my first job. He was the leader of Total Immersion. We lost him about two years ago to cancer. One of the most honest, hard working guys I have ever known. The first thing Terry taught me and told me was to never stop learning. He said, "If you think you have it all and you have all the answers, then it's time to move onto something new." And also, "What you thought you knew yesterday is different today." If you ever follow the development of Total Immersion, and you'd see that he might say on Monday, "It's got to be this and by Wednesday he might go, "You and I worked on it, and that's wrong; it's going to be something different."

From Don, "They don't care how much you know until they know how much you care." A lot of coaches have repeated that over the years, you have to love the kids in an appropriate way and you have to care about them. Just telling them, "I know best," isn't enough.

Frank Keefe, this is back in the late 70s, I think. Frank Keefe, a great coach from the Northeast, on coaching young swimmers again, "You gotta love the kids."

What I learned from Mark- I went to a talk one time, this was in the 80s. It was by a coach by the name of Jay Fitzgerald. Jay is a quality coach in his own right. He was speaking because he was coaching one of the best IMers in the world at that point. He coached in Cincinnati with the Marlins. He coached at Santa Clara before going over to Pine Crest. But what really struck me when I was sitting in the talk was to watch Mark coming in, sitting down, and taking notes. The guy who coached Jesse Vassallo and was probably the best 400 IM coach in the country, if not, one of the best overall coaches and here he was. No matter how good you are, he showed me that you could learn from everyone. That really struck me back then.

Then, you never know where you're going to learn something. I got to share



a ride in an Uber with Ed Spencer. Fortunate to coach a young man today that is highly ranked in the 1500, and on the ride over, we were just talking about swimming and what else are you going to talk about with another coach? He gave me some great pointers and ideas for sets that I think would really help my swimmer, just in an Uber ride.

Coaching, I have always believed is not a job, it's a calling. You cannot spend 12 hours a day, two days in a row, and think about it as hours. To succeed, you do the job, not the hours.

Dick Jochums, talking on taper; if you never had the opportunity to listen to Dick Jochums give a talk, you really missed out. He was good. There is one part I will tell you that I didn't put in here, but first thing is he was telling us on taper, "When they start to look bad, it's time to rest more, not less." He tells a story and he goes, so the first woman comes over and says, "Coach, I feel great." And you go, "Oh, that's awesome. That's exactly how you should be feeling at this point." Next one that comes over and says, "Coach, I feel terrible." You look at them and you go, "That's great, because if you felt really good now, I would be worried when we get to the meet." And he says, then you just keep you cool. Go home and you yell at your wife and you kick the dog and you just wonder where we are going.

The other thing was, "Anyone who says they know everything about taper is either a fool or a liar." And I so heartily agree with that. I would say that no matter how good we look, every time I go into a meet, I never know exactly what we are going to do.

From Mark, I learned to challenge my swimmers. I do not know if I got the sendoffs correct, but he told about training Jesse Vassallo and doing a challenge set and they would go three 400 IMs three times. The first round was 4:55, second round went on 4:50, third round on 4:45 and this is long course. This is when the world record was held by Jesse, which I think was 4:18 at the time. I went back and I knew I did not have swimmers that could do that, but I knew I can challenge my swimmers. This is one of the things I learned over time when I listened to some of the great coaches give ideas. I have to think about how I can fit that into my program.

I mentioned it yesterday, but one of the ways I do that is a challenge set we do at least twice a season. I did it with some of mine in Sarasota in the 80s and we did a total of nine 200 backstrokes. This is back when the backstrokers were still touching the wall and wearing just regular nylon suit. We did the first three on 2:10, then and this is short course, the next three on 2:05 and the last three on two minutes. We did four 50s recovery in between each round of three. On the last set of three, he held 1:56-1:57 on the two minutes. Didn't quite, but was getting ready to upchuck at the end of it. I walked over and I said, "That was awesome. I don't know that there is another American your age in the country that could do that and you are going to win Senior Nationals." And sure enough, he went to North Carolina, went 1:46 and won Senior Nationals. Just something I picked up, thanks to Mark, over the years.

Randy used to tell me, "If you're not changing anything in your program, don't expect anything to change in the results." When you are coaching age groups, the 10, 11, 12 year olds, they are going to get better a lot of times just because either they got bigger or they just got a little more focused in practice. But, once you are coaching 15 year old girls and 17 year old boys in club teams, you have to be coming up with something every season that is going to make a change in them. It might be adding a practice, adding an extra 15

minutes, increasing the length of your major set, shooting for a bigger meet that year, or getting them more excited. But something needs to change every time. It might not always work out, but you need to be taking a look.

This is learning not to always take for granted what you are told by everybody standing at the podium at ASCA. I am listening to Eddie Reese. This is '78, and I am the head coach for the first time. Eddie talked about tapering, "You gotta go six weeks of basically no work." I didn't think about the fact that he is talking about grown men, 6'2- 6'4, 180 to 210, and all muscle. I am coaching a YMCA team and I decided I am going to taper for six weeks. At the end of the first week we had two meets, it was like the YMCAs City Championships and we swam out of our minds. And I go, "I got the answer, we got it." I know everything it needs to know about tapering.

Five weeks later, we go to our last major meet, and it was the slowest meet, the worst meet of the year. So, one thing I learned from that meet is I had rather be under tapered than over tapered coming into a meet. I can always rest more. I cannot get back in shape. We were awful. It still, to this day, the worst end of the season meet I have ever had. I know that if I was making more than \$200 a month coaching, I would have been fired. Fortunately, I was working for peanuts.

What I wish I knew at the beginning, having learned this from coming to ASCA, I would have started at swim schools the very first time. I would have found a way to find a pool, so I am teaching little kids how to swim. It's going to easily add income. It's where you're going to find swimmers. You would be amazed at how many coaches that have swim schools and have some exceptional swimmer will tell you about, "Oh, yeah, he came right out of my swim class. I used to watch him kick and knew what the kick like that he could be good." It is going to create your footprint in your community. You are going to be more visible and more people talking about you. If you're in a community that has multiple teams, mine does too, that only enhances your ability to be seen and known by more people.

Learning that, "Excellence is possible in all situations." Paul Bergen in 1978 won Nationals and broke innumerable American records. It was short course Nationals, we were in Texas. He trained them out of a 20-yard pool at that point. It's not the pool, it's not which brand of bathing suit you are wearing. It is the coach. You are the only difference between how good your team can be. Everything else is incidental. If you have a hundred kids in your pool, I don't care if it's in Maine, Florida, Washington, California, or any place in between. You are going to have a hundred kids and in every group of one hundred kids, I believe you have a national level swimmer.

And lastly, a couple of people I have to thank for helping me put some of this together, Pat Hogan. Nobody has served our sport better than Pat has. He is retired now, surviving the storm in North Carolina. Chuck Warner and Scott Colby, all longtime friends, and Cindy, my wife, I could not do this if it wasn't for her. That is what I have. Happy to answer questions or add more. If anybody hears something they want to add, I would love to hear it.

Thank you.

It's been an honor to speak at this clinic. I was thinking at one point that I can take next year off, but it's in Orlando and that's too close for me not to be there. I'll be at another one, but whether it's this clinic, USA Swimming's Zone Clinics that they run or whatever, keep learning. Get more people to come. So, I want to thank you for the honor of getting to speak to all of you. Thank you. ■



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