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MICHAEL PHELPS
& KATIE LEDECKY
(THEY'RE GOOD)

WORLD SWIMMERS OF THE MILLENNIUM (SO FAR)

THE LEGACY
OF DAVE SALO

CLAIRE CURZAN
BEFORE THE BEEP

TATJANA
SCHOENMAKER &
SOUTH AFRICA
PROVING THEIR METTLE



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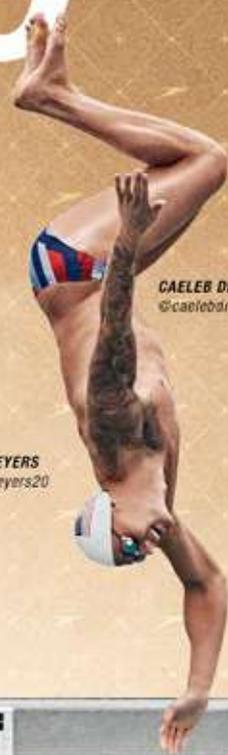
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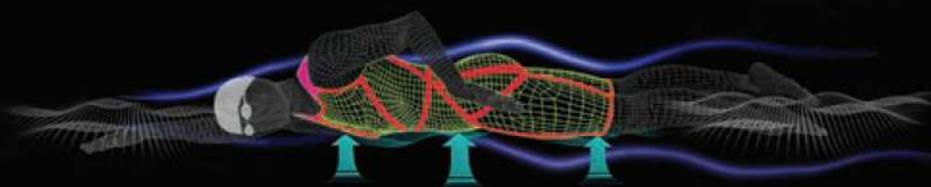


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by Andy Ross

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by John Lohn

At the 1972 Munich Olympics, Sweden's Gunnar Larsson was awarded the gold medal in the men's 400 IM, edging USA's Tim McKee by 2-thousandths of a second. Subsequently, international swimming rules were changed to record results to 1-hundredth of a second, allowing for ties among swimmers with identical times.

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by Rod Havriluk

In breaststroke, most swimmers learn to synchronize their head and arm motions to breathe and to recover to the non-



ON THE COVER In lieu of its annual exercise of naming Swimmers of the Year—which was impossible in this COVID-19-impacted year—*Swimming World* decided to identify the top swimmers of the first 20 years of the millennium. As the greatest swimmer in history, it was simple to name Michael Phelps, an athlete who—from 2000-16—attended five Olympiads and walked away with 28 medals. And the statistics pertaining to Ledecky also provided a no-doubt-about-it conclusion. Since 2012, she has won five Olympic gold medals and 20 World Championship titles. Also, her 14 world records since 2013 include times in the distance-freestyle events foreign to anyone but herself. (See feature, pages 12-18.) [PHOTO BY PETER H. BICK]

breathing position. However, a delay in the head motion both to breathe and to recover affords benefits of less resistance, more propulsion and a faster stroke rate.

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by Michael J. Stott

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THE MOST IMPACTFUL PEOPLE OF 2020

BY JOHN LOHN

Our sport is graced with great people and organizations. As appropriate for this time of year, we want to recognize those (in random order) who are making an impact in aquatics. Thanks to the following for their contributions and inspiration:

Lia Neal, Simone Manuel, Reece Whitley, Cullen Jones and Natalie Hinds

In the face of racial injustice and systemic racism across the country, headlined by the death of George Floyd, leadership was displayed by America's leading black swimmers. They used their voices to speak out and demand change, with Whitley stating: "Silence in the face of injustice is complicity."

Allison Schmitt

As she continues to chase a fourth Olympic invitation, Schmitt stayed true to her crusade of educating others about the importance of mental health. She spoke publicly about her battles with depression, and the need for those experiencing mental-health struggles to receive necessary support.

Anthony Ervin

The International Olympic Committee, through its Rule 50, prohibits athletes from making political, religious or racial demonstrations at the Olympic Games. Olympic champion Anthony Ervin said that rule "won't fly," and athletes needed to have their voices heard while on the largest platform they will see.

Court of Arbitration for Sport (CAS)

In a victory for clean sport, the CAS told Chinese Olympic champion Sun Yang—and others unwilling to play by the rules—that their actions will not be tolerated. After Sun engaged in a contentious evening with doping officials on a night that included Sun's bodyguard breaking a vial of the swimmer's blood, CAS handed Sun an eight-year ban.

Don Talbot

The legendary Australian coach passed away in early November, leaving behind a grand legacy. Talbot's death reminded the world of his impact on the sport, as the taskmaster enjoyed success in his homeland, the United States and Canada.

Save Tribe Swimming

The group was formed after William & Mary University announced it was cutting the men's and women's swimming programs. Through its fight, STS first convinced the school to bring back women's swimming and battled on to the point of saving the men's program, too.

Chris Plumb

Other coaches might get more national credit, but as the coach of Carmel High School and Carmel Swim Club, Plumb produces spectacular talent on a regular basis. This year, his girls' and boys' high school programs were honored as *Swimming World's* Teams of the Decade, a tribute to their consistency as national powers. ❖

John Lohn

Associate Editor-in-Chief
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SWIMMING WORLD

PUBLISHING, CIRCULATION AND ACCOUNTING

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Peter H. Bick, USA Today Sports Images, Reuters, Getty Images

OFFICIAL MAGAZINE OF:



ENDORSED BY:



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DID YOU KNOW?

.....
ABOUT THE ART OF SWIMMING?

BY BRUCE WIGO

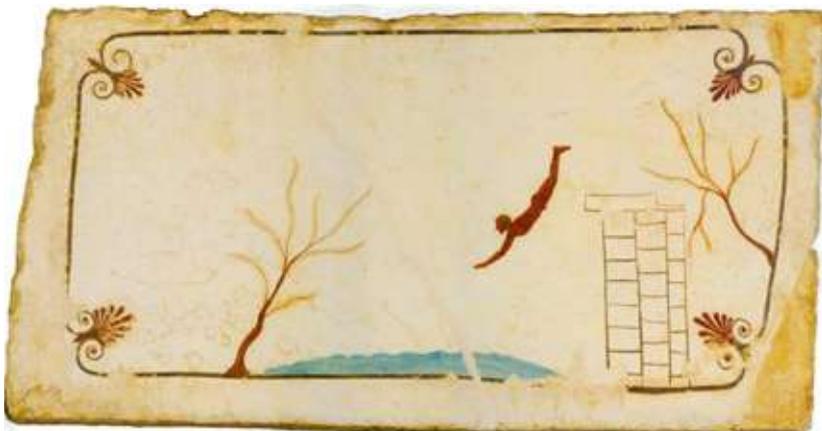
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> Assyrian bas-relief from Til Barsip [Kalat Nedjim, Syria] [865 BC]



> Funerary decoration in Etruscan tomb [sixth century]



> Tomb of the Diver was the lid or ceiling of a four-walled tomb [480 BC]

The ISHOF Museum tells the history of swimming through an extensive collection of original and reproduced works of art—from ancient paintings to photographic masterpieces of today. Pictured here are a few of the most ancient pieces on display.

- The first is a full-size replica of an Assyrian bas-relief from Til Barsip (Kalat Nedjim, Syria), dating to 865 BC. The original was a carved slab from King Ashurnasirpal II's throne room at Nimrud, Iraq, Assyrian Empire.

Three warriors are shown swimming across the Euphrates River. Two of them are riding on inflated skins in the mode practiced into the early 20th century by the Arabs inhabiting the banks of the rivers of Assyria and Mesopotamia.

The third swimmer, pierced by arrows discharged from the bows of the high-capped warriors kneeling on the bank, is swimming without the support of a skin against the current. There is little doubt that the Assyrian stroke depicted in this work of art was a version of the modern crawl stroke.

- In Tarquinia, Italy, funerary decorations in Etruscan tombs date from the sixth century BC. Many are badly damaged. Pieces of the walls have corroded away and the dampness has faded the colors.

In this restored version of one wall of the Tomb of Hunting and Fishing, we can get a quick ripple of ancient Etruscan life. When people reach the point of death—or when they look back over their lives and reminisce—they often remember the golden days of childhood summers when everything seemed right with their world.

Perhaps this is the significance of this wall painting. Maybe the owner of the tomb wanted those sweet days of his youth depicted, where he had fun with his friends and, perhaps, his brothers, and wanted those memories with him when he passed on to his next world.

One can easily imagine that these boys dived and climbed up again many times a day during the summers of their youth.

- The Tomb of the Diver was discovered in 1968 by Italian archaeologist Mario Napoli in the ancient Greek city of Poseidonia, today known as Paestum in the south of Italy. Dating to 480 BC, when Poseidonia was a Greek colony, this famous painting was the lid or ceiling of a four-walled tomb.

The image of the diver has been interpreted as the passage of the soul through the purification of water into the afterlife. The tower, with its 24 bricks symbolizing the hours in a day or time represents the passage of life. The olive trees make symbolic reference to peace and security.

The body of water into which the diver is plunging is the passage into the afterlife, and the shore beyond leads to the haven awaiting the diver when his passage through water was complete. Or the paintings may simply represent an activity the departed enjoyed—as could be the case with the Etruscan Tomb of Hunting and Fishing. ❖

TOUGHEST WORKOUTS

(PART 2)

SWIMMING HAS HAD ITS SHARE OF TASKMASTERS OVER THE YEARS. IN THE SECOND OF A TWO-PART SERIES ON WORKOUTS DESIGNED TO PUSH SWIMMERS TO THEIR LIMITS ARE SOME SETS FROM RESPECTED AUTHORITATIVE FIGURES AT GERMANTOWN, ARDEN HILLS, BLUEFISH AND FLORIDA WHO HAVE TRAINED EXCEPTIONAL ATHLETES THAT HAVE EXCELLED ON THE INTERNATIONAL STAGE.

BY MICHAEL J. STOTT

OLD SCHOOL TRAINING...

Sherm Chavoov founded the Arden Hills Swim and Tennis Club in 1954 and, in time, coached Olympic gold medalists Debbie Meyer (3), Mike Burton (3) and Mark Spitz (9). Chavoov was a USA Olympic coach in 1968 and 1972, ASCA Coach of the Year in 1968 and an ISHOF inductee in 1977. He believed in distance training.

When Meyer and Burton swam at Arden Hills, they did a lot of overdistance with repeat swims on minimal rest of no more than 10 seconds.

“That was the key to our success,” says Meyer. “I am not sure swimmers today would be able to handle the practices mentally for more than a day. By today’s standards, they were boring. We swam approximately 80 grand a week, mostly six days a week and twice a day. There were optional days like the holidays, and I swam those with Mike.

“One session was a taper practice prior to nationals in April 1968. We would do anything Sherm asked. I swam 5 x 500 on six minutes or less. I can’t really remember the exact amount, but I know I couldn’t get more than a complaining sentence out after each swim.

All but one of the swims was under five minutes— 4:58-pluses and one 5.00.0-plus. Sherm later told both of us that we were breaking world records in practice,” says Meyer.

“Sample sets we did were back-to-back 1650s swimming and pulling, 3,000s swimming and pulling, 20 x 100s with five seconds rest, 10 x 200s with five seconds rest. We always started a.m. and p.m. practices with a 1,000 kick, then did a 2,000-2,500 main set, except when doing the 1650s and 3,000s, and the same thing pulling. We finished up with 800 IMs, 400 IMs, 1,000 back or breast, or 40 25s no breath.

“After a while, I started doing it butterfly on the no-breathers,” Meyer added. “Sherm thought I was being tough, but it was easier to do than free no breaths. These were fast, too—probably on 30 seconds.

“Most everyone in our group swam the same intervals, and if you didn’t get back to the wall in time, you swam a straight swim. That motivated everyone to bust their butt. Even our sprinters swam the practice—well, all but one...guess who?!”

...AND NEW SCHOOL

Bluefish Swim Club coach Chuck Batchelor has a reputation for offering difficult workouts and a knack for turning out winners. Two of his most celebrated athletes are Laura Sogar, NCAA 200 yard breaststroke champion in 2013, and Elizabeth Beisel, three-time Olympian (2008-12-16) and two-time Olympic medalist (silver, bronze).

“The hardest set I ever did with Chuck,” says Beisel, “was 48 x 400s. They ranged from freestyle to IM to back strap (strap around your ankle) to broken 100s on 1:05. We did it all in one shot the day before Thanksgiving. It was nicknamed ‘Chuck’s Thanksgiving Day Special.’”

Beisel then matriculated to the University of Florida and Coach Gregg Troy, in part because the training was similar to that at Bluefish.

“One of the hardest sets I ever did with Gregg was long course,” she said. “It was only 4K, but the entire set was on a 1:10 interval. I’ll never forget—I was in the boys’ group with Peter Vanderkaay, Ryan Lochte and Conor Dwyer:

4 rounds:

- 300 on 3:30
- 200 on 2:20



>> Arden Hills Swim Club’s Sherm Chavoov [far left] had his swimmers do a lot of overdistance training with repeat swims on minimal rest of no more than 10 seconds. Among them were world record holders [from left] Debbie Meyer, Michael Burton and Mark Spitz, who together combined for 15 Olympic gold medals between 1968-72.

[PHOTO BY INTERNATIONAL SWIMMING HALL OF FAME]



>> Three-time Olympian Elizabeth Beisel swam a lot of tough sets in workouts, courtesy of her coach at Bluefish Swim Club (Raynham, Mass.), Chuck Batchelor, then later at the University of Florida with Coach Gregg Troy (pictured).

[PHOTO BY PETER H. BICK]

• 5 x 100 on 1:10

“I think I was maybe getting five seconds max.”

THE GERMANTOWN WAY

Of course, any conversation about rigorous workouts is incomplete without mentioning Germantown Academy’s Richard Shoulberg. In his storied career, the Philadelphia area coach trained more than a dozen Olympians, including David Wharton, Sue Heon, Trina Radke and David Berkoff.

As preparation for the 1986 World Championships, Shoulberg proposed that 16-year-old Wharton do what no one had ever done: a continuous 16,000 long course meters IM.

On Columbus Day 1985, Wharton began 250-meter blocks in IM order of fly, back, breast and free. His instructions were, “I want a good effort on each 1,000, so let’s just go after the damn thing.”

At the 8,000 mark, the swimmer stuck his head up, went 100 meters of backstroke and told Shoulberg he had miscounted the backstroke. Shoulberg thought, “Oh my God, this kid is special.”

Wharton then repeated the exercise every 28 days, each time dropping the set by 3,000, working down to 1,000 meters two-and-a-half weeks before World Championship Trials. Shoulberg told his charge, “Nobody in the United States has worked as hard as you. When you go up on the blocks for finals, remember you outworked everybody.”

Sure enough, Wharton qualified for the team, passing American record holder Jeff Kostoff in the final 10 meters. One year later at Pan Pacs, he set the world record with a 4:16.12.

Sue Heon made the 1984 Olympic team in the 400 IM. “She’s one of the most intense athletes I ever coached,” says Shoulberg, a believer in controlled pacing. Four-and-a-half weeks before Olympic Trials, Heon started a controlled-pace 7,500-meter swim that she extended to 15,000, hitting 1:10s for each of the 150 100s.

Three years later, Trina Radke qualified for a USA Swimming Thanksgiving training trip to Hawaii based upon her B-final win at summer nationals. She could go, said her coach, if she did a legal long course 15,000 fly set. Not only did she complete it, but she did it again in Hawaii on Thanksgiving Day!

“People told me I was nuts,” said Shoulberg. “They asked, ‘Why would a high school girl ever do a 15,000 fly for time?’ I said, ‘I don’t know. I just decided to do it.’”

At 1988 Olympic Trials, Radke qualified fifth for finals in the

200 fly. Assured by her coach that no one could finish better than she, Radke made the U.S. Olympic team. “She had that mental picture she could do things that other people had never tried, and that gave her confidence.

“Would I recommend someone do a 16,000 IM for time or a 15,000 fly set?,” Shoulberg asked. “Those sets were not necessary. I did it for no other reason than mental toughness, but it did make them tougher.”

There was another method to the coach’s madness: “I wanted to see how many days it would take the athletes to get back to their normal training cycles. It was faster than I ever thought. Those three were back within 72 hours!”

Shoulberg Olympian David Berkoff recalls, in a classic understatement, “We did some pretty tough training.” At age 25, he did 6,000 meters of freestyle in 59:26. “Another set not recommended was 16 x 50 underwater kick long course on :60. The first few were hard, but then it got easier. I held about 35-37 seconds for each 50,” Berkoff says.

While these workouts remain legendary in aquatic lore, it is worth noting that they were all done in a partnership between swimmer and coach designed to produce an athlete’s best effort in a championship environment. ❖

Michael J. Stott is an ASCA Level 5 coach whose Collegiate School (Richmond, Va.) teams won nine state high school championships. A member of that school’s Athletic Hall of Fame, he is also a recipient of NISCA’s Outstanding Service Award.

SWIMMERS OF THE MILLENNIUM'S FIRST 20 YEARS (2000 -19)



[PHOTO BY JERRY LAMPEN, REUTERS]

MICHAEL PHELPS

Male World and American Swimmer of the Millennium

BY JOHN LOHN

He was a boy at the dawn of the millennium, and just one man envisioned a future anywhere near what ultimately unfolded. Bob Bowman was that guy, and through a combination of nerve and foresight, the coach recognized the potential of Michael Phelps to emerge as a once-in-a-lifetime performer. Oh, how Bowman's prophecy was on target.

Because he is the automatic choice as the greatest swimmer in history, it was simple to name Phelps as the World and American Swimmer of the first score of the Millennium. The difficult part of the exercise was choosing how to fit Phelps' list of achievements in the allocated space. After all, we're talking about an athlete who—from 2000-16—attended five Olympiads and walked away with 28 medals.

When Phelps first stepped onto the Olympic stage, he was a 15-year-old racing the 200 butterfly at the 2000 Games in Sydney. The appearance was predicted by Bowman during a conversation with his pupil's mother, Debbie, almost four years earlier. While Phelps finished fifth and off the podium in his Olympic debut, he proved he belonged and laid the groundwork for bigger moments ahead.

"Sydney inspired us to keep working and to really ask what was possible in the sport of swimming," Bowman said.

The next year, there was a world record and an initial

World Championship title in the 200 fly, and by 2003, Phelps had surpassed Australian icon Ian Thorpe as his sport's headliner. Quite simply, Phelps was a never-before-seen force, even if he had yet to win an Olympic medal. That hole was filled at the 2004 Olympics in Athens, where Phelps won eight medals—six gold and two bronze.

World records became the norm for Phelps, who set 39 global standards during his career. They came in the 200 freestyle, both butterfly events, each individual medley discipline and as a relay stalwart for the United States. Phelps, too, was one of the world's best backstrokers, and only scheduling conflicts left him short of medaling in that stroke on the world scene.

In 2008, Phelps stamped himself further into Olympic lore when he followed a seven-title showing at the 2007 World Championships with eight golds at the Beijing Games, those medals complemented by seven world records. The effort surpassed Mark Spitz's seven golds from the 1972 Munich Games, and was much more difficult, requiring 17 races over eight days—and against deeper competition. Really, the week in Beijing was enough to make Phelps the Swimmer of the Millennium.

"Everything was accomplished," Phelps said after he wrapped up his Beijing program. "I will have the medals forever. Nothing is impossible. With so many people saying it couldn't be done, all it takes is an imagination, and that's something I learned and something that helped me."

Not surprising, Phelps lacked motivation after Beijing. Sure, he continued to collect huge medal hauls at the 2009 and 2011 World Championships, but he was no longer invincible...and no longer fully dedicated to his training. At the 2012 Olympics, Phelps won six medals, but he failed to medal in the 400 individual medley and was beaten by South African Chad le Clos in the 200 butterfly. Retirement followed for nearly two years, until Phelps decided he wanted to finish his competitive days on his terms—and with a devoted effort to his craft.

Indeed, Phelps closed his career in impressive fashion, as he left the 2016 Olympics with five gold medals and a silver, including a fourth straight victory in the 200 individual medley and the reclaiming of his title in the 200 fly. Of his 28 career Olympic medals, 23 were of the golden variety, and he produced a pair of eight-medal Games and two with six-medal hauls.

There is a tenet in the journalism industry to never suggest a feat will go unmatched. That principle can be discarded when it comes to Phelps. What he accomplished during the first score of this millennium is other-worldly, the stuff of video games.

"This all started and began with one little dream as a kid, to try to change the sport of swimming and do something no one else has ever done, and it turned out pretty cool," Phelps said.

Sure did. ❖



[PHOTO BY PETER H. BICK]

KATIE LEDECKY

Female World and American Swimmer of the Millennium

BY JOHN LOHN

Statistics play a key role in sports, this numerical data allowing media members and fans alike to compare athletes—often across generations. While some athletes still cannot be separated after the dissection of available stats, those pertaining to American Katie Ledecky provide a no-doubt-about-it conclusion.

In lieu of its annual exercise of naming Swimmers of the Year, which was impossible in this COVID-19-impacted year, *Swimming World* decided to identify the top swimmers of the first score—or 20 years—of the millennium. When it came to selecting the World Swimmer of the Millennium, Ledecky was the easy choice.

Since emerging on the global scene as the 2012 Olympic champion in the 800 freestyle, Ledecky has been an undeniable force. She has garnered world championships and world records with ease, her foes aware they were in a fight for silver—not gold. She has also flourished, similar to Michael Phelps, while under intense pressure and facing grand expectations.

Over the span of four World Championships (2013-19), Ledecky has won 15 gold medals, including four at the 2015 World Champs, where Ledecky won the 200, 400, 800 and 1500 freestyle—a feat known as The Quad. More, she has set 14 world records since 2013, her times in the distance-

freestyle events foreign to anyone but herself.

“I’ve seen Michael win eight medals in Beijing. That was hard-fought,” said Frank Busch, USA Swimming’s national team director, of Ledecky. “I’m sure he’d be the first one to say Katie’s a freak. She’s a freak of nature in what she’s done.”

The 2016 Olympic Games in Rio de Janeiro represent Ledecky’s finest hour, as she left South America with four gold medals and a silver. By registering solo triumphs in the 200, 400 and 800 free, Ledecky joined American Debbie Meyer (1968 Olympics) as just the second athlete to win three freestyle events at a single Games.

Her victories in the 400 and 800 free arrived in world-record time, and her decision in the 200 came against one of the deepest fields assembled in Rio. Yet, few were surprised by what Ledecky accomplished, such is the level at which she competes.

“This is the end of a four-year journey,” Ledecky said following her performance in Rio. “The Olympics are the pinnacle of our sport, and I have to wait another four years to have that moment, so I just wanted to enjoy it. The memories mean more than the medals to me. I hit all my goals right on the nose this week. I’m proud to be part of history.”

For all of Ledecky’s Olympic and World Champs success, it is necessary to look deeper at the numbers to truly understand the special nature of her talent. So, sit back and enjoy:

> *Ledecky owns the seven fastest times in the history of the 400 freestyle, and 12 of the 13 swiftest marks. Her world record of 3:56.46 is 2.30 seconds faster than Ariarne Titmus, the No. 2 performer of all-time.*

> *In the 800 freestyle, Ledecky boasts the 22 fastest performances ever, and 24 of the top 25. Her world record of 8:04.79 is nearly 10 seconds quicker than No. 2 performer Rebecca Adlington, the 2008 Olympic champion in the event.*

> *In the 1500 freestyle, Ledecky occupies the top 10 slots in history, and her world record of 15:20.48 is an astounding 18-plus seconds clear of No. 2 performer Lotte Friis.*

When Janet Evans ruled the distance world in the late 1980s, her performances were considered far beyond the era. Ledecky has done things that are even more awe-inspiring, and she has done so while remaining humble and among the most likable athletes in the sport.

“Katie Ledecky is the student who takes 20 credits a semester at Harvard and gets a 4.0 every semester—and nobody likes that person,” said two-time Olympic medalist Elizabeth Beisel. “But everybody loves Katie Ledecky. You just love to love Katie.”

And you can’t wait to see what she does next. ❖

TOP 3 WORLD MEN

1. MICHAEL PHELPS, USA (9)

2. Ian Thorpe, Australia

3. Pieter van den Hoogenband, Netherlands

(First-place votes in parentheses)

TOP 3 WORLD WOMEN

1. KATIE LEDECKY, USA (9)

2. Inge de Bruijn, Netherlands

3. Leisel Jones, Australia

(First-place votes in parentheses)

[PHOTO BY BILL COLLINS]



PIETER VAN DEN HOOGENBAND

Male European Swimmer of the Millennium

BY DAVID RIEDER

P ieter van den Hoogenband was one of the world’s premier freestylers of the early 2000s, as he outmatched Ian Thorpe for the starring role at the 2000 Olympics and then continued to battle Thorpe for supremacy for years before crossing over into the Michael Phelps era of dominance.

Meanwhile, Adam Peaty has redefined speed in the 50 and 100 breast since 2014, lowering the world records from 26.67 to 25.95 in the 50 and from 58.46 to a mind-boggling 56.88 in the 100. Peaty also has won three straight World titles in both events as well as the 2016 Olympic gold in the 100 breast. And Laszlo Cseh was, perhaps, the greatest male swimmer to never win an Olympic gold medal, but he won six medals over four Olympic Games, along with two World titles and 13 World Championship medals in an amazing six different events.

Those three men have never and will never race head-to-head, and the primes of their respective careers did not coincide, so the Male European Swimmer of the Millennium’s First 20 Years marked the only chance for Europe’s three premier swimmers of the past 20 years to be stacked up. The winner is van den

Hoogenband, for his years of sustained excellence in the freestyle events.

For van den Hoogenband, nicknamed “The Flying Dutchman,” the 2000 Olympics in Sydney was his second Games, but he had just broken through one year earlier when he won six gold medals at the European Championships. In Sydney, he came up against young Australian star Ian Thorpe in the 200 free on the meet’s second day, and after breaking Thorpe’s world record in the semifinals with a 1:45.35, van den Hoogenband pulled away from Thorpe in the final, silencing the Australian home crowd, winning Olympic gold and matching his world record.

A day later, van den Hoogenband shattered the world record in the 100 free, his 47.84 semifinal time crushing Michael Klim’s three-day-old mark of 48.17, and he went on to win gold in the final. The 100 free world record would last until the polyurethane suit era of 2008, when Alain Bernard broke it at the European Championships. Van den Hoogenband left Sydney with four medals, including bronzes in both the 50 free and 800 free relay.

While he never won a World title, van den Hoogenband would win medals in the 50, 100 and 200 free at both the 2001 and 2003 World Championships. Thorpe regained the 200 free world record in 2001 with an incredible 1:44.06, but van den Hoogenband would break 1:45 a year later with a 1:44.89 at the 2002 European Championships. Also nicknamed “Hoogie,” he returned to the gold medal podium at the 2004 Olympics, where he defended his title in the 100 free and also won silver medals in the 200 free [behind Thorpe] and in the 400 free relay, where he posted a split of 46.79, then the fastest in history, to edge out the United States.

In the twilight of his career, van den Hoogenband took silver in the 200 free at the 2007 World Championships, the race where Michael Phelps broke Thorpe’s 200 free world record and became the first man under 1:44. A year later, van den Hoogenband finished fifth in the 100 free in his final Olympics, and in the process, he lowered his eight-year-old best time [the previous world record] with a 47.68. ❖

[PHOTO BY BILL COLLINS]



INGE DE BRUIJN

Female European Swimmer of the Millennium

BY DAVID RIEDER

S electing a winner for the Female European Swimmer of the Millennium’s first 20 years proved to be a tough task since between 2000 and 2019, many different European women reigned as the world’s best in their events.

The long list of candidates included the Netherlands’ Inge de Bruijn, who won three individual Olympic golds at the 2000 Olympics in Sydney and another four years later; Ukraine’s Yana Klochkova, the 200 IM-400 IM double gold medalist in both 2000 and 2004; Italy’s Federica Pellegrini, who has been one of the world’s top 200 freestylers since 2004, having won four World Championship titles in the event; a pair of 2008 double Olympic gold medalists and world-record breakers in German sprint star Britta Steffen and British distance ace Rebecca Adlington; and two recent stars, Hungarian IM dynamo Katinka Hosszu and Sweden’s free and fly speedster Sarah Sjostrom.

After weighing the résumés of all candidates, the nod went to de Bruijn, who was, perhaps, the only swimmer on the list ever to claim the title as the world’s undisputed best female swimmer for any length of time. Klochkova, with four gold medals at each of the Olympics and World Championships, was second, while Hosszu, who won three Olympic gold medals in 2016 (400 IM, 100 back, 200 IM) and has won nine World titles in her career (400 IM in 2009 before sweeping the 200 and 400 IM at each World Championships in 2013, 2015, 2017 and 2019), placed third.

De Bruijn actually swam in her first Olympics in 1992, but in 2000, she emerged as a dominant force in the sprint events. In late May of that year, she set or tied world records in the 50 free, 100 free, 50 fly and 100 fly, and she would go on to set an amazing 11 world records in 2000 among those events. The last of her records came as she raced to Olympic gold at Sydney in the 50 free [24.13], 100 free [53.77] and 100 fly [56.61], and she also helped the Netherlands to a silver medal in the 400 free relay.

De Bruijn then won three gold medals [50 free, 100 free,

50 fly] at the 2001 World Championships, and she defended the 50 free and 50 fly golds in 2003. Her final Olympics came in 2004 in Athens, and she again won four medals: She defended her gold in the 50 free, took silver behind Jodie Henry in the 100 free, and earned bronze in the 100 fly and 400 free relay. During her stellar career, de Bruijn was named *Swimming World's* Female World and European Swimmer of the Year on two occasions, in 2000 and 2001—becoming the only European woman ever to win both awards multiple times during the past 20 years. ❖

[PHOTO BY BILL COLLINS]



IAN THORPE

Male Pacific Rim Swimmer of the Millennium

BY ANDY ROSS

In the first few years of the 2000s, Ian Thorpe was already dubbed by many as the “swimmer of the century”—even if it was only a few months into a new millennium. But it was with respect.

At just 17 years old, “the Thorpedo” had already broken seven long course world records across the 200 and 400 freestyle—all before he could walk into a pub in his hometown of Sydney and legally buy a drink. And leading into a home Olympics in 2000, you could almost pencil in Thorpe’s name on the back of the 400 freestyle gold medal.

In the 400 final, Thorpe did just that, beating the field by nearly three full seconds to take nearly a full second off the

world record to 3:40.59. About an hour later, he stepped up on the blocks again, this time to anchor Australia’s 400 freestyle relay team.

There was much hype around the race leading into the Games, as the United States team had never been beaten in that relay at the Olympics. Australia elected to lead off with its two best guys in Michael Klim and Chris Fydler, and would anchor with their new superstar and face of the Games in Thorpe.

Thorpe dove in ahead of American Gary Hall Jr., who was a gold medal favorite in the 100 freestyle. Thorpe had been known as more of a 400 guy, so it would take the swim of his life to outswim the speedy sprinter Hall.

But as the Thorpedo flipped at the 50 of his leg, the Sydney crowd rose to their feet. Their 17-year-old hero had found another gear, and the Aussies were going ballistic in hopes of seeing the American streak snapped in their home country by their men in green and gold. As the pair raced toward the wall, Thorpe got his hand on the wall first, raised a fist in the air, and climbed out of the water to celebrate one of Australia’s greatest sporting achievements even to this day.

Thorpe had become a national hero, and his legacy was seemingly already cemented as one of the greatest ever.

But in order to become a legend with your “peaks,” you must also have to become a legend with your “valleys.” And two days after Thorpe won two gold medals in one night, he had suffered his first defeat in nearly two years when he was outswum by Pieter van den Hoogenband in the 200 free final.

This sparked a friendly rivalry between the two, with Thorpe getting the better of van den Hoogenband over the next three years, and by 2004, Thorpe had won the anticipated rematch with his Dutch rival as well as a budding superstar in American Michael Phelps.

All in all, Thorpe broke 13 individual world records from 1999-2002, and his best times in the 200 and 400 freestyle would still be competitive today. ❖

TOP 3 AMERICAN MEN

1. MICHAEL PHELPS, USA [9]

2. Ryan Lochte, USA

3. Aaron Peirsol, USA

[First-place votes in parentheses]

TOP 3 AMERICAN WOMEN

1. KATIE LEDECKY, USA [9]

2. Natalie Coughlin, USA

3. Missy Franklin, USA

[First-place votes in parentheses]

[PHOTO BY PETER H. BICK]



LEISEL JONES

Female Pacific Rim Swimmer of the Millennium

BY ANDY ROSS

When she made her Australian senior debut at 15 at a home Olympics in Sydney, the sky seemed to be the limit for Leisel Jones, who won a silver medal in the 100 breaststroke, edging out reigning champ Penny Heyns. The podium was exactly as *Swimming World* predicted a month before the Games, and Jones was tabbed as a star in the now instead of a future star since she had already defied the odds and reached the Olympic podium.

Over the next couple of years, she had success internationally, but struggled to get that elusive individual Olympic gold medal. In 2003 at the World Championships, she broke her first individual world record in the 100 breaststroke in the semifinals, but was outstaged in the final and wound up with a bronze medal.

This seemed to be a theme with Jones' career moving forward. She would have a great semifinal swim, but was unable to replicate it in the finals. In the 200, she would take it out fast—often leading at the 100—before falling off pace at the end, as she did with her silver-medal finish behind Amanda Beard at the 2004 Games in Athens.

But in 2005, Jones' luck changed when she finally broke through to sweep the 100 and 200 breast at the World Championships. In the 200, she took nearly a second off of Beard's 200 record and earned her first *Swimming World* World Swimmer of the Year title.

That Worlds sweep helped her confidence the next year, where she broke world records in both the 100 and 200 breast—taking each into the stratosphere [1:05.09, 2:20.54] that would need the aid of the shiny suits to take down two years later. For the next couple of years, she was in a league of her own, sweeping the 2007 World titles and entering the 2008 Beijing Games as the heavy favorite in both distances.

She won the 100 in Beijing with ease for that elusive individual Olympic gold that had escaped her four years earlier. In the 200, she took the silver medal, finishing behind American Rebecca Soni.

Jones took some time off after 2008, but returned to competition in 2010. Two years later at the London Games, where she finished fifth in the 100 breast, she made history by becoming the first Australian swimmer to compete at four Olympics.

Now nearly 15 years later, Jones would still be among the top women's breaststrokers in the world with her swims from 2006. ❖

TOP 3 EUROPEAN MEN

1. PIETER VAN DEN HOOGENBAND, Netherlands [7]
2. Adam Peaty, Great Britain [1.5]
3. Laszlo Cseh, Hungary [0.5]

(First-place votes in parentheses)

TOP 3 EUROPEAN WOMEN

1. INGE DE BRUIJN, Netherlands [3]
2. Yana Klochkova, Ukraine [1]
3. Katinka Hosszu, Hungary [1.5]

Other first-place votes:
Sarah Sjöström, Sweden [2.5], Federica Pellegrini [1]

[PHOTO BY PETER H. BICK]



CHAD LE CLOS

Male African Swimmer of the Millennium

BY DAN D'ADDONA

Chad le Clos has played the part of the hero and the villain at times during his career.

Of course, it depends on the point of view of one of the greatest rivalries in swimming history.

The South African hero rose to become an Olympic champion. However, he also became a villain—at least to some—when he was shadowboxing in the ready room in front of Michael Phelps, who was staring straight ahead in what became known as the “death stare”...which was blown up because of the rivalry between the two swimmers.

But the reason the rivalry got so much attention was because le Clos is one of the best swimmers in the world—and has been for a decade.

He has won on every stage and is easily one of the greatest swimmers in the history of Africa.

Le Clos was selected as *Swimming World's* Male African Swimmer of the Millennium. He finished ahead of fellow South African Cameron van der Burgh and Tunisian distance star Ous Mellouli.

As a teen, le Clos was already a South African record holder and won five medals at the Youth Olympic Games before really breaking onto the scene at the 2010 Commonwealth

Games, where he won the gold medal in the 200 butterfly before winning gold in the same event at the FINA Short Course World Championships.

He was a hero in South Africa already, but it was the 2012 Olympic Games in London where he became an international star.

In the signature moment of his career, le Clos defeated Phelps head-to-head in the 200 butterfly to win the gold medal in London by a mere 5-hundredths of a second in one of the most epic races in swimming history.

He also won the silver medal in the 100 butterfly, finishing behind Phelps in another great race in the rivalry that saw a pair of 1-2 finishes with each rival winning one of the races.

In between London and Rio, le Clos won gold in both butterfly events at the Commonwealth Games and became the first swimmer to win the FINA World Cup Series overall title three times. He also won all three butterfly events at the FINA World Championships in 2014, the first swimmer to accomplish the feat—something he did four times overall. He was named FINA Male Swimmer of the Year in 2014 before winning the 100 butterfly at Worlds in 2015.

At the Rio Olympics in 2016, le Clos and Phelps again went head-to-head in an epic race, tying for the silver medal, along with Hungary's Laszlo Cseh, in a three-way tie behind Singapore's Joseph Schooling. It was again one of the most epic races in swimming history.

But he wasn't done.

Le Clos won gold in the 200 butterfly at Worlds in 2017, then in 2018, he became the most decorated Commonwealth Games swimmer in history. He won all three butterfly events that year plus a silver in the 100 freestyle and a bronze in the 400 medley relay to push his career medal total to 17.

He then won gold in the 100 fly and four total medals at the 2018 FINA Short Course World Championships, earning FINA's yearly top honor for the second time.

In 2019, he won bronze in both butterfly events at the Long Course World Championships before becoming one of the faces of the International Swimming League, leading Energy Standard to the inaugural ISL championship in 2019.

Now, le Clos is looking to add to his success in Tokyo 2021. ❖

TOP 3 PACIFIC RIM MEN

1. IAN THORPE, Australia [7]
2. Kosuke Kitajima, Japan [1]
3. Grant Hackett, Australia

Other first-place votes:
Sun Yang, China [1]

TOP 3 PACIFIC RIM WOMEN

1. LEISEL JONES, Australia [8]
2. Stephanie Rice, Australia [1]
3. Ye Shiwen, China

(First-place votes in parentheses)

[PHOTO BY WOLFGANG RATTAY, REUTERS]



KIRSTY COVENTRY

Female African Swimmer of the Millennium

BY DAN D'ADDONA

Kirsty Coventry reached the Olympics as a teenager in 2000. While she didn't medal in Sydney, it was the beginning of the most successful swimming career in African history.

Coventry, from Zimbabwe, returned to the Olympics in 2004 and won the gold medal in the 200 backstroke, the silver in the 100 backstroke and bronze in the 200 IM, one of the best individual performances in Olympic swimming

history, as well as African history.

Coventry was selected as *Swimming World's* African Female Swimmer of the Millennium's First 20 Years, finishing ahead of finalists Farida Osman of Egypt and Tatjana Schoenmaker of South Africa.

After Coventry's stunning performance in Athens, she wasn't done. In fact, she wasn't even at the midpoint of her Olympic career, which would span an amazing five Olympiads!

In Beijing in 2008, Coventry successfully defended her gold medal in the 200 backstroke, then won three silver medals for an even more impressive haul than in 2004. In Beijing, she won the silver medal in the 100 backstroke and both the 200 IM and 400 IM.

Coventry would return to the Olympics in London and

Rio, making her fourth and fifth appearance, respectively, on the world's biggest stage, though she did not medal.

In between all of those Olympic performances, Coventry continued her success on the world's stage. She won gold in the 100 and 200 backstrokes at the 2005 World Championships, also claiming silver in both IM events. In 2007, she won silver in the 200 back and 200 IM, then in 2009, she won gold in the 200 back and silver in the 400 IM.

Coventry has continued to remain in the sport of swimming as a member of the International Olympic Committee's Executive Board, a post she has held since 2018. She is the vice president of the National Olympic Committee of Zimbabwe and vice president of the International Surfing Association. ❖

TOP 3 AFRICAN MEN

1. CHAD LE CLOS, South Africa [8]
 2. Cameron van der Burgh, South Africa [1]
 3. Ous Mellouli, Tunisia
- (First-place votes in parentheses)*

TOP 3 AFRICAN WOMEN

1. KIRSTY COVENTRY, Zimbabwe [9]
 2. Farida Osman, Egypt
 3. Tatjana Schoenmaker, South Africa
- (First-place votes in parentheses)*

PROVING THEIR METTLE

AFTER THE SOUTH AFRICAN MEDIA MADE SEVERAL DISPARAGING COMMENTS ABOUT THE WOMEN'S SWIMMING TEAM IN 2016 WHEN NONE OF THEIR SWIMMERS HAD QUALIFIED FOR THE RIO OLYMPICS, TATJANA SCHOENMAKER AND HER SOUTH AFRICAN TEAMMATES HAVE BEEN SUPPORTING ONE ANOTHER AND WORKING TOGETHER TO SHOW JUST HOW GOOD THEY CAN BE.

BY ANDY ROSS | PHOTOS BY BECCA WYANT

When 22-year-old Tatjana Schoenmaker touched the wall in the 200 meter breaststroke final at the 2019 World Championships in Budapest, she was overcome with emotion. The South African won the silver medal in her best event and set an African record in the semifinals with a 2:21.79.

Her time in the final was slower than the night before, but it didn't matter. She was on the podium and would be seeing her country's flag raised at the major international meet of the year. It was a huge moment not only for her, but also for women's swimming in South Africa.

It was the first medal ever won by a South African female swimmer at Worlds. And to make it even more special, she was handed her medal by South African Olympic champion Penny Heyns, who was a champion breaststroker in her heyday during the 1990s until she retired in 2001.

Heyns, who captured two gold medals at Atlanta in 1996, is the only woman in Olympic history to have won both the 100 and 200 breaststroke events. Even though Heyns had an illustrious career, she never made it to the podium at the World Championships, finishing fifth in the 100 and sixth in the 200 breast at the 1998 Worlds in Perth, Australia.

"It meant so much," Schoenmaker said of her silver medal performance. "You can see it was an overwhelming experience. I still remember after the race and walking to my bag to go and get changed, it just didn't feel real. I was like, 'Tatjana, you just won silver,' and it felt so weird.

"For me, it was my first World Champs, so I just wanted to really experience it. It was so nice racing the world's best and being able to try and swim fast times in this crazy new experience.

"And then having Penny Heyns hand me my medal—it was so special because...what are the odds? She's standing there giving



>> South Africa's Tatjana Schoenmaker reacts after capturing the silver medal in the 200 breast at the 2019 World Championships. It was the first medal ever won by a South African female swimmer at Worlds.

me my medal—it was overwhelming, but it was such an honor to be able to share that moment with Penny. She is honestly a true champion for South Africa."

TURNING THINGS AROUND

Just three years earlier, however, women's swimming in South Africa wasn't nearly as promising. In 2016, not one single female swimmer had qualified for the Olympic Games in Rio. And their country hadn't won an Olympic medal in a women's event since Heyns took bronze in the 100 breast in 2000!

To make matters worse, the women's team certainly didn't receive any sympathy from the local media. In fact, because of their disparaging comments, the swimmers were put on the defensive.

"It was for us to show them (the media) because we really got bad media exposure in 2016," Schoenmaker said. "They basically said no girls made it and that we were basically useless! And we were those girls! It wasn't a nice feeling because we were all so young. One of the oldest girls on the team is Tayla Lovemore (now 25), and she is coming through."

And so now is the rest of the team.

2019 was a breakthrough year. Erin Gallagher got things started in April by setting an African record in the 100 meter butterfly (57.67) at the South African Championships in Durban.

Then, at the World University Games at Naples, Italy, in July,

South Africa's women won four gold medals. Schoenmaker swept the 100 and 200 breast and lowered her African record in the 100 to 1:06.32sf. Meanwhile, Lovemore added wins in the 50 and 100 fly.

Three weeks later, South Africa sent eight women to the World Championships, where Schoenmaker and Kaylene Corbett both made the final in the 200 breast.

It was all a sign of good things to come for the South African women.

"It's been challenging," Schoenmaker admitted, "because the media was very negative, but I think as girls we had this mental thing where, 'We're going to show them.'

"In fact, we didn't have to discuss it with each other. Since (2016), we have been supporting each other so much more, and we have been trying to prove to (the media) that we are good enough, and they shouldn't have said those bad things because we were (young) and on our way. We just brushed it off and were like, 'It's fine. We're still coming, and then they'll be shocked.'"

PERSONAL BREAKTHROUGH

Schoenmaker made her personal international breakthrough in 2018 at the Commonwealth Games on the Gold Coast, Queensland, Australia. That's where she swept the 100 and 200 meter breaststroke gold medals with African records in each event (1:06.41, 2:22.02). It was the first time she had won gold at an international meet.



>> Tatjana Schoenmaker, the African record holder in the 50-100-200 breaststroke, has led a resurgence in women's swimming in South Africa with podium performances at the 2018 Commonwealth Games as well as the 2019 World University Games and World Championships.

"Even today I can't believe that I actually won double gold at the Commonwealth Games," she said. "It was never my plan. Coming in, I was ranked sixth or seventh in the 200. I thought I was lucky just to swim my best time in the heats (2:23.57). So, never ever was it my thinking that I was going to win some medals!

"I even remember asking (Coach) Rocco (Meiring) if he thought it was possible I could maybe win a bronze, and he was like, 'Tatjana, it can be, but you are going to have to work really hard.' So it wasn't in my training cycle that I was set on winning a medal—I just one day asked him if he thought it was possible."

Schoenmaker has been with Coach Meiring in Pretoria since she was in ninth grade. And it is the unique relationship between her and her coach that has kept her from wanting to leave and train elsewhere.

"A few universities in the U.S. asked me to come through," Schoenmaker said. "But I don't want to go when it is working so well for me. I love my squad and my relationship with Coach Rocco.

"I also love being here at home with my family, so even given those opportunities, it never crossed my mind twice to even think of saying yes. I always wanted to stay in South Africa and be with everyone I know. I did get opportunities, but there was no doubt in my mind that I would ever leave."

HONORED AND BLESSED

With women's swimming in South Africa seemingly on the upswing, Schoenmaker now has her eyes set on training an extra year for the 2021 Olympic Games in Tokyo. She's extremely grateful for all of the opportunities swimming has provided her, allowing her to travel the world and experience things she had never been able to do before.

"I'm very honored and blessed to be able to represent South Africa and to be able to do it in something I love and that no one forces on me.

"As a swimmer, you have to love the sport because you can't build much of a career out of it with not as much funding. It's never been something you are forced to do—it's really something you love doing while being able to represent your country and travel the world. It's amazing.

"There are so many places I have seen through swimming, and people in and out of swimming that I have met. I'm definitely very blessed to be able to do this." ❖

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>> At the finish of the men's 400 IM, the scoreboard showed Larsson [center] and McKee [right] as co-champions, clocking matching times of 4:31.98, with Hungarian Andras Hargitay [left] earning the bronze medal. It took nearly 10 minutes to confirm that Larsson would win the gold medal, 4:31.981 to 4:31.983. [PHOTO BY INTERNATIONAL SWIMMING HALL OF FAME]

FIT TO BE TIED

At the 1972 Munich Olympics, Sweden's Gunnar Larsson was awarded the gold medal in the men's 400 IM, edging USA's Tim McKee by 2-thousandths of a second. Subsequently, international swimming rules were changed to record results to 1-hundredth of a second, allowing for ties among swimmers with identical times.

BY JOHN LOHN

The guy in Lane 4 charged to the finish, looked to the scoreboard and saw what he wanted. He was an Olympic champion, the "1" next to his name confirming the achievement.

The man in Lane 7 surged for the wall, looked to the scoreboard and saw the outcome he desired. He was an Olympic champion, the "1" next to his name confirming the achievement.

separation, but there was also a need to have enough energy for the back half of the race. Would Hall hit a wall?

"Hall went out very fast in the first two legs and was eight seconds ahead (of me) at the 200," Larsson said. "I had told my dad before the Olympics that if I was six seconds behind or less (at the midway point), I was going to beat him. But six seconds in the last

Gunnar Larsson and Tim McKee arrived at the 1972 Olympic Games in Munich in search of gold, and for a moment at the conclusion of the 400 meter individual medley, they both believed their quest was fulfilled. But when the medals were presented inside the Schwimmhalle, only Larsson wore the metal of the most-cherished medal.

There have only been three gold-medal ties in the history of Olympic swimming, and all occurred in sprint freestyle events. In 1984, Americans Nancy Hogshead and Carrie Steinseifer shared the title in the 100 freestyle at the Los Angeles Games. Sixteen years later, the United States' Gary Hall Jr. and Anthony Ervin each earned gold in the 50 freestyle at the Sydney Games. At the most recent Olympics in Rio de Janeiro, American Simone Manuel and Canadian Penny Oleksiak posted identical times in the 100 freestyle.

The fact those six athletes—and not three—were honored as Olympic champions is the direct result of what happened in 1972, when Larsson and McKee were inseparable to the human eye and to the hundredth of a second, but not to the timing system in use during the era.

HOW THE RACE UNFOLDED

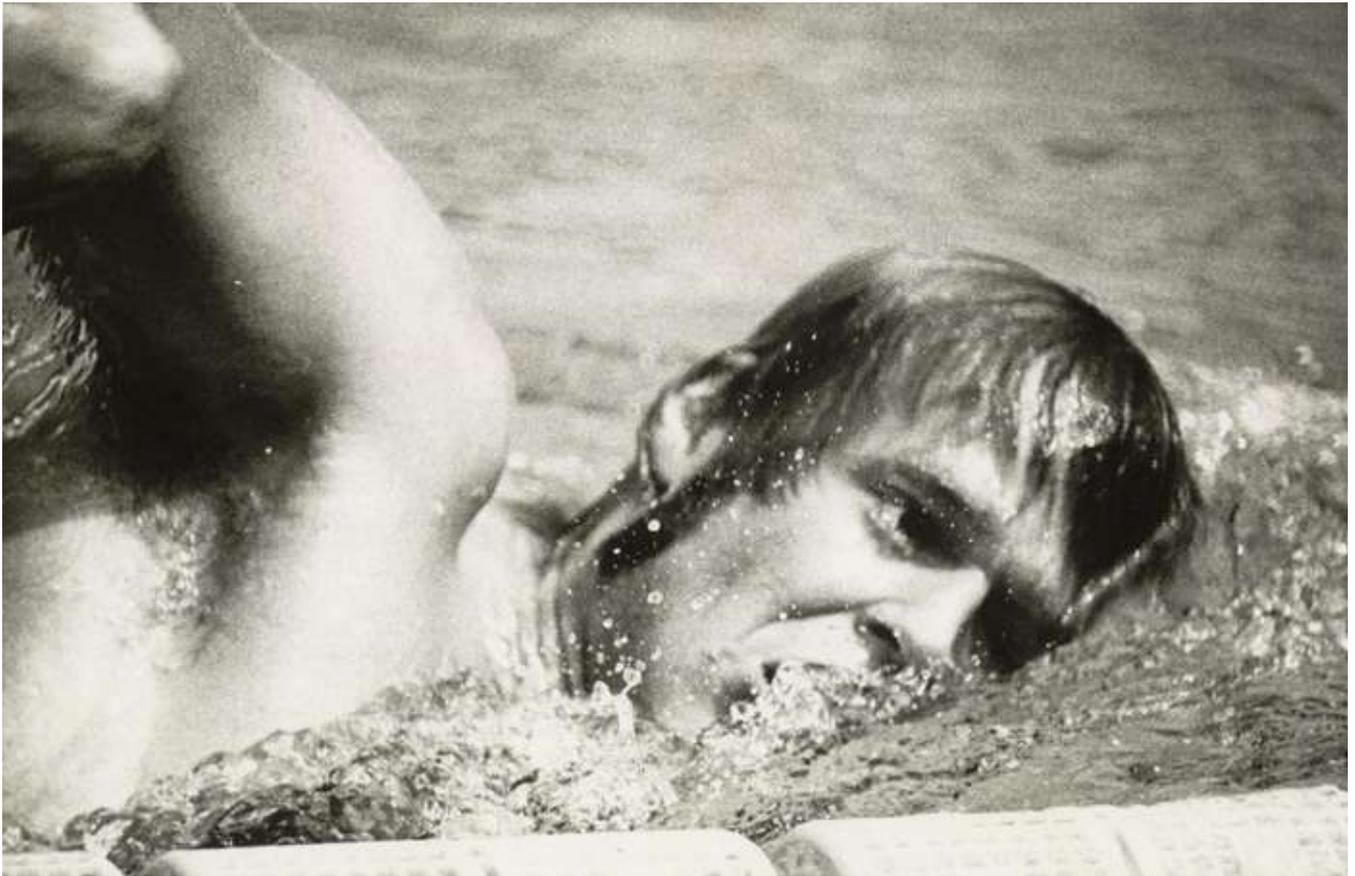
There was no shortage of storylines in Munich, where Mark Spitz corralled seven gold medals and as many world records, and where Australian 15-year-old Shane Gould won five individual medals. So, Larsson and McKee were just doing their part by producing the tightest race—at least to date—in Olympic history.

Despite their personal designs on Olympic gold, neither Larsson nor McKee was the favorite heading into the final of the 400 individual medley. That status went to McKee's American teammate, Gary Hall, who blasted a world record of 4:30.81 at the United States Olympic Trials in Chicago. It was the fourth time Hall broke the world record since 1969, and it would take a catastrophic failure to keep him off the top of the podium.

And then...

Known for his skill in the butterfly and backstroke events, it was not surprising that Hall attacked the front half of the final, which consisted of those two strokes. The aggression displayed by Hall was stunning, as he built a massive advantage during the opening 200 meters. With a weak breaststroke leg, Hall knew he needed

CONTINUED ON 22 >>



>> Halfway through the race, Larsson was in sixth place, trailing the early leader—world record holder Gary Hall—by eight seconds. After Larsson narrowed the deficit significantly after breaststroke, he finally reeled in McKee on the final two laps of freestyle to catch McKee at the finish. [PHOTO BY TONY DUFFY]

200 meters is a lot. He went out too hard and died.”

As the competitors shifted into the breaststroke leg, Hall started to show signs of fatigue, and coupled with his struggles in the stroke, McKee was in front of his countryman by the 275-meter mark. Meanwhile, Larsson narrowed his deficit significantly.

One of several international swimmers on the Long Beach State University roster of Coach Don Gambriel, Larsson was a well-known force to members of Team USA. And as a former world record holder and European champion in the 400 freestyle, Larsson was fully expected to make a push down the stretch.

But would he have enough room to catch McKee?

WHO'S IN FIRST?

With every stroke, Larsson cut into his deficit and took what was a no-doubt-about-it victory for one of the Americans and made the outcome disputable. At one point, McKee snuck a peek across the pool and saw he had a sizable edge. But when the swimmers approached the wall, there was no separating them, and confusion reigned.

“That whole last leg, I knew I had it won,” McKee said. “Then when I touched and saw Larsson, I didn’t think I’d won. When I saw a “1” next to my name on the scoreboard, I thought I’d won again...but 15 seconds later, I saw the “1” next to his name. Then I didn’t know what was going on.”

At the finish, the scoreboard showed

Larsson and McKee as co-champions, thanks to matching times of 4:31.98, with Hungarian Andras Hargitay earning the bronze medal. American Steve Furniss was fourth, with Hall in fifth, nearly seven seconds slower than his world record time at Trials.

As officials scrambled, Larsson and McKee sat on the deck and waited for six or seven minutes for a decision. Would they share the gold, as the scoreboard suggested? Would there be a swimoff, which would have been a brutal expectation given the grinding nature of the 400 individual medley? Heck, Larsson even suggested to McKee the idea of a gold-silver hybrid medal!

None of those scenarios, though, was an option. Instead, officials revealed that the timing system—although not displayed on the scoreboard—tracked the swimmers to the thousandth of a second, and Larsson was declared the winner. The Swedish standout’s official time was noted as 4:31.981 to the 4:31.983 of McKee.

“With 20 meters to go, I looked around and that messed up my stroke for two or three turns,” McKee said. “Normally, that wouldn’t matter, but I know it cost me 2-thousandths of a second. There has to be a winner and a loser, even if it’s 2-millionths.”

When a race is won in that fashion, it is easy to dissect every minute detail of the event. Were there any turns that could have been better? How was the finish? Could more energy have been spent or reserved on an earlier stroke?

For Larsson, there was never any



doubt he won. Well, his reaction said as much. After touching the wall and looking at the results, Larsson celebrated the “1” next to his name, only to be told by fellow Swede Bengt Gingsjo that he wasn’t the only athlete shown to have prevailed. It took nearly 10 minutes for the result to be confirmed, and for Larsson to breathe a sigh of relief.

A few days later, Larsson and McKee engaged in another duel, this time in the 200 individual medley. Unlike the longer distance, Larsson won the rematch behind a world record, with McKee picking up his second silver medal. McKee’s career was defined by silver linings. Four years after finishing behind Larsson on two occasions, McKee was again the Olympic silver medalist in the 400 individual medley, beaten at the 1976 Games by American Rod Strachan.

FUTURE IMPACT

The precedent set by the duel between Larsson and McKee resulted in officials deciding that any future ties would not be taken out to the thousandth of a second. Obviously, that decision provided no solace for McKee, who saw the rule book of FINA, the sport’s governing body, altered to read as part of Section SW 11.2: *“When automatic equipment is used, the results shall be recorded only to 1/100 of a second. When timing to 1/1000 of a second is available, the third digit shall not be recorded or used to determine time or placement. In the event of equal times, all swimmers who have recorded the same time at 1/100 of a second shall be accorded the same placing. Times displayed on the electronic scoreboard should show only to 1/100 of a second.”*

The change to the rules led to the subsequent sharing of gold medals in 1984, 2000 and 2016. Really, Larsson and McKee—although unaware of their future impact—changed the landscape for Hogshead, Steinseifer, Hall Jr., Ervin, Manuel and Oleksiak. If not for their epic showdown, perhaps ties would not have been allowed.

* * *

While Larsson was inducted into the International Swimming Hall of Fame in 1979, McKee did not receive his due recognition until 1998. If not for .002, McKee undoubtedly would have received enshrinement much earlier. Asked about the impact of that finish on his life, McKee once had a simple answer. The reply, too, placed perspective on the moment.

“It’s not who I am,” McKee said. “It’s who I was and where I’ve been.”

Larsson is regarded as one of the two greatest male swimmers in Swedish history, the other being distance legend Arne Borg. Despite the passage of time, Larsson remembers that night in Munich vividly.

“Going into the last 50, Tim was way ahead of me, three or four meters ahead,” Larsson said. “I watch the video, and every time, I don’t think I am going to catch him. Every time, it is a new experience where I say, ‘I won this time, also.’”

Barely. ❖



>> Tim McKee won two silver medals (200 and 400 IM) at the 1972 Olympics in Munich. Four years later, he added a third silver medal (400 IM) at the Montreal Games. [PHOTO BY INTERNATIONAL SWIMMING HALL OF FAME]

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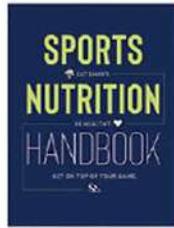


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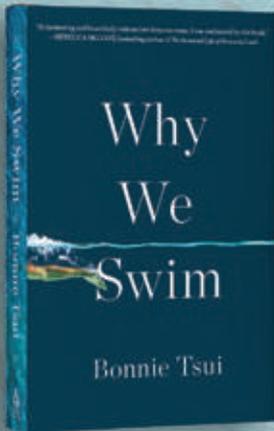
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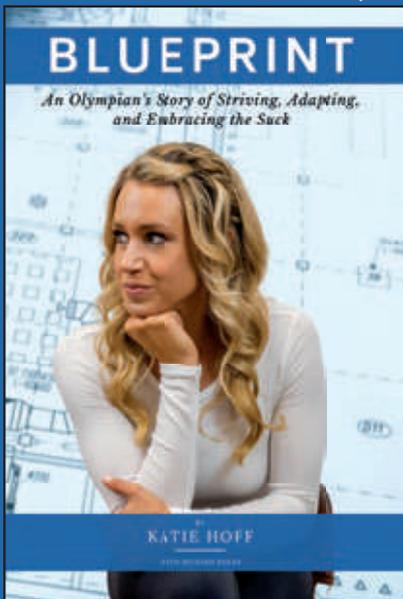


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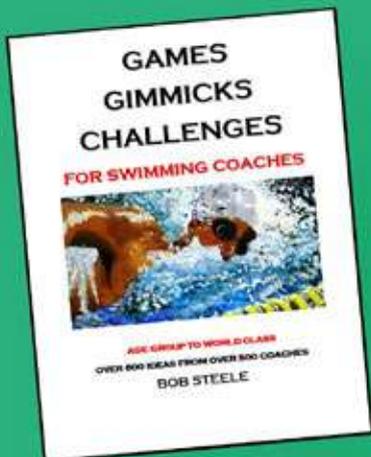
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BEFORE THE BEEP

WITH CLAIRE CURZAN

BY SHOSHANNA RUTEMILLER | PHOTOS BY PETER H. BICK



While the biggest goal of most 16-year-olds is earning their driver's license, Triangle Aquatic Center Titans' (Cary, N.C.) Claire Curzan instead has her sights set on the 2021 Olympic Games.

Curzan began turning heads at age 12 when she broke current 100 and 200 meter backstroke world record holder Regan Smith's 11-12 national age group record in the 100 yard butterfly. And she did it twice in the span of a few months. She initially swam a 54.00 in March 2017 before becoming the only 12-year-old to break the 54-second barrier when she clocked 53.95 in May.

From that point on, the NAG records began falling.

"We didn't even know what an 'NAG' was until she broke her first one," admits her dad, Mark. "Then once she saw what she could pursue, she started knocking them down." Claire currently owns 12 NAGs—10 individual and two relays—across the 11-12, 13-14 and 15-16 age groups.

But when asked about her best swimming accomplishment, Curzan doesn't reflect back on her age-group records. Instead, the team-minded athlete reflects on her 2019-20 high school season.

Earlier this year, the Cardinal Gibbons High School (Raleigh, N.C.) sophomore showcased her incredible talent by breaking two national records in a single night of finals. At the North Carolina 4A Championships, Feb. 7, Curzan first knocked down Torri Huske's 51.29 100 yard butterfly public record by nearly a second with a 50.35 (also a 15-16 NAG record), becoming the event's 11th-fastest performer in history. She followed up that swim with a 51.38 in the 100 back that took down Olivia Smoliga's 51.43 record from 2012.

"We set the goal (to break the national high school records) at the beginning of the season," says Curzan. "High school season is very supportive and encouraging. It was great to see my progress and to know I was doing it for my team."

To kick off their 2019-20 high school season, Curzan and her teammates went on a one-day retreat. The time was spent on team-building and goal-setting activities, including developing self-awareness of the personal physical and mental barriers they face as athletes, and then brainstorming ways they would address those barriers throughout the season.

"One of the greatest things you can do as a teammate is provide motivation for your teammates," says Cardinal Gibbons Coach Jonah Turner. "Sharing your own motivational needs helps others motivate you. (Curzan's) motivation and driving force was looking over while she's on the blocks and seeing her teammates cheering for her, knowing that she's doing it as much for them as for herself."

Curzan was one of the lucky few to be able to complete her high

school season this year despite many other state championships being canceled because of the COVID-19 pandemic. Curzan felt the impact later, though, as she was unable to train for six weeks because of pool closures spanning from March through May.

"At first, it was hard to adjust," says Curzan. "But it ended up being beneficial to my mental health since swimming is a year-round sport. It was nice to take a step back and breathe. I also got the chance to challenge myself with new activities, like running with my mom and different types of tethered workouts. But coming back to the sport really shows me how much I love it."

Curzan took the time to show her love for the sport by sharing with *Swimming World Magazine* her own personal mental preparation journey before a big race.

HOTEL

The night before a big race, you can find Curzan enjoying her "me" time. Unlike the "carbo-loading" some athletes swear by, the self-proclaimed "meat-eater" is likely tucking into a big burger to get all of her nutrients. After that, she's heading back to the hotel to take a hot shower and unwinding with hours of HGTV, a show she and her dad enjoy binge-watching.

"I watch TV to unwind and not stress about the upcoming race," says Curzan. "The night before, it's all about resting and preparing as much as I can."

WARM-UP

At this stage in her development, the junior national team member mostly competes in prelims/finals-style meets. Curzan, who seems to have an unlimited amount of endurance, uses the morning preliminary swims as a way to sharpen up before the finals at night.

However, with her sights set on making the U.S. national team and 2021 Olympics, Curzan knows that the typical morning prelim format will change in the coming years. Curzan muses that if she didn't have a morning preliminary swim, she would "probably go in for just a quick wake-up swim or possibly take a cold shower!"

Between prelims and finals, Curzan heads back to the hotel to "chill." She departs to the pool for her final warm-up about an hour-and-a-half before race time. When Curzan jumps in the pool, it's with the goal to feel the water and hone in on her speed.

"I typically do a 100 warm-up, then I go into 25s drill. I only do about four of them depending on the event I'm doing. I typically do some 12.5 breakout of the stroke I'm racing followed by 12.5 sculling to feel my catch.



>> Claire Curzan is laser-focused before her race. She knows what she has to do. Once she's in the water, she is executing the race from her visualizations. Since she's such an analytical swimmer, she realizes that the fastest way to success is by following the format she's practiced time and time again.

READY ROOM

While some athletes like dancing around, teasing their teammates and jamming out to music before the race, in the ready room, Curzan is laser-focused.

"She's all smiles and the nicest kid in the world, but when it's time to focus, she's in the zone," says Coach Turner. "Before her 100 butterfly high school record (in February), I didn't even wish her luck as I walked by her in the ready room because she was so focused on the race ahead. For being a 15-year-old (at the time of the record) and able to analyze every bit, every piece of her race, it's remarkable. You see professionals do that."

"Getting in the zone" involves some deep breathing and visualization. Curzan uses her time in the ready room to picture the perfect race, from start to finish. In addition to her racing equipment, the only two things she takes with her to the blocks are her parka and her lucky UGG boots. "They go everywhere with me," laughs Curzan.

BEHIND THE BLOCKS

Walking out from the ready room, Curzan is expanding her lungs through lots of deep breathing. As an incredibly fast underwater

swimmer, Curzan regularly pushes the 15-meter mark off her walls, including that make-it-or-break-it third turn. Keeping her breathing under control before the race helps keep her underwater sharp.

Curzan's laser-focus extends from the ready room to the blocks. She's not sizing up the competition before the race. She knows what she has to do. Once she's in the water, Curzan is executing the race from her visualizations. Since she's such an analytical swimmer, Curzan realizes that the fastest way to success is by following the format she's practiced time and time again. That's not to say she won't race. "Toward the end of the race, I'm pushing myself from the competition."

Curzan's success shows that swimmers are never too young to start analyzing the small details of their races. Going into a race, Curzan has memorized everything from her splits to stroke count to tempo to the exact number of kicks she's going to take off the walls. That type of dedication and analysis translates over to her overall philosophy on mental preparation.

"You can't really focus on a bad race," says Curzan. "Take what you learned and then apply it to the next race so you can do better. Don't compare yourself or worry about what other people are doing."

Curzan finishes with another word of advice: "Really take (your swimming journey) all in and enjoy the ride because it goes by so fast." Sounds like she's talking about watching her race! ❖

"You can't really focus on a bad race. Take what you learned and then apply it to the next race so you can do better. Don't compare yourself or worry about what other people are doing."

DADS ON DECK

WITH TIM BACON

BY SHOSHANNA RUTEMILLER

SWIMMING WORLD PRESENTS A QUARTERLY SERIES THAT SHOWCASES MOMS AND DADS OF SWIMMERS FROM AROUND THE COUNTRY.



> Phoebe Bacon (middle) with her parents, Philippa and Tim, at her recent high school graduation from Stone Ridge School of the Sacred Heart (Bethesda, Md.)

Phoebe Bacon was only 13 when she competed at her first Olympic Trials in 2016. Now 18 and a freshman at the University of Wisconsin-Madison, Bacon, who represents Nation’s Capital Swim Club outside of the collegiate season, is certainly a contender to represent the United States at the Tokyo 2021 Olympics.

Over the last 15 years, Phoebe’s dad, Tim, has watched her progress from a summer-league swimmer to a Summer Olympics contender. In that time, Phoebe became a three-time gold medalist at the 2018 Pan Pacific Championships (100 meter backstroke, 400 medley relay, 400 mixed medley relay). She followed that with a successful 2019 season, earning gold at the Atlanta U.S. Open (100 back) and in Lima, Peru at the Pan American Games (100 back, 400 medley relay).

Tim recently shared some of his thoughts with *Swimming World* about supporting his daughter throughout her swimming career—and when it’s time to stop talking shop and rebuild an old Jeep Wrangler!

How has the sport of swimming shaped Phoebe’s character?

I believe the sport has given Phoebe a lot of focus. She has always been a very busy kid, and the commitment swimming requires has forced her to learn to use time wisely, which I think has been very beneficial for her across everything she does.

She has learned that working hard can enable you to achieve your goals, and that learning from people with expertise is critical to make sure the hard work is aimed in the right direction.

What advice would you give to new swim parents?

Swimming, like all sports, can provide focus for kids and teach them important life lessons. However, swimming, for whatever reason, has a great culture of keeping kids out of trouble and doing well in school. That said, I have learned you definitely can’t force swimming on a child. You can give them the opportunity, but in the end, you have to let them decide.

When did you first realize Phoebe had national team potential?

I really preferred not to look too far out—the road to that level is very long, and lots of things can change along the way. I felt it was better to focus on all the smaller steps. I think I first realized her potential when she was at nationals in California and made the A-final, and she was swimming with all these swimmers that even I recognized.

What has swimming taught you about parenting?

My job is not to direct the kids; it is to enable them.

How do you support Phoebe...and what do you say to her after a subpar performance?

Phoebe and I spend our time doing a lot of things other than swimming, and I definitely focus on those things. We rebuilt an old Jeep Wrangler her senior year of high school, and it was awesome. The current project is calculus, which is not as fun.

She gets plenty of guidance from people better qualified than me about swimming. My only job in the swimming area is to make sure she is getting what she needs to achieve her goals. ❖

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DRYSIDE TRAINING POSSIBLY THE 5 BEST DRYLAND EXERCISES EVER!

BY J.R. ROSANIA
DEMONSTRATED BY NORIKO INADA • PHOTOS BY EMMI BRYTOWSKI

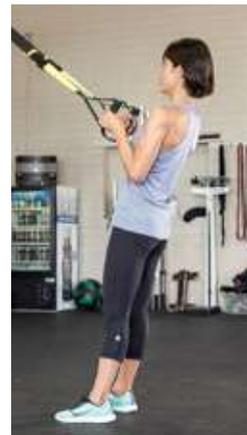
Well, maybe these exercises are not the five best, but they're five exercises that I like!

Everybody wants to improve his or her swimming. More yards and better technique are two elements that can help make that happen.

What else can be added to your swim training? What about dryland exercises? Let's look at my top five dryland exercises: if done properly and regularly, they can enhance your stroke, technique, power and speed.

Let's look at three exercises for strengthening your upper body, one to build up your lower body, and one to improve your core. When done two or three times a week, these exercises can help improve your swimming performance. Complete each exercise doing 10-12 reps.

In a matter of weeks, you should feel stronger with your stroke and kick. And although it could be argued that these exercises may not be the five best, they most certainly will help you reap the benefits they can offer. ❖



^ TRX ROW

While standing at an angled position and holding TRX straps, perform a standing row. You can also substitute the movement with dumbbells or tubing.



< RUSSIAN TWIST ON STABILITY BALL

While sitting on the front edge of a stability ball, lie back on the ball and maintain position while twisting from side to side. Add a medicine ball or a dumbbell in your hands for resistance and increased difficulty.



^ ALTERNATING DUMBBELL BENCH PRESS ON STABILITY BALL

While lying on your back on a stability ball with a dumbbell in each hand, perform an alternating dumbbell bench press.



< DUMBBELL KICKBACK

While standing bent over parallel to the floor and holding a dumbbell in each hand, perform an alternating push back until the arm is straight behind you. Alternate arms.

ONE-LEG STABILITY BALL CURL >

While lying on the floor, place your heel on top of a stability ball and extend your other leg straight upward. Elevate your hips off the floor and roll the ball toward your hips with your heel. Alternate legs.



MEET THE TRAINER

J.R. Rosania, B.S., exercise science, is one of the nation's top performance enhancement coaches. He is the owner and CEO of Healthplex, LLC, in Phoenix. Check out Rosania's website at www.jrhealthplex.net.



MEET THE ATHLETE

Noriko Inada, 42, swam for Japan at the 1992, 2000 and 2004 Olympics. She now swims Masters for Phoenix Swim Club, and owns Masters world records in the women's 25-29, 30-34, 35-39 and 40-44 age groups.



NOTICE All swimming and dryland training and instruction should be performed under the supervision of a qualified coach or instructor, and in circumstances that ensure the safety of participants.

SWIMMING TECHNIQUE CONCEPTS

BY ROD HAVRILUK

BREASTSTROKE BREATHING HEAD TIMING DELAY

For breathing in breaststroke, most swimmers learn to synchronize their head and arm motions. To breathe, swimmers usually begin the head and arm motion at the same time. To recover to the non-breathing position, swimmers also usually begin the head and arm motion at the same time. However, a delay in the head motion both to breathe and to recover affords benefits of less resistance, more propulsion and a faster stroke rate.

HEAD TIMING DELAY TO BREATHE

With an advanced coordination of the head and arms, a swimmer begins the arm motion and then begins the head motion. In the streamline position (**Fig. 1, top image**), the model is looking straight down. As she begins her arm motion, her head stays in the streamline with her vision directed straight down until her hands come into her field of view (**middle image**). As her hands continue to move backward, she begins to extend at the neck to breathe (**bottom image**).

The head timing delay is only about one-quarter of a second. However, it is difficult for most swimmers to break the habit of simultaneously moving the head and the arms. A swimmer must practice looking straight down and waiting until the hands come into view before moving the head.

The advantage of delaying the head motion to breathe is that the body stays in the streamline position for an extra fraction of a second to:

- decrease resistance because the cross-sectional area of the body is minimal, and
- increase propulsion because the arms can generate backward rather than upward force.

For example, the breaststroker in **Fig. 2** begins her arm motion while keeping her head in the streamline position. After only one-quarter of a second, she is already generating about 10 pounds of hand force. In addition, the cross-sectional area of her body is minimal, reducing resistance.

ARMS-ONLY, NON-BREATHING BREASTSTROKE DRILL

An arms-only, non-breathing drill can help a swimmer learn the head timing delay. To perform the drill as shown in **Fig. 3**:

- Push off from the wall on the surface in a streamline position.
- Perform a breaststroke arm motion while keeping the head in the streamline position.
- Look for the hands to come into the field of view at the beginning of each arm motion.

The drill is most effective if a swimmer avoids any vertical head motion throughout the stroke cycle. When a breath is necessary, a swimmer can practice the head timing delay. After sufficient practice, a swimmer can change the drill to breathing on every other stroke cycle.

HEAD TIMING DELAY TO RECOVER

With an advanced coordination of the head and arms, a swimmer begins the arm recovery motion before beginning the head motion. In the breathing position (**Fig. 3, top image**), the model is looking

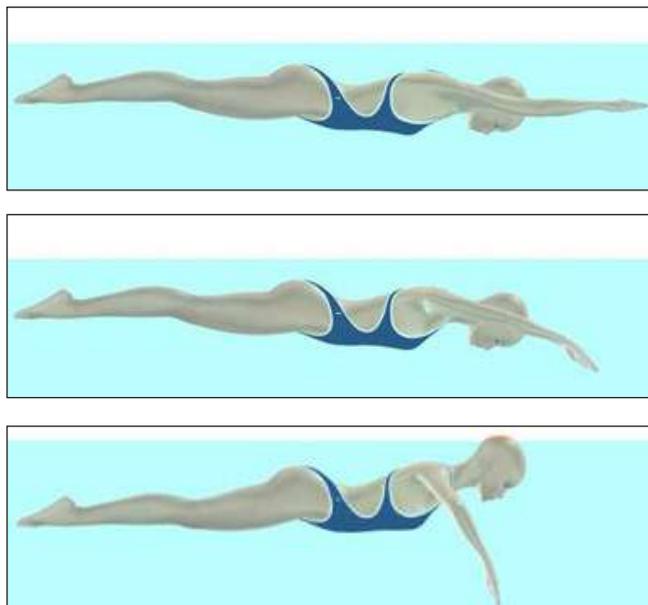


FIG. 1 > The model keeps her head in the streamline position [top], delays her head motion until her hands are within view [middle], and then extends at the neck [bottom].

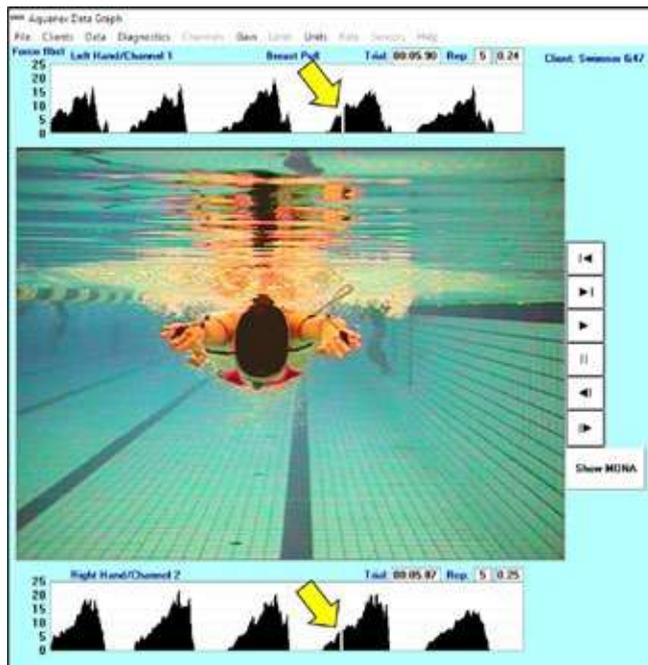


FIG. 2 > Synchronized underwater video and hand force data for a breaststroker beginning her arm motion while keeping her head in the streamline position. The vertical gray lines on the force curves are synchronized with the video image.



FIG. 3 > The breaststroke arms-only, non-breathing drill.

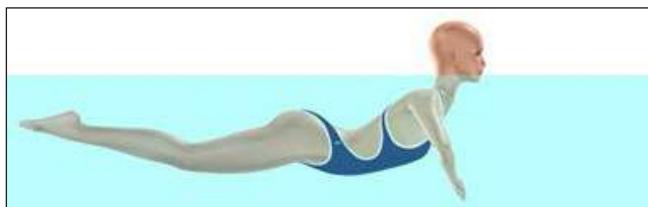


FIG. 4 > The model keeps her head in the breathing position [top], delays her head motion until her hands are within view [middle], and then flexes at the neck [bottom].

straight ahead. As she begins her arm recovery motion, her head stays in the breathing position with her vision directed straight ahead until her hands come into her field of view (**middle image**). As her hands continue to move forward, she begins to flex at the neck to recover her head.

Much like with the head timing delay for breathing, the timing delay for the head recovery is only about 2-tenths of a second. Also similar to the delay for breathing, it is difficult for most swimmers to break the habit of simultaneously moving the head and the arms to recover. A swimmer must practice looking straight ahead and waiting until the hands come into view before moving the head.

The advantages of delaying the head motion to return to the non-breathing position are:

- less resistance because of a smoother transition into the water, and
- a faster stroke rate because it is likely that a swimmer will increase the speed of the arm recovery. ❖

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 Dr. Rod Havriluk is a sport scientist and consultant who specializes in swimming technique instruction and analysis. His ebook, "Swimming Without Pain, A Comprehensive Guide to Preventing and Rehabilitating Shoulder Injuries," is available at swimmingtechnology.com. Contact Rod through info@swimmingtechnology.com. All scientific documentation relating to this article, including scientific principles, studies and research papers, can be provided upon demand.

SUMMARY

With a conventional coordination of the head and arms for breaststroke breathing, a swimmer begins the head and arm motion simultaneously. With the advanced coordination presented in this article, a swimmer delays the head motion both to breathe and to recover to the non-breathing position. The benefits of this advanced coordination are less resistance, more propulsion and a faster stroke rate.

THE MAN AND THE METHOD

Dave Salo has represented the United States as an Olympic, World Championships and Pan Pacific Championships coach and has guided the USC Trojans to 18 NCAA Top 10 finishes in 14 years. But his enduring legacy will most likely be his training mindset that emphasizes race-pace training and quality over quantity.

BY MICHAEL J. STOTT

A swimming scientist (Ph.D., exercise physiology, USC, '91) as well as an ASCA Hall of Fame coach, Dave Salo's training philosophy was formed by study, practice and personal experience. His road to "less is more" began in the 1970s.

"I was a swimmer and trained in the traditional methods of the time—volume-based, overdistance, aerobic base—even though my events were 200 and down. When I studied exercise physiology at Long Beach State and the University of Southern California, I was exposed to training thoughts that were quite contrary to the methods used throughout my years as a swimmer and even in my first four-to-five years of coaching," he says.

"As I researched the physiology and better understood the effects of training methods on physiologic systems that affect performance, I changed my ideas about training and moved toward a race-pace, 'quality vs. quantity' mindset.

"In addition to changing what I did with my swimmers, I also explored this philosophy in training myself for triathlon, marathon running and post-graduate swimming competition. My discoveries had as much impact on my coaching philosophy as did published research that I studied," he says.

Salo's approach to training has varied little in the last 40 years. Simply stated, he strives to make it interesting, innovative, engaging and fun. Now retired from USC, he is still training elite post-graduates by employing methods conducted at race pace and faster intensities with a more focused attention on stroke technique. The approach reduces the emphasis on volume and overdistance.

"Effectively, my training sessions probably constitute more than 75% faster-than-race-pace intensities with repeat distances more often than not at lengths much less than race distances (i.e., 25-50-75, etc.). Because workloads are conducted over shorter distances at higher intensities, the average intensity of most training sessions is significantly higher," he says.

ON THE WALL

One clear benefit is his ability to give enhanced feedback



[PHOTO BY BILL COLLINS]

to athletes. Sets such as 20 x 25 on 15 seconds rest allow for 10 seconds of feedback every 12 seconds of effort vs. 1 x 500 with feedback restricted to once after a sustained work effort of upwards of five minutes.

"Because volume does not play a significant role in the design of my training sessions, I can focus more on the content of the training session and strive to make them relevant to an athlete's particular event—be it a 50 or a 1500 swim. These generally last no more than two hours each.

"The overriding factor in my training sessions is that a race is not a solely cardiovascular event, but equally—and maybe more importantly—a neuromuscular event. I am often criticized that my workouts won't engage the CV system, but I don't find that to be true at all. What I see is cardiovascular conditioning engaged at a very high level. At the same time, the neuromuscular system and biochemical systems—lactate metabolism, buffering capacity, etc.—are engaged as well," he notes.

Salo's first inclination that the methodology worked came from his unpublished master's thesis and some unconventional research study. He confirmed it in the early '80s while training for



>When world record holder Rebecca Soni was training with Coach Salo, one of her most challenging sets was 20 x 50 holding 200 pace, which was :35 per 50—and only the ones at pace counted. Since she was unable to swim all the 50s at pace, she ended up doing more than 30 50s. “She now realizes that holding between :35 and :37 for 30 50s was ‘epic,’” says Salo.

a marathon. He trained 30 to 45 minutes per day, three to four days per week, running at paces faster than his intended race pace.

“I ran my first—and last ever—marathon in 3 hours and 29 minutes. I considered that pretty significant,” he says. “Of course, I did not anticipate how sore I would be for weeks later!”

THE MASTER AT WORK

I first saw Dave Salo at a morning prelim session at the 1996 Olympics counseling Amanda Beard about her upcoming swim. Over the years, he has had many such conversations with athletes who have excelled on the global stage. Recently, he asked several about sets they found particularly challenging:

Aaron Peirsol (3x Olympian, 7x Olympic medalist, world record holder). “At the end of a tough week, I had him complete a SCY set of 6 x 100 @ 1:00 backstroke holding under 50 seconds per swim. He remembers thinking I was just trying to impress a group of visiting coaches from Japan.”

Jason Lezak (4x Olympian, 8x Olympic medalist, world record holder). “He says the hardest SCY set was 4 x (25+50+75+100) @ 1:00/2:00/3:00/4:00 ALL FAST. I think some of the resistance stretch cord work we did was tougher. First two rounds were done with no equipment, the third round with paddles and fourth with paddles and fins.”

Larson Jensen (2x Olympian, 3x Olympic medalist, American record holder). “Larsen swam a lot of tough sets with Coach (Bill) Rose, Coach (Mark) Schubert and me, but the one set that probably impressed everyone was 30 x 50 meters from a dive on :35 holding under pace (29 seconds) or he would have to stop.”

Staciana Stitts (1x Olympian, 1x Olympic medalist, world record holder). “She remembers repeat 50s long course with two swimmers being pulled attached to the green stretch cord that ‘felt like the last 50 of a 200 race.’”

Jessica Hardy (1x Olympian, 2 Olympic medalist, world record holder). “She did 15 x 50 long course holding race pace with a descending interval of 1:00(5):55(4):50(3):45(2):40(1).”

“Like Jessica, **Dylan Carter (1x Olympian, 4x NCAA**

champion) said his toughest set was 5 x (4 x 50) @ :45/:40/:35/:30/:35 by round with the last 50 always butterfly. I am sure I told him each 50 had to be at pace 200.”

Rebecca Soni (2x Olympian, 6x Olympic medalist, world record holder). “She chimed in with 20 x 50 holding 200 pace—for Rebecca, that was :35 per 50—and only the ones at pace counted. Rebecca remembers that she was only able to make about four to five holding :35 and missed the others, and ended up doing more than 30 50s. She now realizes that although she was not able to hold pace, holding between :35 and :37 for more than 30 50s was ‘epic.’”

Reed Malone (1x World Championships, 7x NCAA All-American). “I am sure there are better long course ones,” says Reed, “but one I remember from my sophomore year (2015) was:

- 4x {2 x 100 @ 500 pace on 1:10
- 3 x 50 @ 200 pace on :40
- 4 x 25 @ 100 pace on :25 (200 flop)

“Very little rest, but fast—all the time, Classic Salo.”

THE LONG HAUL

Distance swimmers also excelled under Salo’s tutelage. “Obviously, **Ous Mellouli (4x Olympian, 3x Olympic medalist, African record holder)** was my most significant ‘distance’ swimmer—although I prefer the term, ‘long sprinter,’” he says. “In the years I coached Ous, including the run-up to the Beijing Olympic Games, he did not swim more than 800 meters straight in a training session, and he had not done a series of repeats of anything like 3-5 x 800. In fact, the last six to eight weeks for 2008, he was significantly impacted by two bulging discs that compromised his training dramatically,” says Salo.

When coaching athletes for the 1500 free—and to those assigned to Salo’s “long sprint” group—work often includes more extended swims in series generally broken up with race-pace or faster shorter swims.

One example is:

[PHOTO PROVIDED BY LA PRESSE & SHANDREW PR]



> "Olympian Ous Mellouli was my most significant 'distance' swimmer," says Salo. "In the years I coached Ous, including the run-up to the Beijing Olympic Games, he did not swim more than 800 meters straight in a training session, and he had not done a series of repeats of anything like 3-5 x 800."

- 800 + 6x50 + 600 + 6x50 + 400 + 6x50 + 200 + 6x50 + 3x200

"Here intervals for the longer swims are set to allow the athlete ample recovery—30-45 seconds—so as not to drive performance," Salo says. For instance:

"Longer swims—negative-split by no less than 5 seconds with the last 50-to-75 meters faster than the athlete's intention for the race. With Ous, I told him it needed to be no slower than the time his competition was coming back in.

"Sets of 50s are on an interval that may range from 5-20 seconds rest, depending on the purpose of the set. I expect these to be generally swum at 200 race pace or faster—sometimes with foot touch and sometimes equal to the planned last 50 pace of a 200 with hand touch.

"Last 3 x 200s may be descending 1-to-3 with an interval that allows for a minimum of 20 seconds rest. These are conducted under a pre-stress load from the previous series of swims so the athlete is challenged to swim fast under strenuous biological and psychological conditions like those encountered in a race," Salo says.

When Salo asked Mellouli for a memorable set he responded with:

- 100 + 200 + 300 + 400 + 500 + 600 + 700 + 800 + 900 + 1000 + 900 + 800 + 700 + 600 + 500 + 400 + 300 + 200 + 100 at 1:10/2:10/3:10/4:10/5:10/6:10/7:10/8:10/9:10/10:10.

Says Salo, "I am not sure this was a set I gave him, but I am sure it is a set he did in his career.

"I more likely gave him the following set:

- 4x {3x100+300 at 1:00 / 3:00-2:55-2:50-2:45—long course holding goal pace 1500.

THINGS WE DID TODAY

Coaches looking for something else from Salo's logbook might consider this short course set from early August:

- 5x {2 x 75 + 125 or 50 + 2 x 75 + 75} @ 1:00/1:45/1:00/1:30
- 75s—3rd-gear swim/5th-gear kick/3rd-gear swim by 25
- 125/50 and 75 swim faster than race pace.

Just to get your heart rate up. ❖

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Michael J. Stott is an ASCA Level 5 coach whose Collegiate School (Richmond, Va.) teams won nine state high school championships. A member of that school's Athletic Hall of Fame, he is also a recipient of NISCA's Outstanding Service Award.


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Q & A

[PHOTO PROVIDED BY CHRISI HAGAR]



Coach Michael Brooks

Head Coach Weymouth Club Waves Weymouth, Massachusetts

- Carleton College, B.A., English, 1986; B.A., University of Utah, history, 1988; M.A., University of Notre Dame, history, 1992
- Head coach, Weymouth Club Waves, 2018-present
- Head coach, King Aquatic Club, 2017-18
- Coach, North Carolina Aquatic Club, 2016-17
- Head coach/director of competitive swimming, York YMCA, 2006-16 (won girls YMCA SC nationals in 2016)
- Head age group coach, Brophy East Swim Team, 2004-06
- Head site coach (York, Pa.), North Baltimore Aquatic Club, 1999-2004
- World Cup head coach of U18 USA National Team, 2015
- Assistant coach of Team USA for Pan American Games, 2015
- Assistant coach of Team USA, Junior Pan Pacific Championships, 2014
- YMCA SC National Championships Coach of the Meet (2010, 2012, 2013, 2015)
- Middle Atlantic Senior Coach of the Year (2014, 2015)
- Has coached five National Junior Team and two National Team members, six NAG champions and scores of No. 1-ranked and hundreds of Top 10 swimmers
- Member of USA Swimming National Age Group Development Committee
- National and international clinician on age group coaching, cultural excellence, swimming technique

Besides coaching, Michael Brooks is also a highly acclaimed author, having written "Developing Swimmers" (Human Kinetics) and produced the five-video series, "The Principles of Swimming" (Championship Productions).

MICHAEL BROOKS

Internationally recognized as a swimming educator, Michael Brooks has led his swimmers to NAG records and No. 1 rankings, YMCA national championships, team Gold Medal status, and has represented the U.S. as coach at global aquatic competitions.

BY MICHAEL J. STOTT

Q. SWIMMING WORLD: *Were you ever a swimmer?*

A. COACH MICHAEL BROOKS: Yes, but not a good one. I also played soccer, raced bicycles, etc. In college after my shoulders had become hamburger, I raced cross-country skiing, which I wished I had started much earlier.

SW: *What led you to a profession in aquatics?*

MB: I always knew I would be a teacher, probably in literature or history. My father was a teacher, as are my brother and sister. During my college summers, I coached summer league and loved it. When my history fellowship at Notre Dame had run out and with my Ph.D. dissertation still incomplete, I started coaching year-round in hometown Salt Lake City to pay bills. I quickly realized swim coaching was a lot more fun than dissertation research: I get to be a psychologist, exercise physiologist, skill acquisition researcher, cheerleader, philosopher of excellence...and a teacher.

SW: *What did you learn from Dennis Pursley, Bob Bowman and Murray Stephens?*

MB: From North Baltimore Aquatic Club (Bowman and Stephens), I learned about a culture of high expectations. Great teams don't become great by accident—and neither do lousy teams become lousy by accident. It takes an awful lot of intelligence and consistent hard work by all involved. And the team administration has to support that quest for high performance.

Denny (Pursley) was a great boss and is still a great friend. He emphasized character and nose-to-the-grindstone hard work. He let me experiment with my age groupers, try different things and not just be a carbon copy of the senior program.

SW: *How have you put your liberal arts degrees—and your obsession with sculling—to use in training swimmers?*

MB: The whole point of the liberal arts is to learn how to think critically. That helps me coach more effectively. After arriving in Boston, I joined a rowing club. Learning a sport from the ground-up with a beginner's perspective—but with a good understanding of teaching, motor learning and skill acquisition—has been incredibly helpful in my coaching, especially of younger swimmers.

Coaches often do not realize just how difficult it is to learn complex skills. It is even more difficult to change poor, but well-learned skills—such as a lousy freestyle that a 16-year old has practiced 20 million times.

SW: *Your tenure at King Aquatic Club in 2017-18 was short-lived. What was your main takeaway?*

MB: Previously at small teams, I had worked with swimmers of all ages. In Seattle, the team had about 420 swimmers. The best way for me to help the team was to become a teacher and mentor for the coaching staff. We had the building blocks for a truly great program, and my job was to get all the oarsmen/coaches pulling at the same time.

SW: *To what do you attribute the unbelievable success at York YMCA—i.e., fielding national team members, winning a national team championship and earning USA Swimming Gold Medal status?*

MB: We just performed better every year. We were a very small team—about 75 swimmers at the peak—wanting to compete with the "big boys." So we took every swimmer seriously, worked to develop the body and mind of each so that each succeeded and performed when we needed it. Everybody mattered. That is a good attitudinal foundation for a coach: working on how to reach each swimmer and not just spending time focusing on the fast kids.

I found it easier to build a winning team culture by being the source for teaching most of the swimmers every day rather than trusting an army of assistant coaches to relay

BY MICHAEL J. STOTT



[PHOTO PROVIDED BY CHRIS HAGAR.]

| PROGRESSION OF TIMES | | | |
|----------------------|--------------------|--------------------|------------------|
| SCY | 2017 - 18 (AGE:13) | 2018 - 19 (AGE:14) | 2019-20*(AGE:15) |
| 100 BACK | 1:01.10 | 57.87 | 52.24 |
| 200 BACK | 2:14.18 | 2:03.55 | 1:52.44 |
| 100 FLY | 59.80 | 57.65 | 52.98 |
| 200 FLY | 2:14.18 | 2:09.39 | 1:57.52 |
| | | | |
| LC | 2018 (AGE 13) | 2019 (AGE:14) | 2020** (AGE:15) |
| 100 BACK | 1:12.65 | 1:02.49 | 1:00.30 |
| 200 BACK | 2:38.07 | 2:14.81 | 2:12.52 |
| 100 FLY | 1:09.49 | 1:02.84 | 59.63 |
| 200 FLY | 2:37.00 | 2:20.37 | 2:15.56 |

* Due to the COVID-19 pandemic, there wasn't any SCY championship meet for 2019-20. Best times represent unrested times.
 ** Long course times for 2020 are from unrested January swims at a Berkeley (N.J.) meet.

Thomas Hagar is a sophomore at the Xaverian Brothers High School in Westwood, Mass. He could be a poster child for talented young men who buy into the swim program of a process-oriented coach. From age 13 to 15, his time drops for his best events are impressive: 100 yard back, 8.86 seconds; 200 back, 21.74; 100 fly, 6.82; and 200 fly, 16.66.

Hagar and Coach Michael Brooks began working together in August 2018 shortly after Brooks arrived at Weymouth Club in Massachusetts.

"At the time, he was a tiny 13-year-old boy with high spirits and high energy who talked a very big game," says Brooks. "Initially, his mouth outran his accomplishments. However, it was heartening to know that I had a swimmer with big goals who wasn't afraid of making them public. And he wasn't afraid of working for those big goals.

"A related challenge was when he fell short of his expectations—whether at meets or practice—he would pout and have an existential crisis. Two years later, he has practiced resilience, and he is progressing nicely. He is learning to understand that he isn't going to be great every second of every day.

"In 2018, his fly and back were solid, but free and breast left much to be desired. On his IM—an event I prioritize—it was frustrating to see him rocket the first half and then get caught by the rest of the world. Obviously, we had some work to do," says Brooks.

"Also, in any practice repeat—and, as it turned out, any race—his first and second walls were very strong, but very weak after that. We had to work on underwater dolphins when fatigued and on giving him the confidence to do them when fatigued.

"There was a key moment a year ago when Thomas decided to become a leader. He had been holding back for a while, following the older kids—because that's what younger kids are 'supposed' to do—even if he was strong enough to pass them. After some encouragement, prodding and mild irritation on my part, he stepped up and assumed the mantle.

"It truly was like flipping a switch from off to on. His practice performance elevated overnight and has stayed that way," says his coach.

SAMPLE SETS

"Here are a few of Thomas' favorite sets—or, perhaps, a few of my favorite sets," says Brooks.

Butterfly (for rhythm and stroke control)

- 20 x 50 fly (4 rounds of 5)

For each round: one repeat on :50, one on :45, one on :40, one on :35, one on :30, then immediately into the next round; descend the reps in each round from 1 to 5

Coach Brooks: "Thomas would start each round at 31 or 32... and finish each round at 28 or 29. The goal was to make the 'hard' last repeat and go right back to 31-ish with long strokes and good rhythm immediately."

Butterfly (for speed)

Coach Brooks: "Some of the particulars of this set were determined by our COVID training situation."

- 12 x 25 fly, alt kick and swim on :25 (Hagar's hold times [HHT]: K at 15, S at 12 or 13)
- 12 x 50 fly, each repeat alt 25 K, 25 S on :45 (HHT: 28/29)
- 12 x 100, each repeat alt 25 K, 25 S on 1:25 (HHT: descend 1:02 to :58)

(Note: with Tempo Trainer, set at 1:10; for swim repeats, 1 stroke per beep; and for kick repeats, 2 kicks per beep.)

Coach Brooks: "Narrow lanes and kids separated along each lane mean we do a lot of kick/swim butterfly so that we don't have blood-curdling traffic accidents or swimmers doing drill for half of their fly lengths. A fast tempo on the kick lengths keeps the kids honest and the heart rates up."

Butterfly (for rhythm and stroke control)

- 40 x 25 fly on :20 (HHT: 13—often with underwater and stroke count requirements)

my message to their training groups. As the source of information to swimmers and parents, I never had to worry about sending mixed messages. Also, we focused on the fundamentals, working all four strokes so that our swimmers would be good “all-rounders” and not specialists.

SW: *Post-COVID-19, there is a new energy to the Weymouth Club Waves. Why so?*

MB: We have been very fortunate to have a pool, pool time and space. We have had many new kids coming to our program recently. New assistant coach, Tim Anderson, previously of the South Shore Y, and I work well on deck together.

With COVID-19, we have split up the team into more training sessions and sub-groups. I am working with ages 8 to 18 every day; I see the whole range of abilities and have to figure out ways to get each swimmer and each group moving forward optimally. It is a wonderful challenge.

SW: *You believe in simplicity and an obsession with technique.*

MB: Through most of my coaching career, I have worked with multiple groups every day and a wide range of ages and abilities. If you want to get a message through to a 9-year old, you have to make it simple and clear. It is the same for an 18-year old, but even more crucial with the younger kids. And you have to make the message interesting enough to win over their wandering attention.

Technically, I love watching beautiful swimming, sculling, running, skiing and ballet, etc., for the aesthetics of the experience and the efficiency. Ugly swimming most often equates to inefficient and slow swimming. Like Michelangelo before a slab of marble, I try to cut away everything that doesn't belong, leaving a beautiful, efficient, effective and potentially very fast stroke.

SW: *What is the key to your swimmers' success in the 400 IM and national IMX rankings?*

MB: The 400 IMer is the complete swimmer. To do well, you also have to be strong at the 200-400 free and the 200 form strokes. I've always prioritized the 200s at the expense of the 100s. If they are big and strong or have the potential to be big and strong, the college coaches will stick them in the weight room and develop their speed.

I develop their technique, train the aerobic engine and teach them to think like champions. I make them versatile so they can do all strokes well and fill any need. Also, it's more fun to work on everything, and it's easier to keep your psychological momentum because you are less likely to be

stuck in a plateau.

SW: *Teaching kids to be smart tactically—how do you get kids to swim their own races rather than get caught up in an opponent's race?*

MB: We talk and teach tactics and the reasons for them. That means figuring out how to maximize what you have while racing more evenly and intelligently. There are some very common mistakes that kids make. We teach them not to make those mistakes and to take advantage of their competitors' mistakes.

SW: *You once said, "In some respects, I ask less of swimmers now than I did years ago." Explain.*

MB: George Haines once said something like, “If your swimmers have to face the music all the time, they'll go deaf.” Or, “If you are continually pounding on them and never let up, they will lose both their current motivation and their long-term love of the sport, no matter how well or how fast they swim.”

I think I understand this better now than before. I focus our practices on learning skills and getting better; I structure practices to this end. And practices are more interesting for me...and I hope for the swimmers as well.

SW: *You have been chosen as a coach for many of USA Swimming's most important domestic and international meets.*

MB: Top-level swimmers have talked about how special they felt when they wore the USA and represented our country at major meets. It works the same for coaches. For me—an age group coach from a small program—that experience was tremendous. I kept feeling that the national team director had made a mistake because I didn't fit in among the “big-name” coaches. But I learned a lot about high performance from the swimmers and especially from talking with the other coaches. I took that knowledge back to my little age group team.

One of the more interesting assignments was to work with the sprinters at my first international meet, Junior Pan Pacs. Anyone who knows me will realize the irony. As a result, I learned a lot about the psychology of sprinters and the mental difference between the guys and the girls. ❖

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Michael J. Stott is an ASCA Level 5 coach whose Collegiate School (Richmond, Va.) teams won nine state high school championships. A member of that school's Athletic Hall of Fame, he is also a recipient of NISCA's Outstanding Service Award.

SW TOTAL ACCESS MEMBERS CLICK HERE TO DOWNLOAD MORE Q&A WITH MICHAEL BROOKS. NOT A TOTAL ACCESS MEMBER? YOU'RE JUST A CLICK AWAY: SWIMMINGWORLD.COM/VAULT



[PHOTO PROVIDED BY CHRIS HAGAR]

Backstroke (strong aerobic)

- 4 x 200 back, descend on 2:30 (HHT: descend to 2:05-ish)
- 8 x 200 back, alt moderate and fast on 2:40 (HHT: fast reps to 2:01 to 2:02)
- 8 x 200, alt moderate free and very fast back on 2:40 (HHT: fastest reps 2:02 to 1:57)

Coach Brooks: *"This is a Brooks favorite."*

Backstroke (race pace, control and pain tolerance)

"Ryan Murphy Set": 30 x 50 back as fast as possible:

- 10 on :45 (HHT: 28s)
- 10 on :50 (HHT: 27-28)
- 10 on 1:00 HHT: 26s)

Backstroke (strength)

Coach Brooks: *"This was usually in a morning practice."*

4 rounds of 5 x 100 back:

- #1: no equipment on 1:20 (as warm-up)
- #2: ankle buoy on 1:30
- #3: paddles and ankle buoy on 1:30
- #4: parachutes on 1:40

200 free (long and smooth)

- 12 x 100 back with parachutes on 1:40
- 12 x 50 back with parachutes, alt 50 kick on :55, 50 swim on :45

200 free (long and smooth)

- 12 x 25 back, "sprint your guts out" on :30 and :35

Loosen ❖

Congratulations HASTY HIGH POINTERS!



[PHOTO BY YEUNG PHOTOGRAPHY]

WILL LICON
AGE 12
WEST TEXAS TYPHOON
EL PASO, TEXAS
SWIMMING WORLD CACTUS CLASSIC



[PHOTO BY PETER H. BICK]

WILL LICON
SW AUG. 2007 HHP
200 YARD BREAST AMERICAN RECORD
11X NCAA CHAMPION/2X TEAM CHAMPION
TEXAS [CLASS OF 2017]



[PHOTO BY YEUNG PHOTOGRAPHY]

AMY BILQUIST
AGE 9
WESTSIDE SILVER FINS
PHOENIX, ARIZONA
SWIMMING WORLD CACTUS CLASSIC



[PHOTO BY PETER H. BICK]

AMY BILQUIST
SW AUG. 2007 HHP
2016 OLYMPIC TRIALS QUALIFIER
2X PAC-12 CHAMPION
CAL [CLASS OF 2017]

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UP & COMERS

AGE GROUP SWIMMER OF THE MONTH

BY SHOSHANNA RUTEMILLER

Erika Pelaez

Last February, 13-year-old Erika Pelaez of Eagle Aquatics (Fla.) became the youngest person to qualify for the 2021 U.S. Olympic Trials, turning in times of 56.03 in the 100 meter freestyle and 1:02.65 in the 100 back. Her 100 free time is likely the fastest recorded for any 13-year-old U.S. swimmer, even beating Missy Franklin’s 2008 Olympic Trials time of 56.14.

In addition to her OT cuts, the Miami Shores resident won the 2019 Florida High School State Swimming and Diving 1A Championships in both the 50 and 100 yard free with times of 22.86 and 49.37.

“Erika is very determined and does not like to lose even if she is racing against boys or girls twice her age,” says Eagle Aquatics coach Adam Madarassy. “She has a very great work ethic, and she is very consistent. She knows what her goals are, what it takes to get there...and she is willing to do the work for it.”

Besides swimming, Pelaez has attended virtual (online) school since kindergarten, allowing her to connect with other virtual students across the world. She also volunteers at her local church. ❖



[PHOTO PROVIDED BY ADAM MADARASSY]

WHAT IS THE BEST THING YOU DO IN SWIMMING?

I keep myself focused on my goals no matter what's going on. This year has been really hard for everyone, but I was able to prove to myself that I could stay motivated and still train hard even with the lack of access to a training facility and with all of the unfortunate events going on this year.

WHAT ARE SOME OF THE TOUGHEST WORKOUTS/SETS YOU'VE DONE?

Six rounds of 4x100 all-out, followed by a 400 all-out:

- #1: fly and IM*
- #3: back and IM*
- #5: breast and IM*
- #s 2, 4 and 6: all free*

WHAT IS YOUR FAVORITE THING ABOUT SWIMMING?

I really like the teamwork and sportsmanship among all the swimmers. Watching them cheer each other on—regardless of their team—makes me really happy to be part of such a good environment. Another favorite part of swimming is the discipline

that comes with training throughout the years, regardless of the weather or time. That really prepares us for when we're adults. Swimming raises very successful kids.

WHAT ARE YOU MOST LOOKING FORWARD TO THIS YEAR?

I'm really excited to compete at the Olympic Trials and enjoy the feeling of being there...and I'm also looking forward to hopefully having a less chaotic year!

WHO IS SOMEONE YOU LOOK UP TO IN SWIMMING... AND WHY?

I've looked up to Missy Franklin since I was little. Her swimming career was incredible, and just watching her swim gave me so much motivation to train harder. And outside of the pool, she's an amazing person who is extremely positive to all her competitors.

WHAT ARE YOUR FAVORITE HOBBIES?

Watching Netflix and spending time with my friends and family.



DO YOU THINK THE ISL COULD BENEFIT FROM A THREE-DAY MEET TO GENERATE MORE MEDIA ATTENTION AND FAN INTEREST WITH MORE TIME TO PROCESS RESULTS?

BY ANDY ROSS



LEWIS CLAREBURT

New York Breakers

[PHOTO BY MIKE LEWIS]

From a spectator's point of view, you could go either way. Some people would love to see more interviews and more of a story around each match. Others may not want to come back three days in a row to see how one match finishes—especially if there's a stacked team and you already know who's going to win.

On the other hand, from a swimmer's perspective, a three-day competition would be great for the really dominant swimmers who could continue to stack up lots of events and potentially do even more—whereas a two-day competition puts the swimmers under more pressure to pick events they know they can score points. I think the ISL needs to make it not just about the swimming, but the whole journey, and characterize each swimmer.

A two-day competition should probably stay purely for the fact that if it was three days, Caeleb [Dressel] would be able to do even more events than he already does.



MARCIN CIESLAK

Cali Condors

[PHOTO BY MINE KASAPOGLU / ISL]

I think that's an interesting point. I only had a chance to ask a few people, but in general, everyone was for the two-day format. Without prelims, the amount of swims isn't that crazy. People like Caeleb [Dressel] do four to five races a day, but on average, most swimmers

have two to three races. A longer meet can also be tiring from a mental point of view.



ABBIE WOOD

New York Breakers

[PHOTO BY MINE KASAPOGLU / ISL]

From a swimmer's point of view, it would definitely allow more swimmers to do more events. I feel like the fact it is a two-hour thing, it's really quick-paced, and it does make it more entertaining for the viewer.

I think the fast pace and the fact it's two hours is good because it is really gripping. I like to watch from the stands. Normally at an open meet, you're there to watch about three races of people you know, but here because everything is a final—i.e., there's no heats you have to sit through—I think it really is good for television.

I think two days per round is enough. For me, I'd love to do some more freestyle events in a three-day schedule, but I really can't because then I'd have too many long events. For most swimmers, though, it would benefit them to swim more events...but from a viewer's perspective, I think the two hours a day is quite effective.



ZACH HARTING

DC Trident

[PHOTO BY MIKE LEWIS]

I kinda thought the opposite. If the idea is to make swimming more mainstream and like other sports, then it'd make sense to have the match in one day.

That way, the viewer knows who wins by the end of the match, as compared to having to tune in the next day. You could have a "best-of" series like in baseball or basketball. It would be cool if you had a SCY, SCM and LCM trio.

That being said, I'm not sure you could do all of those events in that amount of time, so something would have to give.

A factor of having three meets is that as the ISL grows, the amount of competition you'd have as a swimmer would just grow quickly—especially when you have back-to-back meets. Thinking of college dual meets...having a three-day meet once a week every week is a lot to handle.

I get the point of generating more media attention, but with sports, people like to know who won the match by the end of the airing. ❖

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PARTING SHOT



The IU Natatorium in Indianapolis sits quiet prior to the start of the 2020 Toyota U.S. Open, which took place, Nov. 12-14, across nine locations around the country. [PHOTO BY PETER H. BICK]