

HYDRATION FOR PRE-, DURING-, AND POST-WORKOUT

Maintaining proper hydration is a key component to your overall training routine. Water helps your body in a variety of ways including:

- Regulating body temperature
- Lubricating and cushioning joints
- Helping rid the body of wastes through urination, perspiration, and bowel movements

In fact, depending on age, the human body is comprised of 60-80% water, making it essential to hydrate continuously throughout the day, not just before or after exercise. Research suggests that a 2% dehydration level in the body can contribute to a 10% decrease in performance, and as dehydration worsens, performance is likely to continue to decline.

Daily Hydration Needs for Adolescent and Youth Athletes

AGES	BOYS	GIRLS
9 – 13 yrs	8 cups fluid	7 cups fluid
14 – 18 yrs	11 cups fluid	8 cups fluid

What counts toward total daily fluid needs?

- | | |
|-------------------|------------------|
| • Water | • Sports Drinks |
| • Flavored Waters | • Protein Shakes |
| • Milk | • Smoothies |
| • Flavored Milks | • Fruit |
| • Juice | • Vegetables |
| • Tea | • Soup |



Pre-Exercise

The goal is to achieve euhydration (optimal hydration) status before starting exercise. Athletes should not look to start exercise in a dehydrated state as this can lead to performance and mental acuity declines.

- Check urine color before beginning exercise
- 2–4 hours pre-exercise: 5–10 mL fluid/kg body wt
 - » 1 oz per 10 lbs of body weight
 - » Generalized: 16-20 oz fluid (approximately one bottle of water or sports drink)
- 1–2 hours pre-exercise: If profuse sweating is expected, drink another 3–5 mL fluid/kg body wt
 - » 0.6 oz per 10 lbs of body weight
 - » Generalized: 7–12 oz fluid
- 10 minutes before workout/game: 5–10 oz fluid (water or sports drink)
- There are no specific pre-exercise electrolyte recommendations, below are general recommendations:
 - » Sodium consumed in pre-exercise hydration may help with fluid retention during training and competition.
 - » Encourage salty food intake like pretzels, tomato juice, pickles, soups, and other salty snacks.

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During Exercise

Sweat rates vary during exercise based on a variety of factors like exercise intensity, duration, fitness level, heat acclimatization, altitude, and other environmental conditions. The main focus is to stay hydrated with water and/or sports drinks. While moving, the body is sweating, losing fluid and electrolytes, and without replacing them, dehydration can occur.

- As the body becomes more dehydrated, it burns through glycogen (stored carbohydrate in the muscles) more quickly, further decreasing energy stores leading to an early onset of fatigue.
- Sodium, potassium, and trace minerals are lost in sweat, which can contribute to muscle cramping.
- Sweating leads to thicker blood plasma, making the heart work harder to pump blood to working muscles, ultimately leading to the onset of fatigue.

Hydration is very individualized to an athlete's sweat rate, but there are general hydration guidelines to follow during exercise:

- The general fluid recommendation is to consume 5 -10 ounces of fluid every 15-20 minutes of exercise.
- One medium mouthful = approximately 1 oz
- The general electrolyte recommendation is to consume 1 gm sodium/1 L fluid or 1000 mg sodium/32 oz fluid.
- For those exercising 0-90 minutes, water should be an appropriate way to hydrate.
 - » If it is extremely hot and humid, rely more on a sports drink to ensure adequate fluid, carbohydrate, and electrolyte consumption (sodium, chloride, potassium).
 - » Ingestion of cold beverages (41° F) may help reduce core temperature and thus improve performance in the heat.
 - » The presence of flavor in a beverage may increase palatability and voluntary fluid intake.

SWEAT RATES	
CALCULATIONS:	CALCULATION EXAMPLES:
Pre-exercise weight – Post-exercise weight = Pounds lost	Pre-exercise weight = 155 lbs Post-exercise weight = 152 lbs 155 lbs - 152 lbs = 3 lbs lost
Multiply pounds lost by 16 to get into ounces	3 lbs x 16 oz = 48 oz
Add fluid consumed during exercise	Ounces drank during exercise = 32 oz
Result = How many total ounces of fluid were lost during exercise	32 oz drank + 48 oz lost = 80 total oz of fluid lost during exercise
Take total number of exercise minutes and divide into 15-20 minute segments	Athlete exercising for 2 hours = Six 20-minute hydration intervals
Divide total ounces needed by 15-20 minute segments to calculate how many ounces should be consumed at each hydration interval	80 oz / drinking 6 times in 2-hour workout = ~13 oz every 20 minutes

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Post-Exercise

Most athletes finish exercise with a fluid deficit, increasing the importance of post-exercise hydration to restore euhydration (optimal hydration).

- Consume 16-24 oz of fluid (water or sports drink) for every pound lost during exercise.
- If needing rapid rehydration due to multiple matches, 2-a-day practices, or other sporting events, consume 24 oz of fluid for every pound lost (150%).
- Including sodium post-exercise (sports drinks and/or salty foods) can help retain ingested fluids and stimulate thirst.



Electrolytes

Electrolytes are an essential part of hydration for athletes, specifically sodium and potassium. The average person loses three times the amount of sodium in sweat compared to potassium, and salty sweaters can lose even more.

Here are some ways to ensure you are consuming enough electrolytes to support your exercise:

- If you exercise longer than 60-90 minutes, be sure to consume a sports drink or add electrolytes to your beverage.
- If you are training or competing in a different environment (hotter or colder temperatures or at a high altitude), add electrolytes to your hydration routine earlier than 60-90 minutes.
- Add electrolyte rich foods to your diet:
 - » Sodium-rich foods: Salted nuts, whole grain crackers and pretzels, pickles, or add salt to eggs and veggies
 - » Potassium-rich foods: Bananas, strawberries, potatoes, sweet potatoes, beans, avocado, milk, yogurt, etc.

