FUELING / BEFORE TRAINING

PRE-TRAINING NUTRITION

How and what to eat before training: timing, macronutrients, gut training, the risks of under-fueling, and practical carbohydrate snacks.

TIMING AND MACROS

CARB LOADING AND GUT TRAINING

UNDER-FUELING AND SNACK LISTS

OVERVIEW

WHY PRE-TRAINING NUTRITION MATTERS

What you eat before a session affects performance, energy levels, safety and progress toward your goals. Good pre-training nutrition sets up the conditions for a productive session and for efficient recovery afterward.

KEY GOALS OF THIS GUIDE

TIMING	**Time your meals** around your schedule and the intensity of the session.
SNACKS	**Know what a good pre-training snack looks like**, and how much carbohydrate it provides.
GUT TRAINING	**Build nutritional tolerance** through gut training, so you can eat more before training without discomfort.
UNDER-FUELING	**Understand the risks of under-fueling**, including Low Energy Availability (LEA) and Relative Energy Deficiency in Sport (RED-S).

TIMING

NUTRITION TIMING

You only get the **energy** from food once you have digested it, so give your body enough time to digest what you eat before training. Start with at least 1 to 3 hours, depending on the type and amount of food.[1,2] As you become more tolerant to eating before training, that window can shorten to 30 minutes, depending on what you ate.

Undigested food can cause discomfort during training. Use these windows as a starting point:[1,2]

FULL MEAL

2 to 3 hours before

Protein, complex carbohydrates and healthy fats.

QUICK CARBS AND SNACKS

30 to 60 min before

Fast-digesting carbohydrates and pre-training snacks.

The exact timing depends on your comfort, your experience eating before training, what you ate, whether it was solid or liquid, and the intensity of the session.

FIND WHAT WORKS FOR YOU

- Stay consistent with your timing and test what does and does not work for you.
- Keep a food journal to track how you felt during training.
- Adjust portions to the intensity of the session.
- Plan meals around your daily schedule.

MACRONUTRIENTS

THE ROLE OF EACH MACRONUTRIENT BEFORE TRAINING

Macronutrients, or macros, are the nutrients we eat in large ("macro") quantities. There are three: protein, carbohydrates and fat. **Macronutrients make up all of your calories.**

CARBS

Carbohydrates: the main pre-training fuel

Simple, high-glycemic carbohydrates with little fat, fiber or protein digest quickly, which lowers the chance of GI distress during training. They are what you want before any training session.[1]

Simple carbs break down easily and are absorbed quickly for fast energy. They tend to be more processed and lower in fiber and micronutrients than complex carbs. That suits the purpose of training, even if it may not suit other times of day. Examples: white bread, pasta, juice, some fruit, candy, energy chews and sports drinks.

PROTEIN

Protein: moderate amount, earlier

Protein supports muscle recovery and retention, but it digests slowly and is not used for energy. A moderate amount before training (**about 20 to 30 g**, depending on the athlete) helps with recovery and muscle building, but it should not be your main fuel.[2,3] If you eat protein before training, have it at least **1 to 2 hours** before to limit GI distress.

FAT

Fat: keep it low close to training

Fat takes longer to digest and needs more energy to break down, so keep it low right before training and avoid major sources such as nuts and nut butters. If your pre-training meal includes fat, eat it **2 to 3 hours** before. Close to the session, focus on easily digested carbohydrates and moderate protein.[1]

CARB LOADING

CARB LOADING BEFORE KEY SESSIONS

Carb loading can be useful before competition and important training. Maximizing glycogen stores ahead of long sessions helps you hold intensity and output, and supports a steady energy supply so fatigue arrives later.[1,4] Practice carb loading and gut training (next page) so your body is familiar with the process before it matters.

DURATION

1 day

Add a 1-day carb load before key training sessions.

AMOUNT TO TEST

8 to 10 g/kg

Of body weight (about 3.6 to 4.5 g/lb).[1,4]

FOOD CHOICE

Low fiber

Simple carbohydrates, minimal fiber, to avoid an upset stomach or bloating.

GUT TRAINING

TRAIN YOUR GUT

Your gut can be trained to tolerate food, especially carbohydrates, before training. Gradually increasing the carbohydrate you eat before training improves tolerance, and over time you will be able to eat larger amounts more comfortably.

Gut training, also called nutritional training, conditions your digestive system to process and tolerate food during exercise. With gradual exposure to higher carbohydrate volumes before and during training, digestion becomes more efficient and causes less discomfort. The result is better gastric emptying, better absorption and delivery of key nutrients, and fewer gut issues that could hurt performance.[5,6,7]

> If you regularly deal with nausea, indigestion, bloating or diarrhea during exercise, gut training deserves more of your attention.

GUT TRAINING

WHERE TO START WITH GUT TRAINING

Start with about 30 g of carbohydrate before training, then work up to 60 g or even 90 g depending on the duration and intensity of the session.[5] Intra-workout fueling can be built up the same way.

CARBOHYDRATE BEFORE TRAINING

START

30 g

First step.

BUILD

60 g

As tolerance improves.

LONGER OR HARDER SESSIONS

90 g

Depending on duration and intensity.

DURING TRAINING

30 to 60 g carbs per hour of training

Refuel during longer sessions. If the session is only 1 hour, focus on pre-training nutrition.[1,8]

INCREASE CARBS AND CALORIES SLOWLY

Gut training takes time and consistency. Allow **2 to 3 weeks** for your gut to adjust to new eating patterns.[6,7] As with timing, a food journal helps you track what works best. Experiment with which carbohydrates agree with you: not all carbohydrates digest and ferment the same way.

GUT TRAINING

GUT TRAINING PROGRESSIONS

A few ways to start with about 30 g of carbohydrate and build from there.

START WITH		BUILD TO
1 rice cake with 1 tbsp honey	→	1 bagel with honey
1 rice crispy treat	→	Bowl of cereal and milk
Half a banana	→	1 large banana
1 sports drink	→	1 sports drink and toast with jam
3 pieces of dried mango	→	Quick oats with maple syrup
1 energy chew	→	1 energy bar

ADJUSTMENT PERIOD

2 to 3 weeks

For your gut to get used to a new eating pattern.[6,7]

TRACK IT

Journal

Log what you ate, when, and how the session felt.

UNDER-FUELING

RISKS OF UNDER-FUELING

Training fasted or consistently under-fueling can have serious health and performance consequences. **Low Energy Availability (LEA)** happens when there is not enough energy to support both exercise and basic body functions. It can develop into **RED-S (Relative Energy Deficiency in Sport)**, a broader condition that affects multiple body systems.[9]

CHRONIC UNDER-FUELING CAN LEAD TO[9]

- Lower athletic performance and strength
- Hormonal imbalances affecting metabolism
- Compromised bone health
- A weakened immune system
- Slower recovery
- Higher risk of injury and fatigue

WARNING SIGNS CAN LOOK LIKE[9]

- Persistent fatigue
- Irregular menstrual cycles
- Frequent injuries or illness
- Mood changes
- Poor sleep quality

> HIGHER RISK
>
> Endurance athletes, **weight-class sport athletes**, aesthetic sport participants, and young athletes during growth periods.[9]

Pre-training nutrition is not only about performance. It protects your long-term health and athletic development. If you notice these signs, speak with a qualified medical or sports nutrition professional.

SNACK LISTS

PRE-TRAINING CARB SNACKS: 30 g AND 60 g

ABOUT **30 g carbs**	ABOUT **60 g carbs**
1 slice of white bread and jam	2 slices of white bread and 30 g of jam
1 medium banana	1 medium banana, 1 rice cake and 1 tbsp honey
2 medjool dates	4 medjool dates
350 ml fruit juice	1 energy bar and 1 gel
Carb powder (amount depends on brand)	1 sports drink and 1 apple
1.5 energy gels	1 large bagel
2 to 3 servings of energy chews	Most pastries

Carbohydrate content varies by brand and portion. Check the label for packaged foods.[10]

SNACK LISTS

PRE-TRAINING CARB SNACKS: 90 g

ABOUT

90 g carbs

2 jam sandwiches

750 ml sports drink and 1 energy bar

2 large pancakes and 2 tbsp maple syrup

90 g of pretzels and 2 dates

1 large bagel and 1.5 tbsp honey

3 gels and 1 jam sandwich

Approximate values. Check labels for packaged foods.[10]

> **Important:** during training, intakes above about 60 g per hour need a combination of glucose and fructose (multiple-transporter carbohydrates) to be absorbed effectively.[5,8]

NEXT STEP

Save this guide for your next training block, and share it with your coaching team.
Learn more at irontriangle.co.

Educational content only. Individual needs vary with training load, body size and goals, so adjust these starting points with a qualified coach or sports nutrition professional.

SOURCES

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The 30, 60 and 90 g pre-training steps, the food progressions and the snack examples are practical coaching guidance built on these sources, not values taken directly from them. Snack carbohydrate values are approximate.