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PERTINACITY

The Stories of KSI
2016, volume 2, issue 2



KOREY STRINGER INSTITUTE



KSI Jumps to the Ring: Fighting the Good Fight



NFL AT Pilot Grant Program



International Hydration Meeting

UConn
UNIVERSITY OF CONNECTICUT

KOREY STRINGER INSTITUTE- Providing first-rate information, education, research, assistance and advocacy to protect athletes, soldiers, and laborers.

KSI
Korey Stringer Institute
UNIVERSITY OF CONNECTICUT
Preventing sudden death in sport

A LIFE FULLY LIVED: 60 DAYS IN THE SUMMER OF 2016

Reflections on love, friendship, opportunities to make a difference, and to physically push oneself to the max

**DOUGLAS J. CASA, PHD, ATC, FNAK, ASCM, FNATA,
CEO, KOREY STRINGER INSTITUTE**

July 20, 2016. Mission and 37.5 Corporate Meeting: Six Korey Stringer Institute (KSI) staff joined me for an awesome brainstorming meeting with Mission (one of our corporate partners and the major donor of our new heat lab) and 37.5 (an innovative textile company in Boulder, CO) to discuss future research projects to test improved clothing for those who do intense exercise in the heat.

July 23, 2016. Wedding Vow Renewal: My wife, Tutita, and I (with our three kids and some close family friends) hiked to the peak of Bear Mountain in northwest Connecticut to renew our wedding vows and have a massive feast to celebrate 20 years of marriage and 25 years together as a couple. I am more in love now than when we met a quarter of a century ago and infinitely thankful that my best friend, lover, and spouse are the same person.

August 8, 2016. White House Visit: See the story on page 11 regarding this special opportunity for KSI. Ironically, this once-in-a-lifetime visit coincided with the 31st anniversary of my exertional heat stroke, making the day all the more special.

August 9-20, 2016. Rio Summer Olympic Games: My family, including my in-laws, took a vacation to Rio de Janeiro to enjoy the Summer Olympics and spend some quality time in Brazil, a country where my wife spent a few years growing up in as a kid. My wife and I agree that it was the best 2 weeks of our lives (with second place nowhere in sight). I had always dreamed of going to a summer games, and this was a reality that matched the dream of many years (photos on page 43).

August 10, 2016. National Football League Meeting: While I was taking a breather in Rio, the senior KSI staff, Rebecca Stearns, Robert Huggins, William Adams, and Yuri Hosokawa, met with the NFL, NATA, and Gatorade officials at the NFL headquarters in New York City to solidify a plan to establish a massive grant program to enhance athletic training services at the high school level. I had been assisting the NFL for the past couple years to get this program up and running and was proud that it will begin in the fall of 2016. See more details about this project on page 24.

August 21, 2016. New Balance Falmouth Road Race: This was my 16th straight year of volunteering to provide medical care and our 4th straight year of conducting a research study at this iconic race. Over 30 students and staff from KSI and UConn's Human Performance Lab attended to provide medical care for runners suffering from exertional heat stroke or assist with research. Clinically, we had more than 15 exertional heat strokes (all runners survived), and Yuri Hosokawa, Director of Communication and Education, conducted her dissertation project (see page 12).

August 22, 2016. Human Rights Watch: I received a powerful letter thanking KSI and me for our efforts to assist the Human Rights Watch with the very serious (and quite deadly) heat issues being faced by the migrant workers building soccer stadiums in Qatar for the 2022 World Cup. Our assistance has lasted a couple years, and is one of the most important things I have done in my professional career.



August 26-27, 2017. Ragnar Trail Relay: The most fun I have ever had (yes, Lindsay, this is actually true!!! :). Six KSI staff plus my wife and Dr. Stearn's husband took on the 24-hour, 120-mile trail running relay on Northfield Mountain, MA. Each of the eight members had to do three legs, and, when the 24 sections were complete, our team was finished. The race was run through the night: Tutita saw a "monster" (that she quickly realized was a funky shadow seen with her tired mind), Rob warned us to not fall off cliffs, Will had hallucinations of beer—instead of water— stops, and Yasuki got lost (in daylight!!!!). With all of this, KSI still won the corporate division, took 3rd in the mixed gender division (out of 80 teams), and was 11th overall out of over 200 teams that started the craziness on Friday. The course was a brutal mountain trail that never relented (see the photo above).

August 29, 2016. KSI Meeting: Our team is growing. KSI welcomed six new staff members to replace those who graduated and to expand our operations. See page 46 for a complete list of staff and duties.

September 7, 2016. US Air Force Meeting: KSI is part of a large-scale conference call to assist the US Air Force with advancing implementation of technology to prevent, recognize, and treat exertional heat stroke.

September 8, 2016. Undergraduate KSI Research Assistant Meeting: The behind-the-scenes workforce of KSI is the volunteers who give their time to support our mission. Our 7am meeting was attended by more than 40 undergraduate students. When combined with our returners, we will have approximately 60 to 70 volunteers for fall 2016. Amazing.

September 9, 2016. KSI Marketing/PR Subcommittee Meeting: KSI hosted five individuals who shared their expertise in expanding our marketing and PR efforts. An exciting game plan was proposed and is under full consideration for the launch next year.

September 10, 2016. US Open Women's Final: Montana (one of my daughters) and I had an amazing time at the US Open. I had all my fingers crossed for the 2 weeks of the open that Serena Williams (my favorite athlete) would make the finals so that we could watch her set the grand slam titles record. She unfortunately was knocked out at the semifinals, and we were rewarded instead with an awesome 3-set final.

September 15-16, 2016, International Hydration Task Force: KSI hosted a team of world-class hydration experts to develop sport-specific strategies to enhance hydration before, during, and after participating in competitive sports. The discussion was amazing, and the meeting proceeding is underway for publication (see page 25).

September 17, 2016. Drive-in Movie: My wife planned a night to take the kids to their first drive-in movie experience. We saw the movie "Sully" and cuddled together in the back of our minivan while looking out the back. I loved the movie (I am a sucker for these kind of inspirational movies, and, yes, I did cry), but most of all, cherished the chance to have my three kids and wife all together; that this moment was happening at all I knew was due to what Kent and the others did 31 years ago when they saved me from succumbing from my exertional heat stroke.

OUR MISSION AND ENDEAVOURS COULD NOT HAVE BEEN MADE POSSIBLE WITHOUT OUR CORPORATE PARTNERS. WE ARE GREATLY APPRECIATIVE OF YOUR CONTINUED SUPPORT.



National Football League: The National Football league is a founding partner of the Korey Stringer Institute. The NFL supports multiple player safety initiatives for athletes of all levels. For more information on the NFL's Health and Safety Initiatives, visit [NFL Evolution](#).

Gatorade: Gatorade is a founding partner of the Korey Stringer Institute. Gatorade and the **Gatorade Sport Science Institute** continue to search for and study new and innovative ways to help athletes improve performance by facilitating proper hydration and nutrition.

National Athletic Trainers' Association: The National Athletic Trainers' Association is the professional membership association for certified athletic trainers and others who support the athletic training profession. Its mission is to engage and foster the continued growth and development of the athletic training profession and athletic trainers as unique health care providers.

University of Connecticut: The Korey Stringer Institute is housed at the University of Connecticut. The **Department of Kinesiology** faculty are renowned for their research and expertise in the areas of heat and hydration, injury prevention, and strength and conditioning.

Camelbak: The mission of Camelbak is to continuously reinvent and forever change the way people hydrate and perform. Visit [Hydrated](#) for useful resources on hydration practice.

Kestrel Pocket Weather Meters by Nielsen-Kellerman: Nielsen-Kellerman is committed to ensuring that people know the weather and environmental conditions that impact their health, safety and bottom line. NK's Kestrel meters are rugged, accurate, fully calibrated, portable, affordable and easy to use. KSI uses these wet bulb globe temperature thermometers to determine environmental conditions during research studies both inside the heat chamber and in field studies. Visit [heatstress.com](#) for resources on physical activity in heat stress.

One Beat CPR & AED: One Beat CPR + AED is one of the largest distributors of defibrillators and accessories in the United States. One Beat CPR + AED offers an expansive line of AED products and accessories. One Beat CPR + AED also offers American Heart Association (AHA) and American Safety Health Institute (ASHI) authorized training certifications. Be prepared to save the life of a teammate, fan, friend, or loved one.

Mission: Mission has a dual mission. While delivering world-class innovations that meet the unique needs of an athletic lifestyle, Mission also makes an impact off the field of play through the **M Foundation**, which promotes the health and safety of youth athletes, and simultaneously recognizes and awards high school athletes that give back to their community. Mission is currently running the **Heat Safety Pledge** initiative to advocate for heat safety awareness.

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SPOTLIGHT

THE **SPOTLIGHT** SERIES WILL FEATURE THE PEOPLE OF THE KSI, AND THOSE WHO SHARE AND REPRESENT THE PASSION OF THE KSI.



DAVID CSILLAN, MS, ATC

MEDICAL & SCIENCE ADVISORY BOARD KOREY STRINGER INSTITUTE

Could you tell us about yourself?

I am an athletic trainer and have been providing athletic health care at Ewing High School in Ewing, New Jersey since 1991. For 25 years, I've been the medical coordinator for the U.S. Region 1 Boys' Olympic Development Soccer Camp and for various soccer tournaments throughout the State of New Jersey. Since 1988, I've provided medical services to the ING New York City Marathon and Special Olympics New Jersey. In 2014, I was responsible for securing and overseeing an athletic training staff of 100+ for the Special Olympics USA Games. My involvement in numerous state, district and national committees has kept me active over the years. In addition to the KSI Medical and Science Advisory Board, I participate on the USA Football Health and Wellness Committee, Athletic Trainers' Society of New Jersey Secondary School Committee and the New Jersey State Interscholastic Athletic Association Sports Medicine Advisory Committee (SMAC). Currently, I hold the office of National Athletic Trainers' Association (NATA) District Two Secretary and reside as the Secretary Vice-Chair of the NATA District Secretaries/Treasurers Committee.

Could you tell us about your first involvement/interaction with the Korey Stringer Institute?

In 2004, while serving concurrently on the NATA Secondary School Committee and National Federation of State High School Association SMAC, I chaired a sub-committee to develop heat acclimatization guidelines for secondary school athletics. In 2008, Dr. Douglas Casa contacted me to co-chair a task force with him. Our mission: to assemble a multidisciplinary team of experts to polish the heat acclimatization guidelines and prepare them for publication and release to the public. In April 2010, KSI was established and Dr. Casa offered me a position on his Medical and Science Advisory Board. Since then, I have continued to work with the KSI staff in promoting the heat acclimatization guidelines and helping educate the public on the prevention of exertional heat stroke.

In what ways has KSI impacted you?

Upon entering the profession in 1986, the two questions I asked myself were "What will be my purpose?" and "What footprint will leave?" Through my involvement with the KSI, I have answered both questions. My purpose is to continue my effort in saving lives from exertional heat stroke by educating the public of this 100% preventable catastrophic event. My footprint was helping spearhead the NATA Heat Acclimatization Guidelines resulting in two NATA secondary school milestones. It was the first time the NATA had gone just beyond providing information for injury prevention. Also, it was the first time heat acclimatization guidelines specific to secondary school athletics were introduced.



JEREMY GALTEN

BOARD OF ADVISORS KOREY STRINGER INSTITUTE

Could you tell us about yourself?

I am the VP of product for CamelBak Products LLC. I have been involved with the technical innovation of a wide variety of consumer product design industries for over 20 years. At Camelbak, I am responsible for the conception, design and commercialization of category leading hydration products

for both the consumer and military/tactical markets. I completed my Bachelor of Science with degrees in both Mechanical Engineering and Aeronautical Engineering at the University of California, Davis.

In what ways has KSI impacted you?

Our partnership with KSI has impacted us in many ways. Through our **HyratED program** on our CamelBak website, KSI's expertise has greatly enhanced our ability to advocate the benefits of hydration to all of our consumers – from world class performance athletes to those wanted to just live a healthier lifestyle. Our collaboration continues to shape some of product vision for the future since we share a similar mission to change the way people hydrate and perform.

ROHIN THOMAS

KOREY STRINGER INSTITUTE RESEARCH ASSISTANT EXERCISE SCIENCE STUDENT, UNIVERSITY OF CONNECTICUT

Could you tell us about yourself?

I am a senior pre-med exercise science student in the honor's program at the University of Connecticut. In my first three years at UConn I have met my closest friends, gained valuable experiences and have learned many lessons in and outside the classroom. Now as a senior I hope to put these lessons and experiences to use. Currently I am a manager at the UConn Student Recreation Facility, where I oversee everyday operations of the facility. I am also one of the presidents of the Indian Students Association, which is one of the biggest and oldest cultural organization on campus. My plan post-graduation is to take a gap year before attending medical school. In this gap year I not only hope to gain work experience, but grow as an individual as well.

Could you tell us about your first involvement/interaction with the Korey Stringer Institute?

I came into UConn as a biological sciences major, not knowing the Kinesiology department or even the Korey Stringer Institute existed. At the end of my freshman year I was not happy, I felt like I was just another student in the system. When I contacted professors for research opportunities they would either not respond or say to email them once I have gained more experience. One day in the summer, I received an email from the director of First year programming, David Ouimette, congratulating me on having a successful first year and offering to meet with me over the summer to talk about my future plans at UConn. When I met with him, I told him about my interests with exercise and sports and my career plans. He immediately gave me the information to get in contact with Dr. Casa and KSI. I emailed Dr. Casa and he welcomed me with open arms to help out with research. He had Luke Pryor contact me, who at that time was working on his doctoral dissertation. Luke had me come in August of 2014 to give me a tour of the research facility and an overview of the Heat Acclimation study. At first I began with the basics, but Luke took me under his wing and I eventually could run everything besides drawing blood for the study. One thing I am extremely grateful for was that Luke did not just teach me the protocol so I could complete it; he made me understand why each process was necessary and how the body responded to the stresses associated with heat. I still have the several articles he would send me weekly to read. I spent my sophomore year, including my Thanksgiving, winter and spring breaks, helping with data collection and analysis of this study. When this study ended I was given a great opportunity to work on the Brainscope study my junior year. I was extremely excited to work on this study as I have had 6 diagnosed concussions myself. I am still helping with this study my senior year and am using it to write my honors thesis. I have also been lucky to attend several KSI events such as the Annual Fundraising Gala at the NFL headquarters and the KSI's fifth year anniversary event at the Storrs Campus.

In what ways has KSI impacted you?

KSI really opened the door for me at UConn. Not only have I gained invaluable research experience, I have met people who have left an impact on my life. I met several undergraduate researchers who have become my closest friends at the university. I have also met grad students who have left an impact on me as well. I have learned to interact with professionals, research protocols, advice about life, and even have received advice for my training for the weight room. I was not happy being a biological sciences major my freshman year because I could not apply the material I learned practically in a way that interested me. KSI showed me that I could do just this by combining my love for sports/exercise and for science. While helping out at KSI I found about the exercise science program and was a successful applicant my sophomore year. Now not only was I doing research that was of interest, but I was taking classes that directly related to my interests. All in all, I would say the Korey Stringer Institute was the foundation for UConn becoming a second home for me.



Kelci's Corner

Kelci Stringer's Story

Reprint from May 8, 2011- Kelci Stringer, Commencement Speaker Address.

Neag School of Education, University of Connecticut

Good morning and thank you Dr. Thomas DeFranco for that introduction, and a special thank you to my good friend Dr. Doug Casa, who is a professor here and the chief operating officer of the Korey Stringer Institute, to the faculty, family and friends and of course to the Class of 2011.

I am humbled to be here at the Korey Stringer Institute, which bears my husband's name, and I know he would be embarrassed by all the attention, but he might give me a fist pump for the reason the institute is housed here at UConn.

I am also honored to be joining you -the graduates- for this momentous and pivotal time in your lives. It was not that long ago that I sat where you are sitting, so I know that many of you have already started counting down how soon I will be finished speaking.

But if you will just humor me for a while, I want to share with you my story in the hope that you might glean something from it that may be helpful to you as you begin a lifetime commitment to teaching others.

First let me say, I did not plan on becoming an advocate or spokesperson for any issue. I studied psychology and, after graduation from Ohio State University, I planned to work and maybe attend graduate school. In the back of my mind, I entertained getting married and having children but I can honestly say I wasn't exactly sure what I was going to do beyond finding a job after graduation. In my parents' mind, finding a job was not an option -it was a plan. Like many of the parents here today, they were like corporate investors seeking a return on their investment.

But today is about you, the graduates, so I hope that my personal story and lessons that I've learned will offer you hope in the days ahead as you embark on your new

journey.

The author T. Alan Armstrong said, "Champions do not become champions when they win the event, but in the hours, weeks, months and years they spend preparing for it. The victorious performance itself is merely the demonstration of their championship character."

Today's graduation is "merely the demonstration of" your championship character. Whether you are a young graduate or a seasoned graduate who returned to school later in life, today we are celebrating that championship character in all of you.

You have spent hours, months and years to get to this victorious point in your life. As you put these days behind you, I hope that you will remember not just the classes you took but the lessons you have learned. College is about so much more than a career, a profession or a job. It is training for life. It is where many of us learned to play well with others, to step outside our comfort zones, to explore beyond our imaginations, and to peek inside ourselves to discover who we really are.



...I did not want another young wife or family to have to endure the relentless pain and eternal grief of losing someone whose death could have been prevented.

One of the lessons I wish I would have fully understood back then was the value of a quality education. I frankly took it for granted. But education is more than just grades and classrooms. It is a practice run for real life and the challenges you are bound to face along the way.

The University of Connecticut's Neag School of Education is the No. 1 public graduate school of education in the Northeast and on the East Coast. As future educators, that is a priceless gift America's school children can ill afford for you to forget. Especially when you consider the following statistics.

- *A high school dropout will earn about \$260,000 less than high school graduates in their lifetime.*
- *High school dropouts have a life expectancy 9.2 years shorter than high school graduates.*
- *A one-year increase in average years of schooling for dropouts would reduce murder and assault rates by almost 30 percent, motor vehicle theft by 20 percent, arson by 13 percent, and burglary and larceny by about 6 percent.*
- *There will be a shortfall of 7 million college-educated workers in America by 2012.*

The story behind the statistics is that educators are a critical component of improving the American educational system and increasing the chances of success for American students.

You have heard that my late husband, Korey Stringer, was an NFL Pro Bowler offensive lineman. But you may not know that I was a track and field athlete and I have a great appreciation for what sports teaches you about the human spirit.

PattiSue Plumer, a U.S. Olympian, was the first woman to beat one of Mary Decker's distance running records during the 1980s. But she saw her share of setbacks, including a broken leg after being hit by a taxi in Japan, several bouts with pneumonia, food poisoning at the Seoul Olympics, and a dog bite at the 1991 World Championships.

But she once said something that, as a sprinter, I can appreciate. She said, "Racing teaches us to challenge ourselves. It teaches us to push beyond where we thought we could go. It helps us to find out what we are made of."

My life could not have been more of a test of that spirit than when in 2001 I lost my husband to an exertional heat stroke during a Minnesota Vikings pre-season football practice. On that hot summer July day, he was practicing in scorching heat that pushed his body temperature to 108.8 degrees.

In track and field, you train for your next race by working on your timing, your endurance and your mental readiness. And then the whistle blows; and there I was paralyzed in the blocks, unable to take off, because this was a race that I was not prepared to run.

The day after Korey died, I was a 27-year-old widow and single parent of a 4-year-old son. I was devastated, as any young wife would have been. I struggled to come to grips with this unbearable loss. My parents raised my sister and I to be very independent and responsible courageous women. But I didn't know how to do this. There was no training, no classes; there was nothing that had prepared me for this. My family and friends were supportive, but I internalized my grief so that I could get through the pain.

I tried to give myself permission to let Korey go. But there were expectations, commitments and other people who also cared and loved him. So I unconsciously assumed some of his traits and tried to be him for others by keeping his public commitments and filling in for him because I felt that is what people missed and quite frankly it kept him close to me. One of the most difficult things I had to do during that time was to work through my grief to get to my purpose.

I found strength in a song, in the quiet whisper of the wind, the giggle of my son's laughter, the stillness of pending peace and the famous words of Michael Gartner: "Life is

too short to wake up with regrets. So love the people who treat you right. Forget about the ones who don't. Believe everything happens for a reason. If you get a second chance, grab it with both hands. If it changes your life, let it. Nobody said life would be easy, they just promised it would be worth it."

So a year after his death, I continued to dissect how this could have happened. While there was nothing I could do to bring Korey back, I did not want another young wife or family to have to endure the relentless pain and eternal grief of losing someone whose death could have been prevented. What I soon discovered was that heat-related deaths had more than doubled since 1975. And in 2001 alone, the families of the University of Florida freshman football player Eraste Autin and Indiana's Clinton High School player Travis Stowers were grieving along with my family from the loss of their loved ones from sports-related heat stroke deaths. I struggled with how to deal with the high profile public sympathy for Korey when these two young men's lives were just as important to their families as Korey's was to mine.

I did not simply wake up one day and just decide that our son needed me to get it together so that we could begin the healing process. It was not that systematic or calculating. Like the healing process itself, I took little bitty steps. Korey had an incredibly giving spirit and philanthropic heart. He believed in making intimate connections with people that made a huge impact. He almost rejected the practice of outward giving and photo ops that applauded his generosity.

The deaths of Autin and Stowers were the final impetus for me to seriously begin formalizing the Korey Stringer Foundation. So the foundation was created with the help of people like Doug Casa, Jimmy Gould and others. Along with our partnership with the National Football League, Gatorade, Timex and the University of Connecticut, Neag School of Education, the vision for the Korey Stringer Institute was realized. The institute's mission is both personal and absolute. It is to provide first-rate information, resources, assistance and advocacy for the prevention of sudden death in sport, especially as it relates to exertional heat stroke, which has a 100 percent survival rate when immediate cooling is initiated within 10 minutes of collapse.

Currently, exertional heat is among the top three

reasons athletes die while playing sports. The goal of the Korey Stringer Institute is to raise awareness by teaching sports professionals and athletes how to avoid the conditions that lead to heat stroke and other heat-related illnesses, treat heat-related illnesses when they occur, and ultimately prevent all heat-related deaths.

I want to thank the institute staff and board advisors for their continuous and ongoing support and dedication to what has been a labor of love.

Finally, as you, the graduates prepare to meet the challenges that await you, I hope you won't mind a few parting words. As someone who became a public voice by default, I live by the mantra "tomorrow is not promised" -so here are a few lessons I've learned along the way.

- **Be honest with yourself.** *Even the most perfectly laid plans can be derailed and it is at that time that you will come face to face with your true self. I should have been more honest with myself. I needed to grieve in my own way. When you are secure and grounded enough to be honest with yourself, you will also be honest with others.*

- **Don't take yourself too seriously.** *I had to learn to recover my joy. Sometimes that comes with maturity or just being a parent. Children have a unique way of reminding you that you really aren't that important.*

- **Seize the opportunity.** *If you are faced with making a difference in someone's life, like the Nike slogan, JUST DO IT! That enormously tragic time in my life became an opportunity to help transform the lives of others. It was an opportunity I could not morally ignore.*

- **Challenge yourself.** *Force yourself to stretch beyond your boundaries and your limitations. As I unwillingly learned, sometimes you don't know what you CAN DO until you HAVE TO.*

- **Be grateful.** *Find the time in your busy lives to be grateful. Say thank you every chance you get because it reminds the universe that you are blessed. Grace is a lifestyle.*

And finally **Run YOUR Race.** As Olympian Carl Lewis said, "My thoughts before a big race are usually pretty simple. I tell myself: Get out of the blocks, run your race, stay relaxed. If you run your race, you'll win."

Invitation from the White House

On August 8, 2016, Dr. Douglas Casa attended a meeting at the White House that was convened by the National Security Council and the Centers for Disease Control and Prevention. The focus of this meeting was to discuss the role that global warming is having and will continue to have on military/athletic/laborer preparedness for physical activity in the extreme heat. The meeting was a follow-up to a White House led webinar delivered on May 26, 2016 titled “Building Community Preparedness to Extreme Heat” (Dr. Casa was one of the presenters in the webinar as well). The August White House meeting included leaders from a wide variety of constituents that are influenced by the increasing issues related to physical activity in the heat.

An added bonus was that Dr. Casa had the opportunity to play basketball (not very well, but he did sink a lefty hook shot from beyond the free throw line :-)) on the White House court (a place somewhat familiar for the UCONN family given the regular post-championship invites from President Obama of the UCONN Women’s Basketball team), which was a once in a lifetime experience that was cherished.



Back in Falmouth

BY YURI HOSOKAWA, MAT, ATC

DIRECTOR OF COMMUNICATION , DIRECTOR OF EDUCATION

Twenty-seven research and medical volunteers from the Korey Stringer Institute and University of Connecticut joined the 44th New Balance Falmouth Road Race in Falmouth, MA on August 21st. This was the fourth consecutive year in which KSI conducted a field research study at the race in conjunction with working in the medical tent treating exertional heat stroke patients. In this year's study, we aimed to (1) investigate runner's knowledge on heat and hydration and behaviors on race day and (2) investigate the use of real time gastrointestinal temperature feedback in altering runner's behavior during the race. We also assessed participants' readiness to exercise in the heat by measuring their cardiovascular fitness and their response to heat stress in our environmental chamber.

KSI's Rebecca Stearns, PhD, ATC and Luke Belval, MS, ATC also spoke at the Medical Symposium hosted by the Falmouth Hospital, which was attended by many medical volunteers and local healthcare professionals. Dr. Stearns' presentation, *The Tale of Two Heat Strokes*, introduced case studies of two runners who suffered from exertional heat stroke at the same race with distinctly different prognosis due to the different treatment they received. Belval's presentation, *The Fluid Needs for Today's Athletes*, provided evidence-based suggestions on hydration. At the Health & Fitness Expo, William Adams, PhD, ATC spoke on *Optimizing Safety and Maximizing Performance During Running in the Heat*, which was attended by many runners who were going to be racing the following day.

We would like to thank the Falmouth Road Race Board of Directors for their continued support and partnership with the Korey Stringer Institute in supporting our mission to educate runners and continue our research in ways to optimize their performance and safety during warm weather road races such as Falmouth Road Race.



Research Corner:

Cooper ER, Ferrara MS, Casa DJ, et al.

Exertional heat illness in American football players: when is the risk greatest?

Journal of Athletic Training. 2016;51(8).

BY ALEX FINN, BS, ATC, NREMT

KELSEY RYNKIEWICZ BS, ATC, NREMT, ASSISTANT DIRECTOR OF EDUCATION

Data from the National Collegiate Athletic Association (NCAA) Injury Surveillance System reported 1,687 cases of exertional heat illnesses from 1988 to 2004 during fall football practices. During this time, there were an average of 104.3 exertional heat illnesses per year, accounting for 5.6% of preseason football injuries overall. The study, "Exertional Heat Illness in American Football Players: When is the Risk Greatest?" by Cooper et al., looked to determine the period of the highest incidence rate for these illnesses. Exertional heat illnesses can range from heat cramps, heat syncope (fainting), and heat exhaustion to exertional heat stroke and exertional hyponatremia (low sodium concentration in the blood). If untreated, these illnesses can progress and worsen, potentially resulting in permanent impairments or even death. Heat illnesses are generally multifactorial and caused by a number of different environmental and physical conditions. These

may include factors such as high temperatures, high humidity, lack of acclimatization and conditioning, increased body mass, dehydration, and sickle cell trait. For this study, data was collected from 2004 to 2007 using NCAA Division I and III football players from across the United States. The study determined a reportable heat illness as one that resulted in an athlete missing participation or a case in which an athlete was evaluated by the medical staff.

Results indicated the greatest risk of exertional heat illnesses was within the first fourteen days of practice. The recommendation for heat acclimatization is suggested to be between eight and fourteen days in order for the body to adapt to greater physiologic demands. The results of this study demonstrate the importance of a gradual increase in practice frequency and intensity for proper acclimatization to occur.

Study Results by the Numbers

553 Reported Cases of Exertional Heat Illness

365,810 Reported Athlete Exposures
(athlete participating in one practice session)

Heat Cramps
74% of Cases

Heat Syncope and
Heat Exhaustion
26% of Cases

Number of Cases Per Region

Northeast

32

Northwest

10

Upper Midwest

32

Lower Midwest

33

Southeast

446

Key Points

- The greatest risk of exertional heat illnesses was during the first 3 practices
- 92.8% of heat illnesses occurred during the first 29 practice sessions
- The risk of exertional heat illness became stable starting on day 14
- It is important to have proper heat acclimatization
- It is important to implement prevention strategies such as proper hydration and education of exertional heat illnesses
- In cases of exertional heat stroke, it is imperative to assess rectal temperature and cool the athlete first with cold water immersion before transport

KSI Jumps into Fighting the Good Fight the Ring

BY ROBERT HUGGINS, PHD, ATC

VICE PRESIDENT OF RESEARCH, VICE PRESIDENT OF ATHLETE PERFORMANCE AND SAFETY

RYAN CURTIS, MS, ATC, CSCS

ASSOCIATE DIRECTOR OF ATHLETE PERFORMANCE AND SAFETY

Usually when KSI is contacted about anything related to boxing, it is about a boxer who suffered a devastating blow to the head or died catastrophically following a fight, but this time we had the great fortune to be introduced to Mr. Chris Algieri. Before I describe how KSI assisted Chris, I must preface that Chris is NOT your typical boxer. Chris has fought some top contenders such as Ruslan Provodnikov, Errol Spence, and Manny Pacquiao and on top of being a professional boxer (21 wins, 3 losses), WBO junior welterweight champion in 2014, and undefeated world kickboxing champion (20-0), he has his bachelors from Stony Brook University in healthcare science and masters from New York Institute of Technology in nutrition. As a clinical nutritionist, Chris knows down to the calorie, the ounce, and the gram what he needs to keep his 32 year-old body producing at the highest level. He trains hard year round and keeps his body weight close or near his fight weight (140-147lbs) at all times. He is very much against “cutting weight at the last minute” and knows more about what dehydration and unsafe weight loss can do to performance. Like I said...NOT your typical athlete! Did I mention he is also a new announcer for boxing on ESPN’s Friday Night Fights?

We first met Chris in March at an International Society of Sports Nutrition conference held at Rutgers University where Chris presented comprehensively on his training regimen as he approaches a fight, everything from his use of branch chain amino acids (BCAA’s) and “super starches” to the minutes he trains per day. Following Chris’ talk, Dr. Casa presented on elite athlete hydration and I’ll give you one guess who was immediately asking for KSI to come test them when Dr. Casa was done with his talk? Yup...Chris. On April 4th, one month

room the meeting in New Jersey and only 12 days before Algieri was to face off against Errol Spence at the Barclay’s Center in New York, two members of KSI’s performance division, myself and Ryan Curtis hopped on a plane to Boca Raton and monitored Chris during two days of intense training. Our primary objective was to conduct a sweat test on Algieri to determine his sweat rate and electrolyte losses during a live sparing session to provide Chris with recommendations on electrolyte intake prior



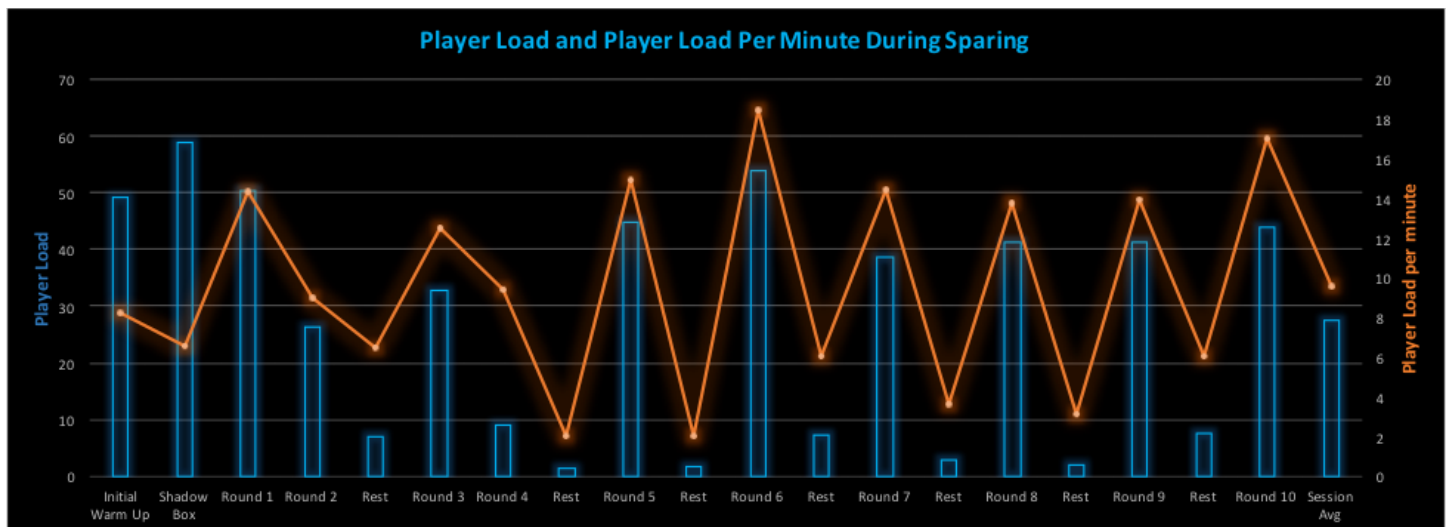


to boxing and training. In true KSI fashion, we had Chris ingest a small temperature pill and wear a heart rate strap and accelerometer. *"We monitored everything we could to give Chris a better picture of the stress of his training and provide him with accurate recommendations for hydration"* stated Dr. Huggins, *"the more information he has about his 10 round live spar training sessions the better he will perform on fight night."*

Prior to the training session, Huggins and Curtis ensured that the temperature pill and heart rate was reading correctly, recorded Chris' pre-exercise body mass, and weighed his water bottles to monitor how much he drinks during training. After each round the KSI team measured Chris' body temp and found that this boxer warmed up pretty fast and can sweat...a lot! *"In about 25 minutes his core temp was above 102°F and by the end of the 10 rounds he almost reached 103°F"* stated Ryan Curtis who has worked previously on with the US Tennis Association and the US Marines. *"Even more interesting is the PlayerLoad data we obtained (see figure), he [Chris] achieved a load of nearly 550 in the 10 rounds which is equivalent to what we see from collegiate soccer players during a 90 minute practice session, which is remarkable!"*

When examining Chris' sweat rate and fluid replacement, we found he lost nearly 2.5% of his body mass or almost 2 liters per hour (67oz.) during the 10 rounds of fighting and almost 3% (2.4 liters per hour) the following day during an hour speed bag workout. Add to that, on both days he only replaced 380ml (13oz.) For most athletes this is not recommended, but one thing that you don't know is that Chris intentionally over-hydrates prior to his training sessions and comes into the training session nearly 2 lbs. heavier, because he can't drink during training. *"My goal is to come to the session well hydrated because the exercise is too intense to drink. All I do is rinse my mouth between rounds.....you try getting punched in the stomach with a bunch of fluid in there and tell me what happens,"* Algieri stated. Point well taken. Following the testing, Huggins and Curtis returned to KSI, to analyze Chris' sweat electrolytes and prepare an individualized report for Chris. *"After we analyzed the data, we had a meeting with Chris to inform*

him of what his body is telling us during training and provided him with some great recommendations to improve performance.” In the coming months, Chris and KSI plan to co-author a case-study from the data gathered during this testing session to highlight the amazing potential for research in boxers and quantify the demands of the sport.



Summer Fellowship

BY SAVANNAH KNIGHTON
KOREY STRINGER INSTITUTE FELLOW

My name is Savannah Knighton and I am an undergraduate athletic training student at Louisiana State University. I became aware of the Korey Stringer Institute (KSI) in 2014 after my brother suffered a heat stroke. KSI played an integral role in his return to the football field. I have always admired the work that they have done, and this summer I was fortunate enough to become part of the team when I was offered the 2016 summer fellowship.

My main focus this summer was the Athletic Training Locations and Services (ATLAS) project. The goal of ATLAS is to create a real-time database of the athletic training services in secondary schools across the country. Being an athletic training student and a strong advocate for the importance of the presence of athletic trainers at all levels, this was a very appropriate task. I spent much of my time uploading the information from new surveys to our database. I also created numerous contact lists of athletic trainers from different states to help promote ATLAS. This was my first real experience working with excel, but I was able to learn numerous tips and tricks.



I was also asked to write letters to authors that inadequately described exertional heat stroke. I have become very knowledgeable about heat illnesses, especially exertional heat stroke; so I was glad to be able share this knowledge. I was even able to learn a little bit more about the specifics and misconceptions of heat illnesses while writing these letters. My creative side was put to the test by designing some social media graphics to help promote KSI and its initiatives. During my last few weeks here, I was able to help out with some of the research studies. I spent many hours in the heat chamber, helping out with max testing, and collecting data before and after testing. This was my first experience with research, but it has definitely made me consider going into research in the future.

I cannot thank the KSI team enough for all the mentoring they have done. The amount of knowledge I have acquired from them this summer is unfathomable. I am excited to bring everything I have learned back to Louisiana and carry it with me throughout my career. I can only hope that future fellows learn just as much as I have. KSI does some amazing work, and being apart of the team even for a summer is an experience I would recommend to any athletic training student.

**KSI WELCOMED
SAVANNAH KNIGHTON
FOR
THE KSI SUMMER
FELLOWSHIP.
THESE ARE HER
REFLECTIONS ON THE
EXPERIENCES SHE HAD
DURING THE FELLOWSHIP.**



Pre College Summer Class

BY RACHEL KATCH, MS, ATC

ASSOCIATE DIRECTOR OF MILITARY AND OCCUPATIONAL SAFETY

The Korey Stringer Institute at the University of Connecticut hosted the first ever Emergency Issues in Sports Medicine Pre-College Summer academic focus course. In total, we conducted four separate 1-week (17.5 hour) sessions which were targeted towards junior's in high school interested in sports medicine as a possible career. Each course featured a curriculum of evidence-based prevention, recognition, and treatment of leading emergency issues in sports, military, and occupational settings. Each session included interactive presentations disseminated by our experienced staff, as well as a hands-on learning lab simulating the emergency treatment of life threatening ailments. A broad range of emergent topics were covered during the sessions including:

- Cardiovascular events
- Exertional heat illnesses
- Concussions
- Traumatic injuries
- And other significant contributors to sudden death

Despite several policy and law changes at the federal, state, and organizational levels, sudden death due to the previously mentioned conditions are an inherent risk of sport and physical activity. Students learned imperative knowledge in the understanding of today's leading causes of death in sport and physical activity, including essential firsthand skills in the prevention, recognition, and treatment of these emergent injuries and illnesses.

With our first year of Sports Medicine sessions in the books, our curriculum was very well received by students and was regarded as interactive, engaging, rigorous, and very informative. Students have come away from this course with a new understanding of sports medicine and the number one causes of sudden death in sport and physical activity. When asked what was the most interesting/important thing they learned in our seminars, all students responded with a resounding, "Everything!" Make sure to keep a look out next year for our 2017 Pre-College Summer Sports Medicine Seminars!



Current Statistics on Concussion Policies at the Secondary School Level

BY WILLIAM ADAMS, PHD, ATC, VICE PRESIDENT OF SPORT SAFETY

Basic Facts

A concussion is defined as a brain injury that is a complex pathophysiological process that is induced by biomechanical forces; concussions occur from direct or indirect forces on the skull that cause a rapid acceleration and deceleration of the brain. As many as 3.8 million concussions are evaluated in Emergency Departments in the United States each year at all levels of sport.

Developing a concussion policy that meets current evidence-based best practices is essential for properly managing concussions during sport participation. A proper policy should include items related to emergency action planning, proper education of all persons involved in a student athlete's care (coaches, parents, athletes), removal of the student athlete from activity if a concussion is suspected, and return to activity follows a graded return-to-play protocol and clearance by a physician or athletic trainer.

Every state in the United States has enacted legislation focused on sport related concussion during sport; most of the focus surrounds the education of parents, coaches and athletes on the prevention, recognition, treatment and return to play from concussion, as well as the immediate removal from activity if a concussion is suspected. While roughly 50% of states in the US mandate that a graded return-to-play protocol be followed in returning athletes back to play, additional efforts are needed across the country to improve the care from concussion in respect to returning student athletes to school prior to returning to sport.

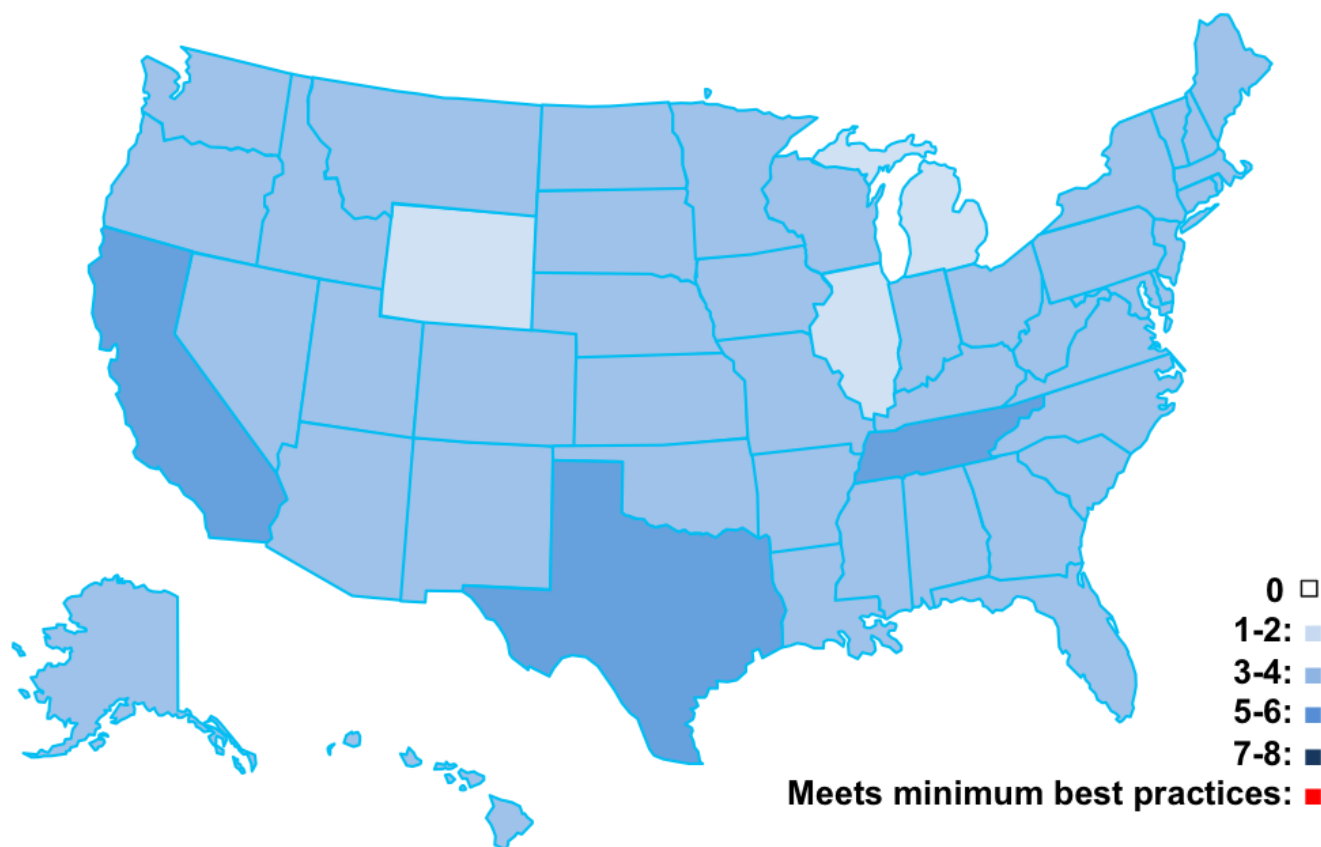


Figure. Representation of the number of states and the year in which they mandated evidence-based practice policies for concussion policies in secondary schools.

Statistics on Concussion Policies

- 100 percent of states satisfy the requirement that preseason education for personnel, coaches, athletes and parents on the basics of concussion should be tailored to the group (i.e. that helmets do not prevent cerebral concussions, signs/symptoms, treatment, testing options, RTP).
- 98 percent of states meet the requirement pertaining to high school athletes suspected of sustaining a concussion not being permitted to return to a practice, game or activity involving exertional activity on the same day.
- 98 percent of states comply with the requirement that athletes suspected of a concussion should not being permitted to return to participation until receiving a written release from a licensed physician or athletic trainer.
- 44 percent of states meet the requirement that a graduated return to play protocol consisting of at least five steps with no more than two steps occurring on one day is implemented for athletes returning back to activity from a concussion.

FOR MORE INFORMATION ON OTHER SECONDARY SCHOOL HEALTH & SAFETY POLICIES, VISIT KSI.UCONN.EDU

CONCUSSION POLICIES

Policy Recommendations		Percent of States that Meet Recommendation
1	<ul style="list-style-type: none"> Schools should develop an EAP for handling potentially life-threatening injuries and a referral plan for concussions. 	16%
2	<ul style="list-style-type: none"> Use certified helmets/ equipment. 	6%
3	<ul style="list-style-type: none"> The preparticipation exam should include concussion specific questions. 	4%
4	<ul style="list-style-type: none"> Preseason education for personnel, coaches, and athletes on basics of concussion (i.e., helmets do not prevent cerebral concussions, signs and symptoms, treatment, testing options, return to play). 	100%
5	<ul style="list-style-type: none"> High school athletes suspected of sustaining a concussion are not permitted to return to a practice, game, or activity involving exertional activity on the same day. 	98%
6	<ul style="list-style-type: none"> Athletes suspected of a concussion are not permitted to return to participation until written release from a licensed physician or athletic trainer is given. 	98%
7	<ul style="list-style-type: none"> No child/adolescent should return to sport/activity unless he/she managed to return to school. 	4%
8	<ul style="list-style-type: none"> Implementation of a graduated return to participation protocol . 	46%
9	<ul style="list-style-type: none"> Comprehensive medical-management plans for acute care of a potential head or cervical spine injury. 	2%

Beach to Beacon

10K

BY WILLIAM ADAMS, PHD, ATC
VICE PRESIDENT OF SPORT SAFETY



The TD Beach to Beacon road race is an annual 10-kilometer (6.1 mile) road race that runs along the scenic coast of Cape Elizabeth, Maine with a picturesque finish in front of the Portland Headlight in Fort Williams. For this year's race, 6,500+ runners competed in the event, drawing competitors from the every day recreational runner to Olympic caliber athletes. KSI had the opportunity to attend the race to put their expertise in the treatment of exertional heat stroke (EHS) to use in the main medical tent.



Prior to the race, the weekend's festivities began with the annual medical symposium held at Maine Medical Center. KSI's Vice President of Sport Safety William Adams, PhD, ATC and Director of Education and Communication Yuri Hosokawa, MAT, ATC were invited to speak to an audience of medical volunteers and runners interested in the topics being presented. Adams spoke on hydration in today's athletes while Hosokawa presented a case series examining the treatment and management of two exertional cases recently published in [Current Sports Medicine Reports](#). The symposium was a huge hit and was extremely well received by all of the attendees.



On the day of the race, the morning began with a medical team meeting led by the race's medical coordinator, Chris Troyanos, ATC and medical directors Mylan Cohen, MD, and Michael Baumann, MD. The purpose of the meeting was to discuss the policies and procedures of the tent, particularly related to the recognition and treatment of EHS in the competitors. Along with Adams and Hosokawa, KSI's Director of Sport Safety Samm Scarneo, MS, ATC joined the medical team to provide assistance in treating the runners (a total of 4 individuals for this year's race) coming into the tent with EHS.

It was a rewarding experience to be able to be part of the medical team and the friendships made with other physicians, nurses and athletic trainers was invaluable.

NFL AT PILOT GRANT PROGRAM

BY YURI HOSOKAWA, MAT, ATC

DIRECTOR OF COMMUNICATION , DIRECTOR OF EDUCATION

Korey Stringer Institute at the University of Connecticut is proud to announce our role in **the NFL Athletic Trainer Grant Pilot Program**, which is open for applications from October 19, 2016 through December 16, 2016. As part of the ***Play Smart. Play Safe. campaign the NFL pledged*** on September 14, 2016, the NFL is heading up a pilot grant program in four states – Arizona, Illinois, Oklahoma and Oregon. Up to 150 public high schools across the four pilot states will be awarded a \$35,000 grant over the course of a 3-year period to assist with securing athletic trainer (AT) services. School administrators, or their designee, may apply if their school meets the following criteria:

- A public high school with an interscholastic football program in Arizona, Illinois, Oklahoma or Oregon.
- Minimal or no current athletic training program. Minimal is defined as care provided by an athletic trainer only for football games or competitions played at home.

As NFL Commissioner Roger Goodell stated in his **letter**, "... we know that ***having an athletic trainer on the sidelines at a high school game can be pivotal for how health and safety issues are handled.*** But many of our nation's schools lack the resources to pay for one. Accordingly, we plan to expand the size of our athletic trainer program, funding additional athletic trainers for high schools that need them. ***Our long-term goal is to raise awareness about the important role athletic trainers can play in high school athletics.***"

KSI will lead the administration of the NFL Athletic Trainer Pilot Grant Program as well as conduct research on the program's impact, specifically the impact of athletic trainers on student athlete health outcomes. We hope that by bringing our expertise to this program, we can assist not only the schools who may hire ATs for the first time in their school history, but also to serve as the support system for the ATs who are accepting jobs in these schools in order to develop successful and sustainable athletic training programs across the nation. To find out more about the pilot grant program, visit: www.athletictrainergrant.com. **#AT4ALL**



ATLAS Updates

BY SARAH ATTANASIO BS, ATC, ASSISTANT DIRECTOR OF RESEARCH

The Athletic Training Location and Services (ATLAS) Project, based out of the Korey Stringer Institute, is continuing to grow since the maps were created in June of 2015. To date, there are over 5,800 ATLAS surveys completed. The Qualtrics based surveys are taken and put into an online-based mapping program called Zeemaps. An individual map is created for each state to depict every high school in the country with their athletic training (AT) coverage services shown. A quick recap of what the ATLAS Project can provide for you:

- A real-time database of AT services in secondary schools
- Create a directory for each state's AT association and high school athletics association
- Assist states in moving toward full-time AT services
- Identify common factors associated with increased AT services across the country
- Improve the delivery of healthcare series via improved communication between secondary schools

The objective of the project is to “map” every high school in the nation with knowledge of their AT coverage status. Full-time, part-time and no athletic trainer statuses are represented as different colors on the maps. If the high school status is unknown, the marker will be identified black. After the ATLAS survey is filled out for the high school, the unknown “black markers” will be changed to the correct color corresponding to the AT coverage.

There are two states that are completely mapped to date, those being, Maine and Vermont. A handful of other states are very close to 100% mapped completion with just a handful of schools left to identify. The ATLAS staff is working with numerous people in various states to get the word out and encourage the completion of the survey.

All the effort that is put into ATLAS could not be achieved without the work force comprised of our undergraduate students here at the University of Connecticut. There are over 10 volunteers that dedicate hours of their time weekly to help with data collection, organization and interpretation of the ATLAS Project. Robert Huggins, the VP of Research and Athlete Testing, and Sarah Attanasio, the Assistant Director of Research, work with the students as well as with key individuals in various states to help push the awareness and show the weight of the project nationwide.

International Hydration Meeting

BY LUKE BELVAL, MS, ATC, CSCS

DIRECTOR OF RESEARCH

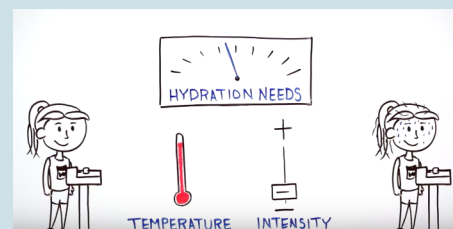
DIRECTOR OF MILITARY AND OCCUPATIONAL SAFETY

On September 15th and 16th, KSI gathered experts in the field of hydration to help clarify the hydration advice athletes, coaches and parents are receiving. The meeting, Practical Hydration Solutions for Sports and the Physically Active, was convened at the University of Connecticut to help provide situation specific information that can be easily interpreted and applied by those looking to optimize performance.

With representatives from the UK, Australia, New Zealand, Canada and all over the United States, KSI is working to change the way hydration advice is provided to those looking to improve their athletic performance. In light of increased attention to what, when and how athletes should drink, the purpose of this meeting was to help clarify what an athlete can do to optimize performance through hydration. Experts in the field discussed over 20 different sports to help identify the specific factors that may influence hydration status for athletes in those sports. Specifically, the group evaluated the evidence to determine risk of dehydration and over hydration for each athletic situation to help athletes understand what hydration strategies may work

best for their sports. The round table meeting focused around two deliverables, a scientific publication featuring the overall results and one-page sport-specific documents that can be easily distributed to those participating in a given sport. It is our hope that these documents can help clarify what the best practices are for performance optimization through hydration in a given sports situation.

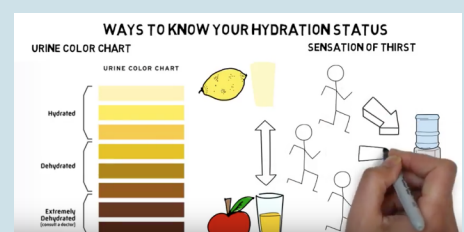
KSI has YouTube videos that you can share to educate your athletes and students about hydration considerations before, during, and after exercise.



<https://youtu.be/Z0ldntkzzqY>

**OPTIMAL
BEVERAGE
COMPOSITION
FOR HYDRATION
IN ATHLETES**

**KOREY
STRINGER
INSTITUTE'S
GUIDE TO
HYDRATION**



https://youtu.be/8Ux9K_pRBkI



Research Corner:

Sylvester JE, Belval LN, Casa DJ, O'Connor FG. Exertional Heat Stroke and American Football: What the Team Physician Needs to Know.

Am J Orthop. 2016;45(6):340-348.

BY ANDRES ALMERAYA BS, ATC, ASSISTANT DIRECTOR OF COMMUNICATION

BRAD ENDRES, BS, ATC, ASSISTANT DIRECTOR OF SPORT SAFETY

There are 4.2 million athletes who participate in football annually across all levels from youth to professional. While direct trauma contributes heavily to the number of injuries, indirect injuries such as exertional heat illnesses (EHI) carry most of the weight. There is a fatality rate of 0.14 per 100,000 participants across all levels, and the number increases to 0.45 per 100,000 when looking at high school and college. Twelve deaths are reported annually from high school and college level players and indirect deaths occur at twice the rate of direct. Most cases of EHI occur during practice (75% of all cases). The biggest challenges for football players are the heat during pre-season conditioning and the equipment that covers 60% of the body surface area. Primary prevention strategies for EHS team physicians should utilize are: recognizing inherent factors, acclimatization, hydration, and avoidance of inciting substances such as supplements. Additionally, team physicians should be involved in the establishment of an emergency action plan (EAP). Comprehending all these aspects is vital for the team physician and healthcare provider who takes on the responsibility of covering American football.

Key Points

- Exertional heat stroke (EHS) has emerged as one of the leading indirect causes of death in high school and collegiate football
- EHS represents the most severe manifestation of exertional heat illness (EHI)
- EHI occurs in football 11.4 times more often than in all other high school sports combined
- The most effective means of reducing risk for morbidity and mortality is rapid identification and treatment of EHS as well as close evaluation of an athlete's return to activity in heat
- Through development and execution of both comprehensive prevention strategies and emergency action plans (EAPs), physicians can work to minimize athletes' risk of both developing and experiencing significant adverse outcomes from an EHI

PREVENTION

Primary Prevention

- Providers should take the opportunity of the pre-participation examination (PPE) to inquire about additional risk factors that may make an athlete high risk for sustaining a heat injury
- Consensus guidelines recommend that activities be modified based on wet bulb globe temperature (WBGT). A WBGT reading $>90^{\circ}\text{F}$ (32.2°C) warrants the cessation of all activities
 - It has been observed that a majority of hyperthermia-related deaths in football occurred on days classified as high risk (23°C - 28°C) or extreme risk ($>28^{\circ}\text{C}$) by WBGT
- To mitigate the risk factors due to football equipment, the introduction of padded equipment should occur incrementally over the heat acclimatization period

Secondary Prevention

- Individuals should have access to fluids throughout practice and competition and be encouraged to hydrate as needed. Furthermore, staff should modify their practices based upon WBGT and acclimatization status to provide more frequent hydration breaks
- Studies have shown that combining external (cooling clothing, ice packs, fanning) and internal (drinking cold water) cooling methods during activity result in a greater cooling effect than a use of a single method

Tertiary Prevention

- The goal of tertiary prevention is to mitigate the risk of long-term adverse outcomes following an EHS event. This process is spearheaded by an effective and well-rehearsed EAP

MANAGEMENT AND TREATMENT

- EHS is diagnosed by an elevated rectal temperature $\geq 40^{\circ}\text{C}$ (104°F) and associated central nervous system (CNS) dysfunction
- Cold water immersion (CWI), where a heat stroke victim is submerged in ice water up to their neck while water is continuously circulated, is generally considered to be the gold standard treatment of EHS
 - The goal of treatment is to achieve a rectal temperature $<38.9^{\circ}\text{C}$ within 30 minutes of the onset of EHS
- Rapid cooling is more crucial than transport; transport poses a risk of delayed cooling, which can dramatically increase an individual's risk of morbidity and mortality
- The general consensus from return to activity guidelines is that, at minimum, athletes should not participate in any physical activity until:
 - Athlete is asymptomatic and all blood tests have normalized
 - Once this is achieved, most guidelines advocate for a slow, deliberate return to activity

3rd Annual Collaborative Solutions for Safety in Sports

BY ALICIA PIKE, MS, ATC

ASSOCIATE DIRECTOR OF RESEARCH

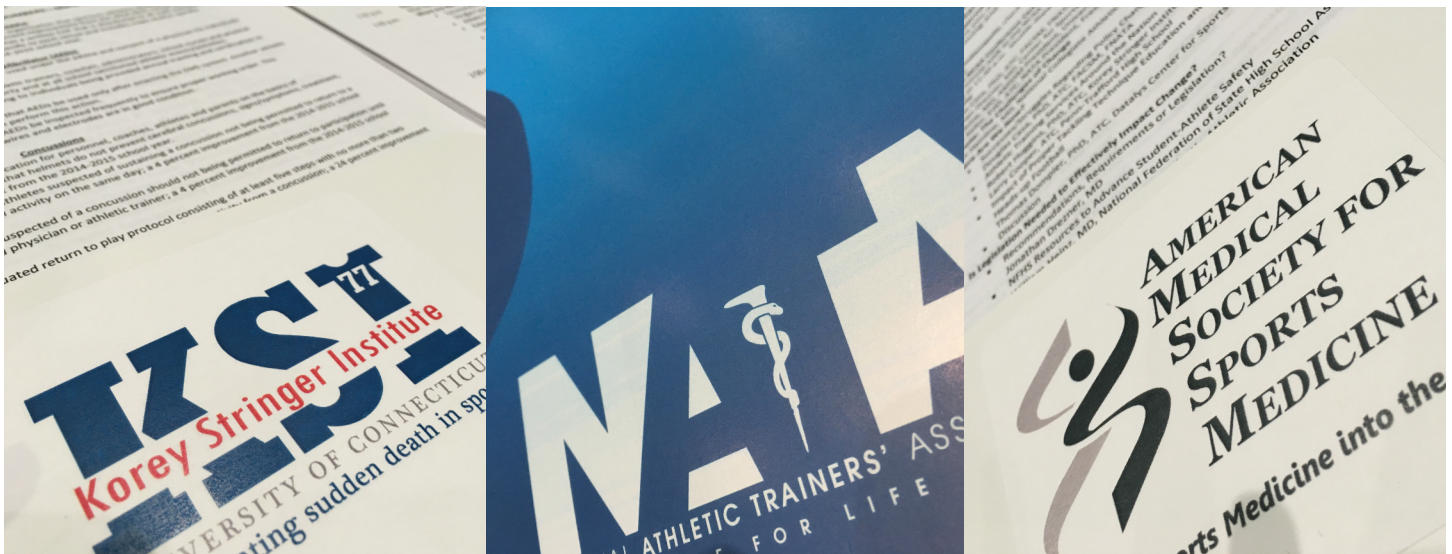
Year three of the Collaborative Solutions for Safety in Sport (CSSS) initiative is quickly approaching. Devised and created by the Korey Stringer Institute more than two years ago, this meeting brings together each state's High School Athletic Association Executive Director and Sports Medicine Advisory Committee chair, or other representative. The purpose of the initiative involves discussing the development and implementation of best practice policies to maximize safety in sport for student-athletes. With support from the National Athletic Trainers' Association (NATA) and American Medical Society for Sports Medicine (AMSSM), we have hosted two successful meetings with representation from all 50 states in the room. The hope is that year three will be no different. The three meetings were strategically planned to work in succession and provide the resources for representatives to return to their states and improve the health and safety of student-athletes through best practice policy implementation in four key domains: heat illness, cardiac

conditions, head injuries, and emergency action plans (EAPs). Year one outlined the best practice policies that states should have in place to prevent sudden death in sport. A panel of state representatives also shared their struggles and successes regarding policy implementation. For following year, there was a shift in focus towards greater collaboration between states, as breakout sessions were provided to encourage discussion on shared struggles and experiences. Though the forum for discussion will continue into the third year, our hope is that these states will have taken action toward maximizing the safety of student athletes at the secondary school level. We are excited to announce that the 3rd CSSS meeting will be taking place during the last week of March 2017 in Dallas, TX. As the third year approaches, the goal is to continue providing a forum for key-decision makers to identify barriers they have faced within their state involving sport safety policy development and implementation. Most importantly, we will provide opportunities for these barriers to be matched

'This forum allows us to share resources, tools, sports safety protocols, and strategies designed to keep young athletes thriving on the field and off the sidelines. Their health and welfare is our primary concern.'

-Jon Divine MD

AMSSM, Immediate Past President



with suggested solutions, as the states collaborate together to achieve a common goal – maximizing safety in sport for secondary school student-athletes. We are looking forward to another successful meeting, reconnecting with former attendees and welcoming new ones. See you in Texas!

Third Annual Youth Sport Governing Bodies Meeting

KSI is reconvening the youth sport governing body representatives to have the third annual Youth Sport Governing Bodies Meeting on February 23-24, 2017 at the NATA Headquarters in Carrollton, TX.

NATA ASSOCIATION UNIVERSITY OF CONNECTICUT
HEALTH CARE FOR LIFE & SPORT Preventing sudden death in sport

Safety Protocols for Hiking

Ariel's Story

BY ELLEN AND MARK NEWMAN

On September 2, 2014 late in the evening, we bid our only child Ariel, a happy and healthy 18-year-old, goodbye at the El Al gate as he left for a gap year in Israel. With hugs and kisses we told him he would be having an experience of a lifetime and to make the most of it. We had prepared for several weeks for his year abroad by buying a backpack, a Camelback, hiking boots and sneakers, new Shabbos shirts and pants. We were excited for him to grow spiritually, physically and emotionally. He was leaving the safe cocoon of home to explore a larger world and connect to Israel. We had chosen a special program that we felt would be well suited for him that combined learning in and out of the classroom, hikes, charity work, and Krav Maga, Israeli martial arts.

Ariel arrived in Israel tired but excited to start a new chapter in his life. We felt so fortunate that we spoke to Ariel almost every day. He described his living conditions, his 3k run, the classes, his adventures in Jerusalem and the old city and his general impressions of Israel. Although very tired, it sounded like he was trying to make the most of this new opportunity. Our last phone call from him was on Monday afternoon, September 8th, when he told us he would not be speaking to us for several days because they were going on a two-day hike in the Judean desert with the program director. This would be an overnight adventure and the first time he had slept outdoors in a sleeping bag under the stars. So on the seventh day after his

arrival, they set out to Ein Gedi, a park in the south of Israel. We said that we would speak when he returned, and that he should enjoy this exciting trip.

The next phone call we received was from Haddasah Hospital, mid-morning; a parent's worst nightmare. Ariel had collapsed in the desert on the second day of the hike, in the early afternoon, in the searing heat of the day and only one half hour from completing his trip. We were told that the young men had taken a rest and hydration break 10 minutes earlier. Apparently Ariel was exhausted, having stayed up almost all night with his new friends around a camp fire in an attempt to ward off the many biting insects. Waking up early for morning prayers, the young men started their second day of the hike at 8am. They hiked for 6 hours, up and down the mountains and across the desert plains in 98 degree weather.

About a half hour before the end of the hike, as they approached Masada, Ariel collapsed and almost instantly fell into a coma and never woke up. An Army helicopter was called. While the tour guide contacted Magen David Adom for directions on what to do, he was ill prepared for this. In spite of his best efforts to cool Ariel down, he laid in the desert, roasting alive, for 45 minutes waiting for the helicopter to show up. It took another 15 minutes to get to the hospital. By that time the damage was done. All of his organs began to fail, and when he reached the

Personal Story

#04: ELLEN AND MARK NEWMAN, SHARE A STORY OF THEIR TRAGIC LOSS OF THEIR SON, ARIEL, FROM AN EXERTIONAL HEAT STROKE DURING HIS YESHIVA TO ISRAEL AND HOW THEY WERE ABLE TO MAKE POSITIVE STEPS TOWARD EDUCATING OTHER TOUR LEADERS.

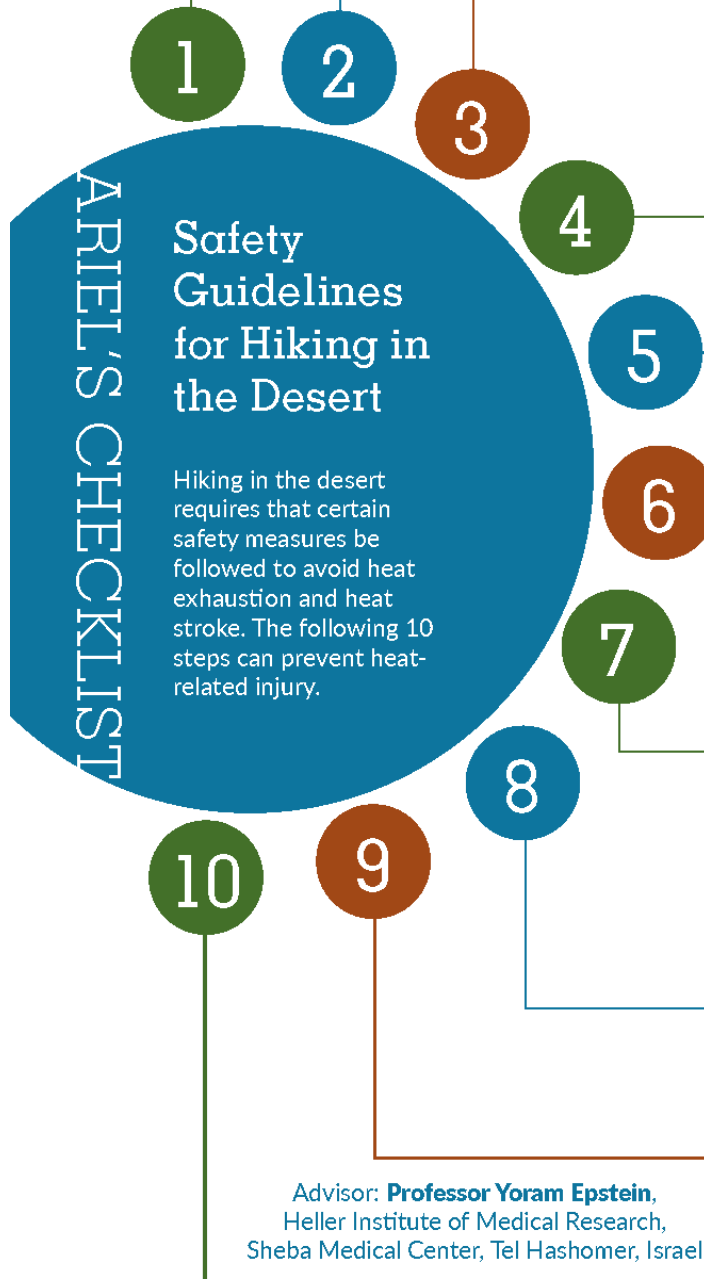
hospital his body temperature was 109 degrees. The trauma unit worked on Ariel for almost 2 hours but to no avail. We only found out weeks later that he had died from exertional heatstroke (EHS) and dehydration. We were in shock and still are. Wasn't this preventable? How could a healthy teenager, who never took drugs or medications collapse on a hike? And so Mark and I started our investigation of exertional heatstroke and how this could have been prevented.

We decided that there needed to be a concise, easy to read checklist, written for hikers as well as a longer version for the hike leaders to guide them on the science of EHS and how to assess the risks for their group. We were initially guided in our efforts by Professor Yoram Epstein from the Heller Institute of Medical Research, who had written the heat safety protocols for the Israeli Defense Forces. In the United States, we turned to KSI for guidance on the specific science of EHS. Drs. Robert Huggins and Douglas Casa patiently worked with us over the course of many months vetting what we wrote to make sure it was clear and accurate. They were patient and encouraging of our efforts. One year later we had Ariel's Checklist, in both short and long form. It is a graphic, 10 point checklist of the risk factors for EHS. Ten months after we completed the English language version, we created a Hebrew language version of the Checklist, which has been distributed to Israeli yeshivas and tour leaders. As a result of Ariel's Checklist, there

have been several articles written about Ariel and his Checklist, both in America and in the Israeli press. We have a [Facebook page](#) and will shortly have a website dedicated to bringing awareness of the issue. Over time, awareness is spreading. We are told that tour leaders in Israel have canceled tours when it is too hot due to what they learned after reading Ariel's Checklist rather than taking any unnecessary risks. Slowly the hiking culture is changing. We know that nothing will bring our dear son back, but we take some degree of comfort knowing that we will be saving others from the deadly perils of EHS.



In Loving Memory of Ariel Yitzchak Newman z"l
May 6, 1996-September 10, 2014



For a more detailed version of Ariel's Checklist,
please contact mjnewman@mac.com

Acclimate to the Heat

Avoid participation in extensive physical exercises outside in the heat for the first two weeks. Gradually increase your exposure to the heat with increasing time, duration, and intensity of exercise over the course of 14 days. Do not include any days where the exercise was inside in a cool environment or you did not spend time exercising in the heat.

Ensure Hike Level is Appropriate

The first two or three hikes should be at a beginner level regardless of your skill or fitness.

Hydrate

Ensure that you are hydrated before, during, and after each hike. In the dry, arid desert, a good rule of thumb is to drink $\frac{1}{2}$ of one quart/liter to one quart/liter of liquid per hour to avoid severe dehydration. The volume of liquid to be drunk depends on how much you sweat. Do not overhydrate. Drinking throughout each hour is recommended rather than drinking a lot at once.

Wear Loose, Moisture-Wicking Clothes

Hikers must wear clothing made of a fabric that is loose, moisture-wicking, and "breathes," like cotton.

Sleep

Sleep at least 6-8 hours every night, preferably under comfortable and cool conditions. Two or more nights in a row of inadequate sleep is dangerous, especially if the desert hike will take more than one day.

Determine the Wet Bulb Globe Temperature (WBGT)

Must be $<89^{\circ}\text{F}$ or 31.7°C in order to begin the hike. This is different from a simple temperature assessment. There are consumer handheld devices to measure the WBGT. If other heat-illness related factors are present, consider hiking only when the WBGT is at even lower levels.

Ensure Adequate Rest to Work Cycles

This is one of the primary modes to prevent exertional heat illness. Even if you are in good shape and no other risk factors exist (inadequate sleep, poor physical fitness, etc.), there should be an allotted rest period (in the shade preferably). For example, if the WBGT is 83°F (28.3°C), allot 20 minutes of rest for every 40 minutes of exercise. The length and frequency of rest breaks should be based on the intensity of activity and the environmental conditions (WBGT). Increasing intensity and more adverse environmental conditions should warrant extended and additional break periods.

Avoid Mid-Day Hiking

If there is an urgent need to hike mid-day, at a minimum, greatly extend the length and frequency of the rest periods (in the shade) during the hottest part of the day.

Prepare for Medical Emergencies

There should be at least one person who is trained in medical assistance, particularly in the treatment and care of heat-related illness. Bring a portable tent or bed sheet to create shelter from the sun when there isn't any other shelter.

Insist on Safety

Not feeling well? Say something. You must feel comfortable notifying the leader if you feel ill or need to rest. Look out for your fellow hiker. Hiking should be fun and safe. Sometimes that means ending early to ensure the safety of all hikers. Do not let yourself be bullied into doing anything you no longer feel is safe.

The Small Price of Survival: Part I

BY COLIN POITRAS, UNIVERSITY RELATIONS ASSOCIATE, UNIVERSITY OF CONNECTICUT

REPRINTED FROM UCONN MAGAZINE, SEPTEMBER, 2016.

Professor Douglas Casa '97 Ph.D. and the staff of UConn's Korey Stringer Institute are working to prevent high school athletes from dying. Here's what they want every parent — and coach — to know.

AUGUST 11, 2010. LAMAR HIGH SCHOOL, LAMAR, ARK.

TYLER DAVENPORT

Today is hotter even than most August days in the Little Rock area, with a heat index above 110. Yet football practice goes on as scheduled at Lamar High School, where 16-year-old Tyler Davenport is grinding through conditioning drills in a helmet, shoulder pads, and shorts.

As practice draws to a close, the offensive lineman collapses. His eyes roll back in his head and he begins to moan. Staff cover Tyler's body with cold towels as he lays on the field in the scorching sun. Ten minutes pass before medics arrive. Tyler's core body temperature is 108 degrees. An exertional heat stroke is destroying his kidneys. His pancreas and liver are swelling and shutting down.

At Arkansas Children's Hospital, doctors place Tyler in a medically induced coma and tell his parents that he has a 10 percent chance of living through the night.

AUGUST 13, 2010. PULASKI ACADEMY, LITTLE ROCK, ARK.

WILL JAMES

Two days later and 92 miles away Will James, a 16-year-old, 250-pound offensive lineman, collapses during football practice at Pulaski Academy in Little Rock. The heat index is 112 degrees. A certified athletic trainer on site quickly recognizes heat stroke and carts an unconscious Will off the field to the nearest locker room. The trainer packs ice around Will's body and sits him under a cold shower. Despite his efforts, Will's kidneys and liver are failing.

He is transported to Arkansas Children's Hospital and placed in a medically induced coma. Tyler Davenport is in the room directly across the hall.

AUGUST 13, 2010. CROWLEY'S RIDGE ACADEMY, PARAGOULD, ARK.

LOGAN JOHNSON

That same day, two and a half hours away in Paragould, Logan Johnson is excited to be at his first junior high school basketball practice. The 12-year-old has made sure to drink plenty of water before heading out to practice. There is no air conditioning in the school gym and the outside heat has exceeded 100 degrees.

Logan does okay during the first few sets of sprints, but he feels dizzy and falls while running up and down the bleachers as part of a conditioning drill. He falls again in a running drill around the basketball court. When he sits down to rest, his vision is so blurry he can't see the hoop at the other end of the court.

A short time later, Logan, who loves basketball and really wants to join the team, tells his coaches he isn't feeling well and leaves the gym to get a drink of water. He collapses near the school's cafeteria, where his grandmother happens to be working. She and other lunchroom staff see that Logan is badly overheated and cover him in trash bags filled with ice.

Logan recovers enough to go home. But for the next few days, he battles the fierce repercussions of his exertional heat stroke and makes several trips to a local hospital. He is vomiting, dehydrated, and in pain. Doctors flush his body with five IV bags of fluid to keep him hydrated, but that causes problems with his breathing and puts stress on his kidneys, which are shutting down.

Two days after that first junior high basketball practice, Logan is airlifted to Arkansas Children's Hospital, where he joins Tyler and Will in the fight to stay alive.

OCTOBER 13, 2015. LOGANVILLE CHRISTIAN ACADEMY, WALTON COUNTY, GA.

CLAIRE CRAWFORD

Claire Crawford, a 17-year-old senior, drops to the floor in the middle of a volleyball game. A video camera that was set on a tripod by her parents to record this Senior Night game captures Claire serving the ball, grabbing her chest, then collapsing.

Luckily, the school has an automatic external defibrillator, or AED, stored a short distance away. On the video, you see staff, including the school's athletic trainer, call 911, grab the AED, and immediately turn on the monitor as all color drains from Claire's face. She has no pulse. A staff member starts CPR. It has been nearly two minutes and 11 seconds since Claire hit the floor when, following the AED's prompts, the team applies an electric shock. Claire's heart starts beating again. By the time paramedics arrive, she is sitting up and talking.

"Without the AED there is no way I would've made it, and the ambulance wouldn't have gotten there on time," Claire tells WSBTV, a local television news station, afterward. Doctors later determine Claire suffered a life-threatening ventricular fibrillation in her heart that requires triple bypass surgery to correct.

Loganville Christian Academy has four wall-mounted AEDs and two portable versions that travel with athletic teams. Doug Casa wishes more schools would follow suit.

“The data is overwhelming,” says Douglas Casa, professor of kinesiology and director of UConn’s Korey Stringer Institute (KSI). “Ninety percent of high school athletes will survive a sudden cardiac arrest in sport if an AED is available within a minute or two of when the event occurs.”

Each minute that administration of an AED is delayed, an individual’s chance of survival drops by 10 percent. If it takes five minutes to locate and activate an AED, an individual’s survival rate has already decreased by half.

Nearly 70 percent of all cases of sudden cardiac arrest happen in three sports – football, basketball, and soccer. Nineteen states have adopted most of the recommended actions for sudden cardiac arrest. No state has adopted them all.

AED: \$1,000

JUNE 30, 2015. PINE TREE HIGH SCHOOL, LONGVIEW, TEXAS

JOSHUA WARREN

Joshua Warren’s football teammates are baffled when the 16-year-old defensive end falls seriously ill after participating in strength and conditioning drills one afternoon in late June.

Joshua’s condition worsens at home. He is admitted for observation at a local hospital, where he dies the following morning. Health officials later determine Joshua’s death was caused by exertional sickling, a life-threatening condition that can occur in athletes who carry the sickle cell trait.

School officials and Joshua’s family say they were unaware that Joshua possessed the sickle cell trait.

Sickle cell is a hereditary condition that causes a person’s normally round red blood cells to stiffen and become crescent- or sickle-shaped. These sickle-shaped cells can stick to the walls of blood vessels causing a dangerous blockage that restricts blood flow and limits the amount of oxygen reaching nearby tissues.

Exertional sickling often occurs when athletes carrying the trait participate in high-intensity exercise with short recovery times between sessions. Athletes who get very dehydrated or who exercise when it is especially hot and humid increase their risk.

In response to an exertional sickling death, the NCAA enacted a policy in 2010 requiring all of its Division I institutions to document sickle cell trait testing for all of their athletes.

From 2000 to 2010, there were 10 exertional sickling deaths among NCAA schools. In the six years since the new policy was passed, there has been just one death due to exertional sickling.

KSI recommends that high schools across the country take similar steps to ensure that coaches and school officials are aware when one of their athletes has sickle cell trait and that those coaches and

athletes are counseled about appropriate precautions. Unfortunately, many high schools across the country don't fully appreciate the dangers presented by exertional sickling until a serious crisis occurs, Casa says.

"Today, everyone is tested for sickle cell trait at birth, so it is mainly a matter of schools getting access to that information through an athlete's pediatrician during their pre-participation exam," says Casa. "It really just needs to be on the form."

SICKLE CELL TRAIT TEST AND COMMUNICATION OF RESULTS: \$0

MAY 23, 2009. SANTA FE CHRISTIAN HIGH SCHOOL, SOLANA BEACH, CALIF.

TOMMY MALLON

There are two minutes left in a lacrosse playoff game when 18-year-old Santa Fe Christian defenseman Tommy Mallon, racing full-speed after a ground ball, collides with a Poway High School player. The hit doesn't look that bad from the sidelines, but Mallon falls to his knees and grabs his head.

His school's athletic trainer knows something is wrong when Mallon says he can't feel the back of his head. She stabilizes his head and neck and calls for an ambulance and backboard, insisting — despite Tommy's repeated requests that he is fine and can get up — that he stay down and not move.

On the way to Scripps Memorial Hospital in La Jolla, Mallon starts vomiting. Tests soon reveal that Mallon has not only suffered a serious concussion, but he has a broken his neck. The injury is critical — it's the C-1 vertebra, where skull and spine connect.

Doctors tell Mallon that if he had gotten up from the field that day he probably would have died or been paralyzed from the neck down. In response to the incident, Mallon and his mother, Beth, who witnessed the collision, created a national foundation, Advocates for Injured Athletes (A4IA), that urges high schools to hire certified athletic trainers to keep athletes safe.

"There are so many things on that day that went right that could've gone wrong," Beth Mallon told ESPN in an interview in 2011. "All I kept thinking about was, what does somebody do who doesn't have all of these resources? I felt like I couldn't sit back and not try to change things."

Besides joining the call for more athletic trainers at high schools, KSI supports the policies of organizations like A4IA and Heads Up Football, with its comprehensive program developed by USA Football to reduce head, neck, and body injuries and to enhance the overall safety of young athletes.

Research has shown that reducing incidents of head-to-head tackling during competition and in practice can significantly reduce incidents of concussion. KSI endorses Heads Up Football guidelines as the minimum recommended practices for protecting against concussion and body injuries.

CERTIFIED ATHLETIC TRAINER: \$250/DAY

Recent Publications

FALL 2016

- Sylvester JE, Belval LN, Casa DJ, O'Connor. FG. Exertional Heat Stroke and American Football: What the Team Physician Needs to Know. *Am J Orthop*. 2016 September;45(6):340-348.
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- Adams EL, Vandermark LW, Pryor JL, et al. Effects of heat acclimation on hand cooling efficacy following exercise in the heat. *J Sports Sci*. June 2016:1-7.
- Johnson EC, Muñoz CX, Jimenez L, et al. Hormonal and Thirst Modulated Maintenance of Fluid Balance in Young Women with Different Levels of Habitual Fluid Consumption. *Nutrients*. 2016;8(5).
- Hosokawa Y, Adams WM, Stearns RL, Huggins RA, Casa DJ. A Comparison of Gastrointestinal and Rectal Temperature During Passive Rest After a Warm Weather Road Race. *J Athl Train*. 2016;51(5): 382-388.
- Hosokawa Y, Adams WM, Casa DJ. A Comparison of Temperature Devices During Exercise in the Heat: The Influence of Hydration. *J Sport Rehab*. Epub ahead of print: <https://www.ncbi.nlm.nih.gov/pubmed/27632886>
- Adams WM, Hosokawa Y, Belval LN, Huggins RA, Stearns RL, Casa DJ. Deviation from goal pace, body temperature and body mass loss as predictors of road race performance. *J Sci Med Sport*. 2016. Epub ahead of print: <https://www.ncbi.nlm.nih.gov/pubmed/27632886>

SPOTLIGHT



YURI HOSOKAWA

MAT, ATC

KSI STAFF

DIRECTOR OF COMMUNICATION

DIRECTOR OF EDUCATION

KOREY STRINGER INSTITUTE

Could you tell us about yourself?

I am the director of communication and education for the Korey Stringer Institute. This is my fourth year in the exercise science doctoral program at the University of Connecticut. I received my bachelor's degree in Sport Sciences with a concentration in Sports Medicine in Waseda University, Tokyo, Japan, where I studied athletic training. Soon after I graduated from the Waseda University, I moved to the United States to expand my knowledge and clinical skills at the University of Arkansas, where I completed my master's degree in athletic training. My motivation to study athletic training in the U.S. for my master's degree was to learn the athletic trainer's role as a healthcare professional, which was distinctly unique and different from the traditional role that was assumed in Japan. As I became more educated on ways athletic trainers can influence athlete safety, I became very passionate in advocating for athletic training services in all level of sport participation. I currently serve on the International Committee of the National Athletic Trainers' Association. I am also a science advisor for Sport Safety Japan, NPO, assisting ways to prevent sudden death in youth athletes in Japan.

I am interested in establishing best practices in road race medicine, developing regional-specific heat guidelines for activity modifications, and exploring the roles of genetics in the susceptibility of exertional heat strokes.

Could you tell us about your first involvement/interaction with the Korey Stringer Institute?

I was in my second year of my master's degree when the inter-association task force for preventing sudden death in secondary school athletics programs, lead by Dr. Casa, was published in 2013. As soon as I read the document, I knew KSI was the place I needed to go next to follow my passion. It did not take much time until I contacted Dr. Casa with a Japanese-translated version of the preventing sudden death document and shared my aspiration to become one of the leaders in preventing sudden death and be the influencer in the U.S. and Japan.

In what ways has KSI impacted you?

KSI taught me the power of collaboration. None of the KSI's accomplishments would have been possible if it was not for our collaborative, interdisciplinary approach to create the best team possible to bring our ideas to fruition. I also learned from my years at the KSI that knowledge and skills may give one an ability to execute a goal, but passion is what drives the person to take the action.

...I KNEW KSI WAS THE PLACE I NEEDED TO GO NEXT TO FOLLOW MY PASSION.

THE SPOTLIGHT SERIES WILL FEATURE THE PEOPLE OF THE KSI, AND THOSE WHO SHARE AND REPRESENT THE PASSION OF THE KSI.

Could you tell us about yourself?

My name is Rachel Kennedy (formally Rachel Karslo). I am currently an Associate Director of Sports Medicine at Lehigh University, in Bethlehem, PA. I completed my undergraduate degree in Athletic Training at West Chester University and my master's degree at the University of Connecticut.

I was very involved with sports my whole life. As a competitive gymnast for many years, I dealt with many injuries along the way. This made me realize that I wanted to work in a health field of some sort, to give back and help others. I developed a passion to learn more about the human body, and really enjoyed working with athletes. This led me to become an athletic trainer.

Could you tell us about your first involvement/interaction with the Korey Stringer Institute?

KSI first started when I was studying under Dr. Casa at the University of Connecticut. It was an idea that finally came to life. We started in a small office in Gentry Hall. Our work began with logistics of setting up a website, content for the website, and reaching out to different states and high schools to see what their current (if any) heat acclimatization guidelines were.

In what ways has KSI impacted you?

KSI has impacted me in a positive way. Preventing sudden death in sport is the most critical aspect of an athletic trainer's job. Knowing what to do in an emergency situation, and being prepared, is essential. In addition, it's important for coaches, athletes, and parents to be educated. KSI is an amazing resource and will continue to touch the lives of many people.



RACHEL KENNEDY

**KOREY STRINGER INSTITUTE
FOUNDERS COUNCIL
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ALUMNI CLASS OF 2011**

UPCOMING EVENTS

Round Table: Heat Risks in the Realm of Military and Occupational Settings

October 27th, 2016
Uniformed Services University of the Health Sciences, Bethesda, MD

Marine Corps Marathon and Medical Symposium

October 30th, 2016
Arlington, VA

6th International Conference on the Physiology and Pharmacology of Temperature Regulation

November 5th-9th, 2016
Ljubljana, Slovenia

Secondary School Athletic Directors Meeting

December, 2016
Nashville, TN

Eastern Athletic Trainers' Association Annual Meeting

January 6-9th, 2017
Philadelphia, PA

American Meteorological Society Meeting

January 22-26th, 2017
Seattle, WA

Youth Sport Governing Bodies Meeting

February 23-24th, 2017
NATA Headquarters, Carrollton, TX

Collaborative Solutions for Safety in Sport

March TBA, 2017
Dallas, TX

6th Annual KSI Gala

May 11th, 2017
NFL Headquarters, New York, NY

ACSM Annual Meeting

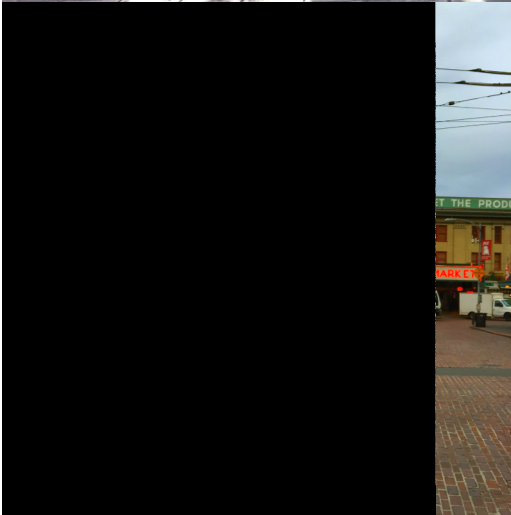
May 5th- June 3rd, 2017
Denver, CO

NATA Clinical Symposia and AT Expo

June 26-29th, 2017
Houston, TX

SNAPSHOTS

CAN YOU GUESS WHERE THESE KSI PHOTOS WERE TAKEN? #WORLDTRAVELER





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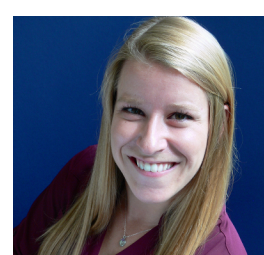
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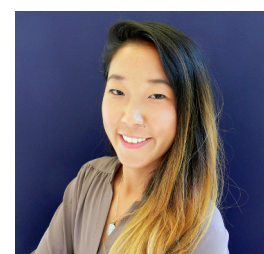
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Pertinacity- The Stories of KSI

2016 Fall

Volume 2, Issue 2

Editor-in-chief, Yuri Hosokawa

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