



THIS MONTH MARCH 2016



Training in the Heat: Fact and Fiction

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The very nature of our profession as Soldiers — training outdoors, wearing uniforms and carrying equipment — practically guarantees we will be exposed to heat stress. The latest data from the Armed Forces Health Surveillance Branch indicates that in 2014, more than 200 Soldiers suffered from heat stroke and another 1,200 suffered from other less severe forms of heat illness that required medical

attention and led to lost duty time. It may be unrealistic to hope for zero heat illnesses, but through proper training, education and preparation we can minimize the number of Soldiers who suffer from a serious or even fatal heat illness.

The spectrum of heat illnesses includes dehydration, heat cramps, heat exhaustion, heat injury and heat stroke. Dehydration results when body fluid losses from sweating and urination

exceed fluid intake. The cause of muscle cramps that occur during heat exposure is unknown, though electrolyte loss and/or dehydration likely contribute. During exercise in the heat, there is very high demand for blood flow to the exercising muscles and skin for heat dissipation. When this demand exceeds the pumping capacity of the heart, heat exhaustion may occur. Heat exhaustion is therefore primarily a cardiovascular event

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caused by exercise and often made worse by dehydration.

Heat injury and heat stroke are the most severe heat illnesses. Heat injury is characterized by organ (liver, kidney) and tissue (muscle) damage resulting from strenuous exercise and heat stress. When profound central nervous system dysfunction also occurs, heat injury has progressed to heat stroke. Common signs include loss of consciousness, combativeness and/or altered mental status. If not properly treated with aggressive cooling, heat stroke is potentially fatal.

The following are some facts about working in the heat, as well as some commonly held beliefs that are simply not supported by facts.

Fact: Acclimatization to the heat is extremely important and represents what might be the most important thing Soldiers and leaders can do to prepare.

Acclimatization results from moderate exercise in the heat; and while full acclimatization may take up to two weeks of two hours per day of exposure, most of the changes occur within the first five to seven days. Heat acclimatization causes body core temperature to be lower at rest and at a given exercise intensity. Sweating starts sooner and reaches a higher rate, so evaporative heat loss is increased. While acclimatization causes sweat to become more dilute (less salty), the increased sweat rate will increase fluid

replacement needs. Unit leaders should plan time for Soldiers to heat acclimatize before engaging in higher-intensity activities.

Fiction: Heat illnesses only occur during the summer months, or the “heat season.”

While Soldiers and leaders at all levels are correct to expect increased heat stress during the summer, due to the clothing we wear, the loads we carry and the

“Sports drinks are effective but often not necessary, as long as Soldiers are also eating their meals, which typically contain enough electrolytes to replace those lost from sweating.”

intensity at which we work, heat illness risk is present year-round. A recent analysis by the U.S. Army Public Health Center (Provisional) indicates that about 18 percent of all heat illnesses occur outside the heat season and there was not a single week during the calendar year when there was not a heat illness, including heat stroke. At some locations, 30 percent of all heat illnesses occurred outside of the heat season. It does not have to be hot for a Soldier to become a heat casualty.

Fact: Proper fluid replacement is important for preventing heat illness. Dehydration is associated with increased cardiovascular strain, lower sweat rate, lower skin

blood flow and reduced exercise performance. When sweat rate and skin blood flow are reduced, heat transfer from the body to the environment is reduced, resulting in an increased core temperature. To estimate how dehydrated you are, step on a scale before and after exercise. If you weigh 150 pounds and lost 1.5 pounds during exercise, you’re 1 percent dehydrated, which is

of little concern. However, if you lost 4.5 pounds, you’re 3 percent dehydrated. When dehydration exceeds 2 percent of body weight, physiological strain and risk of becoming a heat casualty increase.

Fiction: Fluid replacement is the only thing that is important for preventing heat illness.

Data from the U.S. Army Research Institute of Environmental Medicine shows that only 17 percent of heat stroke cases were associated with dehydration. The reality is there are many contributing factors, including dehydration, as well as a Soldier’s acclimatization status, physical fitness, medication and/or dietary supplement usage, and if they’ve



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recently experienced a viral infection (cold or flu). Focusing solely on fluid replacement may cause Soldiers to overlook other equally important risk factors.

Fact: Drinking water is preferable for rehydration.

Sports drinks are effective but often not necessary, as long as Soldiers are also eating their meals, which typically

heat stroke. In reality, a Soldier can have a high (>104 F) core temperature and not be a heat stroke casualty. While high body temperature is suggestive of heat stroke, the presence of central nervous system dysfunction — not core temperature — distinguishes heat stroke from less severe forms of heat illness. The

FYI

A wealth of additional information and training materials are available on the U.S. Army Public Health Center (Provisional) Heat Illness Prevention webpage at <http://phc.amedd.army.mil/topics/discond/hipss/Pages/HeatInjuryPrevention.aspx> as well as in TB MED 507, Heat Stress Control and Heat Casualty Management.

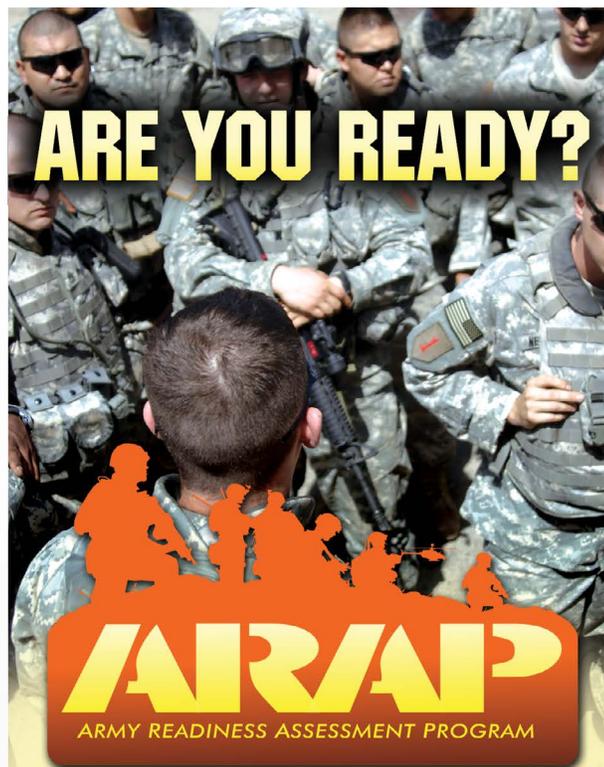
contain enough electrolytes to replace those lost from sweating. Other beverages, including milk, coffee, tea and soft drinks, will also help a Soldier rehydrate; but due to the sugar content of some drinks, they should not be relied upon exclusively. In addition, they should not be put in canteens or hydration systems as they become harder to clean and foster bacteria growth. Drinking water and fully consuming meals will be sufficient to replace fluid and electrolyte losses.

Fiction: When a Soldier is too hot, he or she has

Soldier may display confused, combative, irrational or aggressive behavior, or may pass out. These are all strong indicators the Soldier is experiencing heat stroke and requires immediate medical attention and rapid cooling.

Conclusion

The risk of becoming a heat casualty exists year-round. By maintaining a high degree of physical fitness, proper body weight, acclimatizing to the heat and rehydrating appropriately we can each do our part to minimize the risk. ■

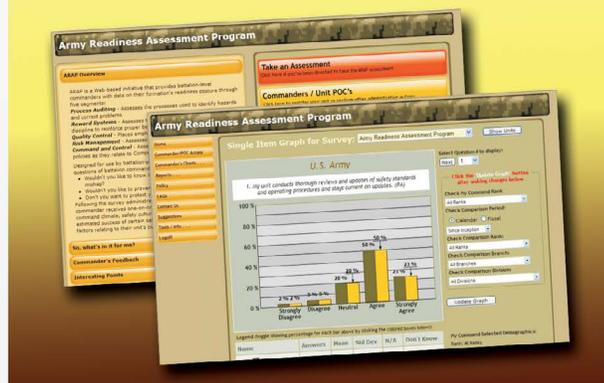


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I'm Still Here

RETIRED 1ST SGT. SHANE CURTIS
U.S. Army Combat Readiness Center
Fort Rucker, Alabama

Motorcycles were my thing growing up. I raced in motocross competitions just about every weekend and worked for the shop that sponsored me. I fell often enough to learn the hard way that my helmet, gloves, elbow and shoulder pads, boots, long-sleeved jersey and riding pants really did work. But it wasn't until one night after I joined the Army that I learned just how important my helmet was.

I'd bought a new Yamaha 650 and ordered a full-face helmet that looked cool and worked. That cost me some money. I always needed more money, which meant I needed to get my sergeant stripes. To get that promotion, I needed to go to night school to gain promotion points. Riding my motorcycle was part of that process. When I got off duty, I would ride home, grab my books and then head off to school on my new bike. All that would change one night.

As I was going down the four-lane road heading toward our house, a teenage girl who'd had her license less than a week approached me from the opposite direction. She saw me coming her way but thought the car behind her was going to rear end her, so she turned in front of me thinking she could make it. She didn't.

Instead, she hit me head-on.



I flew over the handlebars and into her windshield. The back of my head bounced off her steering wheel, and then I was thrown face-first into a telephone pole on the side of the road. The doctor said that if I hadn't been wearing my full-face helmet, parts of my head would have been smashed into the windshield and the left side of my face would have been left on the pole.

know they were there. Some of my co-workers were there every day to help my wife, who basically lived in my hospital room with me, but I don't remember that either.

I spent more than two months in the hospital receiving physical and occupational therapy. I had suffered a double brain concussion, and my brain swelled so badly the doctors thought they would have to drill holes in my skull to relieve the

“ I couldn't stand for more than 10 minutes, walk more than a mile, run, do physical training and — for the fear of blackouts — go anywhere alone.”

I was in and out of consciousness for the first four days after the accident. I woke up long enough to say that I wasn't unconscious the whole time, but I was in a semi-conscious state for the next two weeks. By the time I realized what was going on, close to a month had passed. Although my parents had come to see me, I didn't even

pressure. Fortunately, the day I was supposed to have the drilling done the swelling went down on its own.

I lost most of my memory and even had to learn how to walk again. The doctor would give me a razor and tell me to shave, but it wasn't until after I was released that I found out the razor didn't have a blade in it. The doctors just



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wanted to test my coordination. They didn't trust me with a blade.

I also had a problem with my memory. I knew names and people, but that was about it. Part of my therapy was going back out to the airfield to learn stuff I once knew. It was only after I was told what an item was that it rang a bell and would come back to me. I'd say, "Oh, yeah, that's what that is. Now tell me again what it does." Once they'd do that I'd say, "Oh, yeah, that's right. I remember now!" After a little more than two months passed, the doctor gave me a quick test. He told me to remember three things: the number 7, ice cream and blue sky. After he talked to me for about an hour, he asked what those

three items were. Once I told him, he said I was ready to go home.

The things I couldn't do that were listed on my profile made me feel like there was little I could do! No driving for a year. No climbing on top of aircraft. No going inside an aircraft unless the ramp was down and I could walk up it. I couldn't stand for more than 10 minutes, walk more than a mile, run, do physical training and — for the fear of blackouts — go anywhere alone. My flying and crewing days were over for the next couple of years.

It took years of hard work before I got back to normal — well, about as normal as I will ever be. I still have some minor problems with

my memory, but I did make it back on flying status after several years. For me, life is good. I am living a life that would have ended if I hadn't been wearing my helmet the night that girl turned in front of me.

You hear people argue that wearing a helmet gets in the way of their personal freedom or keeps them from hearing or seeing dangers around them. Well, I can tell you from experience that helmets work because I'm still here! ■

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RIDE FOR YOUR LIFE

The Motorcycle Mentorship Program establishes voluntary installation-level motorcycle associations where less experienced riders and seasoned riders can create a supportive environment of responsible motorcycle riding and enjoyment. This can create positive conduct and behavior and serve as a force multiplier that supports a commander's motorcycle accident prevention program.



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Check out the USACRC MMP website for some examples of active mentoring programs.

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Head Gear

1ST ARMORED DIVISION
Fort Bliss, Texas

Author's note: The story you are about to read was written by a Soldier-rider and is true. The events are retold to give insights into the many hazards riders face when they are on the road. The lessons will help us all become more experienced motorcycle riders.

A helmet is the most critical piece of personal protective equipment a rider will wear. According to Army policy, riders are required to wear a helmet while riding a motorcycle or ATV. It only makes sense if you want to prevent traumatic and fatal head injuries.

Army policy also states that for personnel riding motorcycles and ATVs in the United States, helmets shall be certified to meet Department of Transportation Federal Motor Vehicle Safety Standard No. 218, United Nations Economic Commission for Europe Standard 22-05, British Standard 6658 or Snell Standard M2005 in accordance with DODI 6055.04, Change 2, 23 January 2013, references (v), (w), (x) and (y). In addition, helmets will be properly fastened under the chin.

There are three defining factors when choosing a helmet — fit, function and fashion. The fashion part is easy. Pick a helmet based on looks and styling that will fit your bike and personality. Generally, factors such as graphics, shape and color are the key factors when choosing by fashion. The function of the helmet is rarely



affected by the style unless you add on non-safety-related parts such as mohawks, spikes or other adornments. Be aware that these add-ons can cause severe injury in a crash, as they can ruin the protective shape and ability of the helmet. Also, you should never drill or glue anything to a motorcycle helmet.

Function is a more utilitarian approach to helmet selection. Look for a helmet that works for your needs. Airflow, weight, visibility and purpose are the main factors when choosing a helmet. With the advent of modern helmets, a rider has more options than ever to have

the most functional helmet they can purchase. Modular face shields, lightweight carbon fiber composites and interchangeable face shields are just a few of the helmet options.

Keep in mind that certain riding styles will dictate that a specific helmet is worn. Dirt bike riders, flat trackers and endurance riders will generally look for a specific style helmet to meet the demands of their sport. Sport bike riders will look for an entirely different style to meet the demands of high speeds and aerodynamics. Determining the function of the helmet is critical because you need one that meets

FYI

Online reviews are not the best indicator of a helmet's ability.

Some non-biased options for helmet research are

<http://sharp.direct.gov.uk/home>,

<http://www.webbikeworld.com/motorcycle-helmets/motorcycle-helmet-weights.htm> and

<http://www.motorcycle-usa.com/108/motorcycles/motorcycle-helmet-reviews.aspx>



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the standards for your sport and riding style. Helmet retailers and websites can be very helpful when choosing the type that best fits your riding style and functional needs.

The most overlooked — yet critical — component when selecting a helmet is fit. Even the most-expensive, best protecting, highest-rated helmet is useless if it doesn't fit your head shape and dimensions. Many riders just guess at fit. They base head measurements on their hat size, find the helmet they think they need and ride with it. This kind of selection will only work about 25 percent of the time. Head and face

shapes are unique to each rider. What fits one rider might not fit the next.

It's imperative riders try on a helmet before purchasing it. New helmets should fit very snug around the face and top of the head. For full-face helmets, try them on without the cheek pads to get a proper feel for the fit at the crown, temples, forehead and back of the head. Once the cheek pads are inserted, the helmet will get tighter in the face. Don't worry; they break in quickly and will be more comfortable. All major manufacturers have several product lines of helmets designed to fit different-shaped heads. The rider

should do research on the helmet fit from the company to see for which head shape each is designed.

So those are the basic guidelines for choosing the helmet. Some riders may have other factors to take into consideration before finding the best helmet for them. Remember, though, that price has absolutely nothing to do with the ability of a helmet to protect the rider from injury. Some helmet manufacturers are better than others. Diligent research will help riders understand the specifics of a helmet. Always ride smart and always ride safe! ■

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Surprise in the Snow

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Fort Wainwright, Alaska

In December 2014, during a night vision goggle flight 20 miles south of Camp Humphreys, South Korea, another pilot in command and I were working on terrain flight tasks at landing zone Elbow. The LZ was bordered on the south and west sides by water that had frozen over in the cold. On the north side of the LZ were east/west power lines that were about 150 feet tall. It is one of the only landing zones where you can practice terrain flight takeoff and terrain flight approaches to the ground.

That day there had been four to five inches of snow accumulated on the LZ and frozen water. The weather brief for the flight was broken clouds at 3,000 feet with three miles of visibility. Winds were light and variable.

Our first approach to the LZ terminated in a hover at three feet altitude to test the snow to see if we would have white out conditions during landing. The pilot and I thought we could see where the LZ met the water. The snow was wet and heavy enough so we wouldn't have any whiteout problems.

We took off and decided for the second approach that we would land to the surface. As we landed, the pilot on the controls gradually put weight on the skids and there was a sudden drop on the left-side skid. Looking to the left, I could see the skid had broken through the ice and was underwater. The pilot, still in control of the helicopter, smoothly increased power and picked back up



to a three-foot hover. We returned to base and had maintenance conduct a visual inspection on the landing gear for any damage. Fortunately, no damage was found.

rollover on the second approach was the fact that the pilot on the controls had treated the landing as a slope landing, gradually reducing power, and was able to quickly

“The edge of the LZ covered in snow meshed perfectly with the ice-covered water.”

We had been overconfident in our knowledge of the LZ and landed too far on the south side of the LZ with the left skid on the ice. The LZ at night, with fresh snow, and under NVGs, was deceiving. The edge of the LZ covered in snow meshed perfectly with the ice-covered water.

In hindsight, we should have inspected the LZ more closely and used the white light on the first approach to ensure there were no new obstructions and confirm the edge of LZ Elbow. The only reason we didn't have a dynamic

recover and pick up to a hover.

“Every landing is a slope landing” was always preached to me during flight school and progression to Readiness Level 1. Now, instead of just doing it because I was told to, I believed in it from experience. We would continue to use LZ Elbow for terrain flight training. But after fresh snow we would be sure to make a thorough recon in daylight prior to using it for landing at night and, that's right, treat every landing like a slope landing. ■



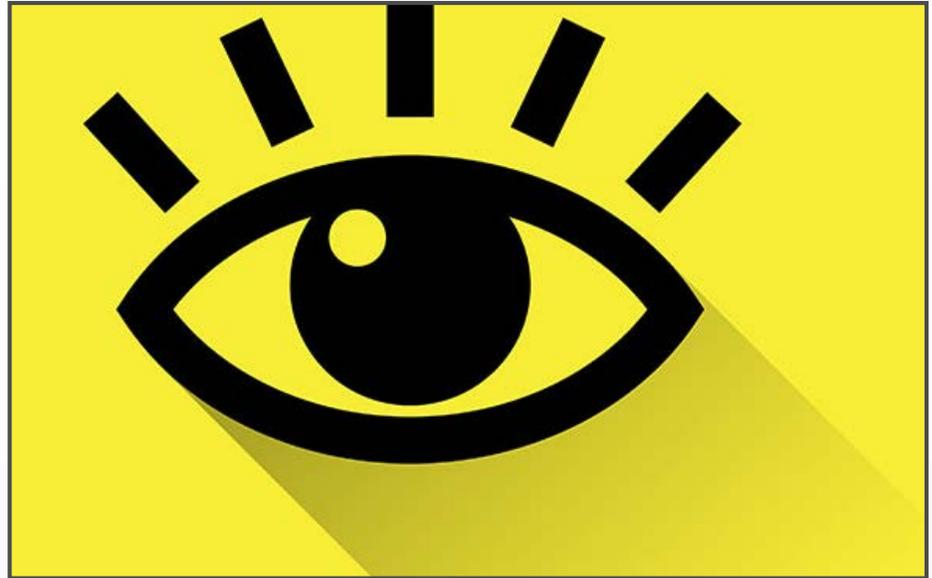
A Most Precious Gift

FRANK MCCLANAHAN
Civilian Injury Prevention Directorate
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Fort Rucker, Alabama

It's easy to take for granted the things in our lives we depend on every day and yet give very little thought. Imagine for a moment if you could never see the face of your spouse or children again. You could never watch a snowfall in the winter or see the sun set over the ocean on a warm summer evening. What would it be like if you couldn't watch your favorite sports team or television programs or read the morning newspaper or a best-selling novel by your favorite author? Most of us don't give much thought to the significance of such a loss, yet catastrophic eye injuries occur in the workplace every day.

According to the U.S. Department of Labor's Occupational Safety and Health Administration website, thousands of individuals are blinded each year by work-related eye injuries. These injuries result in more than \$300 million annually in lost production, medical expenses and worker's compensation. The National Institute for Occupational Safety and Health points out on the Centers for Disease Control and Prevention website that most workplace eye injuries are caused by small pieces of wood, metal or cement striking or abrading the eye. Objects that penetrate the eyes can result in permanent blindness.

Federal law mandates employers provide their workers a safe and healthful work environment. As such, employers must conduct workplace assessments to



identify hazards where eye and face protection are needed. OSHA describes the common types of workplace hazards as heat, chemicals, dust and optical radiation. Once the employer identifies any of these hazards during an assessment,

this solution isn't possible, the employer must provide the appropriate eye or face protection and employee training.

Employees who wear prescription eyewear also must wear eye protection. Eye protection that fits comfortably

“Most of us don't give much thought to the significance of such a loss, yet catastrophic eye injuries occur in the workplace every day.”

consideration must be given to the risk of exposure, the potential for multiple exposures and determining the highest level of required protection. The first course of action is to engineer out the identified hazard, including using shields and guards if possible. If

over prescription eyewear is available, as are safety goggles and spectacles incorporating prescription lenses. Eye and face protection issued to employees must comply with the American National Standards Institute's ANSI Z-87.1 1989 standard if



purchased after July 5, 1994, or ANSI Z87.1-1968 if purchased before July 5, 1994.

OSHA Standard 1910.132(f) requires employers train employees to know when protection is necessary, along with what type is needed and how it should be worn. Employees also must learn proper care, useful life and proper disposal of their protective equipment. That training, which should be presented in a manner easily understood by employees, must be provided by a knowledgeable person. Employees who receive training

Did You Know?

According to the American National Standards Institute, workplace eye injuries are a leading cause of eye trauma, vision loss and blindness. An estimated 2,000 eye injuries occur in the workplace every day, but according to the American Academy of Ophthalmology, nearly 90 percent of all eye injuries could've been prevented by using the right kind of protective eyewear.

must demonstrate how to properly use their protective equipment before working in an area where it's required. Training must be certified for each employee and include documentation containing the employee's training date and certification subject.

While the consequences described above are severe and not all eye injuries result in total blindness, eyesight is a precious gift that must be protected. Employers must make every effort to protect their workers and ensure appropriate information and necessary resources are available to eliminate workplace eye injuries. ■



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Hit the Showers

LT. CMDR. BRIAN ENGESSE, USN, OD
Tri-Service Vision Conservation
and Readiness Program
U.S. Army Public Health Center (Provisional)
Aberdeen Proving Ground, Maryland

Many employees that work in lab or industrial environments are at an increased risk of injury from airborne irritants and foreign objects. Emergency eyewashes and showers serve as a means to provide immediate care to flush the eyes and body to provide relief. It is recommended all employees be trained on eyewash and shower locations and their operation. ANSI/ISEA Z358.1 – 2014 provides standards for this equipment in the workspace and may be used as a reference to ensure proper setup.

Common requirements for eyewashes and showers

Emergency eyewash stations and showers must be easily accessible when needed. Pathways to the emergency stations should remain free of any obstructions that could cause additional injury to an employee rushing to the station with compromised vision. The location for the stations should be accessible within 10 seconds from any point in the workspace and marked with visible signage in a well-lit surrounding area.

The water quality must be potable or preserved, depending on if it is a plumbed or portable



station. Weekly checks must be completed on plumbed systems to prevent the build-up of sediment in the water lines and minimize the risk of microbial contamination due to stagnant water. The duration of the check is dependent on the volume of stagnant water in the line. Annual checks should be completed by

Specific requirements for emergency eyewashes

Upon activation, an eyewash station should be calibrated to provide a continuous flow of flushing fluid to both eyes simultaneously. A testing gauge described in ANSI/ISEA Z358.1 – 2014 may be used to easily verify the height of the streams. The

“It is recommended all employees be trained on eyewash and shower locations and their operation.”

safety department personnel to ensure requirements are met.

Once activated, both eyewashes and showers should operate hands-free with a continuous flow of water. The water temperature should be tepid in the range between 60 and 100 F.

gauge should contact the peak of the flushing fluid at some point less than 20.3 cm (8 inches).

The eyewash nozzle heads should remain covered when not in use to minimize risk of hazards from airborne contaminants. Nozzle covers should not require



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a separate motion to remove by the operator when activated. Flushing fluid from the eyewash must be able to provide a minimum of 1.5 liters per min (0.4 gallons per minute) for 15 minutes. If a self-contained eyewash station is used, it must meet the same standards as plumbed eyewashes for activation, duration, fluid volume and height of flushing fluid flow. The self-contained eyewashes need to be visually checked weekly to identify if fluid needs to be changed or replenished. Personal portable eyewash units may be used in workplaces to provide immediate care but do not serve as a replacement for plumbed or self-contained eyewash units.

Specific requirements for emergency showers

In addition to the common requirements stated above, emergency showers must be capable of providing a minimum of 75.7 liters per minute (20 gallons per minute) for 15 minutes. Additionally, the shower head should be installed such that the flushing fluid column is at least 208.3 cm (82 inches) in height but not more than 243.8 cm (96 inches). Although the responsibility to meet the stated requirements above falls upon the workspace supervisors, it is recommended all workspace employees familiarize themselves with the requirements to help ensure a safe workspace for everyone. ■

Editor's note: This article was originally featured in the Tri-Service Conservation and Readiness Program's newsletter, VC&R Quarterly, in January 2016 and is republished with permission.

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Bucket Bust

CHIEF WARRANT OFFICER 2 NICK GLEIM
66th Theater Aviation Command
Washington Army National Guard
Joint Base Lewis-McChord, Washington

My unit had been fighting fires with as many as five other crews at once for a little over a month when the following incident happened. During this time many of us had logged between 50 and 70 hours on the fires, which is an extremely intense environment for all crewmembers.

The more we flew, the more familiar we became with our crews and the mission in general. We knew what we had to do and we began to value speedy response times more and more as the operations continued. As our comfort level grew, so did our complacency level.

The typical daily routine was to preflight the aircraft and then head to the morning interagency briefing for the latest information and learn the planned operations for the day. After the briefing, we'd fire up the aircraft to complete the preflight items and engine power assurance checks. During this time we would also conduct the cargo hook check and a functional check of the water buckets.

One day, a request for a bucket mission came in during the morning briefing, which was unusual since the fire typically gains momentum as the ambient temperature rises around noon. We were quick to get to our aircraft and launch. Because we were in



a hurry, we failed to conduct the cargo hook check. We also forgot to arm the hook for use below 300 feet above ground level as specified in the aircrew training manual.

Due to extremely low visibility during the mission, we chose to conduct a recon of the drop site before getting our first load of water. We wanted to be as light as possible in case the terrain wasn't

chiefs hiked over to assess the condition of the bucket. It was damaged and we would be unable to evacuate it without more crew members to load the helicopter.

We troubleshot the situation back at the helicopter base and found that dust had jammed the pilot's side cargo release switch in the release position, which caused the hook to open when I

“As our comfort level grew, so did our complacency level.”

what we expected. While flying up the mountain, we realized we should have rearmed the hook passing below 300 feet AGL and I did so as the pilot not on the controls. When I did that, the hook opened and the bucket fell among some burned-out trees. We landed on a cool patch of ground in the black and the crew

moved the SAFE/ARMED switch to ARMED. This would have been caught during the cargo hook check, had we performed it. The end result was a damaged but repairable bucket and lessons learned for us about being in a hurry. Take the time to do what you know needs to be checked in your preflight — all of them. ■

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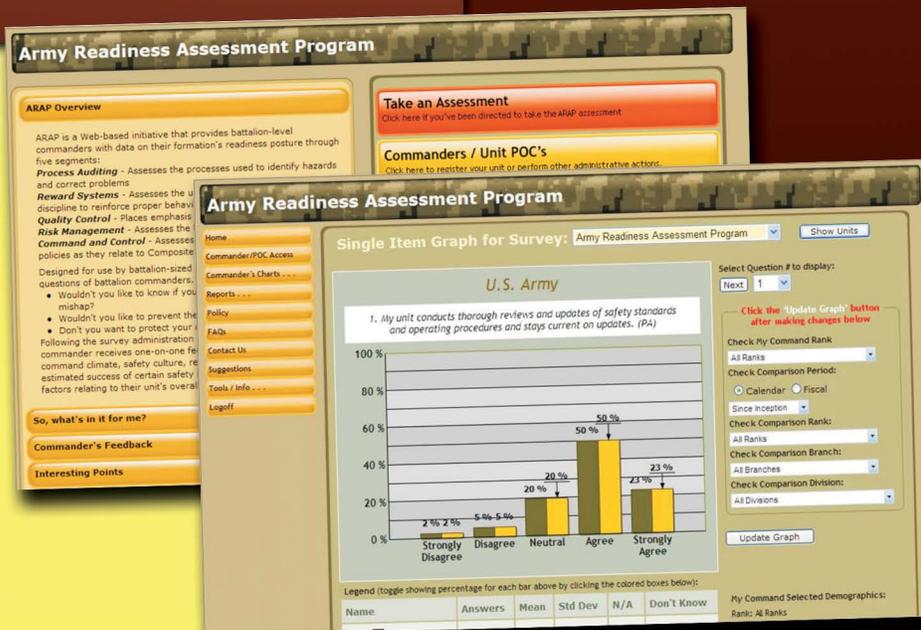
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Shelter from the Storm COMPILED BY THE KNOWLEDGE STAFF



Soldiers must be prepared for any threat they might encounter in the field. With the spring and summer months just around the corner, they can soon expect to see a variety of weather-related risks in their training and operational environments. One of the most common weather events encountered in the field is thunderstorms, which can include hazards such as lightning, tornadoes and flash floods. Let's take a quick look at each one of these hazards individually.

Lightning

Since fiscal 2005, at least 41 Soldiers have been injured by lightning strikes; three Soldiers died from their injuries and another suffered a permanent total disability. More than half of these lightning strike injuries occurred during two events just a week apart in August 2015. In the first, Soldiers were injured when a nearby tree was struck as the

platoon was executing lightning lockdown procedures. In the second incident, lightning struck a tree in the troop tactical operations center, injuring several Soldiers.

If you're caught outside in a thunderstorm with lightning,

“Since fiscal 2005, at least 41 Soldiers have been injured by lightning strikes; three Soldiers died from their injuries and another suffered a permanent total disability.”

seek shelter in a sturdy structure or hardtop vehicle. If you find yourself in a vehicle, sit with your hands in your lap. If possible, shut off electronic communications equipment when lightning is in the area and don't use it unless

absolutely necessary. If you're inside a building equipped with a telephone, don't use it either. Avoid large pieces of metallic equipment, and make risk decisions concerning vehicles loaded with various types of explosives or ammunition. Explosive items and ammunition have varying fragmentation distances, which should be considered in mission planning. Keep this in mind when making the decision on how far to clear away.

When caught in the open with no place to go, ensure you're not close to tall trees or structures that are the highest points in the area. In wooded areas, seek shelter under a thick growth of small trees. Avoid tall objects, isolated trees, bodies of water, sheds and fences. If you are part of a group, spread out and squat down in an attempt to keep

as low a profile as possible while keeping both feet planted firmly on the ground. You want to minimize your body's surface area contact with the ground, so never sit or lie down. The tactical situation dictates other types of mitigation — for



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instance, radio operators should take down long whip antennas to help create a low profile.

Fighting positions create a unique point of interest. During lightning storms, make sure you're not leaning or resting your body on the inside of the hole. Center yourself and remain alert until the storm passes. A properly constructed fighting position will provide you with overhead cover from hail and high winds, and you'll have the lowest profile possible.

Keep in mind lightning can strike even after a thunderstorm has passed. It's best to wait about 30 minutes after the weather passes to resume activities. A general rule of thumb in estimating the hazard area for lightning strikes is flash-to-bang time. If you see lightning, begin counting seconds. If you hear thunder within 30 seconds, you're in a hazard area. If your hair begins to stand on end, squat down immediately and place your hands on your knees with your head between your legs.

Tornadoes

Tornadoes are violent atmospheric storms with rotating winds ranging from 200 to 300 mph in the most severe cases. If you or your unit is caught in the field when a tornado hits, follow these guidelines:

- Seek shelter in a substantial structure and go to the basement or an interior room.
- Avoid trailers or vehicles.
- Never attempt to outrun a tornado in a vehicle; instead, abandon it immediately.

If no shelter is available and you're caught in a convoy, dismount



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your vehicle and lie flat in the nearest ditch or depression. Be sure to secure your Kevlar helmet and other protective items to prevent injury from flying debris. In a defensive position or base camp, a properly constructed fighting position will place you below the ground with overhead cover if suitable structures aren't available.

Flash floods

Flash floods are another hazard associated with storms, and you don't

even have to be in the area receiving the rain for this particular hazard to strike. When selecting operational sites, stay clear of low-lying areas, dry riverbeds, flood plains and canyons. If you're caught outside in a flash flood, move to higher ground immediately. Avoid rivers, streams and low spots. Don't try to walk through flowing water higher than ankle deep and never attempt to drive through flooded areas. Underwater hazards aren't visible, and water more than 1 foot deep can easily displace 1,500 pounds. Just 2 feet of water will move or carry most automobiles.

What else can you do?

Whether you're in the field or in garrison, the best method for maintaining environmental situational awareness is to monitor weather reports. This usually is accomplished in the field via the chain of command and tactical operations centers receiving routine weather data as part of operations. However, if the National Weather Service has deemed weather severe enough to put out a watch or warning, then your chain of command usually will provide more guidance on unit actions. If you don't have access to immediate weather data, you can rely on your own judgment and still take appropriate measures to prevent or limit the risk to you and your Soldiers.

These are just a few general tips. Depending on your particular circumstances, you might want to conduct further research into what you can do as a leader when faced with changing weather that might affect mission outcome. ■

**Get the tools before
the road gets rough.**



Driver's Training Toolbox

<https://safety.army.mil>





Sons of Safety

CHIEF WARRANT OFFICER 3 TERRILL CAMP
2nd Battalion, 210th Aviation Regiment
Fort Rucker, Alabama



While in Afghanistan, every Thursday night I would get together with three friends and watch “Sons of Anarchy,” a television show about the exploits of an outlaw motorcycle gang. After about six months of watching, we decided we all needed to buy motorcycles when we returned home. We figured our buddy, Dustin, who was an experienced rider, would be a good person to give us some guidance. While his advice was sound, our execution was a bit questionable.

Dustin had been riding motorcycles since he was about 7 years old, starting out on a little 50cc dirt bike and working his way up to a Harley. The first thing he told us was we needed to sign up for a Motorcycle Safety Foundation riding course. He then suggested we buy ourselves smaller bikes, such as a 250cc Honda Rebel,

until we got more familiar and comfortable riding. Of course, we weren’t having any of that. Nobody on “Sons of Anarchy” rode a 250cc Honda. That just wasn’t cool.

Once we got back home, all three of us signed up for the MSF’s Basic RiderCourse. Unfortunately, because of the large number of people that had signed up for the course, it would be a few

“ Later that day, less than two miles from my house, I made a rookie mistake — I didn’t look through my turn.”

months before we could start the training. In the meantime, I continued my search for the perfect bike. I eventually found exactly what I was looking for — a 2008 Harley-Davidson Dyna Low — at a dealership in Texas.

It was 1584cc’s of pure beauty in Copperhead Pearl and Red Hot Sunglo. I called the dealership, negotiated a price over the phone and had the bike shipped to Kentucky. I couldn’t wait to ride it, but first I had to complete my training requirements.

After what seemed like an eternity, our start date for the Basic RiderCourse finally arrived. To my surprise, just three days into training we were all zooming around the course track. It was great, but what we failed to realize was we were riding 250cc motorcycles in a controlled environment. On the road, we’d be dealing with real-world obstacles. Our commander, who also was an avid rider, told us we needed to make sure we entered the Motorcycle Mentorship Program and gave us advice on when and where we should ride at first. So, Dustin

was stuck with not only being our friend, but also our mentor.

Dustin talked to us about what to do and what not to do on the road and took us to parking lots for more low-speed practice.



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Eventually, though, I got bored with all the repetition. After a lot of whining on my part, Dustin finally relented and took me out for a short ride. Just as we were finishing up, we stopped to eat at a restaurant, where he went over the same lessons he'd given us many times before. By this point I was thinking to myself, "All right already! I've got it!"

Later that day, less than two miles from my house, I made a rookie mistake — I didn't look through my turn. The next thing I knew I was heading straight for a large, steep drainage ditch.

Then Dustin's words popped into my head: "Remove the power and come to a controlled stop." Thanks to the repetition of his instructions, I reacted just the way he'd taught us and safely stopped just short of the ditch.

I'm a firm believer in the Army's Motorcycle Mentorship Program. While the Basic RiderCourse gave me a great foundation, I needed that extra training from Dustin afterward to continue building my knowledge and abilities. When I went through the MSF's Advanced RiderCourse a year later, as well as refresher

courses after each deployment, it revealed the bad habits I had started to develop. I was then able to make corrections before that habit got me into trouble.

I continue to ride with more experienced riders in my unit. I'm always more than happy to hear their constructive criticism and suggested corrections without taking it personally. The way I figure it, I can recover from hurt feelings or wounded pride a lot faster than from injuries caused by a preventable accident. ■

RIDE FOR YOUR LIFE

The Motorcycle Mentorship Program establishes voluntary installation-level motorcycle associations where less experienced riders and seasoned riders can create a supportive environment of responsible motorcycle riding and enjoyment. This can create positive conduct and behavior and serve as a force multiplier that supports a commander's motorcycle accident prevention program.

MMP
MOTORCYCLE MENTORSHIP PROGRAM

Check out the U.S Army Combat Readiness Center MMP website for some examples of active mentoring programs.

<https://safety.army.mil/mmp/>

HERET COMES

Are you ready
to hit the
road?

- Have your vehicle serviced
- Plan your route
- Pack an emergency road kit
- Check the weather forecast
- Get plenty of rest
- Complete a TRiPS assessment

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So are **YOU** ready ... or not?



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To Fly Another Day

CHIEF WARRANT OFFICER 2 DAVID E. BLOMBERG
B Company, 7-101
Fort Campbell, Kentucky

Talking to your crew about in-flight issues is a good idea. It could prevent an unplanned landing in hostile territory. Here's how I learned.

I was halfway through my pilot in command check ride for the CH-47F with a standardization pilot from my company in Regional Command East. The flight originated at Forward Operating Base Shank. We had enfiled a group of U.S. and Afghan forces for a mission without incident and returned to Shank.

We then received the call for exfil, cranked up and departed. After a few minutes into the 30-minute flight, the SP looked at me and asked if I had hit the cyclic. As I told him that I had not, we experienced an uncommanded roll to the right.

This was a four-ship mission and we were Chalk 3. We told our flight engineer what we were experiencing and asked him to check the flight control closet. He did and found nothing wrong. It took us about five minutes before we let the rest of the flight know we were having issues, but we thought we had the problem resolved after checking our automatic flight control system. The problem seemed to stop and we still felt we could continue the mission.

As we flew on, the controls became sloppier to the point that we determined it would not be safe to load troops. We talked with the flight and fell back into the Chalk 4 position to minimize control inputs.



Thankfully, due to our planning and the fact that several troops did not show for the mission, we were able to put our share of the troops on the other three aircraft. However, we were now so far away from Shank that we did not want to break away

That's when we saw that every control movement caused fluid from the upper dual-boost actuator to squirt out. Air was getting sucked back in, thus putting air into our flight control hydraulics. This could have caused them to lockup,

“The problem seemed to stop and we still felt we could continue the mission.”

from the rest of the flight because we were not sure if we were going to make it back. We did not want to be forced to land, or worse, without friendlies in the area to know our situation and status, so we stuck with the rest of the flight till we arrived at Shank and went straight to parking and shut down the aircraft.

After exiting the aircraft we climbed up on it and observed as the flight controls were actuated.

which may have led to a crash.

We were able to use our crew's experience and communicate in flight to arrive at a solution to the immediate problem. No aircrew wants to experience air inside their hydraulic system. Fortunately, in this case, aircrew coordination proved critical to understanding and managing a serious situation and that got us back to base safely to fly another day. ■



It Could Happen to You

CHIEF WARRANT OFFICER 5 DANIEL CROSS
B Company, 1st Battalion, 13th Aviation Regiment
Directorate of Evaluation and Standardization
Fort Rucker, Alabama

Like most Soldiers, I've read the articles and seen the posters that say, "Seat Belts Save Lives." But I never really thought I would be involved in an accident. That all changed when I was in a life-threatening two-vehicle collision in Kuwait. I now know firsthand the value of wearing a seat belt.

I was stationed at Camp Udari, Kuwait. Though most of our battalion had moved forward and was in Bagdad, our company remained at Udari with two important missions: provide aviation intermediate maintenance support and find, requisition and push forward desperately needed parts.

One morning, I was riding in a non-tactical vehicle with a contractor. We were heading from Camp Udari to Camp Doha, and I was riding in the front passenger seat. One of the NCOs from my company was also riding with us because he was going on emergency leave and needed to get to Camp Doha. He was sitting in the back seat, behind the driver. We were all wearing our seat belts.

As we approached a three-way intersection, there were several commercial buses filled with Soldiers in the left lane stopped at the traffic light. There was no traffic in the right lane, so the contractor driving our vehicle merged over and slowed down. When the light turned green, he accelerated and we started to pass the buses in the left lane. Because the buses were blocking our vision of the intersection, we didn't realize a civilian tractor-trailer in the oncoming lane had run a red light and was making a left turn in front of us.



As we entered the intersection, we saw the tractor-trailer but had no time to react. We struck the side of it at the rear dual tires. I don't remember the airbags deploying, but they did. I do remember moving the airbag out of the way and noticing the vehicle was now on fire. Apparently, the impact broke the fuel line and something had ignited it.

The contractor had injured his ankle but said he was otherwise OK. My body was hurting, but, as far as I could tell, I was also fine. I jumped out to help the NCO in the back seat. He'd bitten his tongue on impact and had the wind knocked out of him. The impact was hard enough that the body of the vehicle had buckled and the doors on the left side would not open. However, the NCO was able to slide across the seat and exit the vehicle from the right side.

After getting him clear of the vehicle, I went back to help the driver. By this time, there were Soldiers coming from the buses that were next to us at the intersection. They were able to help carry the contractor away from the burning vehicle.

Within a few minutes, the vehicle was engulfed in flames. Shortly thereafter, an Army ambulance arrived at the scene to take us to the hospital. The contractor was admitted with a broken ankle, while the NCO and I were released after being examined.

After this accident, two things became very clear to me. First, seat belts saved our lives. Second, defensive driving could have prevented this accident. As we approached the intersection in the right lane, we could not see because the buses to our left blocked our view. In our case, we had the green light. Unfortunately, there is always someone who thinks he or she can beat the light. That may have been the attitude of the tractor-trailer driver. If we'd driven more defensively, we would have slowed down so we could see past the buses before entering the intersection. We may have been able to stop and avoid the accident.

The one thing we did do right that day was buckle up. Always wear your seat belt whenever you're in a vehicle. You never know when it's going to save your life. ■

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Speed Kills COMPILED BY THE KNOWLEDGE STAFF



The young NCO was tired as he drove vehicle down the autobahn. He and his three friends, a couple of junior enlisted Soldiers and the civilian girlfriend of one of the passengers, had stayed at the club until after 4 a.m. The Soldiers had to get back in time for the morning PT formation, and the driver was pushing hard on the gas pedal. Although the recommended autobahn speed limit was 130 kilometers per hour — or 80 mph — he was doing more than 110 mph. This wasn't unusual for these Soldiers, who had gotten into a habit of partying well into the early morning hours and then rushing back to post for formation. Today, they wouldn't make it.

They'd been on the road for about 20 minutes and had covered 38 of the 61 miles back to post. The NCO looked ahead,

and saw a couple of tractor-trailers in his lane and moved to the left to pass them. It had rained lightly earlier that morning and the road was still a bit wet. As he flew past the first tractor-trailer and approached the second, he didn't notice the left-hand curve ahead.

“The impact crushed the car’s roof, pushing it rearward and to the left.”

Instead of rounding the curve, the car went straight and struck the tractor-trailer's left-rear wheels. The impact spun the car counterclockwise 360 degrees. The car then slammed into the left-rear corner of the trailer. Now jammed beneath

the trailer, the car was dragged 100 yards down the road before the truck's driver could stop.

The damage to the car was horrendous. The impact crushed the car's roof, pushing it rearward and to the left. Despite the roof crushing to within 6 inches of his head restraint, the NCO survived, opened his door and got out. He then went to the left-rear door and got the young woman out of the car.

After trying to talk to the truck driver and taking the girl to the truck's cab to keep warm, the NCO went back to check on the other two Soldiers in his car. Neither showed any signs of life. Both had been sitting on the right side of the car — one in the front seat, one in the backseat — and died when the car's roof was crushed during the accident.

Why did this accident happen?

•The NCO was overconfident and fatigued and drove beyond his abilities for the conditions. Because of his fatigue and, possibly, his vision being obscured by rainwater swept onto his windshield, he lost situational awareness. Because he didn't recognize he was entering a left-hand curve, he drove straight and collided with the truck.

•The driver was traveling at an excessive speed when he attempted to pass the tractor-trailers. As a result,



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he lacked the reaction time needed to avoid the collision.

• The driver showed poor discipline by disregarding his leaders' directions regarding his off-duty activities. His pattern of partying until the early morning hours had affected his on-duty performance, and his leaders had directed him to discontinue that behavior.

How can we prevent similar losses?

• Educate Soldiers on the dangers posed by driving at night, fatigued and in bad weather

conditions to help them recognize their own driving limitations.

• Educate Soldiers on the dangers of driving at excessive speeds and how such speeds deny them the reaction time needed to avoid an accident.

• Commanders must ensure young NCOs understand their responsibilities as junior leaders and recognize how indiscipline on their part affects the Soldiers they supervise. Commanders must also take action to identify, counsel and follow-up with Soldiers who display high-risk behaviors.

Conclusion

Losing a Soldier to an off-duty accident reduces unit readiness as much as losing one on duty. Because of that, leaders can't afford to look only at the impact on duty performance caused by a Soldier's unsafe off-duty behavior. A leader's responsibility for his Soldiers' safety doesn't stop at the end of the duty day or at the front gate. It's a 24/7 mission. ■

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No Time for Ego

CHIEF WARRANT OFFICER 2 SCOTT MUNROE
B Company, 4th Battalion,
160th Special Operations Aviation Regiment (Airborne)
Joint Base Lewis-McChord

As an Army pilot with 750 flight hours, I'm still fairly new to the world of aviation. Everyone knows what it's like to be the new guy — you want to prove yourself and never want to be the person who throws in the towel when training runs late or you're not feeling well. But sometimes it is necessary to take a step back and reevaluate what you're doing to avoid making a mistake that could lead to catastrophe.

In this story, our company had deployed three Chinooks to Southern California to provide training support for external ground units and also get our own internal training. It had been a busy week between the flight to get there, setup of the



didn't think much of it. I was concerned about the rest of the day — an 1.5-flight out to the New Mexico desert, followed by a link-up with a C-130 refueling tanker, multiple training iterations of fighting radar threats and aerial

and situational awareness. Add to that zero illumination and the low contrast of the desert and I knew it was going to be a long day with almost eight hours of flying as planned. But I was looking forward to the flight nonetheless.

“We’ve been doing dust landings to the point of our eyes bleeding and we were running drastically late on using up all the ammo we’d brought to the gunnery range.”

planning area and movement immediately into our own internal training, so we had been pushing into the backend of our duty day every day.

I woke up one morning with a headache and sore throat, but

gunnery involving countless dust landings, and fast rope approaches in one of the dustiest environments I've experienced. All of these are complex maneuvers demanded the highest level of crew coordination

Fast forward nine hours and our flight of two CH-47s had been out flying for six hours. We've been doing dust landings to the point of our eyes bleeding and we were running drastically late on using up all the ammo we'd brought to the gunnery range. With still a 1.5-flight home, I realized I had progressively been feeling worse all day. I hadn't had strep throat since sixth grade, but it felt just like I remember it — headache, dizziness, fever and, of course, a throat so dry I couldn't swallow. I realized I was exhausted, much more so than a six-hour flight should have made me. It was taking



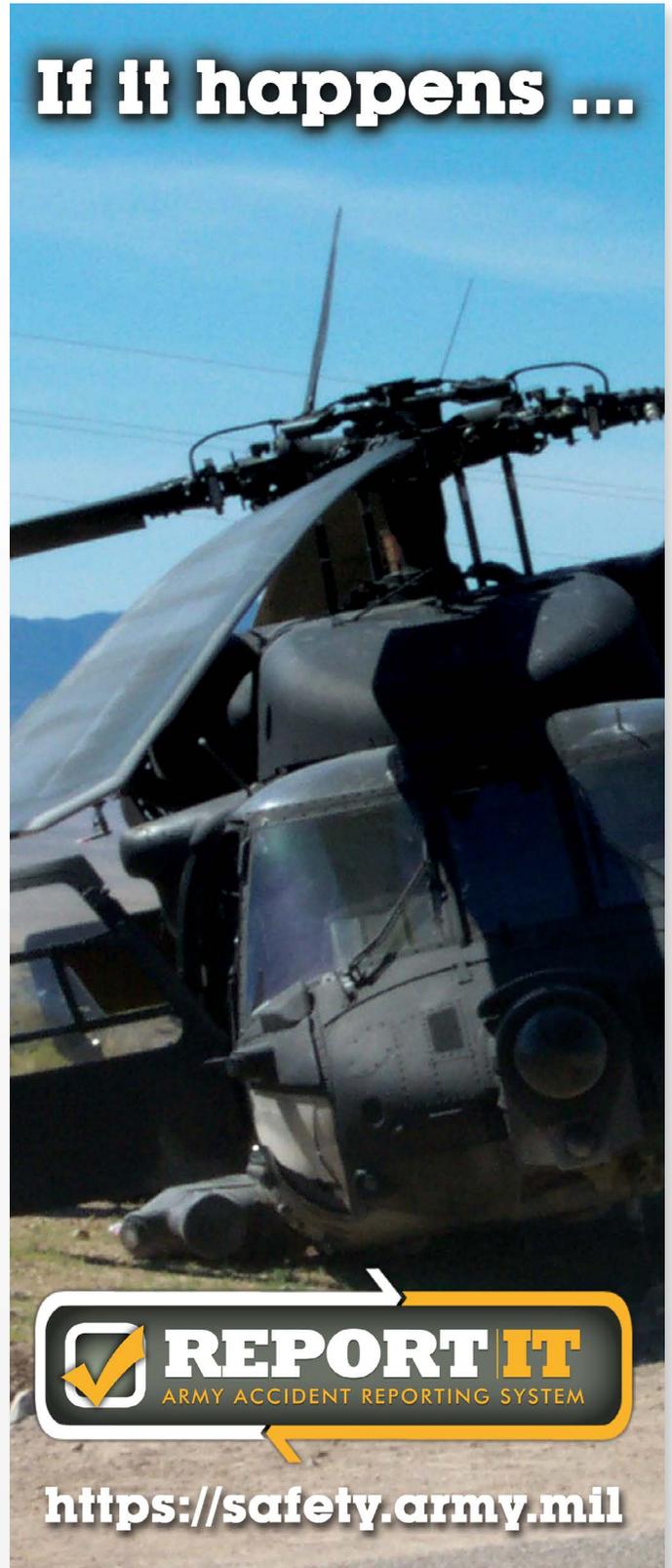
every bit of my focus to fly the aircraft.

Next thing I know it was time to refuel. It was not part of the plan, but because gunnery is running late, we had to refuel and head back to the range to expend our remaining ammo. The airport where gas was located was unfamiliar to me. It was one of those airports with three different runways, each in a different direction. This was where I made a mistake that luckily did not turn into a bigger problem.

The airport cleared us to land to one specific runway, but I left the GPS guidance up to a point that was slewed to the center of the airport, which happened to be 1.5 miles from the runway where we were cleared to land. As we came upon the airport, the combination of multiple runways and improper guidance confused both myself and the other pilot and we aimed well short of the runway where we were cleared to land. We realized our mistake as we flew directly over the center of the airport. Luckily, this mistake only resulted with us doing a go-around. But had the airport been busy with other aircraft in the pattern or landing on other runways, this minor error may have resulted in a much bigger problem.

Multiple lessons were learned with what could be viewed as a minor mistake. But taking a step back and looking at the bigger picture, it is important to note how much fatigue played a role. Knowing I was sick and we still had multiple hours to fly, I should have brought it up with the other pilot and discussed the possibility of calling the night off early, even if it meant cutting training short. Fatigue can cause a minor mistake to turn into a fatal error, whether it's flying a multimillion dollar aircraft, shooting at the M4 range or even driving home after a long day at work. It's important to know your own limits and take ego out of the equation when making decisions. ■

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