SWIM SPEED SECRETS

MASTER THE FREESTYLE TECHNIQUE USED BY THE WORLD’S FASTEST SWIMMERS

2ND EDITION

INCLUDES NEW SPEED SECRETS, DRILLS & PHOTOS

SHEILA TAORMINA

4-TIME OLYMPIAN AND TRIATHLON WORLD CHAMPION
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When I wrote *Swim Speed Secrets* in 2011, I had one principal goal: to steer swimmers and triathletes away from excessive gliding. There was then so much talk of low stroke count that athletes were led to believe this factor was the one and only key to fast swimming. Gliding with a sleek body position became the preferred method for reaching the low stroke counts of Olympic champions. The problem was that the other half of the swimming equation—rate of turnover—was completely ignored, and athletes were not finding themselves swimming any faster.

So, I set out to introduce the “rate” side of the equation in the original edition of this book. I wanted to show athletes that once they understood the importance of rate, they would realize low stroke count is not effectively achieved by gliding but rather by properly navigating the *propulsive* phases of the stroke. The majority of my effort in the original edition was directed toward convincing readers of my rationale.

Today, in 2018, most athletes understand they must pay attention to the propulsive aspects of the stroke to achieve low stroke count while also attending to the rate side of the equation—the combination that makes for fast swimming.

I’ve thoroughly enjoyed watching swimmers and triathletes begin the process of adopting the very doable, although challenging, stroking mechanics of elite swimmers. Their hard work is paying off. Times are dropping and physiques are changing—telltale signs of solid mechanics.
This is exciting, but there is more. I now want to delve deeper into the stroke.

In the original edition, I did not provide enough guidance on the stroke itself. Two factors contributed to this: (1) As mentioned, my primary focus was affecting change in the swimming community’s mindset; and (2) I believed that broad descriptions of the stroke were enough for readers to apply solid mechanics.

However, the more I’ve studied technique and worked with athletes of all levels, the more I have honed in on details that—although sometimes barely perceptible—have the power to limit performance tremendously if navigated incorrectly, or at the wrong moment, or not at all. Thus, broad descriptions are simply too vague. They leave too much room for misinterpretation, or leave out key elements altogether. If, for instance, a coach says to make a “deep catch,” then how does the swimmer know what that means exactly? What is deep enough? What is too deep? Should the swimmer think about the hand, the shoulder, the elbow, or some other part of the arm when considering the depth? This uncertainty simply leaves too much to chance and too much potential on the table.

Swimming is a complex, three-dimensional sport, with depth components in addition to fore-aft and lateral components, yet there are no reference points to these dimensions in a mass of water. The movements made by swimmers, even when filmed underwater and analyzed frame by frame, are viewed against a nebulous backdrop. Couple this with the fact that swimming propulsion or speed depends on principles of physics and fluid dynamics, which require measured movements to maximize performance, and we see that coaches can end up in a quandary. They should be offering specific mechanical instruction to their athletes, but the medium in which the sport is contested is obscure, leaving them with choices for coaching instruction as vague as water itself.

Coaches have fallen into a habit of describing this complex sport in short phrases, usually in four words or less: “rotate,” “glide,” “kick from the hips,” “keep your head down,” “reach,” “pull straight back,” and so forth. This is partly practical—swimmers get cold if they have to stand too long at the wall listening
to a lengthy explanation of what to do. But it becomes far too easy to write off a slower swimmer as someone who “just doesn’t have a feel for the water.” If a swimmer does not improve after being instructed to “kick from the hips,” for example, the instruction itself is not questioned, it is the swimmer—who either didn’t start swimming at an early enough age and therefore is behind the curve and always will be, or doesn’t have kinesthetic awareness, flexibility, or strength.

In this revised edition, my goal is to change that by adding the depth of guidance.

I believe elite stroking is within every athlete’s grasp, but too many athletes are missing out on their potential for lack of guidance on the details. They’re “making a catch,” but they’re doing it too late, too wide, or with improper hand speed. In the following pages, I will unpeel the deepest layers of the stroke and hone in the checklist that is required for making a great catch, as well as other phases of the stroke.

To help achieve this goal, I developed an apparatus called the STGRID™ (patent pending). The STGRID is a measurement tool that allows swim mechanics to be articulated in measurable, definable terms. The grid is used in conjunction with underwater cameras that film a swimmer’s stroke. All movements throughout the swim stroke are measured and analyzed against the grid. Swimmers who are filmed using the STGRID can then measure their own strokes against measurements I have taken from Olympic swimmers’ strokes. The elite swimmers have been measured with the STGRID on all three dimensions. While not every elite swimming stroke is exactly like another, the movements always fall within a tight set of parameters. The STGRID outlines those parameters so that aspiring swimmers can adjust their mechanics with certainty and confidence.

Those who have read the original edition of this book will recall that its theme centered on organizing the massive amount of information relating to swim technique and then focusing intently on the few vital elements of the stroke. That remains the theme in this new edition. The propulsive phases of the
stroke are still where I contend we must place the majority of our focus. However, in this edition I have defined how to navigate those phases in more detail, so that athletes don’t miss a critical element that can make the difference in performance.

Complementing this in-depth description of the propulsive phases of the stroke are several other related updates, including the following.

1. **Hand Speed Change**

   Feel for the water is an area I’ve examined closely for several years. The generally accepted truth is that an athlete either “has it” or doesn’t. I have never bought into that mindset. Working with hundreds of athletes over the years has led me to see that this vital element is teachable, not simply a gift of the lucky few. Feel is closely related to hand speed change throughout the stroke cycle. Not hand speed; hand speed change. In this edition, I teach the finer points of acceleration, namely the unique movements at the beginning of the propulsive stroke cycle that affect hand speed (hint: they do not entail a passive “gliding” motion). Once swimmers learn the details behind these movements, they will understand and “feel” the secret ingredient to achieve elite propulsion.

2. **Oarlocks**

   In studying minute details of the stroke in action, I noted that some athletes employed very good mechanics but failed to effectively transfer momentum to the core. Their speed did not match their mechanics; they were slower than they should have been. This led me to the discovery of a key detail in the stroke that has never been addressed in our sport. I term it oarlocks and here’s why it matters: unstable oarlocks diminish the effect of great mechanics. Stable oarlocks, on the other hand, reward the swimmer by maximally converting propulsive power from the limbs to the body’s movement forward. In this new edition, you will learn where the oarlocks are on a swimmer and how to stabilize them. I’m extremely excited to share this crucial information with readers.
3. Reinforcement of Pull Path

Since the original edition of *Swim Speed Secrets* was published six years ago, an ideology that began in the early 2000s has grown in popularity—the “pull straight back” craze. I’ve watched with uneasiness as coaches and swimmers revile the S Pull to such an extent that they’ve swung the pendulum too far in the other direction. The newly chosen semantics imply that swimmers should eliminate all movement on the lateral and vertical dimensions of our three-dimensional sport. The result? Shoulder injuries are skyrocketing, and swimmers who use this path are not getting faster. While some progress has been made toward convincing athletes of the curvilinear path, the straight-back path is still too readily taught. This edition includes a section intended to redirect the pendulum, along with photos throughout of the most current freestyle Olympic medalists from Rio 2016, confirming the curvilinear path in their strokes.

4. New Drills

The drills in the original edition were chosen to correlate with the broad stroking guidance I gave in that book. Now that we are unveiling deeper layers of the stroke, I’ve selected drills that correlate with those details. Don’t worry—while a few may be a little more challenging than you’re accustomed to, all are very doable, and they will help you develop a championship stroke down to the last detail.

5. Applying Rate

Rate is a significant topic in the original edition, and here I take a more extensive look at how it is applied. Rate is not automatic; it must be trained. In the original edition, I addressed only racing rates of turnover, but in order to reach those, a swimmer must know how to apply rate of turnover in training. In this edition, I explain how that is accomplished.

6. The Nonvital Elements of the Stroke

Finally, while I will always believe the majority of a swimmer’s focus should be on the critical underwater pull path, there are other parts of the stroke that
do impact performance. In the original edition of this book I did not address those. In this edition, I dedicate a chapter to the details behind those elements, and I explain how to train them.

I’m excited to share these updates and the many discoveries I’ve made along the way as I’ve studied our amazing sport. My overarching goal with this book is the same as it has been since the first edition: to help those interested in getting faster to discover the beauty, science, and art of propulsive swimming.

Enjoy the process. Don’t rush this. Swimming is a complex sport, not mastered in a day.

—SHEILA T.
INTRODUCTION

How is it that elite swimmers are dizzyingly tearing apart world records while masses of triathletes, masters swimmers, and age groupers remain stumped as to why their times are barely improving, or not improving at all?

The elite swimming times are almost unreal. Consider for a moment that the women’s world records are now as fast as the men’s world records from the early 1970s. That means that even Mark Spitz’s times from the 1972 Olympic Games are being met by the fastest women today. The 200 m freestyle is a perfect example. Today’s world record for women is 1:52.98. Spitz won Olympic gold in Munich in 1:52.78.

It doesn’t matter which stroke you choose, or which distance. In the 50 m freestyle, South African Jonty Skinner held the world record in 1976 with a time of 23.86. On July 29, 2017, Sarah Sjostrom of Sweden powered to a 23.67. Today’s 1500 m freestyle world record for women, 15:25.48, is 27 seconds faster than the gold-medal world record–setting time for men at the 1972 Olympics.

The elite male swimmers are doing the same thing the women are doing—smashing previous marks at a rate that has left most people scratching their heads. It makes a statement made by the famous Johnny Weissmuller seem almost comical. Weissmuller, who won five Olympic gold medals in swimming at the 1924 and 1928 games, stated in his book *Swimming the American Crawl*, in the chapter “Can the Crawl Be Improved?”:
My technique has been called the “perfected” crawl stroke because it reduced water resistance to the minimum; it facilitated a method of breathing that most closely approximates the natural, involuntary method of nature; it put the body in a position to make free and unimpeded use of all its strength and power and leverage, and it got the most propulsion for the effort expended. Some say there is still room for improvement in this stroke. I do not see just where the improvement will come. (Weissmuller 1930, 45)

Now, we have to give Weissmuller some slack for thinking the world would never improve upon what he did in the roaring ’20s, because he did set 67 world records during his swimming career. In fact, he was never beaten in an official swimming race. Think about it—never beaten! If I were him, I probably would have thought I had perfected the crawl too. Also, it wasn’t like he just dove
in and swam any old way he wanted. In his book, he describes—down to the smallest detail—the reasons why he used the technique he used. A great deal of thought went into it.

What was that technique? You may know it as the Tarzan drill—the drill you do in practice where you hold your head above the water. If your coach is a fun person, then he or she will insist you do the ululating Tarzan yell while you stroke (mine did).

That was Weissmuller’s stroke, keeping his chest and shoulders high in the water, and the drill is called the Tarzan drill because Weissmuller became even more famous after his swimming career when he landed the role of Tarzan in the movies. Following is another excerpt from his book, in which he describes his stroke:

*I swim with my chest and shoulders high in the water. This enables me to hydroplane, like a speedboat, reducing resistance to a minimum. I swim higher in the water than anybody ever did before, higher than anybody else does to this day… The height of my chest enables me to arch my back, avoiding the strain of the swayback position which many have to take in order to get the face out of the water for inhaling. The high chest and shoulders and the arch of the back throw my feet lower in the water, where they maintain traction at all times.*  
*Weissmuller 1930, 20*

Weissmuller wrote that he also believed the hips should stay flat, because, as he explains, if the hips roll, then the corresponding arm and shoulder dip lower in the water, thus causing resistance.

Today’s freestyle swim technique we know to be the exact opposite. The only people holding their heads above water are people who do not want to get their hair wet, like my mom, and using the hips as part of the stroke is most certainly on everyone’s radar.

So, are you wondering where I’m going with this?
If you think we are headed for a discussion on reducing resistance, then guess again. Rather, I am going to use Weissmuller and a number of other swimmers who have reigned as champions in the pool for the past five decades to present a picture of swimming that is long overdue—a picture that answers a great many questions.

To begin painting this picture, let me set the scene with the following shocking information: Even though Weissmuller’s times have long been shattered (his 100 m freestyle world record was first broken in 1934), his fastest 100 m freestyle still beats 95 percent of triathletes (even the top professionals), 95 percent of masters swimmers, and 95 percent of age-group swimmers today. It is indeed strange commentary that Weissmuller would beat just about every person reading this book.

Let’s look at his times: In February 1924, Weissmuller swam a 57.4 in the 100 m freestyle (long course meters). Sure, the world record now is 46.91, set by Cesar Cielo of Brazil (2009 World Championships), and the women’s world record is 51.71 (Sarah Sjostrom of Sweden, 2017 World Championships), but how many of you who are reading this book would think you were the cat’s meow for going a time like Weissmuller’s?

And it wasn’t just the short races in which Weissmuller set world records. He also owned the 400 m and 800 m freestyle records: 4:57.0 in the 400, set in 1923, and 10:22.2 in the 800, set in 1927. Although not nearly as impressive as his 100 m freestyle time, those distance event times would still, even today, place him in the lead, or very near the lead, at any triathlon event going into T-1 (Transition 1, which is triathlon talk for the changeover from the swim to the bike).

I realize that Weissmuller’s times may not impress all of you in the swimming world today, especially his 400 and 800 times (Weissmuller was definitely more of a sprinter than a distance swimmer), which means at this point some of you may think this book is too elementary. It may appear that I am going to address only the crowd that needs to catch up with swimming times that were posted almost 100 years ago. Don’t close the book so fast. This book is invaluable for a swimmer with national times, or the coach of a swimmer with those times, because it is as much about thought processes as it is about swim technique. You
may be on the verge of cracking into the very top of the elite ranks but wonder how you are going to climb the next rung of the ladder. The insights provided in this book will help you do that.

The reason many of us have been stumped about how to make improvements in our times, or how to reach the next level, is not for lack of information but rather for lack of organization of the information. A fair number of swimmers work on things that have minimal to zero impact on their times, because they were never accurately told what is most important and which things must be developed first. This book will change that.

You should know why you do what you do at every moment when you are working on technique or training.

I have a mantra, in sport and in life, that is about taking charge. It is “call the suit.” In my favorite card game, Euchre, each player is given the opportunity at various times during the game to call the suit that will be “trump” (most powerful). Players must look at the hands they were dealt and on their turn make a decision about whether to take charge of the play of the game or pass the opportunity to the next player, their competitor. I always encourage people to “call the suit!” Be bold. Understand what you have in your hand, and then make an informed decision on how best to play the game from there.

We are seldom coached on how to do this in our lives. My goal is to show the thought process that will develop this in your swimming, and it will actually be a launching pad for you to apply it to other areas of your life as well.
I’ve limited the book to the discussion of one stroke, freestyle, because it is the stroke that I know inside and out. It is the stroke that took me to the Olympics four times. I studied it, I spent endless moments thinking about it in the pool, and I got to know it. I am a fraction of an inch over 5 foot 2 inches in height, so my wingspan was not what put me on the Olympic team—it was the understanding of how to take information and make it work.

If you are new to swimming, please do not be intimidated by this book. The principles are simple. You will understand everything, and it will help you see the path to your goals.

Last, and perhaps most important, let’s keep everything in perspective: We are not solving any world crisis here. Let’s have fun. I am almost certain that if I had had to give up coffee in order to do sports, then I probably would have given up sports. (OK, I’m joking . . . maybe.) Make sure to read the dedication if you need additional perspective, and let’s move forward with answering the question from the beginning of this introduction.

Here’s wishing you joy on your journey to understanding the beautiful sport of swimming.
At just over 5 foot 2 inches tall, and not having made her first Olympic team until the age of 27, Sheila Taormina seems an unlikely candidate to have competed in four consecutive summer olympiads in three completely different sports (swimming, 1996; triathlon, 2000 and 2004; and pentathlon, 2008). Her first two attempts to qualify for the Olympics in swimming (1988 and 1992)—during what were considered her “peak” years—came up short. Following those years, she moved forward with her education, finished her master’s degree in business in 1994, and then began a professional career in the automotive industry, working a full-time salaried position in Detroit.

With her eyes set on the possibilities of 1996, she trained before and after work with her small, hometown swim team in Livonia, Michigan. There were no corporate endorsements fueling the effort—just a plan, some hard work, and a coach who believed along with her. Sheila learned about technique, efficiency, and the keys to success. Applying those throughout the years, Sheila grew to become Olympic champion in one sport, world champion in a second sport, and the World Cup standings leader in a third sport.

In the end, Sheila Taormina experienced six different disciplines on the Olympic stage—swimming, cycling, running, pistol shooting, fencing, and
THE WORLD’S TOP SWIMMERS KNOW THE SECRETS TO SWIMMING FASTER. NOW YOU CAN TOO!

Sheila Taormina is your guide to unlocking speed. In this new edition of the best-selling Swim Speed Secrets, the 4-time Olympian and world champion triathlete offers even more insight on mastering freestyle. Her smart, clear coaching will help any swimmer or triathlete learn the fastest way to swim.

Taormina focuses on the most crucial elements of swimming to help athletes overhaul their freestyle stroke and find the speed that’s been eluding them. With Taormina’s method, you will break through to new levels of swimming, speed, and confidence in the water.

NEW TO THE 2ND EDITION:

• Vivid underwater photos featuring top swimmers, including 2016 Olympic medalists Jack Conger and Townley Haas.

• Guidance on stroke path, stroke timing, hand speed change, and overwater recovery.

• Visual proof of the curvilinear stroke path using Taormina’s patent-pending grid analysis tool.

• Further instruction on stroke rate, and a “gears” system to guide workouts.

• New drills to cultivate technique and feel for the water, and dryland exercises to develop arm position and upper-body musculature.

SHEILA TAORMINA has competed in four Olympic games in three sports—swimming, triathlon, and modern pentathlon. Her exceptional freestyle technique led her to gold medals in the 1996 Olympics and the 2004 ITU Triathlon World Championship. Taormina has coached swimmers for two decades and conducts swim clinics around the world. She is the author of Swim Speed Strokes and Swim Speed Workouts.

“Sheila’s book clearly unlocks the secrets.”
—DARA TORRES, 12-TIME OLYMPIC MEDALIST

“Sheila Taormina knows more about correct freestyle technique and mechanics than any other coach on the planet.”
—STEVE HAUFLER, HEAD COACH OF THE ORINDA COUNTRY CLUB & ORINDA AQUATICS MASTERS