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TOTAL FORCE FITNESS

FOR
ENDURANCE
EVENTS



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INTRODUCTION

Optimal performance requires more than just physical prowess. Many other factors play a role in your endurance performance. This Human Performance Resource Center Total Force Fitness for Endurance Events eBook contains hundreds of evidence-based tips to help you maximize your training and recovery for peak performance on race day. It brings the concept of Total Force Fitness for Military Service Members to the arena of athletic endurance.

What is Total Force Fitness? It's a holistic concept for building and maintaining health, readiness, and optimal performance of the U.S. Armed Forces using the connection between mind, body, spirit, environment, and relationships. This eBook draws on the same concept to help you train for and perform in your endurance events. Please visit HPRC's website if you'd like to learn more about [Total Force Fitness](#).



SECTION 1

TRAINING

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CHAPTER 1

THE SUPPORT YOU NEED TO CROSS THE FINISH LINE

Family members and friends can play an important role in the success of your event, but support can come in many forms. Set yourself up for success in training and in your endurance event by asking your family and friends for the type of **support you need**. Loved ones and close friends can rally behind an athlete to show praise and encouragement. They can offer advice, give feedback, and help solve your training dilemmas. Some family members can show support by providing physical items you need for training, such as sneakers or a training watch. Overall, your focus on health and wellness can benefit your entire family, as well as friends, by being a stress-relief outlet for you, the athlete. Your activities even can improve family relationships and friendships by creating experiences where you can express mutual encouragement and pride in one another's accomplishments. It's a chance to act as a team and support each other in your goals.

For many, especially single Military Service Members or those who live far from family support systems, friends can play a big part in helping you reach your event goals. Enlisting the help of your friends can bring you closer together and expand your relationship as you experience something new. By asking your friends for help, not only will you add to your endurance-event support network, but you also might have a chance to learn from one another's strengths.

However, committing to train for and complete in an endurance event also can challenge family and other relationships. Time spent training and out of the house means less family time. It also might mean less free time to hang out or catch up with friends. If your focus on your own activity seems to distract from your commitments to your family and friends, it might be hard to get them on board to support your pursuits. Finding a way to balance family obligations (such as child care or household chores) or other obligations (such as work or social activities) with your training routine might get complicated.

So, ask yourself:

- What kind of support do I need from my family or friends to be successful at this endurance event?
- How will the time I spend training impact my family obligations?
- Will my training impact my work schedule or other commitments I've made?
- How will my sleep, nutrition, and training needs impact my social life with friends?
- What other supports can I put in place to make sure I can set aside the time I need to train? (For example, can a friend walk your dog, so you can train right after work? Or maybe you want to look into grocery delivery services to free up your time from errands.)
- How will I deal with distractions or unforeseen family, work, or other hurdles that could potentially disrupt my training schedule?
- Does my (or our) budget have enough padding to pay for event registration, possibly a hotel at the event location, and other expenses that might come up?
- Is it reasonable to ask my family and friends to attend and cheer me on?

- Are there family members or friends who might be able to join a post-event celebration?

Clearly stating what a race or event means to you can help your family members and friends gain a deeper understanding of why their support matters to you. Then, tell them what roles you hope they can play in your training and on event day. Maybe you'd like them to provide reminders to train or offer to train with you. Perhaps you'd prefer verbal praise and acknowledgement of your efforts and progress. Try something like:

- “This is a personal goal I want to accomplish, and I think your support can help me succeed. Can we talk about what that could look like?”
- “I think my involvement in this event will provide me with a needed outlet and a goal to work towards. I know it will affect you, though, and our time together, so I'd like to talk about how we can make this work for both of us.”

Keep the lines of communication open about your training schedule and how it might impact your regular role within your family or your relationships with friends. It's okay to ask your spouse or partner to help get meals and snacks together, especially on long training days. It's also okay to ask for some extra time to recover when you've pushed yourself during training. Follow up with gratitude. And offer to take some tasks off your partner's hands when you're able. Or offer similar help to friends who also have personal goals. If you make it clear what kind of support you need from family and friends, you can successfully cross the finish line of your endurance event.



CHAPTER 2

STRESS-FRACTURE PREVENTION: ENDURANCE-TRAINING EDITION

A stress fracture can be a devastating injury for an endurance athlete. At best, it's an inconvenience that can delay your training for several months. At worst, it can lead to a surgery that decreases your quality of life and can end your career as an athlete. Preventing stress fractures is a delicate balance between training hard enough to improve your performance, getting the proper sleep and nutrition to help recovery, and not training so hard that your recovery process takes you one step forward and 2 steps back. Here are some tips specifically for endurance athletes to complement HPRC's general "how to" on [stress-fracture prevention](#).

VARY YOUR TRAINING

Cross-training is a great way to improve and maintain your cardiovascular fitness. For runners, riding a stationary bike, swimming, or circuit training can help reduce the pounding stress on your legs and feet that can contribute to stress fractures. And while runners can get stress fractures from too much running, cyclists might be prone to them because they don't run enough. Your bones need to be "loaded" enough that they build more and stronger bone. If you're an endurance cyclist, add some running into your training to keep up enough of that load on your leg bones to help prevent stress fractures. Remember, though: Always progress slowly and methodically so you don't over-stress your bones.

FUN FACT! Cycling isn't considered a weight-bearing activity due to the amount of time spent on the saddle and the relatively low impact on your legs. Running, on the other hand, can transmit forces 2–3 times your body weight through your legs with each step!

RACE WHAT YOU TRAINED FOR

Have you ever signed up for a half marathon, trained for months and months to run 13.1 miles, and then at the last minute decided to run a full marathon? If you run often and have hit the marathon mark a couple times, this jump in mileage might not be the worst thing. However, doubling your mileage on race day can increase the risk for a stress fracture. As you push yourself past what you've trained for, you'll start to fatigue. This can change your running mechanics, overload the bones in your feet and legs in a way they aren't trained for, and result in a stress fracture on race day.

KNOW THE EARLY SIGNS OF STRESS FRACTURE

- **Foot or shin pain during training.** If your feet or shins start to hurt during and, more importantly, after your training session, back down your frequency and intensity. If it isn't already part of your recovery plan, start stretching and foam rolling all of the muscles in your lower legs. If the pain persists for more than a week or so, make an appointment to see a healthcare provider.
- **Bone tenderness.** If your tibia (shin bone) or any of the bones in your feet are tender to the touch right on the bone, make an appointment to see a healthcare provider ASAP. This is another early sign that you might be developing a stress fracture. Consider switching up your training to bike or swim workouts until cleared by your doctor.
- **Pain at night.** If your feet or shins start hurting at night when you go to sleep, this is another warning of a stress fracture. Make an appointment to see a healthcare provider ASAP. Again, change your training to bike or swim workouts until cleared by your doctor.

CHAPTER 3

HEAT-ILLNESS PREVENTION

Heat illness, such as heat stroke and hyponatremia (a salt imbalance from drinking too much water and not enough electrolytes), is particularly dangerous for the endurance athlete and can lead to severe brain damage or even death. However, with a little planning, you can prevent it easily. Below are 3 tips to prevent heat illness during training and races.

1. **Know the day's flag conditions.** You might be familiar with [weather-related flag conditions](#), where red- and black-flag conditions direct you to limit the amount of work you should do. When training for a race, consider training indoors or taking a day off on red- and black-flag days, when air quality and temperature conditions are poor. On race day, if the event hasn't been cancelled due to the flag condition, slow your pace to reduce your risk of heat illness.
2. **Have a hydration plan.** Dehydration puts you at risk for heat stroke, but on the flip side, drinking too much water can lead to hyponatremia (low salt levels in your blood). See Chapter 8 for information that can help you develop a hydration plan to balance drinking enough (with the right electrolytes) without going overboard.
3. **Race the pace you trained.** It's common for people to compete harder than they trained. There's just something about race day that can cause you to work harder than you did during training. On a hot day, this can be dangerous because your body might not be [properly acclimatized](#) to work that hard in the heat, so it's important to keep to the pace you trained for.

CHAPTER 4

WHEN “RUBBING DIRT IN IT” ISN’T THE ANSWER

Endurance events provide a great opportunity for you to build your physical and mental toughness, but it’s important to protect yourself against potential injuries.

The “never-quit, never-give-up, mission-first” culture (of athletes and the military) can spur beliefs that hinder proper reporting and treatment of injuries. Below are a few examples of common beliefs that could prevent you coping with injury, along with suggestions for more adaptive, productive ways to view those beliefs.

Remember, being injured doesn’t make you soft. But delaying care for your injury can make you ineffective and undermine your readiness if you aren’t at 100%.

- **Common belief:** “Pain is weakness leaving the body” or “Pain is just part of the job”
 - ↳ **Where does this belief come from?** Physical stress is what builds resilience and toughness. Military Service Members regularly encounter situations that require them to lean into discomfort.
 - ↳ **How is it harmful?** [Overtraining](#) is a common issue among athletes. But pain is often the first sign that something’s wrong with your body. Normalizing pain by seeing it as “just part of the job” can cause more severe injuries, possibly leading to the negative profile you were trying to avoid.
 - ↳ **Try this instead:** By strengthening connections with your body, you can better understand its limits. Use tools such as [progressive muscle relaxation \(PMR\)](#), [breathing](#), and “[unplugged](#)” workouts to better tune in to the signals your body sends and what they mean.
- **Common belief:** “Rub some dirt in it, it’ll be fine”
 - ↳ **Where does this belief come from?** Most Warfighters are self-reliant problem solvers, taught from the first days of military training to find quick solutions.
 - ↳ **How is it harmful?** Navigating the medical health system can feel stressful or intimidating. You might convince yourself that if you ignore an injury or leave it alone, it will eventually get better, which might delay you in seeking care for your injury.
 - ↳ **Try this instead:** Gain a better understanding of which resources to seek out—and when.
 - How can a healthcare provider help?
 - What complementary help can you get from a strength-and-conditioning coach or physical therapist?
 - What other credible resources are available?

- **Common belief:** “Suck it up and drive on”
 - ↳ **Where does this belief come from?** Warfighters and athletes sometimes struggle to understand “[when to grit](#) and when to quit.” You might not be willing to take a knee because you feel committed to your goals for the endurance event.
 - ↳ **How is it harmful?** Sucking it up can get you back in the game quickly or help you endure for a bit more time, but it also can lead to more serious injuries (perhaps even a career-ending one) and more down time.
 - ↳ **Try this instead:** When injuries occur that are more serious, shift your thinking from short-term to long-term outcomes. Briefly taking a knee could be a better choice if the alternative is a longer recovery or permanent disability. Is finishing this event or training more important than your team, family, or unit having you back in the fight at 100% capacity, performing optimally?



CHAPTER 5

EVERYDAY PERFORMANCE NUTRITION

Being strategic about what you eat and drink on training and event days is important, but fueling your body with healthy food and drinks every day helps keep you mission-ready. Inadequate nutrition and hydration will leave you with less energy to perform mental and physical tasks and can increase your risk for injuries. You might not be in training for a race every day of the year, but the regular demands of life (especially if you're in the military) are still physically and mentally challenging, so your fueling strategy needs to support those daily demands.

CREATING AN ENDURANCE ATHLETE'S PLATE

The foundation of an endurance athlete's plate includes optimal amounts of carbohydrates, protein, and fat. Eating balanced meals and snacks throughout the day—including the right amounts of fruit, vegetables, whole grains, low-fat dairy products, lean meat, eggs, nuts, and healthy fats—will provide the nutrients you need to be perform well.



- **Protein**—the building block for cells—provides amino acids and minerals to support muscle growth, repair tissue, and prevent muscle loss. **Sources** include lean meat, poultry, fish, beans, milk products, nuts, and eggs, as well as small amounts of whole grains (quinoa, rice, etc.). Milk products—such as yogurt, cottage cheese, cheese, and low-fat milk—also provide calcium, magnesium, vitamin D, and other nutrients that support bone health.
- **Carbohydrates**—your body's preferred source for fuel—provide energy, preserve protein for muscle growth and repair, and contain fiber for a healthy gut. **Sources** include fruits, vegetables, beans and legumes, milk products, and whole grains such as oatmeal, quinoa, and brown rice, and 100% whole-wheat pasta, bread, and cereal. Fruits and vegetables—

including sweet potatoes, winter squash, corn, citrus fruit, cherries, bananas, and pineapple—also provide essential vitamins, minerals, antioxidants, phytonutrients, and flavanols for immune health, reduced inflammation, and recovery support.

- **Fats**—essential in moderation—provide energy for muscles, transport fat-soluble vitamins, satisfy your hunger, insulate and protect your organs, and help keep you warm. **Sources** include cold-water fish, nuts and seeds, nut butter, avocados, olive oil, canola oil, coconut oil, and dairy products. Cold-water fish such as salmon, tuna, mackerel, sardines, and anchovies also contain omega-3 fatty acids, which help reduce inflammation and support joint health.

An endurance athlete's plate should include foods from at least 3 food groups at each meal—whether you're resting, training, or on a mission. When you choose nutrient-dense, high-performance foods from each food group, you feel more satisfied and have more energy.

QUICK TIP: Drink plenty of fluids, preferably water, throughout the day with meals and snacks to help maintain hydration.

You can take advantage of the Go for Green® Guide on the following pages to help create your athlete's plate. Green-coded foods and beverages are the best choices for peak performance. You can find Green choices in every food group. Green-coded foods are full of the nutrients you need to fuel your body and brain for taking on an endurance challenge.

Try these high-performance meals:

- Omelet with spinach and mushrooms, whole-grain bread with jam, and orange juice
- Whole-wheat pita sandwich with turkey and veggies, pretzels, apple, and unsweetened iced tea
- Cheese tortellini in tomato sauce, tossed salad, grapes, and water
- Lamb kebabs, pita, spinach, and mango-yogurt drink

Fuel up with these high-performance snacks:

- Yogurt or cottage cheese with fruit
- Apple slices with peanut butter
- Fruit-and-yogurt smoothie
- [No-bake energy bites](#)
- [High-performance snack mix](#)

To learn more about what high-performance fuel looks like, visit "[The military diet: Tale of two eating plans.](#)"

The G4G Guide: Foods and Beverages



Tips to build a performance plate	Eat Often Whole foods, least processed Naturally packed with nutrients	Eat Occasionally More-processed foods Choose portions carefully	Eat Rarely Most processed, least nutrients Choose small portions
Vegetables <ul style="list-style-type: none"> • Eat 3–4 cups non-starchy vegetables a day. • See also Grains/Starches 	<ul style="list-style-type: none"> • Fresh or frozen vegetables—grilled, steamed, or raw • Leafy green salads with dark greens (spinach, spring mix) • Vegetables with small amounts of added Fats/Oils from the Yellow or Red column 	—	<ul style="list-style-type: none"> • Deep-fried, tempura, or breaded vegetables • Vegetables in cheese or creamed vegetables • Salads/vegetables with large amounts of Fats/Oils or Protein from the Red column
Fruits <ul style="list-style-type: none"> • Eat 2–2.5 cups of fruit a day. • Eat your fruit, don't drink it. 	<ul style="list-style-type: none"> • Fresh fruit • Frozen fruit with minimal added sugar, fat, and/or sauce • Fruit canned in water or own juice • Dried fruit (unsulfured, without added sugar) 	<ul style="list-style-type: none"> • Fresh or frozen fruit with added sugar/syrups • Canned fruit in light syrup • Dried fruit (sulfured) • Dried fruit with added sugar • 100% fruit juice 	<ul style="list-style-type: none"> • Fresh fruit with cream • Frozen fruit with added sugars, fats, and/or sauce • Dried fruit with coatings (yogurt, chocolate, etc.) • Canned fruit in heavy syrup • Sweetened applesauce
Grains/Starches <ul style="list-style-type: none"> • Choose 100% whole grain for at least half of all grain servings. • Starchy vegetables such as potatoes and corn are included in this group. 	<ul style="list-style-type: none"> • Brown rice, wild rice, bulgur • Oats, quinoa, barley • Baked potato/sweet potato with skin with toppings from Green column • Baked sweet-potato “fries” • Whole-grain pasta and couscous • Whole-grain, low-sugar cereal/granola with less than 10g sugar and at least 3g fiber • Whole-grain breads, bagels, rolls, waffles, pancakes, muffins • English muffins with at least 3g fiber • Popcorn with small amounts of butter or oil 	<ul style="list-style-type: none"> • White rice, couscous, pasta • Grits, plain • Baked French fries • White potatoes made or topped with ingredients from the Yellow column • Whole-grain cereals/granola with 11–18 grams sugar per serving • Sweetened oatmeal/oatmeal packets • White-flour breads, bagels, English muffins, rolls, waffles, pancakes • Pretzels, baked chips • Crackers, high-fiber, reduced-fat 	<ul style="list-style-type: none"> • Biscuits, croissants, full-fat muffins • Doughnuts, Danishes, pastries, sweetened breads • Grains or pasta with cheese or cream sauce • French fries (fried in oil) • White/sweet potatoes made or topped with moderate to large amounts of Fats/Oils from the Red column • Processed cereals with more than 18g sugar per serving • Deep-fried chips, most snack crackers • Movie-style popcorn

Tips to build a performance plate	Eat Often Whole foods, least processed Naturally packed with nutrients	Eat Occasionally More-processed foods Choose portions carefully	Eat Rarely Most processed, least nutrients Choose small portions
Protein <ul style="list-style-type: none"> • Vary your protein choices. • Include seafood/ fish twice a week. • Include beans for protein and fiber. 	<ul style="list-style-type: none"> • Egg whites • Omelets with vegetables • Fish and shellfish; Tuna canned in water • Chicken and turkey breast without skin • Ground beef (90/10), ground poultry • Pork tenderloin • Beans/lentils • Tofu, tempeh, edamame • Veggie burgers, vegetable- or bean-based 	<ul style="list-style-type: none"> • Whole eggs • Chicken and turkey with skin • Chicken and turkey thighs and legs without skin • Ham, roast beef • Processed chicken/turkey deli meats • Hamburger • Ground beef (85% lean) or ground poultry • Chicken/turkey sausage or bacon • Soy patties, links, burgers • Tuna canned in oil 	<ul style="list-style-type: none"> • Fried meat, poultry, fish, seafood • Ground beef (standard or unspecified fat), fatty (marbled) cuts of red meat, beef ribs, corned beef • Cheeseburger • Pork sausage and bacon • Hot dogs, kielbasa, bratwurst • Salami, bologna • Refried beans made with lard or topped with cheese • Fried tofu
Fats/Oils <ul style="list-style-type: none"> • Choose healthy fats and oils. 	<ul style="list-style-type: none"> • Oils—olive, canola, safflower, sunflower, sesame, grapeseed • Salad dressings made with these oils • Nuts and seeds—raw, dry, roasted • Natural nut butters—peanut, almond, hazelnut, soy nut • Avocado 	<ul style="list-style-type: none"> • Oils—corn, peanut, vegetable • Salad dressings made with these oils • Mayonnaise made with canola oil • Margarine/spreads (trans-fat free, limited additives) • Peanut butter with added oils/fats • Gravy (made with water or low-fat milk) 	<ul style="list-style-type: none"> • Oils—coconut, palm, palm kernel • Shortening and lard • Most mayonnaises • Most margarines • Creamy salad dressings • Nut butters with added sugar or chocolate • Gravy (made with fat drippings)
Beverages <ul style="list-style-type: none"> • Choose water instead of sugary beverages. • For milk, see Dairy 	<ul style="list-style-type: none"> • Water (plain or carbonated) • Naturally flavored water (no artificial sweeteners) • Decaf tea and decaf coffee • Herbal tea • 100% vegetable juice 	<ul style="list-style-type: none"> • Sports drinks • 100% fruit juice • Tea** and coffee**, plain or with small amounts of added sugar, cream, or milk • Artificially sweetened beverages (diet or light sodas, teas, juices, many flavored waters) 	<ul style="list-style-type: none"> • Energy drinks* • Coffee and tea with whole milk or cream and sugars or syrup • Sweetened beverages of any kind (sodas, sweet teas, fruit punches, juice drinks)
Dairy <ul style="list-style-type: none"> • Compare sugar contents of yogurts. • Some low-fat dairy products contain added flavors, stabilizers, sugar, or sodium; choose less-processed Green items when possible. 	<ul style="list-style-type: none"> • Milk, unsweetened (skim, 1%) • Milk alternatives (soy, almond, rice, coconut), unsweetened, with calcium and vitamin D added • Yogurt, plain (non-fat or low-fat) • Cottage cheese (non-fat or low-fat) 	<ul style="list-style-type: none"> • Milk (2% fat) • Flavored (vanilla, chocolate, etc.) and sweetened milk (skim, 1%, or 2%) and milk alternatives • Hot chocolate made with milk (skim, 1%, 2%) • Frozen yogurt • Yogurt, flavored, with added sugars or artificial sweeteners (non-fat or low-fat) • Cheese and cottage cheese (reduced-fat, 2%) • Cheeses naturally lower in fat (Feta, Swiss) 	<ul style="list-style-type: none"> • Milk (whole), plain or flavored • Hot chocolate made with whole milk • Cream, half-and-half • Yogurt (full-fat) • Cottage cheese (full-fat) • Cheese (full-fat) • Cream cheese, sour cream (full-fat) • Ice cream, milkshakes, gelato • Pudding
<p>*For more information on energy drinks, visit Operation Supplement Safety (opss.org) **Contains caffeine</p>			

TOO MUCH OF A GOOD THING

In addition to eating high-performance meals daily, it's important to space your meals throughout the day and eat the right amounts of calories for your specific energy needs. And remember: Each person's calorie needs are unique, so the number of calories will vary by individual.

To maintain or reach a healthy weight, the amount of energy (calories) you expend in activities needs to be the same or greater than the amount of energy (fuel) you consume each day. Learn how to calculate how many calories you need at rest and when you exercise in HPRC's "[Balance your energy tank](#)."

Keep in mind you don't need as much fuel on days you're actively resting (that is, walking, doing light strength training, or going on a recovery run). Regular, [balanced meals](#) and snacks will provide plenty of nutrition to fuel your daily needs. You also can cut back the portions of grains and healthy fats on your plate to reduce calories and help maintain your fighting weight. However, on days when you're more active, your fuel needs will be higher.

VITAMIN AND MINERAL SUPPLEMENTS

You should be able to meet your daily vitamin and mineral needs if you eat balanced meals with a variety of nutrient-dense foods that match your performance needs. If you meet your vitamin and mineral needs through food, a general multivitamin-and-mineral supplement won't provide any additional performance benefit. And supplements aren't a substitute for a poor diet or under-fueling. However, vitamin and mineral supplements might be useful if..

- You have a known vitamin or mineral deficiency, as determined by a healthcare provider.
- You have poor nutrient intakes and dietary habits.
- You can't meet your energy requirements from food.
- You're exposed to extreme environments, such as cold temperatures and high altitude, for prolonged periods.

If you're concerned about your nutrient intake, talk to a Registered Dietitian and/or your primary healthcare provider.

CHAPTER 6

ENDURANCE-TRAINING WORKOUT PLANNING

There are many different training plans out there, from plans for those who want to run their first 5k to ones for experienced triathletes and beyond. Find one that suits your fitness level and your schedule. Remember to vary your training to improve your performance and reduce your risk for stress fracture. Good programs include rest days (active or passive) and options for cross-training.

Be sure to include a **tapering** plan before an event to help you feel energized and ready to go. Tapering is an effective way to ensure you're at peak performance on event day. It means decreasing your training load over the 7–14 days leading up to your event. Even though you aren't working out as often, a well-structured tapering plan that incorporates rest days will help rather than hurt your performance. (See Chapter 14 for how to taper your nutrition too.)

Use the worksheets in this chapter to keep track of your SMART goals, cardio, and weight-training workouts as you train for your next event.



WORKSHEET

TRAINING GOALS PLANNER

Goal setting can be an important performance skill, but make sure you're setting SMART goals. Completing this checklist will help.

SPECIFIC. What exactly is your goal? Be specific about what you wish to accomplish.

MEASURABLE. Decide how you will measure whether you have met your goal. Quantify success so that you're able to monitor and enjoy your progress.

ACHIEVABLE/ACTION-ORIENTED. What language do you use? Think "I am" rather than "I'll try" or "I will." Make sure your goal is something you can achieve in the time frame you set.

RELEVANT. Does this goal make sense for you? Be realistic, but also challenge yourself.

TIME-SENSITIVE. What is the time frame? Can you break it down into a long-term overall goal, with subgoals as steps that lead there?

Look at the example for each area and fill in your own statements in the space provided on a blank worksheet.

Date 6/15/2018

Specific

I want to improve my APFT time

Measurable

Shave 40 seconds off my APFT 2-mile run time (5 seconds off each quarter mile)

Achievable/Action-oriented

I am shaving 40 seconds. I know I can do this.

Relevant

I am fit, and there is room for me to improve.

Time-sensitive

(Overall goal)

I am shaving 40 seconds in 8 weeks.

(Sub-goal)

I am sticking to my training schedule over the next 2 weeks and then will assess.

WORKSHEET: TRAINING GOALS PLANNER

Date

Specific

Measurable

Achievable/Action-oriented

Relevant

Time-sensitive

(Overall goal)

(Sub-goal)

Date

Specific

Measurable

Achievable/Action-oriented

Relevant

Time-sensitive

(Overall goal)

(Sub-goal)

Date

Specific

Measurable

Achievable/Action-oriented

Relevant

Time-sensitive

(Overall goal)

(Sub-goal)

WORKSHEET

CARDIO PLANNER

This workout planner can help you keep track of your cardio training. Enter the date, time of day, the type of cardio workout you completed, the length of your workout in the “Time” column, and the distance you covered, when applicable, in either miles or kilometers in column 5. Your average pace, when applicable, is your distance divided by your time in column 6. And last, take notes on how your workout went!

(This worksheet also is available in Excel format, which automatically makes the calculations for you. If you would like the Excel version, please send your request to us using HPRC’s [Ask the Expert](#) feature, and we will email the file to you.)

Date	Time of Day	Workout	Time (h:mm:ss)	Distance (mi or km)	Average Pace (h:mm:ss)
6/15/2018	1500	Run	2:35:15	13.1 mi*	0:11:51/mi*
How was your workout?					

*If you prefer, substitute kilometers (km) rather than miles (mi) but be sure you use the same unit of distance in all cases.

Date	Time of Day	Workout	Time (h:mm:ss)	Distance (mi or km)	Average Pace (h:mm:ss)
How was your workout?					

Date	Time of Day	Workout	Time (h:mm:ss)	Distance (mi or km)	Average Pace (h:mm:ss)
How was your workout?					

WORKSHEET: CARDIO PLANNER (PAGE 2)

Date	Time of Day	Workout	Time (h:mm:ss)	Distance (mi or km)	Average Pace (h:mm:ss)

How was your workout?

Date	Time of Day	Workout	Time (h:mm:ss)	Distance (mi or km)	Average Pace (h:mm:ss)

How was your workout?

Date	Time of Day	Workout	Time (h:mm:ss)	Distance (mi or km)	Average Pace (h:mm:ss)

How was your workout?

Date	Time of Day	Workout	Time (h:mm:ss)	Distance (mi or km)	Average Pace (h:mm:ss)

How was your workout?

WORKSHEET

WEIGHT-TRAINING PLANNER

Use this workout planner to keep track of your weight training. Enter your own dates at the top of each column and specific exercises in column 1.

	Date	6/15/18							
Exercise									
Overhead Press	Weight	100							
	Reps	10							
	Sets	3							
Lat Pull-down	Weight	150							
	Reps	12							
	Sets	4							
	Weight								
	Reps								
	Sets								
	Weight								
	Reps								
	Sets								
	Weight								
	Reps								
	Sets								
	Weight								
	Reps								
	Sets								
	Weight								
	Reps								
	Sets								

CHAPTER 7

IMAGINE YOUR WAY TO BETTER PERFORMANCE

Imagery is a great way to prepare for endurance events because you can use your mind while resting your body. Imagery is a mental skill that involves using all your senses to visualize experiences you haven't had yet or to recreate past events, which can help optimize your performance. When you practice imagery skills, it can lead to better decision-making, fewer errors, improved focus, increased confidence, and less stress and anxiety.

Imagery is the practice of using your imagination to see (and feel) how you want to perform a skill—as if you're actually doing it. It's effective because your brain is hardwired to see in pictures, and imagery can help boost your performance in many ways.

- **Better manage high-stress environments.** As an athlete training for an endurance run, have you ever imagined the runners standing beside you at the starting line, feeling your sneakers tight around your feet, hearing family members or friends cheering in the background, smelling the morning air as if you're already there? It can be tough to manage your thoughts and emotions in those high-pressure situations. However, you can boost your confidence by imagining ahead of time what your environment might look and feel like, how to cope when your heart starts pounding and your breathing becomes uneven, and what you might say to yourself to stay composed.
- **Learn and improve skills.** Imagery can help you learn and practice motor skills such as proper running technique. When you imagine executing a task, your brain sends signals to the muscles involved as if you were actually doing it. And it creates a mental blueprint that enables your brain and body to remember how to do those skills without actually performing them. It's important to combine physical practice with mental practice for best results.
- **Stay on track with goals.** Spending time to imagine in detail what it will look and feel like to accomplish your goal can help you stay committed to what you need to do to meet that goal. For example, if you've been working toward completing an endurance mud run, engaging all your senses in thinking about the pride on your loved ones' faces at the finish line might motivate you to stick to a regimented exercise routine.
- **Regulate emotions.** Imagery also can be a powerful self-regulation tool. For example, guided imagery can help you improve your relaxation and focus. It can help you imagine the struggles you might face along the way to reaching your goal and how you will overcome various obstacles. This will help you manage your frustration and stay motivated when you do encounter obstacles. You can choose from many free [guided imagery recordings](#) online. Or use the worksheet below to create your own imagery script.

Everyone can build and use imagery skills. Because of your ability to “daydream,” as well as dream at night, you're already good at it. But if you learn how to daydream intentionally, you can fine-tune imagery to boost your performance.

WORKSHEET

BUILD AN IMAGERY SCRIPT

You can build an imagery script to help boost your confidence while reducing stress and anxiety about an important upcoming performance.

You can generate imagery in your mind for just about any task (such as running a marathon, taking an exam, performing weapon maintenance in the dark, or having a difficult conversation). Imagery also can help you learn new skills, maintain and improve your current abilities, and take advantage of times when physical practice isn't possible.

To optimize your performance, use this worksheet to create your own imagery script.

IDENTIFY

Pinpoint what you want to improve through imagery and specify how you hope it will be helpful.

What task or performance do I want to improve?

Example: Marksmanship, giving a brief, an endurance event, or push-ups...

How will practicing imagery help me?

Example: Learn or improve skills or strategies, increase confidence, or control arousal and anxiety...

INSPIRE

How does this task fit in with your larger goals and what you value? Staying connected to your purpose can help motivate you.

Why does this performance matter to me?

IMAGINE

Recall a time when you performed well during a similar task or event in the past. Make the scene more vivid and concrete in your mind by seeing yourself responding well to adversity. Good mental imagery incorporates all your senses. What did you see, hear, smell, touch, and taste at that time? Provide as many details as possible.

What were my environmental conditions?

Example: Weather, location, or things around me...

What THOUGHTS did I have (before, during, and after event)?

Which EMOTIONS did I feel (before, during, and after event)?

How did my BODY feel (before, during, and after event)?

What are some possible OBSTACLES or CHALLENGES that might get in my way?

PLAN

Create a plan for where, when, and how often you'll practice your imagery script.

Where will I practice?

When will I practice?

Example: Before, during, or after training, on a mission...

How often will I practice?

Imagery Script Sample #1: Mud run

I'm standing at the starting line of an endurance mud run, staring off at the course ahead of me. I'm getting excited waiting for the race to begin as I bounce back and forth. I feel the tightness of my shoes on my feet. I smell the morning air. I hear my peers at the starting line next to me discussing the different obstacles on the course. In about 60 seconds, my event will start.

I notice how I think and feel in this moment. I feel nervous in my ability to execute my best performance today. I experience the familiar tension in my muscles and increased heart rate as the time to perform draws closer. At first, I start to doubt myself and think I am not going to be able to do this, that everyone else is just a little more prepared, experienced, or in shape, but I remember how to refocus: "Breathe. Relax. One obstacle at a time." These thoughts and feelings tell me that I am ready to start.

In the past, I experienced these thoughts and feelings and performed well. Today's performance matters, and I am feeling confident in my ability to do well. My breathing and attention are calm and controlled. Nothing can affect me today.

The starting gun sounds. I take a slow, centered breath and then begin running to the first obstacle. I get to the first obstacle. I throw myself onto all fours to climb straight up a ski mountain. As I climb, my arms burn and shake. I see others climbing faster and already reaching the top. As doubts run through my head, I remind myself that I've trained for weeks to make it to the finish line of this event. I have weight trained my upper body, and I've gained stamina by running 5 miles a day. I tell myself, "I'm prepared! I know I can do this!" and I push through. I reach the top and jump off, I feel invincible and am ready to take on the next obstacle.

As the course continues I begin to feel my legs struggle to pick themselves up, as they dredge through the thick mud. I can feel my heart pounding, I feel my mouth and throat drying up. My arms feel like Jell-O. My mind starts wandering to think about how many obstacles are left. I start questioning myself: "Can I do this? Should I skip the next obstacle?" I then take a deep breath and remind myself to refocus, "One obstacle at a time! I know I can do this next one!" I continue through the course with the same level of focus and calm, taking each obstacle one at a time as I execute my training effectively.

I get to the last obstacle and, although I'm tired, my adrenaline kicks in and I finish strong. I cross the finish line with my hands in the air. I'm covered in mud, and sweat is beading down my face, back, and chest. I feel victorious! I feel like I can do anything, and I congratulate my fellow runners. As I receive my shirt and medal, I think back on all of the obstacles I overcame. I also reflect on the nerves I felt at the start of the event. My muscle tension and increased heart rate before starting helped me perform at my best today. I am confident in my ability to refocus in the moment and recognize that these nerves are important in helping me perform successfully. And I understand that this routine is going to lead to good performances in the future.

Imagery Script Sample #2: Marksmanship

You're at the range about to engage in basic rifle marksmanship (BRM) training. Settling in the prone position, you're about to fire your M16 in single-shot bursts. You feel your weapon in your hands and anchor your body properly against the ground. Looking ahead, you see the target in your rifle sights at 50 meters. You hear your peers on the firing line. In about 60 seconds, your event will start.

You notice how you think and feel in this moment. You feel nervous in your ability to execute your best performance today. And you experience the familiar tension in your muscles and increased heart rate as the time to perform draws closer. At first, you think about missing the target and not qualifying, but you remember how to refocus: "Breathe. Relax. Aim. Squeeze." These thoughts and feelings tell you that you're ready to start.

In the past, you experienced these thoughts and feelings and performed well. Today's performance matters, and you're feeling confident in your ability to do well. Your breathing and attention are calm and controlled. Nothing can affect you today. Your platoon sergeant gives the command, "Fire when ready."

You take a slow, centered breath. Prior to your trigger squeeze, you sight your target, deeply inhale, position your finger over the trigger, and exhale fully... 3, 2, 1. You squeeze the trigger and see the bullet strike the target exactly where you aimed. Firing your weapon feels effortless.

You continue firing rounds with the same level of focus and calm, taking each shot one at a time as you execute your technique effectively.

You finish your event and acknowledge your good performance. You also reflect on the nerves you felt at the start of the event. Your muscle tension and increased heart rate before starting helped you perform your best today. You're confident in your ability to refocus in the moment and recognize that these nerves are important in helping you perform successfully. And you understand that this routine is going to lead to good performances in the future.

CHAPTER 8

TRAINING NUTRITION

When you eat—“nutrient timing”—is as important as **what and how much you eat** when it comes to your athletic performance. Whether you’re fueling for your daily exercise routine or training for an extended operation or marathon, nutrition is a key enabler to help you perform your best. However, using nutrition to optimize your performance takes planning.

QUICK TIP: Don’t try new strategies, foods, or drinks on race day. Practice different race-day nutrition strategies and products while training instead to find out what works best for you.

FUELING BASICS

Fueling for endurance events starts with eating a balanced diet that’s high in variety. Carbohydrates are your primary fuel source. You should consume carbs from various sources before training and throughout each day to keep you energized. Protein consumed throughout your day, particularly after your workouts, will help your muscles recover faster.

It’s important to eat enough carbs every day because they feed your working muscles and help maintain blood sugar, as well as preserve the protein you need to maintain lean muscle mass, support muscle growth, and reduce risk of muscle loss.

QUICK TIP: Watch your weight, but don’t under-fuel. If you limit carbs and calories too much, your performance will suffer in the long term.

HYDRATION BASICS

The best way to prevent dehydration is to begin your activity already hydrated. Continue to drink fluids, mostly water, during exercise. This is essential for you to remain hydrated and maintain your physical and mental performance. Losing just 2% of your body weight in fluids can negatively impact your cardiovascular system, body temperature, and muscle function.

To avoid dehydration, consume fluids during exercise in small amounts (3–8 fl oz) every 15 to 20 minutes. One gulp is about 1–2 fl oz. Don’t rely on thirst as a good indicator of your fluid needs. If you’re thirsty, it’s likely you’re already dehydrated.




Getting enough sodium is essential to your endurance performance, especially with heat, humidity, or heavy sweating. You can use the Go for Green® Sodium Guide on the next page to see how much sodium is in the foods you eat. Choose moderate- or high-sodium foods on training and competition days.

The G4G Guide: Sodium

This guide is a starting point for understanding which foods are high in sodium. Sodium is a mineral found naturally in some foods and added to packaged items to preserve freshness and enhance flavor.

Too much sodium can be harmful to your health, especially if you are salt sensitive. However, too little sodium can be harmful to health and performance if you lose a lot of sodium through multiple hours of activity, extreme environments, or sweat. Sodium is important to maintain fluid balance, control blood pressure, and for muscles and nerves to work properly.

For average Americans, 2,300 mg of sodium per day is appropriate; this is about the amount found in one teaspoon of table salt. Sodium needs vary depending on medical condition, activity, and environment. The most active warriors who operate in extreme conditions may require as much as 3,500mg (women) or 5,000 mg (men) of sodium per day. Restaurant food often contains more salt. At home and in military dining facilities, the amounts of sodium vary greatly. Increased portion sizes also increase sodium intake.

Use along with the Food and Beverages (Green, Yellow, Red) Guide to help choose appropriate foods and beverages for your sodium needs.			
	Low Sodium  LOW	Moderate Sodium  MODERATE	High Sodium  HIGH
Foods and Beverages	<ul style="list-style-type: none"> • Fruit—fresh or frozen • Vegetables—fresh or frozen • No-added-salt/salt-free canned vegetable and tomato products • Grains—plain, unseasoned • Grain products—plain, unseasoned • pasta, rice, quinoa, couscous • Unsalted nuts, seeds • Unsalted nut butters (peanut, almond, soy nut) • Fresh chicken, turkey, beef, pork • Milk • Most yogurts • Olive oil, canola oil • Dry beans, peas, lentils 	<ul style="list-style-type: none"> • Some breads, rolls, biscuits, pancakes, waffles, English muffins • Low-sodium canned vegetables • Most snack foods (pretzels, crackers, chips, popcorn) • Most sauces/glazes on chicken, turkey, beef, or pork • Most homemade soups made with low-sodium broth • Most frozen meal “starters” • Packaged rice/grain dishes, if you use only half the seasoning packet 	<ul style="list-style-type: none"> • Canned vegetables and beans • Canned tomato products • Instant noodles with flavor packet • Deli meats/cold cuts—turkey, ham, bologna, salami, etc. • Processed meats—sausage, bacon, pepperoni, hot dogs • Cheese • Condiments and toppings—soy sauce, ketchup, marinades, cocktail sauce, gravy, nacho cheese dip, pickles • Seasoned salts, table salt • Canned soups • Almost all “fast foods” • Frozen entrees/“microwave dinners”
When to Eat	<ul style="list-style-type: none"> • Eat low-sodium foods most often, especially if you have been told to follow a “low-sodium diet.” • Not all low-sodium foods are also labeled Green; limit Yellow- and Red-labeled foods and beverages for overall good health. 	<ul style="list-style-type: none"> • Eat moderate-sodium foods sometimes • Moderate-sodium foods are appropriate for most warriors who are moderately active 	<ul style="list-style-type: none"> • Eat high-sodium foods rarely or in small amounts. • For warriors who are active multiple hours per day and/or in extreme environments, some high-sodium foods should be included daily.
General Tips	<ul style="list-style-type: none"> • Choose mostly whole, fresh foods. • Cooking at home can help reduce sodium content. • Purchase unflavored foods, and add your own fresh seasonings: herbs, spices, vinegars, citrus. • When cooking with whole, fresh foods that are naturally very low in sodium, it’s okay to add a pinch of salt. 	<ul style="list-style-type: none"> • Although snack foods and breads have moderate sodium, large portions can increase your sodium intake to high. • Drain and rinse canned foods (beans, tuna) to reduce their sodium content. • Even low- and reduced-sodium versions of your favorite chips or crackers may fall into the moderate sodium category. 	<ul style="list-style-type: none"> • Table salt is mostly sodium; use sparingly. • Processed, packaged, and convenience foods contribute about 80% of sodium to our diets; read food labels and pay attention to serving sizes. • Many condiments and toppings are high in sodium. • Restaurant foods are generally higher in sodium than homemade foods.

FUELING FOR SPECIFIC ACTIVITY LEVELS

Proper fueling and hydration allow you to train hard for multiple days without wearing down your body. Fueling tactics need to be tailored to individual needs, but this chapter offers some guidelines for basic performance nutrition. You can read more about the fundamentals in HPRC’s article about [performance nutrition for endurance training](#).

For short, moderate training distances

You need only a small amount of extra fuel and fluid before, during, and after short (lasting 45–75 minutes) but moderate- to high-intensity workouts for performance success.

Start strong (top off energy). Begin well hydrated and fuel up for a short, moderate- to high-intensity activity such as running or basketball.		
	Fluid	Fuel
When	2–4 hours before exercise	30–60 minutes before exercise
What	14–22 fl oz of water	A carb-rich meal or snack of about 200–300 calories
Ideas	14–22 fl oz water	<ul style="list-style-type: none"> • Medium banana and 1 cup dry oat-rings cereal (209 cal) • Oatmeal-raisin energy bar (250 cal) • 1 package plain instant oatmeal, cooked with water, and ¼ cup raisins (256 cal) • 1/3 cup dried fruit and 2 Tbsp nuts (243 cal) • Whole wheat bagel (3 oz) with jelly (1 Tbsp) (250 cal)

Stay strong (maintain energy). Prevent dehydration by replacing fluids lost through sweat.	
	Fluid
When	Every 15 minutes during exercise
What	3–8 fl oz water, preferably (about 12–32 fl oz per hour; a sports drink may be used when conditions are hot, humid, or both)
Ideas	12–32 fl oz water

Recover strong (refuel energy). Replenish your fuel stores (glycogen), replace fluid and electrolyte losses, and repair damaged tissues.		
	Fluid	Fuel
When	Immediately after exercise	Within 2 hours of exercise
What	Water	Your next planned “balanced” meal, but eat a light snack if your meal is more than 2 hours away
Ideas	Water	<ul style="list-style-type: none"> • Deli turkey (2 oz) and cheddar (1 oz) on whole-wheat bread (2 slices), 1 medium apple (43 g carb, 24 g protein) • Veggie and hummus wrap, 1 medium orange (83 g carb; 15 g protein) <p>Snacks:</p> <ul style="list-style-type: none"> • Smoothie with low-fat milk (1 cup), low-fat plain Greek yogurt (½ cup), berries (½ cup) (28.5g carb, 23.5 g protein) • Granola bar with nuts (21 g carb, 4 g protein) • Chocolate milk (8 fl oz) (24 g carb, 9 g protein)

For long training distances (> 60 min)

Extended activities such as running a marathon require more fuel and hydration to sustain performance before, during, and after the event.

Start strong (top off energy). Begin well hydrated and provide fuel for working muscles		
	Fluid	Fuel
When	2–4 hours before and up to start of exercise	1–4 hours before exercise <i>Tip:</i> Measure your starting weight before you eat or dress.
What	14–22 fl oz of water	1–4 g carb/kg (0.5–1.8 g carb/lb) <i>Example:</i> If you eat 1–2 hours before an event, choose 1–2g carb/kg (0.5–0.9 g carb/lb). If you eat even longer before an event, choose higher amounts of carbs. <i>Tip:</i> Choose foods low in fat and fiber to prevent digestive upset. <i>Optional:</i> Caffeine* (see page 32)

Stay strong (maintain energy). Prevent dehydration by replacing fluids and electrolytes lost through sweat, and to provide carbs to refuel and maintain blood sugar levels.		
	Fluid	Fuel
When	Every 15 minutes during exercise	At start of exercise and every 45–60 minutes during exercise
What	12–32 fl oz per hour water, sports drink, or a mixture of both. <i>Tip:</i> Try different types/brands of sports drinks to find what works best for you.	<ul style="list-style-type: none"> • For exercise up to 2.5 hours, consume 30–60 g carb/hour from food and fluids. • For ultra-endurance events (> 3 hours), up to 90 grams carb/hour. Choose from fruit, grains, sports drinks (i.e., easily digestible carbs).

Recover strong (refuel energy). Restore fuel (glycogen), replace fluids and electrolytes, and repair damaged tissues.		
	Fluid	Fuel
When	Immediately after exercise	Within 2 hours after exercise <i>Tip:</i> Check your post-exercise weight and calculate change in weight. Ex: 185 – 183 = 2 lb lost in sweat.
What	16–24 fl oz sports drink or water per pound lost during exercise. <i>Tip:</i> Replace more water and sodium than you lost. It's important to choose foods (such as pretzels) and beverages (such as sports drinks) that contain sodium. Check the G4G Sodium Guide above for more ideas.	<ul style="list-style-type: none"> • Choose a meal containing carb-rich foods and 20–25 grams protein. • Eat a snack if your meal is more than 2 hours away.

*A WORD ON CAFFEINE (FROM OPERATION SUPPLEMENT SAFETY)

Caffeine might reduce your perception of fatigue and allow you to sustain your targeted (or intended) intensity for a longer period of time. If you use caffeine to boost your performance, be sure to use it strategically and appropriately, and know your caffeine tolerance. In general, consuming up to 200 mg of caffeine approximately 30–60 minutes before an endurance event can provide a performance benefit for some people. For more information, read [Caffeine and Performance](#) from Operation Supplement Safety (OPSS).

A NOTE ON SPORTS DRINKS AND SPORTS FOODS

For events lasting longer than an hour, a **sports drink** with carbohydrates and electrolytes is important to replace electrolytes lost in sweat and maintain blood sugar levels. Look for a sports drink that contains 12–24 g carbohydrates, 82–163 mg sodium, and 18–46 mg potassium per 8 fl oz. Many commercial sports drinks contain amounts within this range. If you would like to make your own, try HPRC's [sports drink recipe](#).

Sports foods, such as gels and chews, can be convenient, lightweight, portable sources of fuel. They contain an easily digestible source of carbohydrate plus electrolytes (sodium and potassium), which might be helpful if you're exercising longer than one hour. You can use a combination of sports drinks, sports foods, and real food to meet your carbohydrate goals during prolonged exercise.

Note: Some products also contain caffeine. A Registered Dietitian who is certified in sports dietetics can work with you to create a plan to help you use these products effectively. Be sure to read the product label and factor the amount of caffeine in these products into your total caffeine intake for that day.

Learn more about performance nutrition in HPRC's [Warfighter Nutrition Guide](#).

REST DAYS

Rest days are just as important as training when you're preparing for an endurance event. This is the time when your body can recover, restore, and repair itself from all the physical stress of training. Even though you aren't as active on these days, you still need to provide your body with good nutrition. Follow the guidelines in Chapter 5 on rest days.

CHAPTER 9

THE RUNNER'S CORNER

RUNNING FORM

Proper running form can help improve your overall efficiency and reduce your risk for injury. Following these few simple reminders can keep you injury-free as you reach peak performance.

RUNNING FORM 101

Keep your head upright and in line with shoulders
Look slightly down and ahead

Keep your chest up and **shoulders straight**

Bend your arms about 90 degrees

Land on your midfoot to forefoot (from the arch to the ball of your foot)

Relax your jaw

Relax your hands (imagine holding a penny between your thumb and forefinger)

Don't cross or swing your arms in front of your chest

Lean (fall) slightly forward—don't slouch!

Don't over stride—your foot should land under or slightly in front of hips
Keep your cadence at **170-190 steps** per minute

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AVOID RUNNER'S STOMACH

Runners sometimes experience an unpleasant situation known as “runner’s trots,” or diarrhea. While generally harmless, it can be annoying and cost you time during training or a race.

High-intensity or long-duration endurance events also can increase your risk of gastrointestinal (GI) discomfort. Dehydration, poor conditioning, medication, pre-race anxiety and stress, as well as eating habits, can cause GI irritation too. Despite the lack of hard evidence as to what causes these GI issues, there are things you can do to help settle your stomach. Try these tips during training to find what works best for you:

- Avoid trying new foods or sports drinks on the day of your race. Instead, try them a few times during training runs before your event to know what works and what doesn't. Pay attention to what you eat and keep a food diary, so you can identify foods that increase your discomfort during running. Take note of foods that cause problems both in general and while running (such as milk, dried fruit, acidic foods, caffeine, spicy foods, and chocolate). It's best to avoid these until after you finish your race. Or find appropriate alternatives (such as lactose-free milk or a milk substitute such as almond milk).
- Increase the amount of time between eating and activity. Wait at least 3 hours after eating a large meal. Or eat a smaller meal or snack closer to training time.
- Plan your meals, especially for endurance events, as described in Chapter 14.
- Limit your intake of...
 - ↳ gas-forming and fiber-rich foods (such as broccoli, onions, and beans)
 - ↳ high-fat greasy foods (sausage, doughnuts, etc.)
 - ↳ rich, heavy foods (creamy, buttery, or cheesy casseroles; fried foods; peanut butter; etc.)
 - ↳ sweeteners called sugar alcohols (isomalt, sorbitol, etc.), which often are found in sugar-free candies, gum, ice cream, and other products
- If you're sensitive to caffeine, avoid coffee and other forms of caffeine before a run.
- Hydrating before and during endurance activities will help blood flow to the GI area and reduce the risk of diarrhea. Avoid warm liquids, however, which can speed food through the digestive tract. See Chapter 8 for more information about hydration.
- If you use sports gels or chews for endurance events, drink enough water (3–8 oz every 15–20 minutes).
- Make time to use the bathroom before an endurance event.
- Increase distance and intensity [gradually](#).
- Wear comfortable, loose-fitting clothing while running.

On the morning of an event, choose easily digestible foods (such as a banana, bagel, white rice, potato, or toast) that are bland, low in fat, and low in fiber.

Mental fitness can play into how your body reacts too. Calming techniques such as [positive thinking](#), [deep breathing](#), and [listening to music](#) can go a long way to prevent your body from protesting. Resilience strategies can be a nice complement to performance nutrition. Read Chapters 4, 7, 12, and 13 for some ideas.

If symptoms persist for more than a few days, even when you're at rest, see a Registered Dietitian trained in sports nutrition.

LACE YOUR SHOES FOR SUCCESS

There are lots of different ways to tie your shoes when the traditional way doesn't cut it. Is your heel slipping? There's a lace-up for that. Do you have a hot spot? There's a lace-up for that. Check out HPRC's videos for shoelace-tying fixes to 3 common foot problems:

Heel lock. What are those extra eyelets at the top of your shoes? Use those eyelets and this [heel-lock method](#) to secure your foot, without having to tighten the rest of your shoelaces.



Black toenails. Are your toenails turning black-and-blue? [Tie your shoelaces](#) to help pull the shoe away from your toes, giving them more wiggle room. Remember: The lace ends don't have to be even when you start lacing your shoes; the diagonal lace can be a little shorter to start with. But leave enough so you can finish tying your shoes.

Hot spots or high arches. Is there a sore spot on the top of your foot? Or do you have high arches? [Lace around painful areas](#)—not over them—by moving the laces up or down, depending on where the irritation is located.

HOW TO RUN HILLS

Hills: They can cause your heart to race, lungs to hurt, muscles to burn, and brain to ask, “Why am I doing this?” But running hills is one of the best ways to get in shape, as long as you run them correctly. Your form is just as important for running uphill or downhill as it is on flat ground. Running a hill with bad form can cause unnecessary fatigue and perhaps injury over time. But there are a few things you can do to maintain proper form and boost your performance:

- Lean in from your ankles. That is, resist the urge to bend over or lean in at your waist, which puts all the stress on your quadriceps rather than getting help from your glutes, hamstrings, and lower-leg muscles. Leaning from the waist will cause you to fatigue sooner too.
- Swing your arms. Use the forward motion of your arms to help propel you up a hill. Exaggerating your normal arm swing a bit can help, but make sure your arms are swinging front-to-back at your sides, not across your body.
- Drive your knees. Think about lifting your knees just a little bit more as you’re running uphill. This also will help propel you upwards.
- Shorten your steps. Your form might naturally change from midfoot strike to more of a forefoot strike when you’re running up hills, especially the steep ones. Shortening your stride will help keep you more upright and efficient when pushing yourself up a hill and when controlling your run down a hill.
- Sit back. When running downhill, sit your weight back a little bit so you aren’t leaning forward too much. This will give your quads a harder workout, but it also will keep you from falling forward down the hill.
- Strengthening your core and lower body can be particularly helpful for hill running. Planks, [pushups](#), and [vertical core exercises](#) will help you maintain an upright posture. Lunges, reverse lunges, squats, and box jumps strengthen your quads, glutes, and hamstrings while improving power. Calf raises, foot slaps, and other [lower-leg exercises](#) will improve your lower-leg strength and stability too.

Whether you’re on a treadmill or Heartbreak Hill, practice good form for optimal performance.

SECTION 2 EVENT

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CHAPTER 10

CHECKLIST FOR ENDURANCE ATHLETES

When it comes to endurance events, preparation is a key element of success. You probably spent months getting yourself in peak shape to perform at your best. Remember that good planning includes thinking about those little extras you might need just before, and even after, your event. Use this checklist to make sure you've covered all the preparation bases.

Night before

- Hydrate!
- Check the weather
- Set your alarm (or two or three!)
- Make sure your devices (phones, music, watch) are charged
- Eat a healthy but relatively bland dinner (see Chapter 14)
- Lay out your clothes, shoes, hat, sunglasses, and other gear
 - Pro tip:* Don't wear anything new on race day!
- Pin your bib to your shirt and try it on to make it's sure pinned comfortably
- Pack your race fuel and gear (gels, drinks, and/or hydration packs) for before and during the race
 - Pro tip:* Stick to what you know works. Avoid trying new foods or drinks the day of the event
- Have an anti-chafing plan if necessary (body glide, Vaseline, Band-Aids, etc.)
- Pack a race bag with:
 - Cash, card, subway card
 - Driver's license and insurance card
 - Phone
 - Prescription medications, if any
 - Music player and earphones
 - First-aid supplies (Band-Aids, moleskin, lube, sunscreen, etc.)
 - After-race items
 - Extra shoes or sandals

- Dry shirt and pants or shorts
- Towel
- Write your emergency contact information on your bib or register it with the event
- Confirm your drop-off and transportation plans
 - Pro tip:* Look up directions ahead of time; the usual routes might be closed
- Review your meditation or mindfulness training to help get you through
- Create your own mantra to repeat when you hit the rough spots

Morning of

- Review the “Night before” list above to make sure you didn’t forget anything
- Eat a good breakfast
 - Pro tip:* Stick with something familiar, such as your breakfasts on longer training days
- Apply sunscreen
- Warm up (especially if it’s cold)
- Get to the event early enough to:
 - Use the bathroom
 - Leave your bag at event check-in
 - Find your friends, if you made plans to meet up in advance
 - Get excited and stay positive! You’ve worked hard for this. Trust your training!

After the event

- After the race, finish up with a recovery program that includes:
 - Stretching (see Chapter 16),
 - Icing (if you’re sore), and
 - Refueling (see Chapter 15)
- Give yourself a chance to rest and recover
- Celebrate and be proud of your accomplishments!

CHAPTER 11

CHECKLIST FOR FAMILY AND FRIENDS OF ATHLETES

Athletes aren't the only ones who need to think about preparing for an endurance event. As a family member or friend, you play a major role in supporting your athlete's success, so it's important for you to be prepared too! Use this checklist to help make sure you're race-day ready.

Night before

- Help your athlete prepare a healthy dinner
- Set your alarm to make sure everyone wakes up early enough
- Help your athlete get to sleep on time
- Charge your electronics so you can snap photos and videos when your athlete passes you on the course
- Pack your cheer gear (bells, "signs of support," noisemakers, etc.)
- Pack your care bag; include extras for your athlete (energy bars, water bottles, ibuprofen, snacks, a towel, hand warmers, sunscreen, etc.)
- Decide if you're the one to transport your athlete to the event. If so, know the drop-off and pick-up locations. Remember to anticipate road closures and expect public transportation to be crowded or delayed.

Morning of

- Help your athlete prepare a healthy breakfast of pre-event fuel
- Confirm where you'll meet your athlete after the event
- Have a map of how and where you'll go (and meet others) to cheer on your athlete
- Download the race-tracker app (if available) to receive updates on your athlete's progress
- Give encouragement such as, "You've got this!" and "I'm so proud of you!"

During and after the event

- Head to your "support spots" using your route map, so you're in place to cheer on your athlete as he or she passes by
- Meet your athlete at the planned location after the event, so you can deliver the goodies in your care bag
- Be prepared with transportation to get you and your (likely exhausted) athlete back home

Show support for your athlete with some encouraging (and fun) race-day signs. Some suggestions include:

- This is a lot of work for a free banana...
- Embrace the suck!
- Your feet hurt because you're kicking butt!
- Run like your phone is at 1%!
- Pain is temporary. Race results are online forever!
- Chafe now...brag forever!



CHAPTER 12

OPTIMIZE PERFORMANCE THROUGH POSITIVE SELF-TALK

Self-talk is what you say to yourself in your heat-of-the-moment thoughts. Throughout the day, you interpret and review the different incidents you face. Effective use of self-talk can improve your performance by helping you regulate your emotions, thoughts, and energy. Positive self-talk can help you feel confident, improve coordination, control fine motor skills, enhance your focus, and perform better at endurance events too.

No matter your skill level at a particular task, self-talk can help you perform optimally. To get the most from self-talk, develop statements that are specific to you and what you're doing. The strategies below will help you develop instructional and motivational statements, so you can stay motivated, maintain good form, and remember your training.

MOTIVATIONAL SELF-TALK

When your self-talk is productive, it can motivate you to stay on track and work through challenges. Other times, your self-talk can become your worst enemy, distracting you or weakening your motivation. Sometimes you might tell yourself, "You aren't good enough," "You can't do this," or even "You aren't prepared." When self-talk begins to get in your way, you need to grab control of it and fight back: Use evidence to prove your thoughts false or readjust your focus.

Examples: You're running an endurance event and becoming your own worst enemy, thinking, "I'm never going to finish! I can't do it!" The good news is you can fight back and motivate yourself by saying, "I know I can do this! I've been training 5 days a week for 3 months to prep for this event!" Self-talk such as "Take a deep breath" or "I'm okay" can release the nervousness you might be feeling as well. Or simply repeating the word "focus" might help you concentrate on the task at hand.

Results: Motivational self-talk boosts performance by helping you build confidence, enhance your belief in your ability to perform an event, reduce jitters, and improve your mood. It's particularly useful for tasks that involve strength and endurance to help push through pain and fatigue. Motivational self-talk can improve reaction time and speed and enhance your physical performance when it comes to things such as balance and vertical jumps too.

INSTRUCTIONAL SELF-TALK

Instructional self-talk involves talking yourself through a task with step-by-step reminders at each phase while you perform the task in order to complete it successfully. When you're learning something new, instructional self-talk can help you remember all the necessary steps of the new task. Experts use this method to ensure that all steps are completed in the correct order and manner. To develop effective instructional self-talk statements, it's important that the steps are accurate to begin with; being shown how each step looks is ideal.

Examples: If you're running an endurance event, statements such as "Head up... chest up... shoulders straight... lean forward... breathe from the belly" can help you focus on your running technique. Or if you're practicing marksmanship, statements such as "See the target...straighten elbows...lock onto

target...and fire” can help you carry out each step effectively. You might even want to number each step, especially if there are a lot of them, so the previous statement would become “Step 1, see the target; step 2, straighten elbows...”

Results: Using this method helps you stay focused and execute your training. It can improve your performance as well as prevent injuries from sloppy technique. It also helps to break down complex tasks or activities that require, for example, precision (fine motor skills) so you can concentrate and complete them with greater accuracy.

FINISH LINE

Your self-talk can either hurt you or help you. [Grab control over your thinking](#) and use your self-talk to stay motivated and focused! It can increase your performance at endurance events, work, school, and even your relationships. Self-talk is a skill, so the more you practice it, the better you’ll perform. Also, use HPRC’s [“ABCs of Performance”](#) worksheet to learn more ways to “try on” positive self-talk for peak performance.

CHAPTER 13

GOT ANXIETY? GET EXCITED INSTEAD!

You probably have felt some level of anxiety when you're about to take part in an endurance event. You might equate feeling anxious or nervous with something bad, or you might think it's a signal that you're not prepared or mentally tough enough. Maybe these feelings get in your way of being effective too. But you can learn to **embrace anxiety and use it to your advantage** to improve your performance.

In high-stakes situations where performance matters, the emotions and feelings in your body that go along with anxiety are common. Your heart beats faster, you might feel sweaty, and your stomach can feel uneasy. Even though these are signs your body is preparing you to be at your best, these sensations can feel unpleasant, and your emotions and physical senses of anxiety can become a source of stress.

Take the example of running your first marathon. As you're getting ready to run, you might notice you're feeling anxious, and you might say to yourself, "I feel like this because I don't have what it takes to run this" or "I'm sweating because I can't handle this." Interpreting what's happening in your body as something negative then makes you even more likely to continue thinking negatively about yourself and your ability to manage the situation. And then that in turn reinforces your anxious feelings and fuels more of those uncomfortable physical sensations.

WHY CAN'T YOU JUST RELAX?

There are strategies you can learn to help relieve your stress. For example, [tactical breathing](#) can help you manage your fight-or-flight stress response, calm down, and feel more in control. However, there are times when trying to calm down can impact your performance negatively. When you're feeling anxious, it might be difficult—or even impossible—to simply "decide" to feel calmer mentally because it isn't consistent with what's happening in your body. And trying to pretend you're calm (when you know you aren't) can make your anxiety worse.

GET EXCITED INSTEAD!

How you interpret the physical sensations of anxiety can change your emotions—including your overall mindset—and ultimately make a difference in how you perform. When you're feeling really anxious, try to reinterpret your anxiety as excitement. Tell yourself those sensations are signals that your mind and body are preparing you to meet the challenge ahead, rather than a sign you can't handle what's coming.

It's normal to interpret some physical signs as performance anxiety. But your body's reactions to excitement—increased heart rate, "butterflies," etc.—are the same as with anxiety, so you actually can **make the conscious choice to feel excited instead of anxious**. This doesn't make your anxiety go away, but it does enable you to feel more confident. Excitement feels good and puts your mind on a different track. When you're excited, it's also easier to view challenges as opportunities, not just potential threats.

So, when you feel anxious about your upcoming event, remember it's normal to feel anxious. Your [mindset about stress](#) and anxiety will determine whether your anxiety helps you perform your best or gets in your way. Excitement is anxiety's cousin: Convince yourself to feel excited, and in turn, enjoy a boost in performance.

CHAPTER 14

PRE-EVENT AND EVENT-DAY NUTRITION STRATEGIES

Before the day of an endurance event arrives, you should already have experimented and practiced your race-day nutrition on some of your harder or longer training days to see in advance how your body responds to different fuel sources. You also should know, from practicing, how long before your event you should eat to feel comfortable for the duration of the event. Now's the time to put it all together and get ready to race.

TAPERING

1–2 weeks before an event, begin your fueling strategy for tapered training (see Chapter 6). You might not be hungry on schedule, so make your calories count. Eat nutrient-dense meals as described in Chapter 5. You can expect a little weight gain, but don't worry: You're fueling for a big event.

About 4 days before your event, begin carb loading. Carbohydrates are especially important for competitions and events that last longer than 90 minutes. Carbs are stored in your muscles as glycogen, which your body will use as additional fuel when it's needed. To prevent fatigue and perform your best on the day of your endurance event, learn [how to carb load](#) appropriately during the 3–4 days before your event.

Continue to stay hydrated by following the guidelines in Chapter 8.

DAY BEFORE

Pre-event dinner: Aim for a carb-rich, bland meal (such as pasta) that won't upset your stomach. Be cautious with highly acidic or oily sauces such as tomato or alfredo, as well as other additions (such as garlic), that might result in GI discomfort. Don't try anything new the night before your race. During your training period, before long runs, is the time to practice finding the right meal for your pre-event dinner.

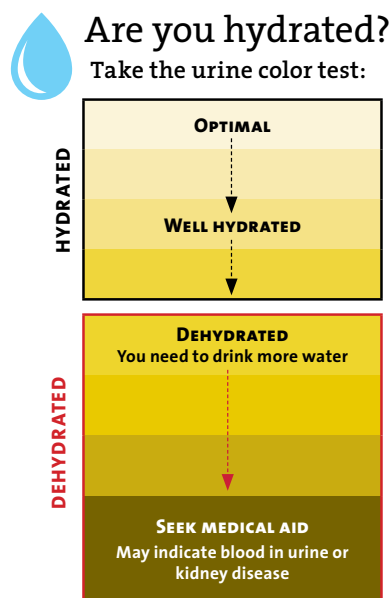
Stay hydrated! One way to make sure you're well hydrated before your event is to compare your urine color to this chart. Do this at least once on the day before your event and again on the morning of your event or several hours before. Continue to hydrate accordingly.

Plan ahead. If you want to take food with you to eat before the event, know when you intend to eat and have ready the right amount and types to pack in the morning (see below).

MORNING OF

In addition to checking your urine, it's helpful to take a baseline weight. Weigh yourself before and after the event to know how much water weight you lost, which will help later with your rehydration strategy (see Chapter 15).

Start hydrating and fueling 1–4 hours before your event. In some cases, this might be really early in the morning. While it's essential to start hydrating, if you aren't hungry, you can



This color chart is not for clinical use. Some vitamins and supplements might cause a darkening of the urine unrelated to dehydration.

pack your pre-race fuel and eat it on the way there or after you've arrived. Just plan your amounts of carbs according to when you will eat: The further from start time, the more carbs you will need. For example, if you eat 2 hours before, the amount for most people is about 2 g carb/kg bodyweight. If you eat only 1 hour before, then about 1 g carb/kg bodyweight should be enough. This requires organization and planning to pack the appropriate amount and type of food in advance.

IT'S RACE DAY: PERFORMANCE NUTRITION IN ACTION

The big day is here! Your fueling strategy shouldn't be new to you. You put in the miles, practiced your endurance-nutrition strategy, and put your number on your jersey. It's go time!

Here are some race-day nutrition ideas to keep you fueled before, during, and after your endurance event:

Start strong (top off energy). This example is for a 185 lb [84 kg] athlete fueling one hour before activity.		
	Fluid	Fuel
When	2–4 hours before and up to start of event	1 hour before event (1g carb/kg; see Chapter 8, long training runs, for more information) <i>Tip:</i> Measure your weight before you eat or dress.
Ideas	14–22 oz water	<ul style="list-style-type: none"> • Medium banana, 2 packets instant apple-cinnamon oatmeal (92 g carb) • 3" bagel with 2 Tbsp jelly, 8 oz orange juice (94 g carb) • 3 waffles, 2 Tbsp maple syrup, 1 cup strawberries (86 g carb) • Caffeine (optional)

Stay strong (maintain energy)		
	Fluid	Fuel
When	Every 15 minutes during event	At the start of event and every 45–60 minutes during event
Ideas	Water, sports drink, or a mixture of the two: 12–32 fl oz per hour (22 g carb/12 oz sports drink)	Choose one per hour: <ul style="list-style-type: none"> • 1 sports gel (24 g carb) • 3 sport chews (24 g carb) • 20 mini-pretzels (25 g carb) • ¼ cup raisins (28 g carb) • ~18 pieces candy (gummy bear pieces, 25 jelly beans, etc.) (26 g carb) For ultra-endurance: Add another 30 g carbs per hour from food or fluids

Recover strong (refuel energy)		
	Fluid	Fuel
When	Immediately after exercise.	Within 2 hours after exercise <i>Tip:</i> Check your post-exercise weight and calculate the change in your weight. Rehydrate as discussed in Chapter 15.
Ideas	Water, sports drink, or a mixture of the two: 16–24 fl oz for each 1 lb weight lost (22 g carb/12 oz sports drink)	Choose one: Meal <ul style="list-style-type: none"> • 2 oz deli turkey and 1 oz cheddar on 2 slices whole-wheat bread, medium apple (43 g carb, 24 g protein) • 2 Tbsp peanut butter and 1 Tbsp jelly on 2 slices whole-wheat bread, 8 oz chocolate milk (76 g carb, 21 g protein) Snack <ul style="list-style-type: none"> • 5.3 oz Greek low-fat yogurt, ½ cup trail mix, 1 medium fruit (59 g carb, 20g protein)

SECTION 3

RECOVERY

CHAMP



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CHAPTER 15

FINISH STRONG: RECOVERY NUTRITION

Nutrition to help you recover after your endurance event is just as important as nutrition during training. After exertion, your body needs to transition from a catabolic (breakdown) state to an anabolic (build-up) one to promote recovery and restore what was depleted during your event.

RECOVERY FOODS

A snack with a combination of protein and carbs is the key for recovery. Eat a [balanced recovery meal or snack](#) within 2 hours after your exercise. Aim for carb-rich foods and fluids along with 20–25 grams of protein to help restock your fuel stores and rebuild your muscles. Foods with essential amino acids, especially leucine, will promote repair of damaged muscles after exercise and build more muscles. Foods with leucine include eggs, dairy, and chicken.

QUICK TIP: Some protein supplements or powders are acceptable for recovery after an endurance event when high-quality protein foods are not available or not practical. Just make sure you read the label, so you know exactly what you're getting. Protein products often contain protein from whey or soy; for more information, please see the [OPSS article about whey protein](#). However, some contain hemp, so it's important to know the [military policies on hemp](#). For products that don't contain carbohydrate, you'll need to find another source of carbohydrates to restock your fuel stores.

RECOVERY FLUIDS

Dehydration can impair your body's heat regulation and your mental and physical performance. Check your hydration status by weighing yourself before and after exercise whenever possible. More than a 2% weight loss indicates dehydration. (For example, 2% weight loss in a 150 lb athlete is 3 lbs.) Make sure you rehydrate within one hour after an event to restore electrolytes as well as fluid losses. You also can use the urine color chart in Chapter 14 to estimate how hydrated you are.

After your event, continue to consume foods and beverages to replace fluids. Over a period of several hours, you actually should **ingest more water and sodium than you lost**. If you know the change in your body weight after your event, drink 16–24 oz of liquid per pound of weight lost to fully restore your fluid balance.

QUICK TIP: Did you know that chocolate milk is an excellent recovery food with carbohydrates and protein? Try drinking a glass of chocolate milk within 45 minutes after an event or strenuous exercise to replenish glycogen stores and repair muscles. Learn more in HPRC's article on [chocolate milk](#).

You can take additional measures to reduce soreness and your risk for injury, so you can get back to training sooner for your next event. Learn more from HPRC's article on [marathon recovery](#).

CHAPTER 16

ACTIVE AND PASSIVE RECOVERY

Passive recovery means rest in the truest sense: You do little to no physical activity during the recovery process. Sleep, for example, is passive recovery that helps promote muscle growth and resets your mind and body for the next day.

Active recovery, on the other hand, is any type of physical activity that can promote recovery. Stretching, foam rolling, light exercise, and even massage are all types of active recovery that have been shown to improve mobility, reduce the lactic acid build-up that contributes to muscle soreness, and improve performance.

You need both active and passive recovery!

FOAM ROLLING

Foam rolling is a method of active recovery that can help increase your range of motion (that is, how much your muscles and joints can move) and reduce the muscle soreness that results from working out too hard or too long. So how does it work? More research is needed to understand it fully, but “Golgi tendon organs”—specialized muscle nerve endings—are sensitive to changes in muscle tension. When you roll the right amount of pressure over your muscles (as provided by a foam roller), they relax. Here are some tips for effective foam rolling:

- Don't foam roll over newly injured areas.
- If you're just starting out, you might want to choose a lower-density foam roller. Higher-density foam rollers provide more pressure.



- Roll until you find the tight spots in your muscles, and then hold your weight over those areas or continuously roll over that muscle to loosen it.
- Gradually increase the amount of time you roll over each muscle. If you're just starting, foam roll 1–2 minutes per muscle group.
- Focus on large muscle groups such as your quads and upper back.

Watch HPRC's [how-to videos on foam rolling](#) calves, hamstrings, glutes, and more. Roll on!

STRETCHING

Flexibility, also referred to as range motion (ROM), is a major component of fitness. Decreased ROM can leave you susceptible to injuries or even affect your performance if your joints aren't able to move to their fullest potential. For example, tight hip joints might negatively affect your running form, which could cause other mechanical problems and perhaps injury. There are several ways to improve your flexibility. Isolated bouts of stretching are a good way to improve your ROM for a brief period of time (for example, just before a PT test or endurance event), but getting into a regular routine will result in longer-lasting changes to your flexibility. The American College of Sports Medicine [recommends](#) stretching at least 2 days a week. Stretching is most effective when your muscles are warm, so before you begin stretching, warm up briefly using a low-level cardiovascular activity such as biking or jogging. For more detailed information read HPRC's article about [stretching during warm-up](#).

No pain means gain. Stretching should not be painful. Listen to your body! Stretching should cause a feeling of tension in the muscle, sometimes described as “discomfort,” but this does not mean pain.

Static stretching. To perform a static stretch, extend the target area (muscle and/or tendon) and hold the position for 15–60 seconds. Only stretch until you feel slight discomfort or tension in the muscle or tendon. Remember that this **should not hurt!** Static stretching might be something you do every day already, maybe as part of a yoga routine. The Mayo Clinic website provides some [examples](#) of static stretches. You also can follow along with these [videos](#) from The Permanente Medical Group.

Dynamic stretching. The technique that seems to provide the best results in improving flexibility for most people is [dynamic stretching](#). It involves stretching muscles through continuous and repetitive movements. This type of stretch is especially appropriate for sports and similar activities in which stretching can target and warm up the muscles in ways specific to the activity. An example of a dynamic stretch is a runner taking long strides to prepare for a race.

Ballistic stretching. Ballistic stretches involve repeated bouncing movements to stretch and activate muscle groups. This type of stretch actually can increase the risk of injury and muscle soreness and is **not recommended for beginners**, but it might be appropriate for activities that include quick, explosive movements such as the sprinting or jumping portion of a Combat Readiness Test. To minimize the risk of injury, begin at a lower intensity and increase as you begin to warm up. For example, when you perform high-knee exercises, gradually increase the height and speed you raise your knees as you warm up.

Proprioceptive neuromuscular facilitation (PNF) stretching. This method requires the help of a **trained partner**. PNF stretching requires you to alternate (isometric) contractions and relaxations, which allows your helper to push you into a deeper stretch. A PNF hamstring stretch, for example, involves lying face up on a mat while your partner raises one of your legs to the point of a static stretch, as you keep your other leg straightened against the ground. Your partner should help keep your elevated leg straight by placing one hand at your ankle or shin and the other above, not on, your knee close to your thigh. After you hold this static stretch for 15–60 seconds, your partner resists as you push your raised leg into your partner's shoulder with a certain amount of force. Hold this isometric contraction for 6–10 seconds. When you relax, your partner gently pushes your leg into a deeper hamstring stretch position. You repeat these steps until you can no longer receive the stretch without pain or discomfort.

Myofascial release. This requires the use of a foam roller to activate part of the muscle, causing it to relax and stretch. The foam roller can be rolled back and forth over a relaxed muscle, or it can be used to apply static pressure to sore or sensitive areas for 10–15 seconds at a time. For example, when foam-rolling your hamstring muscles, you can roll back and forth on top of the roller. Or you might find a sensitive spot that feels tender when you roll over it and then gently lower your weight over the roller, isolating that sensitive area for 10–15 seconds. You should feel the muscle begin to release and relax with this technique. The section above on foam rolling includes videos you can watch to learn more.

LIGHT EXERCISE

Exercising at about 60–80% of your maximal effort after high-intensity exercise can help promote faster recovery. Recovery activities similar to those in your main workout seem to be more effective because they do a better job of activating the same muscles. For example, after a rowing workout, getting back on the rowing machine for a bit works better than a lighter activity such as walking. For runners, this means slowing your pace to a light jog near the end of a higher-intensity session. And for cyclists, slow down during your last couple miles rather than racing to finish your workout before you hop off the bike.



CHAPTER 17

ENDURANCE EVENT AFTER-ACTION REVIEW (AAR)

Leaders conduct after-action reviews (AAR) with Warfighters to gather feedback on mission and task performances in training and combat. Try doing your own AAR after an endurance event to help you to learn and grow from the experience.

What was supposed to happen? List the goals you set for this event. Be sure to think about goals you had other than just your final time. Did you have goals for how you prepared or how you approached the event? Reflect about goals you might have had regarding your relationships, your nutrition, how you trained, your mental fitness, or your spirituality.

What actually happened? Based on the goals you set, take stock of how things went. Did you hit the mark? What progress did you make? Did any goals fall completely by the wayside?

Evaluate “sustains and improves.” You might be tempted to label each of your goals as just “success” or “failure” once you’ve compared where you wanted to be with where you actually ended up. Instead, think of goals as a constant work in progress. “Sustains” are strategies you used that helped you gain some ground toward important goals. Then reflect on “improves” to balance the scale: Acknowledge your shortcomings or deficits in motivation or resources to draw attention to things that didn’t work.

Make a list of your “sustains” to highlight what went well and understand what got you there.

List your “**improves**” to balance the scale and draw attention to ineffective strategies.

What about next time? Put it all together and imagine what your next event will look like. Which strategies will you adjust? How will you prioritize forgotten goals? Who can you reach out to for support? What resources can you leverage? What about new goals?

