Letter From the Editor:

As nutrition professionals in the sports, cardiovascular, and wellness spaces, we come across “athletes” of all kinds—from the professional to the weekend warrior to the up-and-coming student athlete. There are quite a few challenges that tend to surface regularly within each of these communities, and while a one-size-fits-all approach hardly works in our field, we do tend to see similarities across the board. We’ve packed some great information into this issue on some of the things that challenge us and the athletes we see on a regular basis. Included are some great tips on what to watch out for and where to get started when working on a plan to address the concerns with your own athletes.

In keeping with this theme, our Connecting Center Stage article introduces you to a new partnership SCAN has embarked upon that focuses on bringing nutrition expertise to an underserved, and often overlooked, athletic population that brings with it a host of challenges—the performing artist community. Make sure to check out the details on Athletes and the Arts and refer to the article and our Resources section for information on how to get involved in this exciting new initiative.

And last, but far from least, just a reminder that the 35th Annual SCAN Symposium, Navigating the Path to Wellness, is coming up soon. If you haven’t done so already, make sure to register to join us in Phoenix in April!

And now, it’s time to connect...

Rebecca Rivera Torres, MS, RD
Connection Corner

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Want to write for our newsletter? Have thoughts on something you read? Or, maybe you just have a great topic for an article you’d like to see covered? Connect with one of the Sports Dietetics-USA, Wellness/CV, or DEED subunit section editors above today!

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Are you reaping all the benefits of your SCAN membership?
We have myriad resources available, including ready-made fact sheets to use with your patients; PULSE, our peer-reviewed publication; and continuing professional education (CPE) via PULSE, webinars, sessions at FNCE®, and Symposium. Go one step further and join our complimentary subunits to get more in-depth topic information and networking by accessing your My Profile area on SCAN’s website, scrolling down to Membership Details, and checking the boxes for any (or all!) of the subunits that interest you. And, what better way to network and discuss nutrition advances and best practices with other RDNs like yourself than to converse directly via our electronic mailing lists (EMLs)? Don’t forget, we’re social too! Like us on Facebook and follow SCANdpg on Twitter, Instagram, LinkedIn, and Pinterest. So, what are you waiting for? Be in the know and make your SCAN connections today!

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Glycemic Management Strategies in Type 1 Diabetes
by Megan Robinson, MS, RD, CDE, CSSD, LDN

Athletes with type 1 diabetes (T1D) are faced with the challenge of training and managing blood glucose (BG) levels to be competitive in their sport. Sports nutrition goals for athletes with T1D are similar to those without diabetes; however, frequent BG monitoring, adjusting insulin doses, and timing carbohydrate (CHO) intake are all necessary (and additional) strategies required to maintain euglycemia and enhance sports performance in these individuals.¹

TIMING OF INSULIN AND FOOD WITH EXERCISE
Ideally, athletes should eat 1 to 4 hours before exercise to maximize glycogen storage and maintain energy levels.¹ However, athletes with T1D benefit from eating a mixed meal 3 to 4 hours pre-exercise, which helps prevent bolus, fast-acting insulin from peaking, thereby reducing the risk of hypoglycemia (BG<70 mg/dL).² If an athlete needs to eat 1 to 2 hours before exercise, the amount of CHO and bolus insulin will need to be reduced to prevent hypoglycemia. However, in instances where proper pre-exercise food intake is impractical, athletes should start fueling at the onset of exercise without insulin coverage to maintain euglycemia.

CARBOHYDRATE GUIDELINES
Carbohydrates remain the primary fuel for meeting energy demands, maintaining muscle and liver glycogen stores, and boosting sports performance for athletes; thus, the registered dietitian needs to individualize an athlete’s CHO goals based on body weight, sport, and performance goals. Carbohydrate goals for athletes with T1D are similar to those without diabetes, ranging from 3 to 5 g/kg for light exercise and averaging 6 to 8 g/kg for athletes exercising continuously more than 60 to 90 minutes/day.¹² Even though CHO loading before endurance exercise is possible in athletes with T1D, it is not recommended when BG levels are uncontrolled.

TIMING OF CHO SUPPLEMENTATION
General sports nutrition guidelines recommend fueling with 30 to 60 grams of CHO every hour to prevent glycogen depletion and maintain energy levels during endurance exercise.² However, athletes with T1D may experience hypoglycemia when only fueling hourly, so it is suggested to consume smaller amounts of CHO more frequently to prevent glycemic variability. For example, consuming 10 to 20 grams of CHO every 20 minutes during activities may help prevent BG spikes and hypoglycemia.⁴⁵

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Glycemic Management Strategies in Type 1 Diabetes (continued)

Sports that utilize repetitive and short bursts of movement can temporarily raise BG levels during or after the activity and may not require additional CHO. However, athletes with T1D performing in team sports or strenuous continuous activity should consider additional CHO intake to maintain glycemic control as well as energy levels.4

TYPES OF CARBOHYDRATE

Studies are mixed on whether eating foods with a low glycemic index (GI) before exercise improves endurance performance and helps maintain BG control.6-8 It is important to note that CHO consumed throughout activity may have more of an impact on BG levels and sports performance than when consumed prior to activity.9 In addition, it is recommended to eat foods with a moderate-to-high GI during and after exercise to prevent hypoglycemia, promote CHO oxidation, and increase glycogenolysis.1,4 Modified starches have been shown effective in enhancing CHO availability during exercise, but their effect on T1D athlete performance has not been studied. Endurance athletes with T1D may find that consuming slow-digesting modified starches 30 minutes prior to exercise helps prevent BG variability. Of note, modified starches will not be effective to treat a hypoglycemic event during exercise; therefore, fast-acting CHO such as glucose tablets, chews, and gels should be available and used instead.1,4

FAT AND PROTEIN

Often, athletes may manipulate pre-exercise macronutrients to optimize CHO storage and fat oxidation to enhance endurance performance. It is common for adult athletes with T1D to adopt a low CHO diet to maintain euglycemia, but chronic consumption of a high fat, low CHO diet may hinder sports performance, especially in high-intensity sports where this practice can lead to depleted endogenous CHO stores.10 Additionally, eating a high fat, low CHO diet may increase gastrointestinal issues by delaying gastric emptying.1 Athletes may benefit by consuming both CHO and protein combined 1 to 2 hours post-exercise and again at bedtime to enhance glucose uptake and muscle protein synthesis.5,11 This is especially important for athletes with T1D to prevent delayed and nocturnal hypoglycemia (low BG 4 to 24 hours after exercise).4 Hypoglycemia is a significant barrier to sports performance for an athlete with T1D. Learning how to eat like an athlete by balancing CHO intake, as well as adjusting insulin doses, is important not only for enhancing sports performance but also for preventing glycemic variability. In addition to the support a registered diettian can provide, athletes with diabetes can also attend the Diabetes Training Camp (www.diabetestrainingcamp.com) to learn more about how to manage diabetes and excel as a competitive athlete.

AUTHOR’S BYLINE

Megan Robinson, MS, RD, CDE, CSSD, LDN, has been a registered dietitian for the past 25 years. She has extensive experience working with athletes with T1D at The Children’s Hospital of Philadelphia as well as at the Diabetes Training Camp in Lancaster, Pennsylvania. Megan also has a private sports nutrition practice at MeganSports RD, LLC.

REFERENCES:

Fueling the Dancer for Optimal Health and Performance
by Laura Moretti, MS, RD, CSSD, LDN

Dancers strike the fine balance between being both artists and athletes. Their bodies require strength and power, yet also grace, fluidity, and poise. Helping a dancer find the balance between these seemingly oppositional forces is an art within itself. Adequate nutritional intake helps promote optimal performance and prevent illness and injury. It is not unusual for dancers to have a complicated relationship with food and nutrition. In a culture that is inundated with falsified nutrition information transmitted via social media, blogs, and misinformed peers, dancers seeking nutritional guidance to support their physical and professional goals often find themselves swept up in a storm of misinformation. It is often the role of a registered sports dietitian to help them understand fact versus fiction. Below are a handful of the topics that present some of the biggest challenges in the dance community.

1. Energy Availability and RED-S
Dancers spend countless hours per week training; therefore, maintaining an energy balance is essential to maintaining overall health and performance. Energy availability (EA) is defined as the amount of dietary energy less exercise expenditure.\(^1\) Relative Energy Deficiency in Sport (RED-S) was a term created by the International Olympic Committee in 2014 to define both the physiological and performance consequences of low EA in male and female athletes.\(^2\) These consequences are commonly seen in the dance population and may include impairments of metabolic rate, menstrual function, bone health, immunity, protein synthesis, and cardiovascular health.\(^1\) Helping a dancer to understand their energy needs and how to meet them daily can help to prevent many of these problems from occurring. Some of the more common issues I see because of low EA include suppressed metabolic rates, menstrual irregularity, muscle loss, and bone stress injuries. I work closely with my dancers on assessing their energy needs and comparing this to their current caloric intake. Once their needs are established, I work to create a plan to help get them back into caloric balance. Slowly increasing calories can help ease some of the anxieties around potential weight gain. I often explain the RED-S model to my dancers as an attempt to educate them on the importance of the dietary changes as it relates to injury and performance.

2. Disordered Eating and Eating Disorders
The aesthetic focus of the dance world can also lead to the development of disordered eating (DE) and eating disorders (ED). Female athletes in leanness sports have a significantly higher prevalence of eating disorders.\(^3,4\) Although many dancers maintain a healthy relationship with food and body, many resort to extreme calorie restriction, dieting, over-exercising, or purging in an attempt to lose or maintain weight. Successful treatment often requires the help and attention of an interdisciplinary team including physicians, psychologists, psychiatrists, and sports dietitians (preferably with DE/ED expertise as well). In many cases, also involving dance teachers, physical therapists, or even artistic staff may be beneficial to support the dancer. Establishing a protocol for screening dancers for ED or DE can be beneficial in early intervention.

3. Vegan and Vegetarian Dancers
I have seen a significant increase in the use of vegetarian, and even more so, vegan diets among dancers. Vegan diets in particular are often higher volume and lower energy density. This can play a role in early satiety, bloating, gastric distress, and potentially low EA or RED-S. Vegan and vegetarian dancers are also at higher risk of being deficient in iron, zinc, calcium, vitamin D, or B vitamins. In addition to working closely with an RD, I also recommend that my vegan and vegetarian dancers obtain labs from their physician to determine the need for dietary supplements. It is my personal preference to not recommend a vegan diet to an adolescent dancer given this pivotal period of growth and development, as ensuring critical needs are met with this type of diet necessitates additional attention the adolescent may not be equipped to handle.
Fueling the Dancer for Optimal Health and Performance (continued)

4 Bone Health
Under-fueling as an attempt to maintain a dance physique or missing meals due to a busy schedule can have severe consequences on an individual’s bone health. Male and female dancers with low EA are at a higher risk for bone stress injuries. Females with hypothalamic amenorrhea, oligomenorrhea, or delayed menarche have been found to be particularly susceptible. Luckily, nutrition can play a considerable role in safeguarding bone health. In addition to maintaining adequate dietary energy intake, it is also important to ensure that a dancer is consuming adequate amounts of calcium and vitamin D to build and maintain bone density. Vitamin D assists in calcium absorption, which can help reduce the risk of stress fractures. Serum 25-hydroxy vitamin D levels <30 ng/mL have been associated with an increased risk of bone stress injuries. Therefore, in a population found to have a high prevalence of vitamin D deficiency, such as dancers, supplementation more than the typically recommended 600-800 IU daily is often recommended to achieve serum levels >30ng/mL. 5-8

5 The Challenge of a Busy Schedule
Dancers often have very busy days that leave little time for the prioritization of meals. Spacing out meals and snacks throughout the day can help prevent an energy deficit. When you are working with dancers, it is important to keep their individual schedules in mind and note that schedules may change seasonally. Make sure your nutrition recommendations are simple and easy to incorporate into their daily regimens. Work closely with your dancers to understand their schedule and individual challenges around hydration and fueling. Energy dense foods such as nut butters, nuts, granola bars, and even liquid supplements can be used for meals and snacks on the go. Minimizing bloating is often a priority for dancers, so finding foods that provide adequate calories in a smaller volume is essential to meet their elevated caloric needs. Focusing on balancing their dietary intake with their high-demand training will be crucial for optimizing performance and preventing injury.

Helpful Resources
The International Association for Dance Medicine and Science (IADMS) is a resource for dietitians specializing in the dance population. The Nutrition Resource Paper provides in depth guidance and recommendations around macronutrients, hydration, disordered eating/ eating disorders, and vitamins/minerals, among many other topics. I keep this on hand and have even recommended it to my dancers as a reputable resource on fueling for dance. Fueling adequately is an important component in helping further their careers and maintaining a strong presence in the studio and on the stage.

AUTHOR’S BYLINE
Laura Moretti, MS, RD, CSSD, LDN, is the dietitian in the Division of Sports Medicine and the Female Athlete Program at Boston Children’s Hospital. She is also an instructor at the Institute for Rowing Leadership and the consulting RD for the Boston Ballet Company and US Rowing. She founded a Boston-based private practice, Laura Moretti Nutrition LLC, and specializes in sports performance based nutrition, as well as treating low energy availability, disordered eating, and eating disorders in athletes.

REFERENCES:
In a mission to expand its focus in sports, SCAN has partnered with Athletes and the Arts to bring more awareness to the health and wellness needs of performing artists. Athletes and the Arts is a not-for-profit coalition of approximately 20 national sports medicine, performing arts medicine, wellness, and performing arts organizations that integrates the science of sport with the performing arts for mutual benefit. The organization targets students and professionals in the performing arts, medical professionals, educators, teachers, and choreographers.

Just like other sport athletes, performing artists are athletes who practice or perform almost every day, practice through pain, compete in challenging environments, experience little of an “off season,” face extreme competition, risk the temptation of substance abuse, and face real risk of career-threatening injury. In professional sports, most athletes have access to nutrition information to help them understand what and when to eat, medical support for injury prevention and rehabilitation, film review to modify posture and mechanics, pitch counts to reduce the risk of overuse injuries, and a sport psychologist to help get them out of a slump. Performance artists, a group that includes musicians, dancers, singers, conductors, actors, and marching band members of all ages, have few if any of these resources, yet they have many of the same needs as traditional sport athletes. They are an underserved population in regard to medical coverage, care, injury prevention, performance enhancement, and wellness. Sports medicine professionals can help fill this gap by applying existing knowledge of the treatment of sport athletes while gaining a better understanding of performers’ unique needs, such as hearing loss or focal dystonia and the effects of their environment. By better understanding the needs of the performing arts population and applying existing concepts and knowledge, sports medicine professionals can expand their impact to a new patient base that desperately needs support. Through this partnership, we hope to increase awareness of this initiative. By building a network of dietitians and other health professionals who have an interest in or currently work with performing artists, we can strengthen our partnership and help meet the health needs of our performance athletes.

If you would like more information or have an interest in getting involved, please contact our SCAN Athletes and the Arts Liaison Yasi Ansari at yasiansarird@gmail.com

By better understanding the needs of the performing arts population and applying existing concepts and knowledge, sports medicine professionals can expand their impact to a new patient base that desperately needs support.
Resources and Events
Events to Connect With Colleagues and Learn

Ongoing/On-Demand Events

SCAN offers on-demand webinars
For information: https://www.scandpg.org/cpe/

CDR offers online continuing education modules in various areas
For information: https://www.cdrnet.org/products/assess-learn-online-continuing-education-modules

IAEDP offers on-demand webinars
For information: http://www iaedp.com/webinars-schedule/

Eating Recovery Center offers on-demand webinars
For information: http://www.eatingrecoverycenter.com/professionals/on-demand-professional-development

Athletes and the Arts is looking for dietitians to get involved in its collaborative initiative to unite healthcare professionals and the performing arts community.
For information: http://athletesandthearts.com

Renfrew Center offers ongoing, in-person conferences
For information: http://renfrewcenter.com/events

Conferences

March 21-24, 2019
ACSM’s International Health & Fitness Summit & Exposition, Chicago, IL.
For information: acsmsummit.org

April 6-9, 2019
Experimental Biology 2019, Orlando, FL.
For information: http://experimentalbiology.org/2019/Home.aspx

April 26-28, 2019
Join your colleagues at the 35th Annual SCAN Symposium, Navigating the Path to Wellness, Phoenix, AZ.
For information: www.scandpg.org/symposium-2019/

May 28-June 1, 2019
ACSM Annual Meeting, World Congress on Exercise is Medicine®, and World Congress on the Basic Sciences of Exercise and the Brain, Orlando, FL.
For information: www.scandpg.org/symposium-2019/

June 6, 2019
Female Annual Conference, Boston.
For information: https://bostonchildrens.cloud-cme.com/Aphts.aspx?p=1&eid=910

June 13-15, 2019
ISSN 16th Annual Conference and Expo, Las Vegas, NV.
For information: https://www.sportsnutritionsociety.org/ConferencesDetails.php?idconf=65

September 30-October 2, 2019
Annual National Wellness Conference, Kissimmee, FL.
For information: www.nationalwellness.org

Resources to Connect With Your Patients

- American Heart Association (AHA)/American Stroke Association (ASA) (www.heart.org)
  AHA and the American College of Cardiology released updated guidelines for managing cholesterol. To find out more, visit https://professional.heart.org/professional/ScienceNews/UCM_502791_2018-Cholesterol-Management-Guideline.jsp

- CardioSmart (www.cardiosmart.org)
  CardioSmart’s Heart Explorer app for iOS (iPhone/iPad) and Android includes cardiac graphics and animations to help healthcare professionals discuss heart problems and treatment options with patients. For details, from the home page search “Heart Explorer App.”

- Know Diabetes By Heart (www.KnowDiabetesByHeart.org)
  The American Diabetes Association and the American Heart Association have launched a new website, www.KnowDiabetesByHeart.org. The site includes resources for people with type 2 diabetes, a risk awareness quiz on the link between diabetes and heart disease/stroke risk, and a discussion guide with conversation starters for patients to talk with their healthcare provider.

- NCAA Sport Science Institute (NCAA.org)
  The Nutrition, Sleep and Performance menu at http://www.ncaa.org/sport-science-institute/nutrition allows users to access a list of fact sheets related to sports nutrition for collegiate athletes. NCAA also provides a list of prohibited substances to guide student athletes’ supplement usage at www.ncaa.org/2016-17-NCAA-banned-drugs-list.


- Prediabetes Awareness Campaign (www.DoIHavePrediabetes.org)
  In partnership with the American Medical Association and the Ad Council, CDC’s Division of Diabetes Translation has launched a new phase of its campaign to raise prediabetes awareness. At www.DoHavePrediabetes.org, consumers can take the Risk Test and find a National Diabetes Prevention Program by zip code range. The Ad Council’s prediabetes kit at http://prediabetes.adcouncilkit.org/ includes downloadable campaign Public Service Announcements, social media posts, and graphics.

- Sports, Cardiovascular and Wellness Nutrition (https://www.scandpg.org/sports-nutrition/)
  Find sports nutrition fact sheets, information on how to become a CSSD, and credible sports nutrition resources.

- Sports Dietitians Australia (https://www.sportsdietitians.com.au/)
  Find sport-specific nutrition articles, sports nutrition fact sheets, recipes for athletes, and product reviews.