

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.

In general, clients who are moderately active as a way to stay in shape (or lose weight) and feel energized (for example, someone who does Pilates or spin 3-4 times per week) won't have different nutrition needs than most people. Clients who are training for events, following intense workout regimens or who are professional athletes will have more specific requirements.

Nutrition Basics

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

- Carbohydrates are the body's main source of energy.
- Protein is important for building and maintaining muscle and for muscle recovery.
- Fat can be used as energy during prolonged, low-intensity exercise.
- Antioxidants, particularly flavonoids from fruits and vegetables, counteract inflammation and muscle soreness and can help with muscle recovery.

Eating During Training

Clients who exercise for general health and fitness won't typically 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, nutrient timing becomes more important and nutrition requirements will likely increase, but even serious 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 a race day. Emphasize an overall balanced, nutrient-rich diet every day of the week.

Pre-Exercise Meal: Eating a combination of carbohydrates and protein before a workout can help sustain your energy, preserve your muscle mass and speed recovery. Foods that are low in fat with moderate 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 clients with specific training goals (such as marathon training), this can be achieved by having a larger meal 3-4 hours before training or by having a snack 1-2 hours before training. 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 carbohydrates per kilogram body weight 1 to 2 hours before exercise, with 1 gram of protein for every 4 grams of carbohydrates. Clients who exercise for general health won't have as high of needs and 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 protein. A few recommendations of foods to eat before exercise include:

- Ezekiel toast with peanut butter and sliced banana
- Oatmeal with raspberries
- Smoothie made with fruit and a plant-based protein powder
- Fruit salad topped with flax meal or yogurt

Some clients may have questions about fasted exercise. This is a topic many experts disagree on and the science also isn't clear cut. Most people can benefit from getting some food in their systems to prevent them from fatiguing, but it depends on the person, the workout and the goals. If the goal is to lose body fat, then fasted exercise might be a good strategy so long as the person feels good during the exercise and is refueling with carbs and protein. It really depends on what works for the client and what makes them feel best before, during and after their workout.

During Exercise: Clients who are competitive athletes or who are training for specific events may need to take in nutrients when training sessions or events are more than 90 minutes and/or are very intense. Eating 30-45 grams of carbohydrates and 15 grams protein per hour is a good starting point, though research suggests carbohydrates alone might be as effective. For example, a person working out in a gym could eat a quarter of a large banana (30 grams carbohydrates total) every 15 minutes. 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). Remember, these recommendations are for competitive athletes and people following intense training programs (think 16 mile marathon training runs), 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 30-45 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. 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. 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 include:

- ½ cup oatmeal or an apple and an egg
- Nuts and piece of fruit
- Jerky and raw veggies
- Protein smoothie
- Brown rice, chicken and roasted vegetables
- Quinoa and salmon salad

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. Urine color is another indicator: pale yellow is ideal.

- **Pre-exercise:** Drink 2 to 3 cups of water 2 to 3 hours before a long training session.
- **During exercise:** Drink ½ to 2 cups of water every 10 to 15 minutes during exercise depending on sweat loss.
- **Post exercise:** Drink 2 cups water for every pound weight loss. Electrolytes (sodium and potassium) can be replenished through post-workout foods—you don’t need to rely on artificial sports drinks. Natural beverages like coconut water and watermelon juice can help replenish potassium, but note these drinks usually don’t provide sodium.

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 five hours before the event. An example is toast with

peanut butter and banana or pasta with sliced chicken. 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 7 to 10 grams of protein and 30 to 40 grams carbs to quickly restore glycogen in muscles.

This could look like:

- One cup of whole wheat pasta salad with diced grilled chicken
- A peanut butter or turkey sandwich on sourdough bread
- Greek yogurt with berries and homemade nut and seed granola

Resources

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

- Gatorade Sports Science Information -- <http://www.gssiweb.org/>
- National Academy of Sports Medicine -- <https://www.nasm.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.nasca.com>
- Australia Institute of Sports -- <https://www.ausport.gov.au>
- Professionals in Nutrition for Exercise and Sport -- <https://www.pinesnutrition.org>