



# Safety Training for Swim Coaches

**PARTICIPANT SUPPLEMENT**



**American  
Red Cross**

# **Safety Training for Swim Coaches**

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This supplement is part of the American Red Cross Safety Training for Swim Coaches program. Visit [redcross.org](http://redcross.org) to learn more about this program.

The emergency care procedures outlined in this book reflect the standard of knowledge and accepted emergency practices in the United States at the time this book was published. It is the reader's responsibility to stay informed of changes in emergency care procedures.

The materials on aquatic facility safety included in this supplement, including the sample facility checklist and sample emergency action plans, are for general guidance in regards to the role a coach may have as part of an aquatic facility team. These documents do not constitute a complete facility safety plan with comprehensive supporting documents. Any aquatic facility safety plan and supporting documents, including checklists, should be developed by safety professionals specifically for your facility.

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# INTRODUCTION

*This supplement provides material for the American Red Cross Safety Training for Swim Coaches Blended Learning course. Successful completion of this course meets the water safety and first aid requirements of the **USA Swimming Coaches Safety Curriculum** and meets the water safety requirements for the **YMCA of the USA Certification Requirements for Swim Coaches**.*

*This supplement serves as a resource for the online content of the blended learning course. It can be used to augment the concepts and topics and to review information presented in the online portion of the course. The information highlights possible life-threatening and potentially hazardous situations in and around the water and the techniques and skills for preventing and dealing with them. This supplement also provides helpful information about workout and warm-up procedures, racing starts, event safety, emergency planning, electrical safety, weather and environmental conditions, and handling of medical conditions and injuries, including first aid. The material presented in this supplement may be adapted to meet the individual needs of each aquatic facility or swim club. Throughout this supplement, the use of **red, bold** text identifies additional resources for use by swim coaches. When this appears, participants should review the online resources.*

*A facility-based, in-water skills session is a requirement of the blended learning course for individuals who do not have a current American Red Cross Lifeguarding/First Aid/CPR/AED or Shallow Water Lifeguarding/First Aid/CPR/AED certification. Skill sheets for each of the required skills are provided at the end of the supplement.*

*Also, terms common to swimming are used throughout. Terms or phrases that may be unfamiliar to new coaches are italicized. The definition is provided in parentheses immediately following the term or phrase. These terms are also defined in the glossary at the end of this supplement.*

# CHAPTER 1

## Responsible Coaching





## RESPONSIBLE COACHING AND CREATING A CULTURE OF SAFETY

As a coach, you might tend to focus on outcome. It's certainly true: Outcomes and best times are a central concern in any competitive team environment. Swimmers may get discouraged if they are not improving, so a good and responsible coach provides the guidance and instruction swimmers need to help them develop and fine-tune their skills and achieve their goals. Along the way, an effective coach will also teach them about good sportsmanship, the excitement of competition and the importance of teamwork—in part by setting a strong example. However, there's so much more to being a good and responsible coach than having fast, motivated swimmers.

A coach is a leader, a role model and a teacher, and nowhere are those traits more essential than in the realm of safety. Creating a culture that makes safety the first priority means creating an environment in which swimmers are truly free to pursue their goals; it is the number-one hallmark of effective, responsible coaching.

By setting an example of common sense, following the rules, and being observant and aware, you will help prevent injuries and teach your team members to do the same. This is perhaps your most important job.

The following guidelines promote responsible coaching and help create a culture of safety that gives your swimmers a secure, enjoyable environment in which to focus on their goals:

- Teach sportsmanship by example.
- Remember what motivates athletes, particularly children, to participate in their sport (Figure 1-1).
- Balance constructive criticism with support and praise. Never ridicule or shout at athletes for making mistakes or losing (Figure 1-2).
- Know the rules of the sport and insist that your athletes know and follow them.
- Understand the basics of skill development and training methods appropriate for the level of your athletes. Keep up-to-date about coaching based on the principles of growth and development. Check out the [USA Swimming](#) website for access to valuable information about athlete growth and development.
- Be a safety role model.

- Follow the safety guidelines of USA Swimming and its *Local Swimming Committees*, or *LSCs* (regional governing bodies) or other national governing body, your facility and your individual club.
- Know how to recognize when someone is in trouble in the water, and to understand the behaviors that a victim shows when in distress or drowning.
- Know and understand emergency procedures, including your role in an emergency. Be aware of the facility's *emergency action plan*, or *EAP* (a written plan detailing how coaches and facility staff are to respond to a specific type of emergency) and know how to perform first aid measures. Every facility including yours, should have an EAP.

But these guidelines are just a good place to start. A responsible coach must also model safe behavior by knowing how to plan great swim sets and activities, adapting instruction to the swimmers' abilities, making safety a priority by directly supervising the swimmers and being aware of any medical conditions that could affect a particular swimmer, and checking out the facility and equipment. When done in a way that is positive and supportive, you will help your swimmers be their best, regardless of whether they win or lose.



Fig 1-1



Fig 1-2

Follow these additional practical tips to help ensure responsible, safety-focused coaching:

- Plan for the swimmers' long-term skill development, tailoring instruction to their needs, skills and abilities.
- Direct and supervise swimmers under your care, making sure they are coached by qualified coaches including you and the other coaches who work with your team (Figure 1-3).
- Provide training and competition opportunities, making sure that practices and meets are appropriate for each swimmer's ability and experience.
- Warn swimmers and parents of minors about the inherent risks related to the sport of swimming and the aquatic environment. See *Common Accident Areas*.
- Be able to say no to swimmers about unsafe situations.
- Frequently review the safety procedures and rules with your athletes.
- Educate athletes about the dangers of nutritional and substance abuse.
- Be aware of swimmers' medical conditions. Establish a procedure so that you are informed of any pre-existing or acute medical conditions immediately.
- Obtain the swimmers' emergency contact information and have it easily accessible during practices and meets.
- As a part of the facility's *safety team* (a network of people who can plan for, respond to and assist in an emergency), practice the EAP regularly with the safety team, using a variety of simulated emergency situations. Remember that in some emergencies, only a few minutes can make the difference between life and death.
- Do your part, as a coach, to watch over the aquatic facility and equipment for safety on a regular basis. Document in writing any deficiencies and need for repairs and report them to the facility management. Check out the **Resources** section of the course for a sample facility safety checklist.



Fig 1-3

## Junior Coaches And Their Role

If your coaching staff includes a 16- to 18-year-old junior coach as defined by USA Swimming, they must always be in your line of sight, so they are an additional safety consideration for you. However, they can also be your partner in safety!

It is critical to ensure that the concepts, guidelines and tips outlined here are fully understood and adopted by your junior coach. Make sure they are as invested as you are in being a responsible coach who promotes a culture of safety for your team.

## PROFESSIONAL CONDUCT AND LEGAL RESPONSIBILITIES

*Once or twice a week, Coach Smith arrives at the pool after his 11- to 17-year-olds show up. He has told them not to enter the water until he gets there, although they do not always listen. He has also told them to start dryland training if he is not there, leaving the necessary equipment such as the medicine balls, stretch cords and hand weights unlocked so that the swimmers can get them. He has asked the older athletes to instruct the younger ones and expects them to be responsible until he arrives. Coach Smith is also the pool manager and may be required to address facility issues if they arise during practice. Is Coach doing anything that may be considered negligent?*



You have every intention of being the best coach you can be. But did you know you also have a legal duty to do so? Acting professionally at all times is a must, not only for the sake of the participants, but also for your own protection.

Look at your written job description and contract closely. These often specify your formalized duties. In addition, legal duties for coaches have been established on specific facts, through various court cases. Under specific circumstances, courts have held these duties to include:

- Duty to properly instruct an athlete.
- Duty to properly supervise an activity.
- Duty to warn of inherent dangers in a sport.
- Duty to provide a safe environment and equipment.
- Duty to properly condition an athlete.
- Duty to give care in an emergency.
- Duty to enforce rules and regulations.
- Duty to fairly classify and group participants for competition according to skill level, age, experience, etc.
- Duty to report suspected abuse to authorities (Senate bill S. 534 – *Protecting Young Victims from Sexual Abuse and Safe Sport Authorization Act of 2017*).

As a general rule, courts have held coaches to a standard of conduct based on what is expected of a reasonable and prudent person in the same or similar circumstances. Failure to meet that standard can be considered negligence. Put another way, negligence is the failure to do what a reasonable and prudent person would do. It is also doing something that a reasonable and prudent person would not have done. This matters especially because negligence is closely associated with injury. Know your responsibilities and act accordingly!

Acting reasonably and prudently to prevent injury involves the use of best practices. These best practices include:

- Reasonable planning to anticipate potentially dangerous circumstances and situations. As a professional, a coach should reasonably plan for all foreseeable hazards.
- Safety through organization and planning. Well-organized, planned activities and workouts are more likely to be safe than chaotic, disorganized situations.
- Record-keeping. All injuries and accidents should be reported as determined by the facility and/or national governing body, such as USA Swimming, the National Collegiate Athletic Association, the Amateur Athletic Union, the National Federation of State High School Associations, the YMCA of the USA and the Federation Internationale de Natation (FINA). For example, USA Swimming requires that all accidents be documented on **Report of Occurrence forms**. Coaches should also keep records of safety hazards that have been documented and reported.

*Is Coach Smith being negligent?* Well, he made several errors in judgment that a court might consider negligent. First, athletes should never be on the pool deck or in the pool unsupervised, nor should they be doing any dryland training without the direct supervision of a coach. Moreover, older swimmers should not be made responsible for supervising younger swimmers. And what if Coach Smith needed to leave the pool deck to take care of a facility issue? In this case, he could not rely on his older swimmers to watch the rest of the group. Instead he would need to make sure that there was another qualified coach available to provide supervision while he was gone.

## COMMON ACCIDENT AREAS

According to statistics from USA Swimming, the most common areas where accidents occur during practice or meets are:

- In the water, during turns or finishes, collisions with other swimmers or on entering or leaving the water.
- On the pool deck, from slipping on the deck surface or tripping over pool or training equipment.
- Other areas within the aquatic facility, such as in locker rooms, on bleachers or in hallways.

The adverse effect of many accidents may be minimized or eliminated by the safety-trained swim coach who is alert and aware of potential hazards around practice and swim meet areas.

## CREATING A SAFE AND POSITIVE SPORT ENVIRONMENT

*Coach McAvoy, a young male coach, has a great group of teenage female athletes who joke around a lot with each other and generally have a great time. Coach sometimes tells slightly “off color” jokes to the girls, but they know it is all in fun. He gives all the athletes his personal cell phone number and e-mail address so that they can call, text or e-mail him at any time. A colleague tells Coach McAvoy that some of the things he does with the girls may seem inappropriate to an outsider, but Coach laughs it off. He says he shares everything, including all the text messages and e-mails from the girls, with his wife. Do you see any reason for concern?*

Providing for the safety of your swimmers extends beyond preventing injuries and mishaps. It is also about protecting them from abuse and inappropriate behavior—whether bullying, physical abuse, sexual abuse or any other kind of harmful act.

You can do this by following *Set, Direct, Protect*:

- *Set*: knowing the risks of abuse and misconduct and doing good planning to mitigate the risks
- *Direct*: talking about your safeguarding efforts with all members of your swim team
- *Protect*: holding team members, volunteers, and parents accountable to your safeguarding practices

The good thing is you will not be alone in this effort. For starters, your facility or swim club shares this responsibility, and will help *set* the stage in part by ensuring that the coaches they hire meet requirements put in place for the protection of swimmers. If you are the head coach and are responsible for hiring assistants, you need to know and adhere to these criteria, too. Anyone involved with the swim team or athletes, such as coaches, assistants, volunteers and staff, may be required to undergo background checks and pre-employment screening.

Examples include:

- Background checks, which involve checking for a criminal history or searching for criminal records. These checks have become a standard practice in the youth sports industry and are a must for coaches, officials and others having frequent and direct interaction with athletes.
- Pre-employment screening involving thorough hiring practices, often including:
  - A review and check of past employment references.
  - Verification of the highest level of education completed.
  - Evaluation of a state motor vehicle report.

Check with your national governing body for specific requirements. For example, USA Swimming requires that individuals successfully pass a criminal background check to become a non-athlete member. In addition, clubs hiring individuals must complete pre-employment screenings on any potential employee.

Beyond hiring considerations, your responsibility as a coach includes raising awareness of and actively working to prevent abuse in the sport. In this case, knowledge is indeed power. By understanding the types of abuse possible and how to recognize the signs of *grooming behavior* (behavior in which an abuser targets a vulnerable child, forms a relationship with them as friends or equals and begins to desensitize the child to touch), you will be more empowered to enforce defined boundaries so that any violations of these boundaries can be more easily spotted. See *Types of Abuse*.

As with any safety issue, your best bet is to leave nothing to chance. This means being proactive and making sure you understand and communicate to your team the policies that are in place. This should include all rules and regulations, such as:

- Code of conduct
- Typical training schedules
- Monitoring of facility areas such as locker rooms
- Communication (including electronic communication) among team members, between coach and parents, and between coach and athletes
- Parent involvement
- Bullying
- Travel policies
- Honor codes for athletes and parents

- Procedures for dealing with concerns or complaints
- Disciplinary procedures

*Direct* the conversation! The key to a successful safeguarding effort is communication. Talk to all members of your team—including staff, volunteers, swimmers and parents—about the safeguarding practices, procedures and what to expect. Policies should be made available to all members either online or in a member handbook.

Regularly talk to the team about boundaries and what it looks and feels like when someone is crossing another person's boundaries. Being able to recognize minor boundary violations, and being empowered to speak up if they occur, creates a culture of safety and accountability for your team.

We all have three types of boundaries:

- *Physical boundaries:* your personal bubble; who can touch you and where they can touch you; how comfortable you are being physically close with another person
- *Emotional boundaries:* how close you feel to someone; how much time you spend together; and what information you're comfortable sharing with them
- *Behavioral boundaries:* what you will or won't do; actions that align with your values and character

As a coach, keep good, professional boundaries with swimmers, and speak up if you notice that someone's boundaries are being crossed.

## TYPES OF ABUSE

Although abuse can take on many forms, common examples include the following:

- Sexual misconduct (including sexual abuse, sexual harassment and rape; involving sexual abuse of a minor by an adult, sexual contact by a person in a position of power or peer-to-peer sexual abuse)
  - Using suggestive sexual remarks
  - Using sexually graphic literature, sexual advances, demands of sexual favors, sexually oriented comments or innuendoes, taunts about the body or dress, sexual or homophobic graffiti, intimidating sexual remarks, fondling, and/or bullying on the basis of sex
  - Using sexual violence, such as sexual assault, sexual battery, rape and sexual coercion
  - Forcing or luring an athlete to engage in sexual activities regardless of whether the athlete knows what is happening
  - Having physical contact involving penetrating and nonpenetrating acts
  - Having athletes look at sexual images or watch sexual activities, or encouraging athletes to behave in sexually inappropriate ways
- Physical abuse
  - Touching an athlete in a non-instructional or non-congratulatory manner
  - Touching an athlete's private body part or area
  - Having an athlete perform a physical act irrelevant to the sport and intended to embarrass, degrade or punish the athlete
  - Having an athlete continue to perform a physical act that compromises established policies for conditioning and safety
  - Requiring the athlete to use performance-enhancing drugs or other drugs not prescribed by a physician
  - Failing to stop an activity in which the athlete is obviously being subjected to physical harm

- Emotional abuse
  - Telling an athlete they are worthless, disliked or unskilled
  - Using derogatory or discriminatory language that belittles the athlete or group
  - Continuously using criticism, sarcasm or name-calling, causing the athlete to feel belittled
  - Imposing expectations on the athlete that are inappropriate to the athlete's developmental ability
  - Isolating an athlete from normal social interactions with teammates
- Verbal abuse
  - Excessively singling out of an athlete negatively
  - Using profanity or degrading language
  - Yelling or screaming at an athlete; blaming the team or group for failures
- *Bullying* (the aggressive use of power to control or harm someone in a weaker position; oral, written, electronic or other technological expression, physical act or gesture or any combination)
  - Name-calling, teasing or spreading rumors
  - Leaving an athlete out of groups; emphasizing that the athlete is not wanted
  - Physically punching, hitting or shoving an athlete
  - Cyberbullying, or using the internet (e-mail, texting, social media or other technologies) to harm an athlete
  - Using a win-at-all-costs attitude
- Harassment
  - Using racial, ethnic, homophobic or gender-based insults
  - Using written or verbal abuse or threats, physical contact, intimidating remarks, inappropriate touching or bullying, offensive comments or innuendoes, or taunts or threats

## Reporting Misconduct and Abuse

Finally, despite your best efforts, incidents can occur. These might involve actual abuse, possible "red flag" violations of a policy, or inappropriate or suspicious behavior. Red flags are clues to, or warning signs of, possible behaviors or actions that violate boundaries. However, in other situations, these actions (for example, hugging a child or giving the child a special gift) might be considered acceptable. If this happens, you need to know it is your responsibility as the coach to *Protect*: report any sexual misconduct, boundary violation, suspicious or red flag behavior or any other inappropriate conduct to facility management, your national governing body (if any) and/or local law enforcement. You may be a mandated reporter by law. You can find your local mandated reporter laws by contacting your local law enforcement agency or Department of Human Services.

National governing bodies often have established policies and guidelines. Various training programs are also available to support you in preventing abuse. Check with [USA Swimming](#), the [United States Olympic Committee](#), the [U.S. Center for SafeSport](#)

or your national governing body, such as the [National Collegiate Athletic Association](#), the [Amateur Athletic Union](#), the [National Federation of State High School Associations](#), the [YMCA of the USA](#), and the [Federation Internationale de Natation \(FINA\)](#) for more detailed information. For example, USA Swimming has a Code of Conduct, Best Practice Guidelines, Model Policies as well as a Safe Sport Handbook. It also offers several training modules for preventing and recognizing signs of abuse. [The Department of Health and Human Services](#) also has valuable information related to bullying.

*So what about Coach McAvoy?* His behavior is inappropriate. While most of the swimmers may laugh at his off-color jokes, others may interpret the behavior as embarrassing or harassing and it could be considered sexual misconduct. Additionally, giving the swimmers his personal cell phone number and e-mail address violates the boundary of coach and swimmer. The content of communication between a coach and athlete must be professional and for the purpose of communicating information about team activities.



# CHAPTER 2

## Safety Awareness In Competitive Swimming





## DROWNING AND THE DROWNING PROCESS

Obviously, drowning is a primary safety concern in the sport of swimming. As a coach, it is important to understand not just what drowning is, but to be educated on the underlying process that is occurring during a drowning incident as well.

Drowning is a continuum of events that begins when a victim's airway becomes submerged under the surface of the water. The process can be stopped, but if it is not, it will end in death. The process of drowning begins when water enters the victim's airway. This causes involuntary breath-holding and then laryngospasm (a sudden closure of the larynx or windpipe). When this occurs, air cannot reach the lungs. During this time, the victim is unable to breathe but may swallow large quantities of water into the stomach. As oxygen levels are reduced, the laryngospasm begins to subside, and the victim may gasp for air but instead inhales water into the lungs.

Due to inadequate oxygen to body tissues, cardiac arrest may occur. This can happen in as little as 3 minutes after submerging. Brain damage or death can occur in as little as 4 to 6 minutes. The sooner the drowning process is stopped by getting the victim's airway out of the water, opening the airway and providing resuscitation (with ventilations or CPR), the better the chances are for survival without permanent brain damage.

No two drowning situations are alike. There are many intervening variables that can affect the outcome, such as any underlying medical conditions of the victim or the time until advanced medical care intervenes. However, in general, if the victim is rescued within 1 1/2 to 2 minutes of submerging, giving ventilations may resuscitate the victim.

As members of the safety team, coaches must understand that only a few minutes can make the difference between life and death. To give a victim the greatest chance of survival and a normal outcome, you must recognize when a person needs help or is in danger of drowning, and you must act immediately. If there is any question whether a person in the water is beginning to drown or merely playing games, it is essential that you or the lifeguard on duty intervene and, if necessary, remove the person from the water immediately and provide care.

In keeping with creating a culture of safety for your team, it is important to stress to your swimmers that their time in the pool should be dedicated to their training; it is not a time for horseplay. Maintaining a serious sporting environment can go a long way in preventing drowning incidents.

## THE ROLE OF THE LIFEGUARD: DEDICATED SURVEILLANCE, RECOGNITION AND RESPONSE TO DROWNING INCIDENTS

The Red Cross strongly recommends that a certified lifeguard be on duty at all times during practices and meets to have the sole responsibility to perform surveillance at your facility (Figure 2-1). This includes recognition of dangerous behaviors, and recognition of drowning victims or swimmers in distress. Scanning is the visual technique used by lifeguards to perform effective surveillance. Lifeguards actively search their zones to continually observe swimmers' behaviors and look for signals that someone in the water needs help.

In addition, lifeguards are trained to respond to aquatic and medical emergencies and can be the first responders in any emergency at your facility, especially drowning. This would be reflected in your facility's emergency action plan (EAP), which will be discussed later in this program.

However, it is essential as part of promoting a culture of safety that swimming coaches familiarize themselves with victim recognition, as well as know how to respond to an emergency. In the event that a coach recognizes an emergency situation with one of their swimmers before a certified lifeguard does, or if a certified lifeguard is not present at the scene, a coach must be prepared to act.



Fig 2-1

## Victim Recognition

While lifeguards are trained to perform effective surveillance and to be able to recognize when someone is in trouble in the water, it is also important for a coach to be able to recognize when someone is in trouble in the water, and to understand the behaviors that a victim shows when in distress or drowning.

Someone in trouble may struggle at the surface for just a short time or may quickly disappear beneath the surface without any signs of distress. Others may be submerged already when the process of drowning begins, such as the person who has jumped or slipped into water over their head and is struggling to reach the surface.

A swimmer may be in distress or actively struggling to survive. Others may be passive and therefore unable to help themselves, showing little or no movement. Understanding these behaviors enables you to recognize quickly when someone needs help. You or a certified lifeguard on duty should recognize and respond to a drowning victim within 30 seconds.

## Swimmers in Distress

A swimmer can become distressed for several reasons, such as exhaustion, a cramp or sudden illness. Quick recognition is key to preventing the distressed swimmer from becoming a drowning victim. A distressed swimmer makes little or no forward progress and may be unable to reach safety without assistance.

Distressed swimmers may be:

- Able to keep their face out of the water.
- Able to call for help.
- Able to wave for help.
- Horizontal, vertical or diagonal, depending on what they use to support themselves.
- Floating, sculling or treading water.

The distressed swimmer generally is able to reach for a rescue device, such as a rescue tube (Figure 2-2). If a safety line or other floating object is nearby, a distressed swimmer may grab and cling to it for support. As conditions continue to affect the distressed swimmer, such as fatigue, cold or sudden illness, they become less able to support themselves in the water (Figure 2-3). As this occurs, their mouth moves closer to the surface of the water, and anxiety increases.

If a distressed swimmer is not rescued, they may become a drowning victim. You or the certified lifeguard on duty should immediately initiate a rescue.

## Drowning Victim—Active

A drowning victim who is struggling to remain at the surface of the water has distinctive arm and body positions. These are efforts to try to keep the mouth above the water's surface in order to breathe (Figure 2-4). This universal behavior is called the instinctive drowning response. Once it is recognized that a victim is drowning, a swift and immediate rescue must be performed.

Some victims cycle through these behaviors quickly and might submerge within seconds, whereas others are able to remain near the surface of the water for a short time.

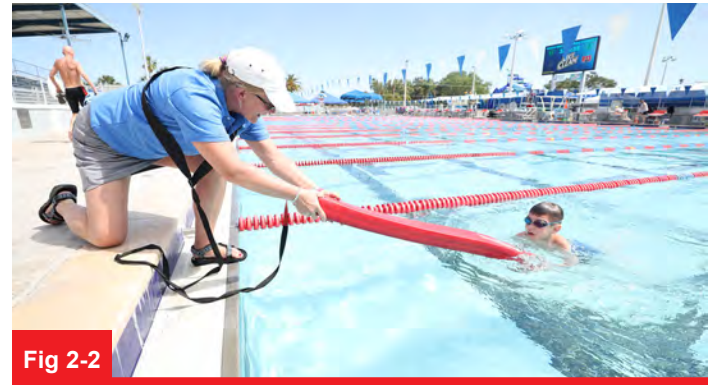


Fig 2-2



Fig 2-3

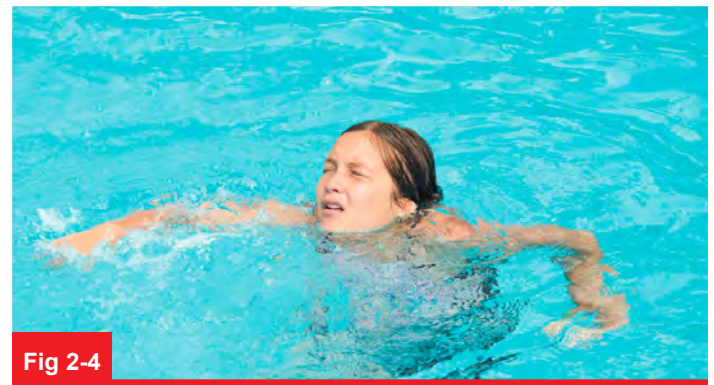


Fig 2-4

A drowning victim who is struggling:

- May not be able to call out for help because their efforts are focused on getting a breath.
- Works to keep the face above water in an effort to breathe.
- May be in a horizontal face-down position during the struggle because they are unable to lift their face out of the water. This may be particularly likely with a younger swimmer.
- Has extended their arms to the side or front, pressing down for support.
- Is positioned vertically in the water with an ineffective kick. A younger swimmer may tip into a horizontal face-down position.
- Might continue to struggle underwater once submerged.
- Eventually will lose consciousness and stop moving.

Drowning victims who are struggling to breathe may not always look the same. For some, the mouth sinks below the surface and reappears, sometimes repeatedly. While the mouth is below the surface, the drowning victim attempts to keep the mouth closed to avoid swallowing water. When above the surface, the drowning victim quickly exhales and then tries to inhale before the mouth goes below the surface again. While the victim is gasping for air, they also might take water into the mouth. For a victim who is in a horizontal face-down position but struggling, they are not able to keep the mouth above the surface of the water at all.

Often, a drowning victim at or near the surface is unable to call out for help. They can take in only enough air to breathe, so no air is left to call out. For this and other reasons, a drowning in progress often is silent.

A drowning victim does not make any forward progress in the water. A younger swimmer may appear to be doing a “doggy paddle” but has no forward progress; all efforts are devoted to getting air. The victim might be able to stay at the surface for only 20 to 60 seconds, if at all. They may continue to struggle underwater but eventually will lose consciousness and stop moving.

A victim may slip into water over their head, incur an injury or experience a sudden illness and struggle underwater to reach the surface. If unable to swim or make progress, they will be unable to reach the surface. This drowning victim may appear to be a person who is playing or floating underwater. It may be easier to recognize a swimmer in distress or a victim struggling on the surface than to recognize a victim who has submerged already or is submerging.

Never assume that anyone exhibiting these behaviors is playing or faking. You or the certified lifeguard on duty should intervene and, if necessary, remove the person from the water immediately and provide care.

## Drowning Victim—Passive

Some drowning victims do not struggle. They suddenly slip under water due to a medical condition or another cause, such as:

- A heart attack or stroke.
- A seizure.
- A head injury.
- A heat-related illness.
- Hypothermia (below-normal body temperature).
- Hyperventilation and prolonged underwater breath-holding activities.
- Use of alcohol or other drugs.



These drowning victims:

- Might float face-down at or near the surface or might sink to the bottom (Figure 2-5).
- May be limp or have slight convulsive-like movements.
- May have no defined arm or leg action, no locomotion and no breathing.
- May appear to be floating, if at the surface of the water.
- May be face-down, on one side or face-up, if at the bottom (Figure 2-6).

Anyone who is exhibiting one or more of these presentations should be considered a drowning victim and responded to immediately. It can be difficult to clearly see a victim who is underwater or at the bottom of a pool because of glare, reflections or water movement from the wind or other swimmers. The victim may look like a smudge, a shadow or an object like a towel.

Do not expect to see a clear outline of a person on the bottom. At waterfronts, submerged victims may not be visible, depending on the water depth or water clarity. If you see something on the bottom that should not be there, do not delay, go right away.

## Specific Behaviors

It is important to recognize the behaviors of a drowning victim (Table 3-1). Notice:

- Breathing
- Appearance or facial expression (if the face is visible to you)
- Arm and leg action
- Head and body position
- Body propulsion or locomotion (movement) through the water

Understanding these behaviors helps you to quickly recognize when someone needs help. Quick action can mean the difference between life and death for a distressed or drowning victim. You or a certified lifeguard should immediately initiate a rescue.



Fig 2-5

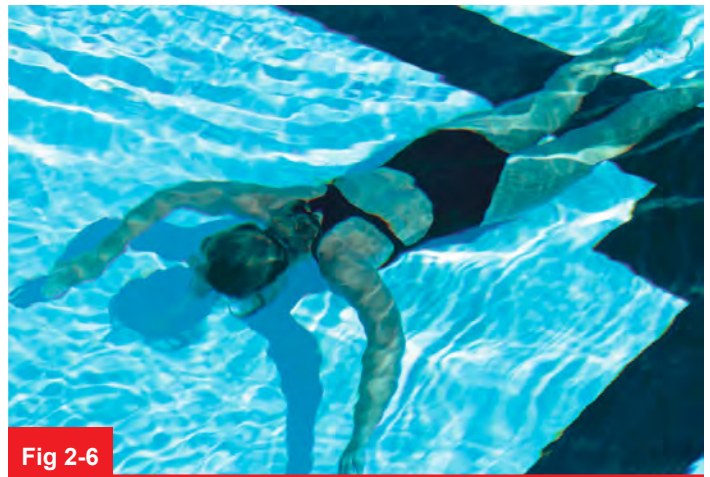


Fig 2-6

**Table 3-1: Behaviors Of Distressed Swimmers and Drowning Victims**

	<b>Distressed Swimmer</b>	<b>Drowning Victim-Active</b>	<b>Drowning Victim-Passive</b>
Head position	Above water	Tilted back with face looking up	<ul style="list-style-type: none"> <li>• Face-up or facedown in the water</li> <li>• Submerged</li> </ul>
Appearance and, if visible, facial expressions	<ul style="list-style-type: none"> <li>• Trying to support self by holding or clinging to a lane line or safety line</li> <li>• Expression of concern for personal safety</li> </ul>	<ul style="list-style-type: none"> <li>• Struggling to keep or get the head above the surface of the water</li> <li>• Struggling to reach the surface, if underwater</li> <li>• Expression of panic, wide-eyed</li> </ul>	<ul style="list-style-type: none"> <li>• Limp or convulsive-like movements</li> <li>• Floating or submerged</li> <li>• Eyes may be closed</li> <li>• If submerged, may look like a shadow</li> </ul>
Breathing	Is breathing	Struggles to breathe	Not breathing
Arm and leg action	<ul style="list-style-type: none"> <li>• Floating, sculling or treading water</li> <li>• Might wave for help</li> </ul>	Arms to sides or in front, alternately moving up and pressing down	None
Body position	Horizontal, vertical or diagonal, depending on means of support	Vertical, leaning slightly back	Horizontal or vertical
Locomotion	<ul style="list-style-type: none"> <li>• Little or no forward progress</li> <li>• Less and less able to support self</li> </ul>	None	None
Sounds	Able to call for help but may not do so	May not be able to call out for help	None
Location	At the surface	At the surface, underwater or sinking	Floating at the surface, sinking or submerged on the bottom



## HOW THE COACH CAN ASSIST IN A DROWNING INCIDENT

While your first instinct may be to jump in the water to try to save a distressed or drowning swimmer, that is actually the worst thing to do if you are not a certified lifeguard with the proper rescue equipment. Responding to a distressed swimmer starts before the swimmers even get into the pool. Teach and remind swimmers that if they ever feel panicky, they should reach the lane lines and use them for support.

Of course, if the distressed swimmer is not able to help themselves, there are some things you can do, but only if you are in a safe position yourself and are able to maintain control of the situation. These include trying a reaching or throwing assist. For details on how to perform these assists, see the Appendix or the **Resources** section of the course. While you attempt to make an assist, you should tell someone in your group to call 9-1-1 or the local emergency number if needed.

Remember, the Red Cross recommends that lifeguards are on duty whose only responsibility is patron surveillance whenever anyone is in the water. A lifeguard on duty is able to focus only on surveillance and is equipped to respond quickly. You should never respond to a distressed swimmer or drowning victim in a way that endangers your own life or further endangers the swimmer. Do not enter the water to aid a distressed swimmer or drowning victim unless you have been trained to do so.

## COACHING YOUR SWIMMERS

When coaching, you are teaching your athletes how to improve their technique as well as how to swim competitively. But with differences in ages, physical conditioning, mental status, fitness, skill levels and individual goals, training is definitely not “one size fits all.” As you get to know your swimmers, you’ll be able to better determine what works best for them (Figure 2-7). Some factors you will consider are the type, frequency, duration and intensity of the workouts. And each of these factors has a safety component. For example, when increasing intensity, be careful not to push the intensity before the swimmer is ready. Typically, you would increase duration first before increasing the intensity. A good rule of thumb is to increase training intensity, distances and time gradually, by about 10 percent each week.

The following points can help guide you in developing a training plan:

- Teach correct technique, which helps prevent chronic and overuse injury. Incorporate drills and skill development that cultivate correct technique into your training plan.
- Incorporate warm-up and cool-down as structured segments of the workout, ensuring that all swimmers participate in them.
- Balance fitness conditioning and skill development.
- Increase training intensity, distances and training time gradually. Keep in mind this rule of thumb: For inexperienced athletes or athletes returning from injury, increase intensity by 10 percent each week. More experienced swimmers can progress more quickly.
- Instruct and supervise strength and dryland training appropriate to the age and skill level of the athlete.
- Encourage athletes to report injuries, creating an atmosphere that encourages openness.
- Provide adequate rest and recovery.

Both [USA Swimming](#) and the [American Swimming Coaches Association \(ASCA\)](#) provide a wide variety of resources for training. Examples include tips and training, in-water training videos, planning age group practices, downloadable forms for season planning and coaching resources.

## SWIM PRACTICE SAFETY

As you likely understand at this point, providing for the safety of your swimmers is not just about the time they spend in the water. You need to make sure your training sessions are organized so each and every one of your swimmers stays safe, whether in the pool, on the pool deck, in the locker room or during the time before and after practice.



Fig 2-7

This can be quite challenging! Imagine, for example, how your concerns might change if you have a large group in a small pool, or have limited lanes for practice. Here, you might need to readjust the training plan to address more swimmers than usual in a lane (Figure 2-8). You might be responsible for swimmers of all ages and skill levels, each requiring a different approach to safety. You may need to ensure that enough coaches are available on deck to provide adequate coverage of each group. You could even have a significant number of swimmers who have never been part of an organized swim team. In this case, you may need to adjust the time for practice, for example, having that group come in earlier than other groups and practicing for a shorter time to allow them to progress in their development.

## IMPORTANT SAFETY CONSIDERATIONS

Remember, as the coach, you are the safety role model. You will show your concern for safety in the way you consider the workout and facility circumstances when planning activities. And you will show it by consistently making sure the entire team—coaches and assistants included—follow the facility rules and state and local laws and regulations. Safety is job number one as a coach, and you can bet your attitude about it will go a long way toward developing a team of safety conscious swimmers, too.

To help achieve safe water and workout activities, follow these guidelines:

- Ensure a qualified coach is on deck before any swimmers enter the water and that the coach remains on deck until all the swimmers leave the pool deck. When on deck, the coach must constantly supervise the swimmers, keeping their eye on them at all times.
- Scan the facility to make sure that basic equipment is in place (Figure 2-9).
- Establish team policies governing each swimmer's actions before, during and after each training session and meet.
- Make sure swimmers understand the use of training equipment. Inspect stretch cords to make sure they are in good condition. When in use, ensure that the cords are secured to a stationary object.
- Ensure athletes are supervised or safely exit the facility within a reasonable amount of time after the conclusion of the swim practice.
- Prohibit swimmers from using the pool's diving facilities during the training session.

- Choose swim practice water games carefully and explain them thoroughly to the swimmers so that safety risks are identified.
- Follow the same warm-up procedures at practices that swimmers follow at meets. Designate procedures for entry, including where to enter the pool. Always enforce a feetfirst entry into the water. Remember:
  - Racing starts at swim meets are only allowed when indicated by swim meet marshals and under the marshal's and/or coach's supervision.
  - Racing starts at practice are only allowed when instructed and supervised by a qualified coach.
  - Swimmers need to look before entering the water.
  - Starting blocks are used only under supervision.
  - *Circle swimming* (a technique that allows multiple swimmers to swim in the same lane simultaneously, swimming counterclockwise in the lane with approximately 5 seconds between swimmers) is used for multiple swimmers.

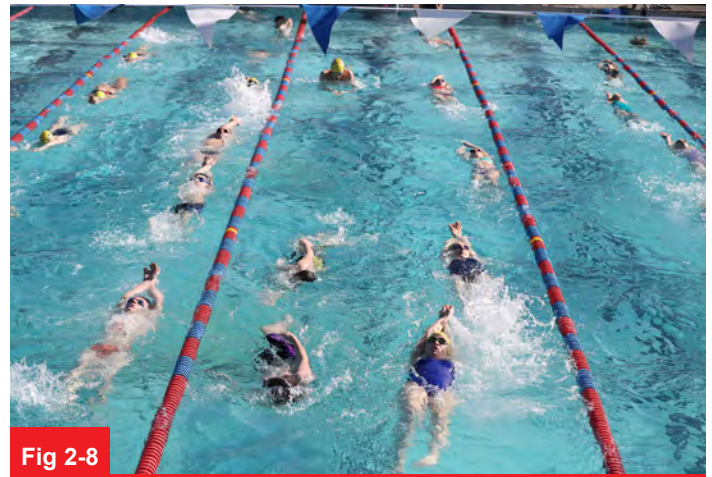


Fig 2-8



Fig 2-9

## ORGANIZING YOUR SWIM PRACTICE

*Coach Jones gets a call from her age-group assistant saying that he will not be at practice today. To make matters worse, when Coach Jones arrives at the pool, the pool manager tells her apologetically that she will not have use of all eight lanes tonight. Instead she will have to consolidate all the swimmers into five lanes. Normally she has a senior group of 25 swimmers in five lanes, and 20 age-group swimmers in the other three lanes. Coach Jones has planned a long and difficult freestyle set for her senior group tonight and is determined to stick to her workout plan. So she puts a few of the age-group swimmers in each lane and lets them do the senior workout to “see how they do.” Is she creating an unsafe situation? What else could she have done?*

As you have learned, preparation and planning are important in all aspects of coaching, and running an organized swim practice is no different. Thus really, what could go wrong? Well, the truth is, quite a bit! One of your assistants could get a flat tire on the way to work. Your carefully chosen relay teams could be decimated by the stomach flu. Or you could be met at the pool by an apologetic facility manager who forgot to inform you about the special workout class that will be taking up two of your lanes.

What is a coach to do? Adapt, of course. And fast! An unexpected glitch might mean revising your entire workout plan or just adjusting your plan for a specific group or activity. Regardless of the changes needed, you will always need to keep safety in the forefront, thinking about the number of swimmers, the space available and the size of the pool. Plus, you will need to consider the level of instruction needed by the swimmers, as well as their ages and abilities. For example, are they beginner swimmers who need to learn how to do flip turns or are they more advanced swimmers who need to refine their stroke techniques?

Consider the following for organizational challenges related to pool size and age:

- Pool Size
  - For a short course pool, it would potentially be more crowded but easier to view and account for all swimmers.
  - For a long course pool, there would be more space, but it would be more difficult to supervise because the swimmers are spread out over a significant distance.
- Age
  - Younger swimmers require closer supervision and usually more instruction, and often have short attention spans. However, their bodies are smaller, which allows more swimmers in the lane.
  - Older swimmers are more independent and have more desire to carry out activities with less instruction. However, the range of capabilities can vary widely, such that advanced and faster swimmers become bored. Older swimmers also have larger bodies that take up more room in the lane.

*Think about how Coach Jones handled her dilemma.* Not only is Coach Jones short her age-group coach, she also has to deal with a change in the number of lanes available. Instead of having five lanes for 25 senior swimmers and three lanes for 20 age-group swimmers, she now must divide 45 swimmers among five lanes. Coach Jones adapted to her situation, but not in a way that was safe for her swimmers. She should have readjusted her workout plan based on the current situation. Younger swimmers are at risk in crowded lanes with older swimmers. Coach Jones could have reorganized the group, placing swimmers of comparable age and ability in the same lanes. She should have also adjusted her workout plan for the senior group, or at the very least devised a separate workout for the younger swimmers in their own lanes.



## Circle Swimming Guidelines

When making adjustments to your workout plan, remember, you still need to ensure that the training is safe, especially when athletes swim in the lane with others. The need for safety takes on even greater importance if your adjustments require more swimmers than usual in a lane. The safest way is to use circle swimming during practice (Figure 2-10). Typically, swimmers swim counterclockwise in all lanes, keeping to the right at all times. If the lanes are very narrow, then alternating clockwise with counterclockwise lanes can reduce the incidence of swimmers hitting the hands of other swimmers in adjacent lanes. Or you may have to adjust the start interval for certain lanes. In other words, be flexible in figuring out what works best for the situation and set up rules for safe passing.

When teaching and enforcing circle swimming, follow these guidelines:

- Have swimmers keep to the right when using the counterclockwise pattern. For narrow lanes, consider alternating clockwise with counterclockwise lanes.
- Establish a start interval between swimmers, typically 5 seconds, which allows each swimmer to clear the starting area before the next swimmer begins and also leaves enough open water in front of and behind the swimmers to swim without interference. An interval of less than 5 seconds can create insufficient space between swimmers and congestion at the ends of the pool, possibly leading to collisions, especially when swimmers are entering a turn or pushing off the wall after finishing a turn.
- Be prepared to adjust interval levels based on the number of swimmers in the lane and their ability.
- Do not allow swimmers to leave early.
- Be sure that the first swimmer does not come around to turn before the last swimmer departs the wall.
- Encourage swimmers to begin *repeats* (a training swim of a certain distance, repeated a prescribed number of times with either a fixed rest interval or a time interval which includes the swim and rest periods) on the prescribed *send-off time* (the prescribed time between swimmers' departure from the wall), since leaving early can lead to crowding and congestion in the lane.
- Establish rules for passing, waiting for send-offs and keeping walls open for turns and finishes. Emphasize passing only when it can be done safely.

- Clarify expectations with older or more experienced swimmers about safe circle swimming and lane etiquette.
- If at any time you observe unsafe conditions, stop the swimmers and reorganize lane assignments, send-off intervals or the entire activity.

You need to remember the age and experience of the swimmers when instructing them about circle swimming. Young or novice swimmers typically:

- Do not instinctively understand circle swimming and send-off intervals.
- Do not understand how to group themselves in the lane.
- May not realize that a faster person should go ahead of a slower person.
- May not even recognize that there are faster and slower swimmers.

As a coach, you are responsible for teaching them how to safely swim in a circle. Spend time at the very beginning of the season explaining and then practicing circle swimming and send-off intervals. Establish the rules and carefully monitor the swimmers. Be sure to review the procedures frequently.

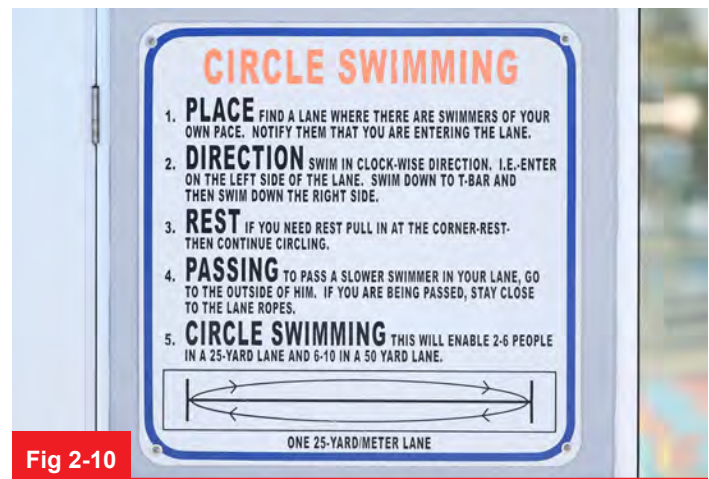


Fig 2-10

## HYPOXIC TRAINING AND HYPERVENTILATION

*Coach Jordan's swimmers love contests. Their favorite is to see who can swim the farthest underwater. Recently Graham swam about 40 yards underwater before surfacing. Coach Jordan keeps teasing Graham about "quitting" 10 yards from the end and telling him that he can make the entire 50 yards. Graham and some other boys are ready to try it. Coach Jordan tells Graham to take "a lot" of deep breaths so that he can "build up the oxygen in his blood." Graham inhales deeply about 10 times. He feels a little dizzy and starts to swim underwater. He turns and starts back. Suddenly Coach Jordan notices something is wrong with Graham. What did Coach Jordan do that was dangerous?*

It is the nature of athletes to continually want to push the boundaries of what they can do. As a coach, you are there in large part to support your swimmers' goals. But you are also responsible for knowing when a swimmer's efforts cross the line into dangerous territory. Hypoxic training and hyperventilation are cases in point.

Many swimmers falsely believe that *hyperventilation* (rapid deep breathing) before prolonged underwater swimming increases the amount of oxygen in the body, allowing the swimmer to hold their breath longer. In fact, hyperventilation is a dangerous practice that may result in drowning. Rather than increasing the oxygen in the body, hyperventilation actually lowers the carbon dioxide level in the body. This is risky because the drive to breathe is controlled by the amount of carbon dioxide in the blood. When a person hyperventilates and then swims underwater, the oxygen level in the blood can drop to a point that is so low a swimmer passes out before the brain signals that it is time to breathe. Then, when the person finally does take a breath instinctively, water rushes in and the drowning process begins.

Because of the danger, hyperventilation should never be taught or allowed at your facility. In addition to the [joint statement on Hypoxic Blackout](#) made by the Y of the USA, USA Swimming and the [American Red Cross Scientific Advisory Council](#) have issued an advisory on hyperventilation preceding underwater swimming.

*Hypoxic training* (breathing on a restricted schedule) is a bit different but still dangerous when done incorrectly or without regard for common sense. Rather than having swimmers hold their breath while swimming under water, hypoxic training focuses on practicing an extended breathing pattern while swimming on the surface. In truth, there is no evidence that an extended breathing pattern does anything to train the anaerobic system; however, it may improve oxygen management capacity. Coaches need additional experience and training before considering the use of hypoxic training. Any time this training technique is used, it should be monitored carefully and swimmers should be instructed to breathe when necessary. In addition:

- Have swimmers take only one or at the most two deep breaths before beginning hypoxic training.
- For safety, use hypoxic training only in a training program of experienced swimmers in good physical condition with proper supervision and instruction.
- Only conduct this activity on the surface of the water.
- Limit the number of repeats of hypoxic swimming.
- Allow adequate time for recovery, which will vary from swimmer to swimmer.

Check out [USA Swimming](#) for an article about research findings related to hypoxic training. Information on additional practice methods, procedures and games for swimming practice is available at professional clinics held yearly by USA Swimming and American Swimming Coaches Association (ASCA).

*Were Coach Jordan's actions dangerous?* Coach Jordan thought she was challenging Graham, but in fact she was encouraging a very dangerous activity. Having Graham hyperventilate before submerging led to a decrease of oxygen in his blood, causing him to lose consciousness while underwater and placing him at risk for drowning when he instinctively takes a breath.



## URNS

Remember when you were on the swim team? During one practice, the coach announced it was time to learn how to do turns. It seemed simple enough, until you realized it was actually pretty hard to tell when you were too close to the wall—or too far, for that matter. Once you mastered the skill, however, you noticed an increase in proficiency of your swimming.

When it comes to teaching your team this same important lesson, the approach you take will be key in their success—and will surely take your swimmers to a new level too, in practice and in competition.

The fact is, the ends of the pool where turns are completed are common accident areas. Your swimmers will need to be instructed on how to safely execute turns for each of the four strokes and for the individual medley. This instruction includes both a verbal explanation and a demonstration of the techniques (Figure 2-11). No matter how anxious you are to start incorporating turns, turn mechanics should not be rushed. Practice, practice, practice before expecting your swimmers to be able to successfully do turns as a part of the flow of their workout. For more information on how to teach turning techniques for all four competitive strokes, check out the **Resources** section of the course to view a video on turns.

As the coach, you also need to make swimmers aware of the potential risks involved with turns. Training and supervision are necessary when learning and practicing turns. For example, when teaching swimmers how to do a front flip turn, instruct them to watch the bottom markings to help judge the distance from the wall. Keep in mind that injury is possible when swimmers:

- Misjudge the distance and get hurt by swimming into the wall.
- Hit the heels or ankles on the wall during a flip turn.
- Push off at the wrong (deep) angle, which is especially dangerous in shallow water.
- Push off the wall in the center of the lane, colliding with another swimmer.

Additional key points to remember are to space swimmers adequately, use markers such as bottom markings or backstroke flags to help swimmers judge the distance from the wall and instruct them on how to pass each other safely.

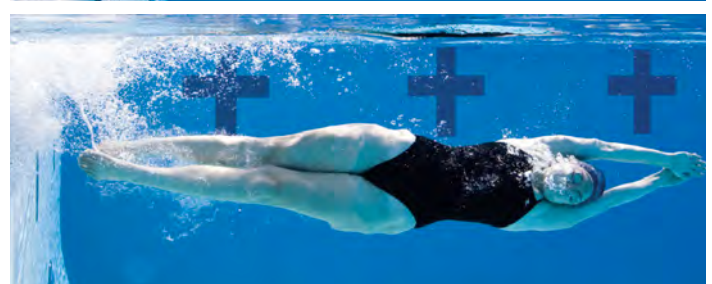


Fig 2-11

## RACING START SAFETY

*Coach Irving has a group of novice swimmers who will be competing in their first meet. He decides that they all need to know how to do a racing start off the starting blocks. He lines them up behind the blocks and instructs them on the starting commands. He reminds them not to fool around on the blocks or to bail out once they have left the block. Then, one by one, he has them do a start off the blocks. Several swimmers are so nervous about diving off the blocks, they just jump feet-first into the water. The more daring ones try to dive; some make it, but most end up doing belly flops. Coach Irving is very frustrated and concerned that his swimmers just are not getting it. He is worried that they will not be able to perform a start off the blocks at the meet. What should Coach Irving have done differently to better prepare his swimmers?*

In competition, strong racing start skills can be the key to a successful race. But learning how to be fast off the blocks takes more than natural talent. It takes physical control, mental readiness, plenty of practice and your close supervision. As with any skill, **never** force a swimmer to do a racing start if they are not ready. To help ensure swimmers learn and practice starts safely, follow these guidelines:

- Be sure swimmers can jump feet-first into deep water, swim to the surface, turn around, level off and swim 10 feet.
- Be sure swimmers can demonstrate correct hand, arm and head position before performing an entry. Practice a tight streamline on dryland.
- Ensure that swimmers are able to demonstrate body alignment skills such as torpedoing, porpoising and streamlined push-offs, as well as deep-water skills including surface dives, bobbing and sculling.
- Caution swimmers that the pool deck is slippery. If swimmers slip during drills, check their foot positions for correct push-off. Be sure their toes are curled over the edge. Try putting a wet towel on the deck and hanging it over the pool edge to give better traction, especially on tile decks.
- Be sure starting blocks are tightly secured to the pool deck and meet size and height regulations. Check the rule book of the governing body for these regulations.
- Be sure swimmers are familiar with the water depth for forward and backstroke starts. USA Swimming requires that you teach in a minimum of 6-foot depth and YMCA requires a depth of 9 feet. Local, state and municipal statutes, ordinances, rules and regulations may have depth limitations in conflict with this section. The LSC and all Member Clubs should check for this at all times.
- Be sure swimmers are familiar with the equipment they are using, especially starting blocks. The design of starting blocks may vary from one aquatic facility to another, but proper training techniques and safe practice can help competitive swimmers adjust to differences.
- For backstroke start practice, have the swimmers slip into the water feet first with one hand on the deck. Swimmers should not grasp the backstroke start bar while entering the pool.
- Always be sure the landing area is clear of other nearby swimmers.
- Ensure that all backstroke racing starts take place from a position in the water, regardless of pool depth. Practicing of racing starts may take place in water depth of 4 feet (1.22 meters) and deeper.
- Do not allow swimmers to perform entries over stationary objects like poles, lane lines or kickboards. (*Note:* Coaches with additional training might use advanced techniques in water at least 12 feet deep, with experienced swimmers, by having them practice over a soft item, such as a noodle.)
- Be sure swimmers can hold their arms in a tight streamline on a forceful push and glide underwater on their front for forward starts and on their back for backstroke starts. (*Note:* This is a critical prerequisite before swimmers can learn forward and backstroke starts.)

*What does Coach Irving need to do?* First, Coach Irving should not have the swimmers going off the starting block without his even knowing if they are able to safely perform a forward entry. Other than instructing them on starting commands and some basic safety considerations, he has not provided adequate instruction in safety nor followed a progression in teaching forward entry skills. He needs to reconsider if his swimmers are ready for competition since he has not yet taught them critical skills for safely entering the water.



## Forward Entry Progressions

No matter how eager your swimmers are to learn this skill, racing starts should be taught as a step-by-step progression. Each of the steps should be practiced until the swimmer can do each with confidence and control (Figure 2-12). Instruct swimmers in the step-by-step progression BEFORE using the starting blocks.

- STEP 1: Sitting
- STEP 2: Kneeling
- STEP 3: Compact
- STEP 4: Stride
- STEP 5: Shallow Angle Start

Swimmers must be able to enter the water with control at each step before moving onto the next. Only when a swimmer knows how to properly enter the water can they control how shallow or deep their entry is. Swimmers who are unable to control the depth of their entries should not be directed to perform racing starts from the pool deck as a “safer” alternative to using starting blocks. Studies indicate that swimmers who are unable to control the depth of their entries from regulation starting blocks also cannot control their entries from the pool deck. They go just as deep in the water from the pool deck as from starting blocks. This means that swimmers who are unable to control their entries at any step in the learning progression are not ready for racing starts.

In addition, always have swimmers hold arms fully extended overhead during entry. Do not perform entries with arms at sides.

Check out the **Resources** section of the course to watch a video on entries for swimming.

## Racing Starts from Starting Blocks

When it is time to introduce the starting blocks, remind your swimmers that the blocks should only be used by trained individuals during controlled practice, supervised warm-up or meet conditions. Racing start skills should also only be done in water depths that conform to the rules of the regulating body, such as [USA Swimming](#), the [National Collegiate Athletic Association](#), the [National Federation of State High School Associations](#), [Federation Internationale de Natation \(FINA\)](#) and the [YMCA of the USA](#). As the coach, also be aware of higher standards established by local and state bathing codes, which supersede regulations and recommendations established by competitive organizations.

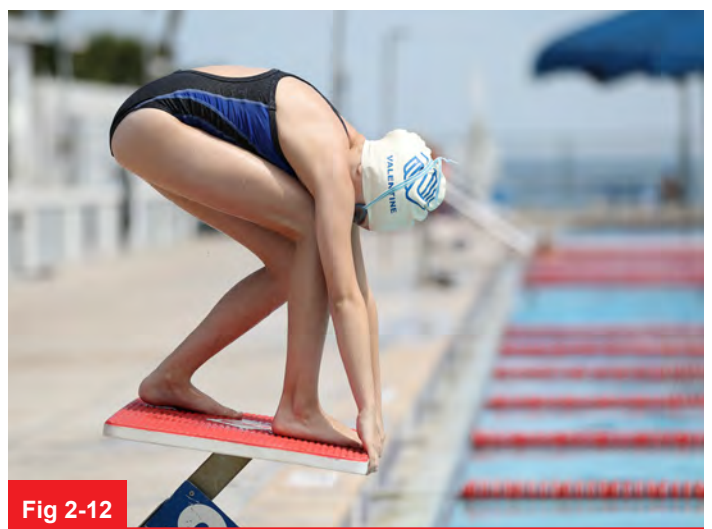


Fig 2-12

The fact is, almost all injuries happen because an athlete is poorly prepared or distracted. Help keep your swimmers safe by going over rules often and enforcing them strictly. Include the following important safety rules in your teaching:

- Be aware of water depth before entering the water at both competition and practice pools. If a swimmer does not know how deep the water is, enter feet-first the first time. Point out depth markers. Be aware of and remind swimmers of USA Swimming's depth requirement for racing starts and that most pools require "No Diving" signs for depths less than 5 feet. Be aware that state, local or facility rules may be stricter than USA Swimming's requirement, and that other regulating bodies may have different requirements. Swimmers should also be aware of the location of slopes or other depth variations.
- Look before jumping or executing any forward entry into the water and only enter with arms fully extended overhead.
- Unless in a designated start lane, always use a feetfirst entry during warm-up and enter from the designated starting end.
- Use starting blocks only when given permission to do so by a marshal or coach at a swim meet or by the coach at practice.
- Never start a water entry until the preceding swimmer has come to the surface and has moved away from the entry area. This is especially important in practice situations and in the sprint lanes during warm-up for swim meets.
- Enter the water straight ahead from the deck or starting block.
- Never perform a start entry (forward or backward) into pool water that is cloudy or murky.
- Do not engage in horseplay or fool around on the starting blocks or at the edge of the pool.
- Always do a shallow-angle start when performing a racing start either from the deck or a starting block.
- When practicing racing starts, never attempt to abort a poor racing start while it is in progress. Doing a somersault, pulling up quickly or rolling to one side is dangerous. The entry should be completed and the swimmer's technique then corrected by the coach.

- During a false start at a swim meet, never attempt to abort a poor racing start while it is in progress.
- When entering the pool for backstroke practice or a backstroke event during a meet, enter feet-first and stay close to the end of the pool.
- Do not attempt a somersault or flip entry into a competition pool.

## Backstroke Entry Progressions

Just as forward start entries are taught in a step-by-step progression, backstroke entries are also taught using progressions, beginning with starts without the *ledge* (a device hung from the blocks for backstroke start foot placement; this device may or may not be available at meets), then progressing to starts with the ledge.

All the same concerns regarding controlled, safe entry discussed for the forward start approach need to be enforced for backstroke entries as well.

Instruct swimmers in the step-by-step progression BEFORE using the starting blocks.

For backstroke starts without the ledge:

- Always have swimmers hold arms fully extended overhead during entry.
- The swimmer must get into position with the hands grasping either the gutter or the lowest bar on the blocks as close as possible to the water's surface in order to be certified (Figure 2-13).
- The swimmer must also perform a shallow backstroke racing start in order to be certified.
- *Advanced:* Once certified, the coach may teach a swimmer to use the backstroke bar, if in the coach's opinion the swimmer is tall enough and strong enough to handle this skill safely.



Fig 2-13



For backstroke starts with the ledge:

- The swimmer must be certified for backstroke starts *without the ledge* as a prerequisite.
- Always have swimmers hold arms fully extended overhead during entry. The swimmer must not perform entries with arms at their sides.
- The swimmer must get into position with the hands grasping either the gutter or the lowest bar on the blocks as close as possible to the water's surface in order to be certified.
- The swimmer must also perform a shallow backstroke racing start in order to be certified.
- *Advanced:* Once certified, the coach may teach a swimmer to use the backstroke bar, if in the coach's opinion the swimmer is tall enough and strong enough to handle this skill safely.

It should be noted that research has shown that older, larger, stronger swimmers can generate more height, and consequently, the risk of reaching greater depths with the ledge is more pronounced with these athletes.

## TEACH YOUR SWIMMERS THE “DOS” AND “DO NOTS” FOR STARTS

To continue to promote a culture of safety for your team, instruct swimmers on the following “dos” and “do nots” when performing starts.

### DO:

1. Use starting blocks and backstroke ledges only during controlled swim practice, instruction, supervised warm-up or competition.
2. Know the water depth and location of pool floor slopes. Use feetfirst entry if unsure.
3. Use feetfirst entry in warm-up and always enter at the starting end of the pool.
4. Look before entering the pool.
5. Enter the water only with permission of a marshal or your coach at a meet or the coach at practice.
6. Use a shallow angle entry and hold arms fully extended overhead.
7. For backstroke start practice, slip into the water feet first with one hand on the deck.

### DO NOT:

1. Start a water entry until the preceding swimmer has come to the surface and moved away from the entry area.
2. Do a forward entry into cloudy water.
3. Fool around on the starting blocks or the pool edge.
4. Attempt to abort a poor start or a false start by somersaulting, pulling up quickly or rolling to the side.
5. Attempt a somersault or flip entry into a competition pool.
6. Enter with the arms at the side.
7. Grasp the backstroke start bar while entering the pool for backstroke start practice.

## DRYLAND TRAINING

*Coach Walker has decided to add dryland training to his workout plan for his swimmers. He finds some stretch cords and weights in a closet and decides they can be used on the pool deck prior to practice. He divides his athletes into three groups: one to work with the stretch cords, one with the weights and one group to go on a run. He gives a brief period of verbal instruction and then tells the athletes to get started. Did Coach Walker adequately address the safety of his swimmers?*

When it comes to adding variety and flexibility to your swim team practices, sometimes you need look no farther than the pool deck itself! With its many options for building endurance, strength and fitness, dryland training is an ideal complement to your water-based activities. It is also an excellent alternative when your pool time is limited (Figure 2-14).



Fig 2-14

## PREVENTING MRSA

Methicillin-resistant *Staphylococcus Aureus* (MRSA) is a bacterium that most often causes a skin infection. It is spread through contact with a person's infected skin or their personal items. MRSA is often found in locations where people are in close contact with one another, such as athletic facilities, including pool decks, locker rooms and workout equipment. But exposure to MRSA does not mean that you will get the infection. You and your athletes can help prevent the spread of MRSA by doing the following:

- Practicing good personal hygiene by washing hands frequently with soap and water or using an alcohol-based hand rub
- Showering immediately after exercising
- Using a towel or some other barrier between you and the surface of the pool deck or between you and equipment shared by others, such as gym equipment
- Showering before entering the pool
- Not sharing personal items with others, such as razors, footwear, towels, goggles or swim caps
- Wearing appropriate foot covering when on the pool deck, in locker rooms and showers
- Keeping any wounds covered and contained
- Excluding any athlete with a wound and active infection from participation in water activities until that wound and infection are healed

For more information, see the Centers for Disease Control and Prevention website on [MRSA](#).

**USA Swimming** has valuable articles and videos related to dryland training. When adding dryland training to your workout plan, consider the following:

- Check that athletes are under the direct supervision of a qualified coach.
- Instruct athletes in the proper and safe use of equipment.
- Check equipment for safety before use by athletes.
- Ensure that activities are age- and ability-appropriate.
- Increase the intensity and duration gradually.
- Encourage athletes to report any injuries.
- Clearly communicate the importance of adhering to the established rules.
- Monitor safety and stop any activity if it becomes unsafe or chaotic.

Be creative! After all, there is not any one best way to incorporate dryland training into your team practice—other than taking a safety-first approach, of course! Schedule dryland before or after water practice, on the pool deck or in a gym. And keep in mind that athletic facilities, such as pool decks, locker rooms and gyms, are prime locations to contract diseases such as methicillin-resistant *Staphylococcus Aureus* (MRSA) infections. See *Preventing MRSA*.

*Was Coach Walker being safe?* Coach Walker overlooked basic safety practices in his workout plan. He did not inspect the equipment for safety and he gave little instruction on equipment use and safety. Nor did he provide any supervision when his swimmers were using the equipment. Worst of all, he sent a group of athletes on an unsupervised run. He had a good idea but did not properly plan and organize the activity.

## MEET SAFETY

*Coach Toby's athletes arrive at a swim meet. Coach is not there and the swimmers do not know where to go. Finally, one of the parents tells them, "Get in the water and start warming up." They go to lane 1 and dive in. One swimmer just misses another who is coming in to the wall. The marshal notices that the swimmers do not have a coach on deck and tells the swimmers, "Get out of the pool." What should Coach Toby have done to prevent this situation? Was the marshal correct in doing what he did?*

Swim meets and other events pose extra safety challenges. At your facility, they mean increased crowds. Even when you are not swimming at your facility, this doesn't release you of the responsibility for the safety and control of your team. You should be vigilant. Below are ways to help maintain your team's safety during an event.

First, being present on deck in time for warm-up is essential. Sometimes there are situations that delay your arrival on deck. When you are traveling, sometimes there are unexpected delays. If you are not on the deck for warm-up, will your swimmers know what to do or where to meet? Make sure the answer is yes by developing a swim meet safety plan before your first event. You need to have a well-thought-out communication plan so you can alert swimmers, parents and other coaches if something comes up.

*What was the problem with Coach Toby's situation?* The marshal was right in getting the swimmers out of the pool, although he needs to be patient and compassionate with the swimmers. After he ascertains that the coach is not present, he should assign the swimmers to another coach who is willing to supervise them along with their own swimmers. Once Coach Toby arrives, he can take over. Coach Toby holds the overall responsibility for making sure the swimmers know what to expect and do at a meet. First, Coach Toby should have been present in time for warm-up or made arrangements for another qualified coach to monitor the swimmers. In addition, the coach should have instructed the swimmers as to where to meet prior to warm-up and taught them to never enter the water without their coach present. (The swimmers should report to the marshal for an assignment to another coach if their coach or other assigned, responsible coach is not present.) Everyone, swimmers, parents and coaches included, needs to be prepared for unforeseen circumstances that may arise. A clear pre-meet preparation and communication plan must be in place. Moreover, Coach Toby evidently did not instruct the swimmers about the safety rules of warm-up, such as feetfirst entry and waiting for a clear space before entering the lane. The swimmers were also not aware that they needed to follow the instructions of the marshal. Coach Toby may have prepared his swimmers to swim fast, but he did not prepare them for the situations they would face during warm-up, thus creating an unsafe situation for the athletes.

## Warm-Up

As a coach, you are responsible for knowing and enforcing standard swim meet warm-up and water entry procedures. These procedures should be the same as those used for practice and should address feetfirst entries, use of starting blocks, circle swimming, coach supervision and safety marshal directions. Warm-up procedures should include the following:

- Enter feet first. No diving or jumping.
- Look carefully for other swimmers before entering the water.
- Use starting blocks only under supervision during designated times.
- Follow circle swimming guidelines.
- Warm up under the direct supervision of coaches.
- Follow the directions of safety marshals assigned to the pool deck during swim meets.

In addition, USA Swimming has developed a list of suggested guidelines for swim meet warm-up for use by local swimming committees (LSCs) to promote safety among its members. See *USA Swimming Warm-Up Guidelines*.

At many local meets, teams are assigned a lane(s) and time period for warm-up. If you have too many swimmers for this assignment and cannot safely warm-up your team, split your team into manageable and safe groups, alternating segments during your assigned time. Be mindful of entering and exiting the water safely.

## Facility Safety

Whether a swim meet is being held at your facility, or someone else's, safety is still a primary concern. Take a walk around the event area and note any concerns and share them with facility and/or meet management. They must then focus on what needs to be done to correct the problems.

Think about the following:

- When hosting a swim meet at a facility, ask questions, such as:
  - “What problems could happen and where?”
  - “What areas are at risk for potential congestion or overcrowding?”
  - “How could we address these concerns about congestion and overcrowding?”
  - “How can we route traffic around this area?”
  - “What equipment or personnel is needed?”
- Consider these areas and note common problems at meets, such as overcrowding behind the starting blocks or warm-up lanes, unsafe conditions in a warm-down pool or potentially unsupervised rest or staging areas, or general congestion on the pool deck and spectator areas.
- After the initial inspection, work with facility management to:
  - Write a checklist that can be used before the meet begins.
  - Write an action plan to include appropriate signs and adequate security and/or supervision.

## USA SWIMMING WARM-UP GUIDELINES

Meet warm-up guidelines should be included with all USA Swimming sanctioned and approved meet guidelines and/or posted at the meet venue. Warm-up procedures may vary from meet to meet, especially when competing in local meets versus Futures, Sectional and National/International Competitions. All warm-up procedures are designed with the safety of the athletes in mind as well as their preparation for meet performance. Coaches are required to follow these procedures when preparing their athletes before the meet, keeping the safety of all athletes in mind.



## OPEN-WATER SWIMMING SAFETY

*Coach White has decided to try open-water swimming with his swimmers. He announces that the next day's practice will be at the nearby lake. When the swimmers arrive at the lake, Coach White points to a small island and tells the swimmers: "Swim out to the island. It's about 400 yards away. Swim around it and come back to the shore." One of the swimmers asks, "How deep is the water and how will I know where I'm going?" Coach White says, "Don't worry about how deep it is, just go out and swim. Swimming is swimming, no matter where you do it." Coach White tells the swimmers to take off and says he will be waiting on the shore with some snacks when they return. Do you think Coach White planned a safe activity?*

Whether in the ocean, a lake or a river, open-water swimming offers a whole new set of challenges for coaches and athletes alike. The *Overview of the Types of Open-Water Swimming* highlights examples of some types of open-water swimming. The exciting sense of freedom open-water swimming brings can be a true thrill and lead to an even greater sense of accomplishment for participants. The trade-off is that in the open water, things are far more difficult to predict. Think about it: a shift in the winds. An athlete who panics when they are far from shore. An object floating into the course. These things can all suddenly change the nature of a swim. That is why as a coach you will need to control every aspect of open-water swimming you can, and plan for any possible scenario.

## OVERVIEW OF THE TYPES OF OPEN-WATER SWIMMING

Typically, when you think about open water, you think of the ocean and salt water. But open-water swimming can take place in fresh water as well as other locations, such as lakes, rivers or water channels. The waters may be calm and gently flowing, or there may be waves and varying currents. And these aquatic environments can occur all over the world, with wide-ranging water temperatures. Coaches, athletes, event directors and safety personnel must all understand that conditions are always changing in open water and should always have plans for these changing conditions.

The distances for the swims can vary, but 5K and 10K swims are most common for elite level athletes. Swimmers who are getting started in open-water should and do often pick shorter distances. Many of the skills and techniques are the same as longer events, but in a more condensed form. Swimmers may engage in open-water swimming for a change of pace, relaxation, fitness or competition. With competitive open-water swimming, the event can be a single event or be part of another event such as a triathlon.

Moreover, several different course types may be used. These include swimming:

- Parallel to a shore.
- To or around a fixed point or landmark such as a rock, island or pier.
- Around a closed course marked by buoys.
- Point-to-point.

## Open-Water Training

Before any open-water swimming activity, you will need to have a well-thought-out training plan. Safety considerations will be based in part on the age, experience and physical ability of your athletes. Athlete considerations include:

- Swimmer count.
  - You need a plan for determining how you will account for every swimmer entering and exiting the water.
  - The plan should also include a method of counting swimmers who exit the water earlier than planned.
- Communication.
  - All participants, including staff, should be aware of the verbal and non-verbal communication plan. This plan should include:
    - Identifying potential hazards during the swim.
    - Identifying a swimmer in distress or potential swimmer in distress.
    - Swimmers exiting and or entering the water.
    - Notifying safety personnel on the water of emergency situations.
    - Notifying safety personnel on shore of emergency situations.
    - Swimmers in need of assistance.
    - Swimmers veering off course.
- Distance.
  - Athletes may be able to handle the distance going out but may struggle in coming back, placing you and your athletes in trouble.
  - Athletes may be swimming different distances based on age, ability or other factors.
  - Open-water swimming can be difficult because there are no turns and no lane ropes to use for support.
  - An exit strategy should be kept in place regardless of where the swimmer is on the course.
- Escort Craft.
  - Enough escort craft (with some type of verbal or non-verbal communication with land-based safety personnel) must be available for large groups. See *Safety Equipment During Open-Water Swims* for more information.
  - If you have to stop for one athlete, others may be left unattended. Should they need assistance, they would essentially be alone.
  - Any motor craft used for escort must be kept at a safe distance from swimmers and should avoid passing in the swimmer's line.
  - No athlete should be allowed to swim from behind a motor craft.
- Fear.
  - Some swimmers may have a real fear of open water.
  - Gradual encouragement may be necessary.

You will also need to make sure there is an appropriate athlete-to-supervisor ratio at all times. For information on how to get started in open-water swimming, check out [USA Swimming](#) for more information on this topic.

In building your plan, you will also need to account for environmental factors. These could be related to weather and water conditions, or even things like what to do if someone spies a fin in the water. Consider the following factors that can affect open-water swimming:

- Wind velocity, which can increase waves and/or stir up bottom soil, making things unclear
- Water and air temperature
- Dangerous marine life
- Water cleanliness
- Visibility
- Water depth, currents and waves
- Weather conditions
- Floating object dangers, rocks, piers and submerged objects
- Boat traffic

Other risks associated with open-water swimming involve things like hypothermia, heat-related emergencies, hydration and deep-water rescues. You need to be well prepared to handle any and all of these situations, depending on the setting of the swim. Of course, part of the plan should be to start by eliminating any risks you can

## Open-Water Meet Safety

All of the factors mentioned take on even greater importance if you or your local swimming committee (LSC) decides to host an open-water swim event. If you plan to do so, get familiar with the important steps that go into planning. The first of these is to file an application that outlines the necessary elements of the meet plan and satisfies the requirements of the governing body (if any). As with many aspects of the sport, there are various governing bodies you might need to answer to for open-water swimming event safety. For example, USA Swimming has established guidelines for hosting an open-water meet. USA Swimming recommends the following:

- Define the course with a clearly marked start area, turn markers and finish line.
- Design the course to minimize confusion and avoid head-on traffic patterns.
- Eliminate changes in course direction when the course is likely to be congested, such as the start.
- Seek advice from local experts, such as the beach patrol or parks department, the USA Swimming Local Swimming Committee (LSC), the Coast Guard and harbormaster.
- Have a clear EAP and medical evacuation plan. EAPs for open-water events are addressed in chapter 3.
- Set up safety monitor stations with first aid supplies and emergency signaling devices or other environmental factors.
- Be prepared to cancel the event in case of inclement weather.
- Account for every participant who enters and exits the water.
- Have a public briefing to go over the rules and procedures with all participants.
- Line up escort and pilot boats.

In addition, other governing bodies such as the [United States Lifesaving Association](#) and [Federation International de Natation \(FINA\)](#) have published guidelines for open-water swimming event safety. Also, refer to *Safety Equipment during Open-Water Swims* for information related to essential safety equipment needed for this type of swimming.

Keep in mind that regardless of the type of event, a key part of your responsibility will be keeping participants informed and prepared themselves. You will use pre-race announcements to communicate everything from how to register, what the plan is for varying weather and surf conditions, and what to do in an emergency or if marine life is encountered. A pre-race briefing should also include instructions to the swimmers for how to look out for one another, how to identify and locate lifeguards and medical personnel and the importance of staying hydrated. Finally, you will need to make sure everyone knows who the event officials, meet marshals and volunteers are, where spectators will be and what methods of communication will be used. For additional information, check out the [USA Swimming](#) site for information about open-water meet safety.

*Was Coach White safe in planning his open-water practice session? Although Coach White had a great idea, he failed to plan appropriately to ensure that his swimmers were safe. He did not know the distance or water conditions and had no plans for supervising the athletes. He also made the assumption that open-water swimming was the same as swimming in the controlled environment of a pool. Moreover, he rebuffed one of his athletes who had questions about safety concerns.*

# SAFETY EQUIPMENT DURING OPEN-WATER SWIMS

During open-water swim events, various national governing bodies usually require that a safety plan must be established that includes:

- Appropriate staffing levels of lifeguards who are experienced in open bodies of water and placed strategically to ensure continuous observation of all competitors and allow immediate response to the need for assistance.
  - Each lifeguard should be equipped with an observation platform such as a tower, rescue board, kayak, or shared use of a rescue boat.
  - Each lifeguard should be equipped with a rescue flotation device such as a rescue tube or rescue buoy.
- An appropriate number of first responders to react to a need for assistance along with sufficient safety craft on the course. Lifeguards should be able to recognize and respond to a drowning victim within 30 seconds.
- A safety communication plan for efficient water-to-water, water-to-land and land-to-water communication such as a public address system, two-way radios, hand signals, whistles or air horns.
  - There should be personnel on all boats, safety crafts and feeding platforms who have the ability to communicate with a safety officer.
  - There should be a safety officer who has the ability to communicate with all first responders, safety personnel and officials.
- An appropriate level of medical services, including a physician on site, one emergency medical technician (EMT) for every 150 participants, one ambulance on site or within a 5-minute response time for 250 participants, a cooling or heating tent on site, a protocol for air evacuation and medical equipment.

## WATERCRAFT

Watercraft is essential equipment for open-water swims. Swimmers must never be left unsupervised or unescorted while in the water. Make sure that there are enough watercraft to escort and monitor the swimmers. Know your watercraft and make sure you can handle emergency situations. When using motorized watercraft, keep your distance, let no one swim behind the craft and always know where your swimmers are during the swim.



When using watercraft for a rescue, follow these three basic guidelines:

1. Extend an oar to the swimmer and pull them to the stern (rear) of the craft. This is the most stable area on which to hold.
2. If the swimmer cannot hold the oar or equipment, move the stern close to them. Pull the swimmer to the stern by the wrist or hand.
3. Have the swimmer hang onto the stern while moving the watercraft to safety. If the swimmer needs to be brought onto the craft because the water is very cold or the swimmer is fatigued, help them over the stern.

When using a motorized watercraft, follow these steps:

1. Always approach the swimmer from downwind and downstream.
2. Shut off the engine about three boat-lengths from the swimmer and coast or paddle to them.
3. Bring the swimmer on board before restarting the engine.



# CHAPTER 3

## Emergency Planning And Response



Coaches have a responsibility to help maintain a safe and comfortable environment for their swimmers. As a swim coach, monitoring and maintaining the facility may or may not be your responsibility. This depends on your defined responsibilities with the facility. Coaches must be aware of water and air quality issues as well as be familiar with electrical safety and weather and environmental hazards. Coaches also need knowledge of the facility rules and regulations. Coaches play a major role in minimizing risks. In spite of adequate training, planning, instructing and supervising, emergencies still can and do occur. The coach may be or is positioned to be the first one on the scene in an emergency. An emergency action plan (EAP) and appropriate emergency responses are crucial.

## EMERGENCY ACTION PLANS

As a coach, you may need to help respond to a variety of situations ranging from aquatic emergencies and facility problems to missing persons, sudden illness and severe weather. EAPs are detailed plans describing the safety team's responsibilities in an emergency and should be posted in an area that is easily seen, such as a break room or office. It should also be included in the facility's policies and procedures manual.

While your role in an emergency will vary according to the EAP, you must be prepared to play an active role during an emergency. Familiarize yourself well with the EAP outlined for your facility, and practice emergency response scenarios with the safety team. It is essential that you know who is responsible to perform a water rescue or provide care for each type of emergency. Not only should you know what your role is; make it a point to also become familiar with the roles assigned to other members of the safety team—all outlined in the EAP.

To be effective, teams should work together with the facility management to practice the EAPs regularly, using a variety of simulated emergency situations. Remember that in some emergencies, only a few minutes can make the difference between life and death. For instance, to give a drowning victim the greatest chance for survival and a normal outcome, you must be able to efficiently implement the EAP and know who is providing resuscitative care.

## Types of EAPs

Every aquatic facility has its own specific set of EAPs based on the unique characteristics at each facility. Plans include factors such as the facility's layout, number of staff on duty at a time, location of backup lifeguards and other safety team members, equipment used and typical response times of the local emergency medical services (EMS) system.

Aquatic facilities often have a general plan for water and land rescues, as well as additional plans designed to address specific situations. Be mindful that EAPs may vary by activity and time of day.

Examples of situation-based EAPs include:

- Water emergency—Drowning victim—active
- Water emergency—Drowning victim—passive
- Water emergency—Spinal injury victim
- Water emergency—Missing person
- Land emergency—Injury or illness

Other situations requiring an EAP include:

- Evacuations
- Sheltering in place
- Severe weather
- Chemical spills or leaks
- Power failures
- Violence
- Thefts in progress

See the next page for a Sample Emergency Action Plan Flow (Figure 3-1).

### Sample Emergency Action Plan Flow: Water Emergency

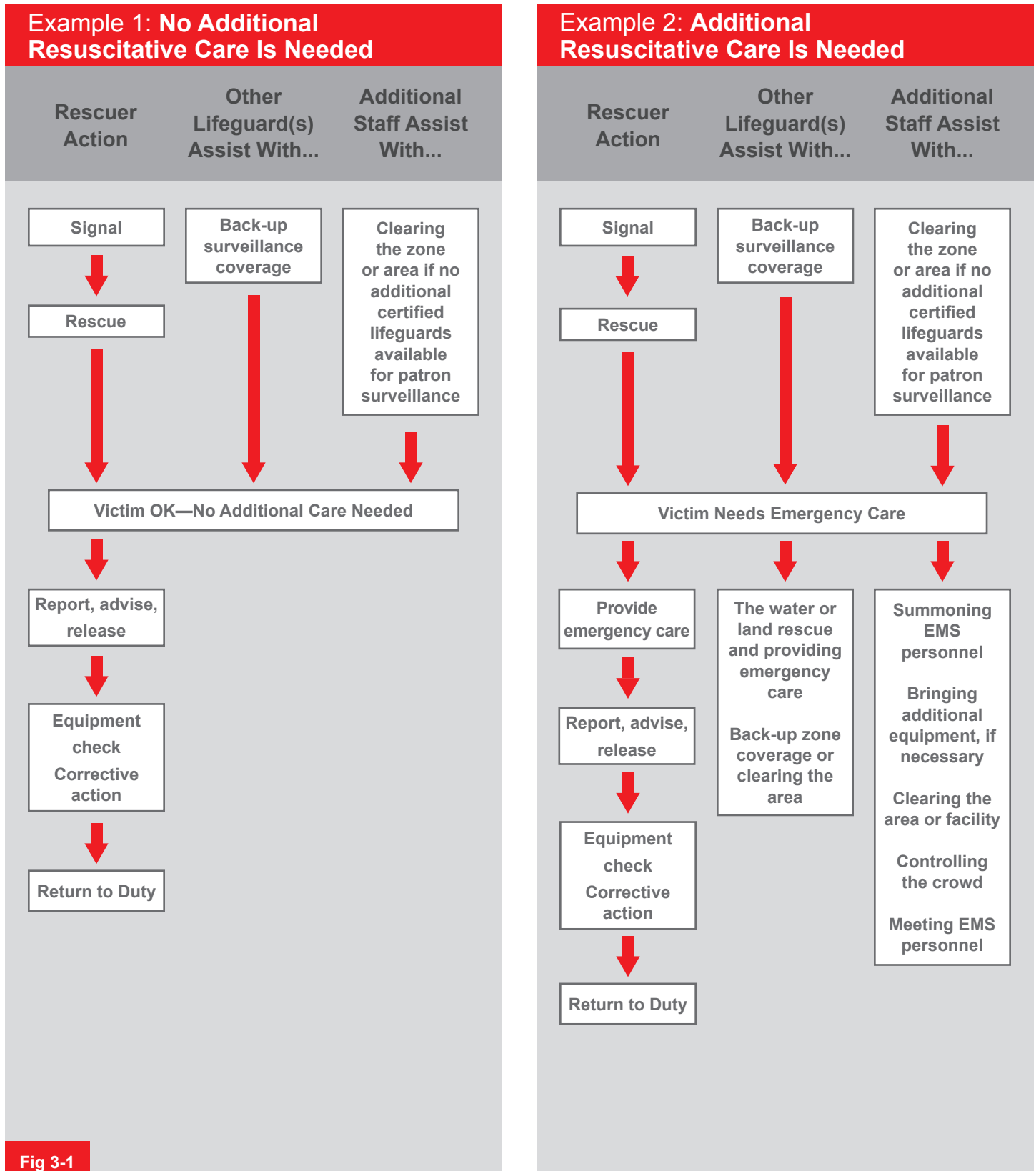


Fig 3-1



## TRAINING WITH EMERGENCY PERSONNEL

As a member of the facility safety team, you may have the opportunity to train with local EMS personnel, including EMTs, paramedics, firefighters and law enforcement officers. These training sessions can be beneficial to both facility safety team members and EMS personnel. In addition to fostering good relationships, training together gives everyone a better understanding of their role and familiarizes EMS personnel with the aquatic facility's safety plan.

One of the benefits of these trainings is that you and your fellow facility safety team members get a chance to see EMS responders in action and to practice interacting with them before an actual emergency occurs. For example, you might discover that you are expected to control bystanders, even after EMS personnel arrive.

Likewise, EMS personnel may benefit; it gives EMS a chance to become familiar with your facility safety team's skills and your facility's equipment. By practicing EAPs in advance, everyone has an opportunity to address potential problems. For example, while practicing an evacuation plan, you may discover that the EMS stretcher does not fit in your facility's elevator.

### Considerations for Open-Water Swimming Events

The following issues should be addressed in emergency action plans (EAPs) or safety plans for open-water swimming events:

- Safety briefing or meeting to inform all personnel involved about emergency measures before the event, such as the night before
- Medical evacuation plan outlining detailed procedures and methods of transport for swimmers needing emergency care, from water pickup to land-based services; for example:
  - One plan if the start and finish of the race are the same or less than  $\frac{1}{4}$  mile apart
  - Two plans if the start and finish of the race are not in the same location or are more than  $\frac{1}{4}$  mile apart
- Specified procedure or mechanism for transport of swimmers to shore-based medical care in less than 10 minutes
- Safety monitoring stations positioned on course with a minimum of one station for every 30 swimmers or one station for every  $\frac{1}{4}$  mile of course length as well as shore-based safety personnel at the finish
- Safety stations equipped with first aid supplies and an emergency signaling device to summon medical evacuation boat; stationary medical stations and/or mobile safety monitors
- Detailed plan for event cancellation after competition begins
- Accounting for every participant as each enters and exits the water; for example, a swimmer count
- Public briefing with all participants before the event addressing:
  - Opportunity for withdrawal
  - Obligations if participant quits or withdraws
  - Procedure for obtaining aid during event
  - Procedure for finishing
  - Positioning of selves in relation to other swimmers, such as faster swimmers in front
  - Course directions and markers
  - Event and course rules
  - Procedure for starts
- Absolute cut-off time for finishing
- Escort and pilot craft
- Procedure for heats if event is large



## EMERGENCY CLASSIFICATIONS

Emergencies are typically classified as one of two general types: life-threatening or non-life-threatening. Regardless of the type of emergency, you must act quickly to prevent further injury.

### Life-Threatening Emergencies

*One lifeguard is on deck along with Coach Foley. A second lifeguard is on his break in the office. As Coach Foley busily prepares for his training group, a young swimmer comes running out on deck in a panic. He tells the coach, “Jaime has had an accident in the locker room. He’s lying on the floor and isn’t moving.” What should Coach Foley do?*

Life-threatening emergencies include situations such as a respiratory or cardiac emergency, severe bleeding or chemical poisoning. Examples are a drowning victim, a person who has a severe cut on the foot or hand or a person who has been exposed to chlorine gas. Each of these situations calls for immediate and positive action to prevent loss of life or some level of permanent injury to the victim.

*Think about the situation with Coach Foley.* Based on what the other swimmer says, it is difficult to determine if the situation is life-threatening. However, the swimmer in the locker room is lying on the floor motionless, possibly unresponsive. Therefore, Coach Foley needs to activate the facility’s EAP and then proceed immediately to help the swimmer. At the same time, the other lifeguards should intervene according to the facility’s EAP.

### Non-Life-Threatening Emergencies

*Coach Vaughn has 25 age-group swimmers training in four lanes. As Erin is attempting to pass another swimmer, she collides with an oncoming swimmer and hits her head on Anna’s shoulder. Both swimmers stop, seem to be okay and resume swimming. What should Coach Vaughn do in this situation?*

Non-life-threatening emergencies may require the action of one or more people, but the danger to the individual is considered minimal. There are two levels of non-life-threatening emergencies:

- Major, which may include conditions or situations such as a head, neck or spinal injury, broken bones, an out-of-water seizure or a swimmer in distress.
- Minor, which may include conditions such as sunburn or minor bleeding from a cut or an abrasion.

A non-life-threatening emergency may become life-threatening if it is not handled properly or cared for immediately.

*What should Coach Vaughn do?* First, the situation does not appear to be life-threatening but it does require that Coach Vaughn act swiftly and appropriately. In this situation, she should have both swimmers get out of the pool. In addition, she needs to have her assistants take over supervision of the other swimmers who are remaining in the pool. If there are no assistants available, then she needs to clear the pool while she tends to the injured swimmers. The swimmer, Erin, may have a head injury from hitting her head on Anna’s shoulder. The other swimmer, Anna, may have a shoulder injury from the collision.

## WATER AND AIR QUALITY

*When Coach Jackson arrives at the pool, he notices a strong odor of chlorine in the air. The pool water looks clear and the staff says the water “tests fine.” He opens the doors and windows to get some fresh air into the pool area. Soon after beginning practice, the swimmers are complaining of eye irritation and dry mouth and some are beginning to cough. Coach Jackson refuses to modify his plans or cancel the workout. He complains to the lifeguard on duty, who says, “I don’t know anything about the chemicals.” He hopes the conditions will be better tomorrow because it is a test set day. What should Coach Jackson have done?*

The pool where your team practices may not be exactly resort-like, but it still should be inviting enough for anyone to want to jump in. After all, good water and air quality

are not just “nice to have”. They are an essential part of providing a safe environment for your swimmers. Even if there is another person responsible for facility maintenance, part of your job as the coach is to always be aware of conditions in and around the pool. If something is not right, you will need to take action—right away.

So what should you look for? One obvious sign of a problem is water that looks cloudy. You should be able to easily see the pool bottom, racing lanes and main drain covers (Figure 3-2). If the water is not clear, or looks discolored in any way, there is a water quality problem. Other indicators that the water clarity or quality is bad include:

- The water is an unusual color.
- The water or air has an unusual odor (usually categorized as a strong chlorine smell).
- Swimmers complain of eye irritation.
- Swimmers are severely coughing and/or having difficulty breathing.

A clear sign of trouble is a chlorine smell to the air, which actually comes from the formation of chloramines in the pool. Chloramines are created when free chlorine combines with ammonia and other nitrogen compounds. This process can be accelerated by perspiration, urine, saliva, body oils, lotions, some shampoos and soaps, and many industrial or household cleaners. The odor that results, which may intensify when swimmers agitate the water, is telling you that the water chemistry is unbalanced. Besides being unpleasant, the odor can be extremely irritating. It is worse at water level, but it can affect those at deck level or in the viewing area, too.

Sometimes water affected by chloramines may be hazy or cloudy, but not always. Often, the water will appear perfectly clear and the water test for free chlorine and pH will be normal. Problems with chloramines mostly occur in indoor pools. Fresh air and ultraviolet rays from the sun help prevent issues related to chloramines from occurring in outdoor pool environments

Of course, not all signs of poor water and air quality are as easy to spot. In addition to what you see or smell, you should also listen to what your swimmers are saying! If they complain about eye irritation or have severe coughing, stop practice and find out what could be causing the problem. People with asthma are particularly susceptible and often react first to air quality issues.

*So, what should Coach Jackson have done?* Obviously, Coach Jackson sensed that something was wrong. He should have stopped the workout and followed the chain

of command at the facility, such as contacting the pool operator or manager to report the problem and address the issue. Complaining to the lifeguard was inadequate. Facility management should provide a safe swimming environment for your swimmers, which includes the clarity and quality of the pool water.

Remember, it is not just gross or uncomfortable to ignore water or air quality issues. It can be harmful. Instead, of telling your team to “grin and bear it,” tell the facility manager so the problem can be corrected. Or, if maintaining the facility is part of your job, make sure you have been properly trained in pool chemistry and operation by taking a pool operator program. The [Aquatic Exercise Association](#) and the [Centers for Disease Control and Prevention](#) have issued statements related to water and air quality in facilities. The American Red Cross Scientific Advisory Council has issued a scientific advisory statement on [water temperature for aquatic instruction](#). USA Swimming also has issued statements related to water and air quality and water and air temperature in facilities.

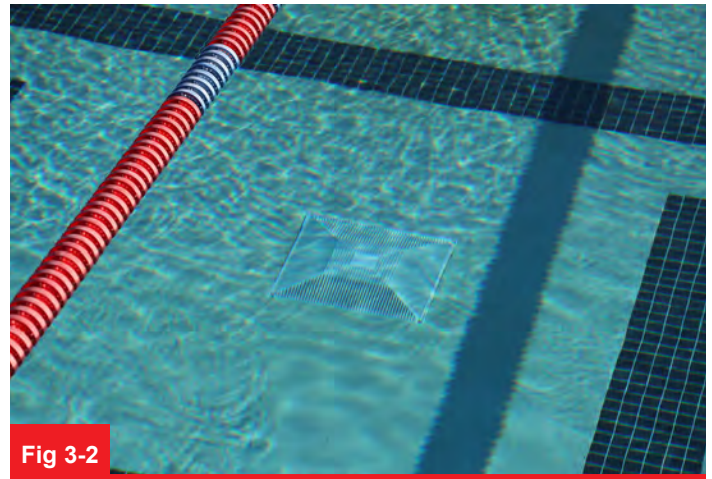


Fig 3-2

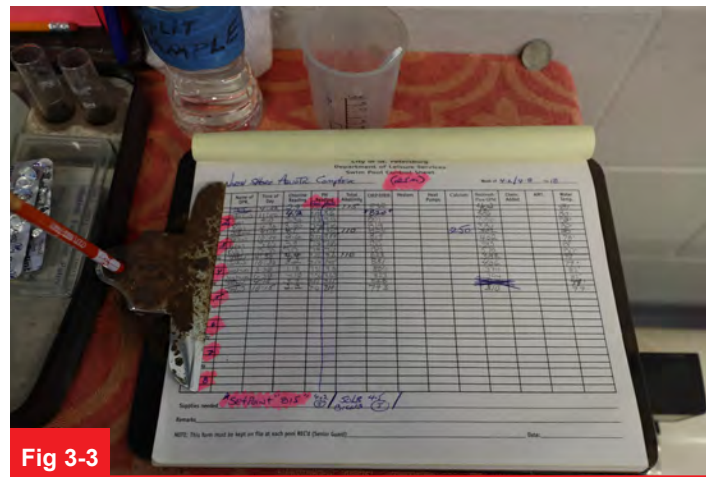


Fig 3-3

## POOL CHEMICALS

While pool chemicals are essential to maintaining water and air quality, they can sometimes be dangerous. Always use common sense precautions. All cleaning liquids, such as bleach, and pool chemicals in concentrated form are hazardous and poisonous. Accidental exposure can be fatal. Keep the chemicals in a separate area away from swimmers and spectators (Figure 3-3). If you are interested in learning more about pool chemistry and operations, enroll in a pool operator course offered by state or local governments and national organizations.

## ELECTRICAL SAFETY

Electrical shock is a potential danger in the operation of aquatic facilities. Given the variety of electrically powered equipment commonly used in and around pools—things like pool vacuums and pace clocks—electrical shock is a very real hazard of your job.

Conducting and documenting a safety check of electrical equipment should be included as part of the facility's daily or weekly maintenance routine. In addition, a licensed electrician should evaluate electrical systems for safety on a regular basis. All electrical devices should be connected to the power supply only from a ground fault circuit interrupter (GFCI) that is regularly tested. State and local electric codes are strict about the position of electrical outlets and use of electrical devices around pools.

Do not let yourself become a victim! See *Emergency Procedures for Electrical Emergencies*.

Handling electrical equipment around a pool requires good sense and caution, no matter how familiar you are with the equipment.



Fig 3-3

Be sure to use caution with any permanent or temporary connections and wires used with the following devices:

- Underwater lights
- Video equipment
- Automatic-timing devices
- Pace clocks
- Electronic loudspeakers
- Start systems
- Pool vacuum cleaners (*Note:* Swimmers should not be in the pool when pool vacuums are in use.)

When you must use devices that involve wires that stretch across the pool deck, follow all defined safety practices and remember: the devices should be connected to the power supply **ONLY** from a ground fault circuit interrupter, or GFCI. In fact, GFCIs are required in a pool area. If in doubt, do not plug something in! Use battery-operated devices on the pool deck or near the water, whenever possible.

## WEATHER AND ENVIRONMENTAL CONDITIONS

*Upon arriving at the outdoor pool for practice, the swimmers tell Coach Martinez that they heard forecasts on the radio of severe thunderstorms. Coach laughs and says, “That won’t get you out of practice.” During practice, he hears thunder and sees a flash of lightning. Although he does not think it is very close, he pulls his swimmers out of the water. A while later, Coach Martinez decides that the storm has passed and tells the swimmers, “Let’s get back to it.” As they step onto the pool deck, he hears another roll of thunder. What should Coach Martinez do?*

## Emergency Procedures for Electrical Emergencies

In the case of electrical shock or electrocution, call 9-1-1 or the local emergency number and follow the facility's EAP. Shut off the power source, check the scene and check the person. Be prepared to perform cardiopulmonary resuscitation (CPR) or use an automated external defibrillator (AED).



It is a beautiful summer day when suddenly thunder rumbles in the distance. There are no clouds overhead, and your swimmers in the pool barely notice. But you heard it, and now what happens?

It is a frustrating fact of life, but a practice that starts under sunny skies can quickly become dangerous if warning signs of an impending storm are ignored. To help keep your swimmers safe, there are some essential weather safety steps every coach should take.

First, be informed. Find out what the weather forecast is before every swim session and plan accordingly. If you know a storm or other bad weather is predicted, stay alert for signs that it is near, such as thunder and lightning or high winds. Local radio stations, TV channels and cable services provide daily, reliable forecasts as well as emergency weather warnings. Any one of these sources can help keep you well prepared. In addition, online sources are increasingly becoming a preferred way to get weather information. If you choose to go online, search a reputable site, such as the one for the [National Weather Service](#).

The [National Oceanic and Atmospheric Administration \(NOAA\) Weather Radio All Hazards](#) is a nationwide radio network that provides detailed weather information 24 hours a day to most areas. A special radio receiver is needed to receive the signal and can be set to sound an alarm when a warning is issued for a specific area. These radios have battery back-up in case of power failure.

The American Red Cross has [mobile apps](#) for different types of weather emergencies that are available for download. These apps provide alerts about specific weather conditions as well as valuable information about how to prepare for the emergency and what to do after it occurs.

Second, be prepared. Know how to respond to specific weather conditions when they happen. This starts with always following a facility's EAP which usually involves, at a minimum, clearing swimmers from the water and finding appropriate shelter.

And if you are hosting a swim meet and unusual or severe weather conditions arise that make it impossible to conduct or conclude a meet safely, see the appropriate rule book for information on suspension of the meet, delays and rescheduling.

## Lightning and Thunderstorms

Lightning and thunderstorms occur most often during the summer season. Whether a pool is indoors or out, at the first sign of lightning or a thunderstorm, follow the facility's procedures for clearing swimmers from the water and move them indoors, if needed. The general rule of thumb, or 30/30 rule, is to take cover when the time between a flash of lightning and thunder is 30 seconds or less and to remain under cover until 30 minutes after the last flash of lightning was seen or the last thunder was heard. The [National Lightning Safety Institute](#) recommends waiting 30 minutes after the sound of thunder is last heard before resuming activities.

In addition, the American Red Cross Scientific Advisory Council has issued a scientific advisory statement about [lightning safety](#) for outdoor and indoor pools that reflects the National Lightning Safety Institute recommendations.

Follow these guidelines to help ensure safety with lightning and thunder:

- Clear everyone from the water at the first sound of thunder or first sight of lightning. Move everyone to a safe, sheltered area. For outdoor facilities, move everyone inside. Large buildings are safer than smaller or open structures, such as picnic shelters or gazebos.
- Keep swimmers out of showers and locker rooms during a thunderstorm. Water and metal can conduct electricity.
- Refrain from using a telephone connected to a landline except in an emergency.
- Keep everyone away from windows and metal objects (e.g., doorframes, lockers).
- Keep watching for more storms and monitor weather reports on a broadcast radio or weather radio.

If caught outside in a thunderstorm and there is not enough time to reach a safe building, take the following steps:

- Keep everyone away from structures in open areas, such as picnic shelters.
- Keep everyone away from tall trees standing alone and from any tall structures.
- Keep everyone away from water and metal objects, such as metal fences, tanks, rails and pipes.
- Tell everyone to stay as low to the ground as possible and to squat or crouch with the knees drawn up, both feet together and hands off the ground.
- Tell everyone to minimize ground contact; no one should lie flat on the ground.



So, *what about Coach Martinez?* Coach Martinez was correct in removing his swimmers from the water initially. However, he should apply the 30/30 rule for determining when it is safe to allow the swimmers back into the water. (The 30/30 rule is to take cover when the time between a flash of lightning and thunder is 30 seconds or less, and remain under cover until 30 minutes after the last flash of lightning was seen or the last thunder was heard.) Upon arriving back on deck and hearing the thunder, Coach Martinez should again remove the swimmers from the deck and seek a secure safe structure. Practice might need to be cancelled depending on how long the thunder and/or lightning are present.

## Tornadoes

If you live in a tornado-prone area, you should monitor forecasts and be familiar with terminology. A *tornado watch* (warning issued by the National Weather Service notifying that tornadoes are possible) means that a tornadoes may happen, so stay alert. A *tornado warning* (warning issued by the National Weather Service notifying that a tornado has been sighted) means that a tornado has been sighted or is imminent and that everyone should take shelter immediately. In the event of a tornado:

- Clear the water and surrounding area.
- Move everyone to the location specified in the facility's EAP, such as a basement or an inside area on the lowest level of a building.
- Keep everyone away from windows, doors and outside walls.
- If adequate shelter is unavailable at or near the facility, have everyone lie flat in a ditch or in a low section of ground.
- If a tornado siren warning is heard, keep swimmers in the safe location until the all-clear signal is sounded.

## Heavy Rain, Hail and High Winds

Even without lightning or tornado conditions, heavy rain, hail and high winds can be unsafe too (Figure 3-4). Rain can make it hard to see the bottom of the pool or beneath the surface of the water and hail can cause serious physical injury. With either of these weather conditions at an outdoor facility, swimmers should be cleared from the water and directed to shelter. High winds can cause turbulence in the water, which can make it hard to see swimmers. Plus, wind increases the risk of hypothermia, especially for small children and older adults.

If high winds become a problem:

- Clear the pool or waterfront if visibility is impaired by waves or increased turbidity.
- Move everyone indoors.
- Secure all facility equipment that could be blown and become dangerous, but only if it is possible to do so safely.

## Fog

If fog rolls in and lowers visibility—something that can happen at any time of the day or night with changing weather conditions—you need to clear the pool immediately if at any point during the practice the swimmers are not visible. The facility may also need to be closed.

## Weather Conditions and Indoor Facilities

Indoor facilities may be affected by weather conditions. In addition, severe weather can cause a power failure. If this happens, you should clear the pool and deck immediately. You should also be prepared by having portable or emergency lighting available, and again, by knowing the facility's EAP.



Fig 3-4

## OTHER FACILITY SAFETY ISSUES AND RECOMMENDATIONS

*Coach Cane has an energetic group of young swimmers. He wants to improve their starts. So, he decides to do running starts in which the swimmers stand by the wall, run across the pool deck and dive into the water. He remembers that this was his favorite drill when he was a kid and notes immediate improvement in the swimmers' starts. However, the pool manager tells Coach Cane that he needs to stop this activity because it is unsafe and violates the pool rules. Coach Cane argues that the rules do not apply to his swim practice and that it is a supervised activity, not "horseplay". The manager insists that Coach Cane stop the running starts or get kicked out of the facility. Who is right—Coach Cane or the pool manager?*

The more time your team spends practicing, the more at ease they will feel around the water and at the facility. But while the pool may become a "home away from home," it is important to remind your team that the rules for visitors still apply to them!

Start by making sure common rules such as walking on deck, diving only in designated areas and refraining from horseplay, are clearly posted—and faithfully followed by your team members (Figure 3-5). Do not just rely on passive reminders. Talk to your team about the importance of behaving safely around the pool and following the pool rules. Remind them that the risks are just as great for them as they are for any other pool patron. You cannot emphasize enough that even experienced swimmers are at risk for injury and death and should never enter a pool that is closed, never swim unsupervised and never use the starting blocks unless the swimmer is supervised by a coach. Lastly, remember: As a coach, you need to follow the rules, too. You are a role model and it is your responsibility to set the example.

*Think about Coach Cane and the pool manager. Who was correct? In the scenario, Coach Cane acted unsafely. Although he was supervising the activity, he allowed his swimmers to engage in behavior that could lead to slipping or tripping and, possibly, injury. Moreover, Coach Cane violated the facility rules. In every case, all persons using a facility are bound by the rules for that facility. Facility rules always supersede the coach's rules.*



Fig 3-5

## MINIMIZING RISK

*Coach Morrison's team rents time at the local recreation center, spending 4 hours a day practicing. Usually, one lifeguard is on duty during practice. Coach Morrison has been asked to attend a meeting with the facility management to discuss emergency action plans and risk management for the pool. He declines the invitation. Coach feels that this is not part of his responsibility. He thinks it is just a bureaucratic formality that does not really affect his swim team. Is he right?*

You have taught your team to always follow the rules and put safety first. But even with the best training, accidental injuries still can and do happen. All coaches should participate in risk management planning. Doing so projects an attitude of professionalism, a concern for safety and a willingness to do what is necessary to help provide a safe environment.

A good plan should cover prevention procedures, such as the rules and regulations of the facility and the governing body. It should cover the necessary training of coaches (including appropriate, current certification); systematic, routine safety inspections (such as using a facility safety checklist to identify potential hazards); and protocols for supervision. The plan should also cover the need to maintain ongoing communication and emergency action, such as knowing one's role when an emergency occurs. A detailed plan should be put in writing and thoroughly reviewed and practiced. The plan should include areas such as:

- **Safety Rules and Regulations.** Rules and regulations are designed to minimize the risk of injury. All rules and regulations (including those of the facility, USA Swimming and/or any other governing body) and the procedures used to enforce them should be reviewed. Appropriate rules and procedures, such as warm-up procedures, should be posted or published. The facility's signage, including directional and warning signs, should also be reviewed to see if it is adequate and meets current state and local regulations.

- **Supervision.** Using only the most knowledgeable leaders and volunteers together with the best standard of care possible provides the highest level of supervision. Coaches and swim meet marshals should be active in enforcing the rules and regulations. An appointed club safety coordinator or another coach should act as a liaison between the club and facility manager in developing risk management plans. Continual communication between individuals instills a quality program.
- **Training.** All coaches, including the head coach and assistant coaches, must have the necessary safety certifications including CPR/AED and Safety Training for Swim Coaches. These certifications must be current. In addition, coaches should be knowledgeable about their role in EAPs. Facility guidelines for required supervision of aquatic activities by certified personnel must always be followed. Some facilities require certified lifeguards on duty.
- **Safety Inspections.** A key way to actively prevent injuries is to recognize potential hazards. This requires a systematic and routine method of inspecting the swimming facility. This can be done through the development of a series of checklists and by establishing a method of documenting and reporting faulty equipment or facility dangers. Any faulty equipment should be removed, and dangerous areas should be roped off.

*EAPs and risk management—are they a bureaucratic formality?* No. Coach Morrison has a responsibility to participate in the facility's risk management to protect himself as well as his swim team. He needs to make sure that he and his team understand their responsibilities while at the facility, even though they are only renting time there. Accidents and emergencies can happen anytime and Coach Morrison needs to be prepared. In addition, Coach Morrison's participation would help identify what his role would be should an EAP be activated while he and the team are at the facility.



# CHAPTER 4

## Common Injuries And Medical Conditions





## BEFORE PROVIDING CARE

*Coach Wilkins' team is working on dryland training this afternoon. While doing the exercises, two of his swimmers get their feet tangled in the stretch cords and they fall to the deck. Both swimmers get up and say they are okay. Coach Wilkins checks the area for safety and asks the swimmers, "Did you hit your heads?" They say, "No, we just landed on our hands and knees." Next he checks the swimmers and notices that one of the swimmers has several scrapes on her hand. The other swimmer has a cut on her knee. Both injuries result in minor bleeding. What should Coach Wilkins do next? How should he care for each swimmer?*

When someone on your team has an injury or illness, it is your responsibility to help make sure the person gets the first aid care they need. Just as important is making sure a swimmer's injury or illness does not also become *your* health problem.

### Bloodborne Pathogens and Preventing Disease Transmission

Exposure to even small amounts of blood or body fluids while giving first aid places you at risk for the transmission of bacteria or viruses that cause illness. These are called *bloodborne pathogens* (bacteria or viruses present in blood and body fluids capable of causing disease in humans). And someone doesn't have to look or feel ill to pass them along.

The good news is, there are some very easy things you can do to greatly reduce your risk of exposure. These are called standard precautions and include things like washing your hands before and after giving care and wearing personal protective equipment such as nitrile, latex-free disposable gloves, gowns, masks, face shields and protective eyewear. Standard precautions also include: engineering controls such as using biohazard bags and labels; work practice controls such as disposing of sharp items in puncture-resistant, leak-proof, labeled containers and isolating contaminated areas so that others do not become exposed; and proper equipment and spill clean-up.

Whenever you are giving first aid, especially when there is any blood or body fluids, *always* use standard precautions and follow these guidelines:

- Wash your hands before giving care. Or use an alcohol-based hand sanitizer if soap and water are not readily available and your hands are not visibly soiled.
- Wear nitrile, latex-free, disposable gloves when giving care.
- Change your gloves and wash your hands after giving care to one person and before giving care to another person.
- Avoid having your bare skin come into contact with blood or other body fluids. Wear protective coverings such as a mask, eyewear and gown if there is a likelihood of contact with blood or other body fluids through splashing.
- Wash your hands after providing care.

See the **Resources** section of the course to watch a video on standard precautions.

After providing care, you should clean and disinfect the equipment and surface. In some cases, you will need to properly dispose of certain equipment (Figure 4-1). Handle all soiled equipment, supplies and other materials with care until they are properly cleaned and disinfected. Place all used disposable items in labeled containers. Place all soiled clothing in marked plastic bags for disposal or washing, and clean up any blood spills wearing appropriate personal protective equipment.

Use a common-sense approach when determining if an injured swimmer can return to the pool. Fresh, open wounds, even if dressed properly, can present a health danger to both the injured swimmer and others in the pool. Because open wounds can easily become infected, swimmers with open wounds should not be allowed to swim until the wound is healed. **The Centers for Disease Control and Prevention** provides additional information about preventing disease transmission.



Fig 4-1

*How should Coach Wilkins respond?* Once Coach Wilkins checks the scene for safety and checks the swimmers for life-threatening injuries, he is ready to give care. He needs the facility's first aid kit, but since he has other swimmers on deck, he should ask one of them to get it rather than leaving the pool area to get it himself. Then, after washing his hands, he would put on gloves and tend to the first swimmer's injuries, applying direct pressure to the wounds to control the bleeding, cleaning the wounds, applying antibiotic ointment if available and the swimmers do not have any known allergies to the medication, and finally covering the wounds with adhesive bandages or sterile dressings. Then he would remove his gloves, wash his hands, put on a new pair of gloves and tend to the second swimmer's injury, followed by proper hand washing and disposal of the soiled gloves and cleaning equipment. He should restrict both swimmers from going back into the water until the wounds are healed.

## HEAD, NECK AND SPINAL INJURIES

*Coach Stevens has taught his swimmers the proper techniques for racing starts. They have practiced the starts many times. However, some swimmers are playing around on the starting blocks before practice and one pushes another into the pool. The swimmer performs a forward entry in a nearly vertical position, striking the top of his head on the bottom of the pool. What would be Coach Stevens' concerns for the swimmer performing a forward entry? What should Coach Stevens do?*

Head, neck or spinal injuries often are caused by high-impact/high-risk activities. In aquatic environments, examples of these activities include:

- Performing a forward entry into shallow water, especially if from a starting block.
- Falling from greater than a standing height.
- Entering the water from a height, such as a diving board, water slide, an embankment, cliff or tower.
- Striking a submerged or floating object.
- Receiving a blow to the head.
- Colliding with another swimmer.
- Striking the water with high impact, such as falling while water skiing or surfing.

A head, neck or spinal injury can be devastating to a person. A way to prevent head, neck and spinal injuries is by being aware of the dangers that exist, and the behaviors that can lead to accidents. At aquatic facilities, for example, head, neck and spinal injuries happen because of improper diving, jumping, falling or being pushed. And as you might expect, these injuries happen most often at the shallow end of the pool, in a corner of the pool or where the bottom drops off to deeper water.

At open-water facilities, such as lakes or rivers, injuries tend to happen in areas where water levels vary due to tides or currents, or where there are underwater hazards, such as rocks or tree stumps. Of course, in any setting, a collision between swimmers could also result in a serious head, neck or spinal injury.

The tough thing is, a head, neck or spinal injury is not always easy to spot. You should suspect a possible head, neck or spinal injury *only* if the activity was high-impact or high-risk *and* the signs or symptoms of injury are present.

The signs and symptoms of possible head, neck or spinal injury include:

- Unusual bumps, bruises or depressions on the head, neck or back.
- Heavy external bleeding of the head, neck or back.
- Bruising of the head, especially around the eyes and behind the ears.
- Blood or other fluids in the ears or nose.
- Confusion or disorientation.
- Changes in level of consciousness (LOC).
- Seizures.
- Impaired breathing.
- Impaired vision.
- Nausea or vomiting.
- Partial or complete loss of movement of any body part.
- Loss of balance.
- Behavior similar to that of a person under the influence of alcohol or drugs (e.g., confusion, stumbling, repeatedly asking the same questions, memory loss, nausea or vomiting, speech problems).
- Severe pain or pressure in the head, neck or back (reported by the person, or indicated by the person holding their head, neck or back).
- Back pain, weakness, tingling or loss of sensation in the hands, fingers, feet or toes.
- Persistent headache.

You should always let a lifeguard or a person with more advanced training, such as an EMT, respond first. However, if such a person is not around, you will need to act. Remember: the key to giving care to an injured person is to minimize movement of the head, neck and spine using the head splint technique (Figure 4-2) if the person is breathing. If the person is not breathing, remove them from the water and provide the appropriate care. See the **Resources** section of the course to watch a video on head, neck and spinal injuries.

Follow these general guidelines to care for a person with a suspected head, neck or spinal injury:

- Be sure someone has called 9-1-1 or the local emergency number. If other people are available, ask someone to help.
- Minimize movement of the person's head, neck and spine. This technique is called a head splint. For step-by-step details for skills used to correctly stabilize the head, neck and spine, see the Appendix of this supplement or the **Resources** section of the course.
- Position the person face-up at the surface of the water. Keep the person's face out of the water, allowing them to breathe.
- If the person is unresponsive, quickly look, listen and feel to check for breathing once the person's head, neck and spine are stabilized.
- If the person is unresponsive and not breathing, immediately remove the person from the water and provide resuscitative care.
- If the person is breathing, hold the person's head in line with the body and move the person toward safety until help arrives. Keep the person warm.

It is essential that you ensure the person is facing up, with their face out of the water so the person can breathe. Continue to offer this support until advanced medical personnel arrive and there is someone to assist you with removing the person from the water.

*What should Coach Stevens do?* Coach Stevens should immediately suspect a possible head, neck or spinal injury and perform the skills necessary to minimize movement of the swimmer's head, neck and spine (i.e., head splint). Coach Stevens should also make sure someone is calling 9-1-1 and can direct emergency medical services (EMS) personnel to the location of the swimmer. To remove the swimmer from the water, if appropriate, a backboard and two responders are needed.

## Concussions

*At the finish of the 100 yard backstroke during Coach Hopkin's test set, a 14-year-old swimmer strikes his head at the finish. He appears dazed as he exits the pool. What should Coach Hopkins do?*

A concussion is a type of brain injury that involves a temporary loss of brain function after a blow to the head. It is a very common type of head injury in many sports including swimming. It is not always easy to tell if someone is suffering from a concussion, especially since they may or may not lose consciousness. In fact, while the effects of a concussion may occur immediately or very soon after a blow to the head, in some cases, it may be hours or even days before any changes are seen. These effects can then last for several days or even longer. Suspect a concussion if your swimmer shows any of the following signs and symptoms:

- Any headache or "pressure" in head (how badly it hurts does not matter)
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Sensitivity to light and/or noise
- Feeling sluggish, hazy, foggy or groggy
- Concentration or memory problems
- Confusion
- Does not "feel right"
- Trouble falling asleep
- Sleeping more or less than usual

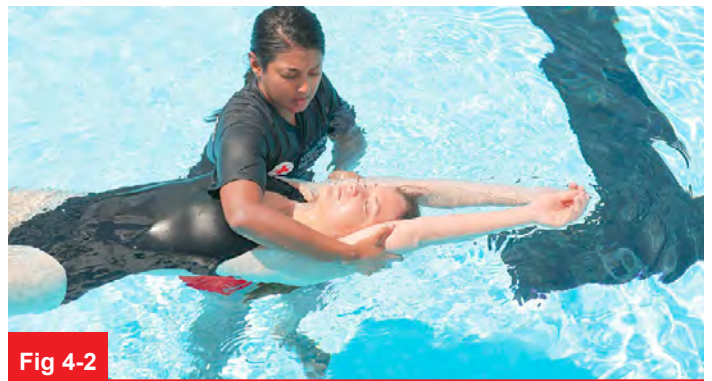


Fig 4-2

Also suspect a concussion if any of these signs are observed by coaches, officials, parents or guardians:

- Appears dazed, stunned or confused
- Unsure about event, location or name of meet
- Moves clumsily
- Answers questions slowly
- Loses consciousness (even briefly)
- Shows behavior or personality changes—irritability, sadness, nervousness, emotional
- Can't recall events before or after incident

Follow these guidelines if you suspect a concussion:

- Get the swimmer out of the water and restrict them from further practice.
- Notify the swimmer's parent or guardian.
- Have the swimmer seek care from a healthcare provider.
- Keep the swimmer from practice until there are no longer signs and symptoms and the swimmer is medically cleared by the healthcare provider. This may take 7 to 10 days or longer. The healthcare provider should advise when a swimmer can resume water activities.
- When the swimmer is medically released to return to swimming allow the swimmer to return to practice, making sure that they are closely supervised. Follow the "Return To Swim Progression" on the USA Swimming website.

Remember, a person should stop all activity until all signs and symptoms of concussion disappear and the person has a medical release to return. [The National Federation of State High School Associations](#) has suggested guidelines for the management of concussion in sports and the [Centers for Disease Control and Prevention](#) has additional information on concussion in sports. [USA Swimming's](#) Sports Medicine Concussion Task Force has developed the "Return To Swim Progression Guidelines" that are specific to swimming. You can find these in the Concussion 'Recognition and Management' coaches training program.

*What should Coach Hopkins do?* Coach Hopkins needs to be alert to the fact that there is a potential risk of concussion because the swimmer hit his head at the end of the pool. She needs to monitor the swimmer for signs and symptoms of a head injury, keeping in mind that loss of consciousness does not always occur. She also needs to notify the swimmers' parents about what happened

and recommend that the swimmer follow up with their healthcare provider and receive an evaluation. In the meantime, the swimmer should leave the water. Allowing him to continue to practice would be inappropriate because he was dazed as he left the water which is a symptom of a possible concussion; that is, being dazed and confused immediately after the incident.

## COLD-RELATED EMERGENCIES: HYPOTHERMIA

*Coach Patrick's team is practicing in an outdoor pool. The water temperature is 72° F. Most of the swimmers are fine "as long as they keep moving," but a few swimmers are visibly shivering with chattering teeth and blue lips. Coach Patrick tells those swimmers to get out, instructing them to take warm showers and get into warm clothing. The rest of the swimmers stay in the pool. Did Coach Patrick do the right thing or should he have gotten all the swimmers out of the pool?*

Swim practice does not always happen in ideal weather conditions. Cloudy skies are not likely to cancel practice, but they can make the day unseasonably cool. Likewise, early season or early morning practices often do not have the benefit of the hot sunshine to keep swimmers warm between sets. Is a slightly cooler than normal day cause for vigilance when it comes to hypothermia? Well, in truth, the answer can be yes.

Hypothermia occurs when a person's entire body cools because its ability to keep warm fails. A person with severe hypothermia will die if care is not provided.

Hypothermia is a life-threatening condition in which the body's core temperature drops below normal. This can happen when cold or cool temperatures cause the body to lose heat faster than it can be produced. Young swimmers and very lean swimmers are usually the most susceptible. When the body is in cold water, the following occurs:

- The temperature of the skin and blood in the extremities drops quickly.
- Initially, the person will have trouble breathing, and then may slowly become unable to use the arms or legs.



- The temperature of the heart, brain and other vital organs gradually drops.
- Shivering begins.
- The person may become unable to think clearly.
- The person may become unconscious. If the temperature drops further, death from heart failure may occur. However, drowning may occur first.

Temperatures do not have to be extremely cold for someone to suffer a cold-related emergency such as hyperthermia, especially if the person is wet or it is windy (Figure 4-3). Nor does the swim event have to be in open water or even outdoors. A person's age, physical activity and state of health, combined with environmental conditions such as wind and humidity, can increase their susceptibility to hypothermia. Young swimmers and very lean swimmers are more susceptible. Add in prolonged exposure to water or wet clothing, and the chances of hypothermia increase even more—even in summer or in indoor facilities.

Coaches of open-water swimmers must be especially aware of the signs and symptoms of hypothermia. A person who has hypothermia may seem indifferent, disoriented or confused. You may notice that the person has a “glassy” stare. Initially, the person may shiver, but as the hypothermia progresses, the shivering may stop. This is a sign that the person's condition is worsening and they need immediate medical care. In advanced cases of hypothermia, the person may become unresponsive, and their breathing may slow or stop. The body may feel stiff because the muscles have become rigid.

Because hypothermia can happen in many different situations, all swim coaches must be fully prepared to recognize and care for hypothermia.

Signals of hypothermia include shivering; numbness; a glassy stare; apathy, weakness, indifference or impaired judgment; and loss of consciousness. If a person experiences hypothermia:

- Summon EMS personnel.
- Gently move the person to a warm place. Sudden movements may cause cardiac arrest.
- Remove any wet clothing.
- Warm the person by wrapping all exposed body surfaces in blankets or by putting dry clothing on the person. Be sure to cover the head since a significant amount of body heat is lost through the head (Figure 4-4).
  - Do not warm the person too quickly such as by immersing them in warm water.
- Have the person drink liquids that are warm, but not hot, and that do not contain alcohol or caffeine, if the person is alert.
- Wrap water bottles or chemical hot packs, if you are using one, in a towel or blanket before applying.
- Monitor the person's condition, and watch for changes in level of consciousness (LOC).

See the **Resources** section of the course to watch a video segment on cold-related emergencies.

*Did Coach Patrick do the right thing?* Coach Patrick recognized the swimmers who were in jeopardy, that is, those who were shivering and had chattering teeth and blue lips. He did the right thing by getting them out of the water and having them take actions to get warm. But what about the other swimmers? Coach Patrick should monitor the other swimmers and continue to watch for any signs and symptoms of temperature-related issues. He should instruct any swimmers who are showing signs and symptoms to get out of the pool and take steps to warm up.

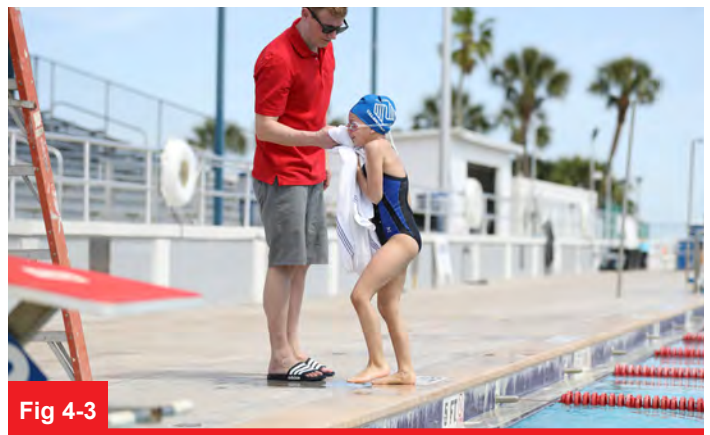


Fig 4-3

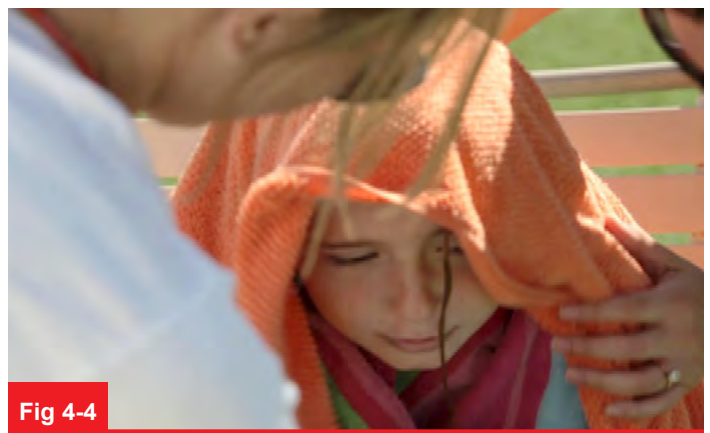


Fig 4-4

## HEAT-RELATED EMERGENCIES

*Coach Bailey is conducting an outdoor swim practice at midday. It is sunny, hot and humid. The air temperature is 103° F. The swimmers are complaining that the water is too hot and several say that they feel nauseated and dizzy. Coach Bailey is wearing a large straw hat and drinking water. Her assistant is flushed, sweating profusely and complaining of a headache. Coach Bailey tells the swimmers and her assistant that it will be just as hot and uncomfortable at the championship meet next weekend, so they all better get used to the conditions. She continues the practice. Was Coach Bailey correct in her actions?*

Just as hypothermia occurs when the body cannot effectively warm itself, heat-related emergencies can occur on hot, humid days when the body is not able to effectively cool itself through sweating or perspiration. As a result, the body temperature rises, and a person can become seriously ill. Heat-related emergencies can even be life-threatening.

Though it might seem hard to believe that someone could overheat in a pool, it can and does happen. Young swimmers and lean swimmers are particularly vulnerable (Figure 4-5). But anyone who exerts themselves or exercises in the heat is at risk. As a coach, you are too! Trouble occurs when fluid is lost during heavy sweating. Swimmers do sweat during workouts, even in water.

There are three kinds of heat-related emergencies: heat cramps, heat exhaustion and heat stroke. The key is being able to recognize the signs and symptoms of heat-related emergencies before they progress to a serious threat.

- Heat cramps are painful muscle spasms that usually occur in the legs and abdomen. Heat cramps are the least severe of the heat-related emergencies.
- Heat exhaustion is an early indicator that the body's cooling system is becoming overwhelmed. Signs and symptoms of heat exhaustion include:
  - Cool, moist, pale, ashen or flushed skin.
  - Headache, nausea and dizziness.
  - Weakness and exhaustion.
  - Heavy sweating.

- Heat stroke occurs when the body's systems are overwhelmed by heat, causing them to stop functioning. Heat stroke is a life-threatening condition. Signs and symptoms of heat stroke include:
  - Changes in level of consciousness (LOC).
  - Skin that is hot to the touch.
  - Skin that is wet or dry or appears red or pale.
  - Vision disturbances.
  - Seizures.
  - Vomiting.
  - Rapid and shallow breathing.
  - Rapid and weak pulse.
  - Lack of sweating.

To care for someone suffering from a heat-related illness:

- Move the person to a cool place.
- Loosen tight clothing.
- Remove perspiration-soaked clothing.
- Cool the person by spraying them with cool water or applying cool, wet towels to the skin.
- Fan the person.
- Encourage the person to drink small amounts of a commercial sports drink, coconut water or milk, if the person is conscious and able to swallow. Give water if none of these drinks are available.



Fig 4-5

If the person refuses water or vomits, has a mental status change, vision disturbance or a seizure, or if you suspect heat stroke:

- Send someone to summon EMS personnel immediately.
- Take steps to rapidly cool the person as soon as possible by any means available.
  - Preferably immerse the person up to their neck in cold water, if safe to do so.
  - Place ice-water-soaked towels over the person's entire body, rotating towels frequently.
  - If bags of ice are available, place them on the person's body, over the towels.
- If you are not able to measure and monitor the person's temperature, apply rapid cooling methods for 20 minutes, or until the person's condition improves or EMS personnel arrive.
- Give care as needed for other conditions that you find.

See the **Resources** section of the course for a video segment on heat-related emergencies.

*So, was Coach Bailey correct?* Coach Bailey may have been jeopardizing the health and safety of her athletes, her assistant and herself. She should be able to recognize the signs and symptoms of heat cramps, heat exhaustion and heat stroke. Based on the complaints, some of the swimmers and Coach Bailey's assistant may already be developing signs and symptoms of heat exhaustion.

The best prevention strategy for heat-related emergencies is proper hydration. Staying hydrated helps to make sure the fluids lost from sweating are replaced, which keeps fluid levels in the body balanced and gives body tissues what they need to function well. Keep these additional points in mind:

- Staying properly hydrated is important for everyone—your swimmers, your assistants and you! Remember, working or exercising strenuously in the heat leads to sweating. Just because swimmers are exercising in water does not mean that they do not get hot or sweat.
- Swimmers may not realize they are sweating because their skin is moist from being in the water. The large amounts of fluid lost while sweating need to be replaced, and as the coach, you need to make sure your swimmers drink fluids before, during and after practice to stay hydrated. Use the following guidelines to help your swimmers stay hydrated:
  - Encourage your swimmers to drink water; it is the best choice of fluid. Alternatively, encourage fluids

such as commercial sport drinks, fruit juices or milk.

- During practice, encourage your swimmers to drink a few ounces every 15 to 20 minutes, or however much they need to never feel thirsty. The feeling of thirst means that the body is already dehydrated.
- Discourage swimmers from gulping down fluids only at the end of practice.
- If the practice is longer than 90 minutes, advise your swimmers to use a sports drink specifically, because sports drinks are enhanced with the necessary electrolytes the body loses during a long workout.
- And lastly, remind swimmers that they should continue to replace fluids after practice is done.

Sunburn can also occur while swimming or being on the pool deck, even if it's cloudy. Encourage the use of “broad-spectrum” sunscreen or sunblock with a sun protection factor (SPF) of at least 30 for your coaches and swimmers. Sunscreen or sunblock should be applied to all exposed skin at least 15 minutes before going outside and should be reapplied every two hours and after swimming or sweating.

## SOFT TISSUE INJURIES

Soft tissues are the layers of skin and the fat and muscle beneath the skin's outer layer. An injury to the body's soft tissue is called a wound. Any time the soft tissues are damaged or torn, the body is threatened.

### Controlling External Bleeding

*As Coach Applegate arrives at the pool's parking lot for practice late in the afternoon, he sees two of his swimmers, Natalie and Megan, rushing into practice. All of a sudden, Natalie trips and falls, dropping her glass bottle in the parking lot. She avoids hitting her head, but suffers a deep laceration to her forearm that is actively bleeding. The scene is safe. Coach checks Natalie and finds that she is awake, alert and is not having trouble breathing. She has no other obvious injuries, except for her bleeding forearm. Coach Applegate tells Megan to go get the first aid kit.*



*Megan quickly returns with the kit and Coach puts on nitrile, latex-free disposable gloves. Then he puts a gauze pad on the wound and applies pressure for a few seconds. Next he elevates the arm over the level of the heart to stop the bleeding. After about 30 seconds, Coach removes the pad to check the wound. It is still bleeding. Why? Is this the correct procedure?*

Scrapes, cuts and puncture wounds are soft-tissue injuries. Whether superficial or serious, there is one thing that nearly all types of soft-tissue injuries have in common, and that is external bleeding. While most bleeding you encounter as a coach will likely be minor, all bleeding must be carefully treated (Figure 4-6).

The most important thing to remember is the use of standard precautions. As you learned earlier, you do not want to become a victim yourself by becoming exposed to bloodborne pathogens. Always protect yourself by putting on disposable gloves and any other personal protective equipment that might be needed, such as a face shield or protective eyewear if there is a likelihood that blood could splash or spurt. Once protected, you will need to take steps to stop the bleeding as soon as possible.

When giving care for a bleeding wound, keep in mind the following:

- Gloves are used as part of standard precautions anytime there is a risk of exposure to a person's blood or body fluids.
- The time it takes for bleeding to stop varies, but bleeding from small cuts usually stops by itself within 10 minutes.
- When giving care, you need to control the bleeding by placing a sterile dressing over the wound and applying direct pressure using the flat part of your fingers.
- If the wound is large, you may need to use more pressure. Try applying pressure with your full hand.
- If the dressing becomes saturated with blood while you are applying pressure, you should not remove it. Instead, place additional dressings over the soaked bandage and reapply direct pressure. Then cover the dressings with a bandage to hold them in place.
- Keep the injured person warm and positioned on their back.

See the **Resources** section of the course for a video segment on caring for a bleeding wound.

*Did Coach Applegate act appropriately? Coach Applegate acted correctly and incorrectly. Coach was correct in telling someone to get the first aid kit, putting on gloves and applying pressure to the wound. But he should have had someone call 9-1-1 when he found that the bleeding was not stopping. Also he should not have elevated the arm. Elevation is no longer recommended to help stop bleeding. Plus, Coach Applegate should not have removed the blood-soaked dressing. Instead he should have added more dressings on top of one another and continued to apply direct pressure.*

## Shock

*Several minutes have gone by since Natalie cut her arm on the glass. Coach has moved her to a bench nearby where she is sitting quietly and waiting for her parents to come back. Coach notices that the bandage has soaked through again and he cannot seem to stop the bleeding. He applies more pressure to the wound and continues to check her. While talking with her, Coach notices that Natalie is becoming pale and sweaty. He asks her how she feels and she says, "a little nauseous, but I really would like something to drink." Should Coach Applegate offer her some water? What other actions may be appropriate?*

There may be a time when you are not able to stop a wound from bleeding. And this can lead to another danger. Specifically, if bleeding is severe enough and cannot be controlled, a serious, life-threatening condition called shock can occur.



Fig 4-6



## TOURNIQUET

A tourniquet is a device placed around an arm or leg to constrict blood vessels and stop blood flow to a wound. In some life-threatening circumstances, you may need to use a tourniquet to control bleeding as the first step, instead of maintaining direct pressure over several minutes. Examples of situations where it may be necessary to use a tourniquet include:

- Severe, life-threatening bleeding that cannot be controlled using direct pressure
- A physical location that makes it impossible to apply direct pressure to control the bleeding (e.g., the injured person or the person's limb is trapped in a confined space)
- Multiple people with life-threatening injuries who need care
- A scene that is or becomes unsafe

If you find yourself in a situation where you need to apply a tourniquet, a commercially manufactured tourniquet is preferred over a makeshift device. Follow the manufacturer's instructions for applying the tourniquet. Although tourniquets may have slightly different designs, all are applied in generally the same way.

To apply a manufactured tourniquet:

1. Position the tourniquet around the wounded extremity approximately 2 inches above the wound, avoiding the joint.
2. Secure the tourniquet tightly in place according to the manufacturer's instructions.
3. Tighten the tourniquet by twisting the rod (windlass) until the flow of bright red blood stops, and then secure the rod in place.
4. Note and record the time that you applied the tourniquet, and give this information to EMS personnel. Once the tourniquet is applied, it should not be removed until the person reaches a healthcare facility.

If it is necessary to use a tourniquet and a commercially manufactured tourniquet is not available, make a tourniquet using a strip of soft material that is 2 to 4 inches wide (such as a triangular bandage that has been folded into a tie) and a short, sturdy stick or other rigid object. Tie the stick or other rigid object into the material and twist it to tighten the makeshift tourniquet.

**Note:** Do not cover the tourniquet with clothing.

Shock occurs when the circulatory system fails to deliver enough oxygen-rich blood to the body's tissues and vital organs. Without enough blood supply, the body's organs do not function properly and a series of responses is triggered as part of the body's attempt to maintain adequate blood flow. You will need to recognize the signs and symptoms of shock in order to identify when it is occurring, including the following:

- Restlessness or irritability
- Altered level of consciousness (LOC)
- Pale or ashen, cool, or moist skin
- Nausea or vomiting

- Rapid breathing and pulse
- Excessive thirst

When signs and symptoms of shock appear, it usually means that the person's condition is worsening. You need to act fast. When a person is in shock, first aid by itself will not be effective. Most importantly, a person in shock needs emergency medical care as soon as possible.

To minimize the effects of shock:

- Make sure that EMS personnel have been summoned.
- Have the person lie down flat on their back.

- Cover the person with a blanket to prevent loss of body heat (Figure 4-7).
- Comfort and reassure the person until EMS personnel arrive and take over.
- Administer emergency oxygen if you are trained to do so.
- Monitor the person's condition and watch for changes in their level of consciousness (LOC).
- Control any external bleeding.
- Keep the person from getting chilled or overheated.

See the **Resources** section of the course to watch a video segment on caring for a person in shock.

*How should Coach Applegate act? Coach Applegate needs to be alert that his swimmer is showing signs and symptoms of shock. This is a life-threatening situation that also requires someone to call 9-1-1, if this has not been done so already. Coach Applegate should have the swimmer lie flat on the ground and keep her warm, using whatever items are available, such as dry towels, blankets, jackets or other items. Most importantly, he should NOT give her any fluids to drink.*

## Burns

*After a long sunny day on the pool deck conducting staggered practices for the club team, Coach Clarke heads into the office to check on her assistants. As Coach enters the office, she hears her assistants and several lifeguards commenting that Coach Luke clearly forgot to use sunscreen on his back and neck. The area is bright red and a few small blisters have formed. One of the assistants is about to place an ice pack on his back while another opens a bottle of aloe. Are Coach Clarke's assistants doing the right thing?*

Burns are another type of soft tissue injury. While they are often caused by an obvious heat source such as an open flame or steam, they can also come from things like chemicals, electricity and radiation. Solar radiation causes the type of burn most often seen around swimming pools: sunburn. While sunburn is likely to be the most common burn injury you will provide help for as a coach, you also need to be prepared to care for other more serious burns

that happen under your watch. To do so, you will need to understand all types of burns, especially because each type has a unique set of care steps.

Burns may be classified by their depth as follows:

- Superficial burns, affecting only the top layer of skin and appearing as red and dry skin with pain and possible swelling
- Partial-thickness burns, involving the top layers of the skin and appearing red, with open or closed blisters and pain
- Full-thickness burns, affecting all layers of the skin and some or all of the underlying structures with skin appearing brown or black and underlying tissues appearing white; with or without pain

Burns from the sun are usually superficial. But when blistering appears, a partial-thickness burn results. If a person experiences sunburn, the care is the same as if the person was burned by heat. You would remove the person from the source of the burn and cool the burn, usually with large amounts of cool running water. Then you would cover the burn loosely with a sterile dressing. You should NEVER apply ice or ice water to a burn because these methods can cause the body to lose heat rapidly and further damage the tissues. NEVER break any blisters or use any type of ointment or butter on a burn.

To care for burns, follow the general procedures for a land emergency. If the scene is safe, check the person for life-threatening conditions. Summon EMS personnel if the condition is life-threatening.

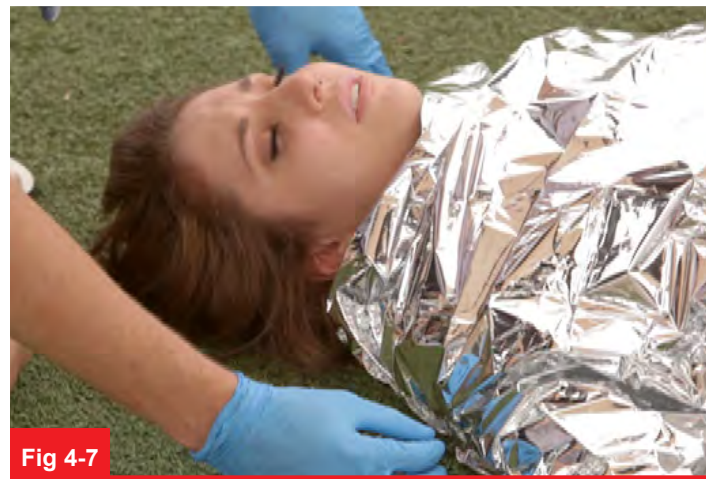


Fig 4-7

The following general guidelines apply for all types of burns:

- Stop the burning by removing the person from the source of the burn.
- Cool the burned area with large amounts of cool or cold tap water for at least 10 minutes. If cool or cold water is not available, use a cool or cold compress that is clean.
- Monitor the person for hypothermia when cooling large burns.
- Cover the burned area loosely with a dry, sterile dressing.
- Comfort and reassure the person.

For a radiation (sun) burn, after you have cooled the burned area, protect it from further damage by keeping it out of the sun.

*Did the assistant plan on doing the right thing? Coach Luke has suffered a partial-thickness burn by the sun based on the reddened skin and the appearance of blisters. He should be seen by a healthcare provider. He is out of the sun, so the source of the burn is removed. The assistant should cool the area with cool water (tap water) for several minutes and until pain resolves. Do not apply ice packs or ointments of any kind.*

## FIRST AID KIT

*Coach Johnson is cleaning the coach's office following the training season that just ended. One of the last things he checks is the first aid kit. He notices that several items are missing. The first practice of the new season starts the next day. What should he do?*

The first aid kit needs to be refilled using the club's first aid kit check list prior to the first practice. All items should be checked for any expiration dates as well. It is important that first aid kits should be checked and refilled as items are used but also on a scheduled basis such as at the beginning of each season (short course and long course).

## MEDICAL CONDITIONS IN SWIMMERS

A wide range of medical conditions may affect swimmers, which is beyond the scope of this text. However, the most common conditions are discussed. The best way for a coach to be aware of any potential problem is to have every team member complete a medical history once a year. This information can alert you to the need to observe a specific individual carefully.

### Asthma

*Coach Gordon has noticed that an increasing number of swimmers in his training group are bringing quick relief inhalers to practice. The inhalers are lying all over the pool deck. He is tired of tripping over them and announces that from now on all inhalers are to be in the swimmers' bags, which are stored in the locker room during practice. Is this an appropriate way to handle the problem with the inhalers? What factors may be contributing to the increased use of inhalers?*

Asthma is a common medical condition, and chances are one of the swimmers on your team has it. If so, you will need to know what to do if that person has an asthma attack or their condition worsens.

When someone has asthma, the airways (the small tubes in the lungs through which a person breathes) have ongoing swelling. When exposed to an asthma trigger, the airways get even more narrow or blocked and the person has trouble breathing. Possible triggers may include air pollution, odors, temperature extremes and exercise. However, a trigger for one swimmer may not be the same as a trigger for another swimmer.

An asthma attack is the sudden worsening of asthma signs and symptoms caused by a tightening of muscles around the airways. Some signs and symptoms that a person may be having an asthma attack include heavy breathing and difficulty speaking in full sentences. See *Signs and Symptoms of Asthma*.

## SIGNS AND SYMPTOMS OF ASTHMA

- Coughing or wheezing
- Coughing that occurs after exercise, crying or laughing
- Difficulty breathing
- Shortness of breath
- Rapid, shallow breathing
- Sweating
- Tightness in the chest
- Inability to talk without stopping frequently for a breath or speaking in one- to three-word sentences
- Bent posture with shoulders elevated and lips pursed to make breathing easier

Many people with asthma use inhalers for their condition. These inhalers can be either *quick-relief inhalers* (inhaled medication used to stop an acute asthma attack) or *long-term inhalers* (inhaled medication used to prevent and/or avoid an asthma attack) and may involve the use of a spacer for effective delivery of the medication to the lungs (Figure 4-8). As a coach, you need to know if one of your swimmers has asthma, whether the swimmer uses a rescue inhaler, and if so, whether the swimmer carries the rescue inhaler with them.

In the event a swimmer has an asthma attack, you need to know what to do. This means staying calm, getting the swimmer out of the water and having the swimmer use their quick relief inhaler. See *Assisting with an Asthma Inhaler*.



Fig 4-8

In addition, follow these guidelines:

- Work with an athlete to be sure that any medication is readily available during swim practice. Appropriate places may include equipment bags at the end of the lane or in another agreed-upon, easy-access location. All medications should be labeled with the swimmer's name and prescription information.
- Make sure that the athlete keeps the inhaler in a plastic bag for protection.
- Be alert if the athlete is using an inhaler more than 2 to 3 times during a workout. This is a red flag that indicates that the swimmer's asthma is not under control and/or the athlete is not using the medication as directed.
- Question the athlete about their use of the inhaler, such as "Did your healthcare provider give you specific directions on how and when to use it? What are those directions?"
- If necessary, consider talking with the athlete's parents about the concern.
- Avoid making medical recommendations.
- Encourage the athlete to speak with their healthcare provider and get a written plan of action for dealing with the attacks if they need to use the quick-relief inhaler frequently. Be sure to share this plan with all the coaches responsible for the swimmer on the pool deck.

See the **Resources** section of the course to watch a video on caring for a person experiencing an asthma attack.



## ASSISTING WITH AN ASTHMA INHALER

You may need to assist a person with asthma in using an inhaler. Before doing so, obtain consent and then follow these general guidelines, if local protocols allow:

1. Help the person sit up and rest in a position comfortable for breathing.
2. If the person has prescribed asthma medication, help them take it.
3. Shake the inhaler and then remove the cover from the mouthpiece. You or the person should position the spacer if using one.
4. Have the person breathe out fully through the mouth and then place the lips tightly around the inhaler mouthpiece.
5. Have the person inhale deeply and slowly as the person (or you, if the person is unable) depresses the inhaler canister to release the medication, which they then inhale into the lungs.
6. Have the person hold their breath for a count of 10. If using a spacer, have the person take 5 to 6 deep breaths with the spacer still in the mouth, without holding their breath.
7. Monitor the person's condition.
8. If breathing does not improve after 5 to 15 minutes or if it worsens, call 9-1-1.

Remember, it's not always easy to spot an oncoming attack. If ever you are in doubt or if the person's condition appears to be worsening despite using the rescue inhaler, call 9-1-1 or the local emergency number.

*Were Coach Gordon's actions appropriate?* The inhalers should be in the swimmers' equipment bags on the pool deck, either at the end of the lane or at another designated location on deck, such as on a specific table or pinned to a bulletin board. Alternatively, the coach could designate a place for the inhalers, but they must be readily available for the swimmers. Banning them to the swimmers' bags on the bleachers or locker rooms could be problematic in an emergency situation. Numerous factors may be contributing to the increased use of inhalers including the facility's air quality and temperature as well as the presence of any odors.



Fig 4-9

### Exercise-Induced Asthma

*Swim championships are just around the corner and Coach Lee's team is working hard to prepare for another successful meet. Following the opening warm-up, one of the swimmers, Sarah, appears to be struggling and elects to grab a kickboard instead of doing freestyle sprints. Coach Lee is not sure, but it appears that Sarah cannot catch her breath. When Coach Lee asks what is going on, Sarah says, "I'm just a little winded but I'll be fine." After her next lap, Coach Lee checks in with Sarah and realizes that she can only speak one or two words without taking a breath. He also notices that she is making a whistling noise when she exhales. What should Coach do?*

Exercise-induced asthma (more recently called exercise-induced bronchospasm) is asthma that occurs with exercise, either during the activity or soon after. As a coach, you need to be especially aware if exercise is an asthma trigger for one of your swimmers. The signs and symptoms and care for exercise-induced asthma are the same as for an athlete experiencing any asthma attack (Figure 4-9). See the **Resources** section of the course to watch a video on caring for a person experiencing an asthma attack.

Athletes with asthma may need an individualized exercise program to help prevent an attack. If not, you may want to help organize one for them. In many cases, stretching, jogging and short sprints will alleviate chest tightness before competition. Programs must be set up for swimmers depending on their individual pattern of exercise-induced asthma. There are three main areas of focus for asthmatic swimmers and their coaches when developing such a program.

1. Develop a baseline of knowledge about asthma in general, as well as the swimmer's particular case. No two asthma cases are the same. The more you know about your swimmer's particular case and symptoms, the better they can be managed. The best way to go about this is through a healthcare provider. Understand the importance and purpose of the swimmer's medications. Learn how weather, chemicals in the pool, simple upper respiratory infections and allergies may trigger the swimmer's asthma.
2. Organize a plan of action with the swimmer and healthcare provider. The plan should include:
  - *The healthcare provider's instructions* including what medicines to take, when to take them and the proper techniques for inhaler use by the swimmer.
  - *Swimming-related plans*, such as a longer warm-up before beginning a main set to help the swimmer's lungs become acclimated to the environment and exercise in general and warm-up and warm-down at competitions to help the swimmer's body be able to handle the lack of oxygen during a race.
  - *Out-of-water influences* including using a proactive approach such as adhering to the medication plan and avoiding triggers.

3. Focus on the mental side of asthma. Many swimmers listen to their healthcare providers, take all of their medications at the proper time and dosage and even try to avoid the allergies that trigger their asthma. But some never fully believe in themselves and their ability to deal with their disease. Empower the asthmatic athlete to achieve.

Dealing with a medical condition such as asthma can be draining both physically and mentally. See *Personal Words from Peter Vanderkaay, Three-time Olympic Medalist* for an example of how an elite athlete dealt with the condition.

*What should Coach Lee do?* Coach Lee is correct in determining that his swimmer is clearly having difficulty breathing. Most likely, she appears to be having an asthma attack. Although many things including exercise can trigger asthma, the treatment is the same. First, Coach Lee should remain calm and get the swimmer out of the water. If the swimmer has asthma and has a quick-relief inhaler, she should self-administer it or be assisted to use it by a trained individual. However, if the medication does not work or if she has no history of asthma and is in visible distress, Coach Lee or another person should call 9-1-1 or the local emergency number.

## Personal Words from Peter Vanderkaay, Three-time Olympic Medalist

I started swimming competitively at age 7 and I was diagnosed with asthma at age 10. Initially, it was scary and discouraging to think that asthma would be something that could keep me out of the pool. At the time, I didn't understand the disease and I wasn't educated on how to deal with it. I struggled with asthma for much of my youth because I wasn't proactive in working to control it.

As I got older, I became much better at communicating with my doctor to make sure it was managed properly. During this time, I realized that it was no longer an athletic death sentence to have asthma. I learned that many Olympic level swimmers also had asthma and it didn't stop them from reaching the pinnacle of the sport.

Asthma taught me to be tougher because it was something I always knew I had to overcome. I'm very competitive and I knew that if I could out-train people while dealing with asthma, there's no way they could beat me come race day. I truly believe that what I originally thought was a disadvantage, morphed into an advantage because in the back of my mind, I knew I always worked harder because of my asthma. Mentally, it gave me an edge over my competitors.

## Vocal Cord Dysfunction

Vocal cord dysfunction is an increasingly common condition that athletes are being diagnosed with (Figure 4-10). It is a possible cause for non-critical breathing difficulties associated with sports. Vocal cord dysfunction is often initially misdiagnosed as asthma, but it does not respond to standard asthma treatment such as inhalers. Treatment, which typically includes various breathing exercises, is usually helpful in treating this condition. The diagnosis and treatment plan from the athlete's healthcare provider should be shared with you, the coach, to assure safe and progressive improvement.

## Seizures

A seizure is a loss of body control that occurs when brain functions are disrupted by injury or illness. Even if you know someone on your team is prone to seizures, it can be a bit scary to witness, especially when a swimmer has a seizure in a pool.

If someone on your team has a seizure disorder such as epilepsy, they most likely have medications to control the seizures. Yet even with medication, the swimmer may still have occasional seizures, so you should be prepared.

If one of your swimmers begins to have a seizure, the goal for care is to simply protect the person from injury during the seizure. If the seizure happens on dry land, you should make sure there is nothing close to the person that could cause them harm while the seizure is occurring. If the person is in the water, you will also need to make sure the airway stays open by supporting the person's head above water (Figure 4-11). You should call 9-1-1 or the local emergency number when appropriate.

If a swimmer has a seizure in the water:

- Call or have someone else call 9-1-1 or the local emergency number.
- Support the swimmer with the head above water until the seizure ends.
- Get the swimmer out of the water as soon as possible after the seizure (since they may have inhaled or swallowed water).
- Place the swimmer face-up on the deck and check for breathing and other injuries. Give ventilations or CPR if needed. If the swimmer vomits, turn the swimmer on their side to drain fluids from the mouth. Sweep out the mouth with a gloved finger.

See the **Resources** section of the course to watch a video on how to care for a person having a seizure.



Fig 4-10

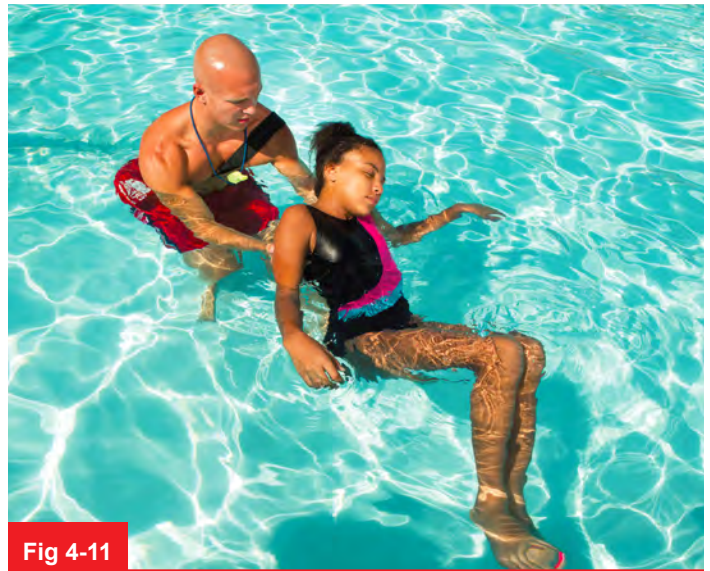


Fig 4-11



## Anaphylaxis and Allergic Reactions

*After a successful meet, the team is celebrating on the bus ride home with some homemade snacks supplied by the swimmers' parents. As Coach Baker walks up the aisle to talk to some swimmers, he hears a commotion toward the back of the bus. One of swimmers is covered in a rash and has some hives on his face and neck. He is awake, alert and sitting comfortably. His only complaint is that he "feels a little itchy." Coach Baker knows that this swimmer has a history of peanut allergies. So he asks, "Did you eat anything with peanuts in it?" Unfortunately, no one knows what's in the cookies he just ate. Because of his allergy history, his epinephrine auto-injector is in the first aid kit in the front of the bus. The bus is about eight minutes from returning home to meet the parents. What should Coach Baker do?*

Seasonal allergies are common, and can be an annoyance, but are not usually cause for much worry in terms of the health and well-being of your team. But what if someone on your team has an allergy that is more serious—even life-threatening? As with any emergency, you have to be prepared to respond!

Allergic reactions are caused when the body's immune system reacts to substances called antigens or allergens. When the body recognizes an allergen, it responds by releasing antibodies to fight off these foreign substances and remove them from the body. Common allergens include foods, insect bites or stings, pollen, animal dander, food additives, medication and chemicals. Typically, with a mild reaction, a rash or hives may appear and the person may complain of itching. However, if the reaction is severe, it can lead to anaphylaxis, a life-threatening condition requiring immediate care.

Anaphylaxis usually occurs suddenly within seconds or minutes after contact with the substance. The skin or area of the body that comes in contact with the substance usually swells and turns red.

Possible signs and symptoms of anaphylaxis include:

- Trouble breathing.
- Swelling of the face, neck, tongue or lips.
- A feeling of tightness in the chest or throat.
- Skin reactions (such as hives, itchiness or flushing).
- Stomach cramps, nausea, vomiting or diarrhea.
- Dizziness.
- Loss of consciousness.
- Signs and symptoms of shock (such as excessive thirst; skin that feels cool or moist and looks pale or bluish; an altered level of consciousness [LOC] and a rapid, weak heartbeat).

As a coach, you need to find out if any of your swimmers have allergies and what these allergies are. Also, you need to know what the swimmer does if they experience an allergic reaction. For example, does the swimmer use an auto-injector and if so, where does the swimmer keep it?

If you suspect anaphylaxis, call 9-1-1 or the local emergency number if the person is having trouble breathing, complaining of tightness in the throat, explains that they are subject to severe allergic reactions or becomes unresponsive. Closely check the person from head to toe and help with measures to relieve any respiratory distress, such as having the person rest in the most comfortable position for breathing. See the **Resources** section of the course to watch a video on anaphylaxis.

Many times, individuals who have experienced anaphylaxis carry a prescribed epinephrine auto-injector. The most common brand prescribed is Epi-Pen™. If it is available, you should help the person use it. See *Assisting with an Epinephrine Auto-Injector*.



## ASSISTING WITH AN EPINEPHRINE AUTO-INJECTOR

To assist with administering epinephrine via an Epi-Pen™:

1. Check the label on the auto-injector. If the medication is visible, check to make sure the medication is clear, not cloudy.
  - If the medication is expired or cloudy, do not use it.
2. Determine whether the person has already given themselves a dose of the medication. If the person has, help them administer a second dose only if EMS personnel are delayed and the person is still having signs and symptoms of anaphylaxis 5 to 10 minutes after administering the first dose.
3. Locate the outer-middle of one thigh to use as the injection site.
  - Make sure there is nothing in the way, such as seams or items in a pocket.
4. Grasp the auto-injector firmly in one fist and pull off the safety cap with your other hand.
5. Hold the orange tip (needle end) against the person's outer thigh so that the auto-injector is at a 90-degree angle to the thigh.
6. Quickly and firmly push the tip straight into the outer thigh. You may hear and feel a click.
7. Hold the auto-injector firmly in place for 10 seconds, then remove it from the thigh and massage the injection site with a gloved hand for several seconds or have the person massage the thigh if gloves are not immediately available.
8. Check the person's condition and watch to see how they respond to the medication.
  - If the person is still having signs and symptoms 5 to 10 minutes after administering the first dose and EMS personnel have not arrived, help the person to administer a second dose.
9. Place the used auto-injector in its plastic carrying case or another hard plastic container with the tip facing down. Give it to EMS personnel when they arrive. (Figure 4-12)

Check state and local regulations regarding use of prescription and over-the-counter medications.



Fig 4-12

The person's healthcare provider may recommend that the person carry an antihistamine in their anaphylaxis kit, in addition to epinephrine. An antihistamine is a medication that counteracts the effects of histamine, a chemical released by the body during an allergic reaction. Antihistamines are supplied as pills, capsules or liquids and are taken by mouth. The person should take the antihistamine according to the medication label and their healthcare provider's instructions.

*So, what should Coach Baker do?* Coach Baker is correct in suspecting that the swimmer is having an allergic reaction based on his history of a peanut allergy. The swimmer's signs and symptoms of the rash and itching most likely indicate a moderate allergic reaction, not anaphylaxis (a severe reaction). There are no indications that the swimmer is having any difficulty breathing, confusion, or swelling of the face, throat or tongue. As such, epinephrine may not be indicated in this situation. However, Coach Baker should continue to monitor the swimmer for changes in his condition. And perhaps a call to the parents for additional guidance would be prudent. If the swimmer's condition changes and he develops trouble breathing, signs and symptoms of shock or swelling of the face, tongue or throat, then Coach Baker should assist the swimmer in using the epinephrine auto-injector. In addition, someone on the bus should call 9-1-1 or the local emergency number. The bus should pull over and await the arrival of EMS personnel.

## Diabetes

*The race has begun, but Coach Martin's swimmer Grace fails to start and just seems dazed on the block. The official calls Coach Martin over to check on Grace because he is not sure what is going on. As Coach Martin approaches her, Coach notices that Grace is a little pale and not acting like herself. Coach Martin asks "What's wrong?" Grace says, "I'm late for school and have to catch the bus." Just then Coach Martin remembers that Grace's medical release form says she is a diabetic and takes insulin. Should Coach Martin give Grace some sugar?*

People who are diabetic sometimes become ill because there is too much or too little sugar in their blood. Many people who are diabetic use diet, exercise and/or

medication to control their diabetes. Often, people who have diabetes know what is wrong and will ask for something with sugar if they are experiencing symptoms of low blood sugar (hypoglycemia). They may carry some form of sugar with them, such as glucose tablets. If the person is awake and can safely swallow and follow simple commands, give them sugar. If it is available, give 15 to 20 grams of sugar in the form of glucose tablets to the person. If not available, 15 to 20 grams of sugar from several sources can be given, including glucose- and sucrose-containing candies, jelly beans, orange juice or whole milk. If the person has hypoglycemia, sugar will help quickly. If the problem is high blood sugar (hyperglycemia), giving the sugar will not cause any immediate harm. Give something by mouth only if the person is awake and able to safely swallow.

Always summon EMS personnel for any of the following circumstances:

- The person is unresponsive.
- The person is responsive but not fully awake and is unable to swallow.
- The person does not feel better within about 10 to 15 minutes after taking sugar, or gets worse.
- A form of sugar cannot be found immediately (In that event, do not spend time looking for it.)

See the **Resources** section of the course to watch a video segment on diabetic emergencies.

*Should Coach Martin give Grace some sugar?* Yes. Although Grace is confused, she is awake, able to swallow, able to answer questions and follow simple commands. So Coach Martin should give Grace sugar in some form, such as clear fruit juice, milk, glucose tablets or paste or even water mixed with table sugar. Diet sodas should be avoided because they do not contain sugar. Using hard candies should be limited because they are a choking hazard. However, if they are the only source of sugar available, then they can be used. If possible, Grace's parent or guardian should be escorted to the pool deck to assist in evaluation and management of her condition. Parents and guardians should be familiar with how their child responds to blood sugar alterations and can be helpful in management of the situation. Coach Martin should continue to monitor Grace closely and call 9-1-1 or the local emergency number if she does not improve within 5 to 15 minutes of taking the sugar. Coach Martin should also call 9-1-1 or the local emergency number if Grace is unable to swallow or becomes unresponsive.

## COMMON SWIMMING-RELATED INJURIES

There are certain injuries that are more common in swimmers than in other athletes. As a swim coach, you need to know how to deal with these! Among those you are most likely to see are injuries to the shoulders, groin, neck and back.

Many times, pain during swimming is related to incorrect or poor technique (Figure 4-13). Poor body rotation,



Fig 4-13

## OVERUSE INJURY

Overuse injury is as the name implies, an injury that occurs when repeated stress is placed on a body part. Unlike a fracture and concussion, which are acute injuries, repetitive joint overuse injury occurs gradually over time resulting in inflammation, muscle strain and possibly, tissue damage. With continued use and subsequent stress on already inflamed tissues and joints, the area is unable to repair itself, resulting in even more trauma to the area.

In swimming, “swimmer’s shoulder” or rotator cuff tendonitis is the most common type of overuse injury. The muscles and tendons of the shoulder joint become traumatized and inflamed. It may occur from an imbalance in the shoulder muscles as well as poor stroke form.

Overuse injuries are difficult to identify and diagnose. Often the athlete overlooks the pain, initially, because it doesn’t interfere with their ability to function. But with continued use, a more severe injury can occur.

The majority of overuse injuries can be prevented. To help reduce the risk of overuse injury, watch for the following:

- Complaints of tingling, numbness or pain in a body area
- Reports of soreness or stiffness in the neck or spine
- Reports of popping or clicking sensations in a joint

In addition, actively work to prevent overuse injuries by:

- Encouraging appropriate non-swimming muscle strengthening and stretching exercises
- Gradually and progressively increasing yardage, intensity and duration to minimize the risk of overuse injury and provide adequate resting time
- Varying the day-to-day workouts
- Ensuring adequate time for warming up and warming down, including appropriate stretching exercises before and after the session
- Making sure swimmers drink plenty of fluids before, during and after workouts
- Urging athletes to report any serious aches and pains during or after workouts
- Reminding athletes that swimming through the pain or ignoring it will only lead to further injury

If you suspect an overuse injury, encourage the athlete to see a healthcare provider.

excessive or insufficient movement, misalignment of the body and even poor breathing technique can all cause painful injuries in a swimmer. However, you should not assume that poor technique is the cause of a pain. After all, in some cases pain *forces* poor technique.

Injury and pain can also be due to the repeated stress placed on a body part. This type of injury occurs gradually over time. See *Overuse Injury*.

Another thing to keep in mind is that pain during swimming can be a result of outside factors, too. Common culprits include carrying a backpack incorrectly, bad posture while using a computer or consistently clamping the telephone between the ear and shoulder. If someone is complaining of pain, always discuss possible nonswimming causes with the injured swimmer and the parent or guardian, too.

## The Shoulders

Shoulder function, including stability, proper motion and painless function is highly dependent on the coordinated working of many muscle groups. These include the muscles around the shoulder, referred to as the rotator cuff, those that control the scapula or shoulder blade, muscles in the upper and lower back, as well as abdominal and pelvic muscles. The repetitive overhead activity of the swimming stroke can result in fatigue of these muscles. This in turn can lead to distinct changes in the stability and function of the shoulder.

Poor techniques that lead to shoulder pain include the following:

- Dropping the elbow during the recovery phase of freestyle
- Inadequate body rotation
- An overly wide swinging recovery

## The Groin

Groin pain and injury is most common in breaststrokes, who require a balance of flexibility and strength between their pelvic and thigh musculature, as well as a balance of lower abdominal strength. The thigh muscles originate off of the pelvic girdle, which is the center of core stability. A variety of muscles are constantly working against each other during the breaststroke kick. Flexibility is essential in the following muscles: quadriceps, hamstrings, adductors (inner thigh), abductors (outer thigh) and hip rotators. Often there is an imbalance between the strength of the quadriceps over the weaker hamstrings. The hamstrings get overloaded and strained, possibly leading to a groin injury. Preventing groin injuries is possible if the proper

balance of flexibility among different muscle groups as well as a balance of flexibility and strength throughout the hip and pelvic muscles is maintained. Poor techniques that lead to groin pain include the following:

- An overly wide breaststroke kick
- An overly narrow breaststroke kick
- Excessive breaststroke swimming
- Excessive breaststroke kicking

## The Neck and Back

The anatomy of the neck is very complex due to its function and great mobility. The bony part of the neck is known as the cervical spine and consists of seven vertebrae. The spinal cord runs through the vertebrae from the brain to the lower back with offshoots, known as spinal nerves, exiting between the vertebrae. These spinal nerves travel to the muscles, joints and skin of the hands, arms, shoulders, shoulder girdles, superficial muscles of the upper and lower back as well as the structures of the neck. Furthermore, there are many muscles in the neck, several of which span the neck and upper back. This means that pain, tingling, numbness or weakness in any of the areas mentioned above may originate in the neck.

Poor techniques that lead to neck and back pain include the following:

- Failure to maintain the body line of the neck and spine
- Looking ahead instead of down at the bottom of the pool during freestyle
- Insufficient body rotation
- Failing to tuck the chin during flip turns
- Excessive movement of the head and neck during breaststroke
- Untimely breathing during butterfly

## Care

If you know or think a swimmer is experiencing slight to moderate discomfort during swimming, evaluate the person's stroke technique right away and modify it as needed. If there is still discomfort, the swimmer should discontinue swimming right away. A swimmer experiencing *severe* pain during swimming must be removed from the workout. There is just no reason to buy into the old adage, "no pain, no gain." In either case, remember, always notify the parent or guardian as soon as possible and encourage the parent to contact the swimmer's healthcare provider. In the case of severe pain, the healthcare provider may



refer the swimmer to a sports medicine practitioner for an evaluation and diagnosis. With their permission, invite the sports medicine practitioner to a workout for on-site evaluation or discussion.

## Prevention

A comprehensive program to develop strength, endurance, balance and flexibility of the muscles is the best way to prevent swimming injury and pain. You should have your swimmers exercise all of the muscle groups involved in the swimming motion for a well-rounded approach.

[USA Swimming](#) has more information on preventing injuries.

## FIRST AID CONSIDERATIONS FOR OPEN-WATER SWIMMING

Open-water swimming is a unique experience that simply cannot be duplicated in any pool setting. And with the rewards come a unique set of challenges and first aid considerations. Water temperature, clarity, depth and water and weather conditions can all differ widely from location to location—but also from one minute to the next in the same location. Because of these variations, your approach to first aid may vary too. Of course, the principles are the same, regardless of where the first aid is being given, whether in the open water or on a rescue water craft or rescue board. See the [Resources](#) section of the course for more information on open-water swimming.

### First Aid Issues

First aid issues common in an open-water swimming environment include dehydration, hyperthermia and hypothermia. For each of these, prevention is the key. If an issue does arise, prompt action is necessary.

Depending on the type of aquatic environment, your swimmers could encounter certain marine life and suffer from a bite or sting. The stings of some forms of marine life not only are painful, but they can make the person feel sick, and in some parts of the world, they can be fatal. The side effects of a sting from an aquatic creature can include allergic reactions that can cause breathing and heart problems, as well as paralysis and death. If the sting occurs in water, the person should be moved to dry land as soon as possible. Emergency care is necessary if the person has been stung by a lethal jellyfish, does not know what caused the sting, has a history of allergic reactions

to stings from aquatic life, has been stung on the face or neck, or starts to have difficulty breathing.

The basic care steps for jellyfish stings are to remove the person from the water, prevent further injection of poisonous material by deactivating or removing nematocysts (stingers), and controlling pain.

There are some differences in specific care based on the region and the species of jellyfish. The supervisor of the aquatic facility should inform you of specific treatment recommendations and provide you with photographs of the jellyfish to aid in identification.

- To deactivate the stingers/tentacles for most types of jellyfish in most waters in the United States, remove any remaining tentacles with gloved hands, a towel or the pads of your fingers.
- Flush the injured part in salt water as soon as possible for at least 30 seconds to offset the toxin. Do not rub the wound or apply fresh water, ammonia, rubbing alcohol, vinegar or baking soda, because these substances may increase pain.
- Use hot-water immersion (as hot as can be tolerated) for at least 20 minutes, or until pain is relieved. If hot water is not available, dry hot packs or, as a second choice, dry cold packs also may be helpful in decreasing pain. Do not apply a pressure immobilization bandage.

### Safety Precautions

If your team is participating in an open-water meet, the safety director should always inform participants of the types of marine life, such as jellyfish, that are present in the region. They should also give specific treatment recommendations and provide photographs of the marine life to aid in identification.

Other safety precautions that should be taken before an open-water event include a mandatory safety briefing for all swimmers. Here the swimmers are briefed on potential hazards and instructed on hand signals to lifeguards should they need rescue. In addition, lifeguards are trained in pre-agreed hand signals to summon assistance from rescue boats and other rescuers. Open-water facilities are also required to provide specific medical equipment. The minimum medical equipment includes items such as:

- Pocket face mask
- One rescue flotation device for each responder
- Masks, snorkel and swim fins
- Binoculars

- 
- Radio and workable mobile phone
  - First aid kit, including supplies for lacerations
  - Cardiac defibrillator
  - Asthma inhaler/bronchodilator
  - Diphenhydramine (Benedryl®)
  - Benzodiazepine medication for seizure treatment
  - Epinephrine auto-injector
  - Intravenous fluids
  - Intravenous equipment such as needles/tubing
  - Oxygen and masks
  - Glucose tablets

**USA Swimming** has additional information on getting started in open-water swimming and a safety checklist for athletes. Open Water Swimming Rules are available from **Federation Internationale De Natation (FINA)**.

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# SKILL SHEETS

## REACHING ASSISTS

### Reaching Assist with Equipment

1. Brace yourself on the pool deck or pier surface.
2. Extend the object to the victim.
3. When the victim grasps the object, slowly and carefully pull them to safety.
  - Keep your body low and lean back to avoid being pulled into the water.



### Reaching Assist without Equipment

1. Brace yourself on the pool deck or pier surface.
2. Reach with an arm and grasp the victim.
3. Pull the victim to safety.



### Reaching Assist without Equipment from Position in the Water

1. Hold onto a pool ladder, overflow trough (gutter), piling or another secure object with one hand.
2. Extend a free hand or one leg to the victim.
  - Do not let go of the secure object or swim out into the water.
3. Pull the victim to safety.





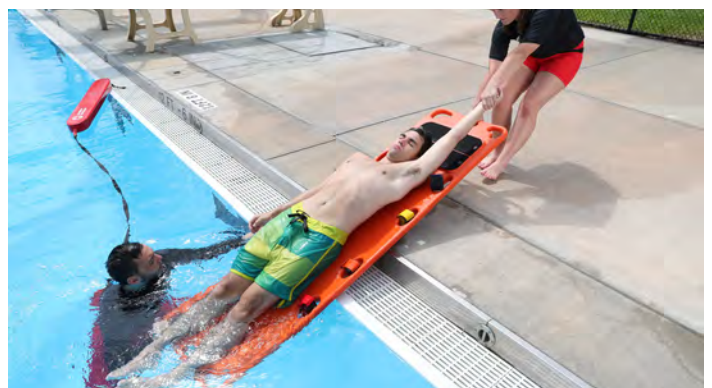
## THROWING ASSIST

1. Hold the coil of the line in the open palm of nonthrowing hand and grasp the side of the object with throwing hand. If the line has a wrist loop, place the hand that will hold the line through it. If there is not a wrist loop, step on the nonthrowing end of the line.
2. Hold the object vertically, step back with your leg on the throwing side, swing the object backwards and then forward for an underhand toss.
3. Aim the throw so that the object lands just beyond the victim with the line lying on the victim's shoulder. Tell the victim to grab the object. If there is a crosswind or current, throw upwind or up current of the victim.
4. After the victim has a firm grasp on the object or line, drop the remaining coil, if any, and pull the victim to safety. Keep your body low and lean back to avoid being pulled into the water. Reassure the victim.
5. Slowly pull the victim to safety by reaching out with one hand and grasping the line with your thumb inward. Pull the line in to your side with that hand while reaching out with the other. Continue the alternate pulling and reaching action until the victim is at the side or is able to stand in shallow water.



## EXTRICATION USING A BACKBOARD AT THE POOL EDGE

1. The primary responder swims with the victim toward the side of the pool. The assisting responder(s) on deck brings the backboard to the edge of the water and removes the head immobilizer.
2. The assisting responder(s) on deck places the board vertically in the water against the wall, submerging the head space of the board if possible. The primary rescuer approaches the backboard and moves to the side of the victim.
3. The primary responder raises one of the victim's arms so that the assisting responder can grasp the arm. The primary responder then slides the rescue tube out from under the victim and toward themselves before contact is made with the board.
4. The assisting responder on deck firmly holds the backboard with one hand and the victim's forearm with the other hand and angles the board out slightly to help position the victim on the board as the primary responder stabilizes the backboard from the side.
  - If more than one on-deck responder is available, they should help hold and stabilize the backboard.
5. Once the victim is centered on the backboard, the assisting responder(s) signals that they are ready to remove the victim. While maintaining their hold on the victim's arm, the assisting responder(s) on deck pulls the backboard onto the deck. The primary responder pushes the backboard as the assisting responder(s) pulls.
  - If more than one on-deck responder is available, they should help hold the backboard and pull the backboard onto the deck.
6. Assess the victim's condition and provide appropriate care.

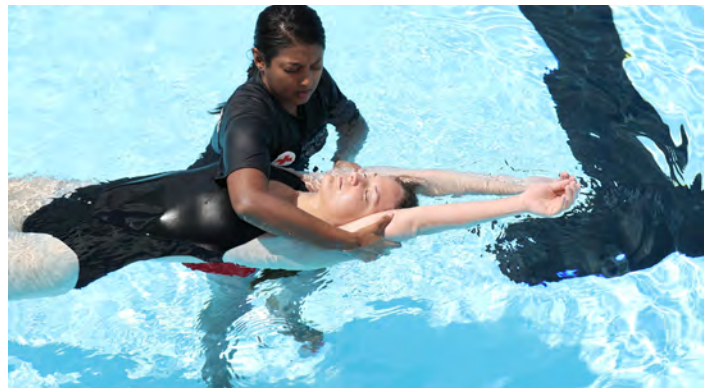




## HEAD SPLINT

### Face-Up Victim at or Near the Surface

1. Approach the victim from the side.
  - In deep water, use the rescue tube under both of your arms for support.
2. Grasp the victim's arms midway between their shoulder and elbow. Grasp the victim's right arm with your left hand and the victim's left arm with your right hand. Gently move the victim's arms up alongside the head.
3. Slowly and carefully squeeze the victim's arms against their head to help hold the head in line with the body. Do not move the victim any more than necessary.
4. If the victim is unresponsive, quickly look, listen and feel for breathing.
  - If the victim is not breathing, immediately remove the victim from the water using the passive victim extrication method and provide resuscitative care. Do not delay removal from the water by strapping the victim in or using the head immobilizer device.
  - If the victim is breathing, hold the victim with the head in line with the body and move toward safety until the backboard arrives. In deep water, move the victim to shallow water, if possible.
5. Continue to check for breathing. If at any time the victim stops breathing, immediately remove the victim from the water and then provide appropriate care.



## HEAD SPLINT

### Face-Down Victim at or Near the Surface

1. Approach the victim from the side.
  - In deep water, use the rescue tube under both of your arms for support.
2. Grasp the victim's arms midway between the shoulder and elbow. Grasp the victim's right arm with your right hand and the victim's left arm with your left hand. Gently move the victim's arms up alongside the head.
3. Squeeze the victim's arms against their head to help hold the head in line with the body.
4. Glide the victim slowly forward.
  - Continue moving slowly and turn the victim until they are face-up. To do this, push the victim's arm that is closest to you under the water while pulling the victim's other arm across the surface toward you.
5. If the victim is unresponsive, quickly look, listen and feel for breathing.
  - If the victim is not breathing, immediately remove the victim from the water using the passive victim extrication method and provide resuscitative care. Do not delay removal from the water by strapping the victim in or using the head immobilizer device.
  - If the victim is breathing, hold the victim with the head in line with the body and move toward safety until the backboard arrives. In deep water, move the victim to shallow water, if possible.





## GLOSSARY

**Bloodborne pathogens:** bacteria or viruses present in blood and body fluids capable of causing disease in humans

**Bullying:** the aggressive use of power to control or harm someone in a weaker position; oral, written, electronic or other technological expression, physical act or gesture or any combination

**Circle swimming:** a technique that allows multiple swimmers to swim in the same lane simultaneously, swimming counterclockwise in the lane with approximately 5 seconds between swimmers

**Emergency action plan (EAP):** a written plan detailing how coaches and facility staff are to respond to a specific type of emergency

**Grooming behavior:** behavior in which an abuser targets a vulnerable child, forms a relationship with them as friends or equals and begins to desensitize the child to touch

**Hyperventilation:** rapid deep breathing; dangerous technique in which swimmers try to swim long distances underwater by taking a series of rapid breaths in succession and forcefully exhaling in order to increase the amount of oxygen that they breathe

**Hypoxic training:** breathing on a restricted schedule

**Ledge:** a device hung from the blocks for backstroke start foot placement; this device may or may not be available at meets

**Local Swimming Committees (LSCs):** regional governing bodies

**Long-term inhaler:** inhaled medication used to prevent and/or avoid an asthma attack

**Quick-relief inhaler:** inhaled medication used to stop an acute asthma attack

**Repeats:** a training swim of a certain distance repeated a prescribed number of times with either a fixed rest interval or a time interval which includes the swim and rest periods

**Safety team:** a network of people in the facility and emergency medical services system who can plan for, respond to and assist in an emergency at a facility.

**Send-off time:** the prescribed time between swimmers' departure from the wall

**Tornado warning:** warning issued by the National Weather Service notifying that a tornado has been sighted

**Tornado watch:** warning issued by the National Weather Service notifying that tornados are possible