

ACSL Clean Stream / Safe Boating Jan 2019 REPORT

General EARLY season Fishing & boating SAFETY TIPS – Hypothermia a silent killer

Pa water that can support trout are shockingly cold, and a light-hearted outing even on a sunny day can suddenly become a fight for survival with an unexpected cold water plunge. Except for shallow bays and beaches, the water temperature in some cold water lakes seldom reaches 55 degrees F in the spring, even during the hottest summer weather some native trout stream or spring feed creek never get warmer than 70 degrees.

Hypothermia and Cold Temperature Exposure - Topic Overview

What Is Hypothermia?

Hypothermia is a potentially dangerous drop in body temperature, usually caused by prolonged exposure to cold temperatures. The risk of cold exposure increases as the winter months arrive. But if you're exposed to cold temperatures on a spring hike, a winter hunt, misstep along creek partially getting wet while fishing or capsized on a summer sail, you can also be at risk of hypothermia.

Normal body temperature averages 98.6 degrees. With hypothermia, core temperature drops below 95 degrees. In severe hypothermia, core body temperature can drop to 82 degrees or lower.

What Causes Hypothermia?

Possible causes of hypothermia include (besides immersion in cold water):

Hypothermia can occur when you are exposed to cold air, water, wind, or rain and especially when combined with cold weather.

Cold exposure. When the balance between the body's heat production and heat loss tips toward heat loss for a prolonged period, hypothermia can occur. Accidental hypothermia usually happens after cold temperature exposure without enough warm, dry clothing for protection or overdressing or improper layering strategy allows excessive sweat to form with physical activity which can artificially help cool your body, without cold water immersion.

However, much milder environments can also lead to hypothermia, depending on a person's age, body mass, body fat, overall health, and length of time exposed to cold temperatures. A frail, older adult in a 60-degree house after a power outage can develop mild hypothermia overnight. Infants and babies sleeping in cold bedrooms are also at risk.

Other causes. Certain medical conditions such as diabetes and thyroid conditions, some medications, severe trauma, or using drugs or alcohol all can increase the risk of hypothermia.

During exposure to cold temperatures, most heat loss -- up to 90% -- escapes through your skin; the rest, you exhale from your lungs. Heat loss through the skin happens primarily through radiation and speeds up when skin is exposed to wind or moisture. If cold exposure is due to being immersed in cold water, heat loss can occur 25 times faster than it would if exposed to the

same air temperature and as a result, the body core immediately begins to lose heat to the outside environment. To compensate, the body tries to generate more heat by shivering, often this is not enough to offset the loss of heat to the cold water. Within 20 to 30 minutes, depending on water temperature, body core temperature drops to below 95° F cognitive functioning and judgement become affected. This cooling, if not checked, leads to disorientation, unconsciousness and can eventually death.. An individual's response to cold water will vary depending on several variable factors including clothing, amount of body fat and activity, water temperate, with a steady decline in core body temperature will continue until after the person is removed from the water

The hypothalamus, the brain's temperature-control center, works to raise body temperature by triggering processes that heat and cool the body. During cold temperature exposure, shivering is a protective response to produce heat through muscle activity. In another heat-preserving response -- called vasoconstriction -- blood vessels temporarily narrow.

Confusion and fatigue can set in, hampering a person's ability to understand what's happening and make intelligent choices to get to safety.

Clearly, an overboard boater on a solo trip, or one whose fall went unobserved, is in very serious trouble indeed. But the statistics tell us that even if help is close to hand, a fall into cold water can be fatal. Witnesses often report...“I don’t understand how it happened. He went down so fast and never came up again.” Here’s how it can happen and what you can do about it.

The U.S. Coast Guard reports that cold water immersion and hypothermia can occur in water as cool as 70 degrees. The water does not have to be freezing; cold water shock often occurs in water temperatures above 50°F. Wearing a U.S. Coast Guard approved life jacket greatly increases the chance of survival and will saves lives. Even in a healthy person, cold-water immersion can impact muscle movement, breathing and heart rate. Prolonged exposure to the water can lead to hypothermia, cardiac arrest and death.

Whether fishing from a kayak, canoe or boat, life jackets are an important part of angling safety. They’ll keep a person’s head above water and body on the surface. While life jackets are required for those 12 years old and younger, wearing a life jacket is a simple step that could be lifesaving.

REMEMBER In PA it’s Been MANDATORY in Cold Weather months to Wear a Life Jacket since 2012.

- a person shall wear a Coast Guard approved personal flotation device (PFD or life jacket) during the cold weather months from November 1st through April 30th while underway or at anchor on boats less than 16 feet in length or any canoe or kayak.

If you do fall overboard, stay calm, move slowly and don’t try to take off clothing while in the water. And if the boat has capsized, it most likely will not sink and can be used as a platform. It’s advised that boaters stay on top of the capsized vessel as much as possible in order to stay out of the water.

Boating in cold weather can be exhilarating, but it also puts you at risk of falling into dangerously cold waters. Even boating in warm weather can be dangerous if the water is much colder than the air.

As a general rule, if the air and water temperature added together equal less than 100 degrees Fahrenheit you should take the following steps:

Wear a properly fitting life jacket. There are even special life jackets that have extra material to double as an additional warm layer. This added insulation could save your life!

Speaking of layers, dress for the water temperature not the air temperature. Having lots of layers on, including a hat will help you survive if you do end up in the water. The first layer should be a synthetic fabric which will keep cool water away from your skin. Cotton keeps cool water close to the skin and should be avoided as the first layer.

Bring extra clothes in a dry bag and keep them on the boat just in case someone in your party gets wet. Energy bars and a thermos of a warm beverage is also a welcomed accessory.

Below is General Guide for water temperature reference and exposure danger with emersion in Cold Water Without Protective Clothing

Water temperature - - loss of dexterity - - Exhaustion or Unconsciousness

32.5 degrees	- - under 2 minutes	- - Under 15 minutes
32.5 to 40 degrees	- - under 3 minutes	- - 15 to 30 minutes
40 to 50 degrees	- - under 5 minutes	- - 30 to 60 minutes
50 to 60 degrees	- - 10 to 15 minutes	- - 1 to 2 hours
60 to 70 degrees	- - 30 to 40 minutes	- - 2 to 7 hours
70 to 80 degrees	- - 1 to 2 hours	- - 2 to 12 hours
Over 80 degrees	- - 2 to 12 hours	- - no immediate danger

Most victims of cold water immersion actually die of drowning, not hypothermia—and many drowning victims were very close to safety when they died.

What is Cold Water Shock?

Besides hypothermia, the initial shock of cold water can place severe strain on the body, producing instant cardiac arrest. In cold water immersion your breath can be driven from you and cause a phenomenon known as dry drowning. Also called laryngospasm reflex, the cold shock can prevent you from breathing. Your larynx closes the airway and essentially causes asphyxiation; you suffocate since you are not able to breathe. Some people experience an involuntary reflexive gasp for breath and can inhale water rather than air if the face is in the water. Most of these immediate body responses are increasingly fatal as the water temperature decreases toward freezing.

What Happens In Cold Water?

Many of the fatal boating accidents accrue do to Cold Water Immersion and Hypothermia. What happens to the body when suddenly plunged into cold water?

On falling into cold water, cold receptors in the skin cause immediate physiological responses, the first of which is a “gasp” reflex. If this happens when your head is under water, you are in deep trouble

The first hazards to contend with are panic and shock. The initial cold water shock can place severe strain on the body, producing instant cardiac arrest.

Your breath will be driven from you on first impact with the water. Should your face be in the water during that first involuntary gasp for breath, it may well be water rather than air. Total disorientation may occur after cold water immersion. Persons have reported "thrashing helplessly in the water" for thirty seconds or more until they were able to get their bearings.

Immersion in cold water can quickly numb the extremities to the point of uselessness.

Cold hands cannot fasten the straps of a lifejacket, grasp a thrown rescue line, or hold onto an over-turned boat.

Within minutes, severe pain clouds rational thought. And, finally, hypothermia (exposure) sets in, and without rescue and proper first aid treatment, unconsciousness and death. Normal body temperature of course, is 98.6° F. Shivering and the sensation of cold can begin when the body temperature lowers to approximately 96.5° F. Amnesia can begin to set in at approximately 94° F, unconsciousness at 86° F and death at approximately 79° F.

Gasp dangers! The Four Stages of Cold Water Immersion

Falling into cold water is more than just an inconvenience, it's downright dangerous. For example, your body may react to the cold water or sustained immersion in cold water, in uncontrollable ways. Experts have described what happens to the body when immersed in cold water and have summarized the features and characteristics into four distinct stages. Failure to recognize this, can lead to hypothermia, a serious condition which is the abnormal lowering of internal body temperature that should be treated only by medical personnel or specially trained individuals.

Cold Shock – Falling into cold water provokes an immediate gasp reflex. If your head is under water, you'd inhale water instead of air and it is unlikely you'll resurface if you're not wearing a life jacket. Initial shock can cause panic, hyperventilation, and increase heart rate leading to a heart-attack. This stage lasts 3-5 minutes and at this point you should concentrate on staying afloat with your head above water.

Swimming Failure – In just 3 -30 minutes, the body will experience swimming failure. Due to loss of muscle coordination, swimming becomes a struggle and the body tends to go more vertical in the water making any forward movement increasingly difficult. That's why it is not recommended to swim for help, but remain with the boat or something else that floats while keeping your head above water while awaiting rescue.

Hypothermia – True hypothermia sets in after about 30 minutes. Most victims never make it to this stage since 75% of individuals succumb and die in the earlier stages of cold water immersion. At this stage, regardless of your body type, size, insulation of clothing, acclimatization and other factors, your body's core temperature gets dangerously low. Your survival chances are greatly lessened at this stage. Victims are usually rendered unconscious in this stage.

Post Rescue Collapse – A rescued victim must be handled very carefully. When a person is removed from cold water, the body will react to the surrounding air and the body position. Blood pressure often drops, inhaled water can damage the lungs, and heart problems can develop as cold blood from the extremities is released into the body core. Proper medical attention is essential to re-warm the body safely.

While Waiting for Help to Arrive – H.E.L.P.

Individual Technique

If you find yourself in the water, button up your clothing, cinch your life jacket down nice and snug, keep your head out of the water as much as possible and if you have your hat pull it down tight. Kick off any heavy shoes or boots, but know that some boots like waders can be turned upside down to create an air pocket making the boots good emergency flotation.

Group Technique when several fall into water together

Huddle with others if there are several people in the water. Facing inward, link arms over each other's shoulders or under each other's arms and get together close and tight. This will allow you to share as much heat as possible. If there are children or seniors have them move to the middle of the huddle. If you are alone assume the **Heat Escape Lessening Posture (H.E.L.P.)** which is essentially a self-huddle.

This position aims to protect some of the areas of your body most prone to heat loss - the head, neck, sides of the chest cavity and the groin area. If you are wearing a life jacket, this position can be very effective. To reach this position, you should bring your knees up as close as possible to your chest and grasp your hands together over your chest. If this is too difficult, or too unstable, cross your calves, bend your knees and pull your legs close to your body. Cross your arms and tuck your hands flat under your armpits.

What to Do? And What Not to Do!

Any victim pulled from cold water should be treated for hypothermia – this is the very dangerous and important stage of survival which is a result of cold water immersion. At this point, you should seek trained medical treatment immediately. Symptoms of hypothermia may include intense shivering, loss of coordination, mental confusion, cold and blue (cyanotic) skin, weak pulse, uncontrolled breathing, irregular heartbeat, and enlarged pupils. Once shivering stops, core body temperature begins to drop critically. Try to prevent body cooling and get the victim to a medical facility immediately.

Gently move the victim to a warm shelter.

Check for breathing and a heartbeat. Start CPR if necessary.

If you have dry clothes or a blanket, remove the victim's wet clothes hats, gloves, shoes, and socks. Use a minimum of body movement, since rough handling can cause cardiac arrest. Cut the clothes off, if necessary. Move gently to a warm, dry shelter as soon as possible.

If possible, keep the victim in the same position as he was rescued to prevent a stroke caused by moving them incorrectly. If moving is necessary (such as from a boat to shelter), carefully lay the victim in a level face-up position with a blanket or some other insulation underneath.

Protect the person against wind, drafts, and further heat loss Wrap the victim in a dry blanket or dry clothes. If possible, warm the clothes first. If a stocking cap is available, put it on the victim's head since a great deal of heat is lost from the head. Other helpful items for warming are: an electric blanket to the torso area and hot packs and heating pad on the torso, armpits, neck, and groin; however, these can cause burns to the skin. Use your own body heat if nothing else is available.

If the person is awake and coherent, give them warm (not hot) liquids. Warm hot tea with sugar or honey or slightly-cooled hot chocolate are good since sugars can still be absorbed even if the stomach has shut down. Don't try to give fluids to an unconscious person.

NEVER give a hypothermic person alcohol. Alcohol dilates (opens) your veins, which will make the body lose heat more rapidly. Also, do not give food or drink to unconscious victims.

DO NOT apply heat to the arms and legs. This forces cold blood from the arms and legs back toward the heart, lungs and brain, lowering core body temperature and causing "after drop" which can be fatal.

DO NOT massage the victim or give the victim a hot bath. Cardiac arrest is a frequent result of hypothermia, and moving the victim roughly can be a catalyst for this condition

It is very important to know the symptoms of hypothermia and get treatment quickly.

Often a person's body temperature will drop really low before others notice that something is wrong. If someone begins to shiver violently, stumble, or can't respond to questions, it may be hypothermia and you need to warm him or her quickly.

Always think safety around water and in all outdoor activities.

Visit us at the Allegheny County Sportsmen's League Web site.

<http://www.acslpa.org/>