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Cover Photo:

Photographer
Joshua Gunter

On our cover this issue are Maggie Perry and Nell Bruckner from the Hathaway Brown School celebrating after their 200 Free Relay at the OHSAA Division II State Finals. Also pictured are the ladies of Omaha Marian swimming and diving enjoying their 2015 victory. Finally, Arvel McElroy, NISCA past president is shown receiving his Hall of Fame award from Russ Ingold.



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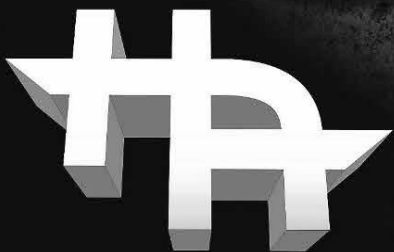
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Dear NISCA Membership:

It was the great philosopher Yogi Berra that said, "It's like déjà vu all over again." I would have to agree. Once again I am extremely proud and honored to be your president. I thank all those who have come before me for their stewardship of this great organization.

What is NISCA? Of course the simple answer is, The National Interscholastic Swimming Coaches Association. Our motto is, To educate coaches and athletes, to promote aquatic sports and to honor coaches and athletes?

To educate: Betsy Hondorf, our Journal Editor, continues to produce an excellent bi-monthly Journal. The articles are varied and insightful, based in real life situations and for the most part written by high school coaches. We sponsor presentations at our conference every year. In 2016 we presented a clinic in Atlanta before our conference, as well as during and this past conference we had a clinic on the Saturday of conference. Eve Julian our webmaster and secretary is posting more content to our webpage. Clinic presentations, power points and other educational information can now be found on the site. We teamed with NFHS to design a their coaches certification course. The course was written by Arvel McElroy. Currently, our All America Diving Chair, Don Mason is working with NFHS on a diving course. Our coaches education committee lead by Gregg Anderson is continually looking for new ways to present education opportunities for high school coaches.

To promote: NISCA maintains excellent relationships with other aquatic coaching and sanctioning bodies. A few of them are: ASCA, CSCAA, state swim coaches associations, the

NCAA, USA Swimming, USA Diving, USA Water Polo, Our Kids Initiative and NFHS. We have a booth every year at the ASCA World Clinic and sponsor the High School track of clinic presentations. We partner with these organizations to promote aquatic sports in high school and in general.

To honor: The NISCA All America chairs, Swimming-Rich Hood and Mark Jedow, Diving-Don Mason, Water Polo-Bryan Weaver and Academic, Scholar Team-Marney Shirley, as I have often said are the hardest working people in aquatics. They work tirelessly to insure that our most visible programs is running smoothly. We honor over 6,000 athletes a year. Our professional award committee also works hard year round to honor coaches. The retiring chair Bill Stetson lead the committee for almost 40 years! We are thankful for Bill's efforts to make sure coaches were properly recognized. I am sure our new chair Mel Roberts will carry on the fine tradition that Bill started. NISCA honors a multitude of coaches every year. With special service awards, 25 year awards, Outstanding Service, Hall of Fame, Collegiate-Scholastic and Life Membership awards. Please consider sending in a resume.

So what really is NISCA? It is an organization of high school swimming coaches that have banded together for the greater good of ALL high school aquatic coaches, athletes and the larger aquatic community.

My goal is to do everything I can to follow the NISCA motto: *To educate, promote and honor.* I want to urge each and every member to **Recruit ONE new NISCA member for the 2017-18 school year.** I'm not great at math but I think if we all did that we would double in size! Also, if you are interested in being involved at the national level with NISCA contact me. We have openings on the letterhead and on many committees. Have a great summer!!

In service,
Mark P. Onstott
NISCA President

President

Mark Onstott
41 Nickelby Down
Brentwood TN, 37027
(847) 644-7029
president@niscaonline.org

President Elect

Diane Hicks-Hughes
264 Ridge Road
Lansing, NY 14882
607-533-3020
pres.elect@niscaonline.org

Secretary

Eve Julian
341 Alger St. SE
Grand Rapids, MI 49507
(616) 475-0807
secretary@niscaonline.org

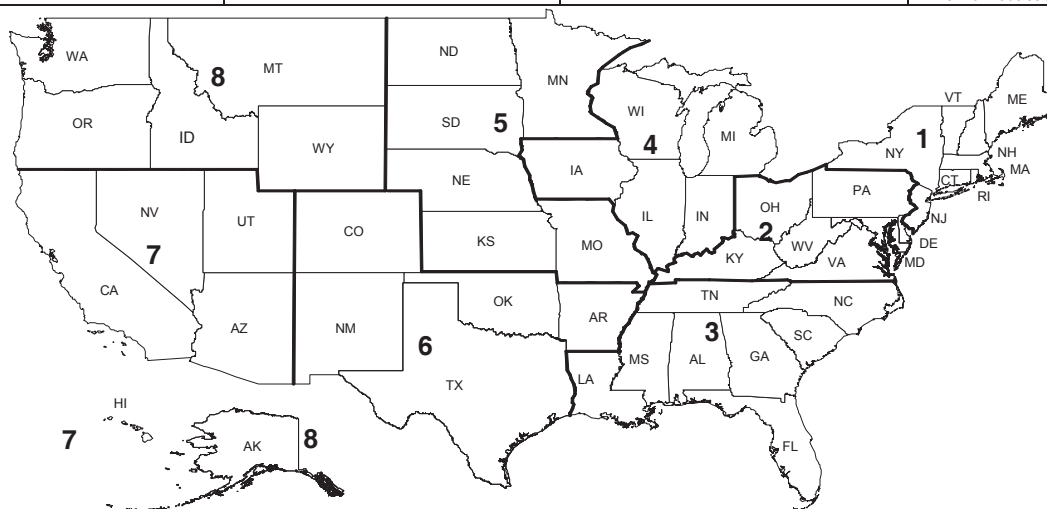
Treasurer

Tom Wojslawowicz
3015 Shiloh Lane
Charleston, SC 29414
(843) 637-4663
treasurer@niscaonline.org

Past President

Arvel McElroy
24372 West 108th Terrace
Olathe, KS 66061
(785) 218-1912
pastpres@niscaonline.org

All America Coordinator MARK ONSTOTT Retired 41 Nickleby Down Brentwood, TN 37027 847-644-7029 (Cell) e-mail: aacoord@niscaonline.org	All-America Swimming-Boys RICH HOOD Burke High School 5120 Maple St. Omaha, NE 68144 402-616-2999 (C) 402-557-3202 (W) 402-557-3239 (Fax) e-mail: boysswaa@niscaonline.org	All-America Swimming-Girls MARK JEDOW 21425 Encino Lookout San Antonio, TX 78259 210-481-6955 (H) 210-356-0000 (W) 210-259-3986 (Cell) e-mail: girlsswaa@niscaonline.org	Academic All-America/Scholar Team MARNEY SHIRLEY 401 8 th Street SW Jamestown, ND 58401-4642 701-952-6642 (H) 701-269-4324 (C) e-mail: aamerican@niscaonline.org
All-America Diving DON MASON 7101 Cathedral Dr. Bloomfield Hills, MI 48301 248-941-3348 (Cell) e-mail: aadiving@niscaonline.org	All-America Water Polo BRYAN WEAVER 32709 Seagate Drive, #E Rancho Palos Verdes, CA 90275 310-251-0321 (cell) e-mail: wpaa@niscaonline.org	Membership Chairman ANNETTE THIES Albuquerque Academy 4414 Canyon Court NE Albuquerque, NM 87111 505-235-3496 (cell) e-mail: membership@niscaonline.org	Rules Chairman PETE HUGO 29 Fairview Avenue Great Neck, NY 11023 516-487-2386 (H) 516-578-9026 (C) e-mail: rules@niscaonline.org
Professional Awards Chairman MEL ROBERTS Pratt Aquatic Center 55 N. 200 W. Tooele, UT 84074 435-850-8195 (C) 435-882-3247 (W) e-mail: profawards@niscaonline.org	DHR Award Chairman TOM HUDSON 1710 Boulder Drive Laramie, WY 82070 307-760-4814 (H) e-mail: dhaward@niscaonline.org	National Records/Archives Chairman MICHAEL SCHUELKE 1171 Park Village Drive Neenah, WI 54956 920-450-3614 (C) e-mail: records@niscaonline.org	Marketing Contact ARVEL F. MCELROY 24372 West 108th Terrace Olathe, KS 66061 785-218-1912 (Cell) e-mail: Markting@niscaonline.org
Power Point Coordinator CLAUDE VALLE NISCA Power Point PO Box 207 Weston MA 02493 781-622-0460 (Cell) e-mail: powerpoint@niscaonline.org	Journal Editor BETSY HONDORF 143 Baypath Drive Oak Ridge, TN 37830 865-243-0375 (Cell) e-mail: journal@niscaonline.org	Online Store Administrator GREGG ANDERSON 1633 Amwell Rd Somerset NJ, 08873 732-873-2225 (H) e-mail: store@niscaonline.org	Webmaster EVE JULIAN Ottawa Hills High School 341 Alger St SE Grand Rapids, MI 49507 616-475-0807 (H) 616-970-1661 (C) 616-247-0086 (Fax) e-mail: webmaster@niscaonline.org
Coaches' Education GREGG ANDERSON 1633 Amwell Rd Somerset NJ, 08873 732-873-2225 (H) e-mail: education@niscaonline.org	Hour of Power Chairperson CINDY DELL Lake Forest High School 1285 N Mcinley Rd. Lake Forest, IL 60045 e-mail: tedfund@niscaonline.org	Research Coordinator PAUL TORNIO P.O. Box 1409 Sandia Park, NM 87047 505-286-4105 (H) e-mail: research@niscaonline.org	Outreach Coordinator DANA ABBOTT St. John 23 College Preparatory 906 Aster Drive Katy TX 77493 281-347-0689 / 713-412-1610 e-mail: outreach@niscaonline.org



ZONE DIRECTORS

Zone 1 Director PHILIP M. EMERY Retired 48 Starlight Dr. Brewer, ME 04412 207-989-0416 (H) 207-944-8623 (C) e-mail: zone1@niscaonline.org	Zone 3 Director SCOTT BAY Father Lopez Catholic HS Daytona Beach, FL Head Coach 386-341-2899 (cell) e-mail: zone3@niscaonline.org	Zone 5 Director BRUCE BOVE Shawnee Mission South High School 9748 Riggs Street Overland Park, KS 66212-1542 13-909-9370 (Cell) 913-648-1970 (Home) e-mail: zone5@niscaonline.org	Zone 7 Director GREG SPIRE Canyon Crest Academy 6030 Amaya Dr. La Mesa, CA 91942 619-636-8730 (cell) e-mail: zone7@niscaonline.org
Zone 2 Director JIM STARRETT 820 Woodview Dr. NE Massillon, OH 44646 330-837-6713 (H) 330-904-7628 (Cell) e-mail: zone2@niscaonline.org	Zone 4 Director SHAWN KORNOLJE 42755 Chippewa Dr. Clinton Twp MI 48038 456-491-3776 e-mail: zone4@niscaonline.org	Zone 6 Director MARK JEDOW 21425 Encino Lookout San Antonio, TX 78259 210-481-6955 (H) 210-356-0000 (W) 210-259-3986 (Cell) e-mail: zone6@niscaonline.org	Zone 8 Director RICHARD CARR 505 N. 19 th Avenue Kelso, WA 98626 360-423-8235 (H) 360-430-7381 (cell) e-mail: zone8@niscaonline.org

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From the Editor:

It's time for celebrations! Beginning on our cover and continuing throughout this issue you will find stories of people doing amazing things. At my house we are celebrating the graduation of son #2 and the many honors that come at this time- including his Academic All America (see below!). We are excited for him to move on to his next adventure at Brandeis University! Two down, one to go!

But, at the same time as we celebrate our accomplishments from the past school year/swim season many of us are already looking for some new ideas to use in the next season. In this issue we provide some exciting ideas about what may help you have even more to celebrate next year. Christye Estes returns with an article about periodization and how season planning with your strength program can support what you do in the pool. Eric Fehr, from Highlands Ranch Aquatics shares some great thoughts and data driven conclusions on how to

apply test sets to training. Couple that with CJ Fiala's piece on swimming data and you've got a high tech season ready to go. The diving feature this time focuses on flexibility with suggestions about exercises and great photos to help you implement them. That article comes from Jeni McNeal of USA Diving. Finally, this issue concludes with the minutes of the 84th annual NISCA convention. If you've never attended you need to put Minneapolis on your calendar for next year.

We are closing out our recurring section on "Get to Know the Letterhead" with Don Mason, Bryan Weaver and Mark Jedow. Beginning with the September/October issue we'll be looking instead at some of the top juniors in the All America lists.

Be sure to order your copy of the All America issue (July/August) using the form at the back of this issue- it's the only way to get them!



I wish you all much happiness in your celebrations this year and also a restful "off" season!

Betsy Hondorf

niscajournal@gmail.com

865-243-0375

The NISCA Journal is edited and published by NISCA (Editor, Betsy Hondorf). If you have submissions, questions or suggestions for the Journal please contact me at niscajournal@gmail.com



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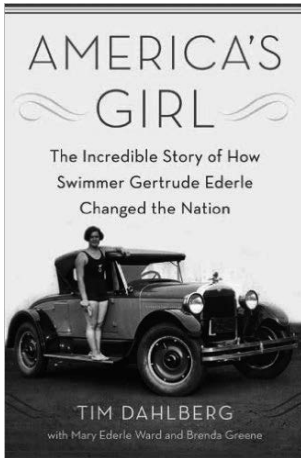


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From the Bookshelf: America's Girl



America's Girl, Tim Dahlberg. St. Martin's Press, NY, NY, 2009. 294 pp. \$30 US. Hardcover. ISBN 978-0-312-38265-0

Reviewed by Dave Barney, Albuquerque Academy, NM

Much has been written over time about the legendary Gertrude Ederle, the first woman to successfully swim the English Channel, but Tim Dahlberg's book, *America's Girl*, written almost a decade ago in collaboration with Ederle's surviving niece, Mary Ederle Ward, is by far the deepest and most precise illumination of one of the most celebrated moments in 20th Century sport. Dahlberg's deliberations come to us courtesy of Mary Ederle Ward's willingness to share with Dahlberg not only her famous aunt's extensive archive of more than 1500 newspaper and magazine clippings, but also a lengthy, unfinished autobiography written by "Trudy" Ederle herself. Underscoring all this is the matter of oral history, the many hours of conversation that passed between Ward and the primary author of this in-depth look at the woman who's "American Moment" in the middle of the decade of the "Roaring Twenties" became a global moment.

The fanfare of Ederle's swim, and subsequent triumph over the stormy and treacherous waters of the English Channel in August of 1926, provides us with much more than merely a conquest of mind over matter. Dahlberg's narrative focuses on the idea of gender, a motif that piques

our curiosity initially about the possibilities of a woman's physical capabilities and then, ultimately, endows us with a renewed sense of respect for women and what they were able to achieve in an age of male-dominated sport, a culture enthroned by the glamor of "The Lone Eagle" Lindbergh, The Manassas Mauler, Jack Dempsey, and the "Sultan of Swat," Babe Ruth. The birth of that "Roaring Twenties" awareness of a woman's capability, ignited by Ederle's wondrous swim, serves us as a genesis for the current-day respect most of the world holds for women athletes everywhere.

Much of the first half of *America's Girl* is given over to Ederle's preparation for and then the historic swim itself, as well as the massive media coverage of the event. These moments are the most captivating in the entire book, but they lose some of their drama by being repeatedly interrupted by a multitude of narrative detours pertaining to just about anything and everything that transpired during the early days of American women's swimming in general as well as the evolution of Ederle's competitive career with the WSA (Women's Swim Association) in particular.



To Dahlberg's credit, he does shed some light on two of the few failures in Ederle's competitive life, her disappointing performance in the "Chariots of Fire" Olympics in Paris in 1924, where she only won two bronze and a gold medal instead of a predicted cinch three gold medals and, of course, her failed initial attempt to swim the Channel in 1925. Other sidebars examine the emergence and role of women in American sport in general during the 1920's and how this particular part of our history was influenced by Ederle's astonishing achievement.

The second half of the book describes in detail the aftermath of Ederle's conquest of the Channel and how she became Great Britain's Girl, then Germany's Girl before she finally sailed home and became America's Girl. The hype following the swim was extraordinary. People everywhere simply could not get enough of the shy but charming "Trudy." Financial offers and tokens of appreciation poured in from around the world, including the prize of a 1926 Buick Red Roadster (see book cover above) given to her by her primary sponsor, the *NY Daily News*. The city of New York's "Welcome Home" celebration for "Trudy," featuring a ticker-

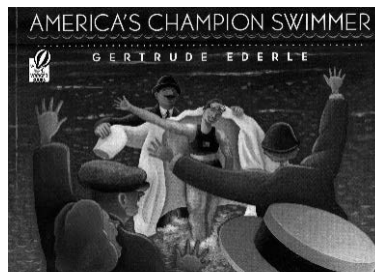
tape motorcade through the "Canyon of Heroes" in lower Manhattan, became the standard for future NYC ticker-tape parades and was surpassed only by the city's welcome for Charles Lindbergh following his successful solo flight from NY to Paris in 1927.

Sidebars examine the emergence and role of women in American sport in general during the 1920's and how this particular part of our history was influenced by Ederle's astonishing achievement.

When the cheering eventually stopped, and the money dried up from an exhausting two years of personal appearances and swimming exhibitions in big cities and small towns from coast to coast America and abroad, Gertrude Ederle retired to a quiet, unmarried life of teaching swimming while trying to come to terms with her increasing deafness. She remained relatively shy and uncomplaining throughout her lifetime, which was considerable as she lived to see the new century even though she could not hear any of it.



Among the last interviews she ever granted comes to us compliments of two old friends of NISCA itself, Bob Duenkel and Buck Dawson from the International Swimming Hall of Fame in Fort Lauderdale, where “Trudy” had been an absentee honoree of the Hall’s inaugural class of inductees in 1965. Dawson and Duenkel, who had never met Ederle, came to her apartment in Queens on the day following her 89th birthday with a tape recorder in hand to listen “to a gray-haired old women,” who in one moment of her life had been the planet’s brightest star, a young girl who came of age in an era in which anything it seemed then was possible. “Trudy” Ederle epitomized that era of the “Roaring Twenties,” but it was inevitable that its heroes, including “Trudy,” would eventually fade from the nation’s consciousness and Americans would go about the business of more pressing challenges . . . like dealing with the consequences of the Great Depression followed closely by the ordeal of a world at war.



America's Champion Swimmer: Voyager Books, NY, NY, 2005. 30pp. \$7.00 US. Softcover. ISBN 978-0-15-205251-5

America's Girl is an important book, but if NISCA coaches wish to introduce young swimmers to the saga of Gertrude Ederle, they would be best advised to consider a companion reader to “Trudy’s” astonishing story: *America's Champion Swimmer* is an illustrated text presented especially for young people by Voyager Books, a subsidiary of Harcourt Books. For the most part, Terry Widener’s illustrations far outweigh David Adler’s text. Regardless, the important message that each of these books convey is that with courage and determination anyone can become a champion.

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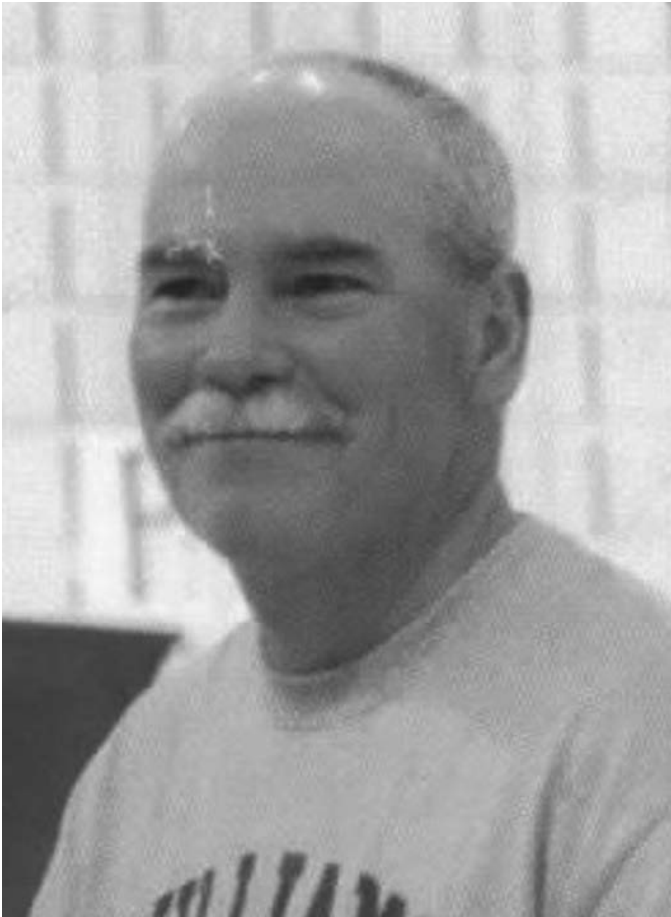
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IN MEMORIAM

Gary Isherwood, John Bapst Memorial High School, Bangor, Maine



Coach Gary Isherwood, beloved coach for nearly 25 years of John Bapst Memorial High School Swim Team of Bangor, Maine passed away on March 19, 2017 at the age of 59. Coach Isherwood was a long time NISCA member and he was immensely proud not only of his teams' success in the pool but also in the classroom. He coached over 45 National All-American Academics and his teams earned the National Scholar Team Award 12 of the last 14 years. Since 2005, Coach Isherwood's swim teams (both boys and girls) placed 10 times in the top 25 in the NISCA Dual Meet Team Rankings for Independent Schools (1-900 category). Coach

Isherwood found a passion for swimming at a young age, first as an athlete, then as a coach. His coaching career spanned collegiate, USS and high school teams from New York, Connecticut, New Hampshire, North Carolina and eventually coaching at John Bapst Memorial High School in Bangor, Maine. Many accomplishments and honors were achieved under Coach Isherwood's leadership, including a National Championship with the Wilton Wahoo's of Connecticut, several Maine High School Sportsmanship Awards, and numerous Maine regional and state high school champions. For this he was recognized by the Maine Principals' Association as the 2014 Coach of The Year for Class B Girls Swimming. As a Coach, he touched the lives of many swimmers, not only teaching the techniques and intricacies of the sport, but also guiding and shaping them to live full and purposeful lives outside the pool.

Gary Isherwood is survived by his wife of 32 years, Deanne, his three children, Tyler, Corey, and Meridith and granddaughter Zoe.

A swimming scholarship fund has been established in Coach Gary Isherwood's honor. Memorial donations may be made to the Coach Gary Isherwood Scholarship Fund c/o John Bapst Memorial HS, 100 Broadway, Bangor, ME 04401 or online at <https://www.my-secure-site.com/johnbapst/donate>

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Get to Know the Letterhead

Don Mason, Novi High School

All America Diving



Many years ago a swim coach "suggested" I join the High School swimming and diving team. He taught me many lessons including how to set goals, work hard, respect others, and myself. He showed me by example what a successful coach was and how they treated others.

Mike Lane was many things, a caring individual, a great teacher, and a extremely successful coach and leader. He served the sport of swimming in many ways and eventually became the MISCA (Michigan) president and then the president of NISCA. He motivated me to be better as an athlete and through his teachings inspired me to give something back to the sport.

I eventually became a coach and began learning why he did the things he did. I had no idea how much time and energy it took to be a coach, and how patient I would have to become to reach those that I worked with. Slowly I earned some coaching success and one year when my diver, who I believed to be deserving, was left off the All America list I determined it was time to learn more about how divers make All America. I went to the 2nd National Championship at New Trier High School and met Arnie Cajet and members of the Diving Selection Committee. I was fortunate to be invited to join the committee the next year and learned the process

they used to re-judge and then rank the divers that submitted applications.

I stayed on the committee as Nancy Geibel became the selection chair and during Dan Murphy's time as chair I was asked to join the diving rules subcommittee. As Murf's term came to a close Dana Abbott and Arvel McElroy asked me to consider becoming the next AA Selection Chair. At that time Dick Farnsworth from International Sports Timing (IST) began lending his support to NISCA and the Diving Selection Committee. We had many discussions regarding the creation of an application that could be completed by the applicant on line which later became reality and led to the website as we know it today. Now almost all of the programs we offer are completed online. Dick has been a wealth of information and has gone above and beyond with his support for NISCA. The Diving Selection committee has used his IST judging consoles since 2003 and he consistently comes to the selection weekends diligently making upgrades to the program he created to run the programming part of the selection process.

I thought I was ready to take on the task of becoming the Selection Chair by serving on the committee for almost ten years. Boy was I wrong. The operating system changed from Apple to Windows that first year and those that I expected to teach me were not able to assist with windows. I had to learn what to track, how to process applications, and verify income. I didn't know what I needed to spend or what I was allowed to spend. I had to learn how to select

the committee, where to house them, feed them, pick them up from the airport and then return them when we were done. I had no idea how difficult it was to organize all of the applications, deal with the parents and coaches trying to submit applications, and really didn't expect all of the email communications after the process was completed. It took me two years to really feel comfortable putting it together, accept the public relations necessary, and staying on top of the finances of both the applicants and the committee.

Since then I have tried to create consistency, reduce the costs of bringing in judges, and tried to make the process easier for everyone who volunteers to serve on the selection committee. It has been my mission

Bryan Weaver, Palos Verdes Peninsula High School

All America Water Polo



As a high school varsity water polo coach for 31 years, Bryan Weaver has a very successful career, amassing 18 league championships, coaching 75 All-CIF water polo players, developing 10

NISCA High School All-Americans and recording a 577-334 overall record. These accomplishments have brought recognition among the water polo community as he serves on the CIF Boys and Girls Water Polo and Swimming Coaches Advisory Committees, and the past President of the Southern California Water Polo Coaches Association. Weaver has been the NISCA Zone 7 Director for Swimming, Diving and Water Polo for nine years,

to be as transparent as possible while inviting as many different people to be part of the process as makes sense. I am always looking for qualified candidates to serve on the committee who are willing to give up four days at the end of May to re-judge 550 - 600 diving meets and most importantly, think that it is fun.

I have been very fortunate to find many good people to help judge over the past ten years and I am blessed with an administrative group that I could not succeed without. They are very special people who see the big picture and put aside their personal interests to do what is best for diving and the high school divers who submit applications each year.

and the National Chairman for high school water polo coaches for seven years.

In 1987, Weaver also founded Masters Water Polo for USA Water Polo and is the current National Chairman. Each year USA Water Polo bestows at their National Awards the 'Bryan Weaver Male & Female Master of the Year Award.' As a Master's water polo player and coach, Weaver has competed in five FINA Masters World Championships, 22 Masters National Championships and earned 14 All-American honors. He has officiated (refereed) a FINA World Championship water polo game. Weaver is a USA Water Polo Gold Level Coach.

Weaver is a member of the selection committee for the International Swimming Hall of Fame (ISHOF), and a Bronze Level Instructor for the American Sports Education Program (ASEP) which provides coaching education programs for youth and high

school coaches by emphasizing athletes' development and well-being over winning.

As an author and publisher, Weaver has written two books. The first is a critically acclaimed American Civil War history book titled: *Sacrifice at Chickamauga: A History of the 89th Ohio Volunteer Infantry Regiment* which has been included in the Library of Congress and two presidential libraries.

The second book relates to genealogy in Clermont County, Ohio. A third book is in process.

Currently, Weaver works as the Boys Varsity Water Polo Coach at Palos Verdes Peninsula High School in Southern California. He enjoys exercising and participating in many sports, and is a black belt in Korean karate.

Mark Jedow, Palos Verdes Peninsula High School

All America Girls Swimming, Zone 6 Director



Mark currently serves as the NISCA Girls Swimming All America Chair as well as the Zone 6 Director which represents Arkansas, Colorado, New Mexico,

Oklahoma and Texas. When he is not verifying meet results late into the evening, Coach Jedow works as the Head Boys and Girls Swimming, Coach at Churchill High School, in San Antonio, Texas and represents the Texas Region VII-6A coaches on the Texas Interscholastic Swimming Coaches Association (TISCA) board. (TISCA like NISCA but bigger, because everything is bigger in Texas.) Coach Jedow recently received his NISCA 25 Years of Service Award other Achievements and Recognitions include

2000, 2001 and 2002 Texas U.I.L.State Girls 5A State Swimming & Diving Champions.

2009 & 2010 Texas UIL State Girls 5A Swimming & Diving State Runner-Up

2012 Texas UIL State Boys 5A Swimming & Diving State Runner-Up

61 NISCA: *Swimming High School All American* Performances

Over 40 NISCA Academic All- America Selections
Over 70 Texas All State Swimming & Diving Team Selections.

National Interscholastic Swimming Coaches Association Public School Record Holder

Texas Interscholastic Swimming Coaches Association: Girls 5A Coach of the Year, 2001, 2002.

National Federation: Zone 6 Boys and Girls Swimming Coach of the Year, 2001.

San Antonio Express News: Swimming Coach of the Year, 1998, 1999, 2000, 2001, 2002 2009, 2010, 2012, 2017

U.I.L. District 26: Coach of the Year: 1996, 1997, 1998, 1999, 2009, 2010, 2011, 2012, 2014, 2017

U.I.L. District 27: Coach of the Year: 2000, 2001, 2002,

U.I.L. Region 7: Coach of the Year: 1994, 1998, 1999, 2000, 2001, 2002, 2009, 2010, 2012, 2013, 2014, 2017



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FEATURE:

PERIODIZATION FOR SWIMMING

Christye Estes- Volt Athletics



You already know how important dryland training is to a swimmer's health and performance in the pool. But before you set foot in the weight room,

first you've got to have a plan for what you want to accomplish—and a blueprint of how to do it. It's easy to improve an athlete's strength by progressively increasing the amount of weight lifted, but to prepare an athlete to reach peak swimming condition at just the right time in the competitive season requires a bit more finesse. Based on core principles of sport and exercise science, a periodized strength and conditioning plan is the gold-standard approach to helping athletes develop the necessary training attributes to excel in the pool, stay injury-free, and avoid overtraining.

Periodization and the GAS Theory

"Periodization" is simply a method of organizing training to produce the most optimal performance results at a specific time—for athletes across all sports, not just swimmers. The thinking behind periodization is based on Hungarian scientist Hans Selye's General Adaptation Syndrome (GAS) from the mid-1900s. The GAS theory identified the three stages the body undergoes when experiencing a new stimulus: Alarm, Resistance, and Exhaustion.

1. **Alarm:** This is the body's initial shock when a new stimulus or stress is introduced. When you begin a new strength training program or perform a new exercise for the first time, the excessive soreness you feel is an example of the Alarm phase.
2. **Resistance:** This is when the body adapts to the stress. In a strength training program, this is when you begin to get better at handling the workload—muscle tissue adapts by becoming stronger, so that you can overcome higher amounts of weight.
3. **Exhaustion:** This occurs when the body is overstimulated (or stressed for too long a duration), and results in a decrease in adaptation. We do NOT want to reach this stage in strength training, as it can lead to overreaching and overtraining.



In other words, you need enough stress to Alarm the body and prompt it to adapt, enough Resistance to continue driving that adaptation, and the occasional removal of stress to prevent Exhaustion.

These are concepts most of us are familiar with in our own training: you can't work out at 100% intensity every day without eventually hitting a wall, getting hurt, getting sick, or becoming too sore to continue. Likewise, you can't simply increase the weight in an exercise linearly forever—the body will eventually say “no,” and stop getting stronger. The goal of a good periodized training plan is to prolong the Resistance stage long enough to drive positive adaptations, while preventing the Exhaustion stage through periodic reductions in volume and/intensity.

The Year-Long Periodized Training Calendar

Periodization starts with organizing the training year into smaller periods of focused training called cycles, each with an overarching training goal. This allows you to layer training adaptations (like strength and power) to optimize sport performance for the time of competition. Vocabulary can differ from coach to coach, but generally, the 12-month training calendar (macrocycle) is broken up into medium-sized training cycles (mesocycles), which are each comprised of even smaller cycles that are typically one week in length (microcycle)—see the table below for more details.

Period	Duration	Description
Macrocycle	Several months to 1 year	An annual plan can contain one or more macrocycles, comprised of various periods of training (e.g., off-season, in-season, post-season)
Mesocycle (block)	2-6 weeks	Medium-sized training cycle
Microcycle (training week)	Several days to 2 weeks	Small-sized training cycle, composed of multiple workouts
Training Day	1 day	Can include multiple training sessions (e.g., AM weights session, PM pool session)
Training Session	45 min to several hours	One workout

Table inspired by the 4th edition of the Essentials of Strength and Conditioning, pg. 587

There are many, many different (and effective) methods of periodization and calendar organization—and much is determined by the layout of your competitive season, the training experience of your athletes, and your own preferences as a coach. At Volt, we break the year up into three macrocycles: off-season, in-season, and post-season. This way, we can be very specific with the training goals and adaptations for the unique demands of each phase of the athlete's training year.



For swimmers, the off-season is about building total-body strength, core stability, and shoulder health (to help mitigate overuse injuries from high pool volume). These athletic qualities, when developed correctly, will translate to better stroke technique, improved overall work capacity, and (hopefully!) faster times. Depending on the swimmer's primary race distance, there will be a particular focus on either power (sprint swimmers) or stamina and power-endurance (distance swimmers). Our mesocycles are typically three to five weeks in length—we call them “blocks”—and emphasize a singular training adaptation, like max strength. As the competitive season approaches, we taper an athlete's training volume and intensity, allowing training adaptations to be fully realized without creating too much fatigue before

competition. This ensures swimmers start the season fresh and fast, with the best chance for success.

Sequencing Training Adaptations

Ultimately, the year-long periodized calendar allows you to train your swimmers across a wide spectrum of physiological demands—and the sequence in which different traits are developed is important. Just like we learn to read by first learning basic, simple rules (like the alphabet) and more complex grammatical structures later on, athletes' bodies “learn” new training adaptations in a similar sequence. Starting at the beginning of your off-season (what Volt calls the “Preparatory phase”), training should be focused on developing general athletic capabilities not necessarily specific to swimming—this is accomplished through high volumes and low loading (weight lifted) in a variety of movement patterns. This initial portion of the Preparatory phase is all about developing a general physical base off which your swimmers can develop more complex and sport-specific traits. Volt uses these early training blocks to increase muscle mass, develop a base of muscular endurance and work capacity, and prepare muscles to sustain heavier loads.

Throughout the Preparatory phase, training should gradually shift to lower volumes and higher loading



in exercises more specific to the act of swimming. As the Competitive (in-season) phase nears, training transitions to very low volumes and very high loading, with the goal of performing exercises at competition speed. The end of the Preparatory phase needs to allow athletes to peak for competition—for swimmers, this means keeping the weight room volume low enough so as not to interfere with pool work, while gradually tapering the loading from very high to moderate loads, so athletes reach competition feeling primed to perform without being overly fatigued.

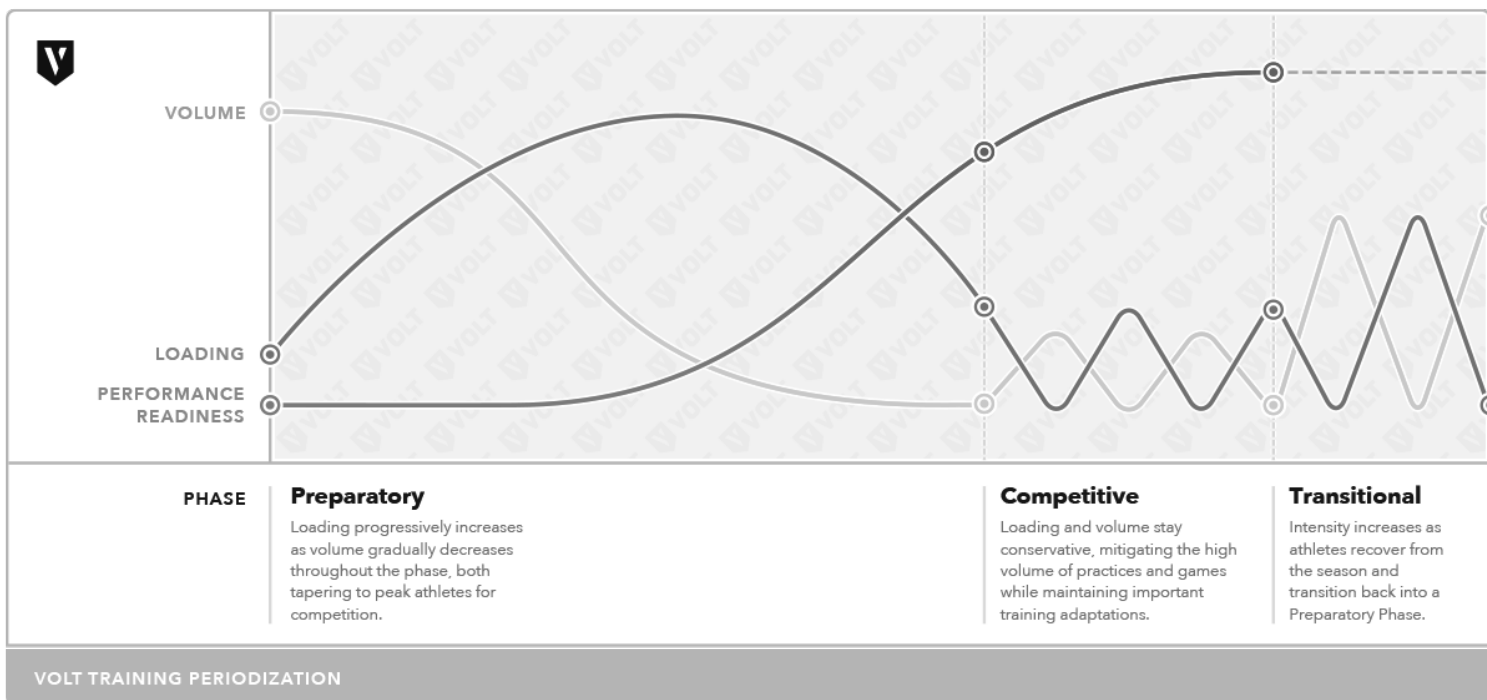
During the in-season, dryland training should



continue—but at a reduced weekly volume. Training during the competitive season is important, not only for maintaining training adaptations developed during the Preparatory phase, but also for continuing to drive positive adaptations and prevent overuse injuries (especially important for swimmers). Based on your team's meet schedule, you can also design your program to allow for multiple peaks before important competitions during the in-season. Following the Competitive phase, athletes should enter a period of very reduced and/or non-specific training so they can physically and psychologically recover from the demands of competition before gearing up for the next Preparatory phase of training.

The Takeaway

If a periodized training program sounds complex and arduous to design, that's because it is! It requires both an intimate knowledge of the sport you want to prepare for and expertise in the field of strength and conditioning. A certified strength and conditioning specialist (CSCS) is a strength coach who's been certified by the National Strength and Conditioning Association (NSCA) to do just that: design research-based, periodized sport performance programs. If you don't have a CSCS on your staff, I'd encourage you to reach out to one for help in designing a safe and effective swimming program—or, even better, become certified yourself! The impact of a strategically designed dryland program can make all the difference in the health—and performance—of your swimmers.



Christye Estes, CSCS, is a Sport Performance Specialist at Volt Athletics, a Seattle-based sport technology company that brings professional-level sport performance training to athletes and teams worldwide. Volt's technology leverages decades of strength and conditioning research and science to build hyper-personalized training plans, delivered through an intelligent training app. When she's not writing training programs and articles, you can find Christye running one of Seattle's many beautiful trails, chasing PRs in the weight room, or jumping up and down during Seahawks games.

For more information about Volt's training programs, please visit www.voltathletics.com.

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NISCA Swimming All America

Rules:

1. Applications must be submitted on-line at <http://www.niscaonline.org>.
2. All parts of the application must be completed. Failure to complete any section will delay the processing of your application.
3. For an individual event, the full home address and home telephone number of the swimmer must be included.
4. Relay teams are limited to FOUR swimmers. ALL RELAY SWIMMERS MUST BE LISTED ALONG WITH THEIR NUMERIC GRADE LEVEL. ALL SWIMMERS MUST BE IN GRADE 9-12 TO APPLY. Only **ONE TEAM PER SCHOOL per event**.
5. All times submitted must be achieved in a regularly scheduled interscholastic meet (no time trials) and will include times achieved up to and including *STATE MEET PERFORMANCES*. *NO TIME AFTER THE OFFICIAL STATE ASSOCIATION CHAMPIONSHIP MEET WILL BE ACCEPTED*.
 - USA Swimming OR YMCA meet times will NOT be considered.
 - National Federation Rules must govern the meet.
6. All times must be submitted to the one-hundredth of a second. NO MANUAL TIMES ACCEPTED. Automatic timing ONLY!
7. For times swum at a pool located at an altitude above 3000 feet, enter the time as swum and the correct altitude for the location of the meet. DO NOT ADJUST THE TIME.
8. All meet times must include documentation (copy of, or link to, the official meet results).
 - Non-Championship meet times MUST include the signatures of the Meet Manager and Meet Referee.
9. Only 25 yard or 25 meter times will be accepted.
10. A swimmer may be listed in as many events as his/her times qualify. Each event will require an application. All applications will be paid for as a group at the end of the application process.

Procedures:

1. In order for a swimmer to be considered as a NISCA High School All-American he/she must compete for an interscholastic team and be scholastically eligible as determined by his/her state athletic association or school authority. All swimmers must be in at least the 9th grade level of school to be eligible. Swimmers are limited to 8 consecutive semesters of eligibility. **Fifth year seniors, 7th and 8th grade students are not eligible for consideration. See NFHS National Records Committee Policy Handbook Definition #1.**
2. Applications can be submitted online beginning on November 1st. Application deadlines are:
 - Fall season - December 31st
 - Winter season – March 31st
 - Spring season – June 15th
3. Fall and winter season coaches will be charged a \$30.00 late fee for each application entered after your season's deadline.
4. The application portal will close on midnight (Eastern) June 15th and no applications will be accepted once the portal has closed.
5. Non NISCA members will be charged a \$30.00 non-member fee per application. NISCA Membership is \$50 at <http://niscaonline.org/Memberships>. On-line membership applications can take up to 24 hours to process.
6. The fastest one hundred (100) submitted and accepted times in each event will be named All-America.
 - Check applications submitted and accepted at <http://www.niscaonline.org/aaswimming/AppsProcessed.aspx>
 - Check applications submitted but NOT accepted at <http://www.niscaonline.org/aaswimming/AppsReceived.aspx>
7. Swimmers who are selected to the All-America teams will be mailed **one** commemorative certificate.
 - Additional certificates may be purchased after the All American Team has been announced. Certificates can be reordered here: http://niscaonline.org/Portals/0/Documents/All%20America/All%20American%20Reorder%20Form_14.pdf?ver=2015-08-28-182020-000
 - **Certificates are sent to the ATHLETES HOME ADDRESS. If the address listed as the athletes home address is NOT their residence, NISCA is not responsible for replacing those certificates.**
8. Print a copy of each application and any payment receipt for your records as proof of submission.

HIGH SCHOOL SPECIFIC:

TRAINING IS TESTING AND TESTING IS TRAINING

by Eric Fehr, Highland Ranch Aquatics



While coaching another program some years ago, I took some time travelling home for the holidays to begin planning the winter training plan for our group. We had worked hard and performed well at our mid-

season meet. But I was struck by how little I knew about the athletes' progress.

Meet performances are governed by the rule of small sample sizes with many variables beyond the training plan alone. Did certain athletes perform well because of the training plan or in spite of it? Could I have identified patterns in advance of the meet for athletes who did not perform well?

How do I know whether athletes are better prepared than last season? More importantly, how do the athletes know they are better prepared than last season?

I of course had favorite sets, repeated on seasonal or annual bases. Were these sets predictive of anything? Did the athletes believe they were predictive of anything? How do I communicate this transfer between the training and competition pools?

And, why was I waiting until the very time at which no further adjustments can be made to determine if any were/are necessary?

I thus began sketching a plan to test and track athlete progress in real-time. The following are ideas with which we have experimented to help our coaches make adjustments on the fly, and to communicate with our athletes regarding their development or lack thereof.

Background

Highlands Ranch, CO is a planned community of approximately 100,000 residents 20 miles directly south of Denver. The Mission Viejo Company developed the community in the image of its first development in southern California. Like Mission Viejo, Highlands Ranch encompasses a highly affluent population with a large number of households with children under 18. Unlike Mission Viejo which created a world-class swimming program decades ago, Highlands Ranch has seen numerous swimming organizations come and go.

In March of 2013, Highlands Ranch Aquatics' highest individual or relay finish Western Zone Sectional meet was 38th place. This past March, HRA's women's team won the meet by more than 250 points over its nearest competitor, won three of the five women's relay events, and took 1st and 2nd in the 400 Medley Relay. The club also earned USA Swimming's Bronze Medal status in 2016 as one of the top 200 swim clubs in the country.

Opportunities and Challenges

Like many programs, Highlands Ranch Aquatics shares time at local recreation centers with four public high schools and various community programming. We operate with limited lane space capping our membership at approximately 110-120 athletes. We also have limited pool time, with only three lanes available in the mornings and only 60-90 minutes for our senior groups on Mondays, Wednesdays and Fridays from September through May. These limitations largely impact how we structure our programs and our style of training.

We could certainly take our limited training time and try to squeeze as much yardage as possible. But with our senior athletes in the pool for only 11-12 hours per week, we would be fighting a losing battle with programs training 18-20 hours.

We also train year-round at 5,400 feet above sea level. While altitude training no doubt confers many benefits, particularly with regards to aerobic training, it also places high metabolic demands on athletes. They cannot train as long nor as fast, and require more recovery within and between workouts.

How do I know whether athletes are better prepared than last season? More importantly, how do the athletes know they are better prepared than last season?

Weekly Set-Up

Our typical training week alternates between primary aerobic and anaerobic training days. During the former, we make a point to identify and distinguish between 'high recovery' and 'low recovery' athletes (those who require different amounts of recovery). We also individualize our aerobic training by running mixed distance sets allowing for various strokes and abilities to run concurrently (ex. 12xX @ 2:30 where X=200 or 175 or 150) with similar work to rest ratios.

We further individualize our anaerobic training by providing athletes with goal times based on their season goals and/or performance in prior weeks of training. We attempt to focus on one energy system (using a similar work to rest ratio) or adjoining energy systems within one workout.

Table 1 lays out a typical week during our short-course season:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
AM (Indiv. Groups)	1.5hrs IM athletes		1.5hrs Mid/Long Free or Stroke athletes		1.5hrs Short Free or Stroke athletes	2hrs Race Distance Training (Incl. Mile Pace)
Dryland	10mins Warm-Up to Swim	10mins Warm-Up to Swim	10mins Warm-Up to Swim	10mins Warm-Up to Swim	10mins Warm-Up to Swim	10mins Warm-Up to Swim
PM	1.5hrs Short/Mid/Long Aerobic	2hrs 200 Pace	1.5hrs Short/Mid/Long Aerobic	2hrs 100/500 Pace	1.5hrs Combined Aerobic	
Dryland	45mins Circuit Training	45mins Weight Training	45mins Circuit Training	45mins Weight Training	45mins Circuit Training	45mins Weight Training

Table 1: Short Course Season Weekly Plan



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Testing Protocols

We closely track four different training measures during each season:

1. **200 Pace** – Measured by fastest effort, slowest effort and the # of successful efforts at or under provided goal time. Sets are performed on a weekly basis.
2. **100 or 500 Pace** – Measured by fastest effort (+ slowest effort for 500 pace) and the # of successful efforts at or under provided goal time. Sets are performed on a weekly basis.
3. **Beat the Beep Sets** – An adaptation of Dr. Brent Rushall's USRPT concepts using Tempo Trainers to administer specific goal times. We measure the # of successful efforts within a set. Sets are performed on a weekly basis.

4. **Pulse Plots** – An adaptation of Dr. Dave Salo's aerobic testing protocol. Measures changes in heart rate as effort scales up and down. Sets are performed on a *monthly* basis.

200 Pace Testing

Table 2 is an example of weekly progression for 200 pacing. Athletes spend the first training cycle working to repeat their goal pace time more consistently. They spend the second cycle either subtracting from the rest interval if they reach a certain measure of success in the prior week (our standard has been >2/3 of efforts at or below goal pace), or adding to it if they are less successful (e.g. <1/3 successful efforts).

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
20x50 @ 1:00 1 Ez-1 Fast	15x50 @ 1:00 1 Ez-2 Fast	14x50 @ 1:00 1 Ez-3 Fast 1 Ez-3 Fast 1 Ez-2 Fast 1 Ez-2 Fast	12x50 @ 1:00 1 Ez-5 Fast	10x50 @ 1:00	Recovery
Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
10x50 @ 1:00	8x50 @ :55 8x50 @ 1:00 8x50 @ 1:05	6x50 @ :50 6x50 @ :55 6x50 @ 1:00 6x50 @ 1:05 6x50 @ 1:10	5x50 @ :45 5x50 @ :50 5x50 @ :55 5x50 @ 1:00 5x50 @ 1:05 5x50 @ 1:10 5x50 @ 1:15	4x50 @ :40 4x50 @ :45 4x50 @ :50 4x50 @ :55 4x50 @ 1:00 4x50 @ 1:05 4x50 @ 1:10 4x50 @ 1:15 4x50 @ 1:20	Competition Week

Table 2: Weekly Progression for 200 Pacing

Chart 1 displays the results for a male freestyler over an eight week protocol similar to the above. The grey bars show the variation between the fastest and slowest efforts, and the lines represent the pace required to achieve qualifying times for various meets. We interpret the lower end of the bars as

representative of the trained potential of the athlete. The downward trend represents the added stress as the rest interval is reduced. This athlete went a 1:44.1 at the target meet, directly between the Futures (1:42.0) and Sectional (1:45.8) qualifying times.

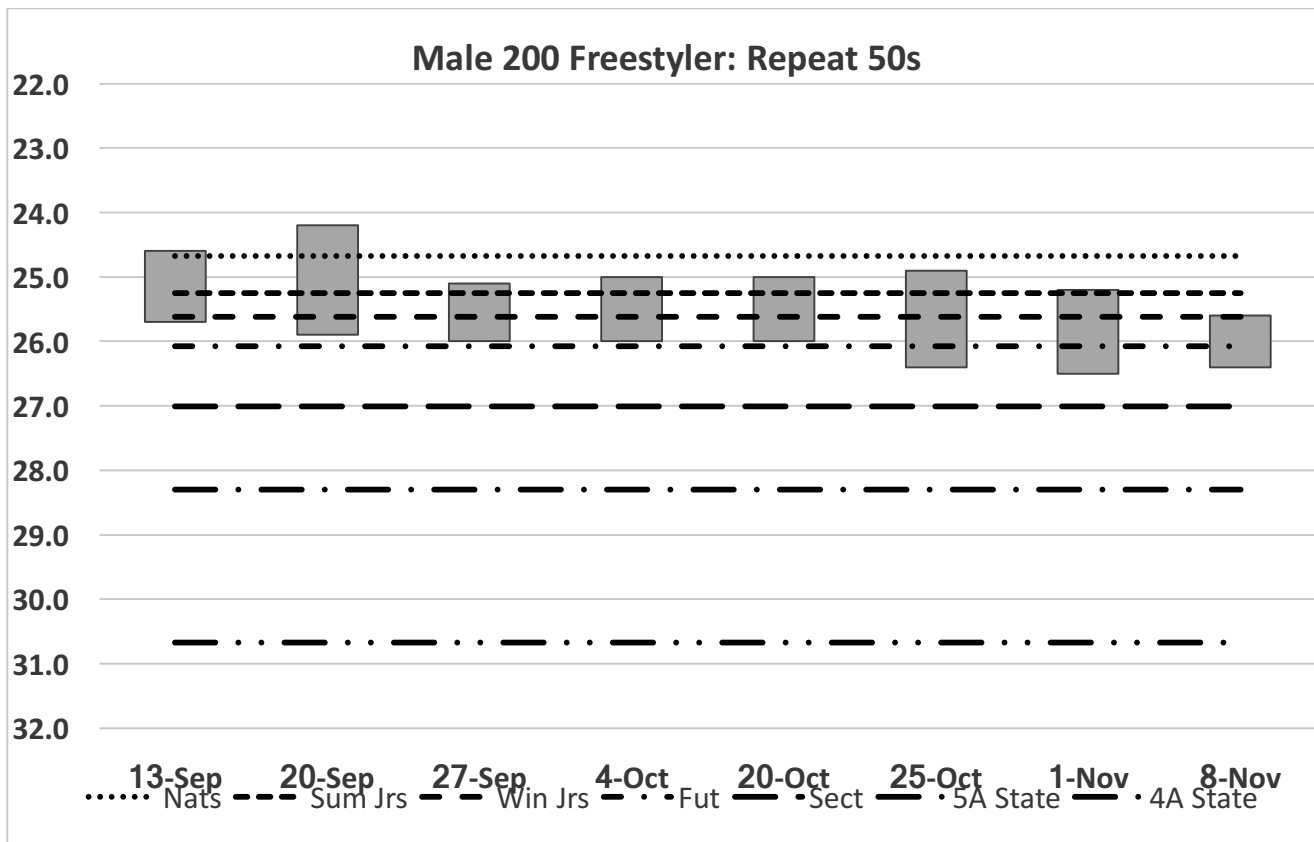


Chart 1: 200 Pace Results, Male Freestyler

100 or 500 Pace Testing

The following is an example of weekly progression for 100 and 500 pacing. The sets can be run concurrently with athletes divided between sprint and distance. Similar to 200 pacing, athletes spend the first training cycle working to develop the speed necessary to achieve their goal pace times. They spend the second cycle either subtracting or adding rest depending on their success in the prior week.

Chart 2 displays the results for a female 100 freestyler over a five week protocol similar to the above. We choose to record only the fastest effort within the set to encourage athletes to give a 100% effort from the beginning of the set without protecting

themselves from fatigue later in the set. The downward trend once again represents the added stress as the rest interval is reduced. This athlete swam a 53.8 at the target meet, just off the Sectional (53.7) qualifying time.

We choose to record only the fastest effort within the set to encourage athletes to give a 100% effort from the beginning of the set without protecting themselves from fatigue later in the set

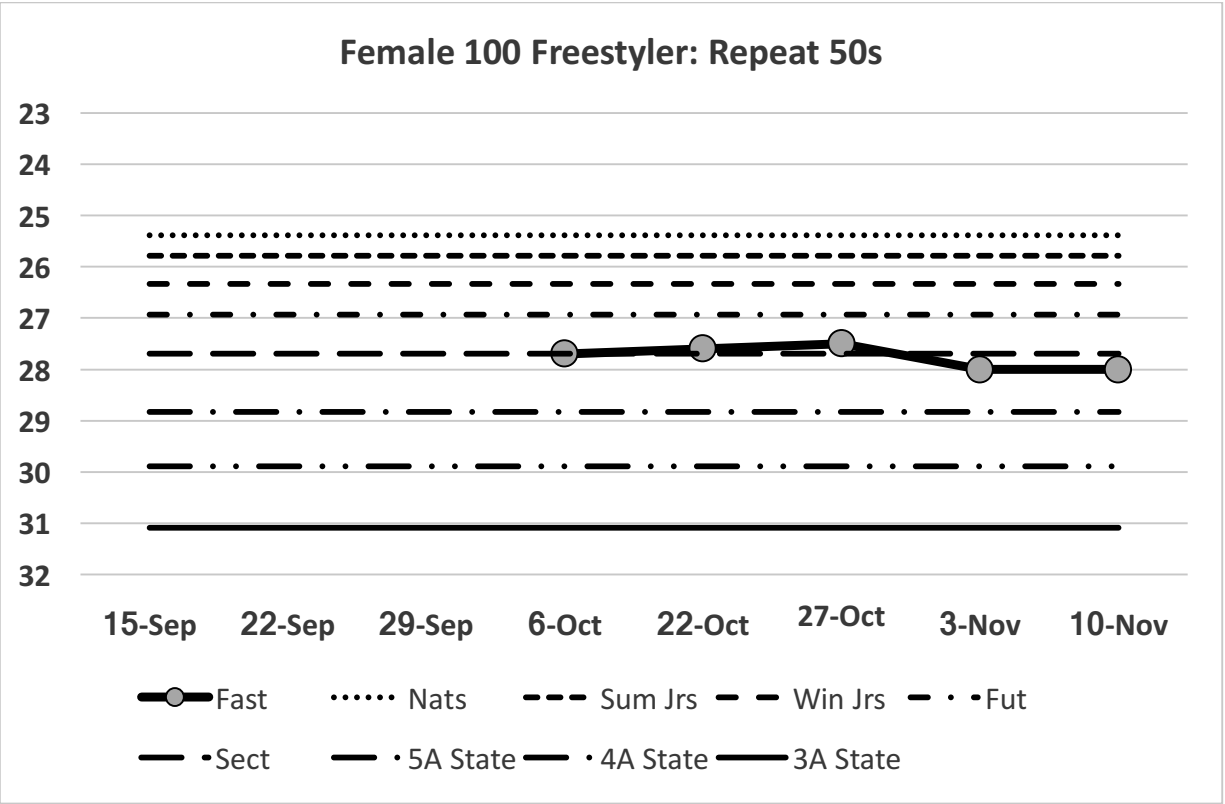


Chart 2: 100 Pace Results, Female 100 Freestyler

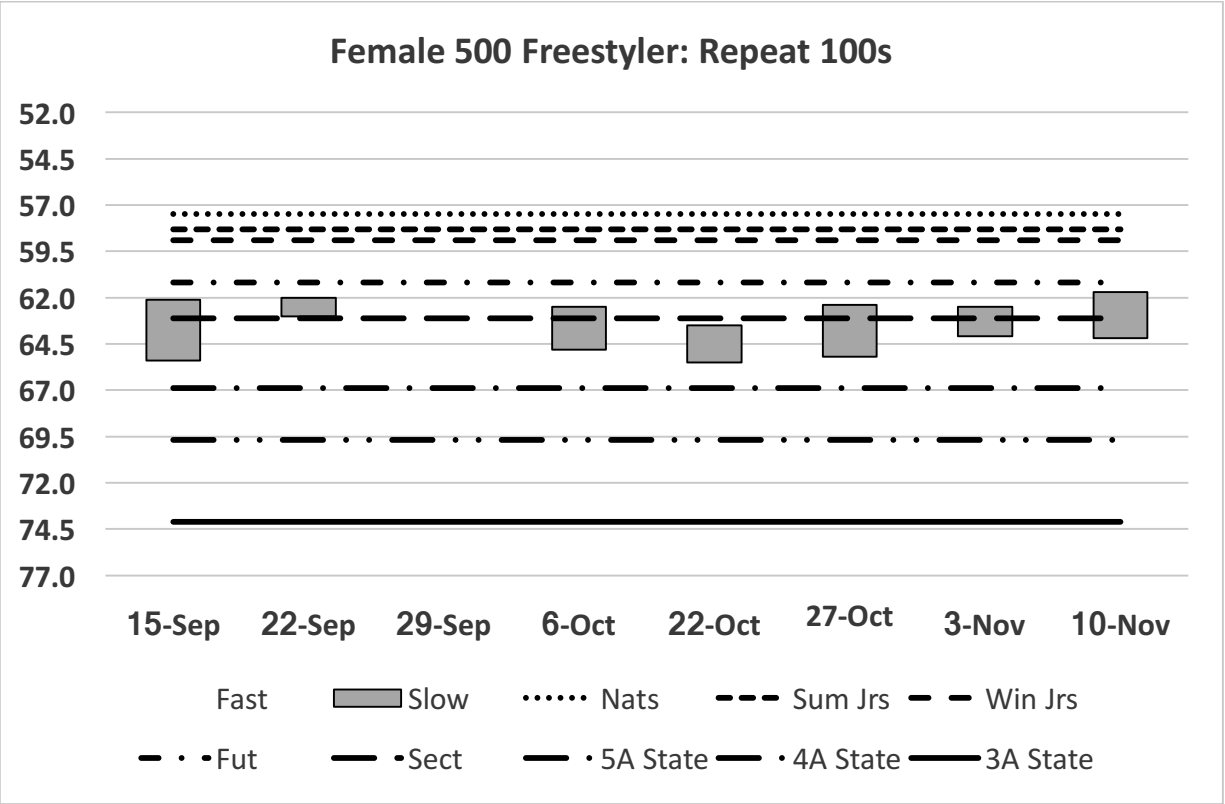


Chart 3: Pace Results, Female 500 Freestyler

Chart 3 displays the results for a female 500 freestyler over an eight week protocol. The grey bars once again show the variation between the fastest and slowest efforts with the lower end of the bars representative of the trained potential of the athlete. This athlete showed positive adaptations even as the rest interval was reduced. They achieved an altitude adjusted 5:20.4 at the target meet, between the Sectional (5:13.1) and CHSAA 5A State (5:32.0) qualifying times. The positive progress may also indicated future potential as this athlete dropped to a 5:10.1 by the end of the season.

Beat the Beep Sets

Ultra-Short Race Pace Training (USRPT) has been the subject of much discussion and debate. Contrary to Dr. Rushall's recommendations, we do not solely rely on USRPT training but we use concepts to supplement our anaerobic training. A typical anaerobic practice will include a test set similar to the above followed by 1-2 USRPT based sets.

USRPT training is difficult to implement in large groups, but we have identified a simple way of doing so using Tempo Trainers. By setting the Trainer to the goal pace, we can assign each athlete personalized goal times with a specific work to rest interval. We generally divide the goal paces and rest intervals into multiple 'beeps' to ultimately achieve a 1:1 work:rest ratio for 100 paces, 1.5:1 for 200 paces, and 2:1 for 500 paces.

Table 3 is an example of weekly progression for 100, 200 and 500 pacing. Athletes spend a number of weeks developing the ability to consistently achieve their goal pace times with 'extra' rest. They then train at the desired work:rest ratio for the remainder of the season. The goal pace can be adjusted faster or slower as an athlete progresses or regresses. We typically advance an athlete when they successfully complete the set without missing a single interval, and ease the goal pace if an athlete misses all the intervals.

		Weeks 1-2	Weeks 3-4	Weeks 5+
100 Pace	Set	10x25	10x25	10x25
	Finish	2 Beeps	2 Beeps	2 Beeps (Adjust goal faster/slower if nec.)
	Rest	4 Beeps	3 Beeps	2 Beeps
	Interval	6 Beeps	5 Beeps	4 Beeps
200 Pace	Set	6x50	6x50	6x50
	Finish	3 Beeps	3 Beeps	3 Beeps (Adjust goal faster/slower if nec.)
	Rest	4 Beeps	3 Beeps	2 Beeps
	Interval	7 Beeps	6 Beeps	5 Beeps
500 Pace	Set	10x50	10x50	10x50
	Finish	4 Beeps	4 Beeps	4 Beeps (Adjust goal faster/slower if nec.)
	Rest	4 Beeps	3 Beeps	2 Beeps
	Interval	8 Beeps	7 Beeps	6 Beeps

Table 3: "Beat the Beep" example progression for 100, 200, 500 freestyle pacing

This is a specific example for a female pursuing a Junior National qualifying time in the 100 breaststroke:

Set	Goal Pace	Trainer Setting*	Interval		
			Weeks 1-2	Weeks 3-4	Weeks 5+
10x25	16.45	8.37	50.2	41.9	33.5

Table 4: "Beat the Beep" example progression for female 100 breastroker. *We include a small (.03s) reaction time adjustment to account for the time it takes an athlete to push off the wall.

Chart 4 shows the weekly progress for this athlete once the desired work to rest protocol began (including an absence due to illness during week 7). They successfully completed the entire set during the last week of training prior to the target meet. The athlete ultimately swam a 1:03.9, successfully eclipsing the Winter Junior National time standard (1:04.2).

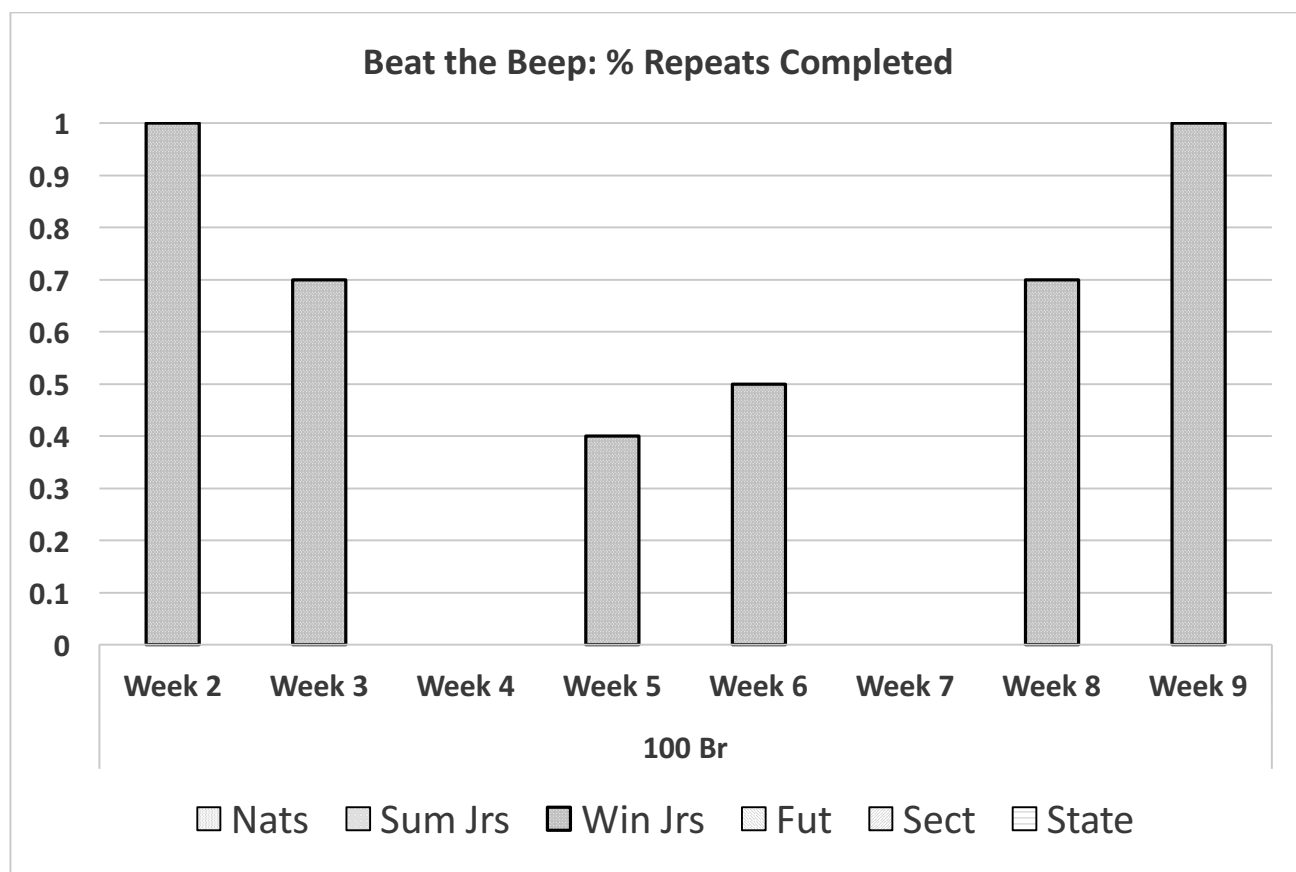


Chart 4: Weekly progress for female 100 breastroker

Pulse Plots

The sets above all assess various measures of anaerobic capacity. We find it equally important to track aerobic adaptations throughout the season. Unless an athlete is specializing solely in the 50 freestyle, there is a significant aerobic component to every race. Potentially more importantly however,

elevated heart rates are prime indicators of stress and potential over-training symptoms. By testing aerobic capacity, we can assess if athletes need additional training or rest particularly as the target meet approaches.

The set protocol is borrowed from Dr. Dave Salo in his book *Sprint Salo*:

8x100 @ 3:00 Effort at 1) 70% 2) 80% 3) 90% 4) 100% 5) 100% 6) 90% 7) 80% 8) 70%

To measure how quickly an athlete's heart rate declines after an effort, we take Heart Rate 3 times for 10s each with 20s off between counts. An example of an athlete's count following a single effort is provided here:

	1	2	3	4	5	6	7	8
Effort	70%	80%	90%	100%	100%	90%	80%	70%
Time	1:03	:59	:57	:53	:52	:56	:58	1:00
Total HR	53	57	61	68	73	70	64	62

The results are then plotted on a graph with time on the X-axis and heart rate on the Y-axis. Any shifts down and/or right indicate positive aerobic adaptations (faster speeds at lower heart rates), while shifts up and/or left indicate either detraining or overtraining (slower speeds at higher heart rates). It is then up to the coach to interpret which of those may be the case for a particular athlete.

Charts 5 and 6 below show examples of positive and negative adaptations through a six-month season. Athlete A shows a large initial increase in aerobic function, adaptations which they sustained through the winter. We frequently witness these large initial adaptations followed by smaller changes later in the season. Athlete B showed modest initial improvement, but regressed during the winter season. Again, depending on the particular athlete's physiology and training habits, this may indicate a need for additional training or rest.

Time	HR Count
:00s-:10s	0-25
:30s-:40s	25-45
:60s-:70s	45-60
Final HR	60

The time for each effort and the final heart rate count are recorded as follows:

Conclusion

These data are extremely useful in creating a real-time representation of an athlete's progress towards their goals. Not only can we adjust training and taper accordingly, but we can also communicate progress or lack thereof directly with athletes (and their parents!). We have found it extremely powerful to share positive progress with athletes struggling in mid-season meets. It is equally impactful to share irrefutable statistics with athletes whose effort in training does not reflect their goals.

Eric Fehr is a 1998 graduate of North Carolina University with a BS in biology and a BA in Public Policy Analysis. He has coached at the University of Wisconsin, UC Santa Barbara and Nitro Swimming in Austin, TX. He is an ASCA Level 4 coach, and is currently the head coach at Highlands Ranch Aquatics in Highlands Ranch, Colorado

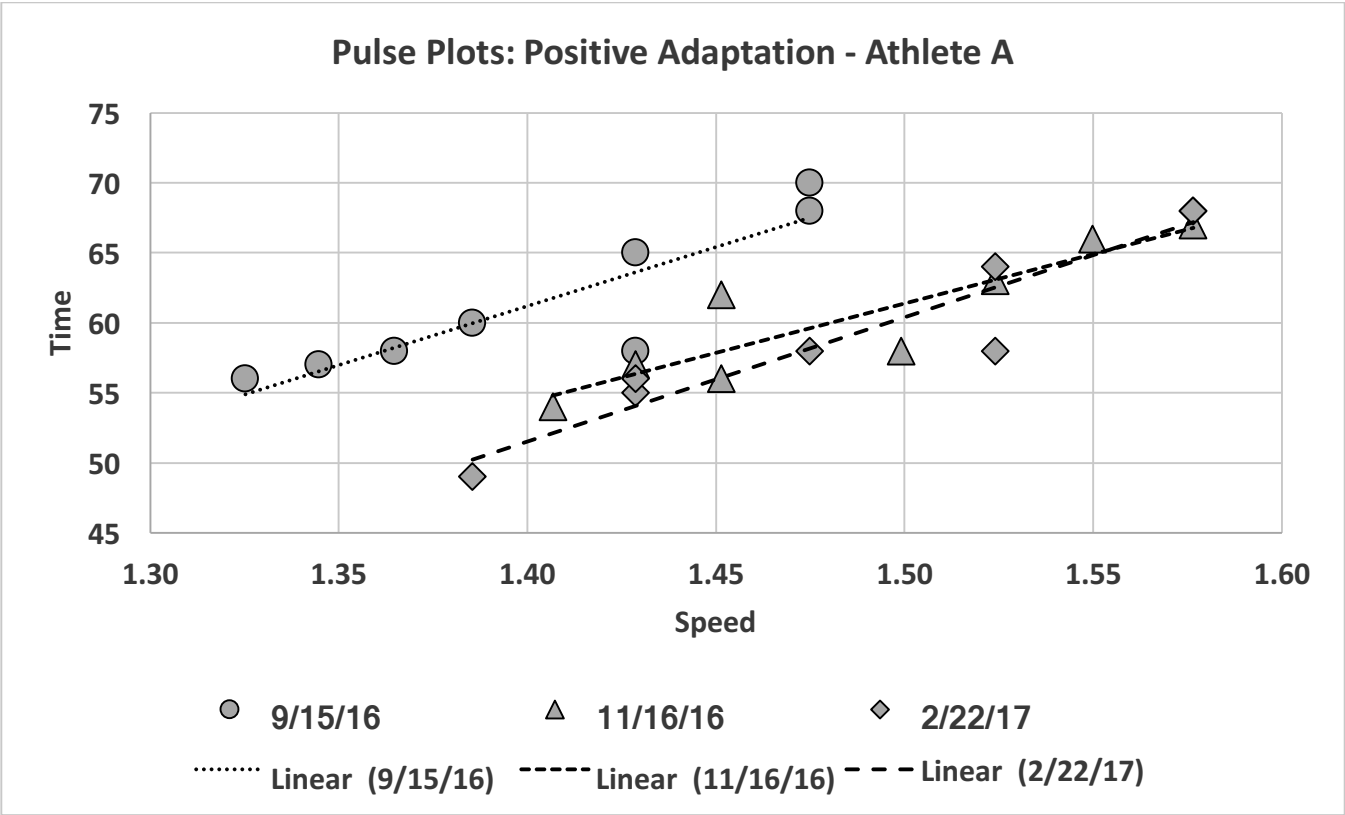


Chart 5: Positive adaptation for Athlete A

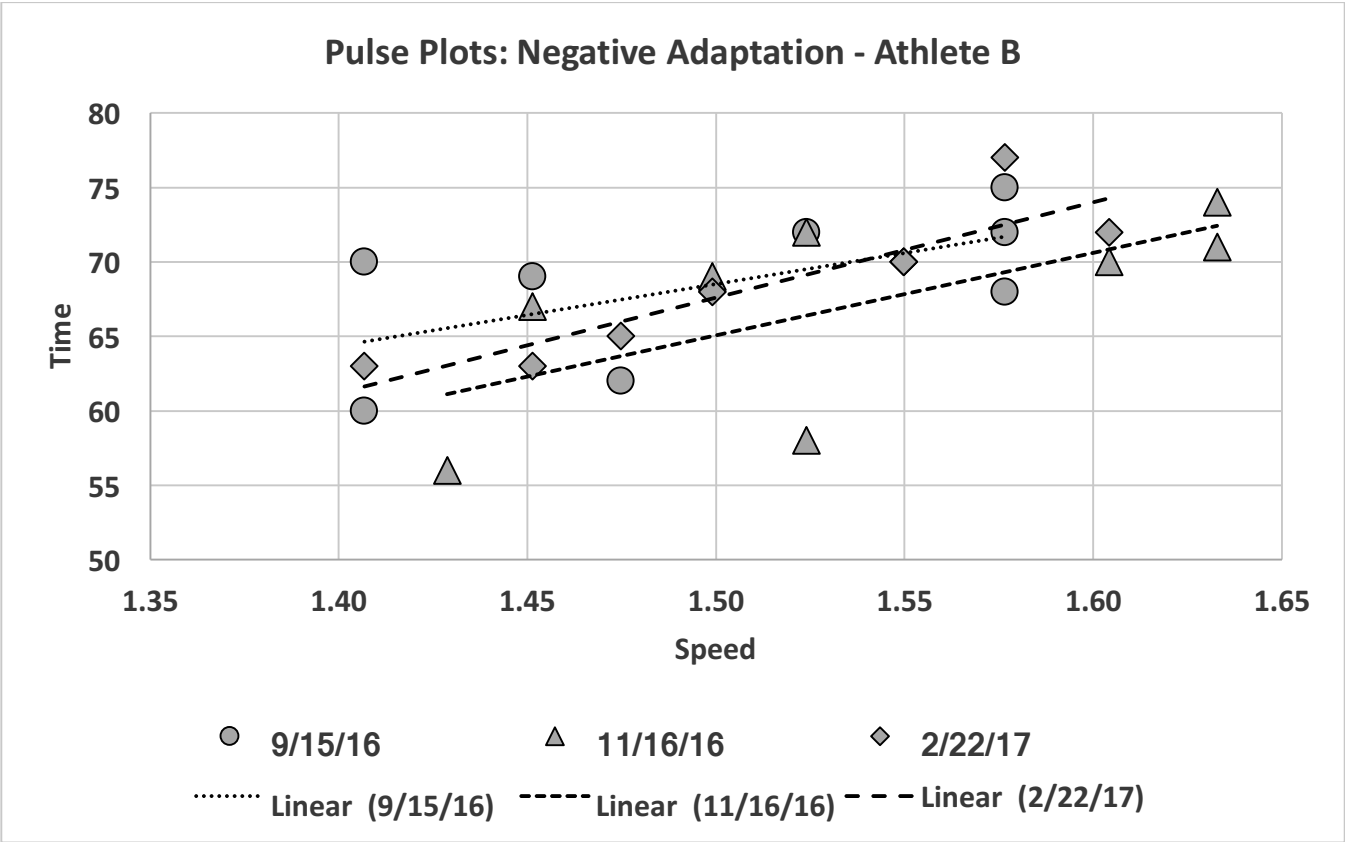


Chart 6: Negative Adaptation for Athlete B

NEW NATIONAL RECORDS FOR 2016-2017

Type	Event	Time	Name	School/Coach	City, State	Date
Male Independent	200 Free Meters	1:47.49	Trey Freeman	The Baylor School Dan Flack	Chattanooga, TN	11/11/2016
Female Public	400 Free Meters	4:12.68	Erica Laning	Hardin Valley Academy Larry Hough	Knoxville, TN	11/16/2016
Female Public	400 Free Relay Meters	3:50.74	Emily Aycock, Carissa Armijo Abbey Aycock, Erica Laning	Hardin Valley Academy Larry Hough	Knoxville, TN	11/16/2016
Male Public	100 Free Meters	49.95	Destin Lasco	Mainland Regional HS Brian Booth	Linwood, NJ	1/6/2017
Male Public	200 Free Relay Meters	1:34.95	Justin Liu, Glenn Lasco Brian McGroarty, Destin Lasco	Mainland Regional HS Brian Booth	Linwood, NJ	1/4/2017
Male Public	400 Free Relay Meters	3:26.36	Destin Lasco, Justin Liu Brian McGroarty, Glenn Lasco	Mainland Regional HS Brian Booth	Linwood, NJ	1/6/2017
Male Public	200 IM Meters	2:02.14	Destin Lasco	Mainland Regional HS Brian Booth	Linwood, NJ	1/17/2017
Female Public	200 Free Relay Meters	1:47.78	Macy Trattner, Maddie Hannan Natalie Gundling, Gaby Palazzo	Hudson High School Matt Davis	Hudson, OH	1/21/2017
Female Public	200 Medley Relay Meters	1:58.18	Kate Lochridge, Annie Lochridge Amanda Palutsis, Parker Timken	North Canton Hoover Matthew Johnsen	North Canton, OH	2/2/2017
Female Public	200 Free Relay Meters	1:46.11	Amanda Palutsis, Kate Lochridge Caroline Ehlers, Parker Timken	North Canton Hoover Matthew Johnsen	North Canton, OH	2/2/2017
Male Public	200 Free Relay Meters	1:34.09	Justin Liu, Glenn Lasco Joseph Rogers, Destin Lasco	Mainland Regional HS Brian Booth	Linwood, NJ	2/13/2017
Female Independent	50 Free Yards	22.27	Kristin Vredevel	The Baylor School Dan Flack	Chattanooga, TN	2/11/2012
Male Independent	100 Breaststroke Yards	51.84	Reese Whitley	William Penn Charter Crystal Coleman	Philadelphia, PA	2/24/2017
Male Public	200 Medley Relay Yards	1:29.20	Erik Gessner, Corey Lau John Shelstad, Sam Schilling	Minnetonka High School Daniel Berve	Minnetonka, MN	3/4/2017
Male Public	200 Free Relay Yards	1:20.95	Jack Wright, Rick Mihm Maxwell Gonzalez, Eben Krigger	North Allegheny HS Patrick Wenzel	Wexford, PA	3:18/2017
Male Public	200 Free Yards	1:33.30	Drew Kibler	Carmel High School Chris Plumb	Carmel, IN	2/24/2017

TECHNIQUE AND TRAINING: WHAT SWIM DATA SWIMMERS IMPROVE

CJ Fiala, FINIS



We live in a world where new data and vast information is available at our fingertips. Not only is it readily available, it's immensely

easy to access with little technological background. We are in the day of age where "information is key", a phrase you have undoubtedly used and heard before. But in our legendary and longstanding sport, it seems as though big data is behind the curve, yet to make a standardized impact in our everyday training and performance.

Although, many can refute this claim, as there are several programs who closely utilize the most premium in data analytics, such as SwimMAC Team Elite use of the Kistler PAS-S system or the University of Alabama utilizing the KAATSU Training system. Take note of these programs: they are the elite of the elite, the cream of the crop. And they are using systems that can be VERY expensive; to produce some of the most specific data the brain can breakdown to assist in performance development. But, you don't have to be the world's fastest pro group or a top five collegiate program to get useful and simple data that can immediately improve your

TRULY HELPS YOUR

swimmers performance. Introducing the **FINIS Swimsense™ Live.**

This Bluetooth swim watch from FINIS is their second-generation technology, following up the original swim watch that was created in the mid-2000s. Now, there are many swim watches out there, but none of them provide data like the FINIS Swimsense™ Live. The key data for competitive swimmers that this device breaks down are distance per stroke in yards and stroke rate.

Let's start with Distance Per Stroke: the epitome of swimming efficiency. This device is able to track the yards per stroke that the swimmer is taking, and is able to translate that data to the device's mobile application so the swimmer and the coach can clearly break down each set and understand where a swimmer's stroke is breaking down and needs improvement.





In the same like, stroke rate is also very important. You hear some of the most elite coaches from around the world talk about tempo and how important it is to have a tempo that is competitive with the best swimmers in the world. By understanding a swimmers stroke rate AND distance per stroke, we are truly able to break down a swimmer's stroke to understand where their flaws may be. Maybe they have a great stroke rate, but poor distance per stroke, or vice versa: the Swimsense™ Live is able to tell you that so you know truly how efficient your swimmer is being.


So, if you are looking to dip your toes in the data pool, the FINIS Swimsense™ Live is a great starter

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By understanding a swimmers stroke rate AND distance per stroke, we are truly able to break down a swimmer's stroke to understand where their flaws may be

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Diving:

DEVELOPING PERFORMANCE FLEXIBILITY IN DIVERS

Jeni McNeal, Ph.D. USA Diving Strength & Conditioning Consultant, Eastern Washington University



For athletes competing in acrobatic sports such as figure skating, gymnastics, and diving, the ability to move through large ranges of motion is a key component to performing high-level skills.

Being able to achieve a specific position also has importance in maximizing the biomechanical aspects of skill performance. If a diver cannot achieve the correct positions at take-off for example, the biomechanics of the skill they are attempting may be compromised, making them use compensatory actions to complete the desired skill. These compensatory actions may cause other problems in the execution of the skill or may lead to injury. As a specific example, if a diver is unable to fully extend their hips on a back entry, they will tend to have an 'arched' lower back at impact with the water which, over time, may develop into lower back pain and injury.

The ability to achieve the body positions required in diving is not as simple as just doing more stretching exercises. Stretching is only one aspect of this ability. Rather than thinking of range of motion as a stretching problem, consider instead the idea of 'fluidity' of motion. Fluidity refers to the ability to move freely and with control through a large range of motion. This definition suggests that not only must a large range of motion exist in the diver, but one must also develop the strength to move the body to

the position, the power to do it very quickly, and the motor control to do it at the right time and in the desired sequence of motion. These qualities are not developed by common stretching routines.

'Static' stretching is what we typically think of when we think of stretching. *Static* means holding a position for a period of time. In the case of static stretching, this is typically 20-30 sec, repeated 2-3 times, as suggested by most stretching research. This type of stretching however, does nothing to develop the diver's ability to *move through* their available range of motion, at a high rate of speed, and with control. Divers who work to develop their flexibility through this type of training alone, can end up looking 'floppy', or being 'slow' getting into or out of positions during a dive. This observation is supported by considerable research showing that power, speed, and strength are temporarily reduced immediately following a static stretching bout. To complete the training puzzle of improving 'fluidity' of motion, active, dynamic exercises are required, in which the athlete must use their strength, power, and coordination while moving through their maximal available range of motion.

What are some examples of active, dynamic range of motion activities? There are many, so I have chosen some which I have found to be most specific for divers. All exercises can be performed as frequently as desired.

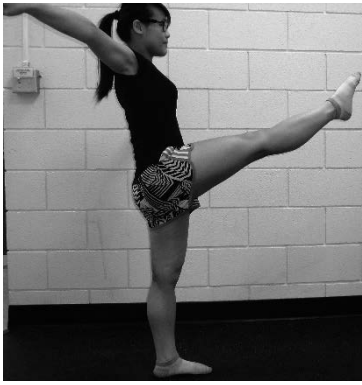


Figure 3. Standing single leg kick



Figure 3. Improper technique in standing leg kick



Figure 1. Seated single leg lift

Standing Single Leg Kicks (Figure 1).

For those with a dance background, this exercise is equivalent to the traditional forward 'battement' barre exercise. Note that the diver should think of 'lifting' their leg, and avoid 'swinging'. To limit the use of momentum to complete the exercise, do not allow the working leg to travel behind the standing leg. Be sure to cue the athletes to minimize all other movements of any body part during execution. Be watchful specifically of flexing the trunk forward/dropping their chest, and bending the knee of either leg (Figure 2). The effectiveness of this exercise can be increased by attaching an elastic band around both ankles. Perform two sets of 15 repetitions on each leg daily.

Lying Single Leg Kick (w/elastic bands) (Figure 3).

This exercise is similar to the previous, however it simplifies the diver's task of maintaining good control of the trunk during the kick. This image shows the



Figure 4. Lying leg kick with band

application of an elastic band to enhance the training effect.

Seated Single Leg Lifts (Figure 4)

Although the direction and plane of movement in this exercise is the same as the first and second exercises, the seated single leg lift focuses more on strength development rather than power. This is particularly important in achieving a tight/closed pike position. The diver can lift the leg and hold it for a period of time (approx. 5-10 sec) for multiple repetitions (3-5), or the leg can be lifted at a moderate pace, and with control for 10-15 repetitions total. Be sure to watch for movement errors such as dropping the chest, or 'rounding' of the back or pelvis.

Squats on Incline Board (Figure 5)

One major limitation to achieving sufficient squat depth in back and reverse take-offs while simultaneously maintaining an upright trunk position is the range of motion (and control) of the ankle in dorsiflexion. Divers should perform lightly weighted squats on an inclined board, or with their heels off the edge of a stair. They should extend their squat all the way to a calf raise ('on toe'). Cue them to maintain an upright posture and to dorsiflex their ankles as far as possible. Dumbbells can be held in

The ability to move through large ranges of motion is a key component to performing high-level skills



Figure 6. Squats with incline

both hands. This exercise can be performed single leg or double. One to two sets of 10-15 repetitions is typical.

Extended Hanging Pike Ups (with partner) (Figure

6)

This is a more specific exercise than the classic hanging pike-up, since it requires the diver to produce the pike from an extended trunk and hip position, which is the position from which the somersault should begin (in backs and gainers).



Figure 8. Extended hanging pike ups

Standing or prone snow angels (wall) w/wt (Figures 7, 8)

Achieving a vertically aligned shoulder is crucial for an effective take-off position, as well as an excellent water entry. Insufficient alignment causes all sorts of undesirable compensations in other body parts,

such as hyperextension of the head/neck, chest/ribs, arching of the lower back, and flexion at the hips. It is also very important that the shoulder be strong and stable in this



Figure 5. Standing snow angel with weight. Be sure the spine and back of the arms stay in full contact with the wall throughout.

position. These exercises help with these goals. They require the diver to use their muscle strength and control to pull their arms into an aligned position and maintain this alignment while moving overhead.

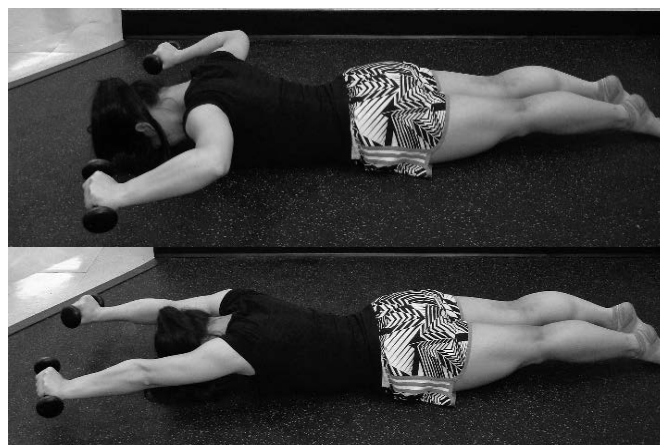


Figure 7. Prone snow angel

For Further Reading:

McNeal, J. R., & Sands, W.A. (2006). Stretching for performance enhancement. Current Sports Medicine Reports.

[http://journals.lww.com/acsm-csmr/Fulltext/2006/06000/Stretching for Performance Enhancement.7.aspx](http://journals.lww.com/acsm-csmr/Fulltext/2006/06000/Stretching_for_Performance_Enhancement.7.aspx)

NISCA Meeting Minutes:

84th ANNUAL NISCA NATIONAL CONFERENCE, INDIANAPOLIS, IN

Eve Julian, NISCA Secretary

NISCA Meeting #1 3/23/17 7:45am

Meeting opened by Arvel McElroy at 7:54am

Meeting minutes for 2016 were listed in the journal. Open floor for motions to accept the minutes. Motion to accept the minutes made by Mark Onstott, seconded by Lanny Landtroop.

State of NISCA report: NISCA executive board met at ASCA. Updated all contracts. Are in good standing. NISCA is going green. Fall mailing will be going on line and a smaller fall mailing. All America issue is by purchase only this year. President sends certificates to state champion coaches, please help by sending names.

Committees:

- a. Audit - Arvel Committee met with Tom. Tom provided committee with financial statement and tax report prepared by CPA in South Carolina. Have a deficit for last year because Speedo was late on their payment for this fiscal year. Raised non-member and late fees on AA programs appear to be making a difference.
- b. Treasurer - Tom Wojlawowicz. Income for 2016 \$163,712, expenses \$210,201. Deficit \$46,489. That will be offset by Speedo contract which was received in December for \$37,500. Costs are going up across the board. Conference costs have escalated.

Financial situation is solid. We have over \$200,000 in the bank. Growing membership will solve some of the financial issues.

- c. Power Points - Claude Valle thanks to Paul Torno for support. 315 teams entered last year, best ever girls and boys team totals. Last year at this time we had 43 entries, this year we have 75 already in so far. Participation is important. Enter your team, encourage people from your state to join.
- d. All America Archives - Paul Torno. NISCA maintains an archive of all the All America programs. Paul presented dates of the beginning of each of the All-America Programs. Paul will do research on history of All America program for your school, free for NISCA members, fee for non-members. Head coach must make the request for research.
- e. Journal - Betsy Hondorf. Doing a get to know the letterhead series. This year will be featuring top Juniors from AA list. Want to be able to do the state-by-state listing. Zone directors can help by sending state information.
- f. Diving - Don Mason. Discussed rule proposals. All America program is working smoothly. Made significant progress on the diving coaches program with the NFHS, diving officials program is almost complete.



Recipients of the 2017 Outstanding Service Award (left to right): Don Mason, Frank Trebendis, Ron Blanc, Richard Blanc, Michael Stott, Jerry Holtrey

- g. Zone Directors - Mark Onstott. 5 of 8 zone directors were present. Talked about communication between President - Elect and directors and between directors and state delegates. Working to make the state delegate system more robust. Talked about joint memberships. MI is very successful with this, we would like to push that option with other states. Discussed alternate ways of dividing the zones - possibly as a seasonal zone division. No action taken on this for now. Will be trying to have monthly conference talks with zone directors and president elect, and with the zone directors and state delegates as we get them in place. Zone directors need to have a sense of urgency.
- h. Hour of Power - Mark Onstott. Want to encourage everyone to participate in an hour of power with their team. It is a fundraiser for sarcoma research and a team building activity. Continuous relay, go all out but try to stay together. Cindy Dell is in charge of this for NISCA, Onstott can also answer questions.
- i. Coaches Education - Gregg Anderson. 6 action items for accomplishing this year. Helping provide information for the journal. Produce content for the website. We can provide our coaches with the stuff that we are experts in, even without providing a Masters Degree. Create 1-2 minute videos to put out on social media. Improve activity in NISCA Swim Coaches exchange on Facebook, promote courses that NFHS is producing.
- j. NISCA Store - \$302.50. Sold certificates, 4 books and 2 diving DVD's. Sent 29 of the Hannula books and 42 of the Sprinting II books.
- k. Rules - Diane Hicks-Hughes. Sandy Searcy from NFHS is here. At the rules meeting there are 3 NISCA representatives. This year with the Survey Monkey the responses were much improved. Over 275 responses over the previous year. NFHS rule committee met prior to the NISCA meeting. We have talked to Sandy about placement of meeting. No opportunity to move when the meeting takes

place. It is critical that coaches respond to the survey. Open discussion is allowed at the rules meeting, but can't report on Federation rules until they have been vetted and published.

- I. Awards Committee - Tom Hudson. Bill Stetson has stepped down. Finding a new chairperson.
Outstanding Service Award for 2018: Stephen VanDerBekken – NH, Claude Valle – MA, Jimmy Parmenter – FL, Penny DiPomazio – TX, Bruce Woodbury – IL. Hall of Fame 2018: Pete Foley – MA, Dana Abbott – TX. Collegiate Scholastic 2018: Dave Barney - NM. Mel Roberts has agreed to chair the awards committee.
- m. Membership - Pete Hugo. 1206 today, average last 9 years is 1354 total. 10% comes from ASCA. It does take a while if you join NISCA through ASCA. Have gone through the database and updated the names of the schools to keep them from being all caps.
- n. Webmaster - Eve Julian. Twitter – 535 Facebook – 662 Created a Facebook Group NISCA High School Swim Coaches Exchange Group. Tweeting 3-4x a week, Facebook posts about the same. Coaches Education page now shows everything that is listed on the page, but non-members can only view a few items. Members can view everything. Website analytics are not working, something I will be working on this spring. There is a spike in traffic this time of year. Still looking for someone to be the webmaster.

Entertain nominations for treasures. Dana Abbott nominations Tom W. Seconded by Mike Schuelke. Dana move nominations be close. Steve Montgomery seconded. Tom is voted treasurer by acclimation.

Entertain nominations for president-elect. Pete Foley nominates Diane Hicks-Hughes. Seconded by Jeff Johnson

Mel Roberts nominates Gregg Anderson second by Phil Emery. Motion to Close nominations by Kirk Price seconded by Phil Emery.

Mark Onstott makes a motion to adjourn, Frank Tribendis seconded.

Meeting adjourned 8:47am.

NISCA Meeting #2: 3:23/17 4:00pm

Meeting is called to order 4:22pm

Committee reports

- a. National Records/Archives - Mike Schuelke.
So far this year 12 new records, one on its way. Of those, 11 are in meters. The one that is yards is a record that was discovered and set in 2012. It has been verified. Several records have been broken 2x this year. 3 new pool certifications this year. Chronological records are on the back table. They will be listed on the website. Archives - are still at ISHOF in Ft. Lauderdale. He keeps all paper records, send him anything that you have. ISHOF is still planning on moving to Santa Clara, CA. Still in planning stages. ISHOF is still open in Ft. Lauderdale.

Mark Onstott, recipient of the 2017 Collegiate and Scholastic award, pictured with his family.



- b. All America - Mark Onstott. Had a 12 minute All America Meeting. No changes, not much to discuss. Websites are being improved. Water Polo will be going on line next year. All AA Programs will be on-line applications at that time.

Nominee Speeches:

Diane Hicks-Hughes - NISCA Member 36 years. Through years of coaching, has learned what a critical role coaches play. Took initiative in 2010 as NFHS swimming chair to make sure that NISCA's voice continued to be heard. Prior experience and love for NISCA will help her lead. Visions for NISCA: presence at each state championship meet, link to NISCA on each state association page, stress education on journal and emails, NISCA banner in every pool. Workout contest. Monthly communication between letterhead and zone directors and chairs.

Gregg Anderson: First exposure to NISCA was when he had a swimmer make an All America time. Started coming to conventions in the 90's. Served as the e-mentor program chair, NISCA store, chairman of education committee. Motto is to educate, to honor and to serve. We do a great job of honoring our athletes and coaches. We all do service since all of us are volunteers here. Swimming has given me so much, I want to continue giving back. Would like to see a NISCA service award for teams that do service. The education part of our motto, as Chairman I have found that we need to find a way to get to the newer coaches. We have to provide information to the newest coaches. Would like to see the NISCA Coaches Manual published and made available to every new coach. We need to grow NISCA. If every NISCA coach makes contact with one other coach we will double our membership. I really believe in the motto "to educate, to honor, to serve."

Election Committee: Dr. Steve Montgomery, Marney Shirley, Claude Valley
Motion to adjourn Ed Lusk, seconded Phil Emery
Meeting adjourned

NISCA Meeting #3, 3/24/17 3:15pm

Arvel called to order at 3:23pm.

Introduced CJ Fiala from Finis. Introduced himself. Finis is the "swimming toy store". Main goal is to simplify swimming. Doing a 20% off promotion for all NISCA members.

Other old business. None.

Review of the Zone discussions from the morning meeting. See Zone Minutes in Committee Report for details.

Poll of the membership: did you like the schedule of the Conference this year? Overwhelmingly positive. Still difficult for those who officiate.

New Business:

Vote for president elect: Diane Hicks Hughes or Gregg Anderson.

Proposals for new business:

Proposal made by Rich Hood, seconded by Joe Groscost would like to go to the Women's Meet at Ohio State in 2018.

Rational: We have been before and should go again. Would allow us to vote on NFHS proposals.

Discussion: PA state meet is happening at that time. Will require transportation to the pool. Difficult for Michigan coaches to make it but not impossible. Women's meet interferes with the Junior National Meet.

Ed Lusk calls for question, seconded by Joe Groscost

18 for - 20 against.

Motion does not pass. Site of the 2018 NISCA Conference will be Minneapolis, MN.

Diane Hicks Hughes was elected as the president-elect.

Arvel McElroy introduced incoming President Mark Onstott

Mark Onstott presented his presidential plaque to Arvel and thanked him for his service as President.

Lanny Landtroop commented that people learn more outside of the clinic than inside the clinic. He would like to encourage all of us to engage with each other while we are at the clinic.

President Mark Onstott entertained a motion to adjourn. Motion made by Steve Montgomery, Seconded by Ed Lusk. Meeting Adjourned 3:48pm



85th Annual NISCA National Conference
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