

The JOURNAL

Official Publication of the
National Interscholastic Swimming Coaches Association of America, Inc.

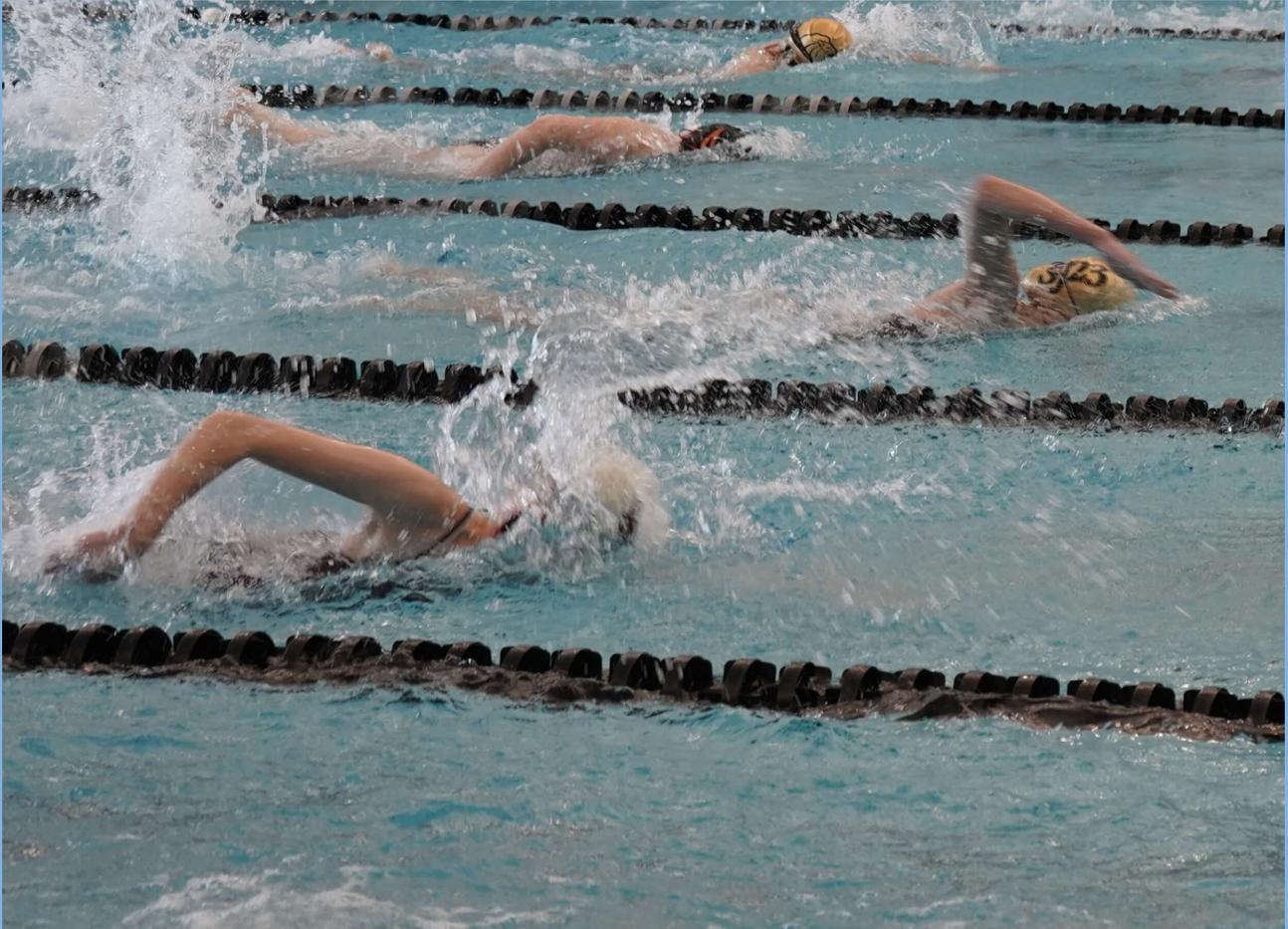


Photo by Flor Foreman

In this Issue:

- | | |
|---|-------------------------------|
| Strength Training with Charlie Hoolihan | Nutrition - The Magic of Zinc |
| An Ode to Kicking, Parts I/II, III/IV | How Good Is ChatGPT? |
| How to Write Workouts - Part II | The Daily Coach |
| Sportsmanship and Life Lessons | Bits and Pieces |
| Improve Your Leadership Skills | Brain Food |

January - February 2024



Start the new year off right, with a timing system from IST! Visit our website or call our unmatched customer service team for more.



Unmatched timing systems for peak performance

(800) 835-2611 istime.com



ARE YOU READY TO JOIN #TEAMFINIS?

FINIS has been a leader in the swim industry for over 25 years, delivering the best training equipment in the world. We have brought that quality and innovation to our tech suits, training suits, and team apparel, making FINIS the one-stop shop for everything your team needs to perform at its best.

SPONSORSHIP THAT MAKES SENSE FOR YOUR TEAM

At FINIS, our main focus is helping athletes and coaches perform at their very best. We recognize that every team has unique needs and we will work with you to incorporate that into your team sponsorship



#TEAMFINIS PERKS

TEAM DISCOUNTING

Receive discounts on all the FINIS gear your team needs to perform at the highest level.

PARTNERSHIP OPPORTUNITIES

We've partnered with JOLYN Swim so athletes can wear what they want! Outfit your male and youth swimmers in FINIS and your female swimmers in JOLYN. (U.S. only).

NON-EXCLUSIVE

We're all about flexibility. Buy what you need from whoever you need.

1ST TO TRY NEW FINIS PRODUCTS

Receive special discounting on our new products and samples so your team can gain that early edge.

ELITE TECH SUITS

Race in the same suits that won 7 medals and broke 2 world records at the 2020 Olympic Games.

WE'RE READY FOR YOU

Go to apps.FINISswim.com/Join-TeamFINIS to get started.





\$29.95

ACR-NIS57

5"x7" Elegant Acrylic with Full-Color Imprint depicting the All-America logo. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.



\$5.00

PAT-NIS40

\$16.95

CM-NIS25

2 1/2" hand-casted medallion comes with 1 1/2" x 30" RWB neck ribbon and crushed velour jewelry case. Personalized engraving on the reverse side is included. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.



4" patch combines the heroic colors of red, white, and blue to produce this stylish symbol designed to be sewn onto apparel. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.

\$39.95

WAT-NISCA

All-America watches are available in both men's and women's styles. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.



\$14.95

ACR-NISOR

3" acrylic ornament comes with a red cord for hanging. Personalized engraving on the reverse side is included. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.



RNG-NISCA

All-America rings are available in both men's and women's styles. Pricing is based on options selected. For additional information or to receive a free quote, please contact our representative Chris Curtis at chris.curtis@jostens.com / 620-232-7464.

Products produced and distributed by Hasty Awards. All products featured must be purchased through NISCA. See order form for details. For other awards or free catalog, call 1-800-448-7714 / www.hastyawards.com

THE NISCA JOURNAL

www.niscaonline.org

January - February 2024



Table of Contents

President's Letter	4
Letterhead and Zone Information	5
From The Editor	6
LEADERSHIP: How To Improve Your Leadership Skills As A Coach, <i>by Kevin Pierce</i>	9
NUTRITION: Harnessing the Immunity-Boosting Magic of Zinc, <i>by Dawn Weatherwax</i>	10
TRAINING: Kicking - An Ode to Kicking, Parts I and II, <i>by Andrew Sheaff</i>	13
TRAINING: Kicking - An Ode to Kicking, Parts III and IV, <i>by Andrew Sheaff</i>	17
PERSPECTIVES: Sportsmanship and Life Lessons, <i>by Michael J. Stott</i>	20
TECHNOLOGY: How Good Is ChatGPT? <i>by Dana Abbott and John Agathon</i>	23
STRENGTH TRAINING: Single-Limb vs. Double-Limb Strength Training, <i>by Charlie Hoolihan</i>	25
BITS AND PIECES: Tidbits to Enhance Your Coaching and Life Experience	27
THE DAILY COACH	29
BRAIN FOOD	31
COACH EDUCATION: How to Write Workouts: Part 2, <i>by Karl Hamouche, M.D., and Mike Peterson</i>	32
<i>Swimming Art Work by Nancy Bryant: Purchase Information</i>	IBC



91st Annual NISCA National Conference, March 2024

Indianapolis, IN in conjunction with the Men's NCAA Swimming and Diving Championship

March 27-30, 2024



DIVISION I
Men's Swimming & Diving
Championships

March 27-30, 2024
IU Natatorium on the campus of
IUPUI | Indianapolis, IN



National Interscholastic Swimming Coaches Association of America

To Educate... To Promote... To Honor.

Dear NISCA Members,

I hope that you had a wonderful holiday season and enjoyed spending time with your families. As we head into the new year, I was reflecting upon a conversation we had recently in our last board meeting about how social media has changed how we view and do things. We have all heard the stories about students being removed from teams, losing out on scholarships, or having admission revoked completely due to social media postings. It seems lately all we really hear about the negatives that instantaneous information at our fingers has caused.

Sometimes we forget some of the benefits of the technological revolution we have seen. Not long ago I can remember spending late nights filling out entry cards for every swim meet. Now we not only have computer meet entries, but races and results capable of being live streamed. I remember many travel meets where I would carry a huge 3-ring binder for proof of time. Today, programs like Team Manager verify the entry time submitted.

I also remember checking the newspaper sports section for meet results to scout our opponent for the next dual meet. Coaches and swimmers today turn to Meet Mobile or Swim Cloud to get the information.

This changing technology already includes goggles that supply all sorts of training and telemetry data. It will not be long before this type of information will become a part of normal race results along with video replay of the race to go with it.

While all this innovative technology is amazing and surely will assist with athlete improvement, I just hope we do not lose sight of the human connection that is so important in our sport in the process. One of the greatest aspects of coaching are the coach-athlete connections we make. Many of us have been fortunate to see a few of our athletes go on to become coaches themselves. Currently, several of my former swimmers have become coaches and I know many others that have become coaches because they were inspired and became enthusiastic about the sport from a coaching mentor. I still stay in contact with my first coach who unknowingly opened my eyes to becoming a coach and teacher.

As you head into this new year, think about those who inspired you to become a coach. What attributes and passion did they instill in you to want to become a coach and continue to impart swimming knowledge to others? How can you instill the passion you have into the next generation of coaches?

We are always looking for enthusiastic coaches to work with NISCA. Several of our Zones need passionate coaches to lead them and impart their knowledge to the next generation. If you would like to learn more about how you could serve the coaches in your area, please reach out to us.

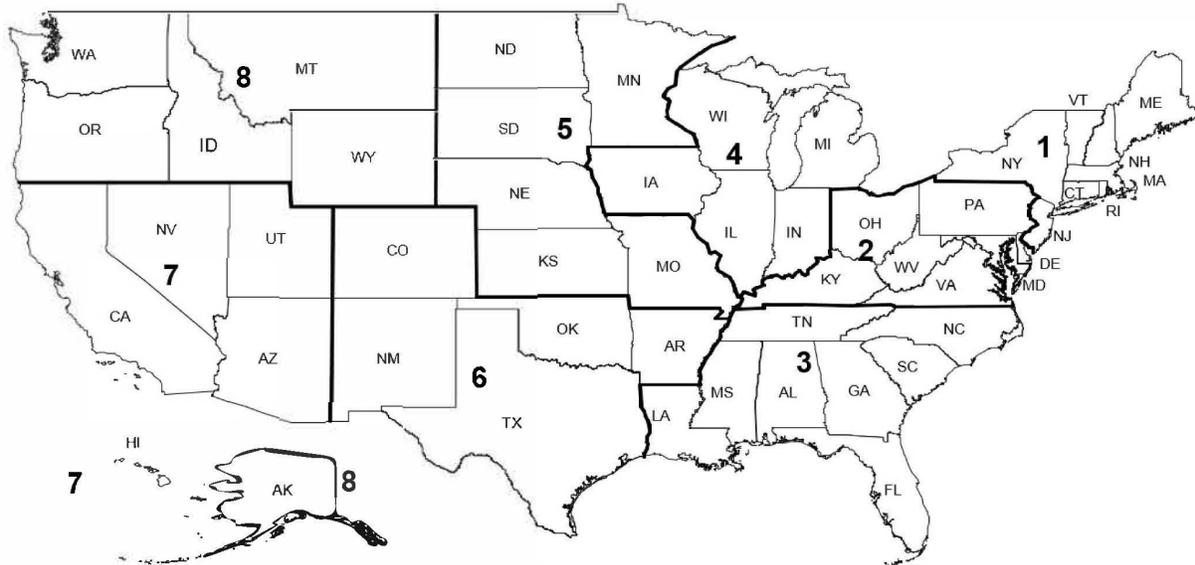
Sincerely,

Mark Jedow



President	President Elect	Secretary	Treasurer	Past President
Mark Jedow	Kyle Bedalov	Eve Julian	Tim Sirois	Tim Sirois
21425 Encino Lookout	3627 Stillwater Cir.	341 Alger St. SE	673 Hill Street	673 Hill Street
San Antonio, TX 78259	Waukesha, WI 53189	Grand Rapids, MI 49507	Highland Park IL 60035	Highland Park IL 60035
210-259-3986 (C)	262-527-4320 (C)	(616) 475-0807	(847) 877-2669	(847) 877-2669
president@niscaonline.org	pres.elect@niscaonline.org	secretary@niscaonline.org	treasurer@niscaonline.org	pastpres@niscaonline.org

<p>All America Coordinator MARK ONSTOTT 41 Nickelby Down Brentwood, TN 37027 847-644-7029 (C) e-mail: aacoord@niscaonline.org</p>	<p>All America Swimming-Boys TIM SIROIS 673 Hill Street Highland Park, IL 60035 224-765-2234 (W) / 847-877-2669 (C) email: boysswaa@niscaonline.org</p>	<p>All America Swimming-Girls MARK JEDOW 21425 Encino Lookout San Antonio, TX 78259 210-481-6955 (H) / 259-3986 (C) email: girlsswaa@niscaonline.org</p>	<p>All America-Academic/Scholar Team MARNEY SHIRLEY 401 8th Street SW Jamestown, ND 58401-4642 701-952-6642 (H) / 701-269-4324 (C) email: aamerican@niscaonline.org</p>
<p>All America-Diving DON MASON 7101 Cathedral Dr. Bloomfield Hills, MI 48301 248-941-3348 (C) email: aadiving@niscaonline.org</p>	<p>All America-Water Polo SEAN WIMER 7048 Osage Rd Long Grove, IL 60060 847-602-2273 email: wpaa@niscaonline.org</p>	<p>Membership BRAD JONES 9131 Denton Hill Rd Fenton, MI 48430 810-240-1076 (C) email: membership@niscaonline.org</p>	<p>Webmaster EVE JULIAN School 341 Alger St SE Grand Rapids, MI 49507 616-475-0807 (H) / 616-970-1661 (C) email: webmaster@niscaonline.org</p>
<p>Rules PETE HUGO 29 Fairview Avenue Great Neck, NY 11023 516-487-2386 (H) / 516-578-9026 (C) email: rules@niscaonline.org</p>	<p>Journal Editor/Constitution/ International Programs DANA ABBOTT 906 Aster Drive Katy, TX 77493 281-347-0689 email: nisca_journal01@gmail.com</p>	<p>Marketing/Outreach/ International Programs ARVEL F. MCELROY 24372 West 108th Terrace Olathe, KS 66061 785-218-1912 (C) email: marketing@niscaonline.org</p>	<p>Professional Awards TOM HUDSON 1710 Boulder Drive Laramie, WY 82070 307-760-4814 (H) email: profawards@niscaonline.org</p>
<p>Power Point Coordinator MICHAEL MCHUGH 4689 Scots Way Dexter, MI 48130 Phone: 734-255-5108 email: powerpoint@niscaonline.org</p>	<p>Online Store GREGG ANDERSON 1633 Amwell Rd Somerset NJ, 08873 732-873-2225 (H) email: store@niscaonline.org</p>	<p>National Conference Coordinator TOM WOJSLAWOWICZ 3015 Shiloh Lane Charleston, SC 29414 843-637-4663 treasurer@niscaonline.org</p>	<p>Research Coordinator KYLE BEDALOV 3627 Stillwater Cir Waukesha, WI 53189 262-527-4320 (C) email: records@niscaonline.org</p>
	<p>Coaches Education KEVIN PIERCE 808 Hancock Ave Ridley Park, PA 19078 email: education@niscaonline.org</p>	<p>Hour of Power ANTHONY PLUMMER Northside ISD San Antonio, TX email: tedfund@niscaonline.org</p>	



ZONE DIRECTORS

<p>Zone 1 Director PHILIP EMERY 48 Starlight Dr. Brewer, ME 04412 207-989-0416 (H) / 207-944-8623 (C) email: zone1@niscaonline.org</p>	<p>Zone 3 Director Position Open</p>	<p>Zone 5 Director ANDY CUNNINGHAM 1010 S. 144th St. Omaha, NE 68154 402-715-1403 e-mail: zone5@niscaonline.org</p>	<p>Zone 7 Director RON BLANC 22062 Antonio Pkwy Rancho Santa Margarita, CA 92688 949-766-6096 (W) / 714-396-2096 blancron@smhs.org email: zone7@niscaonline.org</p>
<p>Zone 2 Director KEELER CALLAHAN 2166 Sawbury Blvd Columbus, OH 43235 614-557-7145 email: zone2@niscaonline.org</p>	<p>Zone 4 Director IAN KOBES 3370 Allen St. Hudsonville, MI 49426 616-669-1500 / 616-710-2038 email: zone4@niscaonline.org</p>	<p>Zone 6 Director MARK JEDOW 21425 Encino Lookout San Antonio, TX 78259 210-481-6955 (H) / 210-259-3986 (C) email: zone6@niscaonline.org</p>	<p>Zone 8 Director Position Open</p>

FROM THE EDITOR

There are days where we have the PERFECT PRACTICE ideated, drafted, perhaps spelled out on paper or the dry-erase board to share with our athletes, and everything just executes perfectly.

Then there are the days where energies and/or moods are down, sets don't click, and even your hardest-working, most dedicated and committed kids don't seem to be "with it."

What do **you** do? We were having a WEEK like that recently, which was very concerning, as we were coming off a holiday break where we hadn't had pool access, and the timing of our state-qualifying meet was not optimal (as it always is in our league) and was just WAY TOO DANG SOON, as we might say in our area. On my way out the door to go to practice towards the end of the week, I spied a small beachball I had purchased to use with our middle-school AAU kids for a reward/fun activity. I grabbed the package holding the new ball, deflated and folded tightly in its wrapper from a large foreign country approximately 7500 miles west of our location, slipped it in my well-worn coach's briefcase, and headed for the pool.

My HS kids practice first, then the middle-school program. As the HS team was finishing warmup with dryland dynamics, I blew up the ball and walked towards them. "What's THAT for?", one of them asked. "Well," I said, "that's for **you** to figure out." I tossed the ball into the middle of the diving well and yelled, "Last one in wins 25 pushups!" I gave them no further instructions.

Not wanting to win the *last-one-in* prize, they very quickly hopped in and were just treading, milling around, chatting and laughing, and a few of them asked, "What now?" I just smiled and said, "YOU figure it out", and walked over to the side and sat down to watch from a short distance away. After a minute or two of more chatting and splashing, someone tossed the ball in the air. Someone else batted it up before it hit the water, then another, then another. Then someone decided they should try to see how many times they could hit the ball and keep it in the air.



NISCA JOURNAL STAFF and Writers

Editor: Dana Abbott

Contributors: Dr. Karl Hamouche, Mike Peterson, Aimee Schmitt, Michael J. Stott, Dawn Weatherwax, Don Mason, Charlie Hoolihan

Medical Consultant: Karl Hamouche, M.D.

Nutritional Consultant: Dawn Weatherwax

Advertising: Arvel McElroy

Subscriptions: Tim Sirois

Country Music Consultant: Stan Byerman

DISCLAIMER: The views, opinions, and information expressed by contributors to the NISCA Journal are their own and do not necessarily reflect, or are endorsed by NISCA, Inc. or its officers. We do not guarantee the accuracy or completeness of the information provided, and nothing in the Journal should be construed as offering medical or legal advice. While we strive for accuracy, mistakes may occur. Please verify information independently. All content on this website is protected by copyright. Unauthorized use or reproduction is prohibited. Some images and text in this publication are used under fair use for educational purposes. Drink milk---it's good for you. Eat your vegetables. Be nice to people.

The unorganized group became organized. Someone started counting, then they ALL started counting. "**ONE, TWO, THREE, FOUR, FIVE...**"

The ball hit the water at thirty-something. Not good enough. So they started again. Forty-something. Then 57. When it got to 63 and I noticed it was time to start practice, I announced we had a **NEW TEAM RECORD!** They joyfully and exuberantly headed towards the other end of the pool, and we had a GREAT practice.

Jason Gay is The Wall Street Journal's sports columnist. He was named Sports Columnist of the Year by Society of Professional Journalists in 2010, 2016 and 2019. His 2015 bestseller "Little Victories" was a finalist for the Thurber Prize for American Humor. Back in December he wrote an article, "*What I Learned Coaching Youth Sports.*" Sixteen bullet points, this was #11:

"The hardest thing to do as a coach is let kids play without structure, but unstructured play is really what they need. Every practice should have some time when players have to figure it out on their own, because that's life. It isn't as chaotic as you think it will be. Kids can figure out a lot on their own."

Bingo. What I did is probably not something I will do a lot, but it sure made a difference at a time when we needed it.

Mr. Gay hit a homerun (sports analogy) when he got to #14:

"Teach kids to be teammates before teaching them to be players. Players are going to happen—genuine talent is usually too good to hold back, no matter how bad the coaching. Not everyone is talented, however, and this is where learning how to be a teammate is useful. Anyone can be a teammate—patient, collaborative, encouraging, willing to share snacks—and those skills have lifelong value. You may not play a minute of soccer after fifth grade, but being a good teammate (and sharing snacks) will send you far, long into adulthood."

Exactly. You want my granola bar?

PROACTIVE
COACHING
LLC

Sports is more about
becoming someone than
getting something

www.proactivecoaching.info

Email us: nisca.journal01@gmail.com

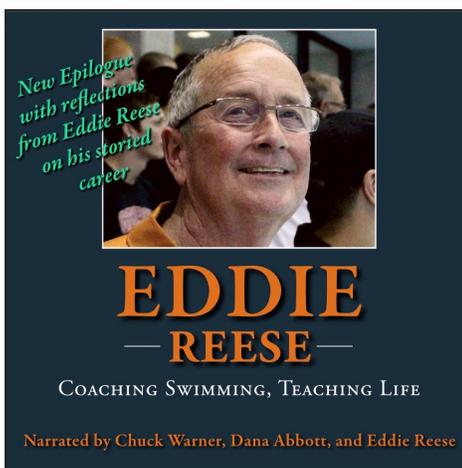


We're going a little crazy counting down the last 30 days of Eddie Reese's college coaching career. Starting March 1, www.chuckwarnerbooks.com is offering a package deal for both the ***EDDIE REESE: Coaching Swimming, Teaching Life*** audio book and the softcover book ***Four Champions, One Gold Medal***, at an incredible **90% off** the Amazon price for both of these books (Amazon: \$244, us: just \$22.45). This is also a **50% markdown** from www.chuckwarnerbooks.com where these two books normally retail together for \$44.90 (Audiobook \$14.95, Four Champions \$29.95).

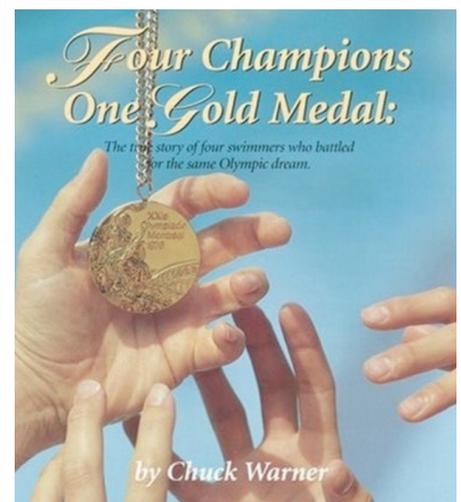
Do you have a "swimming library?" Why not always have access to the Eddie Reese Audio Book on your phone/ computer and dive into one of the best swimming stories ever known, leading up to the 2024 NCAA's?

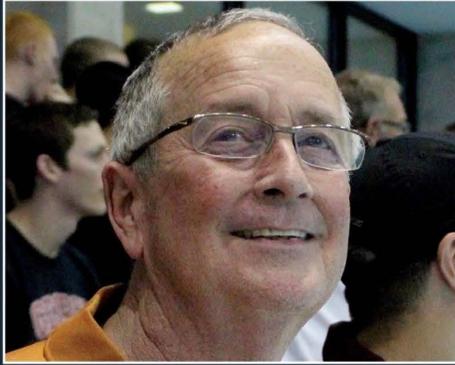
Eddie Reese has said about ***Four Champions***: "Parents, swimmers and non-swimmers can learn some of life's tougher lessons from this book. If you are not connected with *THE SPORT*, just pass over all the numbers and enjoy a special real story about four greats of their time and sport. If you are caught up in the world of swimming, read every word and number and then write these four guys and thank them for what they did."

Former USA National Team Director Dennis Pursley describes ***Four Champions***: "I have read many books on the sport of swimming, but this is the first in the 'can't put it down category' ...a '**must read**' for anyone interested in the health and future of the sport of swimming."



Scan this QR code to go directly to order!





EDDIE — REESE —

COACHING SWIMMING, TEACHING LIFE



CHUCK WARNER
with Dana Abbott

Available **NOW** in
the NISCA STORE

www.niscaonline.org

EDDIE REESE
COACHING SWIMMING,
TEACHING LIFE
BY CHUCK WARNER
WITH DANA ABBOTT

***The AUDIOBOOK version of ERCSTL is available NOW at www.eddiereesebook.com, Amazon, Blackstone, Audible, but get it FREE with purchase of hardcover at www.areteswim.com



EDDIE'S LAST HURRAH

The Final Season

A Continuing Commentary...

Eddie Reese's first season at Texas was 1978-79, 45 years ago. He has announced his retirement following this, the 2023-24 season. The Cambridge Dictionary defines "last hurrah" as a person's final effort after a long period of work. We can't imagine Coach Reese *-totally-* walking off a pool deck, and assume he will continue guiding and imparting wisdom and advice long after he no longer mans the UT helm in Austin, but this will be his final season as the Longhorns' head coach.

The authors are going to follow the 'Horns, meet by meet, and offer commentary after each competition. No one can truly fathom the impact of the genius and humor that has guided Eddie's thoughts and actions if they don't have a deeper understanding and exposure to his entire life, and the best way to do that is to read the book, **EDDIE REESE: Coaching Swimming, Teaching Life**, and one can't *-read-* the book without *buying* the book!



Scan QR code to go to
"Last Hurrah" Commentaries

These commentaries are available at
www.eddiereesebook.com/commentary.

How To Improve Your Leadership Skills as a Coach

Kevin Pierce

A strong coach can inspire and motivate their athletes, build strong relationships with team members, and create a positive team culture.

A coach's leadership skills play a crucial role in the success of their team. A strong coach can inspire and motivate their athletes, build strong relationships with team members, and create a positive team culture. Today we will discuss some ways that coaches can improve their leadership skills.

Develop Strong Communication Skills

Effective communication is a key component of leadership. Coaches should strive to develop strong communication skills, including active listening, clear and concise speaking, and effective feedback. Good communication helps build trust and respect between coaches and athletes and fosters a positive team culture.

Lead by Example

Coaches should lead by example and model the behavior they expect from their athletes. This includes demonstrating strong work ethic, sportsmanship, and a positive attitude. When coaches set a good example, they inspire their athletes to do the same and create a culture of excellence.

Build Relationships with Athletes

Coaches should take the time to build strong relationships with their athletes. By getting to know their athletes as individuals and understanding their goals and motivations, coaches can better tailor their coaching approach and provide individualized support. This helps athletes feel valued and supported, and fosters a positive team culture.

Continuously Learn and Grow

Great leaders never stop learning and growing. Coaches should seek out opportunities for professional development, whether it's attending coaching clinics or reading books and articles on coaching and leadership. By staying up to date with the latest trends and techniques in coaching, coaches can provide the best possible support for their athletes.

Foster a Positive Team Culture

Coaches should work to create a positive team culture that values teamwork, respect, and sportsmanship. This involves setting clear expectations for behavior and holding athletes

accountable when they fall short. A positive team culture helps build a strong sense of community and can inspire athletes to work harder and achieve more.

Provide Individualized Support

Every athlete is unique and requires individualized support to reach their full potential. Coaches should strive to understand each athlete's strengths and weaknesses and provide personalized coaching to help them improve. This helps athletes feel valued and supported and can lead to better performance.

By focusing on these areas, coaches can inspire and motivate their athletes to achieve their full potential and create a culture of excellence.



Image courtesy of depositphotos.com

Read more from NISCA Education Chair Kevin Pierce and subscribe to his stimulating and encouraging newsletters here:

<https://kevinpierce.substack.com/>



Harnessing the Immunity-Boosting Magic of Zinc

Perfect for Athletes and Cold Warriors

Dawn Weatherwax

The Importance of Zinc for Immune Function

Zinc is a crucial trace element that plays a significant role in carbohydrate and fat metabolism, immune function, growth and development, and wound healing. It's worth noting that taking zinc supplements can shorten the duration of common cold symptoms. Since the human body can't produce zinc, it relies on dietary zinc absorption from food and supplements. In this article, we'll delve into how zinc impacts the immune system.

Foods High in Zinc

1. Oysters - 32 mg per six medium shelled
2. Beef - 7 mg per 3-ounce cooked
3. Pumpkin seeds - 3 mg per ounce
4. Cashews - 1.6 mg of zinc per ounce
5. Chickpeas - 1.3 mg of zinc per cup
6. Spinach cooked - 1.4 mg per cup
7. Mushrooms cooked - 1.4 mg per cup
8. Yogurt - 1.4 mg per cup
9. Cocoa powder - 0.3 mg per Tablespoon
10. Pork - 2.9 mg per 3-ounce cooked

The Importance of Maintaining Good Health

Athletes who complete 87% of their training are seven times more likely to achieve their performance goals. Unfortunately, 80% of athletes fall sick or sustain injuries that prevent them from achieving this level of consistency. Success in training is heavily reliant on consistency. Any breaks in routine can impede progress. Zinc consumption within 24 hours of experiencing cold symptoms has been proven to reduce its effects by up to 50%.

Guidelines for Zinc Dosage and Administration

When it comes to taking elemental zinc, it's important to follow the recommended dose of 30-50mg twice a day. Here are some key tips to keep in mind:

- Take the recommended dosage twice daily in the form of lozenges, tablets, or capsules.
- For smaller dosages (10-20mg), elemental zinc can be taken up to 5 times a day.

- Evidence suggests that doses over 100mg/day do not provide any additional benefit.
- Although food should always be the primary source of nutrients, supplementing with zinc is ideal for this amount. It's recommended to take supplements with food when doing larger dosages.
- It's advisable to pair zinc supplements with 250-500mg of Vitamin C twice a day.
- Zinc supplements may interact with certain medications such as antibiotics. Taking zinc supplements 2-6 hours away from antibiotics may help with absorption of both.
- Medical guidance is recommended when taking zinc supplements, which should complement other standard practices and not interfere with illness assessment and management.

Length of Time

Here are some important considerations regarding the length of time you should take Zinc:

Refrain from taking this amount of Elemental Zinc for more than 5-14 days, even if symptoms persist.

For Elite and Pro Athletes:

It is critical that athletes who undergo drug testing choose a brand that is NSF-Sports Certified or Informed Choice Certified. This will enable them to verify which lot numbers have been tested.

The Importance of Maintaining Good Health for Athletes

Athletes must prioritize their health to avoid falling ill. Simple measures like maintaining good hygiene, getting enough sleep, consuming a balanced diet, and avoiding contact with sick individuals are key.

In conclusion, an athlete's success is heavily dependent on their health and they must take every possible precaution to stay healthy. By doing so, they can train and perform at their best, ultimately achieving their goals and reaching their full potential.

50mg of:	= Elemental Zinc
Zinc Oxide	40 mg
Zinc Acetate (most research)	15 mg
Zinc Citrate	15 mg
Zinc Sulfate	11 mg
Zinc Gluconate	7 mg

There are multiple forms of zinc used in supplements. Refer to 'elemental zinc' when calculating dosage



Sample Menu: 3000-3500 Fuel Units

Breakfast: Oatmeal with Fruit and Nuts (2.5mg elemental zinc)

Cook 1.5 cups of oatmeal (225g) according to package instructions.

Top with 1/2 cup mixed berries (75g), 1/3 cup chopped walnuts (40g), and 1.5 tbsp honey (31.5g). Mix well

Drink 16-24oz of water or preferred beverage with added electrolytes (e.g., a pinch of salt or an electrolyte supplement).



Lunch: Turkey and Avocado Wrap (3mg elemental zinc)

Lay out 2 whole wheat wraps (120g) and spread 1.5 tbsp mustard (22.5g) on them.

Add 6 oz sliced turkey (168g), 1 avocado (200g), and 1.5 cups mixed greens (45g).

Roll up the wraps

Drink 16-24oz of water or preferred beverage.



Snack: Greek Yogurt with Honey, Nuts, and Electrolytes (1.5mg elemental zinc)

Mix 1.5 cups non-fat Greek yogurt (340.5g) with 1.5 tbsp honey (31.5g) and 1/3 cup chopped walnuts (40g).

Drink 16-24oz of water or preferred beverage with added electrolytes (e.g., a pinch of salt or an electrolyte supplement).



Dinner: Grilled Salmon with Quinoa and Veggies (4mg elemental zinc)

Grill 4-8oz salmon (226g) until cooked through.

Cook 1.5 cups quinoa (277.5g) according to package instructions.

Steam 1.5 cups broccoli (225g) until tender.

Drizzle 1.5 tbsp olive oil (21g) over the quinoa and veggies.

Serve salmon with quinoa and veggies.

Drink 16-24oz of water or preferred beverage.



Snack: Almonds and Carrot Sticks with Hummus (5.5mg elemental zinc)

1/3 cup (43g) of pumpkin seeds as a snack.

Dip 1.5 cups carrot sticks (192g) into 3 tbsp hummus (45g).

Drink 16-24oz of water or preferred beverage.



Enjoy your meals and have great and healthy zinc-rich snacks!

Building A Better Athlete through Sports Nutrition

DWSNA

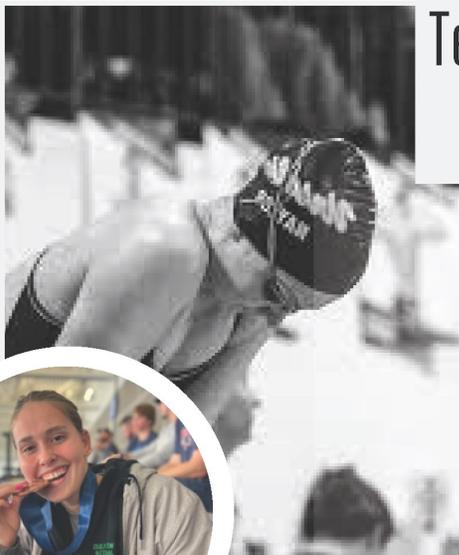


www.DawnWeatherwaxSportsNutritionAcademy.com

"Building a better athlete by optimizing every stage of growth, health, and athleticism through sports nutrition that best fits the athlete. Aimed to parents & coaches of athletes aged 6-18. We do this by being:

- A ONE stop resource you can trust
- Know what, when & how much to eat by providing actual menus with nutrient timing to match fuel needs in our Online Nutrition programs:
 - **WHAT TO EAT & SUPPLEMENT FOR DAILY, SWIM MEETS, TAPER.....**
- Understand how much fuel is needed to have consistent energy, stay healthy and avoid plateaus.
- Provide a way for them to thrive by maximizing growth, health & performance at the same time
- Questions via chat!
- SO MUCH MORE!

Check for Team Specials!



EXPERT
Team Nutrition
SUCCESS



Athletes' Stories

Grant H -Gained over 55lb of lean weight, Top 10 in the country. Added nutrition age 14yr.

Mariah D.-Gained 25lb of lean, got leaner, Top 10 in the country. Added nutrition age 13yr.

Emma D-Got leaner. Won State!
HS-13yr. Tired & barely improving to Rocking it at every meet, growing:



An Ode to Kicking, Parts I & II

Andrew Sheaff - www.coachandrewsheaff.com

An inadvertent error printing our last issue unfortunately omitted the last page of "Ode I&II"; we are reprinting in its entirety for your convenience.

PART I

Everyone seems to love kicking. 'The legs build the stroke' and all that.

There seems to be a blind acceptance that kicking is really important, and we should be doing a lot of it.

However, there have definitely been swimmers who have focused a lot on kicking, and not performed any faster. There are also coaches that have done no kicking, and had swimmers go really fast.

WHY?

I'd like to take a look at what we know about kicking to be true, and then use that information to draw conclusions about what we can do in training to improve performance efficiently and effectively.

As we'll see, there are a lot of situations where a focus on kicking makes a lot of sense. One of the aims is to examine what these situations look like, and how our strategies might change depending on what we see in front of us.

While these ideas might not change what you do, they may change why you make certain decisions, and change when you choose to implement kicking. A thorough understanding can help you solve problems when your initial approach isn't working.

Instead of deciding what to do and then justifying why it works, we're going to build effective training practices from first principles. While many of these ideas have been demonstrated or validated in research contexts, we're going to stick with what is self-evident, and base our conclusions on what we see happening every day.

Careful observation combined with some simple logic can go a long way towards making better decisions.

Two quick notes- this article series is primarily about flutter and dolphin kicking in the context of freestyle, backstroke, and butterfly. It is not about underwater travel, and it is not about breaststroke kicking. Those two skills have different considerations and require a different approach.

Secondly, the easiest way to get visuals for everything discussed is to get on youtube.com and WATCH championship footage of world class athletes. NBC Sports and Universal Sports both have videos of the majority of World Championship and Olympic finals over the past decade. Almost all of these clips have underwater footage. Watch it at full speed and in slow-motion. SEE what is going on.

Some Observations

Almost without exception, swimmers can swim faster when kicking than with the use of the arms alone. This has been demonstrated in research and in the experience of just about every coach. While there may be the occasional swimmer that can pull faster with a buoy than they can swim, a large part of that discrepancy is the flotation aid of the buoy.

The difference tends to be about a 10% improvement in performance when swimming while kicking as opposed to swimming with the arms alone. This is obviously significant. As a result, swimmers kick during races, and they kick vigorously and consistently.

However, when you combine the respective speeds of kicking and pulling, they add up to more than the speed of the full stroke swimming. In terms of propulsion and speed, something is lost when full stroke swimming is performed.

Since swimmers have started to compete, coaches and athletes alike have wondered, how much do the legs contribute to swimming?

I'm not going to answer that question.

As referenced above, based upon some pretty simple testing that anyone can do, adding the legs improves speed by about 10%, with small differences between swimmers. This has been demonstrated on multiple occasions in highly controlled settings using the best technology available to us.

However, this doesn't tell us the relative contributions of the arms and legs. It just tells us that swimmers are faster when they kick, and that's why champion swimmers have a vigorous kick.

It's faster.

The contributions don't matter. Swimmers should kick if they want to go faster.

What I would like to explore is *WHY*, and what that might mean for how we develop the legs for speed.

HOW

Swimmers go faster when they add the legs. Here are three potential ways that kicking can improve speed.

Direct propulsion

As anyone who has ever used a kick board can tell you, propulsion can definitely be created by the legs. If you've moved for-

wards, you've created propulsion. It's definitely a strong possibility that at least some swimmers can create direct propulsion when they add the legs.

This is certainly true in breaststroke, highly likely in butterfly, and definitely possible in freestyle and backstroke.

Wake disruption

Due to the wake that is left behind a swimmer's bow waves, there tends to be a lower pressure gradient behind the swimmer than in front of the swimmer. Lower pressure tends to 'pull' the swimmer back, slowing velocity. Kicking may disrupt the wake, allowing for an improvement in velocity. It's uncertain as to what degree the kick needs to be used to create this effect.

Better kicking is often cited as a tool to increase body alignment. At slow speeds, the legs tend to sink. However, this effect tends to disappear once swimmers reach common training and racing speeds. However, it's possible that strong, downward kicking actions can create force that lifts the lower half of the body, creating a more horizontal alignment.

While the legs may not tend to sink due to torque on the legs, there is evidence that it's the pulling action of the arms that causes the legs to sink. When swimmers want to swim faster, they pull harder and faster. The harder and faster they pull, the more they will cause the legs to sink. To counteract these increasing forces, swimmers need to create more force through the kick. Faster swimming requires better kicking.

Counterbalancing torques

With every action there is an equal and opposite action. When using the arms, there are linear, lateral, and rotational torques being applied during all pulling and arm recovery actions. These torques can potentially disrupt body alignment. In addition, appropriately timed kicks can help create additional torque to help swimmers pull through the 'weaker' phases of the arm actions. It's almost like a quick turbo booster than is quite effective when timed right.

Watch any swimmer move through the water with a band around the ankles. The fluidity is lost. This is because the legs are unable to counteract the negative aspects of the arm actions. There is a loss of rhythm and alignment, and it takes much more work to get through the 'hard' parts of the arm action. This adds up to more resistance, less propulsion, and slower swimming.

Effective kicking can also stabilize the trunk. This accounts for some of the loss of fluidity seen when swimming with a band. The legs, and consequently the hips, are not stabilized and the torso starts to move, especially when stroke rates start to climb and there is more torque through the body. A weak kick can lead to an unstable torso, compromising body position and force production. A driving kick keeps the hips and the torso stable, in spite of the actions of the arms.

This stable torso allows for smoother (not more!) rotational actions. This facilitates faster recoveries with less lateral devia-

tions. As importantly, a stable torso allows for stronger pulling actions. Better alignment and more power are going to allow for faster swimming. This starts from the kick.

(As a side note, for those swimmers with really strange kicking actions, these are likely compensations for errors elsewhere in the stroke. Trying to directly change the aberrant kick is not going to be successful unless the underlying issue is addressed.)

Timing

The observations about counterbalancing torque lead to an issue of timing. Effective kicking is about timing. *When* kicks happen is equally as important as to *how* they happen. It is about the integration of the legs and the arms, with force being transferred through the torso from one limb to the other. The integration of the whole body is as important as the effectiveness of the actual kicking action.

As one leg is kicking at a time, each kick is going to create a rotational torque around the body. When timed effectively with the arm action, this rotational torque can help to 'pop' the hip over to the other side. While the hips are going to rotate due to the pulling and recovery actions of the arms, an effectively timed kick can help snap the rotation by helping to reduce the inertia of the kick.

If you watch champion swimmers in slow motion, you can see how when a leg kicks down, the torque travels up the leg into the hip and it subsequently pops up. At the same time the opposite arm is reaching forward at the front of the stroke. This is all part of the shift from one side to the other.

An effective two-beat is going to be timed so that each kick happens at an optimal time to rotate the hips. A full six-beat kick will also have one kick per side. The remaining two kicks will counterbalance lesser torques present throughout the stroke cycle.

Most individuals settle into 6-beat and 2-beat kick timings, with a few further combinations that show up with less frequency. This is because these two major kicks serve to facilitate the side to side rhythm of freestyle. Most swimmers switch to a 6-beat kick to retain this rhythm while also gaining the other benefits of kicking provided by a more significant kick (direct propulsion, wake disruption, hip stabilization, etc).

In backstroke, the same timing is present, although it is now an upkick that is facilitating the rotation of the hips, rather than a downkick. Further, almost all backstrokes retain a 6 beat kick as this is more conducive to the oppositional nature of the stroke (the arms are typically moving in opposition to each other).

Butterfly is a two-beat timing, with some swimmers omitting the kick upon entry of the arms or the kick upon exit of the arms. These kicks also serve to balance out the torques of the arms, move the hips (typically vertically), and allow for more effective arm actions. Again, these effects are magnified when timing is optimized.

For all strokes, the stroke rate of the arms is tied to the stroke rate of the kick. If the kick rate cannot keep up the stroke rate,

the stroke rate is going to be limited by how fast the legs can complete the kicking cycle. Failure to keep the kick and arm cycles in rhythm (synchronization) will result in a dramatic loss of efficiency and speed. Swimmers of reasonable skill level tend to avoid this situation

Ineffective timing can be improved. By simply changing WHEN kicking happens relative to the arms, we can improve kicking effectiveness without any change in leg fitness or kick quality. Great kicking, at least when it comes to swimming fast, is a much of a timing issue as anything else.

Simply kicking on a board isn't going to solve this problem.

Some conclusions so far-

1. Kicking may reduce drag through disrupting the wake that flows into low pressure areas behind a swimmer. However, exaggerating the kick will create more drag than it reduces.
2. Kicking serves more functions than just propulsion. It is a critical component in counterbalancing the forces created by the upper body, reducing drag and magnifying force production.
3. If swimmers are unable to effectively time the kicking action, not only will their kick be ineffective, they will swim slower than possible as they are working 'against themselves'.
4. Trying to 'overkick' is not efficient, as kicking more than rhythm and rate allows for disrupts the fundamental rhythm and timing of the strokes.
5. If the legs are unable to sustain the kicking rhythm required to swim at the desired stroke, the arm cycle will slow to keep maintain timing, or swimmers will lose their timing. Both situations result in a loss of velocity.
6. While propulsion is possible from the legs, it is only possible up to a point before timing is impaired and drag creation is increased.

Clearly there is a limit as to how hard someone can kick before it becomes counterproductive. It is about fitting the kick into the rhythm and timing of the stroke. It is about optimal as opposed to maximal.

However, swimmers can get some propulsion from their kicking. In part II, we'll take a look how swimmers can improve the propulsion they can get from their kick, while ensuring that the kick still functions as an effective component of full stroke swimming.

PART II

In part I, we started our exploration of kicking and introduced the idea that one of the most important functions of kicking is to counter-balance the forces created by the upper body. An implication of this idea is that there is an optimal way to kick, and more is not necessarily better.

However, that's not to say that propulsion is not created, and that it's not possible to increase the propulsive contribution of

the kick. The question is HOW do we facilitate this improvement, as some strategies are going to be a lot more effective than others.

Getting Propulsion

With the above observations in mind, we can conclude that the legs do something and they must be conditioned to kick throughout a race.

What if we want to increase propulsion?

Let's assume we can get propulsion from flutter kicking during freestyle and backstroke. Here are the limitations in how we can get more out of the kick.

Kick at a faster rate. However, you can only move the legs so fast before the timing is disrupted. Because the timing of the kick is directly tied to the arm action, you can't kick more times per second. While you could outkick the arm action, this is going to disrupt rhythm and timing, and that is going to cause more problems than it will solve. To get more propulsion, you need to find another solution, unless the arms are going to move faster.

You can move the legs through a greater range of motion and keep the same kick rate. If you move the legs through a larger range of motion in the same amount of time, you should be able to create more propulsion. This sounds good until you consider that moving the legs through a greater range of motion means dropping the feet deeper in the water.

While this might create more propulsion, it will definitely create more drag. It probably won't create more propulsion; it definitely will create more fatigue. A bigger kick won't work, either.

An important implication so far is that swimmers can only kick so fast and so hard and still swim within the rhythm of the stroke. Enhanced fitness will not allow swimmers to 'out kick' their stroke. However, enhanced fitness can be beneficial in other ways, as we'll see below.

If swimmers want more propulsion, they'll need a strategy that is different than kicking harder. They'll need to kick better.

Here's how.

Improve ankle mobility. Swimmers are pretty limited in their ability to kick faster or kick bigger. There is a pretty narrow window in terms of how much and how fast they can kick. The only real solution is to kick 'better' and the easiest way to kick better is to improve ankle flexibility. When accomplished, the foot can be better oriented to move water backwards for longer periods of time, and it can be done in a way that reduces the bend in the knee, which limits drag.

It should come as no surprise that better kickers have really flexible feet and ankles. They simply get more out of each kick.

Improve knee extension. Better kickers tend to have excessive knee extension as well. This is what people refer to as 'double-jointed' knees. While this can lead to better kicking, I HIGHLY discourage pursuing increasing this range of motion. It is largely genetic and attempts to change this will likely hurt swimmers.

And it won't work.

Improve kicking 'skill'.

Better kickers have more a wave like or whip like action to their kicking. This wave starts at the hip and flows down through the leg to the ankle. This can be seen visually and has also been demonstrated mathematically. Poor kickers have a more knee-dominant action to their kicking. Importantly, the ability to effectively whip the kick is dependent on ankle flexibility.

To get more propulsion, we can't necessarily kick harder, we have to kick better. The way to kick better is to improve ankle flexibility, which allows swimmers to kick more from the hip in wave-like action. Otherwise, they're forced to kick from the knee in order to hold water with the feet.

If this is the case, and we want to improve the propulsive aspect of the legs, we're going to need different strategies to make that happen. We're going to need to focus on better, as opposed to simply more. If all we're after is just conditioning, we can simply kick.

Are Fast Kickers Fast Swimmers?

When considering the importance of kicking, one of the common arguments is that great kickers are great swimmers.

This is stated by many coaches to defend the role of kicking in a swimming program. While there are definitely significant exceptions, there seems to be a relationship between individuals who are good at kicking with a board and those that are good at swimming fast.

Assuming this is the case, there are two main explanations for this phenomenon. The first is that being better at kicking definitely improves swimming performance. The implications of this observation are pretty obvious. Keep kicking!

However, there is an alternative explanation. The factors that make swimmers good at swimming also make swimmers good at kicking. What are some of those factors?

Great body alignment. Some vessels are built for speed, and some vessels are...not. Swimmers that slip through the water when swimming are going to slip through the water when they kick, with or without a board. They aren't necessarily better at creating force. They're much better at reducing resistance. An example of this is the swimmer who can't do a pull-up yet qualifies for Olympic Trials. No force, just great alignment.

The problem with making this mistake in attributing causation is that all the kicking in the world won't improve alignment. If you want to improve kicking and swimming, and the underlying driver of performance is alignment, you need to do something very different than kicking.

Great ankle flexibility. Flexible ankles allow for swimmers to better use the legs to create propulsion, facilitate rotatory forces, and to counter balance the torques created by the arms. A more flexible ankle is going to be much more effective rudder.

Importantly, doing more kicking isn't necessarily going to improve this factor. While it may result in faster kicking, you haven't changed the factor that is impacting swimming performance, flexible ankles. That factor has stayed the same.

Great water manipulation. Just like better swimmers can better manipulate the water with their hands, they can likely do so with their feet. The same natural tendencies will show up in the kick. Better swimmers can be better kickers for the same reason, they can manage the flow of the water with their feet just as they can with their hands. The same skillsets are rewarded in both situations.

So, which is it?

I don't know.

The truth is probably somewhere in the middle in that both factors play a role to some extent.

Regardless, it's probably not about how good a swimmer is at kicking, but how much they can improve their kicking over time. I suspect that getting better at kicking, regardless of the individual's starting point, improving kicking performance can potentially lead to improvements in swimming performance. However, whether these improvements translate into faster swimming is going to depend on the context.

Conclusion

Increasing propulsion is possible, but it's probably not going to come from simply kicking harder. Swimmers need to learn to kick better, either by improving the effective range of motion through the ankle, or simply executing the kicking action with more skill. We'll explore how to do both later on in this series.

Let's assume they a swimmer has worked on their kicking and are now a faster kicker. How do we know if that swimmer is going to SWIM faster? We'll explore the various considerations in part III in the next issue of the NISCA Journal!



Photo by Taylor Brien, Swimming World Magazine

An Ode to Kicking, Parts III & IV

Andrew Sheaff

www.coachandrewsheaff.com

In part II, we explored the ways swimmers can kick faster. In this article, we're going to explore what determines if improvements in kicking will lead to improvements in swimming. If we understand these factors ahead of time, we can decide whether pursuing faster kicking is worth the investment. For some individuals, it will absolutely be worth it. For others, they may be better off spending their time developing other abilities.

PART III

Faster Kicking = Faster Swimming?

I just got better at kicking, so what? What do improvements in kicking reflect?

(The following is about flutter and dolphin kicking on the surface. Considerations for underwater dolphin kicking and breast-stroke kick are below).

Here are some scenarios where improved kicking may lead to improvements in swimming performance, and some situations where it may not. Not only is this valuable for reflecting on what happened, it's also critically important to reflect on where time may be best spent in the future when deciding how much kicking should be included.

Probably Not

The following are situations where improved kicking is not likely to result in improved swimming. In these situations, performance is limited by other factors and failure to address these factors will prevent improved kicking performance from leading to improved swimming performance. However, if these issues are addressed, better kicking can and will lead to faster swimming.

Timing Issues

If a swimmer is not effectively using their kick due to poor kick timing within the context of full stroke swimming, swimming performance may not be improved. Better kicking is simply putting a bigger engine into a car the swimmer still doesn't know how to drive. Until the kick is used effectively, it's not going to enhance performance.

If timing is an issue, swimming may not reflect any improvement into kicking performance. The focus should be on better integration of the kick into the whole stroke.

Kicking Skill

If swimmers are simply kicking hard when they swim, they're going to be wasting energy. Propulsion is not going to be improved, timing is not going to be improved, and stabilization is not going to be improved. This is especially true if swimmers are kicking from the knees, which is going to increase resistance instead of reducing it.

If swimmers aren't kicking well, kicking poorly with more effort and intensity is going to make the situation worse. Surprisingly, kicking may need to be taught. There is a skill to it, and it takes times to develop.

Sufficient Fitness

If swimmers have sufficient fitness to sustain the legs for the duration of their races, and the legs are fit enough that they don't take away energy from the upper body, more fitness is not going to result in faster swimming. At some point, the legs can only move so fast for so long. Once this limit is reached, performance is not going to be limited by the legs, and enhanced leg fitness won't necessarily improve performance.

However, if upper body outputs are improved and swimmers learn to swim at a higher stroke rate, an improvement in leg fitness will be required, and a focus on kicking will become productive.

Get On It!

Fortunately, there are some situations where, based upon what we understand about kicking, we can expect improvements in kicking to lead to improvements in swimming. It's important to consider whether your swimmers are in these situations to inform how much time and effort should be devoted to kicking. The more these contexts apply, the more kicking can and should be emphasized in training.

Enhanced Effectiveness

If improvements in kicking speed reflect an improvement in kicking effectiveness, this increase in propulsion should transfer to improved performance. Swimmers are getting more out of each kick without increasing the kick rate or the kick range of motion.

Increased effectiveness will come about as a result of increased ankle mobility and a better whip/wave-like action through the kick. While these outcomes may result from simply performing kicking, directed efforts will yield better results. These must be addressed specifically through mobility programs and a focus on



HOW swimmers are kicking.

Because the improved ankle flexibility and improved kicking skill lead to improvements in both kicking and swimming, improvements in kicking performance should show be reflected in faster swimming. It should transfer.

Enhanced Fitness

If swimmers are able to kick faster due to enhanced fitness, it could improve performance in one of two ways. Some swimmers are unable to sustain their legs for the duration of a race, and this results in a loss of stroke rate or loss of stroke timing. For those swimmers, improved leg fitness can improve race performance due the ability to maintain rhythm and timing.

Improved leg fitness can enhance swimming performance in another way. Let's assume that the legs stay engaged and don't fall off during a race, as they're able to keep up with the arms. As the leg muscles are very large, they require a lot of energy and oxygen to sustain performance.

As the body has a limited ability to supply oxygen and create energy, the upper and lower body will compete for these resources. If fitness of the lower body is improved, it can reduce their energy requirement, or make a given energy requirement more sustainable. This 'frees up' energetic resources that can be used by the upper body to create more propulsion and directly improve speed. The legs become less of a 'metabolic drain'.

Enhanced Repeatability and Recovery

In multi-round, multi-event, multi-day competitions, it's not about what you can do fresh. It's about what you can do AFTER all the other events. In the Beijing Olympics, Michael Phelps didn't need to swim the fastest 100m butterfly. He needed to be the fast 100m butterfly after ALL the other races he had to swim.

If swimmers are able to perform more kicking of a high quality, with more frequency, it indicates a that the legs are better able to recover, and they are better able to REPEAT performances. As discussed above, a loss of kicking action can result in losses in rhythm, timing, and speed.

Improvements in kicking speed and kicking consistency can reflect the ability to perform at high levels repeatedly during extended competitions. The legs must be fit not only to perform, but to perform over and over again. This needs to be trained, and kicking can be a more effective tool than simply swimming more.

The legs don't have to ready for one race. They need to be ready for every race.

Enhanced Fitness and Effectiveness

If the swimmer has a more effective kick due to better ankle mobility and/or better wave like action, they will hold more water per kick. If they're able to hold more water per kick, it will require more force and more energy to create and sustain that kick.

In this case, increases in kicking effectiveness improve swimming directly, and they also allow for increases in fitness to make a bigger impact as there is now a higher ceiling for fitness improvements to positively affect performance. There is a larger demand and thus a larger requirement to sustain that demand. As well, that demand can also put a bigger drain on full-body resources.

If swimmers are kicking faster, it can be the result of improved kicking effectiveness and fitness, and this situation will positively improve swimming performance most of all.

Conclusion

There are many situations where improvements in kicking performance are going to improve swimming performance, either directly or indirectly. It's important to understand WHY kicking will lead to improved performance as this can inform coaches about the best STRATEGIES to improve kicking performance.

If repeatability is the key trait that needs to be developed, this will require a different strategy than improving kick effectiveness. A given strategy may work brilliantly in the first situation and hopelessly in the second. Further, there may be come situations where a large focus on kicking is simply not relevant, as other factors are a much larger limitation on performance.

With understanding, we can move toward effective action.

In part IV, we're going to explore the worst-case scenario. We're going to assume that kicking DOESN'T improve performance. Yet we'll examine why there are many situations where a focus on kicking STILL makes sense. Stay tuned.

A caveat

Improving in underwater dolphin kicking speed (NOT necessarily dolphin kicking on the surface) will directly transfer to improvements in racing performance. This is because underwater dolphin kicking is the same skill that is performed in competition. There is direct transfer.

Improvements in breaststroke kicking will also likely transfer to improved performances, provided these changes can be integrated into the stroke. This is the case because the breaststroke kick is clearly propulsive during swimming actions. Again, the transfer is direct.

However, body positions are slightly different when using a board and kicking while swimming breaststroke. Fitness gains should transfer, and only slight changes in technique will be required. Sufficient breaststroke practice should account for these discrepancies.



PART IV

In part III, we examined the situations where faster kicking results in faster swimming performance, as well as the situations where faster kicking may leave swimming performance unchanged. Knowing the difference can help coaches decide how to allocate their practice time, as well as more effectively design the type of kick training they do choose to implement.

In this article, we're going to assume that kicking DOESN'T improve performance. A logical conclusion would be that kicking is a waste of time if it doesn't improve performance. However, we're going to look at the arguments for why kicking DOES make sense in some situations, even if direct performance improvements aren't going to happen.

Why Kick, Even if Kicking DOESN'T Improve Performance?

I'm not saying kicking doesn't improve performance.

But let's *assume* it doesn't.

What are some reasons you might want to include kicking work, even if it doesn't directly improve performance?

The primary reason is that kicking is still fitness training, and in conjunction with regular swimming work, it has some unique benefits in particular circumstances. If those circumstances apply, adding extra kicking makes sense.

The legs are BIG muscles. As discussed above, the legs are going to be used in competition, and these muscles are large. The legs are very large muscles, and these large muscles require the production of a lot of energy to fuel high-intensity muscle contractions. To produce a lot of energy, these muscles require the consumption of a lot of oxygen. The body can only intake and process a certain amount of oxygen. As intensity levels climb, oxygen demands increase as well. The body must be conditioned to meet this demand to avoid excessive fatigue in competition.

At some point, oxygen demands of the legs will compete with oxygen demands of the arms. If there is insufficient oxygen, something has to give. The tempo is going to drop off, or the timing is going to fall apart. In either situation, speed is going to drop off.

The legs need to be fit enough to continue to kick at the desired stroke rate for the duration of the race or there will be a loss of velocity. Even if kicking provides no direct propulsion, it serves a critical function in counterbalancing forces created by the arms. If these functions cannot be sustained, performance will suffer. Regardless of how the legs are impacting performance, they create a large metabolic cost and swimmers must be conditioned to sustain the legs throughout the duration of the race.

We can also use this oxygen demand to our advantage. Because the legs consume a lot of oxygen and energy, training the legs can be used to effectively train the cardiovascular system (heart, lungs, etc.). This work can be done in addition to regular swim training.

There are no negative effects on technique. When swimmers get sufficiently fatigued, technique can begin to suffer. As swimming performance is largely driven by technical skill, it doesn't make much sense to spend a lot of time practicing bad habits.

Once swimmers reach the point of technical breakdown, they can still develop fitness qualities by focusing on kicking. As there is much less of technical component to kicking, there can be a much larger emphasis placed on developing fitness through

the legs. For coaches that prefer to protect skill and minimize fatigued swimming, emphasizing kick training can be an effective way to simultaneously improve fitness.

It gives the upper body a break. The shoulders are relatively fragile. The small muscles responsible for maintaining control of the joint can become fatigued, and this fatigue can eventually lead to injury. If you can't swim, you can't get better. At some point, shifting some of the fitness work to the legs can help to develop total body fitness, while reducing load on the upper body.

It's a safe and effective start to the season. For swimmers returning from a layoff, we need to be careful with the shoulders for the same reasons described above. Kicking can be addressed much more aggressively earlier in the season, with much less risk of injury. The legs are simply more robust. Developing these large muscles early can also be valuable for later in the training year.

It's an effective plan B. Sometimes swimmers can't swim as much as we'd like due to upper body injury. However, they very well may be able to kick, and kick a lot. This is a great option for maintaining or improving fitness while the upper body heals.

If swimmers are limited in the total volume they can swim, it makes sense to perform much of that work with specific training speeds and loads. The more general fitness work, and even warm-up and warm-downs, can then be performed through kicking activities. This saves the upper body for the most important work. Importantly, it keeps injured swimmers feeling like they are progressing towards something.

Conclusion

Regardless of the direct impact of kicking on performance in the pool, kicking can and should be an important part of the training program. It can be used to develop the cardiovascular system in a general manner, it can allow for further training when technical skill has begun to erode, it can give the upper body a break, it's a great transition early in the season, and it's an effective as an alternative strategy when needed.

For all of these reasons, kicking should be included in a training program. In Part V, we'll explore how to train the legs in a comprehensive manner.



*Katie Ledecky warming up at Rio Olympics
Courtesy Swimming World Magazine*

Sportsmanship and Life Lessons

Michael J. Stott

As an observer of modern day life and an athletic coach of modicum success I have been wondering where today's younger athletes get their ideas of sportsmanship. In search of an answer I polled a number of NISCA colleagues whose honest responses made me realize how far our culture has strayed from the foundation drilled into me as a grade schooler.

Francis L. Rathke was my physical education teacher at Harper Elementary School in Wilmette, Illinois. A varsity lacrosse player (class of 1950) at Springfield College he absorbed and dispensed old school values. He answered to "Coach" and did his utmost to school us in the non-negotiables of sportsmanship and fair play.

To say that Coach Rathke was all in on his golden rule principles would be a vast understatement. Best I can tell when he arrived in Wilmette (circa 1951) he was given responsibility to teach physical education at three elementary schools (Logan, Highcrest and Harper). In short order he established an intramural program in five sports at each for boys in fifth and sixth grades. While he taught "gym" to both genders the only competitive activity open to girls was track at annual field days.

My father traveled extensively so he was in large part an absentee parent. Coach Rathke, however, was available five days a week. Listening to him share homilies and life lessons was like listening to God. I became a true believer in all the virtues clean living and fair play offered. By the time I got to New Trier Township High School and Dave Robertson's mantra of "Championship Living" I was in for the long haul.

Coach Rathke didn't do anything half way. To buttress his ideologies he wrote recaps each week of EVERY after school game played (touch football, soccer, basketball, volleyball, softball) highlighting results, great plays and offering hints to team captains on what their teams might do to get better.

Always included in his weekly missives was a closing paragraph on some iteration of sportsmanship intended for both athletes and parents. Coach Rathke wrote, mimeographed and distributed his musings in entertaining prose in the hopes that we might adopt his ardent beliefs. Some of the topics from the 1952-1953 school year include: The importance of Listening, of Being Honest, Keeping Score, Being Respectful to Teammates and Referees, Doing It the Right Way, Loyalty to Team and Not Giving Up, Facing the Music, Unsportsmanlike Conduct, Temptation, Running Up the Score, Why Rules, Responsibility of Team Captains, Selfishness, Value of Multiple Sport Participation and much, much more. Clearly he was giving us values to live by.

He was exceptionally thorough in laying out program details to parents and players: the rules of engagement for each sport and his expectations of players – and disciplinary consequences for misbehavior in class, on the playground and in games. Coach was no nonsense in that regard – and a no exceptions enforcer.

In time, as his message took hold, player suspensions and team forfeits ground to a halt.

Those values have remained with me through 20 seasons of soccer coaching and 45 years of swim coaching and administration. To my dismay I find these virtues in direct conflict with behaviors I now see displayed in many facets of modern culture (certain professional sports, entertainment, politics, etc.). It troubles me that these days bad behavior (especially athletes and politicians, etc.) is publicized, celebrated and deemed acceptable.

"Kids get their ideas from what they see," says Andrew Stanley athletic director at The Collegiate School in Richmond, Virginia. "Sure social media has something to do with it, but the volume of information people are trying to process is way too much to really internalize. Bad behavior appears to be OK for professional athletes – kids see their idols ranting and raving on TV with little to no ramifications too often for it not to impact how they think and act."

Then and Now

"There are things in society now that five, ten, twenty years ago weren't acceptable. And we're accepting them without asking whether we should. We've become numb to everything, including sportsmanship, something that is really hard to teach kids. I believe we have to counteract this one kid at a time," says Stanley.

The question then becomes how does one reverse the trend or instill old school values to reach new generations? "We have talked to our captains, team leaders and coaches about the importance of detaching from emotion in the moment," says Stanley. His school, and others, including the state's athletic associations have made a concerted outreach to schools and parents to rein in the emotion to improve sportsmanship and stop the exodus of officials due to poor behavior at competition sites.

Other Voices

Ruth Ann Ahnen is in her 12th season as head girls coach at Arrowhead High School. Her teams win a lot. Third at this year's state meet, her Warhawks were D-I Wisconsin champs in 2022, a team that featured national junior teamer Campbell Stoll (Texas) and Hailey Tierney (Wisconsin).

"My belief is that athletes get their sense of sportsmanship from parents/family, coaches, culture, social media/who they follow and beliefs. I don't think that has changed, but I do believe that the input in each level has changed," says Ahnen. "As a coach it is very important to teach it, define it, give opportunities to live it and encourage it. Creating a culture and legacy of good sportsmanship is also important. Lead by example! The saying, what gets celebrated, gets repeated, is gold," she says.

NISCA Outstanding Service Award winners Ron and Rich Blanc of

Santa Margarita High School, not far from Mission Viejo, share Ahnen's sentiment. The brothers produce perennial winners in NISCA's National Dual Meet rankings and this year their boy's and girl's squads won both California's CIF crowns. Blanc teams are also known for sportsmanship.

"Since I started coaching, I noticed that young athletes are constantly looking up to adult authority figures like coaches for appropriate ways to behave," says Ron Blanc. "Naturally, coaches then have an integral impact on shaping the sportsmanship attitudes of their athletes. We, as coaches, need to model good sportsmanship and share with the kids what good that is."

Adam Kennedy is executive director of SwimRVA. A former head coach at the University of the Pacific and he was also an assistant at Colgate and the Naval Academy. As someone who stages age group, high school, college and professional meets at his facility's 50 meter pool (used for the 2008 Olympic Trials) he sees sportsmanship (the good, the bad and the ugly) up close and personally. Speaking positively he notes "there is a lot of great work being done around gratitude and the power it holds. At the University of Virginia Todd DeSorbo and basketball coach Tony Bennett talk about the importance of how you treat people. I think that makes a huge difference in how athletes perform."

Gratitude is one of the guiding forces in the GEMS philosophy of Seton School's (Manassas, Va.) head coach Jim Koehr. He directs his 123 member team through a philosophy of Gratitude, Excellence, Meekness and Sacrifice. In his 20 years as coach Seton has won 10 Virginia Interdependent School Athletic Association D-II state championships. "I burn a lot of energy on teaching kids to compete in a way that makes our competitors better," says Koehr. "Meekness is about directing your passions toward good, and especially toward the good of others. In other words, sportsmanship. Kids get it (or don't) from the example of their parents first, their coaches second and the culture of their school or community third," he says.

In the Beginning

Aside from blowing bubbles with their parents most kids' first experience with organized swimming starts with a coach in summer league. And for many, even if they don't pursue competitive aquatics beyond summer league or high school, a swim coach can have a lifelong influence.

Mike Peters and Bucka Watson are best of friends and fierce rivals in Richmond, Virginia's James River Aquatic Club summer league and the Virginia Prep League/League of Independent Schools. Of the past 20 available (minus 2021 years COVID) boys and girls state championships their teams have finished first, second and third six times each. In summer league one of their teams has won every championship going back to 2008.

Peters admits to not being a good sport growing up. Matt Kredich at Brown helped him find religion in that regard and it is a value he inculcates regularly into his athletes today. "Sportsmanship is an every time thing; you live it -- and summer league is a great place to teach it because formative lives

are involved.

"With the younger kids you are doing the window dressing stuff so you can teach them what it means. Most of my 5 and 6 year olds have no idea why we shake hands," says Peters.

"They don't understand what they are doing; they've just been told to do it. When they are ready we extend it out to the next level. I expect 6's and 7's to have lapses in judgment and sportsmanship. That's totally normal and that's when you have to address it. For 7 and 8's we talk about how you talk behind the blocks to someone else; 9's and 10's we talk about how you handle it when someone is not saying nice things at the clerk of course; 11 and 12's we discuss how you comport yourself on deck. As kids get older you teach them the next step," he says.

"A key is trying to get kids to accept results and respecting the sport of it. Sometimes things go your way and sometimes they don't." The same applies to a coach he notes. "Coaches are held to a higher standard. In the heat of battle you have to control yourself no matter how unfair you think the situation is or upset you are. I can say the right thing 100 times, but if I do the wrong thing one time it negates all I've said before and the message to the kids becomes 'if you are angry, you can act that way.'"

Says Watson, "When we race in summer league practice we spend 10 minutes a day with 8 and unders and 9 and 10's making them stay in the pool and shake hands. We tell them how to do it and why we do it rather than just relying on moral compass.

"I believe true sportsmanship has to come from within. The idealist in me hopes it comes from the heart. In a lot of cases it's just person by person. It's a hard concept to teach, model and enforce. As coaches there is only so much we can do if they are not getting that modeled behavior at home or elsewhere."

A Way of Life

At Orinda Aquatics just eight miles east of Cal Berkeley, brothers Ron and Don Heidary have crafted a culture which embodies the essence and spirit of sportsmanship. They see it not as an imperative for a mission statement but an embraceable lifestyle. The two have lectured internationally on the subject for more than three decades and have ingrained the attendant values into their club team as well as their Miramonte and Campolindo High School squads.

The goal is to create athletes, i.e. sportsmen and women who live a code of sportsmanship. "And the biggest driver of sportsman is culture and/or tradition, either through a strong history with elevated behavioral standards and protocols, or strong leadership and (earned) respect at the coaching level," says Don Heidary. "Sportsmanship, and the ultimate pursuit of leadership, is really a by-product of general character and integrity. And often, the lynchpin of both is leadership from team captains and upper classmen.

"To this end, we have aggressively, and simultaneously, pursued anchoring concepts that solidify not only team cultures

and sportsmanship, but the trajectory of each athlete's life. These are work ethic (embrace the process), integrity (do the right thing), humility (no ego), compassion (care for others), selflessness (be a good, or great, teammate), and a positive attitude (glass as half full – always)," he says.

Coaches agree that in reality, by the time youngsters reach 14 or 15 years of age, their core values become much harder to change. "Solely chasing sportsmanship, in a teenage world, is a tenuous and unpredictable endeavor at best.

However, building a culture anchored in life and athletic virtues, with strong leadership at every level, allows sportsmanship to evolve seemingly effortlessly, and ultimately become a recognized staple of your program," says Heidary.

Michael J. Stott is an ASCA Level 5 coach whose Collegiate School (Richmond, Va.) teams won nine state high school championships in 15 years. A member of that school's Athletic Hall of Fame, he is also a recipient of NISCA's Outstanding Service Award.

A Tale of Two Teams (Miramonte High School vs....)

"Time was we had a dual meet with a local rival team, i.e., same community and same socioeconomic, academic, success trajectory, etc., but vastly different sportsmanship cultures.

"We arrived for warm-up (an away meet for us) and the opposing team's coaches were setting up the pool, not the athletes, because they were not there yet, and should have been. During the meet, our swimmers who were not competing cheered (team policy and team culture). Their swimmers who were not competing were... tanning. At the diving break, during their graduating senior recognitions, our swimmers gathered and applauded each one. Theirs continued to tan. Our swimmers were in team attire, to a person, and theirs were in... whatever they wanted. At the end of the meet (400 free relay), their swimmers who were not competing in the final event were... gone. As their parents began the take-down process (lane lines, tables, etc.), our swimmers, on their own, began to help.

"So where did sportsmanship come from, and where did it go? Both teams have the same mission statements and signed the same athlete behavior contracts. Both groups had every advantage - in sports and in life, and every opportunity to lead, or at a minimum, be sportsmanlike."

Don Heidary. WSCA Board of Directors

A Rathke Homily On Sportsmanship

"Athletes, this week I would like to discuss something that happened several days ago and that is definitely a part of the two words 'good sportsmanship.' Although this occurrence did not happen during our after-school sports program, I feel it is still an important part of our growing into a good sport.

"Here's what happened and see if you agree or disagree!!! Last week at one of the schools, I was invited to witness a play on safety. While watching this play, I had the misfortune to notice some students 'booing' at remarks made by the players, jumping up and down in their seats and exaggerating or overdoing their laughing. Are these actions by students to be accepted as good behavior? I know everybody knows how to conduct himself in a group situation, but do we do it???"

After witnessing this type of action by some of you, I can only conclude that I have failed to reach many of you in my sportsmanship write-ups. I thought I was teaching you good sportsmanship, but I was wrong. A good sport would NEVER act that way in a group or audience situation. Good sportsmanship does not only pertain to athletic contests, but should be practiced at all times, regardless of the time, place, and persons involved.

Remember the movie I showed you on good sportsmanship?? In this film, they showed you many different places where sportsmanship could be demonstrated, such as, in the classroom, on the way to school, and at home. How about it, Athletes, am I wrong or am I right? Is this a part of good sportsmanship or isn't it? Think about it – because it is really something to think about!!!!"

– April 30, 1952



How Good Is ChatGPT?

(Have we already been snookered?)

Towards the end of last summer I came across an article (several, actually) about the proliferation of written compositions from this ChatGPT AI (artificial intelligence) thingamabob. Concerns about how to tell a ChatGPT creation from something a human was SUPPOSED to create or compose on their own, without outsourcing it, grew in scale with the spread of this AI tool. This has always been a concern in academia, going all the way back to our college days where seemingly every bulletin board on campus had one or more posts offering to write reports and papers for those less academically adept. Some (I've been told) earned their writers good money. If you have a skill, -any- skill, and hone that skill, you have a better than even chance of being successful using it and making a decent income. But I wondered: *Could ChatGPT really be that good?*

I typed in "Write a poem about Olympic swimmers". In less than 3 seconds, it responded with this. (I posted on my Facebook page.) If this is possible NOW, can SkyNet be far behind? Be afraid. (But the poem is pretty good!)

*In waters vast, where dreams take flight,
The champions rise, with all their might.
In rhythmic strokes, they slice the tide,
Olympic swimmers, hearts open wide.*

*A sea of blue, where waves caress,
The water's embrace, their souls impress.
With each splash, a symphony is born,
A dance of strength, from dusk till morn.*

*They dive with grace, like falcons soar,
In liquid realms, they seek the shore.
Through liquid lanes, they swiftly glide,
With passion's fire, they do abide.*

*The starting gun, a thunderous call,
They leap and bound, fear's walls they maul.
Their bodies honed, with sweat and toil,
Determined spirits, wrapped in foil.*

*In battles fierce, they strive for gold,
Through every turn, their stories told.
With each stroke, a legacy's etched,
Their names in history's book fetched.*

*They push through pain, through doubt and fear,
Their will to win, abundantly clear.
Against the clock, they strive to break,
To seize the peak, no step they'll forsake.*

*Through endless laps, the heartbeats race,
The crowd's roar echoing in space.
With dreams united, they compete,
Their bodies strong, their minds complete.*

*Olympic swimmers, a rare breed,
United in their ardent creed.
To reach new heights, they seek the sky,
In waters deep, their spirits fly.*

*In glory's pool, they find their place,
In timeless moments, they embrace.
Olympic swimmers, legends made,
Their legacy, in waves, will never fade.*



Shortly after posting on FB, I got a Messenger text from one of the swimmers I coached on Eddie Reese's first team at Texas, John Agathon (UT Class of 1982). He reminisced about those days, then we ran into each other at a Masters meet at DADS Club in Houston a few years ago, and then was prompted by my FB ChatGPT effort to try one himself. *"Here is an example of me asking the chatbot to write a poem on swimming life and Olympic dreams. Feel free to share. See you around! John"*

I'm happy to share, and also admit it is pretty good, too!

Swimming, Life, and Olympic Dreams

Suggested by John Agathon, created by Chat GPT

In waters deep, where dreams take flight,
Swimmers carve their paths with might,
Their strokes paint tales of strength and grace,
In the pool's embrace, a sacred space.

Each ripple tells a story grand,
Of dedication, where feet and hands
Compose a symphony, a fluid dance,
In pursuit of victory's chance.

Olympic dreams, a beacon bright,
Ignite the flames that burn so bright.
Through dawn's first light to eventide's gleam,
They chase the glory of their Olympic dream.

From pool's edge, they leap and soar,
Heartbeats drumming, they explore
The depths within, the spirit's call,
Seeking greatness, giving their all.

With every stroke, a step toward fate,
Their passion fuels their relentless gait.



Through trials faced and hurdles crossed,
Their determination is never lost.

In every breath, in every glide,
Their aspirations, unbridled, abide.
For in the water's embrace, they find
The essence of dreams, pure and kind.

Oh, swimming life, an endless quest,
Where champions rise at their very best,
Olympic dreams, a shimmering sight,
Guiding swimmers through day and night.

In the pool's expanse, a canvas true,
They paint their stories, brave and new,
A testament to the human drive,
In the pursuit of dreams, they thrive.



STRENGTH TRAINING

Single-Limb Versus Double-Limb Strength Training

Charlie Hoolihan

ASCA Swimming Strength and Conditioning Specialist (SSCS)

NISCA Strength and Conditioning Consultant

Single limb training, also known as unilateral training is as it sounds, training one appendage than the other usually to isolate and improve weaknesses on one side or the other.

Double limb training or bi-lateral training uses both appendages simultaneously during an exercise.

Unilateral exercises can also be separated into two categories – ipsilateral or contralateral.

In ipsilateral exercises, the primary muscle contractions occur via the upper and lower limbs on the same side of the body while contralateral exercises feature muscle contractions between the limbs on opposing sides.

A contralateral exercise, the single-leg deadlift, is shown below. The athlete holds the dumbbell in the left arm while the right leg is the support or pillar leg contracting as the dumbbell is being lowered towards the floor while the left leg moves to a parallel position.

The hamstring muscles in the right leg are the primary strength target but the entire left side from foot to hand are also working to provide stability on that side.

Additional strength and stability challenges can be added by performing an upper body exercise like a bicep curl or shoulder press as the body returns to the upright position.



A contralateral exercise for upper body strength is the single arm chest press from a single leg bridge position. The athlete sets up the movements by placing shoulder blades on a bench and moving into a bridge position.

Using one dumbbell, a chest press is performed with one arm while the opposite side leg serves as the support side while maintaining a parallel position to the floor with an intense isometric contraction.

Performing this movement adds elements of upper and lower body strength and stability.



While contralateral movements usually provide greater challenges, sometimes ipsilateral movements can be superior. Performing the chest press above while trying to balance the same side as the pressing side would create more instability due to the muscle and limb biomechanics involved.

Another example would be the bird dog exercise traditionally performed on hands and knees. From this position, the standard contralateral version has the opposite arm and leg extending forward and backward, respectively for several repetitions.

The ipsilateral version with the arm and leg on the same side moving into extension would create more instability because there is no floor support on that side.

It would seem beneficial to always do unilateral training because of the additional benefits of increased stability and muscle coordination. In some cases, this is the case but one key drawback to unilateral training is it takes twice as long to train each limb than a traditional bilateral version of the same exercise. Think of 10 bilateral deadlifts versus 10 right-leg deadlifts and 10 left-leg deadlifts.

Additionally, recent research seems to point toward no significant strength gain advantage by doing unilateral or bilateral work in healthy individuals. Unilateral training did seem to improve lower body plyometric power.

This research information added to the neuromuscular coordination and stability anecdotal experience with unilateral training would seem to indicate the following strategies for its inclusion in swimming strength programming.

First – utilize unilateral in combination with bilateral training during the early cycle of the strength periodization schedule to help develop coordination, stability, and limb control. Pairing a set or two of single-leg squats with traditional squat sets would be a good early-season strategy.

Second – revert to exclusive bilateral training during high-yardage swim phases of the season to save time in the weight room while trying to increase strength gains.

Third – include lower body unilateral plyometrics in the power acquisition portion of the training schedule.

Charlie Hoolihan is the Swimming Strength and Conditioning Specialist Certification Coordinator for the American Swim Coaches Association and has been strength training swimmers since 1990. He's also a presenter and writer for numerous national fitness organizations and publications.

You can set up a complimentary team-specific dryland training analysis of your resources and programming by contacting him at charliehoolihan@gmail.com



References

Moran, et al, Effects of Bilateral and Unilateral Resistance Training on Horizontally-Orientated Movement Performance: A Systematic Review and Meta-Analysis. Sports Medicine, February 2021

Liao, et al, Effects of unilateral vs. bilateral resistance training interventions on measures of strength, jump, linear and change of direction speed: a systematic review and meta-analysis. Biol Sport. 2022;39(3):485–497





Tidbits (and more) to enhance your coaching and life experience.

If you have something interesting you'd like to see shared here, send it to nisca.journal01@gmail.com

This issue we take a look at a wide-ranging collection of tidbits:

- ***Make your weekends count***
- ***Staving off burnout***
- ***Improving your personal workouts***
- ***Pros and cons of caffeine***



It's tough during the season to plan much for weekends besides sleeping in late and getting a little recharge before heading back to coaching on Monday, but a time-management coach in Michigan, Elizabeth Grace Saunders, shared a few suggestions with the WSJ's Alex Janin recently:

SLEEP. Try to stray no more than an hour from your normal bedtime and wake time, and strive to hit the recommended 7-9 hours every night, even on weekends.

HOBBIES. Engaging in a hobby or pleasurable activity during downtime is good for your overall health. Two hours is good.

DOWNTIME. Unstructured time is good for kids (see Editor Letter) but also good for adults. Screen time doesn't qualify.

SOCIALIZING? Depends on whether that energizes, relaxes, or stresses you. Adults-only time with friends can be good!

WORK AND CHORES. Rome wasn't built in a day, and neither will that backyard garden project. Be selective and eat those elephants one bite at a time. Pace yourself. And hydrate!

PHYSICAL ACTIVITY. Lots of overlap opportunities with social, recreational and chore activity, and a good 45 minutes or so on the weekend may be as good as a little something every day during the week.



Can you stave off burnout? Most "lifers" or folks who have worked for decades say the trick is to have a passion for what they do, but also be able to "re-set" after late-life setbacks.

Charlie Munger, Warren Buffett's longtime business partner and right-hand man, said "You don't call it work when you enjoy it." For many years, when the subject of retirement for UT Coach Eddie Reese came up, his wife Elinor would quip that he's never worked a day in his life.

HOWEVER... not everyone wants to work in their later years. A Harvard professor may have said it best (from WSJ):

Not everyone wants to work in their later years, says Dr. Robert Waldinger, a professor of psychiatry at Harvard Medical School.

"It's not burnout. It's just 'I don't want to do this anymore,'" says Waldinger, director of the Harvard Study of Adult Development, a longitudinal study on how people thrive.

As people get older, they are better at discerning what really matters, he says, and what they can let go of. The goal isn't necessarily an 80-year career, but finding purpose in whatever we chose to do in our 80s and beyond, whether that is taking care of a grandchild, playing the piano, or joining a community theater.

Still working at 103, Gladys McGarey says the secret is to find things that make life important and our "hearts sing."

"I think that is our key," she says.



Improving your personal workouts. Jen Murphy is a fitness columnist and covers fitness trends for The Wall Street Journal. Writing her last "What's Your Workout?" column at the beginning of the year, she offered some interesting insights

Early risers stick to their routines. Or as Larry the Cable Guy would say, "Git 'r dun!" before other things pull you off course.

Older doesn't have to equal slower. Pick up your tempo.

It's never too late to get competitive. Try something new.

Play more. Youthful activities can make exercise FUN.

Change your routine to work with your life stage. Variety!

Challenge yourself by mixing things up. Get out of the rut.

Try something unconventional. Unicycle. Pogo stick. Surfing.

Make your workout a ritual to look forward to.

Don't fear setting high goals.

Get inspired.

ONE OF THE SMARTEST INVESTMENTS YOU CAN MAKE IS IN YOUR HEALTH.



Part Deux: Pros and Cons of Caffeine



Sumathi Reddy writes a weekly consumer health column, called "Your Health," which runs every Tuesday in the Personal Journal section of The Wall Street Journal. A recent column, "How Much Caffeine You Should Actually Have—and When", was "chock full" of interesting info.

She writes, "Caffeine can give us a boost, but too much can mess with our sleep and make us feel jittery. So how do we know what's the right amount?" Turns out 1 to 1.5 cups of java will deliver a jump-start, but that can vary by individuals. That boost can begin about 5 minutes after burning your tongue and last 15 minutes to 2 hours.

There are physical benefits, as if we didn't already know that, but a 2023 study in the NEJM showed participants took about 1000 more steps on days with mud than when they didn't.

Some studies suggest that high-endurance efforts can be enhanced with a jolt of caffeine, like soccer, or long runs or swims. Sprints aren't helped so much, because "[Caffeine] doesn't act directly on muscles but rather reduces your rate of perceived exertion and the time it takes you to feel exhausted."

The downside. Sleep can be affected, as it takes around 4.5 hours on average to metabolize half the ingested caffeine, so being more alert can make it harder to fall asleep or stay asleep.



Adults get most of their CAF-POW! from coffee, and the best source of caffeine is unsweetened tea or coffee, as they contain antioxidants, reducing inflammation. That's good.

Caffeine is also found more and more in energy drinks, sports drinks, and sodas ("pop" for all you Northerners), but they also contain high amounts of sugar. Not good.

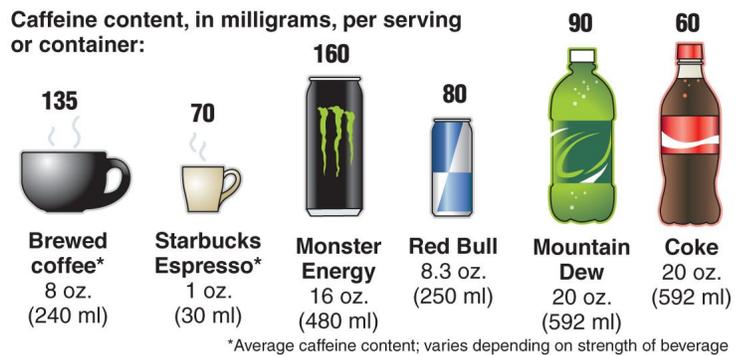
Ms. Reddy writes that Dr. Frank Hu, professor of nutrition and epidemiology at Harvard T.H. Chan School of Public Health, says that people with chronic conditions like high blood pressure, diabetes or heart disease might want to be more cautious about their caffeine consumption. The NEJM study found that on the days when participants consumed caffeine, they had more abnormal heart rhythms in the lower chamber of the heart, which is associated with a greater risk of developing heart failure.

Health Matters

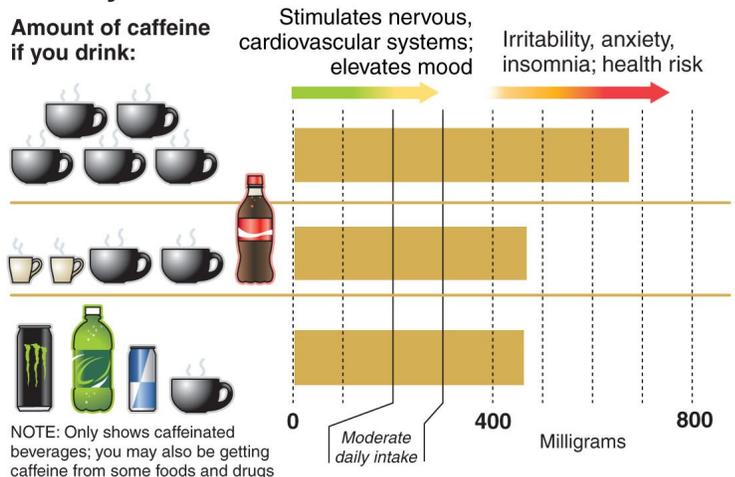
Over the limit on caffeine

Moderate daily intake of caffeine (200 to 300 mg) normally is not harmful, but too much can cause negative health side effects.

Caffeine content, in milligrams, per serving or container:

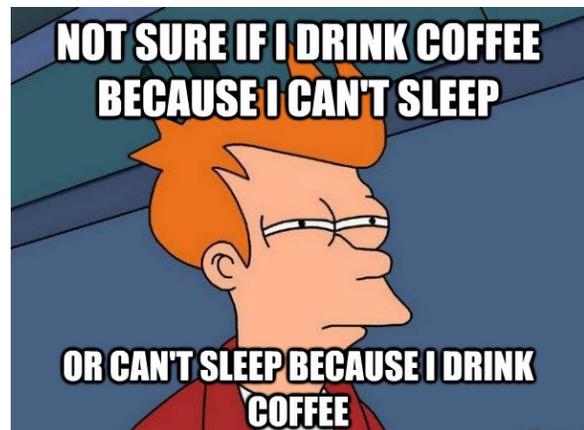


What's your caffeine intake?



Source: Mayo Clinic, University of California Davis Graphic: Lee Hulteng

© 2010 MCT



THE DAILY COACH

One Day at a Time

All big things come from small beginnings.

The seed of every habit is a single, tiny decision. But as that decision is repeated, a habit sprouts and grows stronger.

Roots entrench themselves and branches grow. The task of breaking a bad habit is like uprooting a powerful oak within us.

And the task of building a good habit is like cultivating a delicate flower one day at a time.

Source: James Clear, *Atomic Habits*

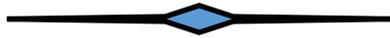


Release, Thrive and Elevate

11 ways to make the most of 2024:

trust your intuition
prioritize your peace
focus on small daily wins
stop doubting your progress
do not rush important things
find joy in the present moment
give without exhausting yourself
being super busy is not good for you
craving perfection blocks your happiness
remember that growth improves your life
let go of the craving to control everything

Source: Yung Pueblo, *The Way Forward*



A New Year's Invitation

Many of us were taught that staying small is the safest thing to do to keep the peace. But I hope in 2024, we start to release that idea that being loved, seen, and heard requires us to be a fraction of ourselves in a world that demands so much from us.

May 2024 give us the courage to trust ourselves enough to show up more authentically, even if that means we must walk alone for a little while.

May 2024 allow us to consciously choose to let go of what's holding us up, down, or back and replace all that doesn't align with acceptance and courage to shine.

May 2024 grant us a more easeful spirit.

May 2024 encourage us to be more open and willing.

Source: Alex Elle, *Gratitude Journal*

If I've Learned Anything...

If I've learned anything from life, it's that sometimes, the darkest times can bring us to the brightest places.

I've learned that the most toxic people can teach us the most important lessons; that our most painful struggles can grant us the most necessary growth; and that the most heartbreaking losses of friendship and love can make room for the most wonderful people.

I've learned that what seems like a curse in the moment can actually be a blessing and that what seems like the end of the road is actually just the discovery that we are meant to travel down a different path.

I've learned that no matter how difficult things seem, there is always hope. And I've learned that no matter how powerless we feel or how horrible things seem, we can't give up.

We have to keep going. Even when it's scary, even when all of our strength seems gone, we have to keep picking ourselves back up and moving forward, because whatever we're battling in the moment, it will pass, and we will make it through. We've made it this far. We can make it through whatever comes next.

Source: Danielle Koepke, *Daring To Take Up Space*



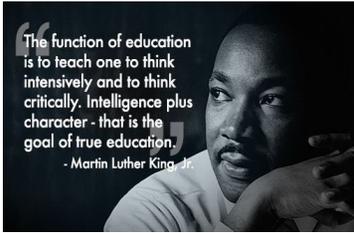
Leadership is not about the clout and stroking of the ego that comes from holding a position or a title. It's about the daily action and example. It's about WE over ME.

Leadership is about:

L — Love
E — Effort
A — Attitude
D — Discipline
E — Empathy
R — Respect
S — Service
H — Humility
I — Integrity
P — Poise

Leadership is about influence. This is why it doesn't matter about your position or hierarchy; it matters if you can influence people and meaningfully transform lives.





Today, it is easy to spend our whole lives running around trying to accumulate. At times, we chase that car, house, reputation, title, possession, and money while overlooking and undervaluing what we already have.

Dr. King often said, "If a man or a woman hasn't found something in life they're willing to die for, then maybe they're not fit to live."

Some people are bestowed great longevity on this Earth but physically and mentally lead the same life with the same beliefs for years until they die.

If we don't study and understand our past and present, then there will be no future.

Within each of us resides the potential to be Dream Makers.

Learn from the past: Adversity is an experience, not a final act.



The 'Keep Working' Mentality

One of the hardest things to hear as a leader, coach, creator, and high performer is to "keep working."

After a loss — **keep working.**

After a huge win — **keep working.**

Things may not always go your way, and you may not get what you expected — **keep working.**

When things are going your way — **keep working even harder.**

The work you put in ensures your knife stays sharp. Iron sharpens iron.

**As Iron Sharpens Iron,
So One Person Sharpens Another**



Be a life long learner. Take responsibility for your learning.

Every day, strive for personal freedom. If all you hold onto is bitterness, you can never be free to explore the depths of who you are.

Practice removing the confines and breaking free from comfort zones in your life.

Schedule time each day for just thinking.

Practice daily random acts of kindness. Kindness always wins.

Be unapologetically You!

Close the gap between what we do not know and what others do.

Not everyone needs to be "normal" especially in a world of average people.



Magic Question:

Did I positively impact anyone today?

The Daily Coach

A daily hands-on approach to becoming a better leader. With the help of some unique wisdom as well as an action plan to tackle your day, **The Daily Coach** aims to be an inspiration in your email inbox each morning.

Plus, it's **FREE**. Sign up for **The Daily Coach**:

www.thedaily.coach/subscribe

BRAIN FOOD: Ideas, Thoughts, Insights, and Links To Get You Thinking (<http://fs.blog>)



The story we tell ourselves is the most powerful one in the world. Eventually, we start believing it, even when it's not true. While a positive story by itself won't guarantee a good outcome, a negative one will certainly prevent it from happening.

"If an idiot were to tell you the same story every day for a year, you would end by believing it."

Horace Mann



"I always prefer to believe the best of everybody; it saves so much trouble."

Rudyard Kipling



- ◇ No one has all the answers at the beginning. Trust yourself and take the first step.
- ◇ The more time it takes to explain a course of action, the less likely it is to be a good one.
- ◇ When things go wrong, it's almost always because of distraction.
- ◇ Chasing what's sexy comes at the expense of doing what's boring.
- ◇ Consistently doing the boring stuff builds success.



"I still make things that are pretty awful. It's part of the process. You have periods of tremendous productivity and other periods where you're fallow. The fallow periods are really important because that's where you're figuring something it out. You have to work through it in order to discover something new. You need those sorts of periods in order to grow."

Paula Scher, The Beautiful Thinkers Project

- If you're stuck, change your perspective.
- What you see from 20,000 feet is very different from what you see from 2 feet.
- Different perspectives reveal different solutions.



The Wisdom of Charlie Munger

"I think a life properly lived is just learn, learn, learn all the time."

"Spend each day trying to be a little wiser than you were when you woke up. Discharge your duties faithfully and well. Systematically you get ahead, but not necessarily in fast spurts. Nevertheless, you build discipline by preparing for fast spurts. Slug it out one inch at a time, day by day. At the end of the day – if you live long enough – most people get what they deserve."

"It is remarkable how much long-term advantage people like us have gotten by trying to be consistently not stupid, instead of trying to be very intelligent."

"I see people rise in life who are not the smartest, sometimes not even the most diligent, but they are learning machines. They go to bed every night a little wiser than they were when they got up and boy does that help."

"I didn't get to where I am by going after mediocre opportunities."

"I want to think about things where I have an advantage over others. I don't want to play a game where people have an advantage over me. I don't play in a game where other people are wise and I am stupid. I look for a game where I am wise, and they are stupid. And believe me, it works better. God bless our stupid competitors. They make us rich."

"I am not smart enough to make decisions with no time to think. I make actual decisions very rapidly, but that's because I have spent so much time preparing ourselves by quietly reading."

How to Write Workouts: Part 2

By Karl Hamouche, M.D., and Mike Peterson, *Swim Smart*

Let's start by listing all the essential elements we want to work on with our swimmers.

- Primary stroke 200 technique
- Primary stroke sprint technique
- Secondary stroke 200 technique
- Secondary stroke sprint technique
- Primary stroke aerobic endurance training
- Primary stroke aerobic power training
- Primary stroke lactate training
- Primary stroke sprint training
- Secondary stroke aerobic endurance training
- Secondary stroke aerobic power training
- Secondary stroke lactate training
- Secondary stroke sprint training
- IM endurance training
- Dolphin kick endurance technique
- Dolphin kick sprint technique
- Free kick endurance
- Free kick sprint
- 50/100 strategy
- 200/500 strategy
- 500+ strategy (for distance kids)

What we have done is subdivide the sprint and endurance training speeds into two categories each. Sprint training now consists of speed and lactate training. Endurance training now consists of Aerobic endurance and Aerobic power training. Each of these different gears of training focus on major biological element that we want to improve:

Aerobic endurance: This is basically your long repeats with short rest. These mostly target mitochondria since you are continuously feeding the muscles with oxygen and are moving at a relatively slow pace so that acid does not build up in the muscles.

Aerobic power: These are equivalent to 200 pace sets where we are targeting approximately 1 to 1 ratio of swimming time to rest time. This mostly works on your VO2 max by improving cardiovascular components in your body like the heart (cardio) and blood vessels (vascular).

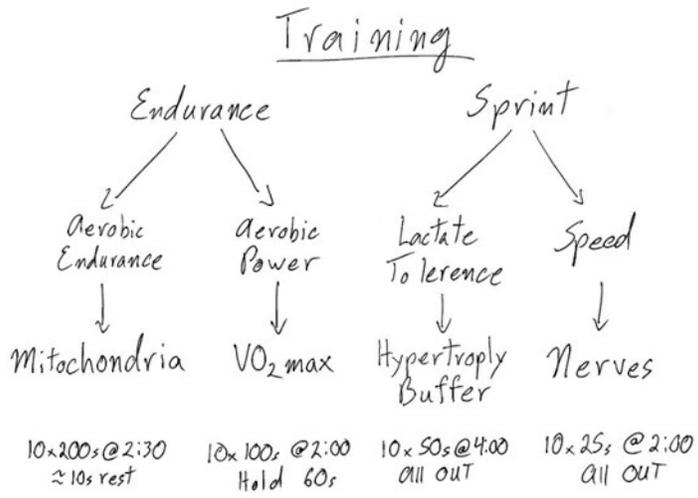
Lactate tolerance: These are long sprint sets where the swimmers are going all out for 30 to 60 seconds at a time. There's a long rest between sprints and possibly active recovery with easy swimming. By flooding the muscle with acid, it forces the muscles to build ways to deal with the acid which includes shuttling and buffering proteins.

Speed training: These are short (12.5-25 yards) all out repeats, usually performed with resistance equipment such as parachutes or power Towers. This type of training mainly works on your nervous system to improve muscle coordination and activation.

These training types are shown in the flow diagram along with what specifically is being trained and sample workouts to illustrate what different types of training look like in real life. Teach your swimmers this chart and remind them before every set what we are trying to improve biologically. This will build confidence in the set and make you look like you know what you are talking about (which you do)!

Imagine if you had to do all this training for each of the four strokes and dolphin kicking. You would spend about 10 minutes a week training any single stroke/pace which is too little time to make significant improvements. That's why we will narrow down our focus to just a primary stroke and a secondary stroke. We will use all four speeds to train both of the strokes, however in freestyle kicking

and dolphin kicking (aka the 5th stroke) we will just train basic endurance and sprint velocities. Pure distance freestyle swimmers can use the secondary stroke sets as additional opportunities to up their yardage.



For any swimmer that does not focus on the IM race, endurance IM training is really just focusing on maximizing cardiovascular fitness while giving most of the muscles in the body a chance to recover. For those who specialize in the IM races, their primary and secondary stroke training can be fairly flexible. However, they should spend a decent amount of time every week focusing on their weakest stroke since that will give them the biggest benefit during their races.

When it comes to technique for advanced swimmers, they should mostly focus on having a different style of swimming for different races. For instance, a 50 freestyle technique will differ greatly from a 200/500 freestyle technique. Therefore, when writing sets, we can add elements that focus the swimmers' technique depending on the race we are training for during the set.

Swimmers also get to practice race strategy. Big kids can easily generate enough acid in their muscles to overload them before the end of the race. Therefore, we have to strategize and attack each race in a way that optimizes that swimmer's biological function. This comes down to training pace by 25/50, breathing patterns, number of dolphin kicks off the walls and tempo/distance per stroke.

If you really put in the effort to try to accommodate for all of these elements of training, you will be putting in some serious time into coming up with sets that accomplish these goals. The kids (and parents) will never see this unless you tell them about it. This builds credibility in your coaching ability and also builds trust in the training. When swimmers understand there is a direct biological change that they are trying to accomplish with various types of training, they will be much more inclined to put in the effort to make the most out of their training. **This also transforms your club from a "train and hope" mentality to a "train and expect" mentality.** We're no longer rolling the dice at the end of the season hoping we were doing the right thing. Instead, we are simply fulfilling the end result of all our hard work.

Let's dig into the details and take a look at our workout template.

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Warmup	Warmup	Warmup	Warmup	Warmup	Warmup
Primary Stroke (AP)	Secondary Stroke (S)	IM	Primary Stroke (L)	Secondary Stroke (AP)	Kick
Secondary Stroke (AE)	Primary Stroke (AE)	Kick	Secondary Stroke (AE)	Primary Stroke (AE)	IM
Day 7	Day 8	Day 9	Day 10	Day 11	Day 12
Warmup	Warmup	Warmup	Warmup	Warmup	Warmup
Secondary Stroke (AP)	Primary Stroke (S)	IM	Secondary Stroke (L)	Primary Stroke (AP)	Kick
Primary Stroke (AE)	Secondary Stroke (AE)	Kick	Primary Stroke (AE)	Secondary Stroke (AE)	IM

Day 4/10:

The big race day simulation. After the recovery day we hit things hard again with an off the blocks lactate set. This plays off the speed and power we built on Day 2/8. Now we will work on making it last. Feel free to do an extra mini-set before the racing to help with more warm up. More endurance at the end helps loosen things back up and prevent injury.

Day 4			
Warmup			
Primary (L)			
Secondary (AE)			
	Yards	Time	Stress
Warmup	1000	20	20
All free, all out, from a dive			
2x100 @ 5:00	200	10	16
4x75 @ 4:00	300	16	24
6x50 @ 3:00	300	18	24
8x25 @ 2:00	200	16	16
3x			
3x100 @ 1:30 JMI	900	13.5	24
2x50 @ :45 drill	300	4.5	9
2x50 @ :45 underwater fast to 15	300	4.5	9
3x100 @ 1:30 JMI	900	13.5	24
30 seconds rest		2	
Breastrokers do a vertical kick/pullout set instead			
	total	total	total
	4400	118	166

Day 10			
Warmup			
Secondary (L)			
Primary (AE)			
	Yards	Time	Stress
Warmup	1000	20	20
8x100 @ 6:00 broken All out stroke			
50 fast			
20s rest			
25 fast			
10s rest			
25 fast			
4x			
10 min swim at easy speed	3000	40	80
2 min rest		8	
swim, fins, paddles, fins+ paddles by round			
can add chute and weight belt as desired:			
5min w/ chute, 5 min w/o for example			
	total	total	total
	4800	116	164

Day 5/11:

Similar to Day 1/7, but focusing on shorter reps since swimmers will be tired by the end of the cycle (25s instead of 50 or 100s like on Days 1/7). Breastrokers should spend at least one set a week doing a dedicated breaststroke kick/pullout set (we like vertical sets with weight sets with belts for this).

Day 5			
Warmup			
Secondary (AP)			
Primary (AE)			
	Yards	Time	Stress
Warmup	1000	20	20
All stroke			
30x25 @ :40 best average + chute	750	20	63
30x25 @ :30 best average swim	750	15	60
2x free swim, 2x free paddles			
4x100 @ 1:30 Lt/Rt/Lt/Rt arm	1600	24	48
2x300 @ 4:00 Desc.	2400	32	64
	total	total	total
	6500	111	255

Day 11			
Warmup			
Primary (AP)			
Secondary (AE)			
	Yards	Time	Stress
Warmup	1000	20	20
All free			
16x50 @ 1:15 best average + chute	800	21	60
16x50 @ 1:00 best average swim	800	15	60
6x all stroke			
300 @ 5:00 strong/drill/DPS by 100	1800	30	60
200 @ 3:00 build by 50	1200	18	36
100 @ 2:00 Desc. 1-3/4-6 by round	600	12	24
Breastrokers do a vertical kick/pullout set instead			
	total	total	total
	6200	116	260



Day 6/12:

This is essentially a repeat of Day 3/9 and serves as a mostly recovery day. If this is workout of the week, try to hit it a little harder going into a day off, especially the legs. True IM-ers should spend some time each week working on their weakest stroke since the greatest improvement will happen where there is the greatest room to improve.

Although the template shows two main sets per day, the amount of time you spend on each set is up to you and varies throughout the season. If you are struggling to figure out how much time you need to dedicate to different types of training for each swimmer, here's a good rule of thumb method:

1. Break down the race you are training for. Let's take the 100 butterfly for example.
2. This race can mainly be broken down into the over water swimming (actual butterfly) and underwaters.
3. Next, calculate what percentage of time is spent on each component. For instance, the over water swimming is about 60% of the race and the underwaters account for the remaining 40%.
4. Lastly, schedule your 100 butterfly training to be about 60% over water at 40% underwaters.

This is just an example to illustrate how to think when approaching writing workouts for specific races. Many times, coaches chase the yards instead of training for the race. Similarly, if pull-outs account for 50% of our breaststroke race, shouldn't we spend 50% of our training on pull outs? Doing them from a dive, practicing them off turns and even building them stronger through vertical pull-outs are various examples of training for the race.



Dr. Karl Hamouche is the founder of **Swim Smart** and **Fog-X**, author of *The Biology of Swimming* and *Swim Coach's Starter Guide*. He moved to Iowa from Lebanon when he was 12 years old, joined the local swim team, and instantly was part of a family in a place 8,000 miles away from home. Years later, he ended up coaching for that same team, expanding it by starting a new satellite, and helping them win their first club state title.

Karl studied biology and exercise science at Iowa State University, received his medical degree at the University of Iowa, and is currently a radiologist in Salt Lake City, Utah. With his coaching and swimming background, Karl is the intersection of theory and practice, the book and the real world. He is the NISCA Journal medical consultant.

He was an assistant and satellite head coach with ACAC-Ames Cyclone Aquatic Club, a USA-Swimming Silver Medal club in central Iowa. Karl still swims almost everyday and competes multiple times a year. His daily interaction with the water gives him new ideas and insights into how we can all help to improve our swimming. He loves to put his medical knowledge into swimming terms to help coaches gain the ability to build their athlete's trust!

Step Up Your Game With These Products From SwimSmart

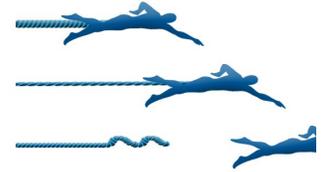


Push Paddle

Fix bad dolphin kicking!
Resistance from the top
Moon cut-out for streamlining
Three sizes for any ability

Break-Away

Fix bad resistance sets!
Automatic release system
Use with Power Towers
A whole new ability



Power Harness

Fix bad body alignment!
Drive with the shoulders
Use with any resistance tool
Carabiner for quick exchanges



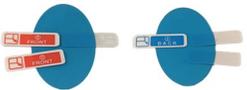
The Biology of Swimming

Fix bad knowledge!
Swimming science for beginners
300+ illustrations
Fun and easy to read



Fog-X

Fix foggy goggles!
Lasts weeks to months
Fits virtually any goggle
Two pairs included



Squeezeline

Fix bad streamlines!
Audible BEEP for feedback
Soft silicone case
Every streamline, every wall



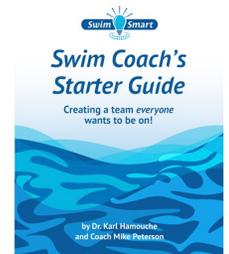
E(xchange)- Paddles

Fix dropped elbows and train EVF
Exchange all paddles for variety
Incentivize the body to grip with the forearm
Ala-carte combinations available by email



Swim Coach's Starter Guide

Written by Swim Smart founders
Perfect for new coaches
A resource for head coaches
Directly applicable guidelines



Free Download-ables

Fix bad organization!
Improve your coaching ability
Tools to build training guidelines
Learning for the whole team

Courses

Fix bad swimming knowledge!
Easily digestible presentations
Wide range of topics
Other companies offered too



Because **SMART** swimming
is **FAST** swimming!

We are swim coaches
fixing swimming problems.

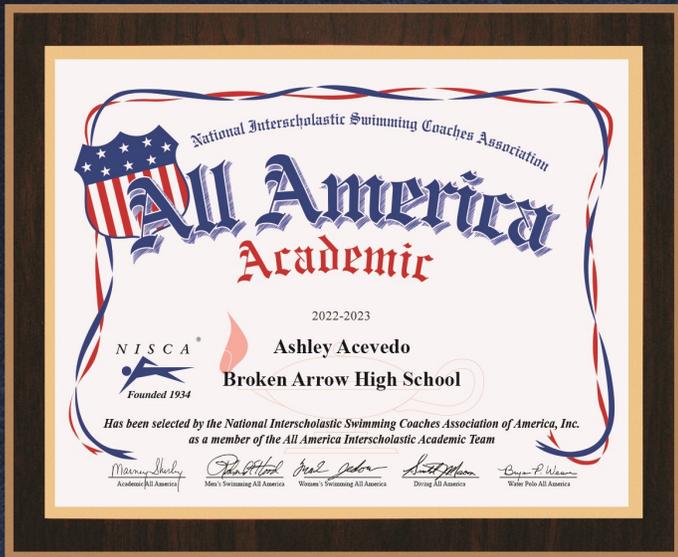
Find solutions that come from
our pool deck to yours.

www.swimsmarttoday.com

PLAQUES

\$49.95 / PQ-NISFAC

Wood plaque displays the All-American certificate printed on a clear acrylic overlay so it's waterproof. It measures 10½" x 13" and comes individually boxed for presentation. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.



\$79.95 / PQ-NISLAM

Laminated certificate plaque displays actual All-American certificate laminated on a wood plaque. It measures 10½" x 13" and comes individually boxed for presentation. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.

\$54.95 / PQ-NISFDE

Engraved certificate plaque depicts the All-American certificate laser engraved directly into a black brass plate. It measures 10½" x 13" and comes individually boxed for presentation. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.



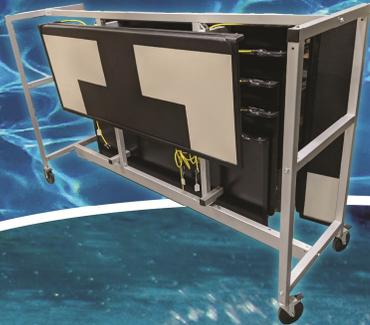
\$79.95 / PQ-NISACR

Acrylic plaque with stand-off displays the All-American certificate printed directly on the acrylic. It measures 10½" x 13" and comes individually boxed for presentation. Available in Water Polo, Diving, Academic, Team Scholar Award and Swimming.

Products produced and distributed by Hasty Awards. All products featured must be purchased through NISCA. See order form for details. For other awards or free catalog, call 1-800-448-7714 / www.hastyawards.com



Offering the best hardware and software solutions for your aquatic center at unmatched prices, backed by the team you trust



YOUR LOGO GOES HERE				
IST	BK GR, #4	50 BK, #5	50 BRST GR, #6	IST
1	CIRCLE SWIM*****NO DIVING			1
2	FEET FIRST ENTRY* * *CIRCLE SWIM			2
3	CIRCLE SWIM*****NO DIVING			3
4	TREVANS			4
5	CIRCLE SWIM*****NO DIVING			5
6	FEET FIRST ENTRY* * *CIRCLE SWIM			6
7	CIRCLE SWIM*****NO DIVING			7
8	FEET FIRST ENTRY* * *CIRCLE SWIM			8

(800) 835-2611 ISTIME.COM



Prints of Nancy Bryant's Art Work Now Available For Purchase
Color Individual Stroke Prints or a Sepia Quartet of All Four Strokes
All Are *Limited Editions* and Individually Signed and Numbered by the Artist



12" x 12" Premium Giclee Color Prints

Individual Stroke (Back, Breast, Fly, Free)	\$ 75
Special Package of All Four Strokes (SAVE \$50!)	\$250
12" x 12" Sepia Montage of All Four Strokes (see cover of May-June 2022 Journal)	\$100
<i>Secure Packaging and Priority Shipping</i>	\$ 15

Order your prints from: [nancybryantstudio.com](https://www.nancybryantstudio.com)

Questions? Contact Nancy here: <https://www.nancybryantstudio.com/contact>

Nancy donates a portion of all sales from these prints to NISCA!



Photo by Flor Foreman