

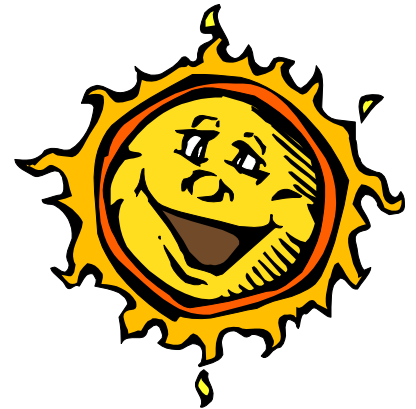


Workout Tips for Exercise in the Heat

Should I change my workout on really hot days?

Yes. Physical performance in a hot environment can be compromised in three basic ways. Increases in your body's core temperature reduce the endurance capacity of the muscles, increase the body's reliance on carbohydrate for fuel and compromise many aspects of cardiovascular function. As you get used to the heat, you'll be able to train harder and tolerate the heat better.

- During your first hot weather workouts, cut back on your exercise duration or intensity. Start low and go slow!
- Avoid exercising at the hottest times of the day. Try early morning or evening. Pick a training route or exercise area that provides lots of shade: parks or tree-lined streets. Consider an air-conditioned facility on scorcher days.
- **DRINK PLENTY OF FLUIDS!** (see below)
- Monitor your heart rate and slow down if your pulse is higher than your target zone or if you don't feel good.
- Train with other people when it's extra hot. They'll notice if you're in trouble, even if you don't.
- Know the symptoms of heat stress: nausea, dizziness, headache, chilling, muscle cramps, extreme breathlessness and a reduction in sweat rate. Stop exercise, get cool and rehydrate.



What kind of clothing will keep me cool?

Lightweight, loose, white or light-colored "wicking" fabrics will help reflect the sun's heat rays and allow for good air circulation. Apply a *broad-spectrum* waterproof sunscreen of at least SPF 15 (preferably 30) to protect your skin from the sun's UVA and UVB rays. A sun visor or breathable, vented hat w/ a 4" brim can protect your face and eyes. Look for new lightweight fabrics like Solumbra or Solarweave that protect sensitive skin from ultraviolet radiation.

What factors affect my ability to tolerate heat?

If you're physically fit, you'll generally be able to handle the heat better. Elderly individuals don't tolerate heat as well as younger people. However, this difference disappears when senior citizens are *active and fit*. Sleep loss, infectious disease, excess body fat, poor cardiovascular fitness, depleted muscle glycogen, high humidity and a sudden increase in training will all reduce your ability to tolerate heat.

How can I teach myself to handle the heat better?

Being well-hydrated will go a long way towards helping you exercise safely in the heat. To promote heat acclimatization, the best strategy is simply to exercise in hot weather or an artificially hot climate. Complete acclimatization takes about 10-14 consecutive days in a totally unacclimatized athlete. During your first few days of heat exposure, exercise at about 60-70% of your normal training intensity. Gradually increase both your training intensity and volume. Watch for signs of heat stress. Give yourself frequent rest and drink breaks. Adaptations that occur during heat acclimatization include the earlier onset of sweating, higher sweat rates, increased blood volume, lower body core temperature, lower heart rate response to submaximal workloads and overall improved ability to tolerate heat.

I know that fluids are important to prevent dehydration, but how much and what should I drink?

In normal temperatures, the average sedentary woman should drink at least 9 cups of fluids daily. Men need about 12 ½ cups. Athletes or active individuals need even more, particularly if they're training in a hot climate. If you start an exercise session well hydrated, you'll be a step ahead in maintaining performance and personal safety. Fluids ingested during the day can come from a variety of sources: water, fruit juice, smoothies, seltzer water, lemonade, sports drinks, milk and herbal teas. Beer, coffee & caffeinated soda pop aren't always the best choice because they draw some fluid out of the body due to the effects of alcohol or caffeine. During exercise in the heat, sports drinks or water work best.

Don't rely on thirst as an indicator of your body's need for fluids. By the time you're thirsty, you're already 3% dehydrated! If your urine is dark and there's not much of it, you're dehydrated and should increase your fluid intake.

- Drink fluids until your urine is pale yellow/straw-colored and plentiful.
- In general, drink as much fluid as you can comfortably tolerate both before, during and after exercise.

General guidelines for fluid intake are:

2-3 cups	about 2 hours before exercise
1 cup	5-10 minutes before exercise
1 cup	every 15-20 minutes during exercise, especially in warm weather

- Cool beverages are absorbed better than warm beverages.
- You'll often see athletes pouring cold water over their head during a race or competition. While this may provide some temporary relief, pouring enough cold fluid into the body is more effective in dealing with hot temperatures.



What about sports drinks?

Sports drinks help you maintain performance by providing water, carbohydrate and electrolytes. Sports drinks typically contain 4-8% carbohydrate, which is half the carbohydrate concentration found in soft drinks. This promotes fluid absorption while providing energy which is particularly important during exercise in the heat. Electrolytes help replace losses in sweat. Sodium specifically stimulates thirst to encourage drinking and aids in fluid retention. While many people consider sports drinks unpalatable during rest, they appreciate these lightly sweetened/flavored beverages during sports participation. Because athletes tolerate various beverages differently, never experiment during a competition. Your training workouts are the time to try new and different options. Energy drinks or "designer drinks" should *not* be mistaken for sports drinks formulated for use during exercise.

Do the fluid recommendations change after I'm through exercising?

- Some athletes find it helpful to weigh themselves both before and after a workout. For every pound of weight you lose during a workout, drink 2.5 - 3 cups of fluid. Rehydration occurs faster in the presence of sodium (salt), regardless of whether this sodium is provided in a sports drink or food.
- To replace muscle glycogen stores and speed recovery from the workout, you should start replenishing carbohydrates within 15-90 minutes after exercise. You may not feel like eating so soon after a workout, but a sweetened beverage will often hit the spot. You'll get more carbohydrate per ounce of fluid if you choose fruit juice, a juice drink or "rehydration beverage" instead of a typical sports drink.

What about heat cramps?

Heat cramps are brief, often excruciating muscle contractions which can occur in athletes who sweat a lot, particularly when exercising in a hot environment. Usually this happens because the person has lost a large amount of sodium chloride through sweating and hasn't consumed sufficient sodium when replacing fluid losses. Mild heat cramps can be treated by drinking 1 liter (about 1 quart) of water with 1/4 to 1/2 teaspoon salt dissolved in it. Athletes who are "heavy sweaters" and have problems with heat cramps should ingest sports drinks containing sodium during and between bouts of exercise. They might also consider adding salt, soy sauce, ketchup or obviously salty foods to the diet (pizza, pretzels, tomato juice, pickles, etc). Salt tablets should definitely be avoided because they are a gastric irritant. Heat acclimatization appears to reduce the incidence of heat cramps. Heat cramps can be prevented by following the above suggestions for fluid intake, having adequate sodium in your diet and gradually progressing your training.





How do I know if it's too hot to exercise safely?

80-90% of heat loss in a hot, dry environment is due to the evaporation of sweat. In a humid environment, moisture in the air doesn't allow the sweat on your body to evaporate. Contrary to popular opinion, it's the *evaporation of sweat*, not the sweat itself, that cools us down. So exercise in humid heat is a lot riskier than exercise in dry hot conditions. Check the following Heat Index Table and if the "apparent temperature" is in the danger area, it's a good day to take a break or exercise indoors with air conditioning

HEAT INDEX TABLE

		Environmental Temperature (F)								
		80	85	90	95	100	105	110	115	120
Relative Humidity	30%		84	90	96	104	113	123	135	148
	40%	79	86	93	101	110	123	137	151	
	50%	81	88	96	107	120	135	150		
	60%	82	90	100	114	132	149			
	70%	85	93	106	124	144				
	80%	86	97	113	136					
	90%	88	102	122						
	100%	91	108							

Apparent Temperature (F)

Caution		At apparent temperature of:
Extreme caution		90-104 Heat cramps/heat exhaustion possible
Danger		105-130 Heat cramps/heat exhaustion likely, heatstroke possible
Extreme danger		130 + Heatstroke very likely

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