

Fuelling the Runner - Overview

What is “Fuel” for a runner?

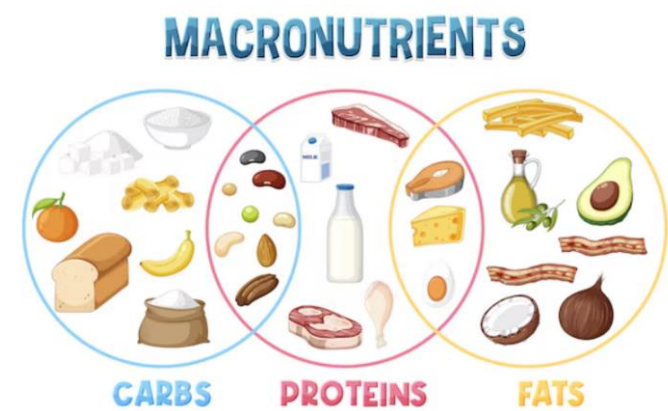


Figure 1: <https://www.cedars-sinai.org/blog/what-are-macronutrients.html>

- Macronutrients such as carbohydrates (CHO), fats, protein are all sources of fuel for runners to compete at optimal levels.
- Carbohydrates are a primary source of energy for runners and therefore very important to monitor.
- Fats are the next source of energy to be utilised once CHO storage is depleted. Eating healthy fats provides more energy especially nearing the end of a long run (USU, 2023). Therefore, it’s very important for endurance runners to have sufficient amounts of healthy fats in their diet (USU, 2023).
- Lastly, proteins are the last source of energy to be used once CHO and fats storages are depleted. Consuming sufficient amounts of protein is essential for building and repairing muscle tissue for runners (Carbone & Pasiakos, 2019).



Figure 2: <https://fitpage.in/how-to-fuel-if-you-are-running-in-the-heat/>

What are the guidelines?

- The body is able to use CHO, fats, and protein as energy for physical activity.
- The recommended CHO, fats and protein intake for a runner can vary depending on certain exercise/intensity e.g. endurance runners (Burke et al, 2011).

Global Daily Intake Guidelines

Carbohydrates

- CHO intake consists of 3 g/kg, however, can increase to 12 g/kg depending on exercise/intensity (Burke et al, 2011). Use the following link or the QR code to access the calculator to determine the recommended amount of daily carbohydrate for exercise!

Daily Carbohydrate Calculator: [https://asluggett.github.io/Sport-Nutrition/global\\_CHO\\_daily\\_intake.html](https://asluggett.github.io/Sport-Nutrition/global_CHO_daily_intake.html)

QR code:



Fats

- In terms of healthy fats, endurance runners should aim for about 0.5-1.5g/kg (Ryan-Harshman & Aldoori, 2006).

Protein

- Protein intake for endurance runners should comprise of 1.4-2g/kg and be evenly distributed throughout the day (Kato et al, 2016).

Why are the guidelines important?

- The World Health Organisation (2020) suggests following these evidence-based guidelines are essential to promote your overall health and target specific dietary goals for physical activity.
- Keep in mind that the recommended guidelines are there to guide you and help you get started but it’s important to note that macronutrient intake can vary for each individual (Ryan-Harshman & Aldoori, 2006). Factors such as different sports, intensity and personal goals all play a key role in the amount of macronutrient intake you require.

What does this look like?

- Carbohydrates are key for fuelling the runner, however maintaining a well-balanced diet consisting of healthy fats, proteins and fibre are vital for optimal physical performance. Meals that are rich in protein and nutrients will cater for athletes to meet acute or chronic sports nutrition goals (Burke et al, 2011).
- Selecting foods from the healthy eating pyramid is a great way to start knowing what healthy foods you should be eating.
- Healthy CHO can include unprocessed or minimally processed foods – vegetables, fruits, cereal, pasta, and whole grains.
- Healthy fats such as nuts, avocado and olive oils will provide sufficient amounts of unsaturated fats (the good fats!)
- Foods such as legumes, lean meats and fish are great sources of protein that can be eaten throughout the day along with health CHO and fats.



Figure 3: <https://nutritionaustralia.org/fact-sheets/healthy-eating-pyramid/>

CARBS	PROTEIN	FAT
<b>Provide Energy</b>	<b>Build &amp; Repair</b>	<b>Absorb Nutrients</b>
Bread Rice Pasta Cereal Fruit	Lean Meat Legumes Fish Tofu Peas	Nuts Oils Butters Seeds Avocado
Limit foods that are highly processed, and provide little nutritional value.	Opt for low-fat options with high levels of protein. Legumes can pack about 16 grams of protein per cup!	A healthy diet can include the foods you like. Choose foods that provide good fats (like the ones listed above).

Figure 4: <https://www.klfy.com/passe-partout/importance-of-carbs-protein-fat/>

Burke, L. M., Hawley, J. A., Wong, S. H. S., & Jeukendrup, A. E. (2011). Carbohydrates for training and competition. *Journal of Sports Sciences*, 29(sup1), S17–S27. <https://doi.org/10.1080/02640414.2011.585473>

Kato, H., Suzuki, K., Bannai, M., & Moore, D. R. (2016). Protein Requirements Are Elevated in Endurance Athletes after Exercise as Determined by the Indicator Amino Acid Oxidation Method. *PLoS One*, 11(6), e0157406. <https://doi.org/10.1371/journal.pone.0157406>

Carbone, J. W., & Pasiakos, S. M. (2019). Dietary Protein and Muscle Mass: Translating Science to Application and Health Benefit. *Nutrients*, 11(5), 1136. <https://doi.org/10.3390/nu11051136>

Ryan-Harshman, M., & Aldoori, W. (2006). New dietary reference intakes for macronutrients and fibre. *Canadian Family Physician*, 52(2), 177–179.

World Health Organisation. (2020, April 29). *Healthy Diet*. World Health Organisation; World Health Organization. <https://www.who.int/news-room/facts-sheets/detail/healthy-diet>

University, U. S. (2023, October 17). Integrating Dietary Fat: A Guide for Endurance Runners. Extension.usu.edu. <https://extension.usu.edu/nutrition/research/integrating-dietary-fat-a-guide-for-endurance-runners>

