

SUMMER 2009

Healthy Travels

Into the Deep: Diving Safety

Diving is fast becoming an increasingly popular sport, both in the U.S. and abroad. An estimated 1-3 million persons engage in this sport in the U.S., while almost 6 million divers enjoy this pursuit the world over. Although undersea diving offers adventure and opportunities for exploration, diving can also be a potentially dangerous endeavor. Approximately 90 persons lose their lives each year to diving-related accidents and injuries. As per the Centers for Disease Control and Prevention (CDC), the most frequent injuries sustained while diving include barotrauma to the ears and lungs and decompression illness.

Barotrauma is the most common diving injury. Barotrauma often occurs when divers do not equalize the pressures between the middle ear and sinuses while descending. This may result in pain, vertigo, and rupture of the eardrum, if severe.

A similar injury may occur while returning to the surface at the conclusion of a dive. During ascent, compressed air within the lungs expands very quickly and may result in lung damage if not properly exhaled. This elevated air pressure can produce several different types of lung injuries.

It is possible for the air to “rip” a small hole through the lung and collect inside the chest cavity, causing a pneumothorax, or collapsed lung. The air may also collect and spread underneath the skin and into the neck, shoulders or face, or it may enter the blood vessels leading to the heart. This is a true emergency because large air bubbles in the blood vessels may prevent adequate blood circulation and cause damage to the heart or brain.

Ascending to the surface too quickly may cause decompression illness or “the bends.” As a diver breathes compressed air while underwater, some components of the air escape the bloodstream and dissolve in body tissues. This phenomenon may become a potential hazard upon resurfacing. As the diver ascends, dissolved gases re-enter the bloodstream. If the rate of ascent is too fast, the dissolved gases may re-enter the blood as bubbles, akin to the way a carbonated soft drink fizzes when opened. The bubbles may be responsible for causing joint aches, numbness, fatigue, tremors, paralysis, or even loss of consciousness.

To prevent accidents, never dive without proper training and always avoid alcohol and drugs while

engaged in water sports. The Diver’s Alert Network (<http://www.diversalertnetwork.org>) recommends following these SAFE DIVE principles:

- S – Self-reliance (Dive with a buddy, but think for yourself about safety)
- A – Attitude (Perform a personal self-assessment before diving)
- F – Fitness (Dive only when healthy and fit; know your limits)
- E – Experience (Dive only in situations for which you are trained; complete a diving safety course)
- D – Diving skills (Practice basic skills: mask, buoyancy, emergency and general diving)
- I – Involvement (Become involved in the diving community; find friends and mentors)
- V – Variety (Renew and sustain your passion for diving by trying new and different experiences)
- E – Equipment (Ensure all equipment is well-maintained and easily accessible)



Jellyfish Stings

During the summer months, many vacationers enjoy spending time at the oceans and beaches. While frolicking in the surf, it is important to be aware of jellyfish. Jellyfish are free-swimming, non-aggressive marine animals with many tentacles. These tentacles are covered with venom-filled sacs which can cause a painful sting.

Jellyfish usually float on the water's surface during dawn and dusk. As jellyfish are not aggressive creatures, most stings are accidental in nature. The unwitting victim is simply in the wrong place at the wrong time.

Symptoms of a jellyfish sting include an intense, stinging pain, itching, rash, and raised welts. Depending upon the severity of the sting, nausea, vomiting, diarrhea, and muscle spasms may be noted as well.

If you are stung by a jellyfish, you should promptly seek medical attention. In the interim, it is recommended

you apply copious amounts of white vinegar to the affected area for at least 15 minutes. If vinegar is not readily available, you may douse the wound with sea water or 70% isopropyl alcohol. Do not wash the wound with fresh water or apply ice to the sting. Do not rub or scratch the affected area, as such irritation will only spread the toxin.

Remove any tentacles with a pair of tweezers. After tentacles have been removed, apply shaving cream or baking soda paste to the affected area and shave with a razor or credit card to remove any remnants of the jellyfish. The shaving cream or paste prevents remaining jellyfish tentacles from releasing toxins during removal with the razor. Vinegar or isopropyl alcohol should then be re-applied.

Over-the-counter pain relievers such as acetaminophen or ibuprofen may help reduce the pain at the site of the sting.

Hopefully you will not fall victim to the jellyfish on your next beach excursion. But if you do, you now know some simple tips to minimize the pain and discomfort!



Photo credit: National Oceanic and Atmospheric Association (NOAA), Operation Deep Scope 2005.

Snake Bites

An unexpected encounter with a snake while exploring the deep woods or jungle is enough to stop even the most seasoned traveler in his tracks.

Very few snakes are known to initiate unprovoked attacks against humans. Most snake bites result from being in the wrong place at the wrong time. Snake bites are more common in tropical or agricultural areas. If you encounter a snake, back away slowly; do not touch it.

Snake bites may result in a variety of symptoms, to include pain and swelling, or perhaps bleeding and shock. If you are bitten by a snake, try to remember the color and appearance of the snake, as this information may help to direct medical treatment.

Stay still and calm to prevent further circulation of any venom. Apply a clean, dry dressing, if one is available, and seek emergency medical care as soon as possible.

If you are bitten, do NOT try to trap or kill the snake. Such actions may put you or others at risk of additional bites. Do not apply a tourniquet, cut open

the wound, or try to suck any venom from the wound. These measures have not demonstrated clinical benefit and may increase the chances of secondary bacterial infection of the wound. Do NOT immerse the bite in cold water or drink alcohol to relieve any pain; such actions may worsen the injury.

To decrease the risk of a snake bite, wear boots and long pants while hiking or during other outdoor activities. Do not go barefoot at night at campsites. Townsfolk and tour guides are valuable sources of information on local snakes. Be aware of your surroundings and cognizant of where snakes may be lurking. As with any potential travel problems, a little planning can help to keep you from getting rattled!

Photo credit: Cottonmouth, CDC Public Image Library

Leptospirosis: A Potential Freshwater Risk

Leptospirosis is a spiral-shaped bacterium found worldwide, although it is more often encountered in tropical climates. Animals harbor the bacterial infection and spread it into the environment by excreting the bacterium in their urine. Cattle, pigs, horses, dogs, rodents, and other wild animals are known to spread this infection.

Humans may be exposed to the organism while wading or swimming in contaminated freshwater bodies (e.g., lakes, rivers) and mud, or by drinking contaminated freshwater. The bacterium enters the body through a cut or skin abrasion, a mucous membrane (e.g., nose), or through ingestion.

The symptoms of this infection include high fever, chills, body aches, nausea,

abdominal pain, and diarrhea. If left untreated, kidney and liver damage, shock, and death can occur. As these symptoms are vague and non-specific, they are often attributed to other tropical diseases, such as malaria. Thus, reminding your treating physician of your recent travel history can be very helpful in establishing a diagnosis of leptospirosis.

Treatment with appropriate antibiotics will cure this infection. Although there is no vaccine currently available, preventive measures should include the avoidance of contaminated freshwater bodies, the use of protective clothing, and the covering of cuts and abrasions. For those vacationers who will have a known, unavoidable exposure (e.g.,

white-water rafting), medicines can be taken to minimize the risk of acquiring leptospirosis. Talk to your doctor about your concerns if you are planning a trip to a tropical destination where exposure to this infection may occur.

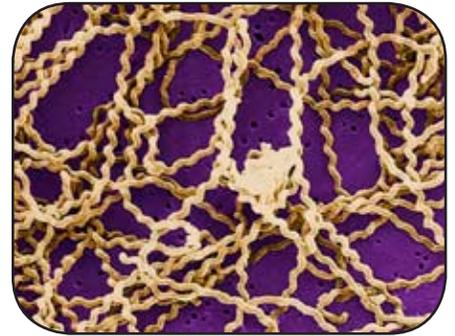


Photo credit: Leptospirosis, CDC Public Health Image Library

Heat Injuries: Prevention is Best Defense

Whether traveling abroad or within the United States during summer months, it is important to remember that heat injury is a concern. Heat injuries are caused by prolonged exposure to heat and failure of the body's cooling mechanisms. Symptoms of heat rash may include red, itchy skin. Heat rash is often caused by wearing restrictive clothing, excessive sweating, and/or poor hygiene. A more severe form of heat injury, heat exhaustion, may result in dizziness, fatigue, weakness, headache, nausea,

unsteady walk, rapid pulse, and shortness of breath. The most severe form of heat injury, heat stroke, is a medical emergency and can lead to death. Symptoms are the same as those found in heat exhaustion, but are more severe and may include loss of consciousness. If you suspect someone to be suffering from heat stroke, call for emergency medical services immediately.

Some persons are at greater risk for a heat injury, such as infants and

young children, people aged 65 years or older, persons with mental illness, and persons with heart disease or high blood pressure. The best defense against heat injury is prevention. Be sure to drink plenty of fluids, avoid alcoholic beverages (they may lead to dehydration), wear lightweight, light-colored, loose-fitting clothing to help prevent overheating, limit your outdoor activity to morning and evening hours, reduce strenuous exercise, rest in shaded areas, and wear sunscreen.

Sun Exposure: Reduce Your Risks

Excessive sun exposure is a key factor in the development of different types of skin cancer. Protecting yourself from harmful ultraviolet (UV) sunrays may significantly reduce your risk of skin cancer. This is especially true for fair-skinned persons or those with a history of burning easily.

There are three types of UV sunrays: UVA, UVB, and UVC. UVC rays are filtered by the ozone layer. UVA and UVB rays are responsible for skin

burning and tanning, eye damage, and the formation of cancers. It is important to shield your body from continuous exposure to such hazardous rays. This is easily accomplished by wearing light-colored clothing, long-sleeved shirts, long pants, sunglasses that block UV rays, and a wide-brimmed hat. Cover sun-exposed skin with a sunscreen (Sun Protection Factor (SPF) 30 or higher). Sunscreens either utilize active chemical blocks or physical blocks. An active chemical block uses

various chemical compounds to block absorption of sunrays. A physical block uses minerals such as titanium dioxide to reflect sunrays. Physical sunscreens often have a thick, white appearance, if applied properly. When purchasing a sunscreen, read the label to ensure the product blocks both UVA and UVB rays. Follow the directions for recommended frequency of application. Such simple steps will make your vacation a less painful and more satisfying experience.

Travel Medicine Clinic at Fort Myer



Are you planning on traveling internationally in the near future? If you are visiting a location in Africa, Asia, or Central/South America, an appointment at the travel medicine clinic can help you prepare for any disease risks you may encounter.

- The Family Health Center of Fort Myer (Rader Army Health Clinic) Travel Medicine Clinic is open on Tuesdays from 0900 to 1600.
- Appointments can be made by calling 703-696-3439.
- Schedule your appointment approximately 4-6 weeks prior to your departure date.
- Bring your medical records with you, including all prior vaccination records.

Information Sources



Shoreland's Travel Health Online — www.tripprep.com

Centers for Disease Control & Prevention

- Traveler's Health Website — www.cdc.gov/travel
- Travel Notice Website — www.cdc.gov/travel/notices.aspx

U.S. Department of State

- Travel & Business Website — www.state.gov/travelandbusiness
- Embassy & Consulate Website — usembassy.state.gov

World Health Organization Travel Website — www.who.int/topics/travel/en

International Association for Medical Assistance to Travelers — www.iamat.org

International Society of Travel Medicine — www.istm.org

American Society of Tropical Medicine & Hygiene — www.astmh.org

U.S. Army Center for Health Promotion and Preventive Medicine — <http://chppm-www.apgea.army.mil>

Tip: Check out these websites for more information about staying healthy while traveling abroad.

Fast Facts

- The vast majority of travel-related illnesses are preventable.
- You should visit the travel clinic 4-6 weeks before traveling to Africa, Asia, Central America, or South America.
- Vaccines are the safest, most effective means of preventing illness.
- Avoiding insect bites by using DEET-containing repellents is the only method of preventing some insect-borne diseases.
- One of the best ways to reduce the risk of illness while traveling is to wash your hands frequently.

Healthy Travels

Healthy Travels is a quarterly publication written by the residents of the NCC-WRAIR General Preventive Medicine Residency. The assertions contained herein are the personal views of the authors and are not to be construed as official. Although every effort is made to ensure statements are consistent with U.S. Army and COCOM disease control policies, the reader is referred to the appropriate headquarters' preventive medicine officer for definitive guidance and policy statements regarding official travel medicine requirements. Approved for public release; distribution is unlimited. Questions, comments and letters should be addressed to: Division of Preventive Medicine (MCMR-UWK), Walter Reed Army Institute of Research, ATTN: Residency Director, Silver Spring, MD 20910-7500

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