

Fueling the T&F /XC Athlete

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5 Guiding Principles

1. Energy Intake: Balance
2. Nutrient Timing: Pre & Post Exercise Fueling
3. Varied & Balanced Diet
4. Hydration
5. Supplements

Energy Intake: Balance

- Knowing your energy needs is the first step to meeting them.
 - Exceeding your needs creates weight gain
 - Falling short of your needs: decreases the development of new muscle, decreases your muscle glycogen (energy stores), & decreases hormone production – including those responsible for mobilizing fuel for energy during exercise.
- Meeting your needs is best done by frequent eating (5-6 times in a day versus 2-3 times).
 - Large, less frequent meals promote body fat storage, breakdown of lean tissue for energy, and decreases in metabolic rate.
 - Small, more frequent meals promote a higher metabolic rate, body fat breakdown, and increases in muscle mass.

Nutrient Timing: Pre & Post Exercise Fuel

- Pre-Fueling
 - Focus on carbohydrates and moderate protein
 - Spares muscle glycogen, enhancing performance; suppresses the breaking down that occurs during exercise; lessens immune suppression; decreases muscle damage.
- Post-Fueling
 - Must occur within 60 minutes post-exercise*
 - Focus on carbohydrates (1-1.2g/kg body weight) AND protein (15-20g)
 - Maximizes muscle recovery/synthesis, maximizes restoration of energy stores, restores immune system function.

Varied & Balanced Diet

- All 3 macronutrients should be included at meals and snacks – they all 3 play important roles in the diets of athletes.
 - Carbohydrates
 - Protein
 - Fat

Step 1: Fight Inflammation

STEP 1: FIGHT INFLAMMATION

At each meal, fill half your plate with fruits and vegetables. These foods contain antioxidants to help you fight inflammation that occurs with heavy training.

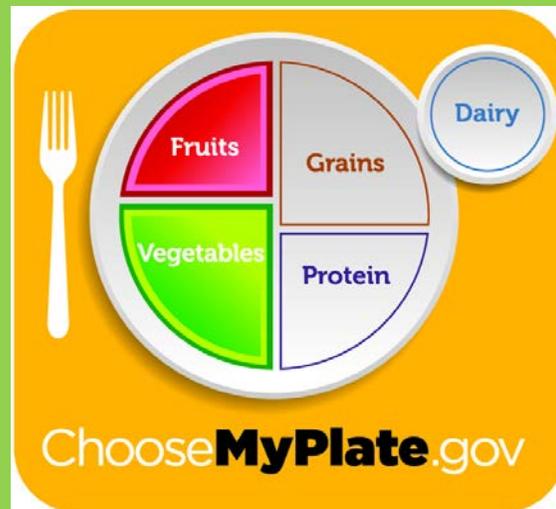
Try to eat a variety of fruits & veggies to make sure you get as many vitamins and minerals as possible. The more color represented on your plate the better!

Nutrients in these foods keep your immune system strong. Fewer colds mean more time in the game!

Fruits & veggies are higher in water content than many other foods, helping add to your overall fluid intake.

Sports Nutrition

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Achieving Optimal Performance through Nutrition

Step 2: Fuel Working Muscles

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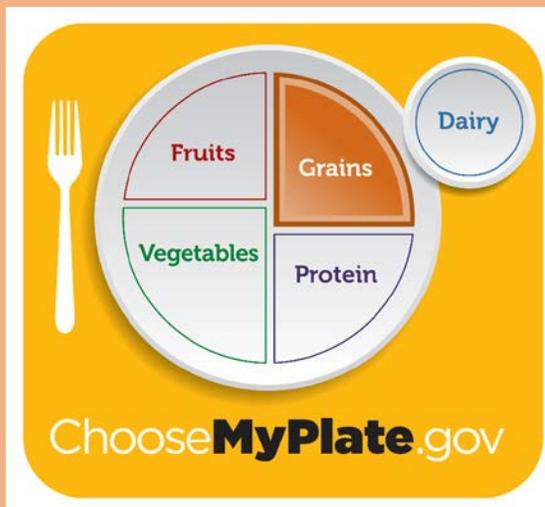
Carbohydrates are the primary energy source for working muscles. Fill approximately $\frac{1}{4}$ of your plate with carbohydrate-rich foods.

Whenever possible, opt for whole grain breads, cereals, and pastas. Choose brown rice over white rice. The only exception is during the time immediately prior to exercise – simple sugars are more readily available to be used as energy and are less likely to feel heavy on your stomach.

Did you know that without an adequate carbohydrate intake, gains in lean body mass are impossible?

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Step 3: Muscle Growth & Repair

STEP 3: MUSCLE GROWTH & REPAIR

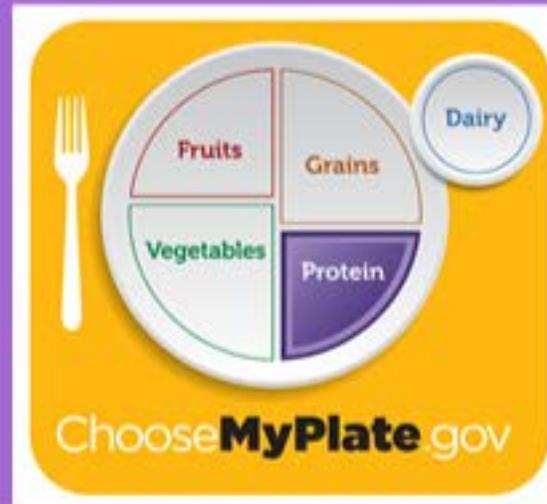
Protein is necessary for building and maintaining muscle mass. Fill ~ $\frac{1}{4}$ of your plate with a lean source of protein.

Choose lean proteins, such as grilled chicken breast, grilled or baked fish, pork loin, or deli lunch meat whenever possible. Remember that dairy products, eggs, beans, nuts, and nut butters are also good sources of protein.

Spread your protein intake out. Research shows that large amounts all at once does not equal more muscle mass, nor does exceeding your actual protein needs.

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Step 2 & 3: Dairy Products

STEPS 2 & 3: DAIRY PRODUCTS

Dairy products are a good source of both carbohydrates & protein. Including dairy products at each meal is a great idea!

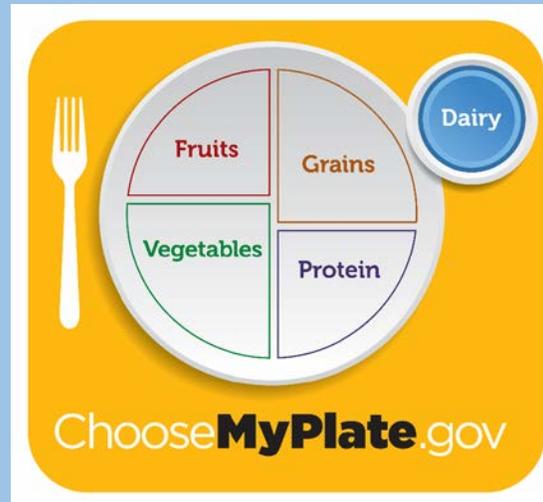
Milk, cheese, & yogurt are good sources of calcium and vitamin D – nutrients that are good for bone health, blood pressure, and your immune system.

There is a lot of research to support that vitamin D plays an important role in performance – both in strength exercise as well as endurance.

Because of the natural mix of carbohydrates and protein found in milk (and chocolate milk), it makes for a great recovery drink as well!

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Hydration

- Dehydration > 2% can impair athletic performance.
- Generally, figure ~ ½ fluid ounce per pound of body weight – this intake should be spread out throughout the day (at meals AND between meals).
- Periodically throughout the year, weigh yourself before and after exercise. For every pound of weight you lose, you should consume **an additional** 16-20 fluid ounces before the day is over.

Supplements

- Multi-vitamins/minerals are generally acceptable
- Any performance enhancing dietary supplement you choose to take:
 - Should not contain any NCAA banned substance (if you don't know, ASK)
 - Should be NSF certified for purity (up to 25% of products pulled off a store shelf contain ingredients not listed on the label)
 - Is taken at your own risk
- Intriguing current supplements:
 - Beet Root Juice
 - Collagen
 - Tart Cherry Juice