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KNOWLEDGE

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

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Mission Statement:
The Army Safety Team provides the Army with safety and risk management expertise to preserve readiness through the prevention of accidental loss of our Soldiers, Civilians, Families and vital resources.

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WINTER WEAPONS HANDLING

RETIRED SGT. 1ST CLASS JAMES ROONEY
Redstone Arsenal, Alabama

Cold temperatures can greatly affect the maintenance, functioning and employment of infantry weapons. To properly handle and care for your weapon under a variety of adverse conditions, you must take temperature into consideration. Your weapon is only as good as its maintenance. This is especially true when the mercury falls below freezing.

It is very important that you never let condensation form on your weapon. Condensation, often referred to as sweating, forms on weapons when they're moved from extreme cold conditions to any type of heated environment. When the weapon is reintroduced to the extreme cold, the moisture refreezes and causes the internal mechanisms to freeze together, causing stoppages. For this reason, it's best to leave weapons outside during freezing temperatures.

When left outside, weapons should be readily accessible, guarded and sheltered to keep ice and snow from accumulating in the working mechanisms, sights or barrel. Because the condensation process will continue for about an hour after bringing it into a warmer environment, wait until the sweating stops before attempting to clean the weapon. Once you're inside the shelter, keep your weapon near the floor to minimize condensation. In addition, keeping the interior of the shelter close to 32 F will minimize condensation.

Once you move back into the cold, operate your weapon manually by pulling the charging handle to prevent the internal parts from freezing. Drop the magazine, ensure the weapon is clear and then charge the handle several times during the first five minutes after leaving a warm shelter.

When you clean your weapon, completely strip it and use a non-residue solvent to remove all lubricants and rust-prevention compounds. Once it's clean, use a lubricant that won't thicken and cause the weapon to operate sluggishly or jam. Use Lubricant, Arctic Weapon rather than Break-Free CLP in all weapons except the M249 squad automatic weapon and the M2 .50-caliber machine gun. Remember to use lubricants sparingly.

Another consideration is your battlesight zero. You should battlesight zero your weapon in the area where you're going to use it. Temperature, elevation and atmospheric pressure all affect how the weapon operates and where the round hits. A common error occurs when Soldiers battlesight zero the weapon at home station and then deploy to a different area. This may affect the weapon, leaving a Soldier to wonder why it isn't shooting to the point of aim. If you want to engage your enemy with precision, battlesight zero your weapon in the area of operation.

These are only a few tips you should consider when operating your weapon in a cold climate. The Army will continue to operate in cold weather environments worldwide, so we must be able to maintain our weapons in any climate. Including these basic lessons in your pre-deployment training plan will help ensure you and your Soldiers are battle ready. ■

FYI

Have you checked out the U.S. Army Combat Readiness Center's Range and Weapons Safety Toolbox? It was developed to aid leaders in the management of range operations and safe weapons handling. The toolbox provides a centralized collection of resources to establish and maintain safe and effective ranges and training programs for military and privately owned weapons. To learn more, visit https://safety.army.mil/ON-DUTY/RangeandWeaponsSafetyToolbox.aspx. An AKO login is required.

Unseen Risks

CHIEF WARRANT OFFICER 4 KRAIG M. LANG
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Let's face it, we aviators are can-do people. When confronted with adversity, we find a way to accomplish our mission. However, even with the best of intentions, we occasionally do things we later wish we had done differently.

At about 1400 on Nov. 2, 2006, I gathered the Kiowa Warrior pilots of 6th Squadron, 17th Cavalry Regiment, Fort Wainwright, Alaska, for a pre-mission briefing. I was an OH-58D(R) standardization pilot/instrument examiner and we planned to conduct winter environmental training in day, night and night vision goggle modes. Having previously completed the necessary academics, we updated the risk assessment and mission briefing forms to reflect crew changes. We also conducted a collective preflight of the aircraft, highlighting cold weather considerations. I departed for the day portion of the qualifications shortly afterward and returned about 1600 as planned. I saw there wasn't going to be enough snow on the ground for everyone to get quality training.

I began the night and NVG portion of the training at 1730. An hour later, the second pilot entered the cockpit so we could begin his training. We conducted several required maneuvers at the airfield before departing the traffic pattern at 1900. We then flew to a training area north of Ladd Army Airfield to conduct terrain flight and confined area operations. While hunting for snow to land in, the pilot identified an SUV that appeared to be stuck on its side. I assumed the controls and maneuvered the aircraft to get a better look. We saw a light and observed people inside the SUV. Knowing that sub-zero temperatures posed an immediate danger and seeing the condition of the SUV, I decided to land and assess the situation and render appropriate assistance as needed.

I chose a flat, open area along a trail 50 meters behind the SUV, which had broken through the ice, and executed an approach and landing. I aligned the aircraft with vehicle tracks on a trail in the landing zone and placed the skids parallel with the ruts, facing the vehicle. Two occupants got out of the SUV. I told the pilot to exit the aircraft and determine if they needed assistance. He opened the right cockpit door and was swinging his leg out when the aircraft settled to its left-rear side. I felt feedback in the pedals and believed the tail rotor contacted something. I'd barely announced that I was shutting down the engine when the aircraft began rapidly settling and list to the left. The ice below began breaking under the skids and the aircraft sank into a muskeg water hole. Despite my best efforts to prevent it, the rotor blades struck the ground and severed the drivetrain. After the blades stopped, the pilot jettisoned the right door and exited, turning to assist me, as I was now submerged in water up to my left armpit. The left chin bubble had broken while settling through the ice, causing water to fill the cockpit.

I completed the emergency shutdown and, as I climbed across the cockpit and out of the aircraft, the pilot immediately pulled out his survival radio and emergency strobe. Using the Guard frequency, he contacted a Chinook flying in the airfield traffic pattern. The Chinook immediately responded and began orbiting over the accident scene. As they did, they relayed the situation and location to air traffic control, which sent crash rescue to the scene. I used my cellphone to call our squadron staff duty officer to initiate the pre-accident plan.

Due to being wet and extremely cold, my cellphone stopped working and I could no longer assist in the recovery efforts. At minus 18 F, I quickly began to suffer the onset of hypothermia. My required additional cold weather survival equipment was on board the aircraft, trapped beneath the ice. Emergency services arrived on scene within 20 minutes and immediately treated us for hypothermia. We were transported to the hospital for evaluation after the accident scene was secured.

While at the hospital, I reflected on my actions. Could I have helped the individuals stranded in the SUV without having to land like the CH-47 that rendered aid to us? Would I have still landed? My answer is yes to both. But with regard to landing, I would've approached it in a more patient and deliberate manner, aware that not all hazards are obvious.

A pilot's desire to help in an emergency must be tempered by understanding the risks involved and applying the necessary mitigation. Even good deeds need to be checked with careful counsel. If we ride to the rescue without mitigating the risks, the next rescue mission may be to save us. ■

"AT MINUS 18 F, I QUICKLY BEGAN TO SUFFER THE ONSET OF HYPOTHERMIA."

It's easy to get that kid-like feeling at the sight of the glittering beauty of snow and ice. In fact, I still find myself getting excited about the prospect of snow. I've also learned, however, that snow and ice are not always so grand if we fail to take the proper precautions.

ON THIN ICE

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Although statistics vary among national recordkeeping agencies, it is accurate to say that thousands of Americans become victims of snow- and ice-related falls each year. These accidents result in days, months and even years of pain and agony among the U.S. workforce and, in some cases, permanent disability and death. We also experience these types of accidents among our federal working populations on and off Army installations. Each year, Soldiers and civilians injure themselves by slipping on ice, resulting in lost workdays. Typical injuries related to these type falls include pelvis, arm, elbow and wrist fractures. Other common injuries include concussions, facial bone fractures and broken teeth.

It's easy to prevent these types of accidents with a little awareness and some precautions. One of the simplest safety measures you can take is wearing the proper shoes for the weather conditions. Common sense should tell us that smooth leather- or plastic-soled shoes are not conducive to walking safely over packed snow and ice. Instead, wear a nonslip rubber- or neoprene-soled shoe or boot that has grooves. Rubber overshoes or boots are fine if they have similar specifications. If you must wear street shoes to work, consider carrying them with you and changing when you get inside the building. The same logic applies to women with respect to heels.

Another thing to consider is the temperature of the soles. The heater in your car warms your shoes to a comfortable temperature. When you reach your snow-packed or icy parking place, human nature tells you to fling open the door and make a mad dash to the warmth inside. When you do this, the warm shoe sole hits the ice and immediately melts the surface, creating a thin pool of water between the surface and the shoe, setting up a hazardous condition. Instead, plant your feet firmly on the icy surface while still sitting in the car seat for a few moments until the shoe temperature cools down and doesn't pool water under your shoes. Maintain a good two-hand hold on the car door when you get out and establish firm footing before walking.

You should also dress for the occasion. Winter conditions call for more clothing. In addition to providing warmth, thick bulky layers will provide protection in case you fall. Consider a good cold weather hat, thick knit hat or ski hat for warmth and head protection. Gloves, scarves and earmuffs are also useful.

Fresh snow is usually easy to traverse without falling, but conditions such as partial melting and packing of the snow can change the situation. Freezing rain, sleet and wintery mix conditions can be particularly hazardous. Remember to treat walking surfaces that look wet or are shaded by trees or buildings as if they're still frozen, even if you have observed melting in other areas.

There are some simple and helpful techniques to remember when walking on packed snow and ice. Choose designated walkways, preferably walkways that have already been deiced. Now is not the time to be taking shortcuts across snow banks and negotiating untraveled areas where hidden obstacles may lurk under the snow and ice. In some cases, walkways may be extremely slippery from ice melting and refreezing. Therefore, the best option for traction and ease of travel could be the grassy area adjacent to the walkway.

Even our best efforts at preventing a fall can fail, so I would like to mention a few techniques you can use to help reduce the risk of injury if you do take a spill. Try to relax the muscles in your body when you fall. If you're falling forward, put your arms in front of your face and turn your head left or right. If you're falling backward, tuck your chin into your chest to minimize the whiplash effect on your neck and the back of the head. If possible, put your hands behind your head.

If you fall sideways, allow your upper arm to take the impact. I've had some success in using my hands to break a fall, but others have sprained or broken fingers, wrists and elbows in doing this. I normally don't recommend using the hands and arms for anything other than protecting the face and head during a fall, especially for those of us who may be a little older and carry a little more body weight than we should.

My mother used what I think is an old southern phrase — "All stoved up" — to describe a myriad of sore, painful or aching bones and muscles resulting from overwork or an accident. My hope is you will find something I have mentioned in this article useful for this and future winters to help keep you safe when the skies open up to freezing rain, sleet, snow or the wintery mix. It might just keep you from being "all stoved up" because of a fall on the snow and ice. ■

CONSIDER ALL HAZARDS

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Several years ago I was selected to attend the Air Force's Weapons and Safety Management course as part of my career development program. The course was about two months long, so I opted to drive to the training site in Denver, Colorado, instead of taking a commercial flight. After all, I figured I'd need some ground transportation when I got there. So I packed my recently restored Chevy Nova and left on a Friday afternoon to begin my journey.

It was fall and the drive to Colorado was enjoyable as I saw the trees turning beautiful shades of gold, brown and red. As luck would have it, winter came early to Colorado, bringing with it the first of many snowstorms. We didn't get a lot of snow where I'd lived in west Texas and, when it did fall, the highways, roads and schools all closed. Because of that, I didn't know how to handle driving in the snow.

During my last weekend in Colorado, a blizzard dumped about two feet of fresh snow, covering the landscape, highways and roads. I took my final test and got on Interstate 25 about 10 a.m., driving slowly until I reached the south side of Colorado Springs. I remember the sky was absolutely clear and blue and, beneath it, stretched endless miles of snow and ice. I drove through Colorado's southern border and turned off I-25 at Raton, New Mexico, heading southeast on U.S. Route 87 toward Amarillo, Texas.

As I drove, I caught up with the blizzard that had gone through Denver. It was sunset and the temperature was rapidly falling. I was 30 miles north of Amarillo when my lack of experience caught up with me. As I attempted to cross a bridge, my car began sliding and trying to swap ends. I struggled to regain control by steering into the slides but found myself a passenger in an out-of-control vehicle spinning down the highway. As I spun, the "Welcome to Amarillo" sign flashed past my windshield several time before I finally stopped, facing backward. At that moment, happiness was not seeing that welcome sign in my rearview mirror!

Two local ranchers stopped to see if I was all right and informed me I'd hit a patch of black ice on the bridge. When they said black ice, I thought they were kidding. After all, everybody knows ice is frosty white or clear, right? Wrong! I'd just learned a lesson about driving in winter weather and was fortunate I was able to walk away.

I found a hotel and stopped for the night. When I got up the next day, the sky was clear and I made it home without any further problems. Looking back, I realize I could have prevented the incident. Had I checked the weather and waited another day before leaving Denver, I would have missed the storm as it passed through the Texas panhandle. I simply did a poor job of risk management. I didn't think about what could happen (identify hazards). My failure to assess the risks, coupled with not having experience driving on icy roads, could have cost me my life.

Fortunately, this was a close call — one of those opportunities to learn without paying a heavy price in the process. The lesson from this is simple: Consider all the hazards — including those you may face further down the road during your trip — when assessing risks. You may save yourself from running into something you won't like. ■

SURVIVING BLACK ICE

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Black ice can be a serious driving hazard when the temperature dips below freezing. Black ice forms when snow, water or other types of condensation melt onto the roadway and refreeze. It is called black ice because it is difficult to see and can blend in with the road color. It is most common on bridges, overpasses and in shaded sections of the road where it can remain frozen when other parts of the road have thawed out. You need to follow certain precautions when driving in winter weather or when black ice has the potential to form on the roads.

The first precaution is to always wear your seat belt — something you should be doing anyway. Then, as you drive, watch out for black patches or what appears to be water on the road as this could be black ice. Also, just as in rainy weather, avoid using your cruise control or overdrive as these can send your car out of control. Allow a generous following distance behind the vehicle ahead so you'll have ample room to stop or maneuver if you hit ice or need to react quickly. Accelerate slowly to maintain traction and never slam on the brakes, which can cause a skid. If you notice a possible trouble spot ahead, shifting into a lower gear will reduce your speed and give you more control of your vehicle. Should these precautions fail and you find yourself beginning to skid, here are a few driving techniques to help you regain control.

If you feel your vehicle beginning to skid, quickly take your foot off the gas, as accelerating only increases your chances of spinning. Also, don't slam on the brakes; this will send you skidding out of control. If you have a stick shift, push in the clutch or put the transmission in neutral and allow the vehicle's momentum to carry you across the ice in a straight path. In the event that the car begins to skid, turn the steering wheel in the direction of the skid to get the vehicle back on track.

Using these techniques can make the difference between driving out of a skid and spinning out of control. While winter driving has its risks, being prepared and alert can keep you on the road and out of an accident. ■

Play it SAFE

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It was a clear, crisp day in New Hampshire's White Mountains as we flew visual flight rules in our UH-60A. The pilot in command for this flight and I had departed the Army National Guard Concord Army Aviation Support Facility for some mountain training. The winds were light enough that we practiced mountain approaches to the helipad atop Mount Washington, not far from an observatory.

We were flying without a crew in the back, and the sun coming through the windows kept us from needing to run the heater. As a result, we had very little air circulation in the aircraft. As we hovered over the pad on one of the approaches, the small vent on my pilot-side window popped open and the PC thought he smelled something. I closed the vent, commenting that I hadn't noticed anything unusual.

We decided to land nearby at Twin Mountain Airport to check the aircraft. As we slowed to land and entered effective translational lift, we both immediately noticed something that smelled like burning plastic. Up to this point, nothing in the cockpit suggested any problems and our engine indications were all within limits.

Once we were on the ground, I told the PC that because of the odor I suspected we had an electrical problem. He did a walk-around of the aircraft, looking to find the cause. Just as he was finishing, smoke began billowing into the aircraft from the right-rear part of the cabin near the rescue hoist. He immediately reentered the co-pilot's seat and we performed a dual emergency engine shutdown and exited the aircraft.

Fortunately, we had another aircraft in the vicinity. Once the smoke and fumes cleared out of the cockpit, we used our high-frequency radio — which operated on battery power — to contact them.

"CHOOSING TO LAND THE AIRCRAFT AT A SUITABLE SITE AND GIVE IT AN ONCE-OVER PAID HUGE DIVIDENDS IN THIS CASE."

While the other aircraft was en route, we inspected the No. 2 engine cowling. We discovered the V band clamp connecting the engine to the hover infrared suppressor system baffle deswirler had failed. Looking closely, we could see a one-inch gap between the sections. The smell we noticed was gaskets melting in the No. 2 engine cowling.

The second Black Hawk landed behind us and shut down. Its pilot walked to our aircraft, stopping to pick up a metal fin lying on the tarmac. We soon identified it as a missing fin from the deswirler. Fortunately, the PC in the other aircraft was our facility maintenance officer. He assessed the damage and took pictures of the area. We then secured the aircraft and left it under the supervision of the local sheriff's department. The UH-60 was recovered two days later. Upon examination, maintainers found damage to the aircraft's No. 2 engine cowling and HIRSS baffle deswirler. High temperatures also damaged sheet metal in the engine compartment.

What I took away from this incident was that it definitely pays to play it safe, especially in a peacetime environment. Choosing to land the aircraft at a suitable site and give it an once-over paid huge dividends in this case. I'd hate to think about what could've happened had we headed home fat, dumb and happy and something major failed. ■

Are You Injury Prone?

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Do you know what injuries are? They're actually much more than broken bones, ruptured blood vessels and bruises. Injury is the damage to body tissues caused by an instantaneous or repeated force. Injury categories and examples include:

- **Acute trauma** — fractured bone, strained/torn muscle, sprained joint, open wound, animal bite, laceration, broken tooth
- **Cumulative microtrauma** — overuse injuries, including tendonitis, bursitis, friction blisters, stress fractures, runner's knee, low back pain, acquired flat foot
- **Environmental** — heat stroke, heat exhaustion, sunburn, frostbite, hypothermia, altitude sickness, lightning strike
- **Poisoning** — ingestion, injection, contact or inhalation of a foreign substance (examples include cyanide, botulinum, chlorine gas)
- **Non-environmental** — thermal burns (fire, grease), radiation sickness, electrocution
- **Other** — suffocation/drowning, surgical mishap, abuse/intentional damage/neglect, a foreign body in eye/nose/ear/mouth

The severity of an injury includes the urgency and complexity of the medical treatment, costs, time hospitalized and number of follow-up medical visits and days of lost or restricted duty. Some injuries also lead to long-term or permanent effects, such as chronic knee or back conditions, while others result in medical discharge from the military.

Austere environments and physically demanding military training and occupational duties predispose Soldiers to many types of injuries. In fact, injuries as a whole are the leading cause of Army active-duty medical encounters (Figure 1). Injuries continue to have a major impact on Army readiness through lost duty time, reduced performance and medical and disability costs.

This past year alone, Army Soldiers were treated for more than 1 million incidents of new injuries (Figure 2). Surprising to some, the vast majority of these are cumulative microtraumas, otherwise known as overuse injuries. These injuries most often occur to the musculoskeletal system (bone, muscle, joint, ligament, cartilage, tendon, fascia, bursa and synovium), and the majority are caused by repetitive training activities that put too much stress on the same body part without adequate rest period for body tissue to recuperate. For example, repeated running and ruck marching, especially combined, are associated with many lower leg and back injuries. And these statistics don't include self-treated injuries, or those which Soldiers/trainees just "tough it out." Though these injuries don't incur medical costs, they can significantly reduce both individual Soldier and unit performance.

For each category above, how many injuries that required medical treatment have you had during your time with the Army? Which injuries required time off work or restricted your physical abilities? Have you not sought medical care for an injury to avoid getting a profile or work restriction? If so, did the untreated injury prevent you from performing at your best?

Now that you are aware of the different types of injuries and your own injury history, consider your unique risk factors. Factors that can predispose you to a new or re-injury or increase the time of rehabilitation include individual characteristics, modifiable conditions or behaviors you can change, and external factors leaders should address to reduce injury risk.

Figure 1. Percent of injuries versus other illnesses and conditions treated through outpatient visits among U.S. Army active component, 2012.

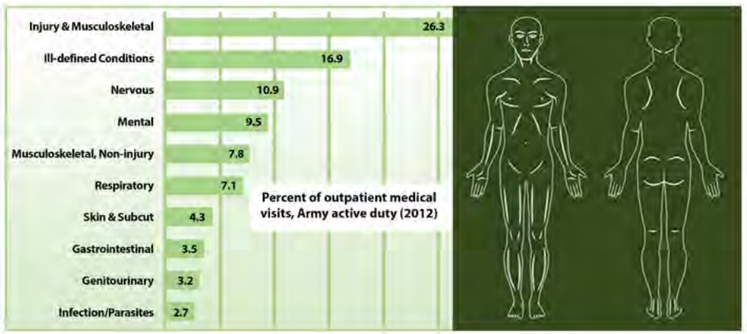
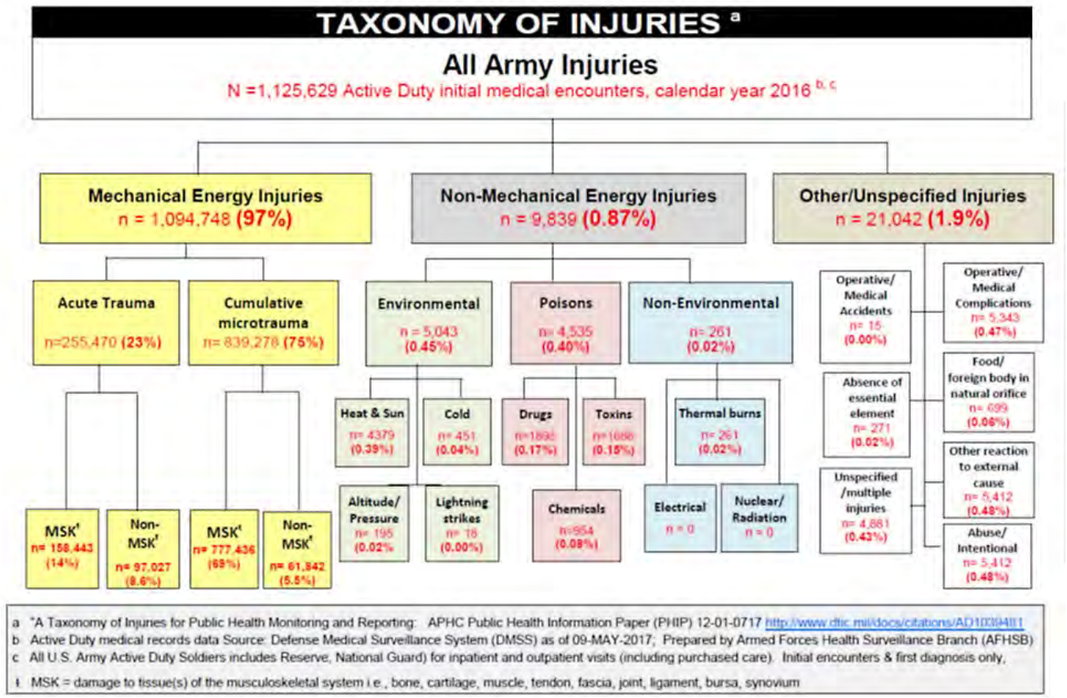


Figure 2. All Injuries by category among active Army component, calendar year 2016.



a "A Taxonomy of Injuries for Public Health Monitoring and Reporting: APHC Public Health Information Paper (PHIP) 12-01-0717 http://www.dtic.mil/docs/citations/AD1003481
b Active Duty medical records data Source: Defense Medical Surveillance System (DMSS) as of 09-MAY-2017; Prepared by Armed Forces Health Surveillance Branch (AFHSB)
c All U.S. Army Active Duty Soldiers includes Reserve, National Guard) for inpatient and outpatient visits (including purchased care). Initial encounters & first diagnosis only.
f MSK = damage to tissue(s) of the musculoskeletal system i.e., bone, cartilage, muscle, tendon, fascia, joint, ligament, bursa, synovium

Individual characteristics

- Prior injury, such as a sprained ankle, tendonitis or muscle strain of the back, can predispose you to future injuries at the same location or to a body region that has compensated for the injury (for example, when an altered gait puts more strain on your non-injured leg). Having a heat- and cold-related injury can increase your susceptibility to these same injuries in the future. The best means to reduce this risk factor is to avoid experiencing an initial injury.
- Some injuries, such as stress fractures, are more common among women. This injury has been associated with the female athlete triad syndrome — a combination of an eating disorder, missed or irregular menstrual cycles and low bone density. It's seen in some women who participate in high-

intensity physical training and strive for leanness or low body weight. Proper nutrition has been suggested as a means to help minimize risk.

Modifiable conditions or behaviors

• Lack of awareness, ignoring safety guidelines and/or not using recommended equipment are primary reasons for many traumatic injuries. Though referred to as "accidents," most Army vehicle and motorcycle injuries, slips and falls, and mishaps with guns and machinery can be avoided. Many sports "accidents" can also be avoided with proper equipment such as mouthguards to prevent broken teeth, helmets and wrist guards for skiing and snowboarding, and military-recommended hearing and eye protection.

• Being in poor physical shape doesn't just mean being overweight. Evidence shows that trainees and Soldiers at or below acceptable Army weight standards who have poor aerobic or muscular endurance are also more susceptible to musculoskeletal and heat-related injury. Though it is important to get in shape, it is critical to gradually increase time, weights and distances, and frequency of physical activity. Too much too soon will only increase the risk of injury. This includes gradual acclimatization to extreme temperatures or altitude.

• Illness and medications, such as those for colds, upper respiratory infections or allergies, can increase the risk of heat injuries. Only take medication when absolutely necessary and ensure plenty of rest and adequate hydration.

• Smoking and nicotine-containing products inhibit the body's ability to repair itself after injury. Evidence also ties these products to higher rates of new injuries. Stop using cigarettes, e-cigarettes and smokeless tobacco to reduce your injury risk, rehabilitation time and the threat for long-term health consequences such as lung disease and cancer.

External factors

• Excessive physical strain is often a part of Army training and job tasks, but too much strain on the body or same bod xtreme temperatures, high altitudes, lightning, animals and insects, and rough terrain. The Army recognizes these hazards and requires leaders to use risk management tools to identify, assess and minimize the danger during training and operations. For example, warm, humid climates increase cases of exertional heat-related injuries, including hyponatremia (overhydration). To address this, the Army uses scientifically based heat risk categories with associated work/rest cycles and fluid consumption guidelines.

"THIS PAST YEAR ALONE, ARMY SOLDIERS WERE TREATED FOR MORE THAN 1 MILLION INCIDENTS OF NEW INJURIES. SURPRISING TO SOME, THE VAST MAJORITY OF THESE ARE CUMULATIVE MICROTRAUMAS, OTHERWISE KNOWN AS OVERUSE INJURIES."

Conclusion

Now that you know your injury history and risk factors, you can make changes to reduce your injury risk and thus improve your physical performance. For additional information, visit the Army Injury Prevention website at https://phc.amedd.army.mil/topics/discond/ptsaip/Pages/default.aspx. ■

Don't Count on Luck

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I was 18, airborne and invincible. I'd just received my enlistment bonus and decided it was time to get some transportation. I got one of my fellow troopers at Fort Bragg, North Carolina, to take me to the nearest Suzuki dealer. I wanted to buy a 650 GSL motorcycle, but my credit wasn't good enough to qualify for a loan, so my only option was to pay cash for a 450 GSL. Being the highly intelligent and experienced (translate that to young and dumb) person I was, I quickly purchased the motorcycle. After a short lesson on how to ride by the salesperson, I was on my way.

Within four hours, I stopped at the company orderly room to visit a friend who was pulling duty as the charge of quarters runner. Afterward, as I was pulling out of the parking lot, I managed to dump the bike and break a lens cover — not a very impressive performance for my first day of riding. It finally dawned on me that maybe there really was a good reason for taking motorcycle safety training.

Looking back, I realize how lucky I was I didn't kill myself. The truth is I was safer jumping out of a perfectly good aircraft than I was riding on that motorcycle. I'd been trained to jump out of airplanes, but I hadn't been trained to ride a motorcycle. There was a Motorcycle Safety Foundation course available at the time, but my own arrogance kept me from taking it. As far as motorcycle riding goes, I was more lucky than skilled in the beginning.

Unfortunately, a young trooper who joined my fire team a couple of years later wasn't as lucky. One day after the last formation, Pvt. Green (not his real name) asked me to help him with a decision. He'd also received a bonus for going airborne and was trying to decide whether to put the money in the bank or buy a motorcycle. A friend of his in the headquarters platoon had recently bought a bike and was encouraging him to get one so they could ride together. I told him about my riding experiences and suggested he put his money in the bank, emphasizing that would be the wisest choice. He promptly thanked me and said he agreed.

A couple of days later, he appeared with a brand new Honda motorcycle. I was surprised and asked him what happened. Inside I already knew the answer; he'd buckled under the pressure from his friend to buy the bike. I told him to take the rider safety course and to be careful on the road. He said that he would and that he bought the most expensive helmet at the store, just in case.

A little more than a month later, I received a call at home from the person pulling CQ duty. He told me Green had died in a fatal motorcycle accident while riding with his friend. Apparently, a car in the left lane hit Green's friend, who, in turn, struck him. Losing control, Green dumped the bike and struck the curb with his helmet. The impact was so strong it cracked the helmet and caused him severe head trauma. Sadly, he never even made it to the emergency room.

Green never took the motorcycle safety course. If he had, he might still be here today. His was the first memorial I'd attended where I personally knew the person that the rifle, boots and helmet represented. It was the most poignant moment in my life when I heard the roll call and he was not there to call out his name.

Things have changed a lot since I began riding. Fortunately, riders now are much more aware of the importance of riding safety. Today in the Army, we have a mandate that all Soldiers and Army Civilians who ride must first receive MSF-based training. Yet even so, we still suffer losses from motorcycle accidents. I still ride and always have my MSF training card on me. If Green had taken the training, maybe he'd still be riding today.

There is a saying that goes something like, "We know the moment when we were born, but we don't know the moment when we will die." I can tell you that getting safety training before you ride is the best way to ensure that latter date comes much later. ■

WHEN NEEDLES SPIN

CHIEF WARRANT OFFICER 4 JOSHUA SNOW
304th Military Intelligence Battalion
Fort Huachuca, Arizona

Central Alaska is beautiful. The mountainous landscapes are truly a sight to behold. That's assuming you've got good weather.

I was preparing for my instrument flight evaluation as part of my annual proficiency and readiness test. On this day, I would be flying from Fort Wainwright, Alaska, to Fort Greeley with the company standardization pilot/instrument examiner. The weather forecast was great for both the departure and arrival airfields. However, the SP/IE and I could expect to be flying in instrument meteorological conditions for almost the entire en route portion of the flight. Due to the limited instrument flight rule route structure in central Alaska, we had both flown this route numerous times. We expected an easy instrument flight evaluation. Little did we know what was in store for us.

With the oral evaluation and preflight complete, we departed Ladd Army Airfield IFR, heading toward Fort Greely. Departing to the south was uneventful and actually pleasant. The atmosphere in the cockpit was relaxed, a feeling I have learned to temper with added vigilance. The UH-60A we were flying was one of the oldest in the fleet at that time. Having recently been moved from Korea to Alaska, there was no doubt this airframe had some time on it.

Halfway to Fort Greely, established on the Victor airway at 4,000 feet and in the clouds, I noticed something strange with my attitude indicator. It began rocking left and right and then started to spin very quickly. I announced this to the crew, then looked cross cockpit and saw the same thing happening on the co-pilot's side. Next, I noticed a problem with my horizontal situation indicator. All the needles were spinning. Every second the indicator needle swung 180 degrees, stopped and then returned to the present heading. As I announced this, the same situation was also occurring on the other side of the cockpit. The seasoned warrant officer SP/IE, who had more than 4,000 hours, told me he had the controls. He said I was doing fine and we would have to put into practice our flying partial panel training. He then told me to contact air traffic control, advise them of our situation and request radar vectors to the precision approach radar at Fort Greely, where we would land. We followed the vectors to the PAR, executed the approach and landed safely. Later, a maintenance test pilot conducting the post-flight inspection found a loose cannon plug on the command instrument processor. That is what caused the gyros to spin out of control.

Lessons learned

We practice partial panel flying in the flight simulator, but it can be unsettling when you unexpectedly encounter it during flight. Flying without an attitude indicator can be challenging. Flying without a horizontal situation indicator can also be challenging. Flying without both is my idea of a bad day. Using the standby magnetic compass requires skills we, arguably, all need to review. What is the magnetic variation on your path of flight? Do you add it to your magnetic course or subtract it for your direction of travel? Did your flight planning include the true course and magnetic course on your navigation log?

Fortunately, I was a young warrant officer on my second instrument flight evaluation thus far in my career, so I completed my navigation log with great attention to detail. But it shouldn't take an evaluation to force us into our most thorough work through of a problem. I attribute the safe outcome to the SP/IE that day. I learned a valuable lesson about complacency. Even if you've memorized Chapters 5 (operating limits and restrictions) and 9 (emergency procedures) of the -10, there are still malfunctions that can endanger an unprepared crew.

Finally, always be prepared with the right publications. As professional aviators, we should always have current aircraft pubs with us, no matter the training situation. Knowing what to do and how to do it can make all the difference when the needles spin. ■

AVOID 'SMELLING THE BARN'

Twentynine Palms, California, is home to the largest training area in the U.S. Marine Corps. Unfortunately, it's also home to a lot of accidents.

GUNNERY SGT. STERLING B. GRAHAM
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Camp Lejeune, North Carolina

As a young noncommissioned officer, it was my third trip to Mojave Viper, a combined arms exercise we participate in yearly in Twentynine Palms. The base is located in the center of the Mojave Desert, and training is extremely challenging. Knowing this, we began preparing our Amphibious Assault Vehicle platoon on vehicle, weapons and environmental safety. After three months of training, it was finally time to make our pilgrimage out west to train. This year, however, we would learn a very hard lesson.

After a long flight to California, we arrived in our new home for the next 60 days — Camp Wilson, which is located 20 miles from the main base. Camp Wilson serves as the staging area for all training units and is very basic. While there, we live in Quonset huts, eat field rations and enjoy few comforts of hom there is one bright spot at Camp Wilson — the Warriors Club, which serves hot chow and beer. There was little time inside of the base camp once training started, so any free time at the end was highly anticipated. We then fell in on our gear and began to train.

The last few days of training were hot and fast-paced, and the Marines had performed well during the exercise. Artillery fire, machine guns and infantry all moved in unison to complete the training. Everyone "smells the barn" at the end of an operation, and completing the Mobile Assault Course was no different. Now it was time to head back to Camp Wilson to clean the weapons and enjoy the Warriors Club.

The pace of the movement should have been an indicator of things to come. The Marines were speeding through the desert mountain passes and on several occasions I had to tell my driver to slow down. Once we were back at the base camp, there was plenty of work left to complete. The vehicles had to be safely parked and cleaned, and the weapons had to be cleared and cleaned. As always, I stressed to my crew the most important rule of clearing our weapons: Never point your weapon at anything you don't intend to shoot.

I then climbed on top of my vehicle to pull the barrel out of my M2 .50-caliber machine gun, ensuring my body was out of the way. It is easy to stand in front of the barrel of the weapon to uninstall it, and all the Marines knew this. The M2 has a huge round, and if it discharged anywhere near you, it was seriously going to hurt. As I was pulling my gun, I heard a loud bang down the line. I immediately knew it was the sound of a discharging M2. The next thing I heard was terrible: "Corpsman up!" I knew someone was hurt.

While uninstalling his M2, a crew chief violated one of the cardinal safety rules by standing in front of the weapon and was struck by a round that was left in the chamber. The round passed through the young Marine's chest and left a large exit wound. He was dead before he hit the top of the vehicle. To make matters worse, he had just re-enlisted and was engaged to be married soon.

As we sat around waiting for the commotion to die down, the fact that we had needlessly lost a brother began to hit us. The worst part was it easily could have been avoided if he had slowed down and maintained muzzle awareness. For those who were there that day, this tragedy will always be a reminder of what a weapon can do when we fail to adhere to the rules. ■

FYI

Looking for more information on safe weapons handling? Visit the U.S. Army Combat Readiness Center's Range and Weapons Safety Toolbox. The site was designed to aid commanders and leaders in the management of range operations and safe weapons handling by providing a centralized collection of resources to establish and maintain safe and effective training programs for ranges and both military and privately owned weapons. Check it out at http://safety.army.mil/rangeweaponssafety.

COMMUNICATION IS THE KEY

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We watch television, send and receive emails and text messages and make telephone calls daily. You'd think we'd be pretty adept at communicating, right? Not always. Let me share a personal example.

It was just a standard night vision goggle flight during winter in Connecticut. One of the pilots in command from my unit was going to take me on a round-robin flight across the state, giving me some more NVG time while working the local airspace. Typically, I wouldn't be concerned about a simple flight like this, but my past experiences with this particular PC weren't very good. Nonetheless, we carried on, preflighted the CH-47 and conducted our aircrew briefing. Once complete, we started the aircraft, conducted our hover checks and were on our way.

The first 35 minutes of the flight were uneventful as we flew toward a small airport in Bridgeport. When we made our initial call to the tower, they answered, "Nomad 78, I have you at eight miles northeast of the airport. Report three miles and enter the downwind to land runway 29." I responded, "Roger, will call three miles for the downwind to 29."

Since our flight heading was 200, I figured runway 29 would be on the right ahead. The problem was I couldn't for the life of me see the runway, which was just this side of Bridgeport. When we were roughly four miles out, I told the PC about the problem. He responded, "Continue on in."

"STILL, THERE WAS NO RESPONSE. IT TURNED OUT HE WAS HAVING THE SAME PROBLEM I WAS, I JUST DIDN'T KNOW IT."

I obliged and continued inbound, following the needle toward the airport. We made our call at three miles and I was getting uncomfortable. There were three small fixed-wing aircraft in the pattern and I still couldn't see the runway. I wanted to tell my PC I still couldn't see the runway, but decided not to since he'd already told me to continue inbound.

Finally, when we were about a mile out, I told him, "You have the flight controls," adding that I still didn't have the runway in sight. He didn't respond, so I repeated myself. Still, there was no response. It turned out he was having the same problem I was, I just didn't know it.

In the midst of the confusion, he told me to turn left and I did. This only compounded the situation, putting us on the final approach course to runway 29, right in the path of another aircraft. Fortunately, the other aircraft broke off its approach in time to avoid us.

I couldn't believe what had happened. Something like this just doesn't happen on a simple ATM flight, but somehow it did. Tower gave us instructions to avoid the aircraft and we headed north to get clear of the airspace. The rest of the flight was rather quiet and uneventful. When we debriefed back at the airport, the PC told me I should have let him know earlier that I couldn't see the runway.

The lesson from this story is we were both wrong. Should I have been more explicit concerning my lack of situational awareness at the time? Yes, absolutely. Should my PC have let me know he was in the same precarious situation I was in? No doubt about it. We should have been talking, helping each other and working together.

This flight was a lesson on why we get an annual aircrew coordination class. Had we exercised open and clear communication, we'd have had much less drama on the mission that night. Fortunately, this turned out to be an opportunity for some lessons learned and not a catastrophic event.

John Donne famously said, "No man is an island," and that is particularly true for the members of an aircrew. If you want to make sure your number of landings and takeoffs match, then remember communication is the key. ■

STAYING SMART on the SLOPES

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Snowboarding is a great way to have fun but, at the same time, it can also present some real dangers such as blown knees and head injuries. For some, snowboarding involves speeding down steep hills past skiers, boarders and other obstacles. Falls will happen — no matter how good you are — and collisions are relatively common. Regardless your skill level, taking the time to prepare before heading out will reduce your chances of becoming an accident statistic.

The skier and snowboarder safety code, which is printed on virtually every lift ticket and posted in numerous places around most ski areas, lists some inherent dangers and risks. They include existing and changing snow conditions; bare spots, rocks, stumps, trees; collisions with natural or manmade objects or other skiers; variations in terrain; and the failure of skiers to ski within their own abilities. Winter weather, especially in mountainous terrain, can range from sunny and bright to bitterly cold. Conditions can change rapidly from one extreme to the next, one slope to the other, so it's important to monitor the conditions constantly and recognize the signs of approaching bad weather.

When boarders head up mountains or steep hills, they become susceptible to acute mountain sickness, which occurs when a person's body doesn't adapt to its current altitude. The most frequent symptoms include headache, queasiness, tiredness and trouble sleeping. Following these simple guidelines from the Colorado Altitude Research Institute may minimize symptoms of AMS:

- Exercise in moderation.
- Drink more water than usual. When you combine altitude with physical exertion, you need to drink before you get thirsty.
- Eat food high in carbohydrates — such as grains, pasta, fruits and vegetables — and avoid salty foods.
- Limit alcohol consumption. It's tempting to party the evening you roll into a ski town. However, drinking alcohol and cheating yourself on sleep the night before you ski is a big mistake. Use common sense.
- If your symptoms get worse or do not go away after a day or two at altitude, you need to seek medical help. All medical centers in high-altitude communities are used to dealing with these symptoms.

"WINTER WEATHER, ESPECIALLY IN MOUNTAINOUS TERRAIN, CAN RANGE FROM SUNNY AND BRIGHT TO BITTERLY COLD."

Before you venture out to the slopes, it's important to have the right gear and know how to use it. Here's a list of gear you'll need each time you head up the mountain:

"BEFORE YOU ATTEMPT SNOWBOARDING, HAVE SOME BASIC KNOWLEDGE OF THE POSSIBLE RISKS YOU MAY ENCOUNTER ON OR OFF THE SLOPE."

Snowboard. In general, an all-mountain snowboard is the best bet for beginners, rather than a specialty board, which is harder to turn and balance on. Also, the longer a board is, the more difficult it will be to control. Choose a board that is the right length for your size and snowboarding ability.

Boots. As the connecting point to your snowboard, boots are a vital piece of equipment. Make sure to get real snowboard boots (not moonboots or hiking boots) that fit correctly to keep your feet comfortable and warm. For most beginner snowboarders, soft snowboard boots are easier to control than hard boots. Always keep your boots laced tight to give your feet and ankles the support they need.

Bindings. Most snowboard bindings are of the strap-on variety, which are compatible with the greatest number of boots. Be sure to keep your straps securely fastened to give you the most control over your snowboard. Some bindings, though, are step-in types. Make sure you get the right bindings for your boots, and have a trained professional at a snowboard shop adjust the angle of your bindings to put your feet in the right positions.

Helmet. As is the case with many sports, a helmet is the most important piece of equipment when it comes to preventing life-threatening injuries. You should wear one any time you go boarding. Get a helmet that fits properly and keep the chin strap fastened to keep it securely in place. Also, make sure to get a real snowboard helmet (not a football or bike helmet) that allows space for your goggles and ventilation on warm days.

Goggles and sunglasses. The sun's rays are considerably stronger at high altitudes than at sea level; and when they bounce off the gleaming white snow, they can be a serious threat to your eyes. Sunglasses are the best way to protect your eyes from the sun's rays, but you should also always bring a pair of goggles that are the right size in case it gets cold or begins to snow. Goggles are also better at protecting your eyes from tree branches and other hazards.

Gloves or mittens. Many snowboard gloves include pockets for hand warmers to keep your fingers nice and toasty. If you're still worried about your hands getting cold, however, it's a good idea to wear mittens, which are generally warmer than gloves.

Dress in layers. Layering allows you to accommodate your body's constantly changing temperature. For example, dress in polypropylene underwear (tops and bottoms), which feels good next to the skin, dries quickly, absorbs sweat and keeps you warm. Wear a turtleneck, sweater and jacket. Bring a headband or hat with you to the slopes to help prevent heat loss through your head.

Wrist guards. When you first learn how to snowboard, you will spend a lot of time falling forward and breaking your fall with your hands. This can lead to broken wrists and forearms, which are very common snowboarding injuries. Be sure to wear rigid wrist guards designed for snowboarding or in-line skating to protect yourself when you fall.

Once you have your gear, it's time to head out, right? Not quite. Here are a few more tips you'll need to consider before you strap into your board:

- Make sure you're in shape beforehand. Don't try to ski yourself into shape.
- When buying skiwear, stick with fabrics that are water and wind resistant. Look for wind flaps to shield zippers, snug cuffs at wrists and ankles, collars that can be snuggled up to the chin and drawstrings that can be adjusted for comfort and aid in keeping the wind out.
- Wear sun protection. The sun reflects off snow and is stronger than you think, even on cloudy days.

Snowboarding is a high-speed extreme sport that exposes individuals to different levels of danger. Each year, snowboarders are seriously injured and some even die due to human errors. Before you attempt snowboarding, have some basic knowledge of the possible risks you may encounter on or off the slope. The little time spent assessing the risks can save a whole lot of time healing or, worse, your family from grieving. ■

A SIGNIFICANT EMOTIONAL EVENT

It was April, and I was preparing for my first permanent change of station move to Fort Huachuca, Arizona, from Fort Bragg, North Carolina. During my monthly checks of my pickup truck, I noticed my brakes would soon need replacing. Since I was about to take a long drive across the country, I figured I would replace the front and back brake components beforehand. I had no idea how that preventive maintenance would later pay off.

After the repairs were complete, my best friend, who had flown in from Phoenix, and I set out on our cross-country adventure. On our first day, we took our time and stopped at a few places along the way, never in too much of a hurry. The second day of our trip put us on the long, open stretch between San Antonio and El Paso, Texas, where there is nothing but open fields and highway. Little did we know we were about to face what we in the military call a "significant emotional event."

While traveling along I-10 at the posted speed limit, we came upon a semi-truck in the right lane in front of us. The truck driver was traveling under the speed limit, so I decided to pass him. We entered the left lane well behind the truck to ensure the driver could see us and proceeded to pass. We had just made it up to the cab when everything went wrong.

The driver suddenly decided he wanted to be in our lane and started to move over. My friend noticed the truck encroaching upon us and told me to watch out. I laid on the horn to let the driver know he was drifting toward us, but he continued into our lane. At this point, we were traveling at a rate that would not allow us to speed up or slow down sufficiently to clear the truck. Our only option was to hit the median at 65 mph!

I veered off the road and stomped on the brakes. The brakes groaned and clacked for what seemed like forever until my little red pickup finally came to a stop in a cloud of dust and dry grass. As the dust — and our hearts — settled, we realized we'd come to rest about 100 or so feet from where the median dropped into a two-lane underpass. We looked at each other and got out of the vehicle to settle our nerves and see if there was any damage to my truck. Satisfied that everything seemed to be in good order, we got back in the truck and continued our trip to Phoenix without incident.

"AS THE DUST — AND OUR HEARTS — SETTLED, WE REALIZED WE'D COME TO REST ABOUT 100 OR SO FEET FROM WHERE THE MEDIAN DROPPED INTO A TWO-LANE UNDERPASS."

Had I not inspected my truck before I left Fort Bragg, I would not have noticed the brake system needed servicing and might not have been able to stop in time when the semi cut us off. Just as we require regular inspection and servicing of our military vehicles, equipment and aircraft, we must also inspect our private motor vehicles and motorcycles just as thoroughly. Regular PMV inspection and servicing can prevent you and the ones you love from being another highway statistic. Here are a few tips to ensure your personal vehicle is up to snuff:

- Follow the manufacturer's scheduled service intervals. Even older vehicles have items that should be inspected and serviced after so many miles or months.
- Set up a personal inspection schedule (a car day) to catch problems in-between regularly scheduled maintenance.
- Have a supervisor inspect your vehicle prior to any trip. This means not just checking the block and having them sign a false inspection.
- Regardless if you are mechanically inclined, if something feels or sounds wrong with your vehicle, get it checked out by a qualified mechanic.
- If you do decide to do the work yourself, ensure you use the correct parts for your vehicle and the required torque for all fastening hardware.

Regular PMV inspection and servicing exists for a reason. Do not let your vehicle leave you stranded on the side of the road or, worse, six feet in the ground. Take care of your ride and it will take care of you. ■

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