NUTRITIONAL INFORMATION FOR RUNNERS

Everyday Recommendations:

- Eat breakfast
    - Important to jumpstart your metabolism
    - Provides energy for afternoon/evening workouts
- Drink half your weight in ounces of fluid
    - Hydrate, hydrate, hydrate
    - Good hydration protects your joints, improves energy and concentration levels, helps your body build muscle and reduce body fat, and improves overall speed, power and strength
    - Water is the best things for you, but an occasion drink fueled with Electrolytes can also be beneficial
- Eat at least three meals and two snacks
    - Ensure you are consuming enough calories – long distance runners need far more than the typical 2000-3000 calories daily
    - Eat every three to four hours to maximize energy levels, muscle gain, and your body's ability to recover/repair
- Eat a fruit, vegetable and protein at each meal
    - Studies show reaching recommended nutritional intake reduces the odds of injury by 64%
- Have a recovery snack after your workout
    - Critical to do this within 30-60 minutes of your workout or race
    - High in protein and carbohydrates
        - Examples include – chocolate milk, turkey sandwich, protein bar, protein shake, bagel and peanut butter, yogurt, etc.
- Limit your fast food intake (no more than once per week)
    - These foods tend to be high in fat and sugar
- Limit your fat intake
    - Some fat in your diet is good, but be sure you are not overdoing it with sweets
- Sleep for nine hours
    - Studies show sleeping more than eight hours during weekdays reduces the odds of getting injured by over 60%
- No drug or alcohol use
    - This should be a no-brainer

**Additional information attached from the United States Olympic Committee Sports Nutrition Team

ATHLETE'S PLATE

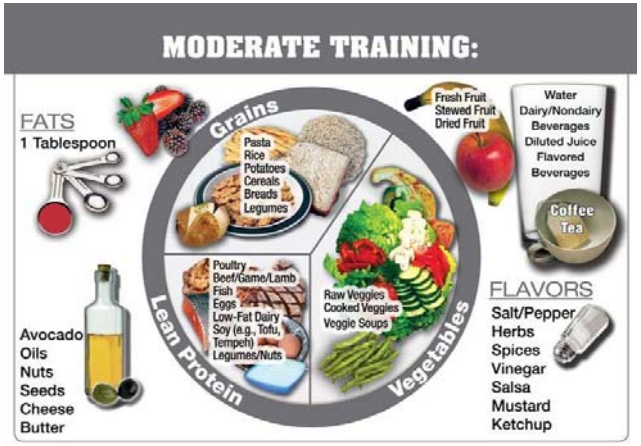
Training volume and intensity vary from day to day and week to week along your training/competition plan. Eating your meals and fueling your workout or race should also be cycled according to how hard or easy it is. Consult with your sport dietitian to put the Athlete's Plate into practice!

The Athlete's Plates are tools for you to better adjust your eating to the physical demands of your sport!

EASY An easy day may contain just an easy workout or tapering without the need to load up for competition with energy and nutrients. Easy day meals may also apply to athletes trying to lose weight and athletes in sports requiring less energy (calories) due to the nature of their sport.

MODERATE A moderate day may be one where you train twice but focus on technical skill in one workout and on endurance in the other. The moderate day should be your baseline from where you adjust your plate down (easy) or up (hard/race).

HARD A hard day contains at least 2 workouts that are relatively hard or competition. If your competition requires extra fuel from carbohydrates, use this plate to load up in the days before, throughout, and after the event day.



The Athlete's Plates are a collaboration between the United States Olympic Committee Sport Dietitians and the University of Colorado (UCCS) Sport Nutrition Graduate Program.

RECOVERY NUTRITION

What is Recovery Nutrition?

Recovery nutrition encompasses fluid, macro, and micronutrient replacement following a training session. A sound recovery nutrition protocol will allow athletes to optimize training adaptations and perform at their body's full potential in the next training bout, the next training block, and year after year.

Recovery extends beyond the short-term recovery window immediately following training. An athlete's consistent day to day habits allow for nutrition to support improvements in performance.

Recovery Nutrition Depends On:

- ✓ Type of training session
- ✓ Training volume
- ✓ Training intensity
- ✓ Timing of your next training session
- ✓ Body weight
- ✓ Whether you are training or competing

The Four R's of Recovery

Replenish muscle glycogen (carbohydrate stored in muscle) following a training session. Aim for 30-60g carbohydrate.

Repair and regenerate skeletal muscle with high quality protein sources and key amino acids (e.g. leucine). Aim for 15-30g protein.

Reinforce muscle cells, immune function, and central nervous system function with colorful and anti-oxidant rich foods (e.g. fruits, veggies, whole grains, fish, nuts, olive oil).

Rehydrate with fluid and electrolytes according to individual sweat lost during training. See Hydration Factsheet to calculate fluid losses.

Consuming Nutrients Within 30-60 Minutes of Training or Competition:

- Can enhance nutrient delivery to muscles while heart rate and blood pressure are increased
- Can result in faster glycogen replenishment and initiation of tissue repair
- Can support the body's metabolic switch from muscle breakdown to muscle building

RECOVERY NUTRITION

When is Recovery Nutrition Most Important?

- *High volume or intensity training sessions*
- *Heavy lifting sessions*
- *Competition*
- *Consecutive days of competition*
- *2-3 training sessions in a day*

Following a light training session (e.g. skills/drills, yoga, stretching, recovery day, weight loss phase) the next meal or snack is sufficient to meet recovery needs.

Recovery is Continuous

While the body may be most responsive to nutrients in the 1-2 hours after exercise, continuing to deliver the right nutrients for the next 24-48 hr fully enhances the training response as well and prepares you appropriately for upcoming training sessions.

Continue to **repeat** the ingestion of all of these nutrients in well-balanced meals and snacks every few hours in order to achieve your total daily nutrient needs.

Successful recovery will only occur with proper planning! Think about training sessions ahead of time in order to plan and pack the appropriate foods.

Recovery Snack Ideas

Choose a food from protein column + food from carb column based on training session!

Protein: 15-20 g	Protein: 20-25 g	Carbohydrates: 15-30 g	Carbohydrates: 45-60 g
• 3/4 c. cottage cheese • 2 string or slices of cheese • 1 c .firm tofu • 2-3 cooked eggs • 2-3 oz. deli meat • 1 1/2 oz. jerky • 2-3 oz. fish, chicken, beef, pork • 1/2 c. nuts or seeds* • 4 tbsp. nut butter** • 1/2-3/4 c. edamame • 1 c. beans* • 2 c. milk (cow's, soy)* • 1/2-3/4 c. plain Greek yogurt*	• 1 1/2 c. cottage cheese • 1 1/4 c. firm tofu • 3-4 cooked eggs • 3-4 oz. deli meat • 2-2 1/2 oz. jerky • 3/4-1 c. nuts or seeds* • 1 c. edamame • 1-1 1/2 c. beans or lentils* • 1 serving protein powder • 2/3 c. roasted edamame • 1 1/2 c. Greek yogurt* • 3-4 oz. fish, chicken, beef, pork	• 1 piece or cup fresh fruit • 1/4-1/2 c. dried fruit • 1 c. fruit juice • 1 c. chocolate milk • 1/2 c. oatmeal • 1-2 slices sandwich bread • 1 English muffin • 1 granola or cereal bar • 1 x 8" tortilla or wrap • 1/2-3/4 c. rice or farro • 1/2-1 c. quinoa, beans, lentils* • 3/4 c. cooked pasta • 1/2 c. applesauce	• 2-3 pieces or cups fresh fruit • 3/4-1 c. dried fruit • 2 c. fruit juice • 2 c. chocolate milk* • 1-1 1/2 c. oatmeal • 1 bagel • 2 English muffins • 2 x 8" tortillas or wraps • 1-1 1/2 c. rice or farro • 1 1/2-2 c. quinoa, beans, lentils* • 1 1/2 c. cooked pasta

Key: *Protein source contains as least 15g of carbs, carb souce contains at least 10g protein
**High calorie protein source due to high fat content

Athlete Recommendations:

HYDRATION

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Hydration and the Body

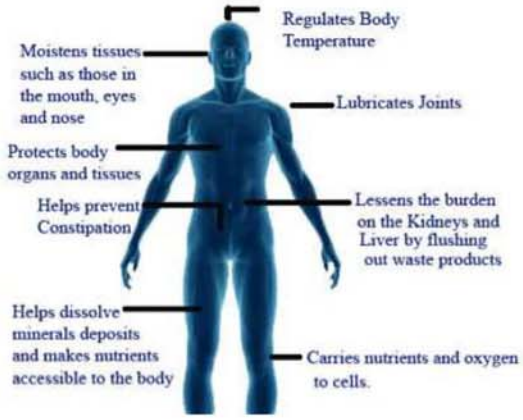
Hydrated cells are critical to get the most out of daily training and facilitate recovery. The effects of significant dehydration can take hours and even days to recover from. Athletes should develop strategies to monitor and adapt an individual hydration plan according to changes in:

- Intensity of training
- Duration of training
- Frequency of training
- Fitness level
- Environmental conditions (e.g. heat, altitude, plane travel, surgery, illness, hard training)

Performance can be negatively impacted by as little as 2 to 3% body weight loss from sweat (e.g. 3-4 lb. for 150 lb. athlete)

Signs and Symptoms of Dehydration

- Lack of concentration
- Early fatigue in training session
- High perceived exertion in training
- Trouble tolerating heat
- Delayed recovery
- Muscle cramps
- Headaches
- Nausea and vomiting
- Heart rate elevated above normal response



Importance of Hydration on Performance

- Enhances the body's ability to regulate temperature and cool efficiently while avoiding unnecessary elevation in heart rate
- Improves ability to recover quickly from training and competition
- Minimizes muscle cramps
- Enhances mental function, decision making, concentration, and motor control
- Supports effective immune defenses

Three Indicators of Dehydration

You are likely dehydrated if *two or more* of these markers are outside the normal range:

1. Color of morning urine (dark in color)
2. Waking body weight (lower than usual)
3. Thirst (greater than usual)

It can take up to 24 hours for the body to regain fluid balance after dehydration

HYDRATION

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How Much Fluid is Enough?

Fluid needs are vey individual. These are general guidelines and a starting point.

When	How much
Before training	2-3 hours before: > 16 oz. 15 minutes before: 8 oz.
During training	Enough to limit dehydration to <2% body weight loss
After training	16-24 oz. for every pound lost

Drink Up! Fluid needs are higher during:

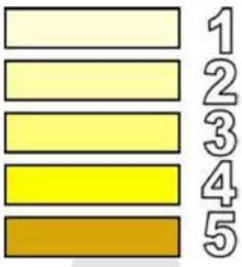
Heat — Hard Training

Humidity — Altitude

Note: *If you are a salty sweater, eat salty foods like pretzels and soup after training to help replace sodium losses.*

Monitoring Daily Hydration Status

Use the urine color chart and aim for a morning urine color of 2 - 3 (pale yellow, lemonade color). Dehydration is indicated by a urine color of ⩾ 4.



	USG Value	Indication
1	< 1.009	Well-hydrated
2	1.009 - 1.020	Hydrated
3	1.021 - 1.025	Minimal dehydration
4	1.026 - 1.030	Significant dehydration
5	⩾ 1.031	Severe dehydration

The color of urine is associated with urine specific gravity (USG). USG measures the concentration of particles in the urine with > 1.020 indicating dehydration. USG should be assessed at the first morning urine void.

% Body Weight Loss Calculation

% body weight loss = (wt before - wt after) / wt before

Ex: If weight before is 150 lb and weight after is 146 lb..

(150 - 146) / 150 = 2.6% loss

Goal is to drink more during exercise to minimize weight loss.

Water vs. Sport Drinks

The best fluid to consume is *water*, which should be consumed throughout the day, during training, and at meal times.

If training is > 60-90 minutes, a sports drink may help replenish fluids and electrolytes lost in sweat and provide a quick energy source to sustain performance during intense and longer duration training sessions.

Simple ways to increase fluid intake

- *Carry a water bottle at all times to increase water consumption throughout the day*
- *Aim to drink at least 2 cups of water at all meals*
- *Fruit and veggies have high water contents*
  - *Snack on oranges, berries, melons, pineapple*
  - *Top a rice bowl with eggplant, bell peppers, zucchini, shredded carrots*
- *Make a fruit smoothie for breakfast or a snack*
- *Drink 8 oz. of water, milk, 100% fruit juice, herbal tea or coconut water with breakfast*
- *Begin lunch or dinner with veggie soup*
- *Drink a glass of milk after training or before bed*
- *Brew a cup of herbal tea in the evening*

Athlete Recommendations:

CAFFEINE FACTSHEET

USOPC

Caffeine and the Body

Caffeine is the most widely accepted and commonly consumed drug in the world. Caffeine activates receptors in the brain and body that counteract many of the inhibitory effects fatigue has on mental and physical performance. It is now widely considered an "ergogenic aid," or something that enhances performance. The NCAA is the only organization that restricts the amount of caffeine in an athlete's system by limiting acceptable urine concentrations to 15 ug/mL, which equates to ~500mg of caffeine or ~6-8 cups of coffee 2 to 3 hours before an event.

It's important to understand that every athlete responds differently to varying amounts of caffeine, so dosing for performance should be done gradually and tested in training before use during competitions. Low doses of caffeine (1.5-3mg/kg of body weight or ~100-200mg) have been shown to be ergogenic for a number of sports, and also carry less risk of side effects.

Caffeine and Sport Performance

Positive Effects of Caffeine:

- Enhances endurance exercise performance
- Improves reaction time, concentration, and self-perceived energy levels
- Low doses increase energy expenditure and oxygen uptake without changing perceived effort, exercising heart rate, or fuel usage
- Delays feelings fatigue, and lessens sensations of exertion and pain
- Reduces time to complete a set amount of work

**Positive effects can improve endurance (e.g. triathlon), team (e.g. rugby, soccer). "stop-and-go" (e.g. golf, archery), and short-term, high-intensity sport performance (e.g. rowing, sprinting).*

Possible Side Effects of Caffeine:

- Anxiety / nervousness
- Overstimulation / jitteriness, which may alter pacing strategies in races
- Mental confusion
- Elevated resting heart rate
- Restlessness
- Inability to focus
- Gastric irritant
- Mild diuretic
- Insomnia / disrupted sleep
- Addiction (from overuse and reliance)

**Side effects can inhibit performance in technical sports and those with evening competition if dose or timing is inappropriate.*

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CAFFEINE FACTSHEET

Strategies for Using Caffeine

Follow these guidelines to safely incorporate caffeine into training and competition with the help of a sport dietitian. It is not necessary to limit caffeine consumption leading up to a competition to gain a performance benefit. Remember that caffeine is not a substitute for food, which provides energy from fat, carbohydrate, and protein. Caffeine should never be used as an alternative for insufficient fueling and recovery!

- **Timing**
  - Consume ~1 hour before training or competition.
  - For exercise > 2 hours, it may be helpful to "top up" with another low dose of caffeine. Low doses (80-120mg) during prolonged exercise can be beneficial, even without having any before.
- **Amount**
  - Doses between 1.5-6mg/kg have been shown to be effective in improving performance. However, tolerance is highly individualized and lower doses (1.5-3mg/kg) result in fewer side effects so are generally recommended.
  - For example, recommendations for a 50 kg (110 lb.) female would be between 75mg - 300mg.
- **Type**
  - Test different sources of caffeine in training to determine what is most effective (coffee, pills, gels). It is important that you can control the dose for consistency each time, so if using coffee as your caffeine source make it yourself the same way each time.
  - **Avoid using energy drinks** as they typically contain high concentration of caffeine along with other stimulants that could be derivatives of banned substances (e.g. geranium, ma huang).

Caffeine Content of Common Items

Energy Gels/Gummies	20-150mg
Caffeinated Soda (e.g. Cola, Diet Cola, Mountain Dew)	35-115mg
Caffeine Pills	100-200mg
Bottled Coffee (Pre-made)	75-200mg
Migraine Headache Medication	130mg
Brewed Coffee (8 oz.)	60-150+mg
Espresso Shot (1 oz.)	60-200+mg
Black Tea (8 oz.)	42-110+mg
Green Tea (8 oz.)	15-50+mg
Milk Chocolate Bar (3.5 oz.)	12mg

**Many of these items have wide variations in caffeine content due to preparation methods, even in the same restaurant (e.g. coffee, espresso, tea)*

Be aware these ingredients (common in energy drinks) are also a source of caffeine:
Guarana
Yerba Mate / Guayaki
Guayusa
Kola Nut
Cacao

Athlete Recommendations:

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