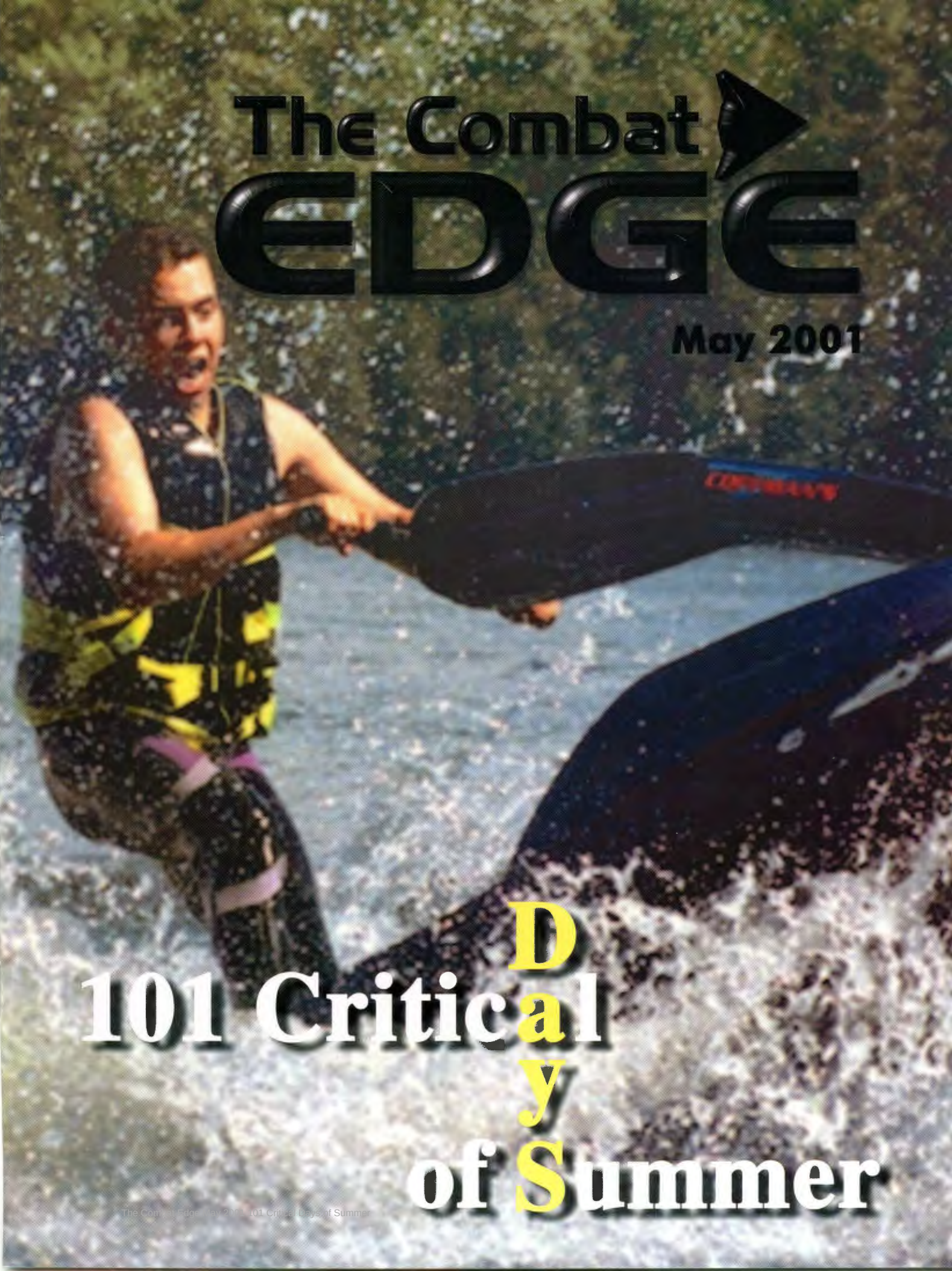
The Combat
EDGE
May 2001
101 Critical Days of Summer

# The Combat EDGE

Volume 9 Issue 12
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## Air Combat Command's Mishap Prevention Magazine

General John P. Jumper, *Commander*
Col. Gregory A. Alston, *Chief of Safety*





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M Denotes images digitally manipulated.

# ACCent on Safety

## Something For Everyone

This month kicks off the "101 Critical Days of Summer" campaign. As most of you know, the spring and summer months from Memorial Day through Labor Day present higher than normal risks for off-duty mishaps. It is a time when we also experience fatalities at a much higher rate than other times of the year. A heightened state of awareness and the practice of good risk management both on and off the job are necessary to decrease the risks associated with this period of time. This is what they do at our northern tier bases where the few short summer months are embraced with great enthusiasm.

As the warmer weather heads our way, we should also stay focused on accomplishing the mission and that will unfortunately involve dealing with mishaps on the job. The Air Force spends a great deal of effort investigating mishaps with the sole purpose of preventing similar ones in the future. Our article on mishap report writing will help ensure that you do not omit valuable prevention information that can be used throughout the command and the Air Force.

This issue also contains great information on explosives clear zones, seat belts, sports and motorcycle safety. It is our goal to offer several ways to increase everyone's awareness and reduce overall risks as we step into these early summer months. There is something for everyone in this issue. Enjoy, and have a safe start to your 101 Critical Days.

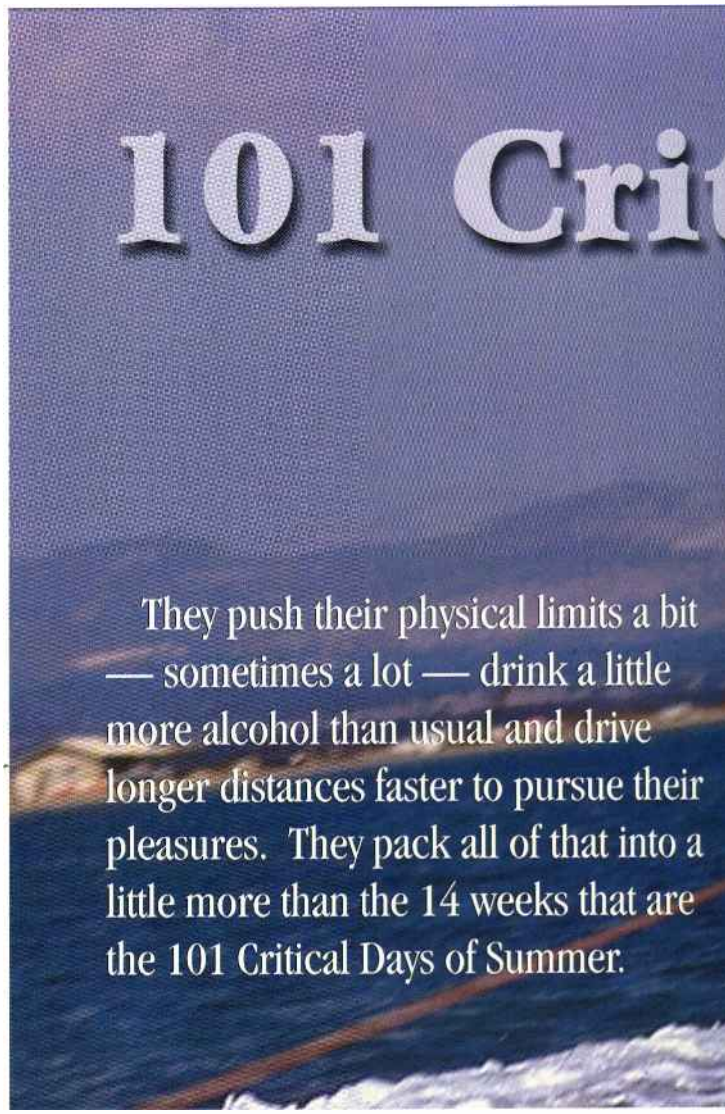
*Col. Greg "Vader" Alston*
*ACC Chief of Safety*

MSgt Myrtle Klutz "crutched" her way into the Chief's office early Monday morning. "What happened to you?" asked CMSgt Chase looking at the huge cast on her foot. "Oh, I had an accident at our lake on Saturday. I was waterskiing and got too close to the dock — way too close. I ended up breaking my ankle," moaned Sgt. Klutz. "The doctor said I might have to have bones fused to get rid of the long-term pain. The base clinic said if I have the bones fused, I'll lose world-wide mobility status." "That means you'd lose your technician job here in the Maintenance Operations Center, doesn't it?" said the Chief. "That's what they're sayin' at military personnel," said Sgt. Klutz. "It's either live with the pain or leave the Air Guard."

Sgt. Klutz's story is fictional, but one that could happen nonetheless. She was lucky in one sense because she did not die from her accident. It sounds like she could have though. Did she push the envelope or was she just careless? Either way, she jeopardized her career and her life.

Air Force and Air Guard members, especially those working at northern tier bases, cut loose during the summer. They come out from hibernation to shake off the winter blahs and celebrate. People arrive at work in the mornings on their bikes instead of in their cars. They take off at noon to go play golf. They don shorts and tank tops to rollerblade the base perimeter road after work. They play softball in town and city leagues. They also spend about every waking minute during weekends at "the lakes." They push their physical limits a bit — sometimes a lot — drink a little more alcohol than usual and drive longer distances faster to pursue their pleasures. They pack all of that into a little more than the 14 weeks that are the **101 Critical Days of Summer**. This period starts on Memorial Day Weekend in May and ends on Labor Day Weekend in September.

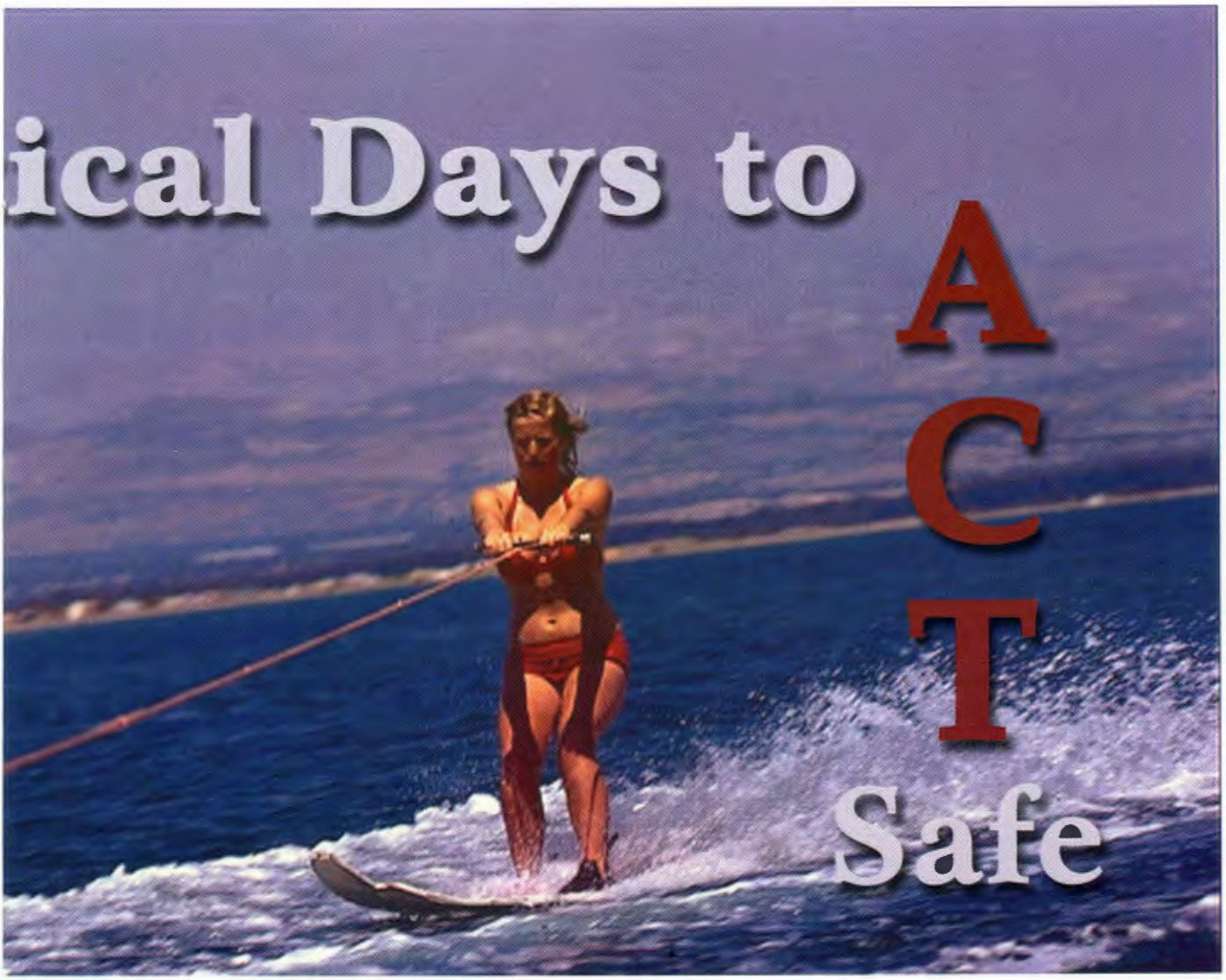
That is about all the summer we get here on the northern tier of the U.S. That reason alone presents special challenges for Air Force and Air Guard military and civilian personnel to practice what they have learned in their off-duty safety briefings and safety education classes. They are out there on their own, away from the eyes and ears of supervision, unrestrained and dependent on their own decision-making skills to keep




themselves and their families safe. They are practicing personal risk management (PRM) in its rawest form.

General Michael E. Ryan, U.S. Air Force Chief of Staff, described successful PRM this way, "... for individuals, it is knowing yourself, your challenges, your limitations and the risks involved in our daily activities."

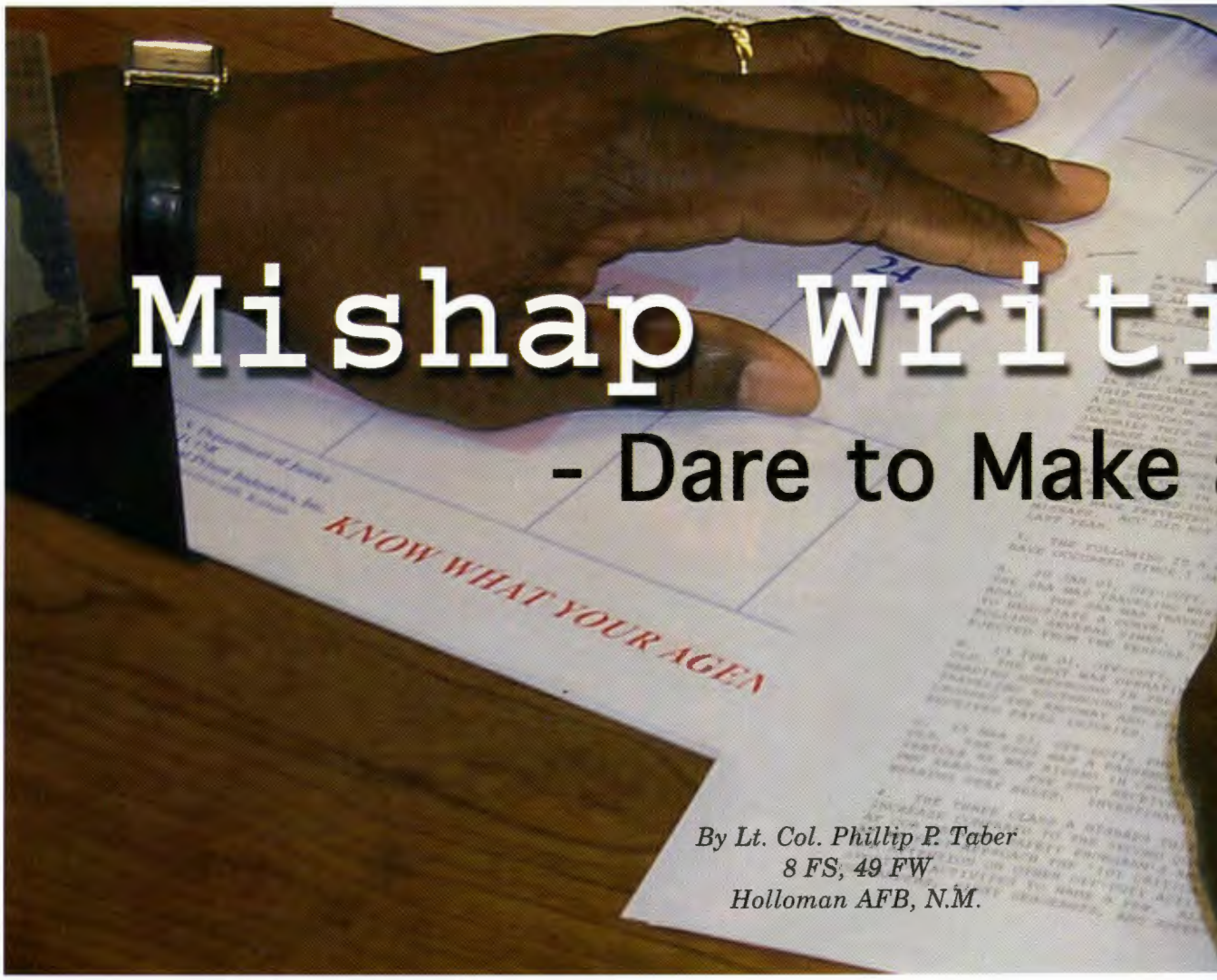
All Air Force and Air Guard members face risks in their off-duty daily lives and that is OK. Life cannot be lived without risk. These risks, however, get magnified 101 times during the critical days of summer when the attractions of recreational and travel opportunities increase. How people handle these risks depends on whether they live the safety culture engrained in them at work or whether they only "play at that game." Let's take ol' Sgt. Klutz for instance.




When she dropped so close to the dock while waterskiing, did she consider the consequences of that action? If she had followed the simple Analyze, Consider, Take action or **ACT** risk management system she probably would not have injured herself. First, she should have **A**nalyzed the risk. She should have asked, "What hazards am I exposing myself and others to if I drop close to the dock? I could run into the dock and injure myself or I could hit someone swimming close to shore." Second, she should have **C**onsidered what to do to alleviate those identifed hazards, like dropping farther out in the water away from the dock and swimmers. Finally, she should have **T**aken the action of dropping farther out in the lake to avoid the hazards she had identified. Simple PRM would have resulted in an injury-free recreational outing without the agonizing medical versus career decision aftermath.

As the 101 Critical Days of Summer Campaign revs up, safety professionals will urge commanders and supervisors to resurrect their off-duty safety briefings and begin the arduous task of trying to impress upon members the importance of safely easing into summer. They will ask their personnel to take personal responsibility for their actions, to practice off duty what they do so well on duty and to step up and say "No" to unsafe acts and attitudes. Uncle Sam provides all airmen the tools to "ACT" safely, but it is up to all of us to use them successfully. ■

*By Chief Master Sgt. Craig E. Cain*
*119 FW Ground Safety Manager*
*Fargo, N.D.*




# Mishap Writi

## - Dare to Make

*By Lt. Col. Phillip P. Taber*
*8 FS, 49 FW*
*Holloman AFB, N.M.*

***Editor's Note:*** *This article is an updated and edited reprint of an article published in the March 1998 issue of the U.S. Air Force* ***Flying Safety*** *magazine.*

**If you cannot take the time to do it right the first time, when will you have time to fix it later?** The mishap report is a single-source document that is the culmination of a mishap investigation. It is the U.S. Air Force (USAF) Safety community's mishap prevention tool. A mishap report should cover *all* aspects of a mishap and the subsequent investigation. A sloppy or incomplete mishap report could leave the impression that the investigation was less than thorough or professional.

How many times have you heard someone say, "What's the big deal, it is only a Class C"? REMEMBER: Most Class C mishaps are Class A or B mishaps that did not grow up. There is no such animal as "just a Class C." You should view a Class C mishap as an event that just dodged the bullet.

**You only get one first impression.** A world-class mishap report starts with a *comprehensive* mishap investigation. Once an investigation is complete, with the *root cause or causes* identified, the *fun* ***and*** paperwork have just begun. A mishap report can initially be broken down into two distinct parts: the narrative and the findings, causes and recommendations. A well-written narrative should discuss the mishap sequence and subsequent investigation in great detail. *All* questions concerning the mishap should be addressed in the narrative. The most important part of a safety investigation is the findings, causes and recommendations. This is the *action* section of a mishap report, which should focus on precluding mishap recurrence.

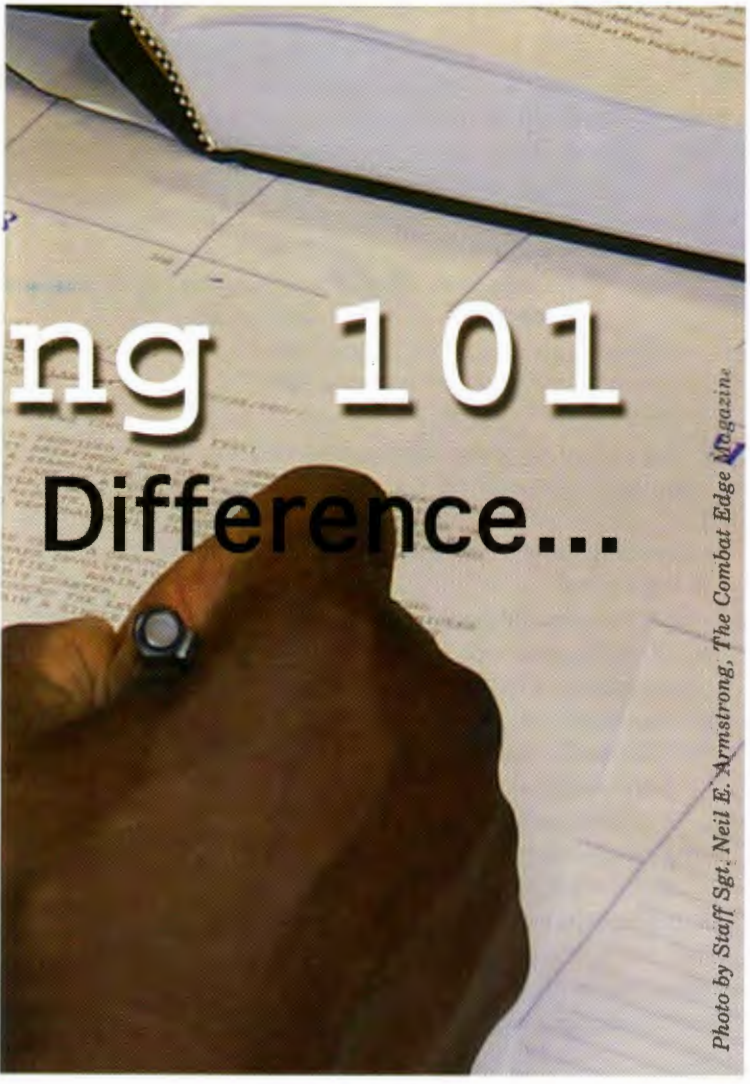


Photo by Staff Sgt. Neil E. Armstrong, The Combat Edge Magazine

This section specifically identifies mishap causes and their respective "fixes." Often times, the findings, causes and recommendations are completed as an afterthought to the report. How many times have you said, "If I were king for a day..."? Well, in a mishap-prevention-sort-of-way, you are *the King*. As the primary mishap investigator and author of the mishap report, you have the opportunity and responsibility to make a difference in mishap prevention.

**Who is your audience?** The mishap report is the "mishap prevention action" of a mishap investigation. The information contained within a mishap report can potentially prevent a similar mishap from occurring in the future. The report must be written to the level of the reader or audience. Not everyone has a "depot-level" understanding of *your* mishap. The mishap report writer must assume — yes, I did mean *assume* — the reader is not familiar with the subject matter of the report and write appropriately. Spell everything out. Leave nothing to the imagination.

**Report or detective novel?** A mishap report should be straightforward. The reader should not be forced to fill-in-the-blanks or read between the lines. The narrative section of the mishap report should tell the "story" or sequence of events leading up to the mishap. Here are some "tips" for a good narrative:

* Use a *lead-in statement* at the beginning of the narrative (e.g., F-16 engine shut down in flight). This gives the reader the subject and end result of the mishap sequence.
* Discuss the *chronology or sequence* of the events leading up to the mishap. Include all known factors (e.g., flight parameters, weather, etc.). Use the *"just the facts"* technique: Do not address conclusions or causes in the narrative.
* Utilize *subsections of the narrative section* to address each aspect of the mishap or investigation. These subsections can address such areas as a specific item or part, a portion of the investigation or background information on the mishap. Examples include:
  3.1.2 FUNCTIONAL CHECK FLIGHT (FCF) TRAINING PROGRAM.
  3.1.3 TECHNICAL ORDER DATA.
  3.1.4 DEPOT ANALYSIS OF FLUIDS.
* Did you stop asking *why* too soon? Did you find the *root cause* or just the result or physical manifestation of the root cause? Were *all* possible contributing factors considered? Often you cannot see the trees for the forest. In other words, a "fresh set of eyes" can often provide a different perspective on the information or facts discovered during the investigation.
* Do the facts support the conclusion? Do not let "hidden" agendas or special interests or concerns cloud the real root causes or conclusions. Does the conclusion pass the common sense test?
* Discuss any *research data, Product Quality Deficiency Report results or technical assistance* during the investigation. Referencing this material may strengthen your conclusion(s).
* Do not be afraid of using "UNKNOWN" as your conclusion or cause. On a rare occasion, unexplainable events transpire which

result in a mishap. However, this should not be used until ***all*** *possible avenues* have been exhausted.

**What is a finding?** The findings are simply a series of chronologically-based, concise statements of events or conditions which led to the mishap. Findings are:

* Arranged in the order of occurrence or chronological (historical) sequence. This could require in-depth research to identify incorrect formal training or procedures or the lack thereof. It is important to remember that design deficiencies are *always* first.
* Essential steps or events which sustain the mishap sequence and should have a *logical* connection to the preceding and following findings.
* Carried through to the logical conclusion (i.e., damage, injury or recovery of aircraft).
* Worded in a way that should NOT reveal *new* information. *All* findings and information should have been previously discussed in the narrative.

Findings are not bullets or quotes taken directly from the narrative section. DO NOT rewrite the narrative in the "Findings" section! Findings also are not necessarily a *cause* factor.

**How do you develop findings?** Start at the beginning of the *time line* and identify specific factors that may be findings. First determine *why* it occurred. Get to the *root cause*. Then continue until ***all*** *events* and *conditions* ***sustaining*** the mishap sequence are listed. Finally, draft your findings and apply the following "findings" test:

1. Is it related to the specific, brief event?
2. Is it a correctable event in the sequence?
3. Is it a single event or condition?
4. Is it specific enough without including supporting evidence?
5. Does it logically connect to the preceding finding?
6. Is it really relevant, or simply interesting to the reader?
7. Is it simply a possible alternative, existing merely because it cannot be eliminated?

**Is it a finding or a cause?** This question can be extremely difficult to answer. This discussion can often degrade into the proverbial "Which came first, the chicken or the egg?" A cause is simply defined as a deficiency or decision, which, if corrected, eliminated or avoided, would likely have prevented or mitigated the mishap. It is similar to a line of dominos. If you remove a domino from the line or string, the chain reaction of the falling dominos will be stopped. Easy, eh? One way to simplify this process is to revisit your findings and now apply the following "cause litmus" test:

1. Most are correctable by commanders, supervisors or individuals.
2. Is it a clear and simple statement of a single condition or event?
3. If it is an effect or the result of a previously identified cause even though it is inclusive, it is not causal.
4. Apply *reasonable person concept:*
   a. If performance or judgment was reasonable considering the circumstances, do not assign cause.
   b. Human limitations — physiological or psychological — may be causal even if they are reasonable.
   c. Environmental conditions may be causal if they were not reasonably avoidable.
5. Findings that sustain the mishap sequence, but are normal to the situation as it developed, are not causal. These are unavoidable effects of a preceding cause.
6. Did you stop asking *why* too soon? Was the root cause discovered or just the result or physical manifestation of the root cause?

Once a cause has been identified, meaningful recommendations can become quite obvious.

**The Category - Agent - Reason (CAR).** Now that you have correctly uncovered the cause or causes of the mishap, you must now determine who or what is the responsible party or agency. Each cause shall identify an accountable category, a responsible agent (both a Command Level and a Functional Area) and a reason for the deficiency. The CAR table, found in AFI 91-204, *Safety Investigations and Reports*, offers very specific categories. Occasionally, you may have a cause that does not easily fit into one of the CAR categories. This is why the category "UNKNOWN" was developed. When in doubt, *call* someone for guidance or clarification. Make the staff pukes earn their "staff-bucks."

**Will it prevent another mishap?** To this point, you may have conducted an investigation which would bring a tear to the eye of Sherlock Holmes and written the *perfect* Pulitzer Prize-winning report. You have left no stone unturned! And yet, without making meaningful recommendations, which could prevent a similar mishap or, at a minimum, reduce its effects ... *it is just impressive queep!* When writing the recommendations, remember that they:

* Do not necessarily need to be *tied* to a specific cause, but must be *related* to the causes of the mishap. Every cause does not require a recommendation.
* Must be *feasible*. Redesigning an entire airframe to accommodate a stainless steel coffee cup holder is probably going to get the big nonconcur from higherheadquarters or the Air Logistics Center (ALC), Special Program Office (SPO).
* Do not confuse feasibility with cost. In other words, if it will cost the USAF $2.6 million to prevent the crash of a $43 million dollar aircraft ... you do the math.
* It is your job to make valid recommendations. Let the *experts* at the major command (MAJCOM) worry about cost versus risk assessment.
* Should *identify the correct agency* to be responsible for the recommendation.
  ** Rule-O-Thumb: Normally, you can determine the Office of Primary Responsibility (OPR) with a couple of phone calls; however, if the OPR continues to evade you, *call* the Numbered Air Force or MAJCOM to help nail down the OPR. Remember, DSN is FREE!!
  ** As per AFI 91-204, you should attempt to pre-coordinate the recommendation with the identified agency. If in doubt as to whom to contact — *ask* (sound familiar?).
* Should be *valid* and *not* require such action as "Brief all personnel" or "disseminate the information." AFI 91-204 specifically forbids this type of recommendation.
* Should address specific close-out actions. Open-ended recommendations cannot be "acted on."
* Should have a specific idea of how to prevent the next mishap and spell it out in plain English. Let the ALC/SPO determine specific language (i.e., engineer's *rap*).

**What do we do with this other stuff we discovered?** In the course of an investigation, you may uncover issues that may not be directly relevant to the mishap. This *other stuff* is referred to as Other Findings of Significance (OFS). This is a separate section that follows the Recommendation section. An OFS can address *any* issue discovered during the course of the investigation. When applicable, an OFS can also have recommendations. These recommendations should follow the same guidelines discussed previously in this article.

**Hidden agenda or mishap prevention?** Do not let "hidden" agendas or special interests cloud the real root cause, CAR, conclusion or recommendations. There will come a time when we will be tempted to "look the other way" because we cannot stand the answer to the question we just asked. Integrity is paramount to any investigation and subsequent report. A compromise in the integrity of the mishap reporting system would undermine its designed intent of mishap prevention. If all mishap causes could be corrected "in house" without airing our dirty laundry, then why did the mishap occur in the first place? Additionally, if it could happen in your organization, why could the same condition or situation not exist in a similar unit? Safety works directly for the commander for a reason ... to minimize outside influence. Do not compromise the integrity of the safety system. ***Integrity is doing the right thing when there is no one around to hold you accountable.***

**What difference can any of this possibly make?** Our commission within the safety community is the protection of Air Force combat assets and resources, primarily *people* and *equipment*, to ensure they are readily available to take the fight to the enemy! The potential to make a real impact on *the combat capability and mission success* of the Air Force exists every time you begin a mishap investigation. Your mishap report can make a significant impact on the way we do business.

**Fly smart — Fly tactical — *Fly safe!*** ■

# Too HOT to Handle

*By Staff Sgt. W. Scott Hooks*
*USAF Thunderbirds Advance Crew Chief*
*Nellis AFB, Nev.*

Throughout my 9 1/2-year career as an F-16 crew chief, including a 3-year tour with the Thunderbirds, I have been fortunate to have not had any serious injuries. Whether I was preparing an airplane to drop bombs in the sand, or sending someone up in the "Red, White and Blue" to advertise for the Air Force, safety has always been the key to successfully completing the mission. This day would change all that...

It was a beautiful sunrise in Cleveland, Ohio. The air was full of excitement. The Browns and the Indians were in town and the Air Force Thunderbirds were ready to take to the sky for another air show. As the advance crew chief for the Thunderbirds, my job was to prepare the two-seat F-16 for that day's media flight. I had stayed late the evening prior to help my night shift counterparts fix a couple of write-ups on my airplane. Everything went well and the jet had been covered in preparation for the flight. It was 6 o'clock on a Friday morning, and another very skilled professional accompanied me out to the jet. Knowing that maintenance had just been completed on the aircraft the night before, and seeing that the power unit had already been hooked up to the aircraft, I thought for sure that the safe-for-maintenance inspection had been completed. That assumption was where my mistake started. I entered the cockpit and set up the switches for my pilot while my assistant conducted a walk-around inspection. Then, I turned off the electrical power to the aircraft.

With the cockpit ready and the walk-around inspection finished, it was time to do the inlet engine inspection. While this is a pretty simple task, it is an important one. I put on the intake suit, got my job guide and flashlight, and proceeded to enter the inlet. To pull myself into the inlet, I reached out and grabbed the inlet strut heater, in the forward section of the intake. I immediately felt this

tremendous pain. I have been qualified to inspect this portion of the airplane for years and had never experienced anything like this before. "What could it be?" I asked myself in the split second that followed. Then it hit me — my hand was burning on the 900-degree electrical inlet heater. With portions of my skin sticking to the component, I let out a scream that must have sounded like the Browns just scored a touchdown. My left hand was throbbing and stinging so badly, I didn't know what to do. I was not even sure if I had any skin left on it.

My assistant came running over. He did not realize what had happened until he passed by the intake and smelled the foul odor of burnt skin. I remember hearing a couple of people talking to me, but I was too overwhelmed by the pain to answer back. After a few minutes had passed, they began to apply ice to my entire hand. After a few more minutes, the flight surgeon arrived from the briefing room. It appeared to him that the burn had scared me more than it had hurt me. I guess I am lucky that the burns were only second-degree ones.

"How could this have happened to me?" I asked myself. I began to reflect on the sequence of events and wondered what I should have done differently. It all kept coming back to one thing — performing the aircraft safe-for-maintenance check prior to cockpit entry. This inspection is required to be done prior to starting any maintenance on the aircraft or entering the cockpit. On this fateful morning, I had assumed it had already been done and did not complete one before entering the cockpit. After I had entered the cockpit, I should have taken an extra minute to look at the switches a little closer. If I had done that, I would have seen that the anti-ice switch, which controls the inlet strut heater, was in the "on" position. Instead, I chose to focus on the fact that maintenance had been performed the night before and the fact that my assistant had already hooked up the electrical power. "Did they forget something?" I wondered. No ... it was my responsibility to complete the safe-for-maintenance check prior to entering the cockpit myself. It would have been easy to try and blame someone else for this simple mistake, but I had to admit that this one was all on me. Unfortunately, I was not going to be the only one affected by the consequences of my decision.

Hazards are very real in our line of work and the impact can be huge. Due to this injury, I was taken off flying status. I am one of only two flying fighter crew chiefs in Air Combat Command authorized to fly with my plane anywhere in the world. I have more than 9 years working on this jet and more than 40 hours flying in one. Now the team had to fly out the other crew chief. He would have to fly to the next show site and do what I had been expected to do. All of this happened because one switch had been in the wrong position. As you can see, the mission impact was huge.

Safety is the key to keeping all of our assets mission-ready at all times. Every plane and every person is considered valuable to that mission. If you think you are just another body on just another job, think again. I am a true believer in doing what is right at all times. I have succeeded in my career by doing just that. But, I am obviously not immune to complacency. After sharing my wake-up call, I hope everyone will take a step back and realize that the dangers are real and the impact is too big to risk. If we do, it may prevent something like this from happening to anyone else.

One thing about that morning will stick with me forever. A few of the Thunderbird team members came up to me and said, "Oh you got burned on the inlet strut heater, huh? That's happened to me before." This was coming from some of the best crew chiefs in the service so I knew I was in good company. However, I did not want that company to grow any more than it already has so I put pen to paper. If you ever find yourself in the same situation, take a minute to do or redo that safe-for-maintenance check — never assume anything has already been done. It is each individual's responsibility to follow the procedures outlined in the job guides when doing the task at hand. This includes following the input conditions. An extra bit of attention will keep our planes flying and our people safe. ■

*By Master Sgt. Rodney F. Robinson*
*ACC Superintendent of Ground Safety Programs*
*Langley AFB, Va.*

# Confined Spa

Photo by Master Sgt. Ron Morrison, The Combat Edge Magazine

# ces 101

Have you ever wondered about the Air Force's Confined Space Program? Do you even know what it is? Do you know if it directly affects you and how? Do you know what to do if something happened to a worker in a confined space? Well, the answers to these questions and more will be addressed in this article so keep reading.

The Occupational Safety and Health Administration (OSHA) published its general industry proposed standard for confined spaces in June 1989, followed by a final rule in January 1993, which had an effective date of April 15, 1993. The Air Force knew the federal mandate was pending and took action to implement the Air Force Confined Space Program in February 1990. The current standards governing this program are the Air Force Occupational Safety and Health Standard 91-25, *Confined Spaces*, and OSHA Standard 1910.146, *Permit Required Confined Spaces*. Although classification of confined spaces has changed over time, the majority of the program has pretty much remained the same.

A confined space is one that is large enough and configured so a worker can enter and work. It has limited or restricted means for entry and/or exit and is not designed for continuous human occupancy. There are two types of confined spaces. There are spaces that do not require permits and ones that do require permits for entry. Most of us work in confined spaces that do not require permits for entry. This type of space does not contain or have the potential to contain any atmospheric hazards capable of causing death or serious physical harm. Typical examples include dikes around fuel tanks with sloped sides or without fixed stairs, certain aircraft dry bays, facility crawl spaces, communication manholes, the tank on a water truck, vaults, barriers and aircraft wheel-well areas.

Obviously, the bulk of the Confined Space Program is dedicated to the confined spaces that do require permits. These spaces have one or more of the following characteristics: contain or have a potential to contain a hazardous atmosphere; contain a material that has the potential for engulfing the entrant (the person working in the confined space); have an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section; or contain any other recognized serious safety or health hazard. Some examples include above ground fuel tanks, aircraft fuel cells, refueler pits and trucks, lift stations, chemical tanks and tank rail cars.

For those of you that now realize that you or your subordinates work in a confined space, here are some helpful safety tips to minimize any potential mishaps. First, find out who your Confined Space Program Team (CSPT) members are. This team is composed of Safety, Fire, Bioenvironmental and function managers. Your installation's CSPT will always set policy for your base's specific Confined Space Program. Second, get training. Individuals who actually enter confined spaces will receive training from their unit confined space trainer. This training plan will be coordinated though the Ground Safety office, the Fire Department and the Bioenvironmental Engineers prior to its use and any time changes are made to the plan. The entry supervisor will verify the training of all individuals who are authorized confined space entry to perform work or are assigned as attendants or rescue personnel. Finally, know what to do if someone in a confined space is having an emergency. Keep a level head. Do not try to perform a rescue of that person by yourself. Normally, you will be no more prepared for the environment within the confined space then the individual that is in need of assistance. Instead, contact the base Fire Department to perform the emergency rescue.

Confined spaces can present unique challenges to your work environment. Knowing what they are and how to tackle these challenges are the first steps to a successful and safe program. Don't let your lack of knowledge about confined spaces cramp your day. ■

# How Munitions Can Re

*By Master Sgt. Casey B. Kingham, 347 WG Chief of Weapons Safety and Tech. Sg*

Predominantly speaking, the average person on most military installations is not aware of what an explosives clear zone is or how it affects where they work on base and why. The whole concept of explosives clear zones started back in 1926. The incident was a lightning strike that set off some surplus munitions left over from World War I at the Naval Ammunition Depot in Lake Denmark, N.J. This sparked a domino reaction, which set off munitions in the adjacent Picatinny Arsenal. After the smoke cleared, a total of 21 people had been killed and 51 others were injured. The property damage was widespread and included many buildings that were not associated with the arsenal. As a result of this disaster, Congress enacted legislation that established the Department of Defense Explosives Safety Board to enforce explosives safety standards and guidelines. These guidelines are what Air Force Manual (AFMAN) 91-201 is based on today and what affects who works and lives where on each Air Force base.

Explosives clear zones are defined in the AFMAN 91-201 as: "The area surrounding a potential explosion site which is determined by the required inhabited building separation. The inhabited building separation will be based on the sited, waivered, exempted or actual explosives limits of the potential explosion site, whichever is greatest." What exactly does this mean in terms everyone can understand? A munitions storage area is a good example to help with this explanation. If this facility can store 100,000 pounds of explosives or 520 MK-82 general-purpose bombs, then the explosives clear zone can be determined by cubing the explosives weight and dividing it by a given protection factor. This factor can be found in AFMAN 91-201 and represents the inhabited building distance, which is the minimum distance that non-related facilities or personnel must be from an operation involving munitions in order to be protected. The protection factor gives these facilities or personnel a good chance of survival in the event of an accidental explosion. It is important to note though, this factor does not ensure complete protection in the event of an explosives mishap. It just increases the chances of survival.

For the munitions storage example, the protection factor from AFMAN 91-201 is K40, which means the explosives clear zone would extend 1,857 feet in all directions from the storage facility. This represents the maximum distance most of the fragments from the blast can be expected to land. There will still be fragments that land outside of the clear zone, but far less than what can be expected inside. Facilities that do not directly support munitions operations, like the military personnel flight, hospital, security forces and civil engineers, are not authorized to reside within this clear zone. The buildings and personnel that are associated with flying operations or munitions storage will be found inside the clear zone and they have a few other issues to consider.

# ach Out and Touch You

*William M. Curtis II, 347 WG Weapons Safety Manager, Moody AFB, Ga.*

The first is the effect of "blast overpressure" which is caused by the shock wave from the explosion. Only those who have spent time with explosives ordnance disposal professionals when they are detonating explosives can have some understanding of what the blast wave feels like. The pounds per square inch (psi) measurement is used to figure overpressure. Only 1.2 psi is required to break glass that is not reinforced. Depending on how close you are to the detonation, a blast wave can easily be violent enough to knock you off your feet. It stands to reason that the farther away someone is from the blast, the less effect the blast wave will have on that person.

The second factor to consider in an explosives clear zone is the fragmentation of the explosives. There are two types of fragments to consider — primary and secondary. Primary explosives fragments are a result of the shattering of the explosives container or donor. Secondary explosives fragments are caused by blast pressures applied to structures in close proximity to the explosion. Fragments from the donor and the exposed structure have elements that travel both at high speed with a low angle of trajectory and at low speed with a high angle of trajectory. Primary fragments typically travel at thousands of feet per second and secondary fragments typically travel at hundreds of feet per second. It only takes an impact energy of 58 pounds or greater to be life threatening, so it is easy to see that secondary fragments still pose a significant threat.

A third factor to consider is the construction of an explosives storage facility, which can also influence the outcome of an accidental explosion. If an explosives storage facility is augmented with a barricade, the effects of high speed/low angle fragments can be significantly reduced. Additionally, other buildings in the explosives clear zone can be severely damaged or destroyed, and the flying debris from these buildings can result in severe personnel injuries or even fatalities. The risk of excessive damage to facilities or personnel injury due to primary or secondary fragments can be further mitigated through the use of hardened structures, such as underground igloos.

Safety begins with knowledge. This article's intent is to increase everyone's awareness of the purpose of explosives clear zones and how they act to diminish the hazardous effects on personnel. Now the average person on a base should realize what safety procedures are in place to protect property and personnel from the aftermath of an inadvertent explosion like the one that happened back in 1926. It is the application of fundamental principles of weapons safety and the education of the general base population about those principles that make safety programs like this one such a success. Have a safe Air Force day! ■

# Seat Belt Use:
## Is Your Life Worth the Risk?

*By Tech. Sgt. William M. Curtis II*
*347 WG Weapons Safety Manager*
*Moody AFB, Ga.*

I have often wondered why people do not wear their seat belts. Everyone knows that it is the law in most states and a definite must do for those of us in uniform. This past summer, we had several ACC military personnel killed in automobile accidents simply because they were not wearing their seat belts.

My 17-year-old son, who recently started driving, will not shift out of the "park" gear until all of the occupants in the car are wearing their seat belts. This is because he was taught to always wear his at a young age. It started during my first assignment in the Air Force; a short tour to Iceland. I did not have the opportunity to take mid-tour leave to see my family. After my year had passed, I came home on leave before going to my next assignment. At this time my son was 2 years old and quite smart. The first time I got into the car with my family, my son said "Seat belt." I looked at my wife and asked her what was up. She said, "Aren't we supposed to wear our seat belts because we're in the military?" I agreed that we were, but asked what got him started. My wife just said she had taught him that whenever anyone got into a car they must always put on their seat belt. I quickly found out how good her training was when I decided not to buckle my seat belt. My son started a screaming temper tantrum that did not stop until I buckled up! To this day, I credit my son for ensuring that I wear my seat belt every time I get in a car. This might sound like a boring story to you, but I would like you to think about your own kids. Every parent wants their kid to grow up and have kids of their own. That is more likely to happen if you teach your children early on to wear their seat belts. Please think about yourself, your spouse and close family members and do it for them.

My own family experiences have proven to me that seat belts work. My father is a truck driver who never wore a seat belt in his own pickup truck even though it was mandatory for him to wear one when he drove his big rig. On his way home from work one day, he decided, for some odd reason, to wear his seat belt and was involved in a head-on collision at 55 mph. That fateful decision ended up saving his life! My dad survived the accident without a scratch even though both vehicles were totaled. The people who caused the accident were less fortunate. They were not wearing seat belts and had to go through weeks of physical rehabilitation.

My mother was also in an accident where she too was luckily wearing a seat belt. Even though her speed at impact was only 15 mph, her car was also totaled, but her seat belt ended up saving her life. Is the pattern starting to get clear yet?

I hate hearing about the death of people who did not wear their seat belts especially when it is revealed that they would not have died if only they had buckled up. Too many people are killed on and off duty because they are not wearing their seat belts. Routinely, I drive around Moody Air Force Base and see people not wearing their seat belts. I see them reaching for their seat belts as soon as they see my safety vehicle. It can be comical to watch them frantically trying to get that belt buckled. If they had spent just a few extra seconds to put it on before they started driving, they would have nothing to worry about. I even have to tell the troops I supervise to buckle up when I am riding with them. I have heard it all. "It doesn't look cool to wear a seat belt," or "they're too confining." Well, being dead does not look too cool either, and I guarantee that a pine box is a lot more confining than a 2- to 3-inch strap across your waist and chest!

On military bases there is a non-lethal price to pay for not wearing your seat belt. For the first offense on some of the stricter bases, the individual is restricted from driving on base for 10 days. For the second offense, the individual is restricted from driving on base for 1 year. Some bases hand out harsher penalties like a letter of reprimand or Article 15. If that does not sound right, then maybe you should consider why the military is so restrictive. The Air Force has invested a lot of time, training and money into you and would like to keep you around for a while to recoup some of that investment. Such penalties seem like a small and inconsequential price to pay when you consider the alternatives.

The seat belt was designed to increase our chances of living to a ripe old age even if we are involved in an accident. Most people take the seat belt for granted. Yes, I work in the Safety office, but even before then my family's history made me a stickler about wearing a seat belt. No one is invincible in a car accident — the human body is no match for metal, glass and pavement. Increase your odds in a very unforgiving environment by wearing your seat belt. Do it for your own good *and* everyone else's. ■

# MONTHLY AWARDS

## PILOT SAFETY AWARD OF DISTINCTION

*Capt. Joseph N. Daley*
*357th Fighter Squadron, 355th Wing*
*Davis-Monthan AFB, Ariz.*

Capt. Daley distinguished himself by safely recovering a $9 million A/OA-10 after experiencing nearly complete loss of his flight controls. On Oct. 18, he departed Davis-Monthan AFB for Whiteman AFB as number two of a four-ship, call sign "Snag 01," on the first leg of a squadron deployment. The first half of the flight was an uneventful cruise at flight level 290. Approximately 60 miles out from Whiteman and nearing the specified descent point, Capt. Daley noticed some stiffness in the flight controls. He notified the flight lead and began to analyze the problem. Upon further investigation, he realized that he had lost all aileron control and had only nominal elevator control. The flight lead immediately declared an emergency with Kansas City Center and broke up the four-ship sending Snag 03 and Snag 04 ahead to land in the event the in-flight emergency closed the runway. The flight lead also coordinated for a local Whiteman A-10 to join the flight as an additional chase ship should Snag 01 be forced to land for low fuel. Capt. Daley reviewed the aileron/elevator control jam, aircraft controllability and before ejection checklists and then noticed that the situation had worsened. He could not move the control stick to the left or right and had only limited movement fore and aft. To control the aircraft, he used elevator and aileron trim in addition to the rudders, which were the only flight controls working normally. To regain control, he applied as much left stick as possible to try and free the binding. After approximately 25 attempts, the stick suddenly popped left, the ailerons moved and the aircraft began rolling left. However, when he tried to move the stick back to the right to counter the roll, the stick would not move past the neutral. To reestablish level controlled flight, Capt. Daley applied full right rudder and full right aileron trim. With his fuel quickly diminishing, he decided to attempt one approach, opting for a shallow straight in where flight control use would be at a minimum. Anticipating the possibility the aircraft might depart controlled flight, he completed all of the steps of the before ejection checklist. On a 10-mile final, he configured the aircraft and lowered the nose to a 3.5-degree glide path. Approximately 2 miles out, Capt. Daley applied back stick pressure but again the stick would not move aft of neutral. The only way to break the descent was to use pitch trim and to add power. Low on fuel, he continued the approach, further shallowing his approach to a 2-degree glide path. Understanding that he could accept a maximum of 600 feet per minute descent at landing, he continued the approach with a 300-400 foot per minute rate of descent. At touchdown, Capt. Daley did not attempt to flare the aircraft choosing instead to accept the firm landing rather than risk over controlling the aircraft with the threat of becoming airborne again. He masterfully flew the crippled aircraft to touchdown in the first 1,000 feet as planned, right on the centerline. As the wheels touched down the right strut deflated which further complicated matters. Capt. Daley immediately compensated and quickly slowed the aircraft, taxied clear of the runway and shut down. The jet was impounded and a safety investigation was initiated.

## WEAPONS SAFETY AWARD OF DISTINCTION

*Master Sgt. Douglas S. Smith*
*1st Fighter Wing*
*Langley AFB, Va.*

Sgt. Smith used his insight, his attention to detail and the training he received from the February 2001 Assessment System Hazard Surveys (ASHS) II automated site planning at Nellis AFB, Nev., to improve effective site planning of F-15 bases throughout the Air Force. Utilizing ASHS II, Sgt. Smith began to verify Langley AFB's combat aircraft parking plan for the required Quantity Distance (Q/D) separation. During this process, he recognized that the automated program failed to correctly identify the footprint model for explosives-loaded F-15 aircraft. Understanding that the incorrect footprint could have negative Q/D and operational consequences, Sgt. Smith set out to obtain the correct information and make sure the new program was updated with it. He documented the required measurements and submitted the data to the Air Armament Center and Integrated Systems Analysis, who incorporated the information into the ASHS II program for immediate use. Sgt. Smith's suggested quick modification to the automated program will effectively save countless man-hours and materials during explosives site planning, surveying and marking of F-15 combat aircraft parking areas. The new footprint allows the 1st-Fighter Wing, as well as other F-15C bases throughout the USAF, to effectively utilize the new automated site planning system to maximize mission contingency requirements. Today's Air Force has been positively impacted by the commendable actions of Sgt. Smith. His foresight should be used as a model for others to follow.

## GROUND SAFETY AWARD OF DISTINCTION

*Staff Sgt. Franklin J. Newbery*
*99th Reconnaissance Squadron, 9th Reconnaissance Wing*
*Beale AFB, Calif.*

On Dec. 30, 2000, Sgt. Newbery demonstrated exceptional leadership and took courageous actions while responding to a roadside emergency on an off-ramp of State Route 70 near Marysville, Calif. An extremely unsafe traffic condition developed when a truck-tractor trailer loaded with over 65 cattle overturned during heavy commuter hours. Approximately 25 cattle escaped and ran freely within the traffic lanes of surface streets. Sgt. Newbery, who was a motorist passing by at the time, immediately stopped, assessed the situation and began corralling the cattle into an area away from the freeway. In addition, he was instrumental in directing other passing motorists to stop and volunteer. His ability to coordinate the efforts of several strangers, in the pitch dark on a busy highway, was phenomenal. Under his direction and control, this team of motorists corralled and secured the cattle away from traffic. This enabled the Calif. Highway Patrol Officers to concentrate their efforts on vital traffic control and management of the accident scene. Sgt. Newbery's humanitarian concern, commitment to safety and decisive actions prevented a serious vehicular collision with the runaway cattle. His devotion to public safety is commendable.

# AIRCREW SAFETY AWARD OF DISTINCTION

*Maj. Paul D. Love and Capt. Richard K. Bohn*
*509th Operations Support Squadron, 509th Bomb Wing*
*Whiteman AFB, Mo.*

Maj. Love was the mission commander/instructor pilot and Capt. Bohn was the pilot for the number two B-2 of a two-ship Red Flag night sortie. Shortly after takeoff, at approximately 100 feet AGL, the aircraft's number three engine failed and flamed out. Since the aircraft was very near maximum gross weight for takeoff, this significantly degraded three-engine climb performance. Capt. Bohn immediately applied Boldface procedures for an engine failure on takeoff by selecting Total Rated Thrust (TRT) on the remaining good engines. He expertly accelerated the aircraft and climbed to a safe altitude. During the takeoff and climb out, Maj. Love backed up Capt. Bohn with checklist procedures and performance calls. The crew's job was complicated by indications they were receiving from the aircraft. The engine failure, confirmed by engine performance instruments, was accompanied by Fire Warning system indications that did not match the system logic. In addition to a "3 Flameout" caution and "Eng 3 Fail" caution, both "Arm" lights for the right side fire suppression system were illuminated with no initial "Fire" light illuminated. The fire-suppression system can only be armed in flight by positive action from the crew, yet the system was now armed. Maj. Love tested the fire warning circuits and they tested correctly. This was a failure mode never before encountered in the B-2. The crew exhibited excellent coordination in getting the airplane to a safe altitude, focusing on the immediate problem of an engine failure and then turning to the Fire Warning system anomaly. Maj. Love conferred with the Supervisor of Flying, Duty IP and squadron maintenance in an effort to figure out what might have caused the fire-suppression system to arm itself. An electric short in the control panel was suspected so no attempt was made to reset the system or restart the failed motor. The crew flew around the radar pattern to get below the maximum gross for landing. They flew an ILS approach with no complications, taxied clear and shut down in the hammerhead. Through quick and accurate application of Boldface procedures; patient analysis of a never before experienced malfunction; and excellent management of crew resources, both on- and off-board, Maj. Love and Capt. Bohn prevented the loss of one of the nation's most valuable combat assets.

# CREW CHIEF SAFETY AWARD OF DISTINCTION

*Master Sgt. Barry J. Fontaine and Senior Airman Christopher K. McArdle*
*334th Fighter Squadron, 4th Fighter Wing*
*Seymour Johnson AFB, N.C.*

While performing his normal duties on the flight line, Sgt. Fontaine's acute situational awareness alerted him to an engine start malfunction on an aircraft that was located over 50 yards away. As he observed the start sequence of the second engine, a large fireball erupted from the exhaust duct of the Jet Fuel Starter (JFS). At the same time, Amn McArdle was also working on the flight line as an assistant dedicated crew chief preparing his aircraft to fly when he too heard an abnormal whine and an ensuing explosion. They both instinctively rushed to the troubled aircraft to assist as the assigned crew chief and his assistant helped the aircrew shut down and egress the burning aircraft. Sgt. Fontaine arrived on the scene first and expertly took command of the situation. He quickly ensured the nearest 150-pound Halon fire extinguisher was prepared for immediate use which Amn McArdle manned when he arrived on the scene. Although the fire appeared to have extinguished itself, Sgt. Fontaine rapidly and accurately inspected the fire doors and opened extremely hot access panels on the underside of the fuselage as Amn McArdle repositioned the extinguisher under the JFS area. Understanding the potential for the fire to re-ignite, he stood ready to discharge Halon when needed. During Sgt. Fontaine's inspection, another fireball exited the JFS exhaust and he expertly directed Amn McArdle's use of the extinguisher. Through their systematic search and fire suppression, they successfully moved the flames to the intake of the JFS where they were able to extinguish the remainder of the fire. By this time the Fire Department had arrived on scene and Sgt. Fontaine turned over command to the fire chief. He continued to support the fire chief by providing a direct communications link with the operations desk to get nearby aircraft moved out of the way or shut down.

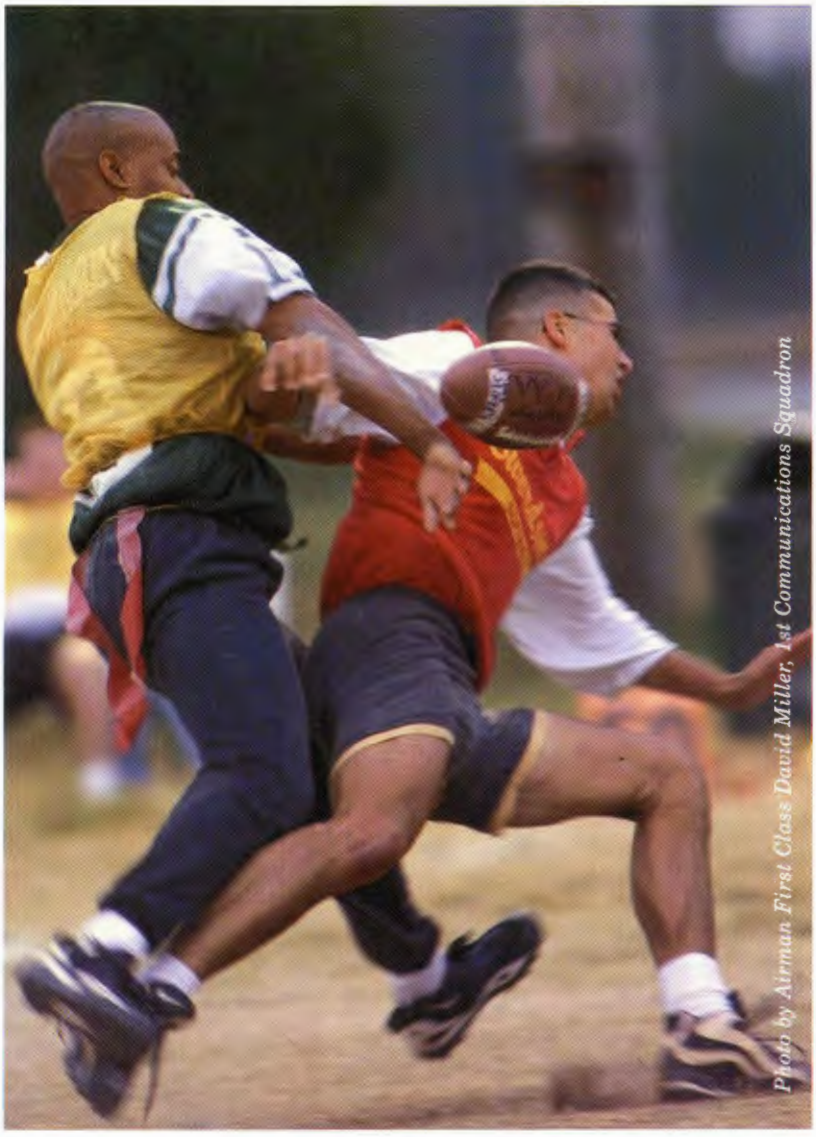


Photo by Airman First Class David Miller, 1st Communications Squadron

There I was at the base intramural flag football championship. It was the first quarter, very first play of the game. You could feel the tension in the air. It was a "has-been's" sports fantasy. It was the only time in my distinguished intramural sports career I have seen more than 50 people at an event. Everyone was there from the commanders to the civilians. As the Supply Squadron came up to the line of scrimmage, we broke our defensive huddle and readied for battle. I was playing linebacker, or something like that, on the left side. The quarterback barked "Hut! Hut! Hut!" The ball snapped and the championship was on the line. As the play unfolded, I noticed a suspicious amount of movement towards my side. "Oh no! First play and they were coming right at me ... bring it on!" As I sprinted forward full speed to heroically involve myself in the first great defensive stop of the game, I felt a sharp pain shoot through my left foot and I crumbled to the ground. As Supply's all-star quarterback sprinted past me towards the end zone, I tried to recover. I did not realize how serious my injury was until I got up and walked over to our sideline. Needless to say, I missed the rest of the

# Warm

plays in the game, which no doubt handicapped my team. We went on to lose the championship. What happened? How could an event that started so full of anticipation have ended so painfully?

After performing a quick battle damage assessment of myself, I realized I needed medical attention. I limped over to my car and drove to the emergency room. X-rays revealed a broken navicular bone in my left foot. Unfortunately for me, this bone is very important. I had ended my intramural football days by breaking it. Two weeks later I was on an operating table having the crack in my left navicular bone repaired with a 6-inch surgical screw. What started as a recreational injury turned into 6 weeks in a cast, a new friend imbedded in my foot and 6 months of intensive physical therapy. It has been 3 years since that fateful fall evening. My foot has survived, but will tragically never be the same. Due to the injury and the stress bones feel when they break, I have developed arthritis and occasionally feel pain depending on what activity I am involved in. I do consider myself lucky to have escaped with a normal lifestyle considering the seriousness of my injury. The ironic reality of the situation is my injury was 100% preventable.

# Warm-Up to WIN

As military members, we all lead very active lifestyles. Whether it is accepting the office racquetball challenge, your daily workout routine or even playing the Saturday round of golf, the possibility for injury always exists. The good news is there are many things you can do to prevent a similarly luckless event from striking you. The first thing I was asked by the doctors who treated me was "What did your warm-up routine consist of?" I remember thinking, "Warm-up routine? I am a warrior. Who has time for a warm-up routine?" But that was the fateful mistake that caused my injury.

Never under estimate the powers of preparing your body. Stretching is the first thing you should do before engaging in any physical activity. It loosens up the muscles and prepares your bones and joints for the stress they are about to engage in. It is very important and does not take very long. A proper stretching routine should last about 5-10 minutes. You want to make sure you can feel the stretches as you are performing them. If your bones crack and pop during your warm-up routine, this is a good thing. The specific stretching exercises you do will be dictated by the type of activity you are preparing for. Hold each position for about 10-15 seconds without bouncing to effectively stretch your muscles. Your warm-up session should be intensive enough to raise your heart rate. The goal is to "get the blood pumping." There is a lot of information available on warm-up routines. Education is the key. The best places to start learning what you need to know are your local sports and fitness center, the health and wellness center and even the physical therapy clinic.

Another neglected area of injury prevention is equipment. Thousands of physical enthusiasts become injury statistics each year due to faulty or outdated equipment. I know how much those 1977 Chuck Taylors elevate your game, but your feet and ankles will greatly appreciate the $50 investment it takes to provide the proper support your body needs. Inspection is also an important preventive measure. How much sense does it make to spend all day at work inspecting equipment to ensure its credibility, then go home and take your bike for a ride without looking it over? Take a few seconds to inspect the equipment you will be using whether it is a racquet, bat, club or weight bar. It may save you a trip to the emergency room. Take it from me, that is a trip you will want to avoid!

Final tip is to always check your buddy's six. Always make sure your workout partner, opponent or teammate is effectively prepared for battle. I once ran a 5K race with a co-worker and half way through I noticed that neither of his shoes was tied. It would be a pretty good guess that if he did not take the time to tie up his running shoes, there is almost no chance that he started with a warm-up routine. Preventive measures like the ones I have discussed here do not take long, are not strenuous and can only help your cause.

Although my intramural football days are over and my left foot will never be the same, I remain very active. I now know what I did wrong and how to prevent it from happening again. At first, it was hard to believe that a few simple stretches could have saved me so much aggravation, but those are the facts. Not knowing this information cost me an activity I enjoyed, not to mention the championship football trophy for my squadron's orderly room. I share this story with you in the hopes that you will learn something and not repeat my experience. Whatever activity you engage in, make sure your body is prepared and ready to go. Do not forget about all the places you can go which will help you develop a great warm-up routine then make sure you implement it. Maybe one day our paths will cross on an intramural battlefield ... I still play a mean third base! Game on! Good luck! Be smart! Be safe! Most of all, warm-up! Your body will reward you with enhanced, pain-free and prolonged performance. ■

*By Senior Airman Michael D. Brooks*
*USAF Thunderbirds Ground Radio Technician*
*Nellis AFB, Nev.*

# Overtraining Sy

During my eight years as a personal trainer, three years as athletic director for a health club and more than 20 years of practical experience working out, I have found people normally fall into one of two categories. In the first one are those who must fight themselves each time just to get to the gym. In the second category are those so dedicated to their regime that the thought of missing one exercise session is nerve-racking.

For those in the latter category especially, over-training can rob you of the benefits you are working so diligently to achieve. You must work hard to improve performance, but training actually breaks your muscles down and makes you weaker. It is actually the rest period following a workout that makes you stronger. Adaptations that occur during the rest period include efficiency of the heart and improved enzyme systems, capillary density and glycogen storage capacity in muscle tissue. These systems become stronger during rest periods, thus enabling subsequent training sessions to be at a higher level of performance. However, there is a limit to an individual's capacity to endure and adapt to intense training. Over-training occurs when a threshold is crossed and you experience stress and trauma from exercise faster than your body can repair itself. In general, military men and women are extremely dedicated individuals in all their endeavors. At times, this devotion can push them too far and lead to a condition that causes distress in personal life and degrades professional abilities. It can happen with any type of training, aerobic or anaerobic.

All aspects of life require balance. You know that if you eat too much you will become overweight and that is unhealthy. If you eat too little, you will become underweight and that is also unhealthy. What is best is eating the optimum amount of food to maintain a healthy weight. This concept seems intuitive and few would argue its validity, but for some reason, people often neglect this same logic when it comes to physical training. The consequences can be deterioration in performance and health. This is by no means an invitation to those who exercise infrequently to reduce or quit their workouts in the name of "good health." If you were to plot the quantity of exercise, or any factor that contributes to health, on the x-axis versus the benefits on the y-axis, you would end up with a classic bell-shaped curve. Finding the optimum amount of exercise to maximize your benefits is a crucial step people frequently fail to take.

How do you know if you are over-training? No quantitative test exists, but some of the symptoms are seen regularly. Just as is the case with food, there is a tremendous range in the amount of training people can tolerate before it becomes unhealthy. Each individual has to determine where he or she lies on the spectrum. The overtraining syndrome is characterized by a collection of physical, emotional and behavioral symptoms when chronic over-training has persisted for months or longer. It is also referred to as "staleness" or "burn-out" by coaches. If you are overtraining, you will likely be experiencing one or more of these common signs:

- Decreased performance
- Washed-out feeling, tired, drained, lack of energy, fatigue
- Depression, irritability, reduced concentra tion, apathy and/or mood swings
- General or chronic muscle ache
- Sleep disorder
- Increase in injuries
- Decreased resistance to common infections; colds, sore throat, etc.
- Delayed recovery from or an intolerance to training
- Weight loss or loss of appetite
- Headaches
- Twitchy or fidgety
- Insatiable thirst, dehydration
- Altered resting pulse rate

Lab tests on over-trained individuals have shown chemical changes that are disturbing as well. Exercise can impair the immune response by promoting cortisol, a "stress" hormone. Significant amounts of it are released while over-training which breaks down immunity. Exercise in reasonable amounts has the opposite effect and enhances the immune system. In some cases, a decrease in testosterone levels was also noted.

Now that you know what it is and what it can do to you, what can you do about it? If

# ndrome:

# All Pain, No Gain

*By Mr. Dave K. Johnson, ACC Communications Computer Specialist, Langley AFB, Va.*

*Photo by Staff Sgt. Dave McCarrison, 1st Communications Squadron*

over-training has already occurred, there is only one thing you can do: REST. This is the exact opposite of what most athletes do when these symptoms begin to manifest. Instead of slacking off at this point, athletes often respond by training even harder which only makes the condition worse. Performance generally improves only after a layoff. Since each individual's capacity to recover is unique, there is no "magic" amount of time to rest; however, some general guidelines will help. The longer over-training has occurred, the more rest you will need to recover. This is another reason early detection is critical. In mild cases, interrupting training for 3–to–5 days is sufficient. In severe cases, a return to health may only be possible after the training program is halted for weeks. Some people may recover with a *significantly* lower level of activity, while others may need to quit training altogether during this period. If you have the enthusiasm required to over-train in the first place, you might have a difficult time holding your intensity down. After recovery, you may be able to maintain the intensity of your training, but the *total volume must be lower.* If you do not identify and correct the factors that lead to over-training, the syndrome will likely recur.

There are also preventive measures you can take. Set realistic goals that do not push beyond what your body can handle. Stay in tune with your body. Do not push if it tells you not to and do not work a muscle until it is fully recovered. The more intense an individual session is, the more time you will need to recover. I knew of a professional bodybuilder who took 2 weeks in between heavy leg workouts due to the extreme intensity he put into them. Recognize over-training symptoms early and vary your workouts. Vary the type of activity and the intensity. If you lift, it is not enough just to work a different muscle group each day of the week. Systemic systems (neural, endocrine, etc.) need rest too. Take breaks, especially if you have been intense for quite a while. Remember, sometimes you come back stronger! The general tendency I have seen among health care professionals and elite athletes is that it is better to under-train slightly than over-train. Do not let training consume you. Pursue other interests. Good nutrition will supply your body with all the nutrients, vitamins and minerals it needs for optimum performance. If you start to notice even slight symptoms, take additional time off. Delaying your decision could put you out for much longer, and you may end up with an injury or illness that could have been prevented. ■

# Reducing Sports Injuries

*By Mr. Jim Garamone*
*American Forces Press Service*
*Washington, D.C., March 27, 2001*

Sports are a big part of the military culture, but service members have to be more careful when they play. "Sports and recreation participation are major causes of injuries in the armed forces," said Diana Settles, program manager for injury prevention and physical fitness for the Navy. "DoD spends $600 million to $750 million per year to treat musculoskeletal injuries," said Settles, who also works on the DoD Injury Occupational Illness Prevention Committee. "While this statistic covers all musculoskeletal disabilities, a significant number are due to sports accidents," she said.

Settles said DoD is trying to get a better handle on the scope of the problem, but that's been hard because many sports injuries occur during off-duty hours. The effects of these injuries are far-reaching. There is, of course, the pain service members suffer. But also, injuries affect the mission. "During Desert Shield and Desert Storm, the Army reported its medical evacuations and hospitalizations were primarily sports and recreational activities," Settles said. These injured soldiers were unavailable for duty when the war started. Other soldiers had to take their places or their fellow soldiers had to do the job with fewer personnel.

The Air Force reports that basketball is the cause of most sports injuries. It is followed by softball, flag football, snow skiing and cycling. "Basketball provides a good example of what service members can use to avoid injuries," Settles said. "Basketball is very popular and service members play the sport year-round," she said. "Pick-up games are common and they are played indoors and outdoors." Pick-up games commonly do not have referees.

Settles said service members must consider internal and external "risk factors" when approaching recreation and sports activities. Internal factors include the shape the players are in and their physical anatomies. Using basketball as an example, it is an aerobic sport involving a lot of running. "There's a level of fitness people should meet before playing the game," Settles said. The sport requires a lot of lateral movement. Players should warm-up and stretch for 5–to–10 minutes before taking the court. She said local morale, welfare and recreation specialists can advise service members what types of stretching are best for various sports.

Ignoring external factors can also cause accidents. In the case of basketball, such factors include the condition of the court and the proper use of players' equipment. Don't just pick up a basketball and start playing. Check out both indoor and outdoor courts to ensure they are dry and do not contain sharp or foreign objects. They should be properly lit. Make sure there is enough room behind the hoop so players don't run into a wall or go up on a curb. Wear the correct shoes when playing hoops. "Many times people are playing basketball in running shoes," Settles said. "There is little lateral ankle support in running shoes — which predisposes the athlete to an ankle injury." Sprains and knee injuries are the likely injuries that result from playing basketball. Every sport has internal and external risk factors, and service members who are aware of them can cut down on injuries.

DoD is trying to reach service members through their coaches, units and specialists in the recreation centers. "The service man or woman needs to understand the internal and external risks associated with their sports," Settles said. "This could be relayed to them via coaching staff, the MWR personnel, personal training personnel or the officials. I think the 'train the trainer' is important, but the individual service man or woman has to take control and understand what the risks are with their sports and work to minimize them." ■

# On the Road Again

On the road again

With the warm weather rapidly approaching, more riders will be taking their bikes out of winter storage. But before you hit the road again (hopefully, not literally), you need to check your bike out thoroughly to preclude any unwanted surprises or problems. Remember, this list is not all inclusive. Each brand and type of bike is different so be sure to consult your owner's manual for additional information.

- Check the charge on your battery and service if necessary. If servicing is required, always follow the correct safety procedures and wear the appropriate personal protective equipment.

- Inspect your tires for dry rot or damage and proper tread depth. If the tires are serviceable, inflate to the proper operating level.

- Inspect your braking system to include brake pads, discs and fluid levels. Always service your braking system in accordance with manufacturer's instructions.

- Ensure all fuses, lights and horns are in good working order. Replace bad fuses and burnt out bulbs as required.

- Service all fluids and check for any leaks. Also, do a bolt check and tighten up anything that may be loose.

- Inspect your riding personal protective equipment to make sure it is serviceable.

- Dust off your riding skills by taking a motorcycle safety training course.

When operating your motorcycle, remember the old Boy Scout motto, "Be Prepared." A good inspection now, can prevent problems later. ■

*By Master Sgt. Scott M. Eck*
*919 SOW Safety Craftsman*
*Duke Field, Fla.*

# I Just Did Not See....

*By Maj. William P. Leslie, 1 AF Chief of Supply, Tyndall AFB, Fla.*

Sound familiar? It's the same line police officers hear at nearly 72% of all motorcycle accidents involving another vehicle. Typically, that vehicle was coming from the opposite direction and turned left across the path of the motorcycle. It does not have to happen this way. What can the motorcyclist do to help? In short, be aware of other drivers' visual shortcomings and help them see you.

The other vehicles involved in this 72% come at the motorcyclist from the 11, 12 and 1 o'clock positions. In case you were raised with a digital watch that means these accidents happen right in front of the motorcyclists' face. While this might seem obvious, the first thing we have to do is simply keep our eyes open to what is happening right in front of us.

It might help if we, the riders, make a couple of assumptions. This is probably one of the few instances where making an assumption is a good thing! First, from the time we throw a leg across the seat of our mighty steed, we become basically invisible to other drivers. Why you ask? Well, you will not find any study to back this up, but I firmly believe it has to do with how we are raised. I do not remember my mother ever telling me to look for motorcycles before I crossed the street. I was always taught to look for cars. They are bigger which makes them easier to see. I was never taught to look for anything smaller than a car, and I have seen this experience repeated over and over in the students I have taught as a motorcycle rider instructor. The second assumption is based on the first. If automobile drivers have not been trained to look for us, then they will turn left across our path of travel at every intersection where possible. Riders have to always anticipate this and be prepared. It might help you to accept these two assumptions as facts to live by if we look at what may happen during the moments immediately preceding one of these right-of-way violations before impact.

The eyes of the automobile driver some-

how blank out the motorcycle coming from the opposite direction. The motorcycle is smaller. It is not moving side-to-side within the lane to bring attention to itself as it approaches the intersection. The motorcycle just blends into the background. The driver begins to turn, across the path of the oncoming motorcycle. Once the turn begins, the car then moves toward the new direction. The motorcycle is now relatively close so it moves laterally across the lane from the driver's point of view. This catches the driver's eye and now the presence of the oncoming motorcycle is all too clear. The driver attempts to stop and ends up right in the path of the motorcycle. This is something an experienced rider may be able to handle; however, an inexperienced rider will usually simply continue right into the now-stopped vehicle. As you can see, accepting my two assumptions as fact can be helpful in anticipating this situation and, hopefully, avoiding it.

There are a couple of other things a rider can do to help minimize or possibly eliminate this situation. First, wear a helmet to protect the thing that helps us maintain rational thought to begin with and any kind of brightly colored upper clothing. This can help other traffic see the rider easier during the day. Reflective material will help greatly during a similar night scenario. Second, if legal in your state, a headlight modulator can draw more attention to the motorcycle. A normal modulator flashes the headlight between the low and high beams about four times per second. This would help to prevent the rider from blending into the background.

The best advice I can leave you with is tied to my two assumptions. Shortly before nearing the intersection, assume the driver does not see you. Slow down slightly to increase the time you have to deal with the situation if it occurs. Quickly adjust your lane position to the completely opposite side of the lane you are in. This will help to bring attention to the motorcycle before the car begins its turn. The driver will then attempt to stop before actually entering the motorcycle's path. Don't become part of the 72%. Take action to make yourself noticeable, but ride as if no one else can see you. Anticipate their mistakes and be prepared to respond. Ride smart. Ride to live. Live to ride. ■

## Sharing the Road

*National Highway Traffic Safety Administration*

Sharing the road with cars and trucks is what every motorcyclist has to do. Always remember that you are not the only one on the road. The more attention you pay to traffic situations, the better your chances of avoiding a mishap.

- If you are riding with other cyclists, you should ride in a staggered formation. However, remember it is best to move into single file when taking corners, making turns or entering or leaving the highway. Always ensure you stay out of vehicle operators "blind spots."

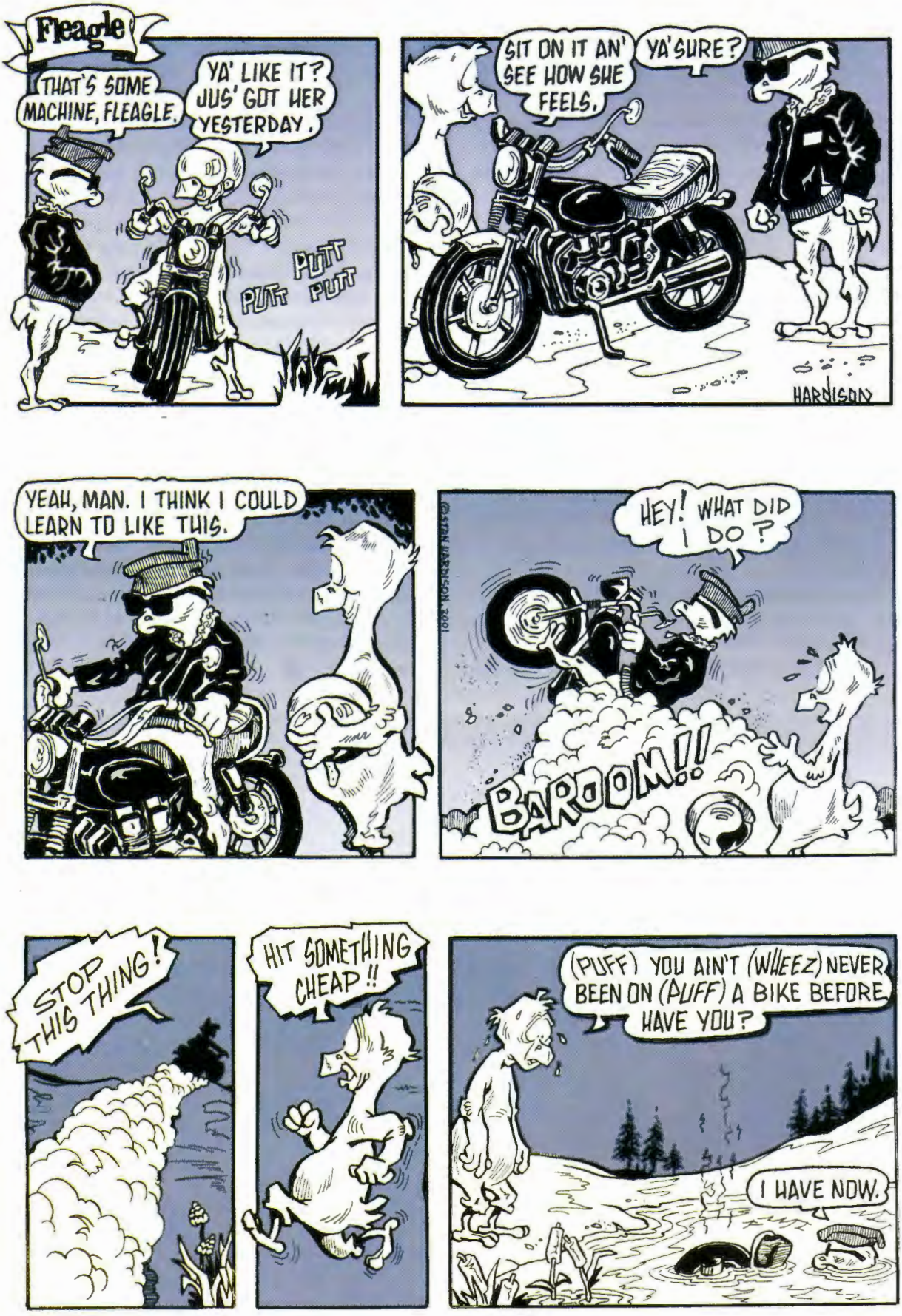
- Intersections can pose a problem for motorcyclists. Parked and stopped cars can hide the motorcyclist from the view of the other vehicles. Always ride or position yourself in the lane that gives you the best position to see and be seen. Never count on "eye contact" with the other driver as a way of being seen. Many times motorists seem to be looking at you when in reality, they really do not see you at all.

- Keep a safe distance when following other vehicles. Maintain a safe speed consistent with driving conditions and your capabilities. Gravel on the road and slippery road surfaces can be hazardous. Avoid sudden braking or turning.

- Riding at night can pose more hazards for riders. Be sure not to "override" your headlight. Remember that it is harder to judge distances at night. Give yourself more room when following other vehicles. Use your high beams whenever possible, except when meeting or following another vehicle.

- Alcohol and motorcycles do not mix. According to statistics of motorcyclists killed in accidents involving alcohol, one in four were **not** over the legal limit.

Remember, choosing the way you ride can make the distance between life and death.


Fleagle
THAT'S SOME MACHINE, FLEAGLE.
YA' LIKE IT? JUS' GOT HER YESTERDAY.
PUTT PUTT PUTT
SIT ON IT AN' SEE HOW SHE FEELS.
YA'SURE?
HARRISON
YEAH, MAN. I THINK I COULD LEARN TO LIKE THIS.
©STAN HARRISON 2001
HEY! WHAT DID I DO?
BAROOM!!
STOP THIS THING!
HIT SOMETHING CHEAP!!
(PUFF) YOU AIN'T (WHEEZ) NEVER BEEN ON (PUFF) A BIKE BEFORE HAVE YOU?
I HAVE NOW.

# Flight Safety Stats

## ACC & ACC-Gained Losses for FY01

**1 Oct 00 - 31 Mar 01**
**Class A Flight Mishaps**

| | |
|---|---|
| 8 AF |   |
| 9 AF |   |
| 12 AF |   |
| AWFC |   |
| ANG |   |
| AFR | |
| Aircrew Fatalities | |

**Class A - Fatality; Permanent Total Disability; Property Damage > $1,000,000**
***Non-Rate Producing**