

Sports Nutrition Spotlight:

Meal and Snack Timing: Pre-Workout

SNACK SMART, TRAIN HARD: YOUR PRE-WORKOUT GUIDE

This newsletter is an in-depth look into pre-workout nutrition for athletes. It focuses on specific Fall sports nutrition guidelines. This newsletter also provides a few easy recipes to keep you fueled throughout your workout.

Goal of fueling before training

The primary goal of fueling before training is to top off fuel stores to make sure muscles have enough glycogen. This will allow you to sustain energy throughout your game, competition or practice without feeling fatigued.

It is important for athletes to fuel often throughout the day starting at breakfast. Fueling prior to training has been shown to improve performance, concentration, attention spans and memory vs. under fueling or in the fasted state.

Nutrients to focus on

Before a game, competition or training session, the primary fuel to focus on is carbohydrates. The closer you are to a training session, the easier food should be to digest. Focusing on simple carbohydrates that are lower in fat, protein and fiber is key. An easy way to remember this: the easier a food is to chew, the easier it usually is for your body to digest. On the other hand, if you eat a complete meal higher in fat, protein, and fiber right before training, this will result in slower digestion and potentially cause GI distress. GI distress can cause a variety of symptoms including stomach pain, indigestion, bloating, gas, nausea, etc. A complete meal is better tolerated 3-4 hours before training.

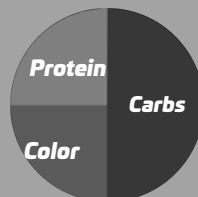
Don't Skip the Fuel! The Best Pre-Workout Snacks!

3-4 Hours Before Training

Recommend to consume a complete meal that contains complex carbohydrates, low fat protein and color. It is best to use the training plate as a tool. *Review diagram below.* As a reminder, complex carbohydrates include brown rice, quinoa, sweet potatoes, potatoes, wheat bread, whole wheat pasta, etc. Rule of thumb is to consume larger amount of carbohydrates 3-4 hours prior to training since there is more time to digest.

Examples of meals to enjoy:

- **BYO pasta salad** - grab pre-cooked pasta from twists, add vegetables and add-ins from salad bar (ex. carrots, onions, cucumber, feta cheese, grape tomatoes), lean protein from main line, deli or grill and top with Italian Dressing
- **BYO tacos/quesadillas** with whole wheat tortillas, lean ground beef or chicken, bean and rice, sauteed vegetables, plain Greek yogurt instead of sour cream, lettuce, salsa and guacamole



Mini Meal Examples:

- Aloha Protein Bar with fresh fruit
- Rx Bar with fresh fruit
- Peanut butter and jelly on white bread
- Banana with yogurt with flaxseeds/chia seeds
- Apple slices with peanut butter
- Plain Greek yogurt with sauteed berries, cinnamon and maple syrup/honey
- fruit smoothie with milk
- pretzels or crackers with nut/seed butter
- Dark chocolate dates filled with nut/seed butter with Kind Bar

1-2 Hours Before Training

Recommend to consume a small "mini" meal that contains simple carbohydrates and protein. It is best to choose higher carbohydrate options paired with moderate protein. Examples of simple carbohydrates include: crackers, white bread, pretzels, etc.

Quick Fuel Examples:

- Pretzels
- Fruit Snacks
- Applesauce pouches
- Dried raisins
- Dried Cranberries
- Iron-fortified cereal
- 100% orange juice or apple juice
- Grapes
- Bananas
- Peaches (canned without added sugars or fresh)
- Pineapple
- Crackers
- Granola Bars

< 60 Minutes Before Training

Recommend to top off fuel stores with easy to digest simple carbohydrates. Right before a training session, always consume **SIMPLE CARBOHYDRATES**. Simple carbohydrates will be utilized for quick energy right before training.

When fueling, remember everyone is different. Practice your own pre-training fueling to see what works best for you!

Did You Know?

Your Workout Starts Before You Enter the Gym!

What you eat beforehand helps determine what fuel your body has available for training. Carbohydrates are fuel. Carbohydrates are broken down into glucose and stored as glycogen in your muscles and liver. During exercise, your body uses this stored fuel to power your workout.

Endurance Vs. Power

**Sports: Soccer, Cross Country,
Track and Field, Swimming,
Lacrosse**



Endurance Athletes

Main Goal: Start exercise with adequate muscle glycogen and blood glucose while avoiding GI discomfort.

Pre-Workout Requirements-

3-4 Hours Before:

1-4g/kg carbs+ 20-40g protein + 5-7 mL/kg fluid

1-2 Hours Before:

1-2g/kg carbs+ 10-15g protein + 3-5 mL/kg fluid

30-60 Min Before:

30-60g easy to digest carbs + 3-5 mL/kg fluid

<30 Min Before:

Small snack, quick-digesting carb source + hydrate as needed



Hydration Calculation:

- First divide weight in lbs. by 2.2
ex. 200lbs/ 2.2 = 90.9 kg
- Then multiply 90.9 x 7mL= 363 mL fluid
- divide 363mL by 29.57 = 12.3 oz
- Divide 12.3 oz by 8 = 1 1/2 cups fluid

Endurance: More Carbohydrate
→ More Sustained Energy

**Sports: Basketball, Football,
Sprinting and Throwing Events,
Baseball, Softball, Wrestling,
Volleyball**



Power Athletes

Main Goal: Provide enough carbohydrates to support high-intensity work while providing protein to support muscle maintenance and recovery.

Pre-Workout Requirements-

3-4 Hours Before:

1-3 g/kg carbs + 0.25-0.4 g/kg protein + 5-7 mL/kg fluid

1-2 Hours Before:

1-3 g/kg carbs + 0.25-0.4 g/kg protein + 3-5 mL/kg fluid

30-60 Min Before:

20-40 g carbs+ small amount of protein + 3-5 mL/kg fluid

<30 Min Before:

Small carb snack if needed (for longer high intensity sessions) + hydrate as needed



Protein Calculation :

- First divide weight in lbs by 2.2
ex. 200 lbs/ 2.2 = 90.9 kg
- Then multiply 90.9 x 0.4g pro= 36g protein

Power: Carbohydrate + Protein
→ Fuel High-Intensity Work and Support Muscle

Tips and Tricks for Managing Energy Needs

1. Your Body needs enough energy to support daily functions and athletic performance. Under-fueling leads to the body conserving energy by slowing your metabolism, disrupting hormones, lack of recovery, lower immunity and compromised bone health leading to increased risk of stress fracture.
2. Eating enough consistently throughout the day helps your body stay healthy, recover and perform at its best.
 - **Fuel regularly:** Eat meals and snacks every 3-4 hours throughout the day
 - **Fuel for your workload:** increased training time will require to consume more energy and carbohydrates throughout the day
 - **Don't rely on hunger alone:** Your appetite may not always match your bodies needs, especially with in season training
 - **Prioritize Recovery:** Adequate fuel supports muscle repair, hormones, immunity and bone health
 - **Recognize Signs of Under-fueling:** These include ongoing fatigue, poor recovery, declining performance, frequent illness or injuries, and menstrual changes
 - **Get Individualized Support:** Your District Dietitian, Kristen Totino, can help you make a fueling plan that meet your training and performance needs

Pre-Workout Meal Timing

Morning Practice: Pre-fueling when practice is at 7am

Meal Time	Meal type	Example
5:30am	Mini Breakfast	Make your own yogurt Parfait with low fat Greek Yogurt or plain yogurt with fruit, granola, whole grain cereal, flaxseeds, cinnamon and honey
6:30am	Quick Fuel	1 cup Cheerios or 1 banana or 1/4 cup dried fruit like raisins/dried cranberries

Afternoon Practice: Pre-fueling when practice is at 4pm

Meal Time	Meal type	Example
8:00am	Breakfast	Overnight oats topped with walnuts/sunflower seeds/pumpkin seeds, granola, dried fruit and baked apples
10:00 am	Morning Snack	Sunflower Seeds/walnuts with dried fruit, cereal and dark chocolate
12:30pm	Lunch	Whole grain pasta with grilled chicken + roasted vegetables + fresh fruit
2:30 pm	Mini Meal	Pretzels, frozen OR fresh grapes and protein bar
3:30 pm	Quick Fuel	1 cup orange juice OR 1 container yogurt with 1/2 cup berries



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Kristen has a Bachelor of Science in Nutrition/Wellness from Auburn University and a Master of Science in Nutrition from Case Western Reserve University. She is a great resource for students to help meet fitness, nutrition and athletic performance goals. Kristen empowers individuals of all ages to take a personalized, evidence-based approach toward wellness. Reach out to Kristen via email or by scanning the QR code to ask nutrition questions or learn how to fuel performance while on campus!



Sustain Your Performance: Pre-Workout Snack Recipes

No Bake Energy Balls Yields: 20 servings

Ingredients:

1 1/2 cup rolled oats
1 cup nut or seed butter
1/4 cup ground flax seed
1/4 cup honey
1 teaspoon vanilla extract
1/4 cup mini chocolate chips
2 tablespoons chia seeds
2 tablespoons shredded coconut, optional
pinch of sea salt, optional

Directions:

1. In a large bowl, place the oats, nut or seed butter, flaxseed, honey, vanilla, chocolate chips, chia seeds, and coconut. If your peanut butter or sunbutter is unsalted, add a pinch of salt too. Mix to combine. The mixture will be thick.
2. Use a 2-tablespoon cookie scoop to scoop the mixture, then use your hands to roll it into balls.
3. Place on a large plate or baking sheet and chill in the fridge for 1 to 2 hours, or until firm.

Recommend to enjoy energy balls 30-60 minutes prior to training. The energy balls can last up to a week in the fridge, may be frozen as well.

Banana Oatmeal Muffin Yields: 12 Servings

Ingredients:

3 cups rolled oats
2 teaspoons baking powder
1 teaspoon cinnamon
1/2 teaspoon salt
1 cup mashed banana
2 eggs
1.5 cups unsweetened almond milk
2 tablespoons mini chocolate chips

Directions:

1. Preheat oven to 350 degrees F.
2. In a large bowl combine oats, baking powder, cinnamon, and salt.
3. In a separate bowl mix together mashed bananas, eggs, and milk until well combined.
4. Pour milk mixture over oat mixture and stir well to combine.
5. Evenly divide oat mixture between all 12 muffin cups and sprinkle chocolate chips over top.
6. Bake for 20-25 minutes

Recommend to enjoy muffins 30-60 minutes prior to training. Store in an airtight container in the fridge for up to one week.