Inside the WNBA’s “Wubble”  
By Past President Cindy Chang, MD, FAMSSM

“Keeping trouble out of WNBA’s ‘wubble.’” Hey, that was a pretty catchy title, I thought, as I read the article about my role in Florida in the San Francisco Chronicle. But was that what I was really doing? Was that what I had wanted to do when I accepted this position? As a sports medicine physician, my goal is to prevent injury and illness through the optimization of physical and mental health. And if an injury or illness does occur, my goal is to provide immediate care, make an accurate diagnosis and develop a treatment plan that will get the athlete quickly and safely back to play.

Well what was it really all about? Unlike my NBA colleagues who were at Disneyland and ate steak, I and our fellow were on the IMG Academy campus (a prep school for promising athletes) and I ate beans and rice (okay, so I had accepted my nephew’s vegan challenge!).

We were also the only two physicians caring for 12 teams, the players’ and coaches’ family members and other staff (e.g., team general managers, WNBA front office, officials, security)—over 320 in all—in our ‘wubble.’ We took care of toddlers and septuagenarians. The company who hired me had a few standard medications and medical supplies as part of their manifest, but I had to order more sports-related DME and additional supplies including syringes and injectables, and create the infrastructure for PRP injections. We set up three separate sports medicine facilities, the hotel boardroom became a medical clinic, the IMG basketball office at the practice gyms became a sports medicine clinic, and then a small medical room was established at the site of the games. I contacted the local hospitals and imaging facilities, continued on page 2.

Soccer in the MLS Bubble  
Josh Blomgren, DO; Morteza Khodaee, MD, MPH, FAMSSM; Luis Rodriguez, MD; Jack Spittler, MD; David Webner, MD, FAMSSM and Harrison Youmans, MD

Major League Soccer recently hosted its “MLS is Back Tournament” in Orlando, Florida at the Walt Disney World Resort. This was officially the first major men’s professional sport in the United States to conduct athletics in a “bubble.” Several AMSSM members served as sideline physicians for these matches during the tournament, and we found that it was a challenging but fun and rewarding experience.

Prior to entering the “bubble,” any personnel were required to test negative twice before departing for Orlando and then again upon arrival after a quarantine period. While continued on page 2.
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and made connections with area specialists, like a sports orthopedic surgeon, a cardiologist and an ophthalmologist. We set up a delivery service with a local pharmacy so we wouldn’t have to leave the ‘wubble.’ After the athletes’ pre-season, with daily practices, the season started, where we covered three games a day, with the last weekday game ending after midnight.

We had a nursing team that monitored potential CoViD symptoms on the daily tracker, checking the daily PCR results, isolating those testing positive, tracing the close contacts, and following those who had tested positive. The RNs also helped with starting IVs and transporting patients who needed x-rays or echocardiograms in “clean” vehicles. Though my role was not directly related to the CoViD testing and tracking, I was assisting the WNBA front office in adapting the CoViD policies and procedures and integrating the testing protocols.

Those four weeks were an incredible experience. Yes, because of the compressed season, we weren’t doing a lot of prevention. It was more of the latter, dealing with acute and chronic MSK and medical conditions with little time for recovery. The players didn’t have access to their usual healthcare team such as massage therapists and chiropractors, and most teams only brought one athletic trainer. Meanwhile the officials were requesting help with stretching and taping before their games. Yet despite the politics and financial constraints, which seemed to permeate every decision, I thrived in that environment. I was setting up a program. Communicating and developing trust with the players, athletic trainers, coaches, medical consultants, the league office—even though I wasn’t a known WNBA team physician. Providing high quality care. I initially didn’t consider the offer because it was for 100 days. It was my daughter who convinced me that this was a fantastic opportunity that matched my passion and skill set, and to negotiate on my terms. It definitely was my jam.

It was great to be part of a team with one mission, and that was to successfully launch the WNBA season. But what I thought was especially powerful was the WNBA players’ committed stance on social justice. The players have dedicated the season to Breonna Taylor, the Louisville EMT who was killed by police inside her own apartment last spring. They have held a 26-second moment of silence (for Taylor’s age) before games. And I respect the WNBA for supporting its players. I am also pleased at the fact that the AMSSM sports medicine physicians who have followed me in the 100-plus day ‘wubble’ were among those that I had recommended, and they are all women of color. I believe in offering opportunities to those who are very deserving, despite the fact that none of them had ever worked in this elite environment before. Almost 80 percent of the WNBA players are athletes of color, and some just out of college. Strong role models that look like them are important. And because I negotiated to bring my fellow, the others were also able to bring their fellows for an unparalleled experience during their fellowship year.

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this generally did well with keeping COVID-19 out, there were several cases that were not detected before arrival due to the incubation period of the virus. Fortunately, Major League Soccer had developed an extensive protocol (with the help of AMSSM Past President and current CMO of MLS, Margot Putukian, MD, FAMSSM) for any positive tests that arose including isolation, quarantine, and frequent testing of the affected individuals. Unfortunately, these positive cases ultimately led to both Nashville SC and FC Dallas needing to withdraw from the tournament.

After that initial period, everyone was able settle into life in the bubble (as much as you can). This included constant mask use outside of hotel rooms, social distancing, and other standard sanitary guidelines. There were still team meetings, group meals, and other social events, but all of this still required strict following of these health and safety protocols. It was remarkable how everyone – players, coaches, staff, physicians, and others – came together as a group to adhere to these regulations and ensure the safety and viability of the remainder of the tournament. It was completed successfully on August 11th, with the Portland Timbers defeating Orlando City SC 2-1.

Experiencing life in the bubble made us realize how difficult it really continued on page 3
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is to safely conduct sports during the current COVID-19 pandemic. Countless planning meetings, long hours of work, and large sums of money were poured into this tournament to make it safe and successful, but still nothing is a perfect system. As we now prepare for the return of the Major League Soccer regular season “outside the bubble,” a whole new set of challenges await. There was much learning in the bubble that can be utilized; however, we also realize that we must remain vigilant and adapt as knowledge and the landscape around us continues to change. As AMSSM members, we are proud to be on the forefront of this new challenge and look forward to continued collaboration with our other AMSSM members along the way. Hopefully the lessons we have learned (and will continue to learn) will help all of our athletes, from recreational to professional, get safely back on the field.

CMO CORNER INTERVIEW SERIES

“This is a labor of love...We are all learning.”

On July 6, 2020, Dr. James MacDonald interviewed Dr. Margot Putukian, Chief Medical Officer (CMO) of Major League Soccer. The full content of this interview is available as an AMSSM podcast. The following has been edited for space and clarity.

Margot Putukian, MD, FAMSSM

MacDonald: What is your current job right now?
Putukian: I have two jobs. My full-time job is the Director of Athletic Medicine at Princeton University. I am the head team physician there. I am a consultant to Major League Soccer (MLS), and I have been working with them for several years. Two years ago in November, I was named the Chief Medical Officer.

MacDonald: I can only imagine your current job with Princeton would be its own unbelievable task this summer with the COVID-19 pandemic.
Putukian: We actually just got word what the university is going to do for our students today, so that’s definitely challenging for our student-athletes. [Ivy League sports were cancelled for the fall.]

MacDonald: It will be very interesting to see how universities navigate this coming fall. On top of this, you are the Chief Medical Officer of a totally wacky season. What does the MLS season look like?
Putukian: We had just started this spring. We had actually gotten some games underway, and then the pandemic hit hard. We had to shut down just like every other professional league. With that came a time of trying to figure out what COVID is and what we should do. Subsequent to that, we were trying to figure out a plan to bring the sport back and what that would look like. We looked at what they are doing in Europe with the Bundesliga and English Premier and what would make sense for our sport here in the United States. I have a weekly call with the CMOs from the other leagues, and many of them are AMSSM members: Dr. John DiFiori with the NBA and Dr. Gary Green from Major League Baseball, but also with NHL and NFL. We have been working together collaboratively, sharing thoughts and ideas about “What are you doing with this or that?” We wrote up a combined protocol and shared it with our respective commissioners and infectious disease experts for each league. We sent it to the CDC and got some edits from them. Then we lifted it to the White House, and the White House invited us to have a conversation.

As you know with professional sports, often the medical people are not necessarily the ones making the decisions in terms of what you do. The initial plan was to have a tournament where we would move down to Orlando, be in a bubble, and have a 14-day quarantine where players would have individual training. It would probably take around 65 days. That was not received well, so we moved to the current format that we continued on page 4
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are trying to implement. It has had its challenges based on where COVID is, not so much in Florida, but where COVID is around the country.

I do think the environment we have created in Orlando is actually quite safe. I just came back from there, and I felt very safe based on the assessments we are doing: temperature checks, questionnaires on a daily basis for everybody, and rigorous testing. I think the issue is that everyone is coming from different places where we’ve been experiencing an uptick in COVID cases.

MacDonald: Are both the MLS and NBA taking place at Wide World of Sports in Disney World?
Putukian: The NBA is staying at Wide World of Sports as well. I don’t know at what hotel they are staying. We are the only people at The Swan and Dolphin Hotel, and our AMSSM meeting was just there! It was surreal when I went down and walked into this hotel, and there was nobody there! Now players and teams are there, but not much else.

We partnered with a lab with about 150 people onsite. We are able to put a team with a 50-person delegation through PCR testing in about 15 minutes. It’s pretty impressive. We partnered with an app so the players have a questionnaire they complete, and they take their temperatures and report that. The information integrates with the lab results. The athletic trainers are so important. Most of our doctors are not down here. Doctors will come when we start having games, but our athletic trainers are our rock. They are the ones who, if there is a positive test or if someone has a fever, will get alerted through the app. Anyone with an interest in soccer will have seen we are having some issues at the beginning of the tournament. We are hoping to have 54 matches. As of July 4th, we had about 2.3% of our players test positive. I think those numbers are pretty reasonable compared to other professional sports.

MacDonald: Does MLS have many players coming from overseas?
Putukian: Oh, yes. There is much diversity within the league as to players and the staff, so almost everything we do we have to put in English, French, and Spanish. We are always having to find translators.

MacDonald: Are most of the teams configured how they were when the season started?
Putukian: Most of our players are here. We had 10-12 who had to quarantine in their market prior to coming to Orlando. Obviously, we’ve had some cases, and then social media takes off. These are young people. Some of them are immortal and risk takers, others are apprehensive, some are older and have kids and families, so there is the full gamut. I think it is similar to what we see at the collegiate level and other elite sports.

MacDonald: Do they hope to stay on campus for the entirety of the tournament?
Putukian: We really have tried to create this bubble environment. Before coming down, everybody has to get tested twice, 24 hours apart, 3 tests within 72 hours of their travel. They arrive and have to get tested again. They are in quarantine until they get that test result back. There is an aggressive cadence of testing that is every other day, although once someone tests positive, we are basically switching to testing every day for the first seven days or so. There are all the health and hygiene measures that you could think of in terms of limiting the number of people in elevators, screening and temperature checks, etc. We have our own little triage; if an individual does test positive or is not feeling well, we try to integrate him with the club’s Chief Medical Officer, many of whom are AMSSM members. We try to have them as involved as we can from afar. They are still the ones making all the return-to-play decisions for individuals that test positive or those who have other issues. We’ve had an appendicitis, a couple heat issues, and allergic reaction with anaphylaxis today. I think we had two concussions in practice today. It’s kind of like a World Cup. Not all the teams are here, but in the next few days, we’ll have 26 teams.

MacDonald: What are the most challenging and rewarding parts of your role as a CMO of a professional sports league?
Putukian: This is a labor of love in the sense that, for a significant part of my life, I identified as an athlete, and a soccer player in particular. I have been involved with U.S. Soccer literally since I finished my fellowship. My fellowship project was research on indoor soccer injury. I presented my research at a conference, and one of the U.S. Soccer doctors was there. I introduced myself to him, and they needed someone to cover a 5-day trip in Honduras in 10 days, so I called my boss and said, “Can I do this?” So I started working with U.S. Soccer. I was fortunate to have good experiences as a team physician at Penn State for 11 years and then came to Princeton in 2004. I worked with the NCAA on their competitive safeguards committee, had some roles in terms of research, and have interest in concussion. I am an internist and have always had interest in cardiology and, more recently, mental health.

When I interviewed for the job as a medical consultant, I certainly had a commitment to the sport. A lot of my research has been in soccer, but I felt the primary care sports medicine package I brought to the table would serve the league well in terms of having some expertise in a lot of areas. Initially, when I was asked to take on the role of CMO, concussion and cardiac care were the two main things we would address, but my recommendation was: “One additional consultant we should

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consider is infectious disease.” Over the course of my first year, we had three different situations that were all infectious disease-related. I know I’m an internist, but that’s just a little bit out of my wheelhouse. We had prairie dog plague and a couple of weird things requiring us to tap into the Departments of Health in the areas where they occurred. Then when COVID happened, it obviously took us all by storm.

We are all learning. Based on the expertise of sports cardiologists around the country relating to COVID and cardiac pathology, we made the decision that, if an individual tests positive, we do EKG, echocardiogram, and a high-sensitivity troponin. We’ve had our first case of an individual whose echocardiogram, even though he was asymptomatic, had a 10% decrease. When we followed that up with a cardiac MRI, he had an ejection fraction (EF) in the 40s.

I wish the COVID testing platform and performance was a little better. We’ve had a lot of individuals test positive, then negative, then positive, then negative, so it doesn’t make any sense. In what other condition would you continue testing people? In most cases, when you make a diagnosis, it’s like, “We’re done! We have our answer.”

MacDonald: This novel virus poses an extraordinary intellectual challenge. In our hospital system, we’ve developed a protocol for which patients receive cardiac MRI versus echo. It was run through an IRB, so it’s ready to turn into research.

Putukian: We have an IRB in as well. Hopefully, we’ll be able to help everybody else. No one is saying we know more than anybody else; I certainly don’t. I do think it’s our best effort to put something together.

MLS is a fantastic organization, and that’s part of the reason I work so hard. The commissioner and executives are amazing. I’ve just never seen so many people so passionate about what they do. The commissioner will say, “If you think we need to shut this down, we’ll shut it down.” Safety is our number one thing. It’s not about money. The health and safety of our staff comes first. It makes it easy to work with others in our organization. In our medical staff, we have one former player, Jeff Agoos, who leads our department, and he is unflappable. We have a couple athletic trainers. We have a physical therapist/athletic trainer, John Galucci, who helps me out. The others working in our medical group work really hard. It takes a team, and we are doing the best we can.

MacDonald: I hope we all see each other in San Diego at AMSSM. I’m looking forward to hearing more about these stories and learning the data that’s coming from MLS and NBA, and I’m sure you’ll be at the forefront of those talks.

Putukian: It would be nice to get back to some of the other things we do a good job of. We wouldn’t have picked up this cardiac issue if it weren’t for the fact that we perform baseline echocardiograms. We have a spotter for our concussion program. We reviewed matches weekly to sort out the observable signs of concussion. We think we’re doing a lot of really good things in the league, and it would be refreshing to get back to some sort of normalcy.
Dr. Mooney: Hello, everyone. Welcome to the American Medical Society for Sports Medicine’s Sports Medcast podcast. I am Dr. Caitlyn Mooney, a primary care sports medicine physician at UT Health San Antonio. Today, we will be discussing childhood obesity. Childhood obesity is a prevalent problem but perhaps not as commonly addressed in doctors’ appointments due to a variety of reasons. Our guest is Dr. Dusty Narducci, a primary care sports medicine physician at the University of South Florida, assistant professor at the University of South Florida Morsani College of Medicine in family medicine, and assistant director of the USF Primary Care Sports Medicine Fellowship. She is team physician at University of South Florida and Saint Leo’s University.

Dr. Narducci: Thank you for having me today, Dr. Mooney. I have been a passionate member of the AMSSM for the majority of my training and career, so participating in this podcast is sincerely an honor. I am very close to obtaining my Certified Eating Disorder Specialist (CEDS) certification, so topics such as this are near and dear to my heart.

Dr. Mooney: Why should we as sports medicine physicians and doctors care about childhood obesity?

Dr. Narducci: Overall, we are limited by the lack of prospective, longitudinal analyses exploring the relationships between young life environment and risk of adult obesity. On a positive note, in 2016, the National Institutes of Health launched something called the ECHO program, which stands for Environmental influences on Child Health Outcomes. This is the first and only program that investigates how early life environmental factors affect obesity risk.

Dr. Mooney: As you mentioned above, there are some ongoing longitudinal studies, but is there any emerging data about young life environment and risk? Do you know when we expect results from this study?

Dr. Narducci: The ECHO program includes over 50,000 children from diverse backgrounds. Visiting the ECHO website will provide endless information to clinicians, but overall the program emphasizes pre-, peri-, and post-natal outcomes, upper and lower airway health and development, obesity, and development of cognition, emotion and behavior.

In 2015, a longitudinal study called The Family Life Project joined the ECHO initiative. Researchers are hopeful that this collaboration will assist in clarifying how child emotional, physical and academic development in rural areas are affected by environmental elements. Honestly, I don’t know when results from this research can be expected. Preparing for the data collection and intervention started in 2016, and prospective data collection began in 2019.

Dr. Mooney: What is the definition of obesity?

Dr. Narducci: No single definition of obesity in childhood and adolescence has been universally accepted. Direct measuring of body fat is not available in most clinical practice environments, so the body mass index (BMI) has become the standard measure for children.

Dr. Mooney: What are BMI z-scores? I have heard this term used.

Dr. Narducci: Body mass index z-scores, also called BMI standard deviation scores, are measures of relative weight adjusted for child age and sex. The BMI z-score is useful in extremes of weight, in particular to continued on page 7
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monitor changes in patients with a BMI more than the 99th percentile or less than the 1st percentile. I most frequently use the online BMI z-score calculators from the Baylor College of Medicine, or the CDC BMI Percentile Calculator for Children and Teens is a good one.

Dr. Mooney: Out of curiosity, I have seen a lot of people in medicine state that BMI should not be used. What is your feeling regarding this?

Dr. Narducci: The USPSTF recommends using the body mass index measurement to screen for obesity as do most other organizations and clinical settings. BMI has its flaws; children who are shorter or have a relatively high muscle mass may have an overestimated BMI and vice versa. Individuals with a BMI above 30 are almost always obese based on other standards. On the other hand, individuals with a BMI less than 30 are often misclassified. So when interpreting BMI, be cautious in clinical and research settings.

Dr. Mooney: Would taping like the military does be helpful? How much can we depend on BMI?

Dr. Narducci: The current military policy requires that body fat be maintained at levels below 36% in females and below 28% in males. It is assumed that individuals who are of normal BMI based on height and weight standards also meet body fat requirements. If an individual is above normal BMI based on height and weight standards, they must undergo the tape test. For those who aren’t familiar, the military tape test is a circumference measurement around the waist and the neck. These measurements are placed into an algorithm chart to produce a percentage of body fat. The tape test accounts for the size of an individual but does not take into consideration muscle, a similar problem to the measurement of BMI. I have heard stories of military personnel maxing out on their fitness test but failing the tape test. In these situations, I have heard of the military resorting to hydrostatic testing (underwater weighing) which is one of the most reliable methods of body fat testing.

Dr. Mooney: As common as obesity is, do we know what causes childhood obesity?

Dr. Narducci: What a loaded question! It is not simple. More than 90% of cases have been considered idiopathic with less than 10% being completely related to genetic or hormonal causes. I like to think of the possible causes for the development of childhood obesity in the following categories:

- Environment
- Genetics
- Metabolism
- Both individual and family lifestyle and nutrition behaviors

When a child has a lifestyle with a lot of sedentary activity and little physical activity, the risk of obesity rises. Diet, specifically large portion sizes, poor food choices, high-calorie beverages, and less scheduled family meals, all contribute as well. And don’t forget inadequate or reduced sleep. In regards to genetics and childhood obesity, let’s begin with the prenatal environment. We are now learning that nutritional and environmental factors during gestation, a concept called metabolic programming or epigenetics, may influence the development of childhood obesity. In molecular biology, the science of epigenetics is based on heritable phenotype changes that do not involve DNA sequence.

Let’s go back to medical school for a second. DNA gives the instructions for various functional proteins to be produced inside the cell. Epigenetics affects how genes are read by cells, and subsequently whether the cells should produce relevant proteins. Here is an analogy; I am going to try and tie this into sports medicine! You have an athlete with a grade 1 lateral ankle sprain, so you send them home from your clinic with a do-it-yourself standard rehab protocol for lateral ankle sprains. The DNA sequence would be the rehab exercises on the protocol, and certain directions that instruct key actions or events to take place would be the genes. Every athlete who receives the same lateral ankle sprain rehab protocol would perform the exercises slightly differently with various frequencies and durations.

So the concept of epigenetics would be various athletes with a similar injury provided the same rehab protocol but choosing to eliminate or tweak certain exercises, frequencies and durations.

Dr. Mooney: What else about genetics and obesity in children?

Dr. Narducci: Genetics has been thought to contribute up to 85% of the variation in childhood obesity, but remember less than 10% of cases are directly related to hormonal and genetic causes. We have successfully identified single gene defects related to obesity, but research has yet to isolate exact polymorphisms. Rare secondary causes of obesity such as medications, endocrine disorders and hypothalamic lesions should be considered.

Dr. Mooney: What comorbidities of obesity in childhood and adolescence should we know about?

Dr. Narducci: There are endless comorbidities that clinicians should be concerned about in regards to the obese child. Obese children are 3X more likely to have hypertension. Metabolic syndrome, which includes abdominal obesity, hyperglycemia, dyslipidemia, and hypertension, is a significant concern. An increased risk

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of death from all causes and from coronary artery disease has been consistently observed in males but not in females who had obesity during adolescence, although one recent study did suggest both genders being at risk. Up to 25% of obese children have increased risk for developing type 2 diabetes mellitus. As a result of insulin resistance, a condition called acanthosis nigricans can develop, as well as other dermatologic conditions such as intertrigo and hidradenitis suppurativa.

Dr. Mooney: Since we are sports docs, how about musculoskeletal implications of obesity?

Dr. Narducci: There is increased prevalence of fractures and diffuse musculoskeletal pain, slipped capital femoral epiphysis (SCFE), tibia vara (Blount disease), and other conditions.

Dr. Mooney: Are there psychological and other comorbidities we should be aware of?

Dr. Narducci: The list is endless when it comes to the negative psychological effects that obesity has on our youth. Prejudice and discrimination, poor self-esteem, anxiety, depression, relationship dysfunction, and disordered eating are just a few of the psychosocial consequences of childhood obesity to consider. Polycystic ovary syndrome and nonalcoholic fatty liver disease are also conditions strongly associated with obesity. 10% of obese children have clinically significant sleep apnea.

Dr. Mooney: What is the prognosis of childhood obesity?

Narducci: Childhood and especially adolescent obesity is predictive of adult obesity. Older onset of obesity and a higher degree of obesity during childhood has been associated with continued obesity into adulthood. The prognosis of developing obesity later in life is worse in children who are obese before five years old and in those under 10 years old with obese parents. Good news is that obese children who achieved a normal BMI by adulthood were found to have a similar risk of comorbidities to individuals who were never obese.

Executive Summary: Exercise-Induced Asthma  
By Rathna Nuti, MD

General Information
Exercise-induced respiratory symptoms are most frequently referred to as exercise-induced bronchoconstriction (EIB) or exercise-induced asthma (EIA). Currently, it is recommended to describe EIB as “exercise-induced symptoms” in people without coexisting asthma and allergies and EIA as post-exercise bronchoconstriction in asthma sufferers. Bronchoconstriction occurs when bronchi constrict in response to a variety of external factors. Bronchial hyperreactivity is the basic feature of bronchial asthma, and it occurs more often in athletes than the general population, especially in swimmers and winter sport athletes. Asthma is typically associated with chronic respiratory inflammation, which is a syndrome of respiratory symptoms such as wheezing, dyspnea, chest tightening and coughing. These symptoms differ in time and intensity and are connected with variable airway obstruction.

Pathophysiology
The pathophysiology of EIB and EIA explains the nature of these exercise-induced respiratory symptoms. Current understanding of the pathogenic mechanisms potentially responsible in people who practice regular high-intensity exercise are the following:

- Osmotic and thermal changes in airway mucus caused by exercise-induced hyperventilation
- Damage to respiratory epithelium
- Increasing severity of the airway inflammation
- Neural activation

Signs/Symptoms
Symptoms of EIB primarily include wheezing, chest tightness and shortness of breath (dyspnea), and cough; however, they can also include chest pain (primarily in children), excessive mucus production, or feeling out of shape when the athlete is actually in good physical condition.

Diagnosis
Because symptoms of EIB also occur in other conditions, a diagnosis based only on symptoms lacks any reasonable diagnostic sensitivity or specificity to predict a positive exercise challenge in adults or children. Thus, the diagnosis of EIB should never be made based on symptoms alone when unaccompanied by data from an objective exercise or surrogate challenge.

In order to appropriately evaluate athletes experiencing exercise-related respiratory problems, the following should be considered for work-up:

- Thorough history including exercise-related symptoms and comorbidities
- Physical examination with an emphasis on the respiratory continued on page 9
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- System, symptoms of allergic origin and assessment of comorbidities which should be taken into account in the differential diagnosis
- Assessment of atopic origin (allergy skin tests for inhalants, specific IgE, total IgE) and assessment of the inflammatory process typical of asthma (exhaled nitric oxide)
- Basic diagnostic tests: morphology with blood smear (eosinophils), C-reactive protein, chest radiographs
- Functional evaluation of the respiratory system with spirometry, reversible obstruction test, assessment of bronchial tree reactivity with direct challenges (nonspecific bronchoprovocation test with methacholine). Consider individual indications and contraindications.
- Exercise test
- If assessment of the cardiovascular system is required, consider electrocardiography (ECG), echocardiography, Holter monitoring, and arterial blood pressure.

Treatment and Prognosis

The objective of asthma management in athletes includes reducing adverse effects of exercise on the respiratory system. There are numerous factors influencing optimal respiratory function including air temperature, humidity, and quality in terms of allergen, irritating agent, and contaminant content. Exercise should be performed only when asthma is stable and well-controlled. Exercise should always be preceded by a warm-up, and so-called “cold start” ought to be avoided. Exercising in the company of another person is advisable. It is also recommended that exercise intensity should be gradually reduced towards the end of training. Fluids should be frequently replenished to avoid dehydration. When exercising in low temperatures, use of a protective mask should be considered. The air warming mask provides effective prevention of EIB triggered by cold air.

Treatment of asthma in athletes should be provided in accordance with the current guidelines on asthma management. The guidelines have been developed by the Global Initiative for Asthma (GINA) and describe aims of successful treatment as follows:
- Achievement and maintenance of symptom control
- Prevention of exacerbation
- Maintenance of respiratory function at near normal levels
- Maintenance of everyday activity including physical exercise
- Early anti-inflammatory management with inhaled glucocorticoids is crucial and indispensable in asthma management in athletes. Bronchodilators (short- or long-acting β-agonists) should not be applied as the sole medication. Sometimes, mild symptoms can be managed by leukotriene receptor antagonists. Treatment and dosages should be adjusted according to symptom severity. Further details can be found in GINA’s latest pocket guide at https://ginasthma.org/wp-content/uploads/2020/04/Main-pocket-guide_2020_04_03-final-wms.pdf. Prognosis is good if adequate symptom control is obtained. Some medications used in asthma therapy can also be used for doping purposes. Athletes may be treated with some medications on the World Anti-Doping Agency (WADA) prohibited list after formal approval is granted by means of a Therapeutic Use Exemption (TUE).

Please contact the authors for references.
Is It Is Time For A Lock-Down On Sugar?

By Dr. Mark Cucuzzella (1) and Nina Teicholz (2)

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Conflicts of Interest
1. None


As we reopen society and search for medicines that could improve coronavirus outcomes, we should not miss the opportunity to talk about the conditions that have increased our vulnerability to this pandemic in the first place: America’s poor state of health. Some 60% of us have one or more diet-related, chronic diseases, and these diseases have accompanied nearly 90% of people hospitalized for COVID-19 in the U.S., according to the Centers for Disease Control and Prevention (CDC). Thus, to build resilience to this and future viruses, we need to talk about better nutrition.

COVID-19 and Comorbidity - A Deadly Combination?

Initially, experts attributed the high mortality rates from the virus to air pollution, smoking, and advanced age, yet over the past two months, an additional set of significant risk factors have emerged. The recent CDC report on more than a dozen states found that rates of hospitalization, complications and death were highest among people aged 65 years or older or those with underlying diet-related diseases.

Indeed, the U.S. Secretary of Health Alex Azar recently acknowledged diet-related diseases as a major issue in fighting the virus. Importantly, high rates of these diseases among minority communities partly explain why COVID-19 is taking a heavier toll among them. Speaking on CNN, Secretary Azar said, “It is a population with significant unhealthy comorbidities that do make many individuals in our communities, in particular African American, minority communities, particularly at risk here because of significant underlying health disparities and disease comorbidities -- and that is an unfortunate legacy in our health care system that we certainly do need to address.” Access to health care and other long-term social inequalities contribute to worsened outcomes for COVID-19 in these communities, but higher rates of metabolic diseases are a clear factor.

These diseases also take a continual toll on our budget, with the CDC estimating that of the two trillion dollars spent annually on health care, 75% goes to treat chronic illness. In the United Kingdom, the National Health Service (NHS) reports over a quarter of fatalities from COVID-19 are accompanied by diabetes. Prime Minister Boris Johnson became convinced that his own obesity contributed to his hospital stay, prompting him to declare, upon launching a probe into the link between obesity and worsened COVID-19 outcomes, “I’ve changed my mind on this [obesity]. We need to be much more interventionist.”

Insulin Resistance as a Root Cause

Almost all of these comorbidities (hypertension, diabetes, coronary artery disease, and obesity) have a common root cause called insulin resistance, which is diagnosed when a person has a spectrum of symptoms including abdominal obesity, low HDL-cholesterol, high triglycerides, and high blood sugars. According to one recent estimate based on government data, no less than 88% of Americans may currently have insulin resistance. This means that only 12% of our population is metabolically well.

Given that chronic diseases are strongly implicated in poor coronavirus outcomes, we need to take insulin resistance far more seriously.

Causes of Insulin Resistance

Insulin resistance has been called a “metabolic storm” in the body where normal function breaks down. The principal malfunction is related to the body’s inability to process sugars in the blood. Whereas a healthy body reacts to sugar consumption by stimulating the pancreas to secrete insulin, which then causes sugar to be stored in muscle or fat, this mechanism can become overwhelmed. An overabundance of sugar in the bloodstream over the course of many months erodes the body’s ability to respond to insulin, a state known as insulin resistance. This ultimately leads to any number of conditions, including type 2 diabetes, obesity, non-alcoholic fatty liver disease and heart disease.

The primary driver of this excess sugar in the bloodstream is the food we eat. The surprising reality is that not only do simple sugars like candy convert to blood sugar, but so do more “complex” carbohydrates such as bread, pasta, crackers, and even sweet fruits. These all become sugar (glucose) as soon as they are digested. Thus, to avoid high blood sugar, the logical solution is to cut down on eating them. Easier said than done, of course, but there are now about one hundred clinical trials showing that carbohydrate restriction is safe and effective for sustainably reversing a diagnosis of type 2 diabetes, lowering blood pressure, improving most cardiovascular risk factors, and helping people lose weight.

Possible Mechanisms for Worse COVID-19 Outcomes with Metabolic Diseases

Based on the emerging data, obesity and other chronic diseases might contribute to worse COVID-19 outcomes through the following possible mechanisms:

continued on page 11
The ACE-2 Receptor

A virus works by gaining access to host cells and hijacking a cellular receptor. In the case of COVID-19, access is obtained via the ACE-2 receptor, which is abundant in the lungs and small intestine. There is some logic to the idea that metabolically ill people, who tend to have higher ACE-2 expression, are therefore more vulnerable to the virus.

Endocrine and Metabolic Link

A recent paper in *Nature* discusses how COVID-19 might exacerbate or even cause diabetes by seriously damaging the pancreas. Specifically, it attacks pancreatic islets which manufacture insulin. Dysfunction in pancreatic islets can induce ACE expression in other tissues, providing additional binding sites for the virus and amplifying its negative effects.

More recently, we have been witnessing unusual cases of clotting and strokes. A 2006 paper in *Diabetes* suggests that insulin-resistant individuals are less likely to dissolve clots and are “especially susceptible to thrombotic events by a concurrent insulin-driven impairment of fibrinolysis and a glucose-driven activation of coagulation.”

Immune Dysregulation

In addition, people with insulin resistance are likely vulnerable to the virus due to a weakened immune system. The immune system exists in two parts: an innate, first responder and a delayed, adaptive second responder that provides additional immunity. Both of these parts work together for one’s overall health and are negatively affected by obesity and metabolic syndrome. In 2017, biologist Catherine Anderson explored this topic, and in 2019, researchers added to the discourse in *Nature*, stating:

“...during respiratory viral infections, insulin-resistant participants respond differently than insulin-sensitive participants...global co-association analyses among the thousands of profiled molecules reveal specific host–microbe interactions that differ between insulin-resistant and insulin-sensitive individuals” [emphases added by author]. The article explains how the more delayed and robust cytokine release in insulin-resistant patients may contribute to a “cytokine storm” that enhances an infection’s negative effects. Moreover, visceral adipose tissue itself contributes to this phenomenon.

High Blood Sugar

Persistently high blood sugar clearly hinders immune responses, according to a 1972 paper which states, “Hyperglycemia [high blood sugar] negatively affects white blood cell defense against infection. High glucose impairs these cells in the innate immune response to invading organisms.”

Recently, in an analysis of more than 7,000 Chinese COVID-19 patients, high blood sugar was the single most important determinant of outcomes for hospitalized patients. Researchers found that due mainly to high blood sugar, subjects with type 2 diabetes required more medical interventions, had a significantly higher mortality (7.8% versus 2.7%), and continued on page 12.

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Stay healthy at home!

Limit your sugar consumption

WHO recommends ideally less than 5% of total energy intake from free sugars, which is equivalent to about 6 level teaspoons.

This includes sugar added to processed foods like breakfast cereals, yogurt, salad dressing and sauces, as well as sugary snacks and sugar-sweetened beverages.
IS IT TIME FOR A LOCK-DOWN ON SUGAR?
Continued from page 11
and suffered more episodes of multiple organ injury compared to non-diabetic individuals.

For Safer Re-Entry – Eat Real Food and Limit Sugar Consumption

Recently, the World Health Organization launched a Stay Healthy At Home Campaign, urging adults to limit sugar consumption to less than six teaspoons a day, the amount of sugar in one small carton of chocolate milk served to school children.

The reality is that we are partially responsible for our fragility to the coronavirus. We are hoping for a vaccine and medications to pull us out of this pandemic, but the current crisis reveals how truly vulnerable we are. We have often blamed the victim for having obesity or other diet-related diseases, but these illnesses now affect up to 80% of the world’s population.

Our current COVID-19 approach has focused on hiding from the virus. Instead, we believe the best idea going forward is to strengthen our resistance to COVID-19 and future viruses with a healthy immune system, which requires a healthy lifestyle.

Reducing sugar and refined carbohydrates, which together fuel insulin resistance, is an ideal first step. Eating to keep blood sugar low and stable will clearly reduce risk. Anyone can purchase a continuous glucose monitor to know exactly how foods are affecting blood sugar levels. Junk food is the obvious enemy, even if it can be every quarantiner’s best friend. Yet even these comforting foods can be resisted when replaced by whole, natural foods including filling fats and proteins. It is also critical to focus our diets on foods that are nutrient-dense: meats, eggs, seafood, dairy, vegetables, and low-sugar fruits.

Truly healthy people rarely need medications, so instead of merely managing your conditions with pills, make it your goal to reverse chronic disease altogether. This approach, like a vaccine, should provide protection now and for many years to come. This is essential since COVID-19 will not be like a blizzard (hitting hard and quickly passing over) but rather like a long hard winter.

We hope to see a new world where people have the tools to recover their good health and become stronger to fight pandemics such as this one. Even as the coronavirus abates, the ongoing obesity, diabetes, and metabolic disease pandemics will continue to take their toll on society. It is time to take back our personal and national health and resilience.

Mark Cucuzzella, MD, FAAFP, is a Professor of Family Medicine at West Virginia University School of Medicine, an AMSSM Member, and a practitioner at the WVU Center for Diabetes and Metabolic Health. https://wwmedicine.org/diabetes-obesity/.

Nina Teicholz is best-selling author, science and health journalist, and Executive Director of The Nutrition Coalition. She can be reached at ninateicholz.com and nutritioncoalition.us.


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AMSSM NEWS

12 | THE SIDELINE REPORT
SEPTEMBER 2020
President’s Message
Chris Cornell, MS, ATC
Touro University of Nevada MS4

Aloha All!
Crazy how time flies when you’re in the middle of a pandemic. Hope everyone is doing their best to maintain social distancing and wearing facemasks in all public areas according to local governance. As we march forward into the new school year with new challenges never forget why you chose this profession and try your best to always keep a positive outlook on the future. We can only accomplish what our minds can imagine, so also keep dreaming big for new! We’ll all get through this together.

Introducing the “Day in the Life” Primary Specialty MSIG Webinar Series
Keep your eyes peeled for our MSIG webinar series focusing on helping you find a specialty path to pursue Sports Medicine in. There are five main nonsurgical specialties to choose from and one surgical route to take into a Sports Medicine Fellowship. Our goal is to highlight each path with a Speaker Panel presenting “A Day in the Life of…” to help you gain perspective in what specialty fits your lifestyle best. It is going to be a great series and we’ll have the date for the first webinar shortly.

If you are not able to watch any of the webinars live, remember you can always watch these recordings and all of our other previous MSIG webinars on the AMSSM website. The links to playback the Previous Webinar Recordings are posted on the Student page (must be logged in to view).

Making the Most of Your Student Membership – Become Active in the MSIG
As the 2020 MSIG President, I want to invite all Student members to become active participants in the MSIG as we continue to expand. This year we have set up regional-based community pods to build our active membership from the bottom up. I encourage Student members to “Like” and “Follow” the MSIG Facebook Page to connect with the AMSSM and the seven other MSIG Officers. If you are a President of your local interest group or a Faculty Champion, we’ll be contacting you soon about your school’s goals for 2020-2021! Each MSIG Officer will be working individually with a pod of schools to create a more collaborative environment for local chapters to exchange ideas.

Do you have an idea or topic your sports medicine group would like to share with other interest groups? Has your local sports medicine interest group found new ways to connect with your community during COVID-19? Send an email to AMSSM_MSIG@amssm.org with your update, question, or suggestion – we would love to chat. Looking forward to an exciting year ahead!

Is Your Sports Medicine Interest Group Connected with the MSIG?
AMSSM is currently updating its list on the Student page of the AMSSM website of new medical schools. If your medical school sports medicine interest group is not listed, reach out and become a Charter Medical School or Faculty Champion (Faculty Advisor to Medical Student Sports Medicine Interest Group) Also, feel free to contact any of the AMSSM MSIG Officers if you would like your medical school’s interest group (must be a Charter Medical School) featured in an upcoming edition of The Sideline Report.

Announcing Our Charter Medical Schools
• Chicago Medical School
• Pennsylvania State University College of Medicine
• San Juan Bautista School of Medicine
• University of Wisconsin School of Medicine and Public Health

October is “Call for 2021 MSIG Officer Nominations”
Eligibility: Interested students must be AMSSM Student members
Please consider nominating yourself for one of the 2021 MSIG Officer positions. Beginning in October, online nominations will be accepted; online Elections will be held over a two-week period in November with a joint conference call in December to transition leadership roles.

MSIG Officers serve a one-year term (Jan. - Dec.):
• President (3rd Year, Class of 2022)
• Vice President (3rd Year, Class of 2022)
• Secretary (3rd Year, Class of 2022)
• 2 At-Large Members (2nd Year, Class of 2023)
• 2 At-Large Members (1st Year, Class of 2024)
• Immediate Past President
The COVID-19 pandemic has certainly led to an unconventional start to the academic year, but I am so proud of how the current fellow class and Sports Medicine Fellows Council have adapted to these unprecedented times.

In July, the Virtual AMSSM Fellow Research and Leadership Conference was held virtually and had a record setting 180 attendees. During the two-day virtual conference, attendees heard lectures on topics ranging from Emergency Sideline Care to Racial Equity in Sports Medicine. The course faculty also worked with attendees in small breakout sessions to develop research questions and concluded with a fun Shark Tank competition. The event provided a great way for the fellows to meet each other and interact, virtually!

Over the past few months, the National Fellow Online Lecture series has also commenced thanks to the efforts spearheaded by the Online Fellows Educational Subcommittee. Educational topics have included Heat Illness & Rhabdomyolysis, CV Screening and the Collapsed Athlete, PPE and DQ Conditions, as well as a discussion panel on COVID-19. The lectures have been very well received and are available to watch on the AMSSM YouTube page.

We have also recently launched the new “Ask-a-Fellow” community on AMSSM Collaborate as part of the Mentor Program. This community will provide a platform for residents and student members to interact with current fellows and ask questions about applying to sports medicine fellowships. Current fellow members will host webinar discussion panels on pertinent topics related to matching into a sports fellowship. It is our hope that this community will foster mentorship and serve as a pipeline for students and residents interested in pursuing a career in primary care sports medicine.

I encourage all of the fellows to join AMSSM Collaborate to stay up-to-date on the latest happenings from the Sports Medicine Fellow Council. Please do not hesitate in reaching out to myself or any of the Officers if you would like to become more involved!

Resident & Student Members – Join the NEW Ask-a-Fellow Community on AMSSM Collaborate

As part of the Mentor Program, the Membership Committee has added a new program on AMSSM Collaborate called “Ask-a-Fellow” where Resident and Student members can join this community group to post a question(s) to current sports medicine fellows about matching in the sports medicine fellowship program. Questions can be about what to include on a C.V., tips/advice on interviewing with a fellowship program, suggested activities/recommendations on what residents and students can do now to match in a sports medicine fellowship, potential questions to ask during the interview, etc. as well as asking for their tips and advice on matching into the sports medicine fellowship program. As questions are posted on the group page, fellows will respond to the questions that are posted. It is completely voluntary and will be an impactful program for current fellows that just went through the Match to have an opportunity to share their tips/advice as they mentor to residents and students looking to match into a sports medicine fellowship. Nicolas Hatamiya, DO (Fellow Class Representative to the Fellowship Committee) and Stephanie Carey, MD, MPH (Fellow Liaison to the Membership Committee) will be Co-Moderators/Co-Leaders of this community group.
UPDATE FROM THE AMSSM SMRC (SPORTS MEDICINE RESIDENT COUNCIL)  
A Resident Interest Group Led by AMSSM Resident Members

President’s Message
Jeffrey Fleming, DO (PGY3)
Family Medicine Resident
Rowan University School of Medicine

On behalf of AMSSM, I would like to thank you for your hard work and dedication amidst the COVID-19 pandemic. As front line healthcare leaders, resident physicians form the backbone of our fight against the deadly disease. Your long hours and exhausting nights have undoubtedly contributed to improving the health and well being of countless patients and their families.

The coronavirus has not only changed the landscape of medicine in hospitals and clinics around the nation, but has also dramatically impacted the world of sports and sports medicine alike. Daily temperature checks, social distancing and virtual practices have become the new normal for athletes. For residents interested in sports medicine careers, the changes have been all too similar. Virtual lectures, at-home interviews and cancellations of our beloved Fall sports have created uncertainty surrounding the fellowship preparation process.

Rest assured that we are working toward providing our members with resources to continue their sports medicine education during these challenging times. I highly encourage you to check out the AMSSM’s “National Fellow Online Lecture Series”. The series features new, high-yield sports medicine topics each week and is hosted by groups of expert AMSSM physicians. The lectures were designed for current fellows, but are great resources for residents to stay up to date on their Sports Medicine knowledge. You can find them for free on the AMSSM’s YouTube page. The SMRC is working on additional projects to help residents stay on track during the pandemic as well. Look out for more information to come!

If you are interested in staying involved with sports medicine in the meantime, consider applying for a leadership position with the SMRC. AMSSM will hold elections for next year’s SMRC Officer positions this Fall. A “Call for Nominations” will be sent to resident members in October and elections will take place over a two-week period in November. If you have any questions about the available positions or about the election process in general, send us a message on our SMRC Facebook page. We look forward to your involvement in the SMRC and with AMSSM!

October is “Call for 2021 Officer Nominations for the SMRC
Eligibility: Interested residents must be AMSSM Resident members

Please consider nominating yourself for one of the 2021 SMRC Officer positions. Beginning in October, online nominations will be accepted; online elections will be held over a two-week period in November with a joint conference call in December to transition leadership roles.

SMRC Officers serve a one-year term (Jan. - Dec.):
- President (Beginning PGY3 in 2021)
- Communications Representative
- EM Resident Representative
- FM Resident Representative
- IM Resident Representative
- Peds Resident Representative
- PM&R Resident Representative
- Immediate Past President

Check Out AMSSM’s Patient-Focused Resource Center On-Line, SportsMedToday.com!

SportsMedToday.com provides an easy-to-navigate, patient-centered resource center for parents, medical professionals and youth organizations interested in prevention and treatment of sports-related injuries. Visitors to SportsMedToday.com will find a searchable database with a variety of sports medicine topics arranged by sport, medical condition (injury/illness) and body part, with topics being added and updated continually throughout the year. In addition, healthcare professionals can download tip sheets to share with their patients and partners.
Note from the Editor

Hello, sports medicine physicians near and far! I welcome you to another edition of The Sideline Report as we make our way into the fall, in more ways than one. New recommendations, data, and information bombard us from all sides as we continue to navigate the COVID-19 pandemic, striving to meet the needs of our patients while keeping ourselves healthy and safe to serve another day. Though this is an appropriate time for physical distancing, the need for social proximity has never been more important. The current societal unrest affecting the United States requires a reevaluation of our common goals and values.

The American Medical Society for Sports Medicine Values Statement confirms our commitment to the following:

• Service
• Honesty, Integrity, and Respect
• Quality and Excellence
• Communication, Collaboration, and Teamwork

To quote the movie National Treasure, “People don’t talk that way anymore,” but we do. These values define us as a professional organization and, hopefully, as individuals. By adhering to these principals, we can weather the heat surrounding us and set an example for our peers and patients as we grow through adversity.

This edition of The Sideline Report contains a wealth of helpful information reflecting the full spectrum of expertise we provide our patients. Our CMO Corner series continues with a conversation with Dr. Margot Putukian, an AMSSM Past President and Past President of the AMSSM Foundation and current Chief Medical Officer of Major League Soccer (MLS), in which she details the restart of the MLS season. We are also pleased to share a description of doctoring in the WNBA’s “wubble” by past-AMSSM President Dr. Cindy Chang.

I am very excited to introduce two articles detailing the sports medicine physician’s role in combating metabolic illness. Dr. Dusty Narducci shares her approach to treating youth obesity, while Dr. Mark Cucuzzella provides an editorial on the effects of metabolic disease in the COVID-19 pandemic.

Since moving to the upper Midwest, I have become acquainted with a phrase that encapsulates a positive way to approach difficulties: keep your stick on the ice. Though it can be interpreted in various ways, to me it means to stay focused. Stay true to your values. Be ready to act. At this critical juncture in history, our training has prepared us to lead and be a support to our patients and profession. If we remember who we are and what we stand for, we will come out of this better doctors, better servants, and better people. I am very proud to call AMSSM my professional home. Keep growing, keep learning, and keep your stick on the ice.

Jacob Miller, MD

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Further reading | Original article

**Does Intensity of Physical Exercise Affect Cancer Risk?**
*By Jesse Charnoff, MD*

Charles E. Matthews, PhD, and his team from the Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, Maryland, released results from their meta-analysis which found that higher levels of physical activity were associated with lower risks for cancers of the breast, colon, endometrium, kidney, esophagus, liver, and head and neck. The authors noted it is well established that physical activity is associated with lower risks for colon and breast cancer. However, it remains unclear whether the recommended amounts of physical activity are associated with lower risk for cancer. This was one of the goals of the study. They found that exercise was of borderline significance in reducing the risks for myeloma and cancer of the gastric cardia. Exercise did not improve the risks for cancers of the bladder, rectum, small intestine, and gallbladder. The study included 9 large cohort studies, most of which came from Europe and the United States totaling 755,459 individuals without a history of cancer at baseline. 53% of participants were female, and the median age was 62 (range, 32-91) years. In 7 of the 9 cohorts, the median exercise values were between 7.6 and 8 MET h/wk. Dr. Matthews stated, “These findings provide direct quantitative support for the levels of activity recommended for cancer prevention and provide actionable evidence for ongoing and future cancer prevention efforts.” The study was published in the *Journal of Clinical Oncology.*

[Further reading] | [Original article]

**Will Caffeine Boost Your Exercise and Sports Performance Level?**
*By Manoj Poudel, MD*

A recent article authored by Andreas Apostolidis et al attempted to find the effect of caffeine on individuals at different levels of cardiorespiratory and neuromuscular fitness. Twenty healthy male soccer players with medium or high level of cardiorespiratory or neuromuscular fitness were grouped into caffeine and placebo groups, and the study was done using crossover, double-blind, and counterbalanced methods. The players underwent exhaustion exercises on treadmill to simulate the cardiovascular demands of a soccer game after caffeine versus placebo intake. The comparison found statistically significant increases in time to exhaustion, jump height, heart rate, mean arterial blood pressure, plasma glucose and lactate and lower level of perceived exertion in the caffeine group in both groups of players with high and medium levels of fitness. The authors concluded that caffeine was effective in improving endurance and neuromuscular performance in individuals with either medium or high levels of cardiorespiratory and neuromuscular fitness. This report comes amidst equivocal findings in the current scientific literature which may be due to inter-individual variability of fitness level. In conclusion, this study provides important insight into the performance-enhancing effect of caffeine based on the fitness level of athletes. However, further studies are required as this study involved a small sample size, real game conditions were not used, and a third group with low fitness level was not included.


**Previous High School Participation in Varsity Sport and Jump-Landing Biomechanics in Adult Recreational Athletes**
*By Gregory Walker, MD*

A recent study published in *Journal of Athletic Training* from investigators at the University of Florida examined the connection between history of varsity high school athletic participation on neuromuscular skill patterns in adulthood. The purpose of the study was to compare jump-landing biomechanics between recreational adult athletes who had 0, 1, 2, or more select high school varsity sports (basketball, lacrosse, soccer and volleyball) known to feature landing and cutting tasks. Exclusion criteria included any other varsity sport participation in high school, orthopedic injury in the past 5 months, concomitant medical condition limiting recreational sport participation, or collegiate and/or professional sports participation. The study utilized the Landing Error Scoring System (LESS), a valid and reliable tool for detecting adverse movement patterns. 50 adult recreational athletes (22 women, 28 men; age=23.8 +/- 2.5 years) were recruited and grouped into those who participated in 0 (n=11), 1 (n=21), or 2 or more (n=18) varsity sports at the high school level. Participants were instructed how to perform the LESS and were then scored through video analysis in three separate trials. Two investigators graded each jump landing.

Results showed that participants who reported 0 or 1 varsity sports did not differ statistically on their LESS (5.89 +/- 1.2 versus 5.38 +/- 1.93 points, resp, P=0.463). Those who reported 2 or more varsity sports (LESS 3.56 +/- 1.97 points) did differ compared to peers who reported 0 (P=0.002) and 1 (P=0.004) varsity sports. Moreover, the authors were able to establish a statistically significant linear regression where LESS scores decreased 1.28 points for every 1 increase in varsity sport participation. Though other varsity sports participation excluded participants from this study, researchers were able to successfully create comparison cohorts. The concept of the multisport versus single sport athlete has gained great interest over the past several years. Studies like this begin to elucidate the potential benefits of diverse neuromuscular skill development in adolescence.

Disclaimer: The information provided in this section does not necessarily represent the official view of AMSSM but is nonetheless available for consumption and consideration of the membership.
Greetings from your virtual President!
It’s hard to believe I was circling the globe in February, presenting at ACSEP in Australia; spending time in New Zealand; and volunteering in Kenya with the sports medicine ministry – Running the Race.
Then the COVID-19 pandemic put a halt to sports and our society.
Rather than meeting with you in my hometown of Atlanta, my AMSSM presidency began with a message over YouTube.
Despite our challenges of time and space, I’m pleased to report that AMSSM has stepped up to the plate over these past five months and met disruption with innovation.
Here are some updates on the important projects and initiatives that are happening throughout AMSSM thanks to the tireless work of our organization’s leaders and volunteers.

• Education – Even though the pandemic forced the cancellation of the 2020 Annual Meeting, Program Chair Dr. Jason Zaremski and his committee quickly shifted gears and delivered a free Virtual Annual Meeting in its place. That expanded use of technology led to the first virtual Fellows Research & Leadership Conference that had a record 180 registrants – and a National Online Fellow Lecture Series that will offer more than 50 free talks to the current class of Fellows. AMSSM has also formed a new Online Clinical Reference Subcommittee to organize and highlight sports medicine online education onto one resource page, develop an online education database and produce content to meet gaps in educational content.

• Patient Care – Over the past five months, multiple teams of experts within AMSSM have been assembled to provide guidance related to COVID-19 and return to sports. Earlier this year, the NCAA and AMSSM jointly appointed an advisory group to help advise the NCAA on COVID-19 return-to-sport considerations. In July, a joint NFHS-AMSSM document was published on Guidance for Assessing Cardiac Issues in High School Student-Athletes with COVID-19. Also in July, a Cardiac Considerations Algorithm for College Student-Athletes during the COVID-19 Pandemic was developed by an expert panel from AMSSM and the American College of Cardiology.
In August, AMSSM, the American Academy of Pediatrics and National Athletic Trainers’ Association unveiled a toolkit of resources geared towards helping parents make return-to-sport decisions, along with a three-part webinar series for parents. And at the end of August, an Interim PPE Guidance Statement was published by AMSSM to help guide physicians and medical professionals on performing sports physicals during this epidemic.

• Advocacy – As the pandemic began, AMSSM advocated directly to CMS to allow for a relaxation of telehealth regulations, increase payment parity and make those policies permanent. AMSSM also provided information to assist members with securing Payroll Protection Program loans for their physician practices. And AMSSM has played a leadership role serving on the advisory board of the Play Sports Coalition, which represents thousands of youth sports organizations throughout the country reeling from the financial impact of COVID-19.
AMSSM Foundation President’s Message

Kimberly Harmon, MD, FAMSSM

We Understand You.

As the head football physician at the University of Washington, I know the stress, the sleepless nights and exhaustion we’ve felt as sports medicine physicians these past six months.

As the parent of four sons who have played high school and college football, I wrestle with the potential complications of exposure to the virus versus the mental health challenges of not competing.

As a family that has tested positive for COVID-19, I know the feeling of isolation and fear that comes along with the unknown.

We Understand You. It’s not just a new slogan for AMSSM and the AMSSM Foundation. It goes much deeper than that - it’s walking in the shoes of our patients, it’s understanding the pressure our coaches face, and it’s being there for one another, as sports medicine physicians.

2020 has been a challenging year for all of us. Yet, despite the 2020 AMSSM Annual Meeting being canceled, the AMSSM Foundation has stepped up and made significant commitments to fund important new initiatives and continue funding the many projects so important to the professional lives of our members.

Below are some of the highlights for how the AMSSM Foundation is using corporate and member gifts:

• **Education** – $217,000/year – to support Fellowship training; Traveling Fellowship & Global Exchange Program; support of Annual Meeting content; making educational learning modules freely accessible to physicians around the world; free online learning through podcasts/webinars; and a variety of scholarships for AMSSM members.

• **Research** – $187,000/year – to support AMSSM’s Collaborative Research Network; support of the Fellows Research & Leadership Conference; $85,000 in AMSSM research grants (including a revised grant that in 2021 will begin supporting underrepresented minority member researchers); and awards for top research at the Annual Meeting.

• **Humanitarian** – $27,000/year - to support an Annual Meeting Humanitarian Service Project; five $2,000 local outreach grants to support projects led by members; and a $5,000 global outreach grant.

• **$1M+ CRN Grant Commitment** – to help grow and advance sports medicine research, AMSSM & the Foundation are in the midst of a five-year commitment of $1M+ in CRN Grant Funding – with a $300,000 CRN grant to be awarded by the end of 2020.

• **COVID-19** – AMSSM and the Foundation have recently committed funds to help fund a research coordinator to help support development of a COVID-19 cardiac registry for athletes.

Your gifts to the AMSSM Foundation are fully tax deductible and support these important projects.

Please join me in making your gift today!

AMSSM Foundation Party

The 2021 Annual Meeting is scheduled for April 13-18 in San Diego. Due to the pandemic, the meeting is being planned in a hybrid format. Assuming local guidelines will allow, we will have a Foundation Party on Friday night, April 16. Location and details TBA. All AMSSM members making a $100 or higher contribution ($50+ for Fellow, Resident, Student members) from May 1, 2020 until the 2021 Annual Meeting will be invited to attend. A separate donation will likely be required for each guest. Those making gifts of $250 or higher will be invited to bring a spouse or significant other with no additional donation required.
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<th>AMSSM MEMBER DONOR LIST 2019-2020* &amp; FOUNDERS’ CIRCLE RECOGNITION</th>
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PRESIDENT’S MESSAGE
Continued from page 18

• Research – While COVID-19 has put a hold on many medical research projects, AMSSM and the AMSSM Foundation decided it was important to press forward. The third $300,000 CRN Grant RFP went out this spring – with full proposals due in October. Plans are well underway for a 2021 Physical Activity and Exercise Medicine Research Summit to meet in conjunction with the 2021 Annual Meeting next April in San Diego. And in August, AMSSM committed funding to help support a research coordinator who will help with collection of data for a cardiac registry to track data from COVID positive athletes.

• Task Forces – Beyond all that, we have five AMSSM Presidential Task Forces underway – including a Sexual Violence in Sport Task Force; Regenerative Medicine Task Force; Task Force on Future Training of Sports Medicine Physicians; a Task Force on the Economics of Exercise Medicine; and a Task Force on Diversity, Equity & Inclusion. Each task force has a specific charge and will be producing important policies, papers and/or recommendations to help shape the future of our profession.

So, while we haven’t been able to meet in person, you can see that AMSSM has been busy! Thank y’all for your membership in AMSSM and your commitment to our profession.
Member in the Spotlight

Brandon A. Mines, MD

By Lauren M. Simon, MD, MPH

Combine the information in the United States Centers for Disease Control (CDC) COVID-19 Pandemic rapidly changing recommendations, a host of protocols from the National Football League (NFL) and Women’s National Basketball Association (WNBA), National Collegiate Athletic Association (NCAA) and National Federation of State High School Associations (NFHS) on all things COVID-19-related and you get a dizzying glimpse of what a day entails for our current Member in the Spotlight, Dr. Brandon A. Mines, as he provides care for athletes and other sports medicine patients.

A native son of Milwaukee, WI (famous for great beer and cheese), he attended high school at Homestead High and competed in basketball and track (long jump, triple jump, 100 and 200 meter events). He studied Biology at Morehouse College in Atlanta, where he decided to pursue medicine. He developed a fondness for Atlanta during college. He returned home to Wisconsin and attended medical school at the University of Wisconsin, followed by Family Medicine Residency at St. Luke’s in Milwaukee. During residency, one of his senior residents, AMSSM member Dr. Jamie Edwards, told him about primary care sports medicine, and from that time on, Dr. Mines knew he wanted to pursue a sports medicine career. He continues to have a passion for anatomy and musculoskeletal medicine and enjoys working with individuals who are motivated to be healthy and, if injured, are eager to return to sport. Although a huge Badger fan, he took time to root for the University of California, Los Angeles (UCLA) during his Primary Care Sports Medicine Fellowship at UCLA under the Direction of AMSSM Past President Dr. John DiFiori.

Since he enjoyed the great city of Atlanta during college, and Emory University Health Sports Medicine’s model of care aligned with his vision for sports medicine, he moved back to Georgia where he works at Emory Healthcare in Brookhaven as part of a large sports medicine group. He cares for play/sport and exercise patients doing primarily orthopedic care (such as acute injury, fracture care, orthopedic injections with and without ultrasound guidance and PRP). Pre-COVID pandemic, he did 4.5 days per week of clinic, caring for all levels of athletes. He and his group teach three PCSM Fellows, Emory University Family Medicine, Internal Medicine and Physician Assistant students, who rotate through the clinic.

Along with so many of our AMSSM members who learned to give telehealth care during the pandemic, Dr. Mines converted from doing zero telehealth visits Pre-COVID pandemic to multi-modal telehealth care during the Pandemic, with graduated return to a hybrid in-person and telehealth care model. He and other speakers rapidly adapted to presenting in a virtual format for the recent Emory Sports Medicine Symposium.

His sports medicine duties also include having served as head team physician for the WNBA Atlanta Dream since 2008 (along with his Emory Sports Medicine Chief Dr. John Xerogeanes.) He feels fortunate that AMSSM Past President Dr. Cindy Chang is the lead physician caring for his Dream team members and other WNBA teams in the “Bubble/Bubble” in Florida, and she works with him collaboratively to care for his athletes who are there. He has also served as Head Medical Team Physician for the NFL Atlanta Falcons since 2014. In the NFL, he serves on the Head, Neck and Spine Committee, which among other items, develops the concussion protocols for the NFL. Prior to the pandemic, four physicians (Dr. Mines, two orthopedics surgeons and AMSSM members (rotating care) Drs. Jeffrey Webb, Jeremy Whitley and Lee Kneer) traveled with the Atlanta Falcons team on one airplane and provided team care throughout the season. However, with COVID-19’s social distancing restrictions and infection control/prevention protocols, the coverage landscape may look radically different. Dr. Mines informed me that along with the NFL players, he, the other team physicians and team staff with player contact, get tested daily for COVID-19 during training camp and wear tracking devices which will allow for contact tracing should a person test positive. What a difference from last year!

Dr. Mines also provides some coverage for the Atlanta Hawks (NBA) and USA Soccer. In addition to his pro sports team physician coverage, he supports local high school sports medicine programs, educates athletic trainers, athletes, parents and coaches on sports medicine topics and directs coverage for youth soccer in Atlanta. As we discussed youth sports and current events, I was saddened to hear about Dr. Mines’ continued on page 24...
prior experiences with racism, as a person of color, in sports medicine. He inspired me with his messages to athletes to “be socially conscious, educate yourself on history and why this is a big deal to know the facts and learn to intelligently deal with conflict and to communicate with people.” He is passionate about keeping the athletes and the community safe and healthy.

He notes it is important for primary care sports medicine physicians to remain well-rounded team physicians (with their primary medical specialty knowledge) to fully serve the needs of athletes. He also uses those skills as a Medical Director for Clark Atlanta University, a Division II, historically black college, which has given him the opportunity to provide quality care and mentorship to black athletes.

Dr. Mines joined AMSSM during his residency at St. Lukes, has presented posters, served as session moderator and served on the 2019 Annual Meeting Program Planning Committee (our last in-person AMSSM meeting pre-pandemic). He also promoted AMSSM internationally through the AMSSM International and Inter-Organizational Committee (IIOR). He is grateful for the many welcoming AMSSM members who have provided inspiration, guidance and opportunities for him in sports medicine.

Both before and during the pandemic, Dr. Mines takes time to exercise in the great outdoors, where he loves to fish, hike and mountain bike. He and his wonderful wife, Nadine, enjoy sharing their love of activity with their twin sons. Dr. Mines also enjoys his time cultivating his Georgia vegetable garden, where he remains true to his Wisconsin homeland, growing hops for his homemade brew and tomatoes and basil to adorn the Wisconsin cheese on his homemade pizza. When AMSSM members get together in-person after the pandemic, I hope Dr. Mines will share some of his pizza. Dr. Mines, thank you for being our AMSSM Member in the Spotlight, and stay well.