FOOD IS FUEL!

An EHS XC Guide to Eating for Performance

Macronutrients, Micronutrients, and Why We Care

Carbohydrates: Molecules containing carbon, hydrogen, and water which can be broken down in glucose

- Foods that contain sugars and starches.
- Breaks down into smaller molecules that are directly and quickly converted into energy for all cellular tasks, especially when exercising at high intensities or long durations.
- Only source of energy for your central nervous system.
- Stored within your muscles to be readily available for use.
- Prevent body proteins from breaking down.
- Can be simple and processed or complex and whole.

Fats: Long chained molecules made up of carbon and hydrogen, insoluble in water

- Make up all cellular walls and necessary for cellular growth.
- Main source of energy for baseline and low-intensity activity.
- Aid in the absorption of nutrients.
- Necessary for hormone production.
- Reduce inflammation.

Proteins: Molecules made up of carbon, hydrogen, oxygen and nitrogen

- 20 different building blocks called amino acids, all 20 are necessary for bodily functions.
- Transport all nutrients throughout the body.
- Necessary for all chemical reactions in your body.
- Make up cellular pumps necessary for muscle contraction and nervous system function.
- Provide all cellular structure.
- Make up antibodies.
- Key in producing hormones, cell parts, and enzymes.
- Regulate pH and fluid levels in your body, blood, and cells.

Vitamins: Any group of organic micronutrient compounds necessary for proper cellular structure and function

- 13 essential vitamins, must be obtained through diet.
- Hundreds of roles: immune response, wound and injury healing, bone structure, repair cellular damage, aid in converting food to energy.

Minerals: Chemical elements required as an essential nutrient to perform functions necessary for life

- 12 essential minerals (Na, K, Fe, Ca, Mg, Se, P, Zn, Cl, I, Cu, Mn)
- Nervous system and muscular function, transport oxygen, immune response, bone and teeth health, regulate body fluids, hormone production, digestion, healing

Water: H_2O

- Used in all cells, tissues, and organs.
- Temperature and pH regulation, metabolic processes including energy production, digestion and excretion, protects brain and spinal cord, maximizes cellular performance, protects joints.

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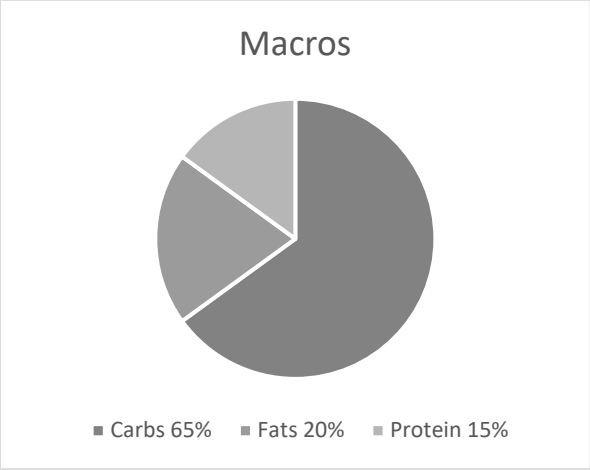
Everyday eating for 5K runners (Specific to training for a 5K)



Carbohydrates: (65% of daily calories: in order to provide energy for running)

- Whole grains and complex carbs provide more fiber, slower glucose release and absorption, and more nutritional value.
- Choose from: Whole grain breads, pasta, tortillas, most fruits, cereals, grains, legumes (beans and lentils), quinoa, corn-based products, potatoes, and rice
- Avoid eating too much simple or processed sugars: candy, soda, corn syrup, cane sugar

Fats: (20% of daily calories: energy for low-intensity activity and cellular health)

- Unsaturated and natural animal fats are essential to cell processes, healing, recovery, and nutrient absorption
- Choose from: fish, chicken, eggs, avocados, most oils, nuts, peanut and nut butters, small amounts of pork or beef, natural dairy products and butter.
- Avoid: Vegetable and canola oil, trans fats, partially hydrogenated oils

Protein: (15% of daily calories: build and repair muscle and other cellular functions)

- Must contain all 26 amino acids to work effectively. All animal proteins contain complete proteins. You must pair complementary plant proteins in the same sitting to obtain all amino acids. (Grains and legumes, nuts and legumes). Both are excellent choices.
- Choose from: Lean meats, dairy, nuts or grains and legumes, eggs, seafood
- Avoid: Protein supplements/drinks/bars with unhealthy fats or sugars.

★ Choose whole foods (have not been changed from their original form at purchase time) over processed foods (not sure what that is...). Shop the perimeter of the grocery store.

★ Eat Breakfast!!!

★ Eat 5-7 servings of fruits and vegetables daily or take a multivitamin with Iron.

★ Drink 1 ounce of water per pound of body weight daily (120lb = 120 ounces = 15 cups), pale yellow urine

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Race Days and Workouts

Races and workouts should be treated the same. Workout days may be even more intense, long, and nutritionally taxing than races.

Pre-race/workout:

- 3-4 hours prior to running: eat a well-balanced meal that will provide all nutrients and will be fully digested prior to run. Avoid deep fried or extremely high-fat foods as large quantities of fat decrease absorption rate and often cause reflux.
- 1.5-2 hours prior to running: eat a small snack that is mostly easily digested carbohydrates. It may include small quantities of easily digested proteins and fats. Avoid high fats and dairy.
    - Examples: toast/bread/bagel (with or without small amounts of meat, peanut butter, hummus, butter, etc), applesauce, a banana, small bowl of oatmeal with a few nuts. Any other examples…?
- Hydrate appropriately: small amounts throughout the day. Pale yellow urine.
- If your race/workout is early in the morning, it is important to eat and hydrate. Set an alarm to allow yourself to eat following the guidelines above. If your race/workout is later in the day, front load healthy calories to assure proper energy, but don't eat terrible things.

Post-race/workout:

- There is a critical window following any exercise session for optimal recovery. It is important to eat within 30-45 minutes of exercise and the more intense the workout/race, the more caloric and nutritional needs for muscle healing, glucose storage replacement, and removing free radicals from cellular damage. Eating within this time frame is just as important for everyday recovery, bone, muscle, and nervous system health throughout the season.
- Post-race/workout meals/snacks should include an equal balance of fats, proteins, and carbohydrates and must provide vitamins/minerals/anti-oxidants.
- **A full meal is best**, but if your schedule does not allow for this, please carry appropriate post-exercise snacks with you (this includes to eat after weights classes, soccer games, etc.)
- Snack examples include: chocolate milk, fruit yogurt, string cheese and crackers, trail mix, sandwiches, fruits or veggies with a protein, protein bars/drinks without unhealthy sugars or fats. Any other examples…?
- Rehydrate: the rule is 20 ounces for every pound you lost. So, you probably need about 40 ounces (5 cups) after a workout; more or less depending on your level of hydration prior to and during the workout, the workout intensity, and the weather. Pale yellow urine.

DO NOT limit calories during cross country season. Limiting calories decreases the amount of stored glycogen in muscles, leading to energy deficits and muscle fatigue. It can also cause increased breakdown of cellular proteins and bone leading to injury and poor performance. In female athletes, caloric deficit can decrease production of estrogen which is protective to bone, joint, and connective tissue health and can lead to a disruption or delay in menstruation or reproductive health issues.

Assure adequate intake of iron via meat, spinach and kale, lentils, cereals, eggs, sweet potatoes and broccoli or a multivitamin with iron (be sure to look). Distance runners are especially prone to anemia (iron deficiency) because of increased cellular damage and oxygen demand.