MERIT BADGE SERIES

MULTISPORT

Scouting America

SCOUTING AMERICA
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MULTISPORT

tridave

Scouting America is grateful to David "TriDave" Alexander and the TriDave Legacy Trust for making this merit badge and pamphlet possible. We also thank USA Triathlon for their assistance with information and photography.

USA TRIATHLON

"Enhancing our youths' competitive edge through merit badges"

Scouting America

Requirements

Always check scouting.org for the latest requirements.

1. Do the following:
   (a) Explain to your counselor the most likely hazards you may encounter during multisport activities and what you should do to anticipate, prevent, mitigate, and respond to these hazards.
   (b) Show that you know first aid for injuries or illnesses that could occur while participating in multisport events, including abrasions, blisters, concussions, contusions, dehydration, hypothermia, overheating, sprains, and strains.

2. Do the following:
   (a) Explain the importance of a physical exam and have your health care practitioner give you a physical examination using the Scouting America Annual Health and Medical Record.
   (b) Explain the importance of maintaining good health habits, especially during training, and how the use of tobacco products, alcohol, and other harmful substances can negatively affect your health and your performance in athletic activities.
   (c) Define a healthy diet and explain the importance of maintaining a healthy diet.

3. Do the following:
   (a) Discuss with your counselor your level of familiarity and experience with the multisport events (swimming, biking, and running) and the order and distance of each sports segment.

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(b) Explain to your counselor which multisport event (swimming, biking, or running) you feel is your strongest and which you could improve upon the most.

(c) Identify the required equipment for each of the three common multisport events (swimming, biking, and running).

(d) Based on your interests, experience, and discussion with your counselor, select ONE of the following multisport formats to concentrate on for the remaining requirements:

(1) Triathlon: swimming, biking, and running

(2) Duathlon: running and biking

(3) Aquathlon: swimming and running

(4) Aquabike: swimming and biking

4. Complete ALL of the activities that apply to the multisport format that you selected in requirement 3(d) (Triathlon, Duathlon, Aquathlon, or Aquabike):

(a) Swimming

(1) Before doing requirements 5 through 8, earn the Swimming merit badge.

(2) Explain the components of the Scouting America Safe Swim Defense program and how you will ensure they are in place when you swim.

(3) Explain to your counselor the difference between a pool swim and an open water swim, including at what water temperature it is appropriate to wear a wet suit.

(b) Biking

(1) Explain to your counselor how to ride predictably, be conspicuous, think ahead, and ride ready.

(2) Discuss what should be checked regularly to make sure the bicycle is safe to ride.

(3) Explain the importance of wearing a properly sized and fitted helmet while cycling and of wearing the right clothing for the weather.

(c) Running

(1) Demonstrate a proper run warmup and cool-down. Explain to your counselor the importance of maintaining healthy habits, including hydration, nutrition, injury prevention, and rest.

(2) Learn and state the basic rules of the road for runners.

(3) Demonstrate important running drills, including high knees, butt kicks, lunges, inchworms, and soldier kicks.

5. Do the following:

(a) With guidance from your counselor, establish a four-week training plan that combines your chosen multisport format to develop proper techniques, gain self-confidence, and increase endurance. Each session should last at least 25 minutes and include a proper warmup before the session and stretching afterward.

(b) Use a chart or other tracking method to monitor your training and development during this period.

(c) Set a personal goal for improvement based on one or more of the following criteria: time, technique, or distance.

(d) At the end of four weeks, discuss your progress with your counselor and tell how your development has affected you mentally and physically.

6. Learn the methods of setting up your transition area, which is where your bike equipment and/or running gear will be. Discuss with your counselor how to smoothly and safely transition from one element to the next, such as mounting and dismounting your bike or adjusting your gear.

7. After completing requirements 1-6, complete all of the activities (on the same day and consecutively) for the multisport focus area that you selected in requirement 3(d), including demonstrating a smooth and safe transition between each:

   (a) Triathlon: swim (100 m), bike (3 km), and run (1 km)

   (b) Duathlon: run (1.5 km), bike (3 km), and run (.75 km)

   (c) Aquathlon: swim (100 m) and run (1 km)

   (d) Aqua bike: swim (100 m) and bike (3 km)

8. Do TWO of the following and discuss with your counselor:

   (a) Research and identify two ways you can continue participating in multisport after completing this merit badge.

   (b) Research an Olympic, Paralympic, or professional triathlete (past or current). Share information on their background in the sport and what inspires you most about this individual.

   (c) Demonstrate leadership by starting a training group and educating your peers on the importance of physical activity, nutrition, and the disciplines of multisport.

   (d) Sign up for and participate in a sanctioned multisport event in your area.

   (e) Volunteer at a local multisport event, running race, biking event, swim meet, or adaptive sporting event.

When referring to race distances, "m" stands for ***meter*** (about 3.28 feet) and "km" or simply "k" stands for ***kilometer*** (about 0.62 mile).

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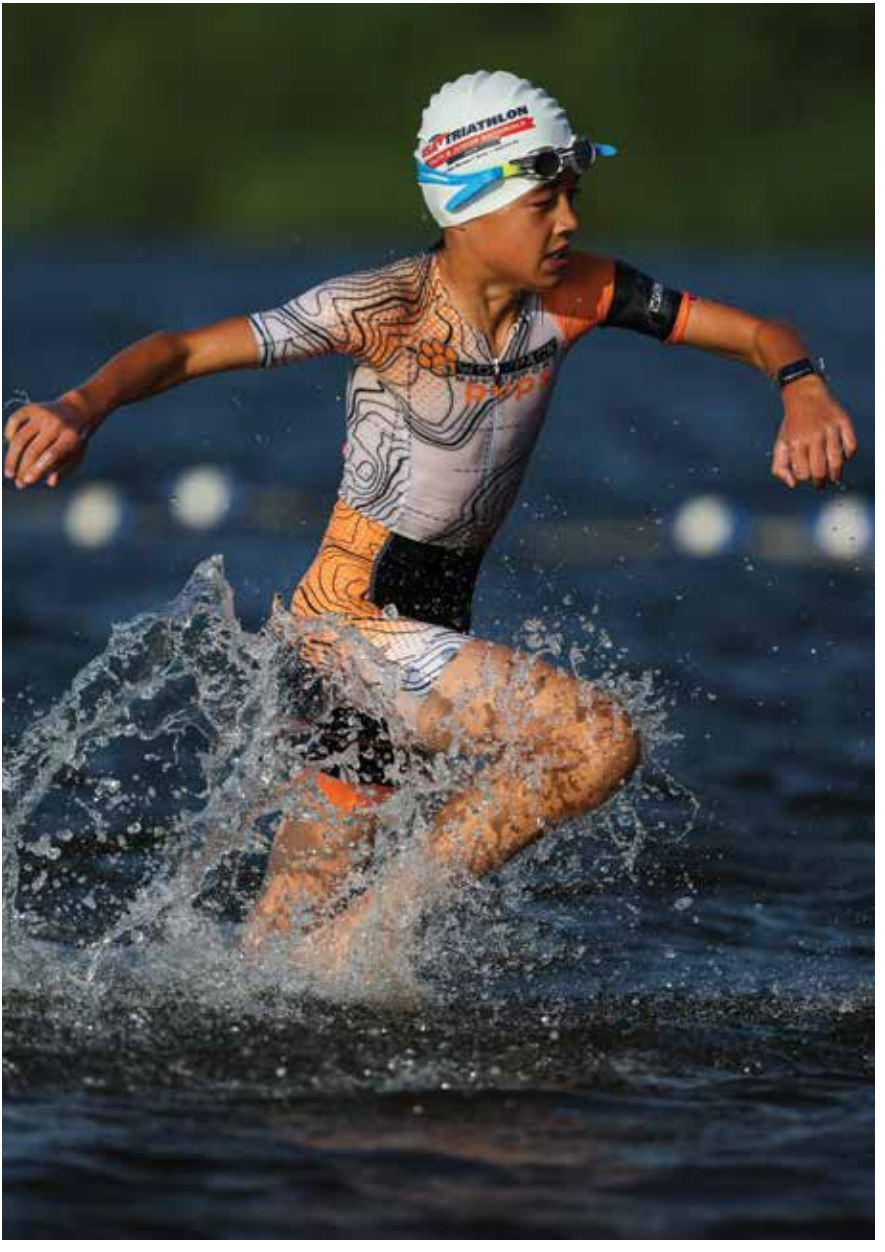

TRIATHLON

What Is Multisport?

Multisport is a racing competition that consists of any combination of running, biking, or swimming.

For the most part, it's pretty simple: The fastest combined time of all three events wins. However, the time it takes you to transition from one sport to the next is included in your overall time, making multisport a truly unique competition.

If you know how to swim, ride a bike, and run—even casually—completing a triathlon is within your grasp. The sport is beginner friendly, welcoming, and rewarding.

And with so many versions of those three sports, there are many different ways to compete. You'll find a variety of disciplines to suit your interests:

- **Triathlon:** Triathlons allow athletes of all ages to challenge themselves by covering various distances by swimming, biking, and running, in that order.
- **Aquabike:** You'll complete just the swim and bike portions and head to the finish. This is an excellent option for those who can't or just don't like running.
- **Duathlon:** There are still three segments, but it goes simply run-bike-run.
- **Aquathlon:** Just the swim and run, with no cycling.
- **Off-Road/Cross-Country:** Think mountain biking and trail running instead of paved roads.
- **Relay:** Teams of two or three people compete.
- **Winter Triathlon:** Running, mountain biking, and cross-country skiing—all performed on snow.
- **Paratriathlon:** Many races have a particular category, or entire special events, for athletes with disabilities.

The most common multisport event is the triathlon. You can find triathlon events in every state and around the world at a wide variety of distances, from shorter sprints to longer endurance races. Most beginners start with events that require

shorter distances or a relay triathlon so they can share the load with a team.

One of the most recognizable triathlon events is the Ironman World Championship held every year in Hawaii.

One of the earliest known triathlon photographs, taken in France at the 1922 *Course Des Trois Sports.*

History of Multisport

Running has been a competitive sport for nearly 3,000 years. One of the first organized running competitions was held at the very first Olympic Games in ancient Greece in 776 BC.

Swimming is also ancient. There were swimming competitions held in Japan as early as 36 B.C.

Biking as a sport is much younger. Historians say there were bike races being held as early as 1868 in France.

Not long after that, somebody had the idea to put the three sports together into one event.

In 1901, there was an event in France called *Les Trois Sports*—"The Three Sports." It consisted of a 3-kilometer run, a 12-kilometer cycling race, and … a canoeing race. Alas, shortly after that, canoeing was replaced with swimming.

Over the next several decades, The Three Sports competition spread throughout France, its popularity growing each year.

The first organized swim/run/bike event in the United States was in 1974 at Mission Bay in San Diego, California.

Forty-six participants paid $1 each to compete. Over the next few years, the triathlon movement became more and more organized, with multiple organizations coming together in an attempt to make it an official sport.

In 1982, the U.S. Triathlon Association and the American Triathlon Association merged under one unified national governing body called the U.S. Triathlon Association. It had around 1,500 members.

Today, USA Triathlon sanctions more than 3,500 events each year and supports more than 300,000 unique active members, making it the largest multisport organization in the world. In addition to its work at the grassroots level with athletes, coaches, and race directors—as well as the USA Triathlon Foundation charity—USA Triathlon provides leadership and support to elite athletes competing at international events, including World Triathlon World Championships, Pan American Games, and the Olympic and Paralympic Games.

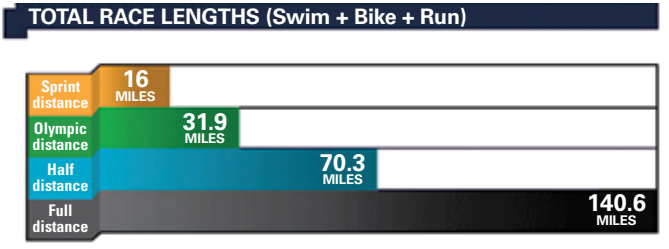
Triathlon was officially added to the Olympics at the 2000 Sydney Olympic Games and to the Paralympics at the 2016 Rio Paralympic Games.

With 12 elite national team members and 14 para elite national team members, the United States has a rich history of performing and medaling at the highest levels.

Triathlon Distances

There is a triathlon for everyone. Most often, you'll see sprint, Olympic distance, half distance and full distance, but there are many other variations. Swimming, the first event, is the shortest distance. Biking, the second event, is the longest. Running, the final event, is somewhere in between.

Here are the most popular distances and the combined mileage of the swimming, biking, and running sections:



Why Triathlon? 10 Reasons

1. It's more fun when you train for different sports.

Being a single-sport specialist has its perks, but training for one sport can become a drag. With triathlon, you have a wider variety of training options, whether you're expanding your strength training or stacking workouts together by following a bike ride after a swim. With more skills to train in a weekly schedule, you have more to look forward to.

2. Cross-training makes you better at your main sport.

If you're an avid biker, die-hard runner, or seasoned swimmer, training in the two other sports will make you a better athlete in your sport of choice. For example, swimming is an incredible endurance builder. It taxes your breathing and builds your diaphragm strength when you need to exhaust your lung capacity, bike up a steep incline, or increase speed on the final kick of your 5k. Training to control your cadence on the bike is helpful for tempo runs and rhythmic breathing in the water. And when you're logging all of those hill repeats, the power you're building in your quadriceps and glutes will make you a force to be reckoned with on any mountain in a bike race and give you the energy burst to get around slower swimmers.

3. You get to experience amazing venues.

If you really get into the sport, you'll find that triathlon races can take you to the most beautiful and exciting places in the world. That's part of the fun! From races along white sand beaches to courses that take you through the heart of some of the world's most stunning cityscapes, there's no better excuse to convince your family to spend a summer vacation traveling to a fun race destination.

4. The triathlon singlet—the clothing worn by most triathletes—really lets you make a statement.

With their bright colors, fun patterns, and compression fit, you will feel like you can take on the world in that thing.

5. The other gear is super cool too.

If you love gear, then triathlon is the sport for you. From those sleek tri singlets to aero helmets to moisture-wicking socks, there's no end to the gear you can purchase for a tri. And that's not even counting the big stuff like wetsuits, bikes, and other

training equipment you can take to your home gym to help you prepare for your new favorite sport.

6. You're automatically part of the coolest club ever.

There's nothing like the camaraderie, friendship, and encouragement you find within the triathlon community. From training partners to keep you going to high-fives and cheering at events, there's no sport friendlier or more fun than multisport.

7. You can eat … while you race!

With triathlon, there are several opportunities to refuel during a race, whether that means shoving a homemade protein bite into your mouth during a transition or munching down a granola bar on the bike.

8. Because you love a challenge.

You compete because you love crushing the competition, smashing your goal times, and setting new personal records. Triathlon is the same, only you dial up the intensity and break off the knob. Give it all you've got in not one, not two, but three sports back-to-back. The sense of accomplishment is unparalleled.

9. Because of the race within the race.

If the challenge of completing the race wasn't enough, there's one more thing: the transitions. The precious seconds you spend moving from swim to bike and bike to run count toward your overall time, so practicing those movements can be just as important as practicing for the race itself.

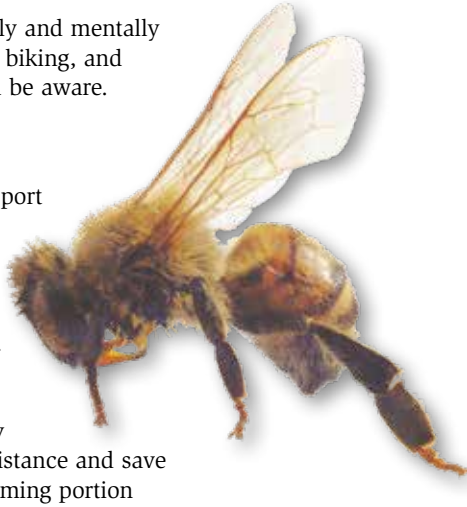
10. You get bragging rights.

Completing a triathlon is no small feat. Just think of the jaw-dropping response from your friends, family members, and classmates when you tell them you ran yet another excellent 10k … after you biked 25 miles … and swam a mile.


GIRO
KEEP
PEDA

Multisport Safety

As with any sport, athletes need to be physically and mentally prepared to compete in multisport. Swimming, biking, and running each has hazards of which you should be aware.



The Most Likely Hazards

- **Wildlife:** One of the best things about multisport is that you get to swim, bike, and run in some gorgeous areas. Keep an eye out for plants—such as poison ivy, oak, and sumac—and animals—such as snakes and insects—that could potentially be dangerous. Wear bug spray and always remain aware of your surroundings.
- **Other Athletes:** Drafting is the act of closely following another athlete to reduce wind resistance and save your energy. It's always allowed in the swimming portion of multisport, and it's sometimes allowed in biking too. Be aware of where athletes are around you to avoid collisions and crashes.
- **Weather:** Just as you would on a hike, always bring multiple layers of clothing so you can add or remove as needed. Keep an eye on the forecast both before and during a training session to keep track of approaching storms and temperatures. In the event of fog during a bike ride, keep your eyes ahead and be aware of other people around you so you know where you are and can visualize other athletes around you.
- **Terrain:** Be Prepared for the different terrains you may encounter on a run or bike ride, including potholes and unlevel concrete and cobblestone. In rainy weather, be on the lookout for hazards such as wet grass or mud and sand that can cause you to slip and be injured.

- **Traffic:** When crossing roads on foot or bike, be aware that not all traffic may be completely blocked off, even during events in which some roads are closed. Note where busy roads are and look both ways before continuing. Although athletes have the right of way at most pedestrian crossings, be safe and watch out for people who may not see you coming.

Multisport First Aid

Abrasions

An abrasion is a wound that occurs as a result of the outer layers of the skin being rubbed or scraped off. Abrasions may happen when the skin is scraped against a hard surface, for example, when a bicyclist falls onto the pavement. The wound may not bleed very much. The greatest danger lies in contamination and possible infection of the wound.

Treat a minor cut or scrape by flushing the area with clean water for at least five minutes or until all foreign matter appears to be washed away. You may need to scrub the area gently. Apply triple antibiotic ointment if the person has no known allergies or sensitivities to the medication, and then cover with a dry, sterile dressing and bandage or with an adhesive bandage.

Blisters

Blisters are pockets of fluid that form when the skin is injured by friction. Foot blisters are common injuries among runners, whereas blisters on the hands might be more common among bikers. To help prevent foot blisters, wear shoes that fit, change

The Danger of Concussions

A concussion is a traumatic brain injury that results from a blow to the head causing an alteration of brain function. They may also be due to falls or blows to the body that cause the brain to move back and forth.

A runner or biker who falls can easily suffer a concussion. A properly fitted biking helmet helps but doesn't completely eliminate the risk.

Concussions are difficult to diagnose. In 90% of all youth-related concussions, there is no loss of consciousness. Most people recover quickly and fully, but for some the symptoms can last for days, weeks, or longer. Those who have had a concussion in the past are at greater risk for another one, and recovery may take longer the second time.

Signs and symptoms of a concussion injury may include:

- Headache (the most common symptom)
- Confusion and/or forgetfulness
- Dizziness/loss of balance or coordination
- Nausea/vomiting
- Blurry or double vision
- Sensitivity to light or noise
- Sleepiness or lethargy
- Personality changes
- Loss of consciousness, either brief or prolonged

A person who has had a concussion should rest in a quiet, darkened area away from activities. Keep the patient calm and quiet. Allow them to sleep if needed. Limit reading and use of electronics.

If symptoms persist for more than 24 hours or become worse, or if new symptoms appear, the person needs to be evaluated by a physician even if it requires evacuation or removal from an activity.

Immediate medical treatment should occur if:

- The headache becomes worse
- There is repeated vomiting
- The patient suffers a seizure
- Drowsiness increases or the patient can't be awakened
- Speech is slurred
- The patient seems confused or irritable
- There is increased dizziness or imbalance
- The patient feels weakness or numbness in the arms or legs

Anyone with a suspected concussion must be evaluated by a physician.

socks if they become sweaty or wet, and pay attention to how your feet feel. To help prevent blisters on the hands, wear gloves for protection and pay attention to how your hands feel.

A hot spot—the tender area as a blister starts to form—is a signal that a blister is on its way. To treat a hot spot or blister, cover the pinkish, tender area with a piece of moleskin or molefoam slightly larger than the hot spot. Use several layers if necessary. There are several products on the market for treating hot spots and blisters. Follow the manufacturer's instructions. Change bandages every day to help keep wounds clean and avoid infection.

If you must continue your activity even though you think a small blister will burst, you might want to drain the fluid. First, wash the skin with soap and water, and then sterilize a pin in the flame of a match. Prick the blister near its lower edge and press out the fluid. Keep the wound clean with a sterile bandage or gel pad and moleskin.

Contusions

Contusions, or bruises, are black-and-blue marks caused by blood leaking into skin tissues. The skin is not broken but is discolored. Bruises usually are not serious, but they can be, especially if there are possible fractures or unseen injuries to internal organs.

Most bruises can be easily treated. Keep a cold, wet towel over the bruise for 30 to 60 minutes and rest the injured area. This will prevent more blood from leaking into the tissues. To help the bruise fade, apply a warm, wet cloth to the area the next day.

Dehydration

The human body is 70% water, which is essential to maintain our body temperature. Vital organs like the brain and kidneys will not function well without enough water. Multisport athletes lose water mostly by heavy breathing and sweating. When we lose more water than we take in, we become dehydrated.

To avoid dehydration, hydrate early. Put as much effort into properly hydrating during short distances as you do for longer distances. Ensure that you're consuming both water and electrolytes, as your body needs both to avoid dehydration.

Signals of mild dehydration include fatigue, increased thirst, dry lips, and dark yellow urine. Signals of moderate to severe dehydration include severe thirst, dry mouth with little saliva, dry skin, weakness, dizziness, confusion, nausea, fainting, muscle cramps, loss of appetite, decreased sweating (even with exertion), decreased urine production, and less frequent and dark brown urine.

To treat mild dehydration, drink plenty of water or a sports drink to replace fluids and minerals. Drink one to two quarts (or liters) of liquids over two to four hours. See a physician for moderate or severe dehydration. Severe dehydration requires emergency care; you will need intravenous fluids. Rest for 24 hours and continue drinking fluids. Avoid tiring physical activity. Although most people begin to feel better within a few hours, it takes about 36 hours to completely restore the fluids lost in dehydration.

Hypothermia

Hypothermia occurs when a person's body is losing more heat than it can generate. Temperatures do not need to be below freezing. Hypothermia can happen when swimming in a cold body of water or when a runner or biker is caught in a cool, windy rain shower without proper clothing. Dehydration is a common contributing factor to hypothermia. Hunger and exhaustion can further compound the danger.

A hypothermia victim may experience numbness, fatigue, irritability, slurred speech, uncontrollable shivering, poor judgment or decision making, and loss of consciousness. Shivering that stops without rewarming is a sign that the person's condition is worsening. He or she needs immediate medical care.

Treat a hypothermia victim by preventing the person from getting colder. After summoning help, use any or all of the following methods to help bring the body temperature back up to normal:

- If the person is fully conscious and able to swallow, have him or her drink warm liquids (soup, fruit juices, water; no caffeine or alcohol).
- Move the person into the shelter of a building or a tent. Remove wet clothing. Get him or her into dry, warm clothes or wrap the person in blankets, clothing, or anything handy that could be used, like jackets or a sleeping bag.
- Wrap towels around water bottles filled with warm fluid, and then position the bottles in the armpit and groin areas.
- Monitor the person closely for any change in condition. Do not rewarm the person too quickly (for instance, by immersing the person in warm water); doing so can cause an irregular and dangerous heartbeat.

Overheating

Heat exhaustion can be brought on by a combination of dehydration and a warm environment. It is not uncommon during strenuous outdoor activities conducted in hot weather, especially if participants are not fully acclimated to the conditions. Signals of heat exhaustion include severe lack of energy, general weakness, headache, nausea, faintness, and sweating; cool, pale, moist skin; and a rapid pulse.

Get the person in the shade (or an air-conditioned vehicle or building). Encourage him or her to drink fluids, such as cool water or a sports drink. Apply cool, wet towels or cloths to the skin, wet the person's clothing with cool water, and fan the person to help the cooling process. Raising the legs may help prevent a feeling of faintness when the person stands. Usually after two or three hours of rest and fluids, the victim will feel better but should rest for the remainder of the day and be extra careful about staying hydrated.

Heatstroke—much more serious than heat exhaustion—can lead to death if not treated immediately. Left untreated, heat exhaustion can develop into heatstroke. With heatstroke, the body's cooling system begins to fail, and the person's core temperature rises to life-threatening levels (above 105 degrees). Signals of exercise-related heatstroke can include any signals of heat exhaustion as well as confusion, disorientation, a rapid pulse, shallow breathing, vomiting, seizures, and hot, sweaty, red skin.

Heatstroke is a life-threatening condition. Call for medical assistance immediately. While waiting for medical personnel to arrive, work to lower the victim's temperature. Move the person to an air-conditioned or shady area. Loosen tight clothing and further cool the victim by fanning and applying wet towels. If possible, immerse or spray the person with cold water. If you have ice packs, wrap them in a thin barrier (such as a thin towel) and place them under the armpits and against the neck and groin. If the person is able to drink, give small amounts of cool water.

Sprains and strains

A sprain occurs when an ankle, wrist, or other joint is bent far enough to overstretch the ligaments, the tough bands that hold joints together. Twisting an ankle while running is one way a person could sustain a sprain. A strain occurs when muscles are overstretched, creating tears in the muscle fibers.

Minor sprains and strains cause only mild discomfort, but more serious sprains and strains might be temporarily disabling. A sprained joint will be tender and painful when moved and might show swelling and discoloration.

RICE

For sprains and strains remember RICE:

R = Rest

I = Ice

C = Compression

E = Elevation

Strained backs, arms, and legs will also be tender and can hurt if activity continues.

Assume that any injury to a joint also may include a bone fracture. Use the following procedure to treat sprains and strains and prevent further injury. Have the victim take any weight off the injured joint and instruct the person not to use the joint. Do not try to move or straighten an injured limb. Cover any open wounds with a sterile dressing. Apply ice packs or cold compresses to the affected area for no more than 20 minutes at a time. Be sure to place a barrier such as a thin towel between the ice pack and bare skin. Seek medical treatment if the pain is persistent or severe.

Being Prepared for Multisport

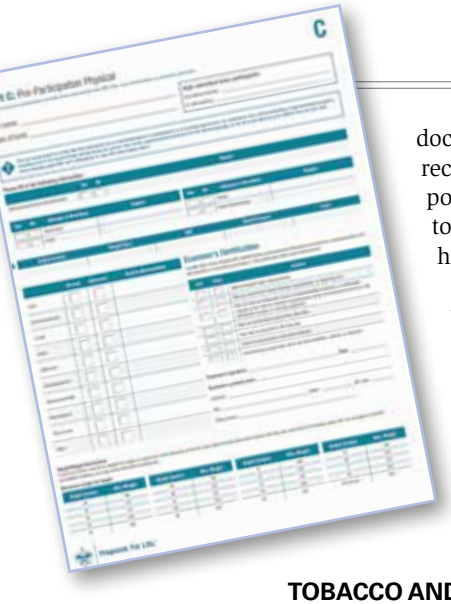
Multisport will challenge you both physically and mentally. As you begin your journey into multisport, there are a handful of things you can do to greatly increase your chances of success.

The Physical Exam

All people who participate in multisport should have a thorough physical examination by their health care provider. An examination probably will include measuring your heart rate, blood pressure, height, and weight; checking heart and lung sounds; testing your reflexes; and examining your eyes. A health care provider also may ask questions and record observations about your psychosocial (mental and social) traits, nutrition habits, physical activity, and family life.

During a physical exam, a health care provider may detect underlying conditions or symptoms that need treatment or correction or that could prevent or limit a person from participating in multisport. The provider also may offer advice about nutrition and how to train safely. Get the green light from your provider before undertaking multisport activities.

Completing the Scouting America Annual Health and Medical Record is a good way to make sure you're maintaining good health. The four-part form serves as a single place to



document a participant's medical history and recent medical examination. To keep up with possible changes in health status, the form needs to be updated annually or when a participant's health information changes.

Discuss the form with your doctor during your physical exam.

Avoiding Harmful Substances

Drugs have no place in training or competition. To be a strong, healthy performer in multisport and in life, avoid tobacco, alcohol, and other harmful substances.

TOBACCO AND MULTISPORT DO NOT MIX

Athletes need to breathe. They need their lungs working at peak capacity. Smoking makes you cough and wheeze, and it interferes with proper lung growth and function. It injures the airways and air sacs of the lungs. Using tobacco can leave you gasping for air when you need it most. Smoking not only reduces athletic performance and stamina, but it also damages nearly every organ in the body.

The blood carries the poisons from smoking to all parts of the body, damaging internal organs from the brain to the bladder. Scientists now know that smoking causes cancers of the mouth, the larynx (voice box), the lungs, and the kidneys. It can also cause a type of leukemia—a cancer of the blood. You might have heard that smoking causes heart disease, but did you know that it raises the risk for stroke and damages the body's ability to fight infection? Smokers are at high risk of dying from any number of tobacco-related diseases.

CIGARETTES CAN KILL

Cigarettes can contain dozens of dangerous and cancer-causing chemicals, including arsenic (used in pesticides and weed killers), benzene (a toxic solvent), formaldehyde (used to embalm corpses), and polonium 210 (a highly radioactive element). Smoking casually or occasionally is the same thing as taking poison occasionally. If you wouldn't drink embalming fluid now and then, why would you smoke, even once in a while?

ALCOHOL IS A DEPRESSANT

Alcohol interferes with reflexes and coordination. It slows an athlete's reaction time and impairs balance, vision, hearing, and judgment. Alcohol dehydrates tissues in the body. Drinking water or a sports drink will replace body fluids that are lost from exertion during athletic activities or workouts. Drinking beer or other alcoholic beverages has the opposite effect: Alcohol makes the drinker thirstier.

The long-term harmful effects of alcohol abuse can include damage to brain and nerve function, weakening of the heart muscle, abnormal blood clotting, and liver failure leading to death.

STEROIDS ARE FAKES

Steroids mimic the effects of the natural male hormone testosterone. Testosterone triggers the maturing of the male reproductive system in puberty. Taking steroids disrupts the body's natural hormone balance, causing dangerous physical and mental abnormalities. Though steroids are sometimes called "performance-enhancing" drugs, they do not improve agility, skill, or cardiovascular capacity. They act to artificially increase muscle mass at a high cost to the user's health.

Side effects range from acne, bloating, and rapid weight gain to weakened tendons, blood-clotting disorders, liver damage, and heart attacks and strokes. The damage to a steroid user's health can be irreversible and may not show up for months, years, even decades after the abuse ends. Young people who take steroids may stop growing. The drugs prevent young bones from lengthening, so steroid users might fail to grow as tall as they should. Athletes who start using steroids often have trouble stopping. Evidence suggests that steroid abusers show the classic symptoms of addiction, including cravings, difficulty quitting, and withdrawal pains.

Steroids can cause severe mood swings, from deep depression to extreme irritability. *'Roid rage* is a term for the explosive, out-of-control aggressiveness associated with steroid use.

AMPHETAMINES ARE STIMULANTS

These highly addictive drugs create false feelings of power, strength, and assertiveness. They do not give a user extra physical or mental energy; they impair judgment and distort the user's view of reality. An athlete on uppers may ignore an injury and suffer permanent physical damage. Amphetamines suppress appetite and may cause extreme, life-threatening weight loss.

Other side effects include nerve damage, uncontrollable and abnormal movements of the face and jaw muscles, convulsions, hallucinations, and mental disorders such as paranoia and delusions similar to schizophrenia. Amphetamines damage blood vessels throughout the body. Users may die from ruptured blood vessels in the brain or from heart attacks.

Other drugs—cocaine and crack, heroin, inhalants, LSD, marijuana—also have powerful effects on the body and the mind. They can cause nightmares, depression, and severe mental disturbances. An overdose can result in serious illness, disability, or death.

The Importance of a Healthy Diet

Maintaining a healthy diet is especially important when participating in multisport. Athletes need energy so they can perform without tiring easily. Everyone's dietary needs are different, but it's important to eat a well-balanced diet. Make sure each day to eat something from each of the five food groups: fruits, vegetables, grains, dairy products, and proteins. This way, you will get enough carbohydrates, proteins, and fat, plus the vitamins and minerals you need to perform at your best.

Try to limit your intake of *simple carbohydrates*—foods that include refined sugars and white flour found in most soft drinks, cookies, pastries, and processed foods. Simple carbohydrates break down quickly in the digestive system, causing energy highs and lows.

The types of carbohydrates that you eat should be mostly derived from whole grains, fresh fruit, and fresh or frozen vegetables. Whole-grain bread, bagels, crackers, cereals, lentils, brown rice, and pasta all are good sources of carbohydrates.

Protein helps build and repair damaged tissue and helps the body make antibodies to increase a person's resistance to disease. Good sources of protein include fish, poultry, pork, beef, eggs, beans, and nuts.

Fat is important, too, for energy. It helps the body use carbohydrates and insulates it in cold weather. Certain fats, however, are healthier than others. You should limit foods high in saturated fats, which increase your cholesterol level and risk of heart disease. Foods that contain high quantities of *saturated fats* include meat and dairy products—butter, eggs, cheese,

and whole milk. Saturated fats typically remain solid at room temperature.

Unsaturated fats are either polyunsaturated or monounsaturated, depending on their molecular structure. Most come from plant sources and are liquid at room temperature. These are the good fats. Try to replace many of the saturated fats in your diet with unsaturated fats to help you lower your cholesterol level and maintain a healthy heart. Unsaturated fats are found in oily fish, like salmon, albacore tuna, and sardines; nuts; olives; avocados; canola and nut oils; and vegetable oils from corn, safflowers, and sunflowers.

Trans fats are formed when vegetable oils are processed into margarine or shortening through hydrogenation. This process turns liquid oil into a solid fat at room temperature. The body has difficulty using these chemically altered fats, which are used to make french fries, doughnuts, crackers, and cookies. Read the labels on packaged food products and try to avoid eating foods that contain partially hydrogenated or hydrogenated oil.

Keep your body *hydrated* by drinking plenty of water each day. Eight to 10 glasses a day is recommended, though multisport athletes will probably need more—especially during workouts. Water helps you stay energized, deal with hot and cold temperatures, and digest food.

Fiber is another important ingredient in your diet. Sometimes called roughage, fiber cannot be digested, but it helps push foods through the digestive tract, reducing the likelihood of constipation. Many whole grains, seeds (such as sesame and poppy), and fresh fruits and vegetables (especially broccoli, cauliflower, and cabbage) are high in fiber.

Think Small

Many people follow the traditional three-square-meals-a-day routine. However, many sports nutritionists recommend that athletes eat five smaller meals per day. This will help normalize blood sugar and insulin levels more efficiently than eating three larger meals each day. When your blood sugar spikes, or rises, you will get a quick burst of energy for a short period of time, but you soon will experience a strong dip in energy. Smaller meals—about one every three hours throughout the day—will give you a more consistent energy supply.

Be sure you are also getting enough *calcium*. Calcium is found in dairy products such as milk, cheese, and yogurt, and foods such as nuts, beans, broccoli, and canned salmon. Making sure you have at least four servings of calcium daily will help ensure that your bones stay strong throughout your life. If you do not get enough calcium in your diet while you are young, you could be at risk for the bone-thinning disease called osteoporosis.

Failing to fuel and refuel your body with good foods can lead to fatigue and injury; you will also be more likely to get sick. Develop good eating habits now so they will become second nature to you throughout your lifetime.

The 4 R's of Recovery During Training

- **Replenish**: Take in fluids and electrolytes during and after training sessions to stay hydrated and maintain proper physiological function. Calories are needed during longer sessions.
- **Refuel:** After the workout, carbohydrates are needed to help replenish glycogen stores, and protein is needed to help repair the muscle damage done during the workout.
- **Rebuild:** Facilitating blood flow to deliver nutrients and flush out metabolic waste is key. Athletes also need to maintain the range of motion and flexibility of the muscle and connective tissue.
- **Relax:** Improvement requires more than just great training intensity. It also needs downtime to allow the body to heal and careful planning over time to balance the rigors of different training sessions.

Gear You'll Need To Get Started

There's a good chance you already have all the gear you need to give multisport a shot. Over time, as you become more involved with the sport, your experience will guide you toward any extra items you might need. But for now, here's a list of the essential items required to begin to train and race the triathlon.

Basic Swimming Gear

Swimming is one of the more accessible disciplines to outfit and practice. If you have access to an indoor pool or don't have to worry about the weather, all you need to start swimming is a suit, cap, and goggles. Of course, there are several other items and various training tools for swimming you can try out and use to help you move from beginner and beyond.

Swimsuit: Start with whatever suit you are most comfortable swimming in. Keep in mind, however, there are specially made lap-pool suits for a reason: The more aerodynamic you are in the water, the more efficient a swimmer you will be.

Swim cap: Any sporting goods store should have a cap that will work, or you can shop online for different styles and colors. Variations in cap thickness—or even ones made from neoprene, that fancy rubber used in wetsuits—may be an option if you swim in colder temperatures.

Goggles: You can start with an essential pair of swim goggles from your local sporting goods store or any number of online outlets. Fit is critical, so get gender-specific when selecting and try them on if possible. Lens choices include tinted, smoked, or mirrored and may be a good

option if you regularly swim in open water or where the sun may be a factor. You can get goggles with prescription lenses like your eyeglasses, if you wear them.

Optional Swimming Gear

Wetsuit: There are many styles and brands, so consider where and how often you may need a wetsuit. You may not need one to practice in if you live where the water is warm. That said, wetsuits offer the swimmer buoyancy and added warmth and come in sleeveless, capped-sleeve, and long-sleeve styles. They vary wildly in fit from one brand to the next, so either try on the specific one you intend to purchase or look closely at the measurement guidelines before you buy. Invest in a glide stick or spray for more effortless dressing and removal of your suit. (In most races, USA Triathlon requires wetsuits when the water temperature at an event is below 60.6 degrees Fahrenheit. Refer to USA Triathlon's competitive rules at usatriathlon.org to understand when you're allowed to wear a wetsuit.)

Tri Suit: A tri suit or kit is what you wear underneath your wetsuit—or if the swim is not wetsuit legal, as your outfit for the entirety of the race. Unlike a unitard in style and fit, the tri suit is one piece of material, usually sleeveless and with shorts, that you can comfortably and aerodynamically wear for each discipline.

Kickboard: This accessory aids your swim training and is available at many indoor pools. Kickboards mainly assist in training your kick speed and power but can also be used between your legs as a pull buoy to work your upper body exclusively in the swim.

Fins: Swim fins are another accessory and may be available where you plan to swim. Wearing fins during training helps you focus more on your stroke as they aid in guiding you fish-like through the water.

Pull Buoy: Using a pull buoy negates the use of your legs while keeping them afloat behind you, allowing you to strengthen your stroke and upper body as you pull through the water. Pull buoys may be provided where you intend to swim, and if not, try using a kickboard instead.

Snorkel: When you eliminate the pesky ordeal of trying to breathe every stroke or two, you can concentrate more fully on your form. Use a snorkel to help fine-tune your mechanics in the water.

Swim Bag: Everything in and around the pool, including your swim bag, will get wet. There are a variety of sizes and styles of waterproof bags available, so you can bring them right to the edge of the pool with all your accessories safely stored.

Basic Biking Gear

The cycling portion of the triathlon may be the toughest of the three disciplines in terms of gear. There is much to consider and care for when riding a bike, not to mention the ability to cycle indoors when the weather doesn't cooperate.

Bike: Whatever bike you already have will do, whether it's a road, tri, or mountain bike, but you may want to take it to your local bike shop to ensure it's tight, lubed up, and ready for a race. The geometry of the road bike frame differs from that of a triathlon bike regarding the seat tube angle. Also, a road bike will most likely not be equipped with aerobars. Road bikes are primarily made for cyclists getting out of the saddle and resting, not running. Triathlon bikes are specific to triathlon in that the rider is more aerodynamic in the saddle and, therefore, better able to save power and efficiency in their quadriceps for the run portion of triathlon training and racing.

Helmet: They range in fit, style, and price, but be sure to get a helmet with MIPS (multidirectional impact protection system) so you know it will do its job if needed. Select one that closely

matches the size of your head and is comfortable. A properly sized and fitted helmet is more likely to stay in the right position and better protect you in case of an accident. Most helmets come with a selection of replaceable pads of various thicknesses that you can use to fit the helmet to your head. Wear your helmet so it covers your forehead to just above the eyebrows. Adjust the straps so the helmet stays in this position on your head.

Kit Bag: The best way to carry gear while cycling is in bags specifically designed for bikes. Most are constructed to hold gear securely and can be mounted on a rack. The bag should include an extra tube, a pump, and tire levers.

Shoes: If you wear ordinary shoes when cycling, tuck your shoelaces inside your shoes. Otherwise, the laces could get tangled in the chain or the chainrings, causing you to crash.

Gloves: Gloves cushion the shocks transmitted through the handlebars from the wheel, and they reduce damage to your hands if you fall. Most gloves have padded palms for cushioning. Warm-weather gloves are fingerless; cold-weather gloves cover the whole hand.

Optional Biking Gear

Bike Shorts: The extra padding where you need it and the tight fit of a bike short are essential to a comfortable ride. Cycling shorts protect your skin where it comes in contact with the saddle. These shorts are made from a stretchable synthetic material and have legs long enough to extend below the edge of the seat. A special material is sewn into the crotch of the shorts to provide padding and wick away moisture. Cycling shorts come in many colors, but black is the most popular because it does not show stains from dirty hands, chains, saddles, or tires.

Bike Shirt: A cycling shirt minimizes wind resistance and has pockets for fuel, keys, and your phone. Cycling jerseys are tight-fitting, short- or long-sleeved shirts made of fabric that wicks away moisture. Jerseys are long enough to cover your waist in the normal riding position and usually have pockets sewn onto the back where you can carry food or other small items while cycling.

Jacket, Rainwear, and Layers: In cold or wet weather, you might need more than a standard bike shirt. Like jerseys, cycling jackets have long tails and usually have back pockets. They typically have a breathable back panel to let excess heat escape; some feature armpit zippers and removable sleeves. Rain clothing, such as high-tech, breathable-fabric rain jackets or simple nylon windbreakers, should shed the rain and allow air to flow around your body, keeping it at a comfortable temperature. Rainwear should be a bright color such as yellow or lime green and have retroreflective strips to help others see you despite poor visibility.

Bike Shoes: Comfort and fit to your clips or pedals are essential when purchasing bike shoes. The best way to ensure the correct fit is to visit your local bike shop with your bike in tow. Usually lightweight, bike shoes also have very stiff soles to protect your feet and reduce fatigue.

Sunglasses: Not only do they reduce glare from the sun, but sunglasses also protect your eyes from flying debris on the roads. You can wear any pair you have, as long as they fit with your helmet, or you can purchase a cycling-specific pair. High-quality, polarized sunglasses are good when you need sun protection. When you don't, clear or amber riding glasses or goggles are useful.

Indoor Trainer: No matter where you live, a bike trainer—often called a stationary bike—is great when weather or time makes riding outdoors impossible. A wide range of trainers are available, depending on your needs and requirements.

Cycling Computer/GPS: From primary data of speed and distance to computing altitude and GPS, a computer will come in handy to analyze stats so you can measure your improvement or lack thereof.

Power Meter: A bicycle device that measures the rider's power output uses strain gauges to measure the torque applied, which, when combined with angular velocity, calculates power. They accurately measure your production so you can calculate your effort throughout your ride. This lets you identify your strengths and weaknesses over varying terrain to create better workouts based on actual data.

Basic Running Gear

The triathlon's run portion requires very little gear; however, what it does require is extremely important. The value of good running shoes must be balanced and can very quickly make or break your training and racing.

Running Shoes: If you're looking for the right place to invest in running and triathlon, make it here. Visit a running specialty store to get fitted for a shoe that fits your specific gait and biomechanics. Running in the wrong shoes will quickly lead to injury.

Socks: To avoid blisters and toenail loss, choose a running/sport-specific sock with sweat-wicking materials to keep your feet dry and happy.

Shorts/Capris/Tights: You can get away with shorts or sweats that allow good movement and will not chafe your skin. Technical fabrics are your best bet, but investing in expensive run-specific clothing is unnecessary.

Running Shirts: Although shirts made with technical fabric will allow for better breathability and therefore less chafing, sweat, and general discomfort while running, you can wear any athletic shirt you already own.

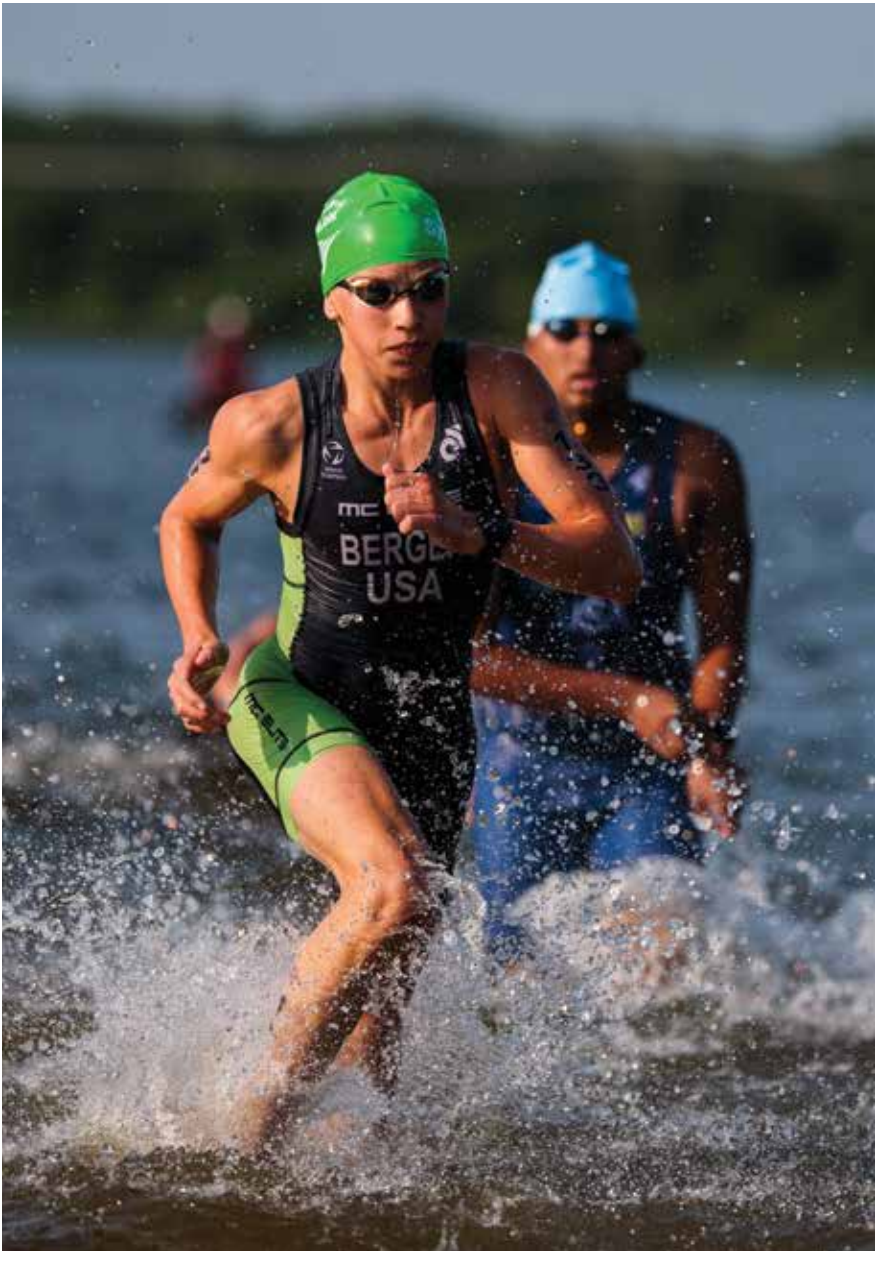
Optional Running Gear

Hat or Visor: Hats and visors reduce glare and block your face and eyes from harmful rays. Plus, if you need to squint to see the road, you waste valuable energy.

GPS Watch: There are so many to choose from, it's almost better to wait and see which will best fit your training. You can get a reasonably priced basic watch with GPS, pace, and distance or a more expensive one with heart rate monitoring, cadence count, and stride length.

Heart Rate Monitor: You can purchase a watch with a built-in heart rate monitor or buy a separate chest strap to monitor your heart rate during runs. Heart rate monitoring on the run is useful for a variety of reasons, including tracking progress, zone training, and avoiding overtraining.

Hydration Packs: Bring water and fuel if you plan to run longer distances. There are a wide variety of options, so it's best to research, read reviews, and maybe even test a few before making a purchase.


USA

Event 1: Swimming

Most people know how to swim. Not many know how to swim well enough that they move through the water quickly but also in the most efficient way possible.

Here's a series of skills and drills to follow to help you progress your skill and confidence in the water. Include these at the beginning of every swim workout. As you get better, you can spend less time on them, but always practice the fundamentals. They will save you when you are challenged the most.

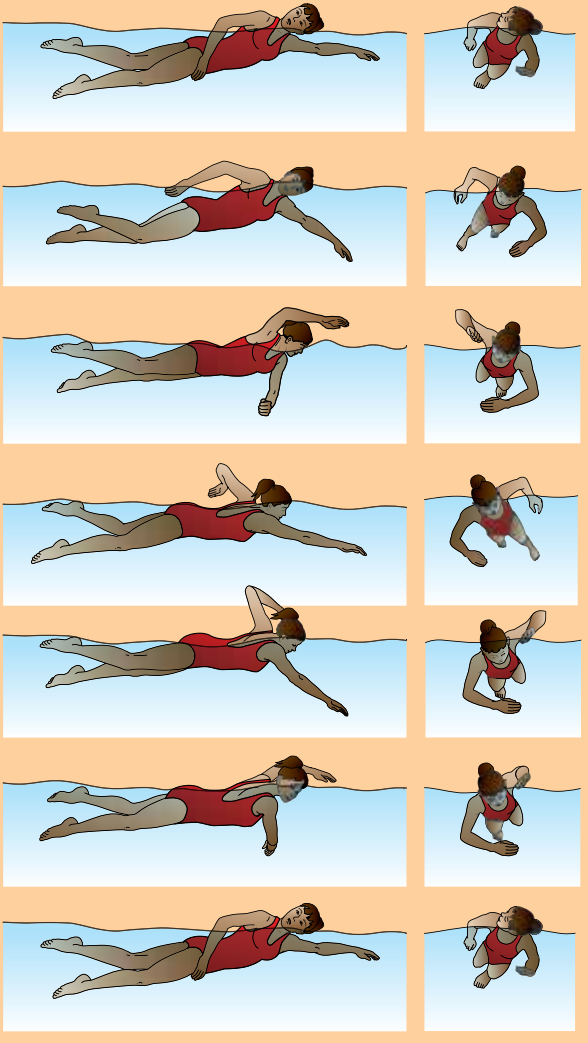
Basic Swimming Drill

Start with 20 to 30 minutes, three times a week:

1. **Breathing**. Hold onto the pool wall with your arms overhead and your face in the water and practice breathing. Exhale big bubbles, turn your head to the side with one ear to the ceiling and one ear in the water, and inhale. Then turn your head so your face is back in the water and repeat.
2. **Kicking**. Hold onto the wall to practice your kick. Push up with the back of your leg/bottom of your foot (upbeat). Then push down with the top of your leg/top of your foot (down beat). Repeat.
3. **Kicking and breathing at the same time.** Still holding onto the wall, combine the two skills above. Using your legs requires more oxygen and will challenge your breathing. The key is to keep it as steady and smooth as you can.
4. **Kicking and breathing with a kickboard.** Now you can work on your forward propulsion with your legs. Hold the board at the bottom, arms stretched overhead, face in the water. Turn your head to inhale as you move forward. Keeping your breathing arm at your side can be helpful.
5. **Add one arm stroke.** The next progression is to kick, breathe, and pull with one arm, bringing the coordination together one arm at a time.

6. **Swim freestyle to the best of your ability.** Freestyle, the fastest and one of the most graceful of all swimming strokes, is a combination of the skills you just worked on: the flutter kick, the rotating arm stroke, and rhythmic breathing. By

"Freestyle" and "crawl stroke" refer to the same technique. Freestyle is the usual term in competitions like multisport.



Front crawl, side and front views

working on the individual pieces of the stroke, you can focus and improve your whole technique. Always work to put the whole stroke together to continue your progression.

Advanced Swimming Workouts

Once you've progressed through the basic skills of improving your freestyle, it's time to work on how to structure your pool workouts. There are two basic options:

1. **Intervals.** Intervals do not always mean going fast and hard. It simply means intermittent work and rest periods.
   A structured interval workout would look like this:
   - Warmup: Do the basic swimming drill listed above, then four sets of 8x25 yards or meters easy swimming, resting as needed between each set.
   - Main set: Do six 12x25 sets of freestyle swimming with 10-30 seconds rest between.
   - Separate pull and kick drills: Do 6x25 kick drills and 6x25 pull-focused swim drills using strong arms, relaxed legs, and a pull buoy if you prefer.
   - Cool down with easy swimming, any stroke, around 100 yards or meters.

   Total yards and meters in this workout will end up between 500 and 750.
2. **Long endurance swim.** Increasing your distance or time in the pool is a logical and basic place to continue your preparation for a multisport competition. The triathlon swim is an aerobic endurance event, and improving this aspect is important. When you're ready, build on a continuous swim: 100, 200, 300, etc., from week to week. This may be intermingled with some breaststroke, sidestroke, or backstroke to keep the effort continuous.

Kicking Tips

Kicking during the swim portion of an actual triathlon should be kept to a minimum to conserve leg strength for the bike and run. But that doesn't mean you should never kick during practice. Kicking drills work on body position as well as kicking.

A good flutter kick is about 12 to 16 inches deep in the water. Only your heels should be popping out on the downward kick. And don't forget to kick up and down with flexible ankles.

Don't drive the kick from your thighs—it should be hip-driven and snap your toes down with your knee bending slightly. The advantage of a solid kick is that it creates the balance needed to have a good stroke rhythm.

Stroke Tips

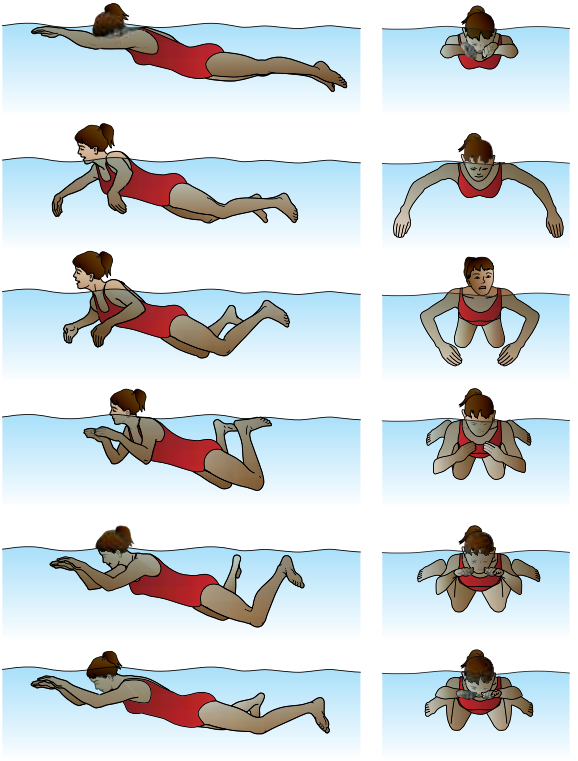
A triathlon swim is all about efficiency and stroke rate. The best way to think of this is that you want to get the maximum distance per stroke with the most efficient stroke rate to maintain "steady state swimming." It takes practice to find the perfect ratio between the two, but working on creating excellent technique will assist in getting the most out of your swim.

Increasing Your Comfort In Open Water

Pools are great places to practice swimming. However, since most multisport competitions conduct their swimming events in open water, you'll want to practice some there too. Swimming in open water is often completely different than swimming in a pool. It could be colder. There could be currents. There might even be waves.

Many triathletes describe experiencing sensations akin to panic attacks during open water swims, characterized by shortness of breath, tightness in the chest, dizziness, and strong self-talk. These sensations may have physiological origins rather than being purely psychological panic attacks.

Two physiological phenomena are identified as potential causes of these discomforts. Carotid sinus reflex is when pressure on the carotid artery triggers a reflex that increases blood pressure and signals the heart to slow down, causing sensations similar to panic. Mammalian diving reflex is



Breaststroke, side and front views

You might want to work some breaststroke into your training. It is one of the oldest strokes used in Scouting and is quite efficient.

when the face is submerged in cold water and the body's natural response is to slow down the heartbeat and redirect blood flow, which can feel distressing during swimming.

Remedies to this experience include:

- Relieving pressure on the neck, ensuring that wetsuits or swim caps don't press on the neck area and trigger the carotid sinus reflex.
- A proper breathing warmup before swimming, including practicing gentle bobbing in the water and blowing bubbles to acclimate the body, can alleviate the effects of the mammalian diving reflex.
- Altered behavior due to panic attacks can be avoided by addressing the physical causes and achieving a sense of calmness in the water, making open water swimming more enjoyable and rewarding.

Ten Ways To Avoid Overtraining

1. Take dedicated easy or off days each week, with a recovery week every three to five weeks.
2. A recovery day can include exercise done at a low to moderate effort. For triathletes, something like an easy swim, a short jog, or yoga class.
3. A recovery week does not mean you sit and do nothing—just reduce the overall training by 30%-50% and keep your efforts light for a few days.
4. Recovery days and weeks allow your body the time to heal the microtrauma (muscle and soft tissue breakdown) that occurs during exercise and give you a chance to mentally and emotionally decompress.
5. Stay on top of sleep and nutrition, including post-workout nutrition.
6. Sleep 7 to 8 hours each night, and you might need more as your training intensity increases. A rule of thumb is to add 30 minutes to one hour of sleep per night for every 10 hours of exercise per week.
7. On the nutrition front, unless you're actively trying to lose weight, you need your increased calorie expenditure to match intake.
8. Have a methodical, specific approach to your training—space out harder workouts with easy days.
9. New triathletes with an endurance background may try to do it all every day. You go hard at swim practice, then hard on the group ride, then hard at the interval run. But then your body has no chance to recover. Build up your workouts into longer sessions and learn to make the key sessions count.
10. It really all comes down to this: Listen to your body.

Safe Swim Defense

All multisport swimming training activities must be conducted according to Scouting America's Safe Swim Defense standards. The eight points of Safe Swim Defense are as follows:

1. Qualified Supervision

All swimming activity must be supervised by a mature and conscientious adult age 21 or older who understands and accepts responsibility for the well-being and safety of those in his or her care and who is trained in and committed to compliance with the eight points of Safe Swim Defense.

2. Personal Health Review

A health history is required of all participants as evidence of fitness for swimming. Forms for minors must be signed by a parent or guardian.

3. Safe Area

All swimming areas must be carefully inspected and prepared for safety prior to each activity. Water depth, quality, temperature, movement, and clarity are important considerations. Hazards must be eliminated or isolated by conspicuous markings and discussed with participants.

4. Response Personnel (Lifeguards)

Every swimming activity must be closely and continuously monitored by a trained rescue team on the alert for and ready to respond to emergencies.

5. Lookout

The lookout continuously monitors the conduct of the swim, identifies any departures from Safe Swim Defense guidelines, alerts response personnel as needed, and monitors the weather and environment.

6. Ability Groups

All youth and adult participants are designated as swimmers, beginners, or nonswimmers based on swimming ability confirmed by standardized swim classification tests. Each group is assigned a specific swimming area with depths consistent with those abilities.

7. Buddy System

Every participant is paired with another participant. Buddies stay together, monitor each other, and alert the safety team if either needs assistance or is missing.

8. Discipline

Rules are effective only when followed. All participants should know, understand, and respect the rules and procedures for safe swimming provided by Safe Swim Defense guidelines. Applicable rules should be discussed prior to the outing and reviewed for all participants at the water's edge just before the swimming activity begins.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Event 2: Biking

The bike is the most efficient human-powered vehicle ever invented. There are important things to remember to keep it—and the human who's operating it—running smoothly.

The Basics

First things first: You need to wear a helmet. If you don't already own a bike, visit a local bike shop to buy one or consider borrowing one from a friend to try out. Schedule a bike fitting, where an employee will adjust the seat to fit your height. It should sit just high enough for your leg to extend fully through the stroke. Sitting too low results in knee pain while riding and too high can cause Achilles and hamstring issues.

On rides, you should also carry bike maintenance and repair tools with you, including an air pump, inner tube, and a multitool for tightening loose gears.

Grab a trusted adult and check your favorite online map to find the best bike route between two points—including elevation gain and loss. Many fitness tracking apps with GPS can help you find the most popular routes that others take.

Or reach out to your local cycling group. They're always willing to help.

Even if you're clocking 20 mph paces during your cycling class at the gym, don't expect to transition seamlessly from the spin bike to the streets. Road biking requires unique skills, including navigation and defensive riding, shifting gears, and clipping in.

Rules of the Road

Distracted drivers are the biggest risk to bikers out on the open road. Often it seems that they simply don't see you, regardless of your neon jersey and flashing lights. They might appear to be oblivious or out of control. There is little you can do about any of this. But you do have control of your own riding habits.

Too far back

Too far forward

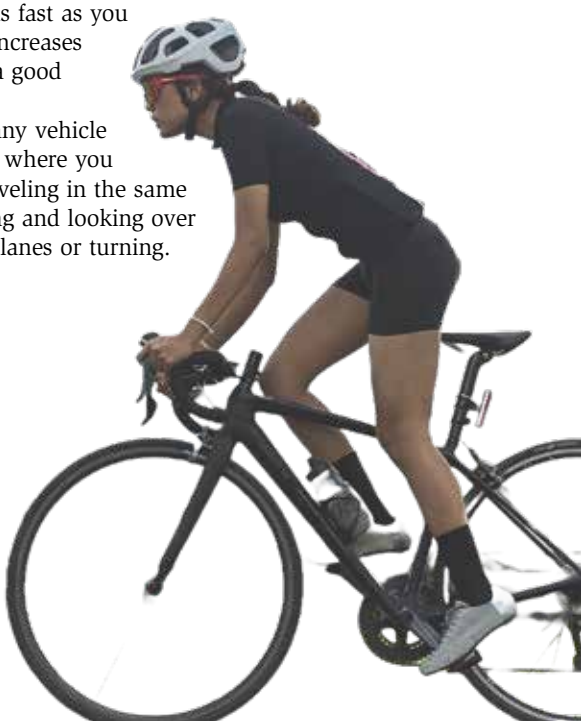
Correctly positioned

The rule to remember is: If you are on a bicycle—even straddling it without moving—your helmet should be properly fastened on your head.

- Your No. 1 job when riding on the road is to maintain situational awareness. If you hear a car approaching from behind, stay balanced. They may come close. Don't veer into their path. Don't veer off the road either—unless you can tell they're coming right at you. If it's a truck, get ready to have a lot of wind blown your way.

- Prepare for every driver to make the worst possible decision. If they pass you, prepare for them to immediately slow down and turn right—right in front of you. If they stay behind you, prepare for them to come perilously close when they finally do pass. Imagine that virtually no approaching or cross-traffic drivers see you, and expect them to fail to yield. It doesn't matter if you're in the right. What matters is not getting hit by a 3,000-pound vehicle.
- Wear bright clothing with reflective stripes. Put lights on your bike. Riding a bike is a time to be seen, not to remain inconspicuous.

- Avoid road cycling at dawn, dusk, and nighttime. Visibility is poor at these hours, and your chances for distracted or impaired drivers increase—especially in the evening and at night. If you do ride at these times for commuter or scheduling reasons, find the least traveled roads you can. And turn on your lights.
- Avoid rush-hour cycling. People are angry, hungry, and catching up on their social media feed. If you must ride at or near rush hour, find a group to ride with. There is safety in numbers.
- Maintain your bike. If the chain pops off on a steep climb, you're going to tip over. If you blow out the sidewall of an old tire on a steep descent, you have a high chance of crashing.
- Don't wear headphones while riding. You lose situational awareness. It doesn't matter how good the song or podcast is. It's a bad idea.
- The safest sort of cycling you can do outdoors is on greenways and bridle trails. Both are safer than roads by a large margin. Where there are no cars, there's no chance of being hit by a car. (Though you can still crash into a pedestrian or another cyclist.) Typically, you are speed limited, but at some point, the lure of safety might overpower your desire to ride as fast as you can. And riding a fat-tire bike increases resistance, so you can still get a good workout if you so desire.
- Ride predictably—don't catch any vehicle drivers by surprise—by staying where you can be expected to be seen, traveling in the same direction as traffic, and signaling and looking over your shoulder before changing lanes or turning.



Bike Maintenance

Stay on track with routine maintenance. You'll be protecting both your investment and yourself. Maintenance will prevent bigger problems down the road. Take pride in the equipment you use, and it'll make your life easier in the long run.

Pre-Ride Maintenance Checklist

Every time you hop on your bike, you should do a brief check of your equipment. This will take only a couple minutes and is well worth avoiding getting stranded miles from home.

- ❏ **Tires**. If you have a gash in your tire, you can have a blowout. And if the tire blows, you're going down. Look at the sidewall of the tires for maximum and minimum pressure. Always remember, it's better to slightly under-pump your tires than to over-inflate them.
- ❏ **Brakes**. Squeeze the brakes to make sure they are functioning properly. The wheels should spin true in the center with no wobble or brake rub.
- ❏ **Wheel skewers**. Check to see if the wheel skewers—the mechanism that attaches the wheel to the bike—are tight and seated properly. They should be snug to secure the functionality of the wheels.

Never wash your bike with high-pressure water (like in a drive-through car wash) because water will be forced into bearings, causing rust.

Weekly Maintenance Checklist

- ❏ **Clean your bike**. Even more important if you are riding in wet conditions, as chains and gears get grimy.
- ❏ **Drivetrain wash**. Wash your chain, especially if you are riding in mud and gravel. For exceptionally dirty chains, use an adhesive remover and rinse it with a pressure washer, keeping the nozzle away from the bearings.
- ❏ **Drivetrain lube**. Once your drivetrain is clean, apply degreaser and chain lube. Use a biodegradable degreaser and lube that's made specifically for bikes.

Semiannual Maintenance Checklist

- ❏ **Tuneup**. Most bikes will need a full tuneup every six months. It is a good idea to at least do a thorough once-over a couple of times a year.
- ❏ **Cables**. Check your cables to see if they are fraying or if the heads have snapped off in the shifters.
- ❏ **Brake pads** need to be replaced more often than most triathletes expect, especially if you are riding on hilly terrain where you use your brakes a lot.

- ❑ **Tires**. If you're getting flat spots on your tires, you're going to need to replace those because that can be a major safety issue. If you see any cuts, general damage, bulges, or fiber casing that shows through the rubber, it's time for a replacement.
- ❑ **Headset**. Make sure your headset—the components that provides a rotatable interface between the fork and the frame—is tight so the handlebars are snug.

Annual Maintenance Checklist

- ❑ **A yearly visit to your local bike shop**. Many bike shops will let you learn from the mechanics while they are working on your bike.
- ❑ **Bottom bracket and cassette**. These places are often neglected and a lot of times they need to be cleaned, lubricated, and sometimes replaced.
- ❑ **Chain**. As a result of the wearing away of metal on the chain, the drivetrain "stretches" and can end up tearing out the cassette. If you replace the chain more often, the other gears will actually last longer.
- ❑ **Bearings**. In servicing the bottom bracket, front and rear wheel hubs, and the headset, it is also important to check the bearings. This includes removing, cleaning, and repacking or replacing them.


USA

Event 3: Running

Though there are different distances of triathlons, all of them have one thing in common: Running is the last event. That makes pacing—not just during the run, but during the entire day—one of the most important keys to keeping up with your competition.

The difference between well-paced and poorly paced runs can be significant, with potential time variations of several minutes, especially in longer events like Ironman.

Effective run pacing begins with smart pacing on the bike leg. Overexerting on the bike can lead to fatigue and struggling during the run.

Maintain a pace on the bike that you could sustain for an additional 10%-15% of the total bike distance. There's only one way to learn the right pace for you: Practice, practice, practice, while keeping track of your times down to the second.

It's essential to avoid pushing too hard early on the bike to ensure a strong run afterward.

To properly pace your run, divide it into two segments, with the first slightly longer than 60% of the total distance. Begin at a pace that allows for building speed in the latter part of the run.

Save some energy for the second part of the race, especially in longer distances.

Warming Up and Cooling Down

It's important to warm up and cool down before running to help lower injury risk and ease muscle soreness. Warming up helps increase range of motion and blood flow, allowing muscles to feel less stiff. Cooling down after your workout lets your heart rate and blood pressure slowly recover to pre-exercise levels, while also helping to get rid of metabolic waste in muscles.

The key to warming up is taking it slow and easy. Good warmup exercises include jumping jacks, pushups, jumping rope, arm rotations, and other calisthenics. Some athletes like to end the warmup portion of their workouts by briefly running in place to really get their blood flowing.

When your workout is over, don't stop moving right away. This could cause muscle cramps. Instead, jog slowly or walk for at least a half mile, then continue to move and stretch. Cooldowns can help promote faster recovery of the cardiovascular and respiratory systems, as well as prevent immune system suppression. Don't neglect this part: After a strenuous run, your total cooldown routine could take as long as 10 minutes.

Rules of the Road for Runners

You can run safely in almost any neighborhood or park if you follow the rules of the road.

- **Bike With, But Run Against:** When you ride a bike, the rules dictate you do so in a bike lane because bikes are treated as traffic, the same as cars. When it comes to running or walking, however, experts recommend going against the flow of traffic. Studies show pedestrians are quickly and safely able to move to the side or stop if they can see a car straight ahead.
- **Stick to Sidewalks:** In some states, if there is a sidewalk, it's illegal to walk or run in the street. Use your judgment, and be careful of uneven, narrow, or blocked sidewalks.
- **Run Single File:** It's tempting to run alongside your buddy, but running in single file allows space on sidewalks for others, making it safer for everyone. Use hand signals to point out hazards or oncoming runners.
- **See … and Be Seen:** Visibility is key to safety. Make eye contact with drivers to make sure they can see you. Wear reflective gear and bright colors when running after dusk. Adding a headlamp for extra shine at night will help you avoid hazards and make you more visible to other people.
- **Use Your Ears:** Listening to the sounds around you will keep you aware of drivers, animals, cyclists, and runners that are approaching from the front or from behind. Listening to music or podcasts while you run limits your ability to sense what's around you, especially if it's out of your line of sight. If you must run with music, keep the volume down; or, even better, run with just one earbud.

Drills To Improve Your Running Technique

Just as with swimming and biking, it's important to practice running in a manner that's efficient as it can be, maximizing every movement, wasting as little effort as possible.

Grab a comfortable pair of shoes, find a soft surface (such as a gym floor or grassy yard) and work on your running by practicing these drills:

HIGH KNEES

This exercise makes for a great warmup while also working out your core and improving your balance.

1. Stand tall, feet shoulder-width apart, arms down at your sides.
2. Bring your right knee up toward your chest and, at the same time, bring your left hand up to your shoulder.
3. Lower your right knee and left hand, then bring your left knee and right hand up.
4. Repeat for 30 seconds, then rest for 30 seconds. Continue until you're tired.

BUTT KICKS

This exercise helps strengthen your hamstring and glutes and will help improve your form while running.

1. Stand tall, feet shoulder-width apart, arms down at your sides.
2. Without moving your right knee forward, slowly bring your right heel back to your rear end.
3. Slowly bring your right foot back down and repeat the same motion with your left heel.
4. Gradually increase the pace until it feels like you're running in place, being sure to keep your knees from moving forward and getting your heels as far back as you can.
5. As you go faster, swing your arms in a running motion.
6. Repeat for 30 seconds, then rest for 30 seconds. Continue until you're tired.

You can get even more benefit out of lunges by adding a couple of light dumbbells or other weights as available.

LUNGES

This exercise will work out almost all of the muscles in your lower body. It will also help you improve your balance and coordination.

1. Stand tall, feet shoulder-width apart, arms at your sides.
2. Take one big step forward with your left leg.
3. With your left foot on the ground a few feet in front of you, lower your body forward toward the ground, with most of your weight on your left leg.
4. Keep your back straight.
5. Push yourself back up, then repeat with the right leg.
6. Repeat for 30 seconds, then rest for 30 seconds. Continue until you're tired.

Moving into an inchworm. Next step: pushup position.

INCHWORMS

This exercise improves flexibility and strengthens your core.

1. Stand tall, feet shoulder-width apart, arms at your sides.
2. Keeping your legs and back as straight as you can, bend over at the waist until both hands are on the ground. You know how an inchworm moves up and down? This is the "up" portion of the exercise.
3. Keeping your feet in place, "walk" forward with both hands until you are in a standard pushup position.
4. Pause here for a moment. This is the "down" portion of the inchworm exercise.
5. "Walk" backward with your hands, then stand up straight again, keeping your legs as straight as you can.
6. Repeat for 30 seconds, then rest for 30 seconds. Continue until you're tired.

SOLDIER KICKS

This is a great exercise for your hamstrings. Note that you'll need some space for this one, as it requires you to walk forward as you perform the exercise.

1. Stand tall, feet shoulder-width apart, arms down at your sides. Then step forward with your left foot.
2. Extend your left arm straight out in front of you and take a step forward with your right foot, this time swinging your right leg up so it almost touches your left hand.
3. Repeat with your right arm and left foot, swinging your foot up as high as you can every time.

Pacing Guidelines

- **Sprint:** Maintain a pace slightly easier than 1,000-meter intervals on the track, with controlled breathing and muscle relaxation.
- **Olympic Distance:** Maintain a fast pace but conserve energy for later in the run.
- **Long Distance:** Aim for a floating sensation, akin to a steady-state tempo run, saving energy for the latter part of the race.
- **Ultra Distance:** Avoid racing the run until the final 10 miles, maintaining an aerobic pace throughout to prevent fatigue buildup.

How To Build Up Your Endurance

Begin a training program that slowly builds up your mileage. By gradually increasing the distance you run each week, you will strengthen your muscles, tendons, and ligaments as your body begins adapting to the extra stress. Depending on your physical condition, you could start by running a half mile to a mile three to four days a week. Keep your pace fairly slow; do not run what you would consider an all-out effort.

Increase your mileage by no more than 10% per week to avoid overtraining and injury. Gradually extend the length of long runs and incorporate midweek semi-long runs to build endurance. If you are running 3 miles a week, you could increase the mileage to 3.3 miles the next week, and so on until you reach the weekly mileage you desire. As with any training program, it is important to make gradual increases in mileage and intensity as you try to improve your speed.

Maintain a similar intensity level while training for longer races, possibly reducing high-intensity workouts during mileage-building phases. Emphasize the importance of maintaining overall speed and cardiovascular fitness through consistent high-intensity training, despite preparing for endurance-based races.

Strength training becomes increasingly important as race distance increases. Tailor strength workouts to address individual weaknesses to prevent overcompensation injuries. Strengthening muscles and joint connections reduces the risk of injury and improves longevity in the sport.

Pay close attention to your body's signals and incorporate adequate recovery days, especially after hard workouts and long runs. Prioritize rest and recovery to prevent injuries and allow for better training adaptation over time, leading to improved race performance regardless of distance.

Common Running Mistakes

Some common mistakes that multisport athletes make during their run training are:

Increasing running volume too quickly. Many triathletes push their running volume and intensity too rapidly, risking injury due to the high muscular damage caused by running. This is going to take time, and rushing it does more harm than good.

The fix lies in consistent and frequent training, balancing intensity with easy runs. A general guideline says that if you are running and still able to hold a conversation with another person, you are probably training efficiently.

Lack of specificity. Running at high intensity for most runs leads to fatigue, muscular damage, and stagnant fitness gains. Adding specificity to workouts by including both low- and high-intensity runs improves overall performance and resilience.

Poor running form. Neglecting proper running mechanics can increase energy expenditure, reduce pace, and induce fatigue. Emphasizing correct posture (stand tall with your head in a neutral position, looking forward, not down), lean (it is ideal for a distance runner to have a 3%-5% backward body lean), arm carriage (focus on driving your elbows directly behind you and naturally let them come forward), foot speed, and leg drive (raise your knee high enough off the ground that your muscles can provide more force with each stride) enhances efficiency and reduces the risk of injury.

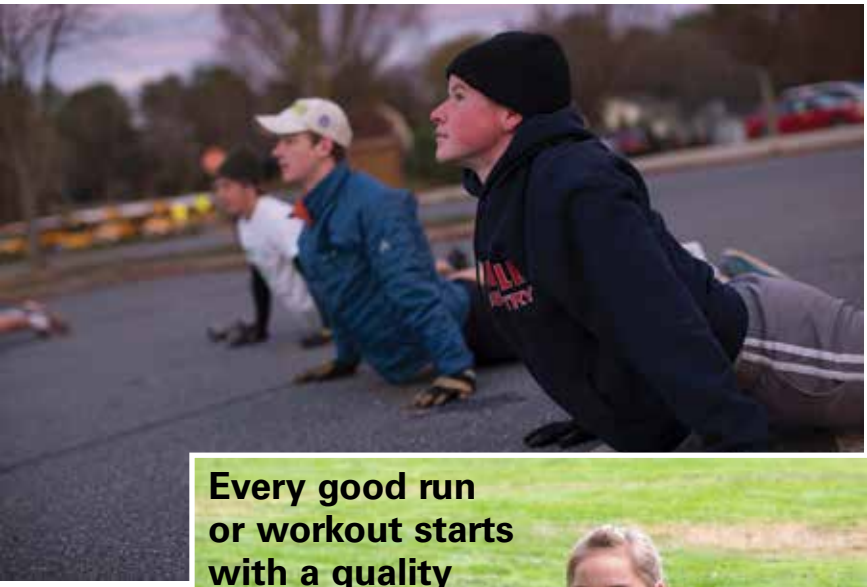
Neglecting strength training. Triathletes often overlook strength training, leading to weaknesses, imbalances, and increased injury risk, particularly in running. Functional strength training is essential for improving coordination, mobility, power, and resilience, contributing to overall triathlon performance. You can train with weights, or you can use your body's weight as the resistance for exercises like pushups, pullups and situps.

You are still growing, so it is important to start weight training slowly. Whenever you participate in weight training activities, it is important to do so only under the supervision and guidance of a knowledgeable trainer.

Quality vs. quantity in running. Consistent training is essential for success. It's better to maintain a steady routine over several weeks than to push too hard in isolated sessions and risk injury or illness. The majority (at least 80%) of your running should be easy, allowing for physiological development and preparation for more intense workouts. Incorporate short bursts of speed work (under 9 seconds) with ample recovery time. Avoid long, strenuous repeats to ensure longevity in training.

Once your body adapts to regular running and major races are approaching, introduce quality workouts gradually.

Failing to train at race pace. Tailor your training paces to the specific demands of your race. Focus on addressing your biggest limiting factors, whether physiological or mechanical. Regularly practice in conditions similar to race day to prepare adequately for race challenges like hills, heat, and wind. Monitor your form throughout races and training sessions, adjusting your training based on what you observe.




Every good run
or workout starts
with a quality
stretching session.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LEGG

Transitioning Between Events

One of the unique things about multisport is that it's not just your race times that count. The time it takes you to move from one race to another counts too. These are called "transitions," and learning proper transitioning techniques is just as important as knowing how to swim, bike, and run.

Transitions are so important, they're often referred to as the "fourth discipline."

Transition areas are designated before the race, giving you time to scout them out and learn the lay of the land. Within each transition area, you'll have a designated spot in which you can execute your transition, and you'll have the opportunity before the race to drop off the gear you'll need in your spot.

Transition 1 (often simply called "T1") is the process of switching from cycling to swimming. If you are wearing a wetsuit, taking that thing off is a lot harder than it sounds. Practice in advance! You'll definitely want to take off your goggles, put on your helmet, and pull your bike off the rack. You may also need to put on a bib with your race number.

Transition 2 (or T2) is the transition from biking to running. This will require you to, at a minimum, remove your bike helmet and change your shoes.

In some multisport events, there will be transition stations where you can completely change clothes—if you need to—in privacy. Often, though, you'll need an underlayer of clothing that you can wear for every discipline. A tri suit made especially for triathlons is a common solution.

It's also important to check the rules before each competition. In some races, for example, you could be disqualified for getting on your bike before your helmet is strapped on. Or you may have to roll your bike to a certain spot before getting on and beginning your ride.

Tips For a Smooth Transition

- **Less Is More.** Bring only what you will need for your race into the transition area. Too many pieces of unnecessary stuff can clutter your area and be a hazard to you and your competitors. Have a list of your specific transition needs and, the evening before your race, lay out everything and check off the items as you place them in your transition bag.
- **Have a Plan.** Mentally rehearse your movements through transition. Before you get to your area, you should know in which order you will take off and put on equipment—it should be automatic. Work on a mantra for each transition: "Shoes, helmet, glasses, number belt, bike, go!"
- **Be Quick, But Don't Hurry.** Be calm and purposeful in your movements. Rushing around will just cause you to fumble with your equipment (slowing you down), or worse, to forget something. It's not all that rare for a runner to have to head back into the transition area for his or her race number, or for a runner to head out of transition with his or her bike helmet still on.
- **Expect the Unexpected.** If something goes wrong (for example, a piece of equipment is not where you put it, or you arrive at your bike and a tire is flat), don't let a roadblock halt your race. Have a plan for these situations, take care of them calmly, and keep on racing.
- **Mind Your Manners.** Transition areas are often very tight, so keep your equipment in your area and try not to take up too much space. Be sure that you re-rack your bike in your original spot and that you grab your equipment, not your neighbor's. We heard of an athlete who once noticed that his feet hurt during the run portion of his race. It was not until he returned home that he noticed he had put on someone else's running shoes—same model, different size. Ouch!
- **X Marks the Spot.** Use a brightly colored towel on which to place your equipment and note landmarks around the transition area that will help you locate your spot. Your best bet is to count the racks to your section—towels or other identifiers can fall off your equipment. Precious seconds can be lost while you are searching for your spot.

- **Know the Flow.** Walk through the transition area several times from the swim exit to your bike to the bike exit, and then from the bike entrance to your spot to the run exit so that you familiarize yourself with the flow of the transition area. This way you are sure to take the shortest and fastest route. Also, be aware of where the bike mount/dismount line is located. Your speedy transition could be nullified by a time penalty if you mount too soon or dismount too late.
- **Practice Makes Perfect.** Practice transitions prior to race day. Just as you work on other aspects of your racing, you need to rehearse your transitions prior to race day. Work on wetsuit peeling, running with your bike, mounts and dismounts, racking and changing equipment. It takes practice to execute these actions smoothly, quickly, and safely. The more you practice, the more transitions will become a seamless part of your race.

Transition Items Checklist

❏ Race suit
❏ Goggles
❏ Towel
❏ Shoes
❏ Sunglasses
❏ Water bottles and race fuel/gels
❏ Swim cap
❏ Wetsuit
❏ Bike
❏ Helmet
❏ Race number belt
❏ Running shoes and hat


ARE
YOU
the mountains
are calling and

Get Ready To Race!

Welcome to your multisport training plan!

This plan is designed to give you an idea of what it takes to Be Prepared for a multisport competition. If you chose one of the two-event formats in requirement 3(d), substitute an extra run or bike ride for the third event your chosen format does not include.

Don't forget to warm up and cool down at each session.

WEEK 1		
DAY	**EVENT**	**WORKOUT**
1	**RUN**	Walk at a reasonable pace for 5 minutes. Then run at a medium pace for 5 minutes. Rest for a minute, then repeat two more times.
2	**SWIM**	Swim 300 yards. (Most pools are 25 yards long, meaning you'll swim 12 lengths.) Take breaks as needed.
3	**BIKE/ RUN**	Ride your bike for 20 minutes, then transition to a run/walk for 10 minutes.
4	**REST!**	None!
5	**RUN**	Walk at a reasonable pace for 5 minutes. Then run at a medium pace for 10 minutes. Rest for a minute, then repeat.
6	**BIKE**	Bike for 20 minutes.
7	**SWIM**	Swim 400 yards. Take breaks as needed.

WEEK 2		
DAY	**EVENT**	**WORKOUT**
1	**RUN**	Walk at a reasonable pace for 5 minutes. Then run at a medium pace for 10 minutes. Rest for a minute, then repeat.
2	**SWIM**	Swim 400 yards. Rest as needed.
3	**BIKE/ RUN**	Ride your bike for 25 minutes, then transition to a run/walk for 10 minutes.
4	**REST!**	None!
5	**RUN**	Walk at a reasonable pace for 5 minutes. Then run for 15 minutes. Rest by walking as needed.
6	**BIKE**	Bike for 25 minutes.
7	**SWIM**	Swim around 500 yards in open water, following all the rules of Scouting America's Safe Swim Defense, including proper supervision and the buddy system.

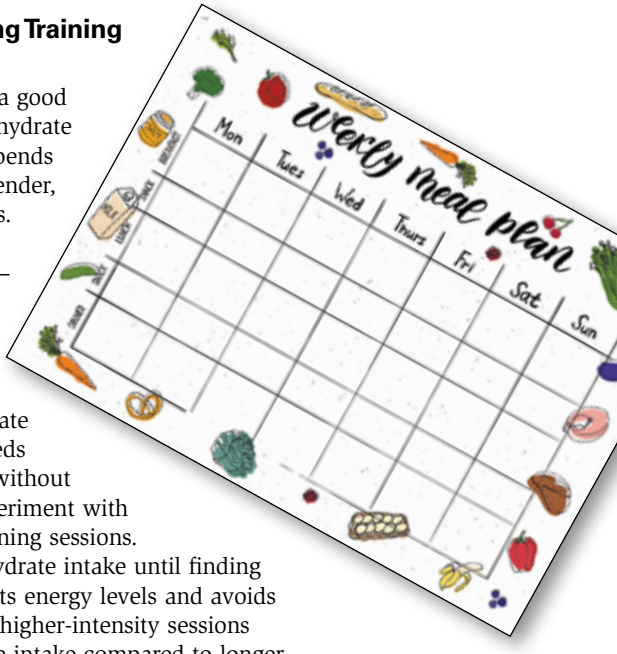
Notes for Weeks 1 and 2

WEEK 3		
DAY	**EVENT**	**WORKOUT**
1	**RUN**	Walk at a reasonable pace for 5 minutes. Then run at a medium pace for 15 minutes. Rest by walking as needed.
2	**SWIM**	Swim 500 yards. Rest as needed.
3	**BIKE/ RUN**	Ride your bike for 30 minutes, then transition to a run/walk for 10 minutes.
4	**REST!**	None!
5	**RUN**	Walk at a reasonable pace for 5 minutes. Then run for 20 minutes. Rest by walking as needed.
6	**BIKE**	Bike for 30 minutes.
7	**SWIM**	Swim around 500 yards in open water, following all the rules of Scouting America's Safe Swim Defense, including proper supervision and the buddy system.

Notes for Weeks 3 and 4

WEEK 4		
DAY	**EVENT**	**WORKOUT**
1	**RUN**	Walk at a reasonable pace for 5 minutes. Then run at a medium pace for 10 minutes. Rest for a minute, then repeat two more times.
2	**SWIM**	Swim 500 yards. Rest as needed.
3	**BIKE**	Ride your bike for 30 minutes.
4	**RUN**	Walk at a reasonable pace for 5 minutes. Then run at an easy pace for 15 minutes. Rest by walking as needed.
5	**REST!**	None!
6A (Choose 6A OR 6B)	**3 EVENTS**	Complete all multisport activities: **swim** 100 meters (about 110 yards), **bike** 3 kilometers (about 1.9 miles), and **run** 1 kilometer (about .6 miles) … in that order. If you've been hitting your benchmarks up to this point, you should be able to complete those distances. Don't worry about doing them fast. Just worry about doing them to the best of your ability. **You've got this!**
6B (Choose 6A OR 6B)	**2 EVENTS**	• **Run** for 1 kilometer, **bike** for 3 kilometers, **run** for 1 kilometer; OR • **Swim** for 100 meters, **run** for 1 kilometer; OR • **Swim** for 100 meters, **bike** for 3 kilometers.
7	**Rest … and celebrate! You're ready for a multisport race!**	

Carbohydrate Needs During Training and Racing



The four-week training plan is a good time to think about your carbohydrate intake. Carbohydrate intake depends on individual factors such as gender, experience level, and race focus. Hourly carbohydrate intake recommendations vary widely—anywhere from 30-90 grams—making it challenging to determine the ideal amount.

Metabolic efficiency testing provides the most accurate assessment of carbohydrate needs during training and races, but without access to that, athletes can experiment with carbohydrate intake during training sessions.

Gradually increase carbohydrate intake until finding a comfortable level that supports energy levels and avoids gastrointestinal issues. Shorter, higher-intensity sessions may require lower carbohydrate intake compared to longer, endurance-focused sessions.

Fluid Intake Recommendations

- Your gut can safely process 24 to 32 ounces of fluid per hour during exercise.
- Electrolyte replacement is crucial, with emphasis on sodium, potassium, chloride, calcium, and magnesium.
- Experiment to find the right electrolyte balance for you, starting with lower sodium replacement and adjusting based on performance and hydration levels.
- Electrolyte needs can vary based on conditions, particularly temperature.
- Sodium is the most important electrolyte lost in sweat and should be prioritized in your replacement strategy.

Get a taste of multisport by biking at Dave Alexander Low Gear at the Summit Bechtel Reserve in West Virginia, home of the National Jamboree. Who knows—you might become a multi-time world champion like Taylor Knibb (below and page 79).

Multisport Athletes Who Are Making a Difference

The multisport community is one of the friendliest communities you will find. Once you introduce yourself as someone who's interested in multisport, you've just made a friend for life.

It's not surprising, then, that so many multisport athletes have left a mark not only on the sport but also on the people who have come to know them as well.

Dave Alexander

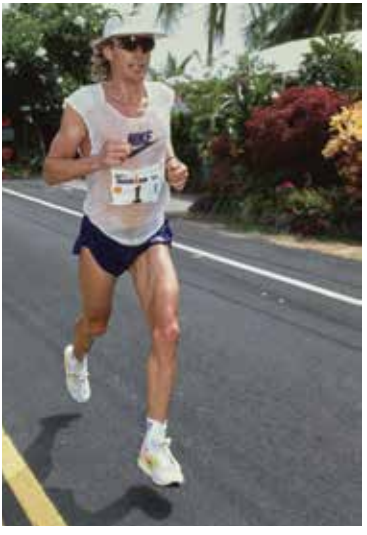
Alexander is a Distinguished Eagle Scout and a recipient of the Silver Buffalo Award, Scouting's highest level of recognition for adult volunteers. He's also an accomplished triathlete, having completed 287 triathlon competitions in 37 countries in his career.

Thanks to a historic donation made by Alexander's TriDave Legacy Trust, the USA Triathlon Foundation can support current and future women's collegiate triathlon programs competing at the NCAA varsity level. The USA Triathlon Foundation is the charitable arm of USA Triathlon and raises funds for and makes grants in support of three pillars—encouraging youth participation, inspiring pathways to access and inclusion, and igniting Olympic and Paralympic dreams—to advance its mission and create a direct line to individuals, organizations, and initiatives across the country that are dedicated to transforming lives through swim, bike, and run.

Abigail Adams

Known as Abigail the Advocate, Abigail Adams became the first woman with Down syndrome to complete a sprint triathlon. She has finished at least 15 sprint triathlons.

When she is not training or competing, you can find Adams modeling, running her makeup and apparel business, and supporting various foundations like the National Down Syndrome Society and the Down Syndrome Foundation of Florida. In 2023, Adams spoke at the USA Triathlon Foundation Gala and Hall of Fame Induction at USA Triathlon Nationals in Milwaukee.



Mark Allen

USA Triathlon Hall of Famer Mark Allen came up short in the Ironman Triathlon Championships six times, but he never gave up. On his seventh attempt, he finally emerged victorious, and that was just the beginning. Allen went on to win five more championships, his final victory coming in 1995 at age 37, making him the oldest champion in the event's history. He also won the first-ever official triathlon world championship in 1989 in Avignon, France. ESPN once named Allen the greatest endurance athlete of all time; *Outside* magazine has called him "The World's Fittest Man."

Gabriel Cobb

Gabriel Cobb, a 22-year-old triathlete from St. Charles, Missouri, is breaking barriers one race at a time.

Cobb has completed more than 10 triathlons and wants to be an example of perseverance. A public speaker, Cobb in 2023 shared his story of overcoming challenges and the role triathlon has played in his life at the United Nations in New York.

"I have Down syndrome, and I have no limitations," Cobb says.

Cobb started swimming, running, and biking to help him stay in shape. In 2018, friends invited him to check out the HSTriClub, a USA Triathlon Club in St. Louis that assists high school kids in living a healthy lifestyle through swim, bike, and run. A coach at HSTriClub saw Cobb swimming at the YMCA and encouraged Cobb to try his first triathlon.

"I like the swimming. I love meeting new people. My legs are shaking and I'm tired after finishing, but I love overcoming challenges," he says.

Chris Nikic

A true iron man, Chris Nikic was the first man with Down syndrome to finish a full-distance Ironman in November 2020 in Florida. In 2022, Nikic raced at the Ironman World Championships in Kona, Hawaii, completing the race in a time of 16 hours, 31 minutes.

Nikic's journey started in 2018 after he graduated high school and focused on getting 1% better every day. This inspired him to create the 1% Better Challenge, which promotes Down syndrome awareness by challenging yourself to get 1% better for 30 days and help someone to do the same.

Nikic is a Special Olympics, Ironman, and Laureus Global Ambassador.

Caleb Prewitt

At just 14 years old, Caleb Prewitt became the youngest person with Down syndrome to complete a sprint triathlon. He has now surpassed 30 triathlons since his first one in 2021 and continues to inspire others to not only challenge themselves, but also to challenge others as well.

Caleb has been a USA Triathlon Foundation Ambassador for 3 years and helps grow the sport through his inspiring story.

Morgan Pearson

Morgan Pearson followed his own path to triathlon success. Unlike most elite competitors, he didn't train and rise to world-class status through a special development program. Instead, he was discovered through the Collegiate Recruitment Program while he was a student at the University of Colorado. The program identifies top college swimmers and runners who have the potential to excel as triathletes. And Pearson certainly has excelled. Along with Taylor Knibb (see next page) as members of Team USA, Pearson took home silver medals for second place in Mixed Relay at both the 2020 and 2024 Olympic Games.

Pearson grew up in Spring Lake, New Jersey, where he was a competitive swimmer, ocean lifeguard, and high school runner. In 2017 he entered—and won!—his first national-level triathlon, the USA Triathlon Age Group Sprint National Championships.

Dave Scott

A six-time Ironman World Championships winner, Scott was the first person inducted into the Ironman Hall of Fame. He earned the nickname "The Man" for his intense training routine and relentless attitude that set the standard for multisport athletes. One of triathlon's most recognizable names, Scott's career began with inception of the sport in 1976. He and Mark Allen (see page 77) were well known for their epic duels in many races.

Taylor Knibb

Multisport can take you around the world. Just look at Taylor Knibb. At age 23, Knibb, of Washington, D.C., made history by becoming the youngest person ever to qualify for the U.S. Olympic Triathlon Team. And she made the most of her appearances at the Olympics in Tokyo, Japan, in 2020 and Paris, France, in 2024, earning silver medals for second-place finishes in the Mixed Relay events. Also, Knibb earned three consecutive 70.3 world championships at the 2022, 2023, and 2024 races in St. George, Utah; Lahti, Finland; and Taupo, New Zealand.

Knibb was inspired to become a triathlete after she watched her mom compete in a race and noticed the friendship among the competitors. She tried a kids' race and was hooked on the sport from there, working her way through USA Triathlon's youth elite and junior elite pipelines. She made the most of those experiences, too, becoming one of just three women ever to capture world titles at both the Junior (twice) and Under 23 levels.

Multisport Glossary

70.3: Ultra distance triathlon or "Half Ironman." 1.2-mile swim, 56-mile bike, 13.1-mile run (half marathon).

Active recovery: Shallow-intensity exercise or activity after hard training or racing, e.g., easy cycling.

Aero: Short for "aerodynamics," this is something to shoot for on the bike. Your position, your wheels, your bottle, your bike, etc., can be aero.


Aerobars

Aerobars: Bars attached to the front of your bike, allowing you to lean down and over to ride in an aero position.

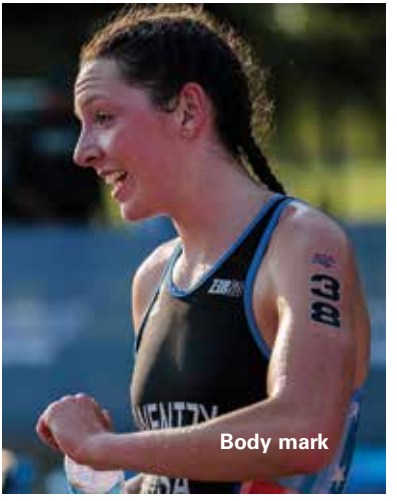
Aerobic: This term describes workouts of low enough intensity that the muscles can derive all required energy from the oxygen delivered to them from the lungs via the heart. There is no buildup of lactic acid in the blood.

Aerobic threshold: The point at which exercise is possible without significant lactic acid accumulation. In running, this is roughly a standalone marathon pace.

Age-grouper: Amateur athletes are called age-group athletes. They compete with others in 5-year age and gender groups. On Dec. 31 of the race year, one's age determines race age.

Anaerobic: When the oxygen delivered to the muscles cannot break down glycogen and produce energy fast enough, lactic acid accumulates and is used as a complementary energy source. This energy system is less efficient than the aerobic system and cannot be maintained as long.

Anaerobic threshold: The point at which lactic acid accumulates faster than the body can remove it. In running, you can maintain the pace for 60 minutes in a race situation. It corresponds to FTP.


Body mark

Body mark: Race number on arm and age on the calf with temporary tattoo or black marker.

Breathing pattern: This is used mainly in swimming and even biking. In swimming, breathing patterns can be categorized as unilateral (always to the same side) or bilateral (to both sides) and further specified to, e.g., 3-stroke (breathing on every third stroke) and 4-stroke (breathing on every fourth stroke) patterns, etc.

Brick: Workouts combining two or more disciplines. Often, a ride followed by a run.

Build: A training period after a base period. The build is typically when you start adding more intensity to your training.

Cadence: The number of swim strokes, pedal revolutions, or steps per minute in your swim, bike, and run. Corresponds to RPM (revolutions per minute) in cycling.

Catch: The first of three underwater phases of your swim stroke after your hand enters the water.

Choice: This is usually used in swim workouts, and it means your choice of stroke (freestyle, breaststroke, or backstroke).

Clydesdale/Athena: Race categories for men over 220 pounds and women over 165 pounds.

Cross-train: To engage in various sports or exercises, especially for well-rounded health and muscular development.

Cooldown: A short period of very easy swimming/biking/running at the end of your workout will bring your heart rate down and lead to quicker recovery.

DNS/DNF: Did Not Start and Did Not Finish.

Drafting: Swimming behind a slightly faster person can save your energy, and it is allowed. But drafting on the bike course—where you closely follow another athlete to reduce wind resistance—is allowed only in draft-legal races. In non-drafting

races, participants must keep at least three bike lengths of clear space between themselves and the cyclist in front of them. If you move into the drafting zone, a rectangular area surrounding each bicycle, you must pass within 15 seconds.

Drill: Common in both swimming and running, but also cycling, these are exercises designed to improve your technique in one or a few particular focus areas for that drill.

Fartlek: A workout that consists of nonstructured intervals.

Flip turn: This is a fast way to turn at the end of a swim length and push off against the wall to return to the lane in the opposite direction.

Foam roller: A tube of foam (or more rigid materials) that you can use for myofascial release to improve muscle recovery and release sore spots.

Foot strike: The way your foot hits the ground when you run. It is typically categorized as forefoot, midfoot, or heel strike.

Functional threshold power (FTP): The highest average power you can hold for one hour. You usually approximate based on shorter test protocols, such as 20- or 30-minute tests.

Hand entry: The phase of the swim stroke where your hand enters the water.

Hill reps/repeats: Bike or run workouts in which you repeatedly go up a hill at a high-intensity level.

HR: Heart rate.

Intervals: A type of training in which you alternate periods of higher intensity with periods of easy or recovery effort.

Kick: The action of kicking in swimming and the overarching term for kicking drills (e.g., using a kickboard with and without swim fins).

Kickboard: Swim training tool made of plastic foam held out before you for kick practice.

Lactate threshold (LT): A point during exhaustive, all-out exercise at which lactate builds up in the bloodstream faster than the body can remove it.

Lactate tolerance: How your body copes with lactate buildup in the bloodstream.

Ladder: An interval workout with increasing and decreasing interval distances/durations, such as swim intervals of 50 – 100 – 150 – 100 – 50 meters.

Long slow distance: Term for aerobic endurance training.

Main set: The focal part of a workout, often the whole workout minus warmup and cooldown.

Mount line: You can't get on your bike until you cross this line.

Multisport: A sport consisting of more than one discipline, including triathlon, duathlon, aquathlon, aqua bike, off-road triathlon, and winter triathlon.

Negative split: When the second half of a race or workout is faster than the first.

Paddles: A training aid for swimming. Plastic paddles attached to your hands increase water resistance, helping build strength and increasing awareness of technical errors.

Positive split: When the second half of a race or workout is slower than the first.

Pull: The second underwater phase of the freestyle stroke.

PR/PB: Personal record and personal best. Good for you!

Pull buoy: A floating swim-training tool is placed between your legs to keep your legs up so you can concentrate on your stroke.

Push: The final underwater phase of your stroke.

Racking

Racking your bike: Place your bike in the transition area on the provided racks.

Rest interval: The recovery time/distance between the intense intervals in interval workouts.

Rate of perceived exertion (RPE): A subjective rating of intensity and effort level.

RPM: Revolutions per minute. See cadence.

Sighting: Follow the swim course by lifting your eyes out of the water every stroke or two to see where you are about the course buoys.

Speed laces: Elastic/bungee laces for your running shoes to save time tying them.

Speedwork: Broad term for high-intensity intervals.

Spinning: Pedaling at a high cadence in low gear.

Strides/striders: Strides or pickups are accelerations of 10-30 seconds up to close to maximum speed during warmups before races and speedwork and as part of technique sessions where the focus is on good running form.

Swim waves: Based on gender, age, and speed, you'll start the swim with a subset of people, using your own starting horn. This is to space out athletes on the course.

Taper: A short period before the race during which the training volume is decreased so that accumulated fatigue disappears just in time for the race without losing too much fitness due to the decreased training volume.

Timing chip: To track your time, you'll wear a chip attached to an ankle strap throughout the race.

Transition (T1 + T2): These are areas where your bike and gear are stored throughout the race. You'll have an assigned spot. After each leg of the race, athletes return to transition to swap equipment before heading back onto the racecourse.

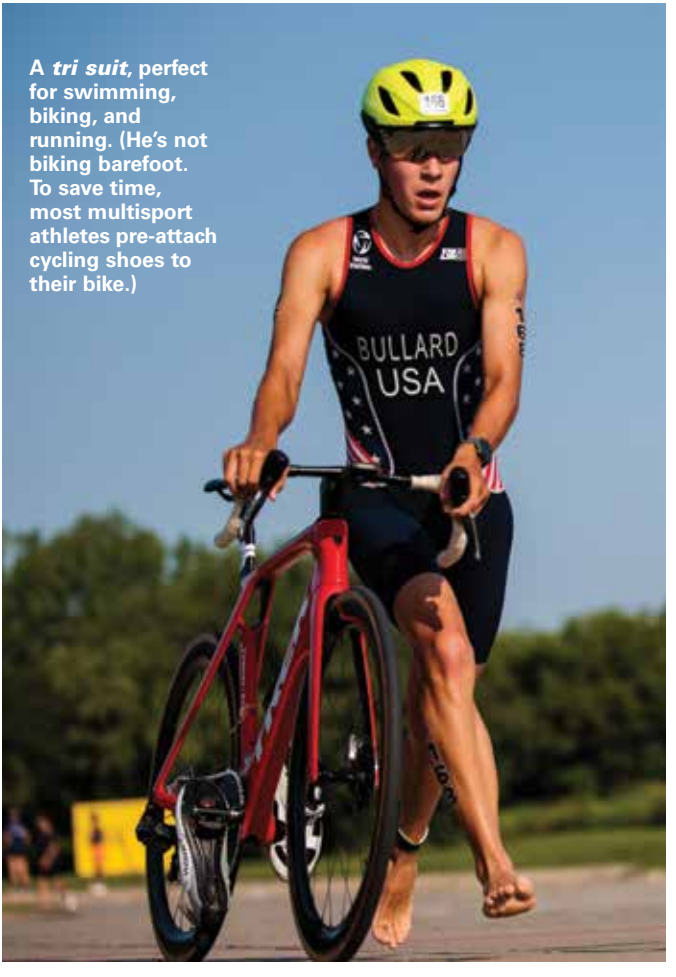
Tri suit: These are shorts and a top, or a one-piece style, that you wear throughout the race.

TT bike/tri bike: Special road bikes made for triathlon racing, with flat handlebars and a set of aerobars.

VO_2 max: The maximum oxygen uptake and utilization rate in the body. It is a widespread fitness measure.

Warmup: Easy exercise or movements at the start of a workout/before a race to get the blood flowing and the muscles primed and prepared for the coming effort.

Wetsuit: A close-fitting rubber suit worn by swimmers in cold water to keep their bodies warm. Wetsuits also make swimmers more buoyant and faster.



A *tri suit*, perfect for swimming, biking, and running. (He's not biking barefoot. To save time, most multisport athletes pre-attach cycling shoes to their bike.)

Multisport Resources

Scouting Literature

Athletics, Cycling, Personal Fitness, Sports, and Swimming merit badge pamphlets; *Scouts BSA Handbook for Boys*; *Scouts BSA Handbook for Girls*

With your parent or guardian's permission, visit Scouting America's official retail site, **scoutshop.org**, for a complete list of merit badge pamphlets and other helpful Scouting materials and supplies.

Books

Friel, Joel. *The Triathlete's Training Bible: The World's Most Comprehensive Training Guide, 5th Edition*. VeloPress, 2024.

Friel, Joel. *Your First Triathlon: Race-Ready in 5 Hours a Week*. VeloPress, 2024.

Golding, Dan. *Triathlon For Beginners.* Triathlon Hacks, 2012.

Hagerman, Patrick. *Strength Training for Triathletes: The Complete Program to Build Triathlon Power, Speed, and Muscular Endurance.* VeloPress, 2015

Organizations and Websites

Ironman
ironman.com

Triathlete
triathlete.com

USA Triathlon
usatriathlon.org

World Triathlon
triathlon.org

Acknowledgments

Scouting America is grateful to the TriDave Legacy Trust, founded by Dave "TriDave" Alexander. The Trust's generous donation made the Multisport merit badge possible.

As the trust's founder, Dave is a renowned triathlete who has competed in 287 triathlons across 37 countries. He is a Distinguished Eagle Scout and a recipient of the Silver Buffalo Award, Scouting's highest level of recognition for adult volunteers.

Dave's passion for Scouting and athleticism has inspired countless

individuals. His dedication and perseverance have set an example for Scouts. By completing this merit badge, Scouts will gain a deeper understanding of the challenges and rewards of multisport athletics. They will learn how to train effectively, set achievable goals, and overcome obstacles.

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