

Sports Nutrition Spotlight:

Meal and Snack Timing: During and After Workout

REBUILD & RECHARGE: YOUR MID/POST-WORKOUT RECOVERY GUIDE

This newsletter highlights the importance of meal and snack timing during and after workouts. It provides easy to follow snack examples and showcases when you should consume a snack during a workout. This newsletter also provides an easy snack you can make in your dorm room!

Goal of fueling *during* training

The primary goal of fueling during training is to maintain energy levels and delay onset of muscle fatigue. This allows athletes to engage in longer and more consistent training sessions.

Training lasting less than one hour does not require extra fuel. When training for more than one hour, it is best to consume easy to digest simple carbohydrates while staying hydrated.

Under-fueling can lead to hunger in the middle of your practice, unable to make positive gains in performance and feeling sluggish and frustrated during training. Not fueling enough also leads to inadequate muscle and liver glycogen (glucose) stores, which leads to an athlete unable to utilize this stored energy during training. When this happens, you are more prone to dehydration and unable to recover fully between practices. Recommended to come to practice well fueled so you experience improved performance.

Goal of fueling *after* training

The primary goal of fueling post training is to repair and rebuild muscle tissue, replenish depleted energy stores (glycogen) and rehydrate body with fluids and electrolytes.

Recommended to consume a meal filled with carbohydrates and protein within 15-30 minutes after practice/training to repair and build muscle, improve body composition, enhance your athletic performance and recovery.

Consuming protein with carbohydrates has been shown to enhance protein absorption into muscles while restoring your "gas tank" in the form of glycogen. It is always best to focus on a food first approach vs. reaching for protein shakes as fuel.

Sore Today, Stronger Tomorrow: Mid/Post-Workout Fuel for Success

Mid-Workout: <1 hour

Workouts lasting less than 1 hour do not require additional fuel from foods. It is best to hydrate with water.

Recommend to consume a small snack filled with simple carbohydrates 30-60 minutes prior to short training sessions.

Mid-workout: > 1 hour

During training, extra fuel may be necessary since our stored energy (glycogen) may become depleted. Recommend to enjoy a quick fuel snack that is filled with simple carbohydrates to provide fuel for muscles quickly during training. This strategy will enhance performance.

According to the NCAA, it is recommended to consume 30-60grams of carbohydrates every hour during training. When consuming snacks during training, enjoy it with sips of water/sport drinks to prevent an upset stomach. Review the quick fuel examples in the next column!

Quick Fuel Examples:

Simple Carbohydrates

1. Apples
2. Iron fortified cereal with dried fruit (ex. dried cranberries or raisins)
3. Applesauce pouches + pretzels
4. Orange/apple juice + Cheerios
5. Pineapple & dried mango
6. Oranges, dark chocolate and dried fruit

Recovery Meal Examples:

Post-workout Recovery - 30-60 minutes post training:

1. Peanut butter and Jelly Sandwich on white bread
2. Apple or banana with nut butters
3. Chocolate milk with banana
4. Fruit and yogurt smoothie
5. Graham Crackers with peanut butter and low-fat milk

Post-workout recovery 1 to 3 hours post training:

1. Grilled chicken, small baked potato and broccoli
2. Whole wheat spaghetti with marinara made with lean ground beef and a side salad
3. Baked Fish (ex. salmon), brown rice and mixed vegetables

Mid-Workout: 1.5 Hours or More

Fueling during training that lasts more than 1.5 hours helps maintain energy levels, improve performance and accelerate recovery. Fueling well throughout workouts will minimize muscle breakdown and help you build more muscle with a faster recovery time. Not fueling during prolonged training sessions could lead to low blood sugars and extreme fatigue. By consuming enough simple carbohydrates, you will keep blood glucose levels in check and reduce fatigue.

The longer your training sessions are, the more simple carbohydrates you need to consume. When training between 1-2 hours, consume 30-60 grams simple carbohydrates per hour. When training over 2.5 hours, increase to 90 grams of carbohydrates per hour.

Post-Workout Recovery

On days with long, high intensity training, aim to consume simple carbohydrates + protein within 15-30 minutes:

- **Carbohydrates (CHO):** 0.75 - 1.5 gram CHO/kg
- **Protein:** 7-20 grams

1-2 hours after, consume a balanced meal consisting of complex carbohydrates, protein and color (fruits and non-starchy vegetables).

On lighter training days, consume a balanced meal 2-3 hours after training + fluids.

Did You Know?

Your body can only store a limited amount of carbohydrate as glycogen, so during longer or intense workouts, consuming carbohydrates can help maintain energy and delay fatigue.

Unleash Your Inner Athlete: Pre-, Mid- and Post-Meal Timing

Afternoon Practice: Pre-training/Mid-training snack and Post-training Meal

Meal Time	Meal type	Example
8:00am	Breakfast	Eggs with whole grain avocado toast
10:00am	Morning Snack	Sunflower Seeds/walnuts with dried fruit, cereal and dark chocolate
12:30pm	Lunch	Grilled Chicken Sandwich on whole wheat bread, mixed green salad with beans and an orange
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
4-6:00pm	Training/Practice	N/A
5:00pm	Quick Fuel	1 medium banana + 2 Tablespoons honey OR 1 cup cheerios + 1/4 cup raisins
6:45pm	Dinner	Chicken Breast, brown rice, fresh fruit with 1% white or chocolate milk
9:00pm	Bedtime Snack (optional)	Plain Greek yogurt with sauteed berries, granola, chia seeds and dark chocolate OR Chia Seed pudding topped with berries



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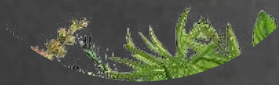
Kristen has a Bachelor of Science in Nutrition/Wellness from Auburn University and a Master of Science in Nutrition from Case Western Reserve University. She is a great resource for students to help meet fitness, nutrition and athletic performance goals. Kristen empowers individuals of all ages to take 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!



The After Burn Bites: Post-Workout Recipe



No Bake Protein Balls



Ingredients:

- 1½ cups whole rolled oats
- 1 cup creamy natural peanut butter
- ¼ cup ground flaxseed
- ¼ cup honey
- 2 scoops protein powder
- 1 teaspoon vanilla extract
- 6 tablespoons mini chocolate chips
- Pinch of sea salt

Directions:

1. In a large bowl, mix together the oats, peanut butter, flax, honey, protein powder, vanilla, and chocolate chips. 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. Chill in the fridge for 1 to 2 hours, or until firm.

Note: This recipe is completely customizable to your food preferences! Consider adding the following add-ins: chopped pecans, chopped walnuts, dried cranberries, chopped dates, ground cinnamon or vanilla extract

****The protein balls keep well in the fridge for up to a week. They also freeze well.**