

Ten Practical Strategies Coaches Can Use to Promote Nutrition to Their Athletes

By Shelley L. Holden and Timothy M. Baghurst 

There are more than 460,000 student-athletes participating in a myriad of sports in the National College Athletic Association (2018), and approximately 60,000 boys and girls are registered in organized youth sports (National Council of Youth Sports, 2017) in the United States. Although coaches are expected to understand the practical Xs and Os and physical training necessary to be successful in a given sport, they must also recognize that there is more to an athlete's performance than just sport-specific training and the weight room. That is, many coaches are educated about the techniques and strategies for their sport, but they may lack knowledge in other sport performance areas, such as nutrition. This article provides 10 practical strategies that can be used to educate both current and future coaches on what it takes to fuel athletes nutritionally for optimal performance. Furthermore, it provides several ways to incorporate

nutritional information into team and parent meetings, training and competition, and travel itineraries, as well as ways to teach daily nutritional choices. Because sports nutrition is constantly changing, it is imperative that coaches stay up to date with the newest information in this evolving field.

1. Coaches Should Educate Themselves about Nutrition

Coaches must possess a basic understanding of how nutrition affects health and athletic performance. Unfortunately, a plethora of books and websites devoted to nutrition fail to provide accurate and/or appropriate information for the age level and sport or activity being coached. When seeking educational resources, coaches should check the author's credentials. That is, are they a registered dietitian (RD), a licensed physician (MD), an academic scholar (PhD or EdD), a certified strength and conditioning coach (CSCS), or a certified athletic trainer (ATC)? That is not to say that books or websites authored by individuals without credentials are necessarily incorrect or not of value, but rather, checking credentials is a place to start when seeking to obtain sound nutritional information.

Another important consideration when seeking educational resources is to read nutrition information provided by agencies/organizations in the field. Examples include the *Dietary Guidelines for Americans* (Dietary Guidelines Advisory Committee, U.S. Department of Agriculture, U.S. Department of Health and Human Services, 2015) or the American College of Sports Medicine (ACSM) position statements on “Nutrition and Athletic Performance” (ACSM, 2016), “Exercise and Fluid Replacement” (ACSM, 2007a), and “The Female Athlete Triad” (ACSM, 2007b). By focusing on reading materials written by credible sources in the field, coaches can avoid obtaining and teaching information that may be inaccurate and/or potentially dangerous for their athletes. Simply passing on information to athletes from an unreliable source could place a coach in an unfortunate situation or even lead to a lawsuit, depending on the situation’s severity.

Once a coach feels he or she has obtained the basic knowledge through reading, taking coursework on nutrition, or attending clinics and training sessions, he or she should consider seeking out a credible and reliable source in the field to request

a face-to-face meeting. A face-to-face meeting is a great opportunity to ask about all aspects of sports nutrition that need to be clarified or further explained. The coach should be prepared with specific questions to focus the meeting and yield the desired outcomes; otherwise, the meeting could result in a potentially long, drawn-out and irrelevant dialogue.

The coach should consider main topics of discussion such as hydration, precompetition nutrition, during-competition nutrition, postcompetition nutrition, and timing of meals and snacks. Lastly, avoid trying to ask too many questions in the initial meeting. Rather, a coach should focus on their primary concerns first, and then subsequent meetings can be set up for other, less important nutritional questions.

2. Focus on Principles of Healthy Eating

One mistake coaches often make is to focus solely on in-competition nutrition. Instead, nutrition should be a focus year-round. One way to focus on nutrition year-round is to learn and promote the principles of healthy nutrition. These principles include variety, moderation and balance and are explained in detail in the *Dietary Guidelines for Americans* (Dietary Guidelines Advisory Committee, U.S. Department of Agriculture, U.S. Department of Health and Human Services, 2015). Further, year-round nutrition should include eating a variety of foods from all the food groups as listed on the U.S. Department of Agriculture’s Choose MyPlate website (<http://www.choosemyplate.gov>). Moreover, as athletes advance from middle to high school sports and become more skilled, they should utilize the more athlete-specific guidelines outlined by the ACSM (2007a, 2007b, 2016).

Moderation should also be taught and encouraged. With respect to nutrition, moderation can be defined as not consuming too much or too little of anything (Boyle, 2019; Insel, Ross, McMahon, & Bernstein, 2017). Most athletes have foods they prefer or desire that are not necessarily considered “healthy options.” Therefore, teaching moderation means not having these foods every day or in large amounts. Examples might include sweets, desserts or foods high in sodium (salt). Achieving nutritional balance involves considering portion sizes as well as nutrients (i.e., fats, carbohydrates, proteins, vitamins, minerals and water) in a meal and throughout the day. An example of nutritional balance has been provided by My Plate, which suggests that half of an individual’s plate should



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be filled with fruits and vegetables (Dietary Guidelines Advisory Committee, U.S. Department of Agriculture, U.S. Department of Health and Human Services, 2015).

A final thought for coaches to consider when they focus on the principles for healthy eating is that athletes' gastrointestinal tracts respond to foods differently. Therefore, even if a food is labeled as healthy, it may not be the best option for a specific athlete. Examples might be foods advertised as low fat or those that are heavily processed. Experimentation, preferably during the off-season, should be encouraged to ensure that athletes are not trying new eating habits during important times of the year (Holden & Baghurst, 2016).

3. Focus on Nutrition for Your Sport/Activity

Learning about nutrition can be overwhelming at times. After coaches develop a basic understanding of the principles of eating, they should shift their attention to learning about nutrition relative to their specific sport or activity, as nutrition is not "one size fits all." Nutritional needs across sports can be vastly different, and the needs of athletes within the same sport may vary. For example, the nutritional needs of a quarterback on a football team may be very different from those of a linebacker or defensive end. Spending time researching and learning about the nutritional requirements for each position associated with a sport will go a long way in educating athletes.

Another area that deserves attention when coaches study the nutritional needs in their sport is the timing of meals, snacks

and fluid intake. This area is covered in more detail later in this article, as coaches must focus first on daily food choices and food preparation methods.

4. Focus on Food Availability and Preparation

Essential components of the initial stages of nutrition education are portion size, serving size, food selection, and food preparation. Geographic and cultural factors may affect the development of these nutritional recommendations. That is, athletes from the South are aware of the availability and desire for fried food and potentially larger portion sizes. Therefore, a coach should focus on the food selection, food preparation methods, and portion distortion that apply to their environment.

Average portion sizes have increased in the past 20 years to the extent that a single plate arrives at the table with enough food on it to feed two or even three people (Burger, Kern, & Coleman, 2007; Fisher, Rolls, & Birch, 2003; Nielsen & Popkin, 2003). A key point to note is that serving size and portion size are two different things. A portion is the amount of food eaten during one sitting, while a serving is the standard amount of food used as a reference to give advice regarding how much to eat (Boyle, 2019). For example, a serving of meat is considered three ounces, but a portion served in a restaurant is often six ounces or more (Boyle, 2019; Insel et al., 2017). Because many athletes do not understand the difference between these two concepts, they consume larger portions than necessary and take in an excess of calories during meals and even snacks. Exact serving sizes for fruits, vegetables, cheese and meats can be found on the Choose MyPlate website or in the *Dietary Guidelines for Americans* (Dietary Guidelines Advisory Committee, U.S. Department of Agriculture, U.S. Department of Health and Human Services, 2015). Coaches should provide a handout informing athletes and parents about these nutritional recommendations and the differences between serving size and portions.

When selecting foods from a grocery store or at home, a good strategy is to choose fresh first. Fresh foods tend to be higher in vitamins and minerals and lower in sodium. If fresh food is not available, the next best option is frozen foods followed by foods canned in water or their natural juices. Athletes should avoid foods in syrup or canned in large amounts of sodium.

Coaches may experience resistance from athletes and parents when administering nutritional information because they may argue that eating healthy is more expensive. However, it is not — or it does not always have to be. In reality, claims that eating healthy is more expensive are often made because eating healthy is less convenient. It requires more trips to the grocery store because the shelf life of fresh food is not as long as that of processed foods in cans, boxes, etc.

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Another teaching point is that when cooking foods, grilled, baked, roasted, broiled and steamed are preferred preparation techniques. This concept should also be applied when a coach is providing food for athletes. Additionally, Baghurst and Eichmann (2014) found that nutrition education had little value if parents were not educated also. Parents may lack adequate knowledge about preparation techniques for healthy food, and if a coach takes time to educate them, parents can help foster a healthy environment for their children.

Depending on the age and maturity of the athletes being coached, teaching them some practical cooking skills can prove quite advantageous. Often, culinary schools or classes in the area would gladly welcome a coach and his or her athletes. Further, this type of outing can also be considered a team-building opportunity.

5. Consider Food Choices at Home, at the Concession Stand, and in Restaurants

Typically, athletes will eat at home, at the homes of other family members or friends, at the concession stand or school cafeteria, and in restaurants. When eating in any of these places, baked, roasted, broiled or grilled options should be encouraged. Low-fat condiments and salad dressings are healthier options, but if creamier dressings such as ranch or blue cheese are selected, they should be ordered on the side and used sparingly.

The concession stand is a place where athletes often consume food or snacks. A key point for coaches to relay to their athletes is to plan ahead and pack healthy snacks, such as a whole-wheat bagel or crackers, low-sugar cereal, fig bars, fresh and dried fruits, low-fat granola bars, nuts and seeds, pretzels and low-fat sandwiches (e.g., chicken, ham, lean roast beef, peanut butter, tuna or turkey). These choices are typically healthier and cost less than many of the high-fat, high-sugar and high-sodium snacks provided at the concession stand. Most often, concession stands offer the complete opposite of what an athlete needs to fuel his or her body, and avoiding it should be actively encouraged.

Coaches also need to consider the types of restaurants athletes are frequenting. Typically, ethnic restaurants such as Mexican and Chinese do not offer the healthiest choices due to their food preparation techniques (Boyle, 2019). Many of these restaurants batter and deep-fry the majority of their food items. Foods at these restaurants are also usually high in sodium and saturated fat. Therefore, coaches should carefully select restaurants when traveling. In addition, once a restaurant is chosen while traveling, athletes must make healthy choices to optimize performance or recovery from competition.

Another concern when teaching athletes about nutrition involves fast-food restaurants. Coaches should try to avoid taking athletes to these types of restaurants while traveling, but they should also educate athletes on tips for eating at fast-food restaurants when they are not with the team. Eating healthy is not always possible, but eating “healthier” is, even at fast-food locations. Tips for athletes when they eat at fast-food restaurants include: stay away from value meals and fried sandwiches

loaded with high-fat condiments (e.g., mayonnaise), avoid French fries and replace them with fruit or a salad with the dressing on the side, drink water instead of soda, and select grilled rather than fried.

If given the choice, athletes will tend to choose unhealthier options (e.g., burgers and fries), but these choices will not adequately fuel them for training and competition. This situation may be a challenge for coaches, but regardless of where athletes eat, they should focus on filling their plates whenever possible with fruits and vegetables, quality carbohydrates (e.g., brown rice, whole-wheat bread, whole-wheat pasta, etc.), lean proteins, and other low-fat options.

6. Consider Timing and Types of Meals and Snacks

Coaches must realize that several outside factors may influence the nutritional needs of athletes when they are preparing for training and competition. Coaches must know that the weather, playing time, game strategies, position, injuries and intensity of the training or competition all affect the amount of food an athlete should consume prior to an event. Here are a few basic guidelines to help coaches educate their athletes.

Precompetition

An athlete’s diet before training and competition should include approximately 1 gram to 4 grams per kilogram of body weight (0.46–1.8 grams/pound) of carbohydrates one to four hours before competition (Fink & Mikesky, 2018). Some examples of ideal items to consume are whole-wheat pasta (avoiding high-fat sauces), 100% whole-wheat bread, whole-wheat bagels, watery fruits (e.g., oranges, strawberries, watermelon, grapes) and vegetables. These foods are typically good sources of carbohydrates during the window before a training session or competition.

Another consideration for coaches is that they should be aware of athletes who have a nervous stomach and therefore skip the precompetition meal. Coaches may want to suggest that these athletes consume a liquid meal (i.e., fluids containing carbohydrates) rather than solid foods. The idea here is that something would be better than nothing. It is not a sound practice to regularly skip meals prior to training or competition. A good combination of precompetition food includes cold cereal with skim milk in the morning and whole-wheat pasta with tomato sauce before a training or competition that takes place later in the day (Clark, 2013). Meals on competition days more than four hours before the contest should consist predominantly of complex carbohydrates (i.e., 55%–65% of the meal). Additionally, athletes should include small amounts of fats and protein for satiety (the feeling of fullness after a meal).

Adequate carbohydrate intake is important to an athlete’s performance in the days and hours leading up to practice or competition. Another teaching point is that athletes should experiment with which foods work best for their performance while not irritating their gastrointestinal tract. Coaches who are in charge of the pregame meal should consider not only

healthy nutritional choices (as outlined here), but also the varying needs and tastes of their athletes.

Overall, precompetition food choices should be low in fats, moderate in proteins, and rich in carbohydrates because fats and proteins take longer to digest and absorb. Further, carbohydrates are the athlete's main fuel source during training or competition. In sum, precompetition meals should include quality calories that are easy to digest.

During competition

Another interesting area for coaches to learn about is during-competition nutrition, because it can be difficult for athletes to consume quality calories during this stage. As previously stated, coaches must be aware of a number of variables associated with a sport and its nutrition. For example, a baseball player can consume beverages between innings while a basketball player can refuel during halftime and time-outs. Research supports that carbohydrate consumption during training and competition is essential (Fink & Mikesky, 2018; Insel et al., 2017; McArdle, Katch, & Katch, 2013). During-competition nutrition can be tricky because sports differ in length, intensity and environment. Some sports provide more opportunity to replenish carbohydrates (e.g., sports with halftime breaks) than do others (e.g., long-distance running).

The suggested rate of carbohydrate consumption in athletes is approximately 1.0 to 1.1 grams of carbohydrates per minute during training and competition, which is approximately 240 to 280 calories per hour (Fink & Mikesky, 2018). For coaches providing the snacks during competition, this area of nutrition poses somewhat of a challenge because most snacks that are quick and easy are not particularly healthy. Some suggested items that can be made available during competition are sports drinks (Gatorade or Powerade) with 6% to 8% carbohydrate solution, diluted juices (half juice and half water), energy bars (cut into pieces) that are high in carbohydrate content, fresh fruit cut into bite-sized pieces, hard candies, or water (Fink & Mikesky, 2018; Insel et al., 2017). Time-outs and halftime breaks are excellent times to provide athletes with snacks and sports drinks that contain the carbohydrates athletes need. Convenience is a very important factor (bite-sized, grab-and-go portions), but nutritional value must be considered when coaches are selecting and providing foods during training and competition.

Postcompetition

Postcompetition is an area of nutrition that many coaches neglect because they simply do not realize its importance. Upon completing a training session or competition, players must rehydrate and refuel their bodies. The consumption of carbohydrates and proteins should begin as soon as the training session or competition is finished. The combination of carbohydrates and proteins is paramount to replenish the losses that occurred during competition.

A guideline for coaches is that carbohydrate consumption within 15 minutes after competition is critical to help replenish glycogen stores because it can take 24 to 48 hours for

these stores to be replenished (Fink & Mikesky, 2018). The suggested amount of carbohydrates after exercise is up to 2.0 grams/kilogram (0.91 grams/pound) of body weight for the athletes who are most active during practice or competition. For example, a suggested posttraining/postcompetition meal for a 70 kilogram youth soccer player would be 8 ounces of fruit juice, which contains 25 grams of carbohydrates, one 25-gram granola bar, and one cup of low-fat yogurt (40 grams; Fink, Mikesky, & Burgoon, 2012). Low-fat chocolate milk is another option after training or competition to replenish carbohydrates *and* proteins. Postcompetition nutrition is certainly not a one-size-fits-all model. The main point to emphasize is that some kind of calorie consumption needs to occur as soon as possible following physical exertion. Too often, players delay consuming calories for hours after activity, which can have a negative impact in later training sessions or competitions.

Glycemic index

Manipulating the glycemic index (GI) of meals may be useful for coaches to optimize carbohydrate availability for exercise. The GI gives rank to carbohydrates according to their capacity to influence blood sugar levels. High glycemic foods are absorbed more quickly and rapidly raise blood sugar levels, whereas low glycemic foods are absorbed at a slower rate and have less of an effect on rising blood sugar levels (Wein, n.d.). Both high and low GI carbohydrates play an important role in providing energy for optimal athletic performance; the key is timing. For example, athletes may benefit from consuming lower glycemic carbohydrates throughout the day and before training, as these foods release glucose slowly and help sustain blood glucose. During intense or prolonged exercise (longer than one hour), foods or fluids with a moderate or high GI may promote carbohydrate usage and maintain adequate blood glucose levels during practice. After exercise, consuming higher glycemic foods or fluids may also promote rapid glycogen repletion and maximize recovery. This rapid repletion mitigates the effects of fatigue and ensures an adequate energy supply for the next practice, game or competition. The key message for coaches to convey, once again, is the necessity to find healthy, nutritional choices that athletes prefer.

7. Consider Nutrition Decisions for Competition (Home vs. Away)

Home and away nutrition is another area of education that is often overlooked by coaches at all levels. Coaches must consider that athletes who compete on the road tend to eat more poorly than when they are playing at home (Buss, Fort, Di Brezzo, & Baghurst, 2008). A home advantage exists in almost every sport, so coaches must take extra time to prepare athletes for making nutritional choices on the road. It may actually help athletes to achieve optimal performance and increase the team's chances for success.

A tip for coaches when preparing for competition on the road is to look for and decide on restaurants and food options

before leaving for the competition. Coaches should select restaurants based on nutritional value, budget and location. Another piece of advice is to get athletes' input on the types of foods and beverages they prefer for precompetition and postcompetition meals. Providing healthy options is great, but if athletes are not going to eat certain foods or have allergies, then coaches have limited options if they are not prepared in advance.

If travel includes staying in a hotel, coaches should call ahead and ask for a list of restaurants near the hotel as well as the availability of refrigerators in the rooms to keep healthy snacks and fluids cold. In addition, coaches should determine breakfast options offered by the hotel (i.e., hot and cold options) because it will help in the planning process. Another point a coach must emphasize to players is to eat until they are full and to resist the temptation to overconsume. However, athletes must also consume enough to support training and recovery because some athletes may not consume an adequate number of calories and/or may skip meals altogether while on the road for various reasons. Certainly, these choices are detrimental to health and performance, so coaches must pay close attention to these athletes.

Travel is an essential part of athletics. However, by following the concepts of variety, moderation and balance, along with being mindful of what is needed to fuel for and/or refuel after competition, coaches can help mitigate the negative effects of travel while optimizing performance and recovery.

8. Principles of Hydration

Hydration is a key component for success in athletics. Previous research has determined that fluid loss as little as 1% to 2% body weight can hinder athletic performance (McArdle et al., 2013; Montain, 2008; Sawka et al., 2007). Coaches must consider that they could lose a competition because their athletes were not properly hydrated prior to competition. Coaches and athletes can recognize some physical signs of dehydration, such as thirst, loss of appetite, fatigue, lethargy, headache, increased body temperature, increased pulse and respiration rate, and poor circulation due to decreased blood volume. A major concern in extreme cases is that dehydration can lead to kidney failure. Further, several factors affect the dehydration of athletes, such as the sport being played, athletes' body size, intensity of exercise, level of training, and weather conditions (i.e., humidity, temperature and wind velocity).

A strategy for coaches to determine the hydration level of their athletes is to weigh them before and after training or competition to determine weight loss. Typically, the recommendation is that for every pound lost during training or competition, athletes should replace it with 2 to 3 cups (16 to 24 ounces) of fluids (Fink & Mikesky, 2018; McArdle et al., 2013). However, this strategy may become cumbersome for the coach and



athletes over time, so teaching athletes to monitor their urine color daily may be more practical. That is, the darker the color and the lower the volume of urine, the more dehydrated the athlete is. The goal for every athlete is to maintain urine of a "light lemonade" color or lighter. A suggestion for coaches to determine specific colors of urine is to obtain a urine color chart by conducting a web search labeled "urine color chart."

A key step in avoiding the effects of dehydration is for coaches to understand the seriousness of this condition. A simple way to determine the estimated fluid requirement for the day is to divide the athlete's body weight by two. The resulting number determines the amount of fluid in ounces (reminder that eight ounces equals one cup) suggested per day, not including fluids lost during exercise (Fink & Mikesky, 2018). Of course, most athletes will require much more fluid than the average exerciser.

Another valuable teaching point is to encourage athletes to take personal responsibility in having preferred fluids with them for training and competition. The concern here is that fluid preferences, such as the flavor, taste and temperature of the beverage, vary from one athlete to the other. Similar to their food choices, athletes must learn which fluids promote optimum performance without irritating the gastrointestinal tract or causing other negative physical effects (e.g., bloating). Sports drinks certainly may be part of a nutritional plan for athletes during training, competition and recovery, but these beverages are not meant to be a daily fluid choice due to their high caloric value.

Postcompetition nutrition is certainly not a one-size-fits-all model. The main point to emphasize is that some kind of calorie consumption needs to occur as soon as possible following physical exertion.

9. When to Bring in an Expert

In many instances, the nutritional information athletes and parents need is beyond a coach's professional scope. Diabetic athletes, athletes with food allergies or intolerances, athletes who follow a vegetarian eating plan, female athletes, or any athlete with a perceived eating disorder requires special attention. Regardless of whether it is a medical reason or personal choice, when these situations arise, a coach must err on the side of caution and refer the athlete to a licensed professional such as their family doctor, a registered dietitian, a nutritionist and/or a professional counselor. The last thing a coach needs is to make recommendations that could potentially put their athlete in harm's way or put themselves in a legal situation.

Experts may also be needed when educating parents and players on nutrition. At the beginning of the season, team meetings are an excellent opportunity to provide this education. If a coach is not prepared to educate athletes and parents on nutrition him or herself, he or she should bring in an expert rather than relaying inappropriate or inaccurate information to athletes and parents. Suggested experts who could fill this role are a registered dietitian, sports nutritionist, licensed physician or collegiate nutrition professor. However, when the coach is ready, he or she should use the parent and player education process as a way to get parents to "buy into" the importance of nutrition as it relates to overall health and athletic performance.

10. Getting Athletes and Parents to 'Buy In'

Once a coach is educated in nutrition and performance, it can be difficult to relay this information to athletes and parents. Unfortunately, this situation cannot always be avoided, and coaches must be patient, as new ideas tend to be met with resistance. Here are a couple of ways to educate athletes and parents on nutrition and get them to "buy in."

First, consider having an athlete and/or parent meeting at the beginning of the season (all players should be present). In the meeting, coaches should pass along information on proper nutrition (daily, precompetition, during-competition and postcompetition), food selection (home and on the road), food preparation, hydration, and the importance of healthy nutrition (i.e., how nutrition can optimize athletic performance).

It is possible that athletes will ignore the coach's advice and parents will give their son or daughter whatever they want, but the coach does have the ability to control what foods are or are not made available to the entire team during training or competition. Parents, especially those of younger athletes, may challenge the coach's authority in this area, especially early in the season, but as the athletes and other parents "buy in" and realize the coach has the athletes' best interest in mind, there will be fewer problems with athletes and greater compliance from parents.

Coaches also need to be realistic in their expectations of players. Special situations such as birthdays, proms and homecoming events will eventually occur. As noted at the beginning of this article, an essential component of nutrition is balance, and sometimes, it is okay to enjoy something that should not be a regular choice. However, when and how it is done needs to be considered carefully to ensure there is not a significant negative impact on performance. A chocolate donut before the rival game is neither a smart nor a healthy choice!

Recommended Practical Implications

Based on a review of the literature, including the *Dietary Guidelines for Americans* (Dietary Guidelines Advisory Committee, U.S. Department of Agriculture, U.S. Department of Health and Human Services, 2015) and various position statements from the ACSM, it is suggested that coaches consider implementing a nutrition education program for themselves, their athletes, and the parents of athletes. By learning and teaching the principles outlined in this article, coaches are well on their way to achieving optimal performance and developing healthy athletes. When presenting nutritional information to athletes and parents, coaches should:

- Consider the timing of the meeting/presentation (beginning of the season and beginning of the off-season program).
- Consider the length of the meeting/education session (1 hour to 1.5 hours maximum).

- Model proper nutrition and hydration on a daily basis (athletes and parents are more likely to “buy in” when the coach sets the example).
- Make nutrition a year-round focus for athletes (not just the focus of one meeting).
- Be clear and concise with the expectations of athletes and parents for precompetition, during-competition and postcompetition nutrition and hydration.
- Focus on nutritional information from reputable sources (avoid quick and easy fixes that are not backed by scientific research).
- Check for athlete and parent understanding throughout the meeting/education session and the season.
- Focus less on the numbers presented and more on establishing sound nutritional habits (e.g., suggested amounts of carbohydrates prior to competition is a goal, but first having athletes establish the habit of eating quality carbohydrates prior to competition is paramount).

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