Webinar 9 Handout

PRINCIPLES OF SPORTS NUTRITION

Whether your clients are occasional gym goers, avid exercisers or professional athletes, chances are they'll have some questions about what to eat before, after or even during their workouts. How to approach this subject depends on the individual, the type of exercise and the client's goals.

How to Determine Your Client's Nutritional Needs

In general, clients who are moderately active as a way to stay in shape, lose weight, meet their fitness goals and feel energized (for example, someone who does Pilates or spin 3-4 times per week) will have nutritional needs that are actually quite similar to most people. Clients who are training for events, following intense workout regimens or who are professional athletes will have more specific requirements.

Professional Athlete

This is for your clients who make a living out of their sport. Collegiate athletes count too. Their training schedule is rigorous, intense and taxing on the body, making their nutritional needs just as demanding. Timing of nutrients is of the most importance with these clients, and having a well-rounded, holistic attack plan will help these clients stay on top of their game.

Serious Trainee

Maybe your client has decided they want to compete in a triathlon or become a SoulCycle instructor. They train or teach for a few hours a day, making their lifestyle more active than the average person. Because of this, their needs will be slightly more elevated and timing will play a role.

Exercise Enthusiast

This client is dedicated to their morning hot yoga class, their ClassPass membership, and maybe if they're feeling spicy, they do two-a-days. But their nutritional needs are still similar to the general population. Making sure these clients eat a balanced diet throughout the week will ensure they get the nutrients they need to fuel their workouts and having nutrient-dense snacks on hand will provide any extra energy they need to feel great throughout the day.

Nutrition Basics

It's important for everyone to eat a balanced diet with a mix of carbohydrates, protein, fat and antioxidants, and nutrient timing is especially essential for proper sports nutrition.

- Carbohydrates are the body's main source of energy and the preferred source of fuel.
- Protein is important for building and maintaining muscle and for muscle recovery.
- Fat can be used as energy during prolonged, low-intensity aerobic exercise in combination with glucose. Fat is also important for recovery due to its anti-inflammatory properties.
- Antioxidants, particularly flavonoids from fruits and vegetables, counteract inflammation and muscle soreness and can help with muscle recovery.

How the Body Uses Energy

Adenosine triphosphate, or ATP, is the usable form of energy in the body. ATP is synthesized from the foods we eat once those foods - mainly carbohydrates and fat - have been broken down and metabolized by the body. However, ATP is *minimally* stored in the body and it's also easily used up during activity. This means that what and when we eat plays a key role in giving our body the energy it needs, especially for exercise.

Nutrient Timing

Clients who exercise for general health and fitness typically won't need a complex nutrition strategy. Make sure they're eating a balanced diet and that they're timing their nutrient-dense meals around their workouts to act as pre- and post-exercise fuel (in other words, pre- and post-workout fuel is already built into the meal plan and isn't an additional meal or snack). For clients with more specific goals, like your serious trainees, nutrient timing becomes more important and their nutrition requirements will likely increase. But even professional athletes can typically time meals around the exercise (though in some cases pre- and post-workout fuel may be in addition to usual meals). Remember that what an athlete—either recreational or more serious—eats throughout the week is just as important as what he/she eats on race day. Emphasize an overall balanced, nutrient-rich diet every day of the week.

Pre-Exercise Meal: Eating a combination of higher carbohydrates and moderate protein 2-4 hours before a workout can help sustain your energy, preserve your muscle mass and speed your recovery. Foods that are low in fat and fiber are easier to digest and are less likely to cause gastrointestinal discomfort. Fuel is only useful if it has had time to be digested and absorbed. For professional athletes or serious trainee clients with specific training goals (such as marathon training), this can be achieved by having a larger balanced meal 3-4 hours before training and/or by having a

carbohydrate-rich snack 1-2 hours before training. A smaller high-carbohydrate snack, like a banana, can be had 15-30 minutes before activity if necessary. Though needs will vary depending upon the person and the type, length and intensity of exercise, a general recommendation for competitive athletes is to eat 3 to 4 grams of carbohydrates per kilogram of body weight 3 to 4 hours prior to exercise, or 1 to 2 grams of carbohydrates per kilogram body weight 1 to 2 hours before exercise, with 1 gram of protein for every 4 grams of carbohydrates. An easier way to look at it is like this:

- 4 g/kg - 4 hours prior
- 3 g/kg - 3 hours prior
- 2 g/kg - 2 hours prior
- 1 g/kg - 1 hour prior

Clients who exercise for general health should time their usual meal or snack around the exercise, leaving enough time for digestion. Unless a client has very specific athletic goals (such as a professional athlete), you don't need to stress about the numbers and grams—just include a mix of carbohydrates and some protein.

During Exercise: Clients who are competitive athletes or who are training for specific events may need to take in nutrients when activity is more than 90 minutes and/or very intense. For activity lasting about 45-75 minutes, a carb-rich snack, 2-3 gulps of a sports drink every 15-20 minutes or even a carbohydrate mouth rinse - a glucose solution that is swished in the mouth for 5-10 seconds before being spit out - may benefit performance. Because the mouth rinse is not ingested, some athletes, like runners and cyclists, may prefer the mouth rinse since it prevents any gastrointestinal distress. For activity lasting beyond 90 minutes, athletes should aim to refuel with 30-60 grams of carbohydrates per hour. For extreme endurance athletes, this number can go up to 90 grams per hour. Raisins and sports gels are two convenient and portable options suitable for athletes such as runners or cyclists. Also, be sure clients are hydrating throughout exercise sessions, especially during hot conditions or intense sessions (more on hydration below). For activity lasting less than an hour, 3-8 oz. of water (2-3 sips) every 15-20 minutes are recommended. If the activity lasts longer than an hour, 3-8 oz. of an electrolyte sports drinks are recommended every 15-20 minutes. Electrolyte tablets and packets are great to use to help hydrate. Remember, these recommendations are for competitive athletes and people following intense training programs (think football players, or those completing 16 mile marathon training runs, followed by conditioning sessions), not your average client who goes to HIIT class four days a week.

Post Exercise: When and what to eat post exercise depends on the length and intensity of exercise, the individual and that person's goals. A general recommendation is to eat within 60 minutes of

exercising, but this window can be extended for up to 2 hours if the person had a substantial pre-workout snack or meal. For example, if you have a pre-workout snack at 4 pm and exercise at 5 pm for one hour, you can likely forgo a "post workout snack" and just eat a balanced dinner between 7 and 8 pm. However, athletes should aim to eat a combination of protein, carbs and fluid within an hour of finishing their practice or game in addition to their pre-workout or game snack and/or meal. You want a combination of carbohydrates and protein—carbs to replenish muscle glycogen used during the workout and protein to prevent muscle breakdown and stimulate muscle synthesis. A useful tool to remember is a 4:1 ratio of carbs to protein, but this will depend on the individual and workout. For athletes, a general recommendation is 20-25 grams of protein post-activity and 80-100 grams of carbohydrates. Healthy fats are also important as they have anti-inflammatory properties to help with recovery. Adding avocado to the meal or using olive oil are great ways to get healthy fats in! Another thing that can go overlooked is the importance of antioxidants post workout. Research shows antioxidants from fruit can help calm inflammation and improve post-exercise muscle recovery. Some of post workout recommendations that have between 80-100 grams of carbohydrates and 20-25 grams of protein include:

- 1 cup of whole wheat pasta, 3oz grilled chicken breast, 1 cup steamed broccoli, side of 1 sweet potato and 1 tbsp olive oil
- 1 cup brown rice, 3-5oz baked salmon, asparagus, 1 slice sourdough bread and 1/2 avocado
- 1 cup quinoa and 1 cup lentils mixed into a salad with fresh cilantro, 1 tbsp olive oil and lime juice

Hydration

You want to prevent losing 2% or more of body weight through sweat. Athletes can determine hydration status by weighing themselves before and after training. A good rule of thumb is to drink half of their body weight in ounces of fluid everyday - and more if they are training. Urine color is another indicator: pale yellow is ideal.

- **Pre-exercise:** Start hydrating the 24-48 hours before. Drink 16-20 oz. of water or a sports drink 4 hours before. Then, 10-15 minutes before exercise, drink another 8-12 oz. of water.
- **During exercise:** For activity <60 minutes: 3-8 oz. of water (2-3 sips) every 15-20 minutes. For activity >60 minutes: 3-8 oz. of an electrolyte sports drinks every 15-20 minutes.
- **Post exercise:** Drink 16-24 oz. of fluid for every pound of weight lost.

Electrolytes (sodium and potassium) can usually be replenished through post-workout foods—you don't need to rely on sports drinks, such as Gatorade or Powerade to rehydrate after a workout.

Competition Days

On a race or competition day, athletes should eat the way they've been eating during training (hopefully following sports nutrition principles!) This isn't the time to try something new. The most important thing on an event day is to eat something you know will agree with your stomach. Remember that what works for one person might not work for someone else.

- **Pre-Competition:** A general recommendation is to eat about 500 to 800 calories (depending on individual this could vary even more) of easily digestible carbohydrates with some protein (about a 4:1 ratio) about three to four hours before the event. This is a time when "white foods" (white bread, white pasta, etc.) are actually an okay choice because they are easily digested and provide quick energy.
- **During Events:** For endurance events like marathons, clients can take honey sticks, raisins, sports gels or other quick energy sources during the event. Use the same energy sources during training sessions/runs so there are no surprises on race day.
- **Post Event:** Eat a combination of carbohydrates and protein and rehydrate ASAP. Aim for 20-25 grams of protein and 80-100 grams of carbs to quickly restore glycogen in muscles.

Fasted Exercise

Some clients may have questions about fasted exercise. This is a topic many experts disagree on and the science is not so clear cut. Most people can benefit from getting some food in their systems to prevent them from fatiguing, but whether or not to fuel pre-workout depends on the person, the workout and the individuals goals. If the goal is to lose body fat, then fasted exercise might be a good strategy as long as the person feels good during the exercise and is refueling with carbs and protein. Again, recommendations are specific to the person.

Resources

These are just a few trusted resources for sports nutrition information:

- Gatorade Sports Science Information -- http://www.gssiweb.org/
- American College of Sports Medicine -- http://www.acsm.org
- NCAA Sport Science Institute -- http://www.ncaa.org/sport-science-institute
- National Strength and Conditioning Association -- https://www.nsca.com
- Australia Institute of Sports -- https://www.ausport.gov.au
- Collegiate and Professional Sports Dietitians Association -- https://www.sportsrd.org/