ACTIVE NUTRITION FOR **RUNNING**

Distance running on the track, road or trail differs from the running required for stop-and-go sports. Being well-nourished before, during and after a run is key to optimizing performance.

MEET SCOTT JUREK

A professional runner and Team CLIF Bar ultramarathoner who runs an average of 20 hours per week (running 2-3 times/day during peak training season). His athletic discipline helps him focus not only on running, but also on balancing his work and family life.

Performance Priorities: Fueling Basics

Carbohydrate

Carbohydrate is the most important fuel source for runners. It is needed before (to be stored in the muscles as glycogen for later), during (for immediate energy needs) and after exercise (to replenish used muscle glycogen).

- **One to four hours before** a run, consume a meal or snack with **0.5-2.0 grams** of carbohydrate/lb of body weight, to help fuel the constant muscle contractions that occur while running.
- Sports foods can provide the carbohydrates needed to maintain a steady blood sugar and energy levels during a long run lasting more than an hour. Aim to take in **30-90 grams** of carbohydrate per hour.

Protein

High-quality protein foods help encourage muscle growth and repair following a training run or race.

- For optimal recovery after a long run, consume a high-carbohydrate (~40 grams), high-protein (**15-25 grams**) snack within the **first 30 minutes post exercise.**
  - o 1 cup Greek yogurt + ½ cup granola + 1 oz almonds = 50 g carb : 22 g protein
  - o 1 cup cottage cheese + 2½ cups berries = 50 g carb : 25 g protein
  - o 16-oz bottle of chocolate milk = 40 g carb : 16 g protein
  - o CLIF® Whey Protein Bar + an apple = 40 g carb : 15 g protein

Hydration

Water is sufficient for shorter runs (less than an hour), but longer runs require additional fuel to keep muscles well-hydrated.

- As a starting point, aim to drink **4-6 ounces** of fluid every **15-20 minutes** during a run. If you sweat a lot, you may benefit from drinking more.
- When running outdoors during the hot summer months, electrolyte drinks, gels and chews can help replace the sodium, potassium and magnesium lost in sweat.

"Just like you plan for your workout, plan for your recovery. My go-to recovery snack is a smoothie with a good carbohydrate and protein balance. I like to add ginger and turmeric for flavor, as well as a healthy source of fat like flax seeds to boost the nutrition profile." ***– SCOTT***

Want a race day nutrition plan?

Work with a registered dietitian to use the **Active Nutrition Guide** at *www.clifbar.com/activenutritionguide* to develop a personalized race day nutrition plan.

DID YOU KNOW?

You can determine your sweat loss after running. Weigh yourself before a run and again afterwards.

For **EACH POUND LOST**, rehydrate with **20-24 OUNCES OF FLUID** post run.

PERSONALIZED ACTIVE NUTRITION FOR **RUNNING**

Runners have specific day-to-day nutrition needs based on the intensity, frequency and duration of their training. The following steps can help you develop your athlete's own personalized nutrition plan.

The following content is to be used by a nutrition professional. Consult a registered dietitian to determine your individual nutrition needs.

STEP 1: Calculate Energy Needs

Energy expenditure during activity will differ based on speed, body weight and running technique, but an easy rule of thumb is to estimate that that **one mile of running burns approximately 100 calories.**[1] Total daily energy expenditure (TDEE) takes into account resting metabolic rate (RMR) and physical activity level, while TDEE plus energy expended during purposeful exercise determines total energy needs.

TDEE = RMR X Physical Activity Level (PAL)*

RMR for males (kcal/day) = (9.99 x weight in kg) + (6.25 x height in cm) – (4.92 x age in yrs) + 5
RMR for females (kcal/day) = (9.99 x weight in kg) + (6.25 x height in cm) – (4.92 x age in yrs) – 161

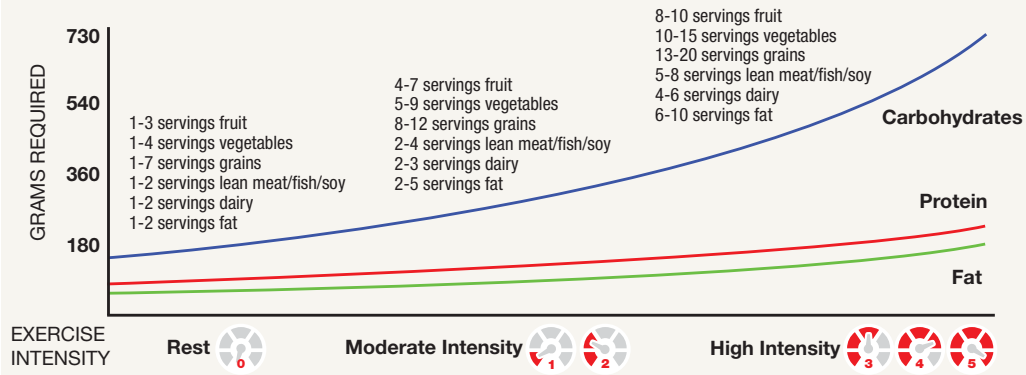
Total Energy Needs = TDEE + Calories Used During Exercise

*Refer to the PAL factor table in the Active Nutrition Guide at *clifbar.com/activenutritionguide* for guidance.

STEP 2: Create a Custom Meal Pattern

Use the calculated energy needs to create a personalized nutrition plan. As activity duration and intensity change, so do food and beverage needs. Carbohydrate, fat and protein needs will vary each day based on individual goals, activity length and intensity — adjusting meals, snacks and recovery nutrition to match the day's needs will help optimize energy and performance.

Macronutrient Needs Based on Exercise Intensity



For more information on developing personalized, periodized meal plans, and for additional athlete examples, visit *clifbar.com/activenutritionguide* to download the **Active Nutrition Guide**.

Meal Pattern Recommendations

(servings/day)

CARBOHYDRATE
50-65% of total calories

_____ Fruits
_____ Vegetables
_____ Grains / Starch

PROTEIN
10-20% of total calories

____ Lean Meat / Fish / Soy
____ Dairy
____ Legumes / Beans

FAT
20-35% of total calories

___ Oils
___ Nuts / Seeds

SPORTS FOODS

____ Sports Drinks
____ Chews
____ Gels
____ Bars

Author Bio
Bob Murray, PhD, FACSM is an exercise physiologist and owner of Sports Science Insights, a consulting group that offers expertise in exercise science and sports nutrition. He has authored several chapters, articles, and books on sports nutrition and is the former director of the Gatorade Sports Science Institute.

[1]McArdle, W.D., Katch, F. I., & Katch, V. L. (2014). Exercise physiology: Energy, nutrition, and human performance. Philadelphia: Lippincott Williams and Wilkins.
[2] Institute of Medicine (2005) Dietary reference intakes: For energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein and amino acids. Washington, D.C.: National Academy Press.
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[4] Murray B., & Craighead D. (2017). Running Science. London: Ivy Press.
[5] Thomas, D. T., Erdman, K. A., & Burke, L. M. (2016). Position of the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance. J Acad Nutr Diet, 116(3), 501-528. doi:10.1016/j.jand.2015.12.006.