

Summer Edition 2012

Combat Edge



AIR COMBAT COMMAND'S SAFETY MAGAZINE



Air Combat Command
**CONFIDENT
IN THE F-22**

PAGE 4

**chin up
shoulders back
wig on**

... I'm off to face
the giant! **PAGE 12**

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ACCent

ON SAFETY

“Close to Home”

I’m building an airplane. It’s a Van’s RV-7A, a great little all-metal bug-smasher with 200 mph cruise, seating for two, awesome F-16-like bubble visibility and +6/-3 G capability. The wings and empennage are done, the fuselage is ready to go onto its gear and the engine has been shipped. Yes, of course I’ll have nose art and a P-51 Mustang paint job.

When you start flying a homebuilt experimental airplane, the FAA requires an initial testing and verification “fly-off” of about 40 hours. No passengers. No goofing around. Just systems wring-out and safety checks, and you MUST stay within X miles of the home airport in case you have a problem and need to land quickly ... keep it close to home.

“Close to home” is the theme for this edition of The Combat Edge. Every article this month hits close to home for us here at ACC Safety, starting with the F-22 Raptor. We watch that beautiful piece of all-American air supremacy fly every day here at Joint Base Langley-Eustis, Va. We’re proud of that aircraft, and of the pilots here that strap on that jet daily to practice the fine art of flying, fighting and winning.

Col Al Marshall’s lovely bride Kendra brings us back home with her winning battle against cancer. Those of us who have never battled the disease, nor helped a family member with the struggle, can’t fully understand what it takes to fight this giant. As warriors, we learn to take constant stock of our weapons and tools. The pillars of Airman Resilience — mental/emotional, physical, social and spiritual — became vital to Kendra’s arsenal, along with healthy doses of humor, faith and wingmanship.

We’ll also hear from our Air Force’s brightest experts on special disorientation in today’s aviation mishap record. This one hits close to home for me for a couple of reasons. First, despite all the tools we give our pilots in today’s modern aircraft, the human pilot is still vulnerable to Spatial-D, and recent mishaps have featured this deadly human factor. Second, in my 2,000 hours of fighter flight time, my single most terrifying sortie came during an Operation Southern Watch mission in a moonless Saudi sky in the weather.

As number three in a radar trail formation en route to the tanker, my pilot admitted that he was “really going tango uniform.” It took some serious crew coordination to talk and walk him into formation with the tanker and onto the boom: I’d tell him, “You fly the ADI, I’ll talk you in,” and I gave him the verbal PAR up onto the tanker’s wing.

We should have gone home, but we did NOT want to miss out on this mission. It was 1994, and we were flying F-4G Wild Weasels. However, on this night, instead of being loaded to kill surface-to-air missiles, we were carrying only AIM-7 Sparrows: It was the USAF F-4 Phantom’s last air-to-air combat mission. No Iraqi MiGs launched, but by God we were flying air-to-air that night.

All these stories hit close to home. Please enjoy, and may they add a few new arrows to your mishap prevention quiver. Stay safe!



Colonel Sidney F. Mayeux
Director of Safety

Combat Edge

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Air Combat Command CONFIDENT IN THE F-22

BY TECH. SGT. AMY ROBINSON

Gen. Mike Hostage, commander of Air Combat Command, talked with media at Joint Base Langley-Eustis April 30 about the national security imperative for the F-22, the status of efforts to identify a root cause for unexplained physiological incidents, and risk mitigation efforts since the Raptor's return to flying operations in September 2011.

Confirming recent media reports of the F-22 deploying to Southwest Asia, Hostage emphasized the Raptor's ability to support combatant commander requirements around the world.

"I won't comment where it's deployed to or where it deployed from, but yes, the F-22 is on an operational deployment now. And this is not the first operational deployment," he said. "If your adversary is so concerned about what your capabilities are, they decide not to engage with you. That to me is the ultimate use of your military capability. People pay attention to where this airplane goes and what it does ... we need to make sure that it's a sustained part of our inventory."

The command-directed stand down from May to September 2011 was a prudent measure following reports of potential hypoxia-like events among raptor pilots. Since the stand down, ACC has implemented a number of risk mitigation measures intended to protect F-22 pilots and maintenance crews and prevent future incidents.

Hostage said he understands there are still concerns about the aircraft; however, he explained that there's always a certain amount of risk involved, and the risk must be balanced with the requirement for the capability.





"In a peacetime training circumstance, we want to operate at as low of risk is prudent for the level of training we get out of a mission," he said. "When we go into combat, risk goes up, but the reason to assume that risk goes up as well.

"We live in a community where risk is part of our lives," he said. "If we think the risk has gone to a level where we just can't accept it, we either reduce that risk or eliminate it. But right now, we believe that risk — although it's not as low as we would like it — is low enough to safely operate the airplane at the current tempo."

Hostage said he believes this risk is not a risk he expects his Airmen to take alone. In an effort to learn more about the aircraft and get a better understanding of what F-22 pilots are dealing with, ACC's commander will soon begin flying the Raptor.

"I'm asking these guys to assume some risk that's over and above what everybody else is assuming, and I don't feel like it's right that I ask them to do it and then I'm not willing to do it myself — that's not fair," he said, adding that the day they figure out what the problem is the day he will stop flying the Raptor.

Since the aircraft resumed flying operations in September, the F-22 has flown more than 12,000 sorties and returned to operational capability.

"We've taken a very specific, methodical approach to how we return to flying — the types of missions and the durations of the missions," said Maj. Gen. Charles Lyon, ACC director of operations. "We've been continually increasing the types and durations."

The Air Force continues to search for the root cause of the unexplained physiological incidents using detailed data-collection methods, which will soon include centrifuge and high-energy testing. Hostage said he believes the command is gaining ground toward solving the mystery; however, he emphasized that scientific testing and data collection take time.

"I believe we are making significant progress toward an answer," said Hostage. "I don't want to characterize how far or when because I don't own the progress of science. But I am confident we're going to get to a solution."

Both Lyon and Hostage compared this to the early days of the F-16.

Although the first F-16 had its first operational flight in 1970, the combat edge aircrew flight equipment, which was optimized for high-G flight, wasn't fielded until about 1988, Lyon said.

"We didn't field it slowly because we had fiscal challenges — it took us that long to get the understanding over time of what was actually happening."

Hostage illustrated a similar analogy regarding the unknown effects of human physiology and technology.

"What we're looking at is human physiology and the regime this airplane operates in," he said. "This airplane does things airplanes have never done before in regimes of flight that we've never operated in before."

And Hostage said he's confident they will find a solution for what he calls "the most tactically-capable aircraft in the world."

"This nation needs this airplane — and every one of them," he said. "I wish I had 10 times as many as I have." ■

SPATIAL DISORIENTATION



... still a problem in 2012

BY COL. GIBB, LT. COL. MUSSELMAN and MAJ. FARLEY

The Problem

Spatial disorientation (SD) has been killing aircrew for decades. In the U.S. Air Force, SD accounted for nearly 20 percent of all Class A mishaps from 1990 to 2009. One study reported that from fiscal year 1993 to 2010, there were 62 Class A mishaps with SD as causal or contributory, costing 86 fatalities and \$2 billion. Furthermore, USAF Safety Center data clearly shows the overall Class A aviation mishap rate (accidents per 100,000 flying hours) has gone down significantly over the decades. Yet, the SD mishap rate has remained constant in those same decades. In other words, aircrews are still dying from SD at the same rate that they did 10, 20, 30 years ago. And this problem is not just an AF flight safety issue; all services and all aspects of flying, such as U.S. Army helicopter, general aviation, commercial and civilian helicopter operations have failed to fix the SD problem. In the U.S. Navy, SD is the number one human factors cause of mishaps. Confusingly enough, despite years of research and countless mishaps, the problem of SD is woefully underestimated and not respected by aircrews.

Many may not be aware of the seriousness of aviation spatial disorientation because of inaccurate and under-reporting. Two factors contribute to this problem: 1) a lack of consensus on what should be termed spatial disorientation and how to categorize mishaps; and 2) the difficulty of "getting in someone's head" to understand what happened, particularly if the pilot did not survive the mishap. The difficulty in quantifying SD

mishaps is demonstrated by our own examination of USAF Class A mishaps from fiscal year 2003 to 2011. We found that out of 209 mishaps, only 18 (9%) had SD formally documented as a contributing factor claiming 12 lives. However, after a re-examination of the mishaps SD contributions were found in 33 (16%), and claimed 30 of the 68 fatalities (44%). Not accounted for in this assessment were mishaps with situational awareness contributions, mishaps closely linked with SD. Consequently, these findings are still most likely under-representative of the actual SD problem, but highlight the steady presence of SD-related mishaps as we enter 2012.

Pilots are briefly taught the basics of SD during pilot training. However, drinking from the pilot training fire-hose is challenging and the question is raised regarding, "How much of SD is remembered once a young pilot moves onto their first flying assignment?" With that said, when, and more importantly how do aircrews learn and understand SD?

Pilots are exposed to the dangers of SD during aerospace physiology (altitude chamber) training and SD is a required topic in the Instrument Refresher Course (IRC). But ... altitude chamber training is only once every five years, and instrument approach issues often trump SD during the IRC. Additionally, there are no SD-engineered scenarios in undergraduate or weapon system specific simulators. Thus, the reality is very little SD education and training of USAF pilots has occurred for decades.



Orientation & Disorientation

Spatial orientation is the correct perception of one's location and orientation within an environment: perception of the ground, the horizon, which way is up and which way is down; as well as position relative to man-made or natural landmarks/obstacles and acceleration and motion in that space. When a pilot can easily see his/her flying environment by looking out the front window/glare-shield, the process of spatial orientation is direct and seemingly effortless. Any confusing vestibular signals are ignored because vision is so dominant. Within the flying domain, vision accounts for 80 percent of a pilot's orientation. However, given any amount of visual degradation from lack of light (night) or weather (clouds), the previously unconscious and mindless process of orientation can quickly become mentally taxing. With the loss of the 80 percent, vestibular cues become confusing and exceedingly more difficult to ignore. Consequently, with the loss of visual cues, a pilot must perceive aircraft status indirectly from a variety of instruments and then mentally construct his/her spatial orientation, while ignoring the confusing 20 percent.

Spatial disorientation occurs when a pilot fails to correctly sense the position, motion or attitude of himself or his/her aircraft relative to the ground and the

horizon. The old 2005 USAF Manual of Instrument Flying Procedures, 11-217, Volume I, defined SD as *"incorrect perception of one's linear and angular position and motion relative to the plane of the earth's surface; the erroneous percept of any of the parameters displayed by the aircraft control and performance instruments; regardless of a pilot's experience or proficiency, sensory illusion can lead to differences between instrument indications and what the pilots 'feels' the aircraft is doing."* Too often SD is thought of only in terms of vestibular illusions, but really it is the lack of valid visual cues or mis-prioritization of existing visual cues that lead aircrews to lose their awareness and orientation.

As pilots, how often have we heard the phrase pilot error? Mishap descriptions that involve a loss of situational awareness, degraded weather/visibility conditions, or controlled flight into terrain all most likely had contributing factors of SD. Recall the definition, "correct perception of one's location and orientation within an environment." Given the frailty of the human vestibular and visual sensation and perception abilities in the aviation environment, a better phrase than pilot error ought to simply be, "exceeded the physiological and psychological capability of the aircrew."

Those aircrew limitations are why improved education and training are so important.

But, it is already 2012 ... the idea of a mishap caused by SD does not seem possible, right? Wrong.

Between fiscal year 2006 and 2011, at least 20 USAF Class A mishaps have occurred with SD issues — often flying at night and becoming disoriented, consumed with high workload issues (handling an emergency or intense mission phase), failing to recover from an unusual attitude, losing situational awareness and/or inadvertent weather.

2006 - 2011 USAF CLASS A SPATIAL DISORIENTATION- RELATED MISHAPS

A/C	DAY/NT	NVGs
F-16C	DAY	--
T-38	NT	--
F-16C	NT	NVGs
F-15A	DAY	--
HH-60G	NT	NVGs
E-8C	NT	--
HH-60G	NT	NVGs
HH-60G	NT	NVGs
F-16C	NT	NVGs
F-16C	NT	NVGs
C-17A	NT	NVGs
F-15E	NT	NVGs
E-3C	NT	--
UH-1N	NT	NVGs
UH-1N	NT	NVGs
CV-22B	NT	NVGs
F-22A	NT	NVGs
T-38C	NT	--
F-15E	NT	NVGs
A-10C	DAY	--

Note the variety of aircraft involved ... fighter aircraft, as well as crew airplanes and rotary wing aircraft. Also notice the number of NVG-related mishaps. SD mishaps have played a role even during "good" aviation safety years. In fiscal year 2009 for instance, the USAF had an impressively low 0.8 mishap rate; however, three of the six aviation-related fatalities had SD contributions.

The Way Ahead ...

As an aviation community, it is time to "circle the wagons" and improve our education and training, as well as making SD risk awareness a

priority. A professional is one that continually works to improve. As USAF professional aviators, given the high probability of an SD issue contributing to a mishap with a high fatality rate, it would be prudent to start now on your SD refresher training.

- No one is immune to SD
- SD often strikes pilots fairly new in a high performance weapon system
- SD most often occurs in degraded visual conditions (... night!); so don't trust yourself without a backup
- SD occurs when combined with fatigue and high cognitive tasks ... use risk management and consider sortie length, time of day, phase of flight, and mission-specific tasks as you juggle your "bucket of situational awareness"
- Even with NVGs, your night vision

is very poor, lacking in acuity, contrast and depth-perception

Chapter 12 in the current 11-217, Volume 3, 2009, does an excellent job detailing the visual limitations of NVGs

- You are not always "on you're A-game," be conservative and return to fly another day/night
- In 2010, the USAF Manual of Instrument Flying Procedures, Instrument Flight Procedures in Volume 1, and Visual Flight Procedures in Volume 2, were released with substantial changes. Unfortunately, the updated/revised 11-217 series dropped detailed discussion of SD; however, by summer 2012, a revised 11-217, Volume 3 (current is 23 February 2009), Supplemental Flight Information, will contain a newly written chapter on SD — read it!

Great news, Air Education and Training Command just funded SD-specific training devices for undergraduate pilot training. The USAF is moving in the right direction ... get in the books, maximize your simulator time to hone your instrument skills, and take your unusual attitude recovery training seriously. You have trained your whole life to be an aviator, so take the necessary steps to keep doing it for a long time. ✪

About the Authors:

Col. (ret.) Randy Gibb has a Ph.D. in Human Factors and is a Command Pilot and is currently a Senior Military Professor at AFIT.

Lt. Col. Brian Musselman and **Maj. Rich Farley** are both Air Force Safety Center Aerospace and Operational Physiologists with years of experience in USAF Safety and mishap investigations.



Photos by: Staff Sgt. Samuel Rogers

chin up shoulders back wig on ... I'm off to face the giant!

BY MRS. KENDRA MARSHALL, AN AIR FORCE WIFE

I never saw the giant coming. There are unfortunate things that happen in life that do not necessarily come as a surprise. Our choices, behaviors and family histories can sometimes dictate tough consequences. But I had lived a fairly healthy lifestyle. I had never abused alcohol, taken drugs or smoked. I wasn't overweight; I exercised regularly and no one in my family had a history of this sort of thing. And then the doctor said the dreaded phrase that no woman wants to hear: "I'm sorry, but you have breast cancer." You've got to be kidding me! I'm a homeschooling mom with two little boys 5 and 6-years old. I don't have time for this! But this was no joke. This was a horrible reality that would not just affect my life, but the lives of my entire family. This would be the biggest giant I had ever faced.





like this without humor and faith. So, you will definitely see those two themes in my story below.

MENTAL (EMOTIONAL)

There are many emotions a woman goes through when facing this disease. It does not simply attack our bodies, but it attacks our femininity. I am told that you go through the stages of grief during this time (denial, anger, bargaining, depression and acceptance). Believe me, I could go through all of them in five minutes, take a minute to breath, and go through them all again! After my first attempt at acceptance, I wanted to take control. I had worn my hair long for many years, so I decided right away that I would donate my hair to Locks of Love, a



their mommy. No matter what the outcome, they would have to travel this road with me and that seemed so unfair. I just needed 12 or 13 more years of life to get them grown into young men and out on their own. What do we tell them? How do we tell them? How do we know what is age appropriate? How do we go through this journey without turning their lives upside down? My biggest concern with chemotherapy was the effect that losing my hair would have on my two boys. They had always loved mommy's long hair and I was afraid they would be devastated to learn that I would be losing it all. So, I tried to make things as lighthearted as I could. At dinner one evening, I told the boys that I was going to have to take some medicine to help get rid of the bad cells and that this medicine would make mommy feel tired and sick. But one really funny thing was that it would make mommy's hair fall out. With bright, round, questioning eyes, my 5-year-old asked if I was going to be bald like Grandpa. After quickly answering, "Yep," I sat waiting for them to burst into tears, but they both pumped their arms in the air and started laughing. So much for my pride! That night, my 6-year-old came into my room, snuggled up to me and said, "Mommy, even if you don't have any hair, you'll still be sweet momma." With an emotional pep talk like that, I could do anything!

PHYSICAL

I believe there are two periods when a cancer patient needs the most support from others. The first period is during the active treatment stage when most of the support is more physical in nature. The second period is after the active treatment ends and the support becomes more spiritual in nature (more on this later). Hot meals, babysitting and assistance with household chores can really help during the active treatment period, especially during chemotherapy. I cannot find the words to describe chemotherapy. It caused nausea that was in a class of its own. Within an hour of my first



dose, I felt as though every cell in my body, all the way down to the tips of my fingers, were nauseated. I was determined to flush the chemo out of my system as soon as possible by drinking lots of fluid. Much of the time, I had a ginger ale in one hand and a vomit bucket in the other, not knowing if I should drink or throw up.

I couldn't do much about that side effect, but I could do something about another. I could embrace the bald! One thing in life that I had never thought about was what it would be like to be bald. Although not my preferred hairstyle, I found that there were actually many fringe

benefits to baldness. A hot shower on my head when I had a headache never felt so good. If I needed a little sympathy, I could just show my bald head and I would move right up to the front of the line at Starbucks! If I had a hot flash, I could pull off my hat or wig and instantly get cooled off. I never had a bad hair day ... only no hair days. A bald head also frequently leads to humor. As the last bit of my now very short hair was coming out, my boys decided that I looked a bit mangy. So they took a lint roller to my head, and I came out looking bright and shiny! Unfortunately,

I wasn't always the one laughing. One morning my boys were playing outside and my 5-year-old came running into my room and said, "Mommy, lean down, take your hat off and close your eyes." Being the trusting person that I am, I complied. He then proceeded to place an earth worm on my bald head. A WORM! BOYS!

One big physical challenge during my treatment was staying physically fit. Many days I was so sick that exercising was completely out of the question. But on days that I had some strength; I needed to come up with a way to get moving again. I had this bright idea that yoga would help me do this. I had never participated in yoga so I talked a friend into going with me. As we tried to twist and stretch our bodies into "dog," and "cat" and "frog," we began to giggle. Then as I transformed my body into "penguin" the instructor told us to "find a deeper expression of our penguin." What does that mean? We didn't realize that yoga is very serious and we almost got kicked out of class for laughing. Realizing that yoga might not be the best outlet for me, I decided to join my boys in their karate class. It definitely kept me moving and now I can karate-chop my husband when he gets out of line!



SOCIAL

Although I originally planned to travel this road privately, once I knew that the cancer had moved to my lymph nodes, the plan changed. I didn't really want to ask for help, but there was no way my family and I were going to make it through this without a lot of it! Our extended families lived far away and although my parents and brother made a trip out to help toward the beginning of treatment, they could not live with us indefinitely. However, they continued to pray and made good use of Google to research my condition. In their absence, a wonderful friend in town organized an online care calendar to help post our needs and allow people who had expressed an interest in helping to respond. People seemed to come out of the woodwork to help us. From our church, to my college friends, to the Air Force folks that work with my husband in Air Combat Command Safety, I was completely overwhelmed by the kindness and care that was shown. People I didn't even know volunteered to help! The ladies of our church put together a basket full of presents: lotions, soaps, creams, teas, inspirational



books, comfy socks and all kinds of things to make a girl feel special. Allowing all of these people further into my life, meant that I would have to become transparent and admit that I did indeed need them. This was terrifying! I wanted to

be the helper; I wanted to be the encourager. But, I made the decision that my pride would go right down the drain with what remained of my hair and I would let others help. To my surprise, people actually *wanted* to help. I had no idea how many friends I had and how many people actually cared.

Having lots of support would be important because I was going to get the full-meal-deal for treatment. My immediate future would hold surgery, chemotherapy, more surgery, radiation, more surgery and then long-term hormone therapy. I was headed on a journey to a new normal. When I first walked



into the cancer treatment room, I realized that I was now one of "them." I am now proud to be one of them. Most of them had it so much worse than me and yet they were so much stronger. However, cancer had made us instant friends. There are no social barriers to break through amongst cancer patients. Wealth, rank, ethnicity, education level, gender, age — none of it matters. We ask each other personal questions like: How are you feeling? Can you eat? Are you throwing up? Do you have any hair left? How are your bowel movements? **All of us are living in the stone cold equality of survival.** It is the land of mutual empathy and everyone is searching for a little knowledge that might give them an advantage against the giant. I have made many new friends along the way. I call them my chemo buddies and my radiation pals. There are things about this journey that only someone who has traveled it can understand. But I want you to understand how important the social aspect of this journey is. No one should go through this alone!

SPIRITUAL

As I hinted before, humor and faith were critical to my survival. Laughter is a medicine and you are drawn to people that can make you laugh. You are also drawn to people that believe that the human condition is more than cells, blood counts, prognoses and life expectancies. As a human being, **I have a life that means something.** I am not just a biological machine that fails sometimes. My relationships with my family and friends are real things that will exist, even after I am gone. And in my faith tradition, I believe that I will be with my loved ones once again because there is something and someone greater than any of us that cares about all of us — forever. I can't prove this to anyone, but I can say that this faith is fundamental to my personal survival. How could I not mention it?



CONCLUSION

I hope my story can help someone. If you are going through what I have gone through, then hang in there and embrace the bald. If you are facing other giants, then please tell someone. You will be surprised how many people truly do care about you, especially your Air Force friends. I have found that the people in the Air Force are good people. They love what they do and they do it well. They are patriots and their families are the very best this country has to offer. In the end, I want to thank

all of you for your service, and if you think of me you can be assured that I am still here fighting the giant — and I intend to win! ✨

The above article is one of many resiliency articles that will appear in the magazine. Mrs. Marshall is the wife of Col. J. Alan Marshall, Ph.D., Chief of Flight Safety, Air Combat Command. If you'd like to read more about Kendra's fight or tell her about your own giant, go to: fightthegiant.org. ~ Ed.

Aircrew Safety

1ST LT. CLIFFORD C. MOORE AND COL. EUGENE L. MCFEELY, 455 EOG, BAGRAM AF, AFGHANISTAN. Dude 04, flown by 1st Lt. Moore (Pilot) and Col. McFeely, was the second F-15 jet of a two-ship CAS sortie ISO OEF. While holding at 23,000' MSL near the eastern Afghanistan border, the crew's Avionics Interface Unit (AIU1) failed and reset. This AIU1 failure continued several times throughout flight causing a CAUTION and intermittent AIU1* on the BIT page. After the third approach and with 200 pounds of fuel left to preplan divert fuel, Dude 04 broke out at weather minimums in a safe position to land, and landed with no further incident. (Apr 12)

LT. COL. JON SHAFFER AND MAJ. ALFREDI RAMIREZ, 307 FS, SEYMOUR JOHNSON AFB, N.C. Lt. Col. Shaffer and Maj. Ramirez were flying as the wingmen of a two-ship F-15E FTU HABFM IP mission in W-122, 100 miles southeast of SJAFB. During a rudder slice maneuver in the second engagement, the aircraft responded sluggishly with unusual buffet. Upon a visual inspection of the flight controls, the aircrew noticed the left rudder 20 degrees deflected and the right rudder 10 degrees deflected inboard. Lt. Col. Shaffer called a KIO, recovered the aircraft to level flight and directed the other F-15E crew to rejoin to chase where they confirmed the rudder position. (May 12)

Crew Chief Safety

STAFF SGT. RYAN A. NIEMIEC AND AIRMAN 1ST CLASS NORMAN LILLINGTON, 380 EAMXS, AL DHAFRA, UAE. During a post-flight inspection, Sgt. Niemiec and Airman Lillington discovered a Class 3 fuel leak emanating from a KC-135 center wing tank. Based on the location of the tear in the fuel cell bladder, the leak condition would only occur in flight following aerial refueling operations when the fuel cell bladders were at max capacity. Had they not detected the fuel leak, the torn fuel cell bladder could have eventually ruptured in flight leading to the significant loss of fuel, an aborted OEF sortie and a definite hazard to 24+ crew members and the \$330M aircraft. (Apr 12)

STAFF SGT. JAMES RUNKLE, 358 AMU, DAVIS-MONTHAN AFB, ARIZ. Staff Sgt. Runkle noticed a howling sound coming from the A-10's left engine soon after the pilot completed the engine start sequence. He alerted the flight line expeditor to the situation in order to minimize the time the engine spent running with this condition. Upon further inspection, maintenance personnel discovered a broken variable guide vane synchronizer, which inhibited movement in the variable guide vanes, ultimately causing improper airflow to the rest of the engine. (May 12)

Flight Line Safety

STAFF SGT. COURTNEY D. HELM, 379 EAMXS, AL UDEID AB, QATAR. Sergeant Helm approached B-1 aircraft 5077 to begin troubleshooting an engine oil consumption problem when she noticed the aircraft nose strut sitting at an unusually extended position. Further investigation revealed that a stuck fuel valve had allowed fuel to transfer uncommanded into the aft tank. The heightened situational awareness of Sergeant Helm and her quick actions averted extensive structural damage of a \$275M United States Air Force asset. (Apr 12)

AIRMAN 1ST CLASS DALTON W. ANDERSON, 380 EAMXS, AL DHAFRA, UAE. Shortly after ground refueling procedures were initiated, Airman Anderson detected a steady flow of fuel streaming out from the aerial refueling shroud drain. He powered down all external aircraft power sources, eliminating the most probable ignition source. Once this was complete, he positioned the fire extinguisher at the site of the fuel spill and proceeded to assist the refuel team supervisor. His actions led to the safe evacuation of five maintenance personnel and preservation of a \$330M E-3 AWACS. (May 12)

Weapons Safety

STAFF SGT. MATTHEW H. EPPARD, 23 AMXS, MOODY AFB, GA. After responding to the hot gun pad, Sgt. Eppard was briefed that the A-10 pilot had made one successful gun pass and fired 200 rounds. He assessed the situation and installed the gun safing pin. However, during the safing operations Sgt. Eppard identified several broken rounds in the system. With T.O. in hand, he quickly evacuated all non-essential personnel to the safe perimeter IAW T.O. procedures. He directed operations to separate the gun system and remove all remaining live rounds. (Apr 12)

Weapons Safety

MASTER SGT. JOSEPH M. JACKSON, 28 BW, ELLSWORTH AFB, S.D. Sgt. Jackson guided the development of an interim solution to soil erosion on three of the wing's ECMs, avoiding the possibility of immediate loss of 400K+ lbs of munitions storage capability and crippling the wing's mission. He provided LPS and Explosive Safety requirements to CES engineers and developed a site plan that gained DDESB approval for the construction of a new Secure Suspect Vehicle Holding Area, increasing the Wing's capability by 48K NEW and providing a secure area for transient and suspect vehicles. (May 12)

Ground Safety

AIRMAN 1ST CLASS SCOTT N. GARDNER, 20 OSS, SHAW AFB, S.C. Airman Gardner discovered three uncovered manholes located between both runways, a pair of pliers located on Taxiway Delta Center, and over 15 lbs of FOD including tire shreds, rocks and several screws. He also initiated a repair project after identifying 23 airfield lightning fixtures which violated the three inch threshold requirement. Also, while performing an airfield inspection, he discovered an abandoned opened electrical vault. The vault's hole was approximately 20 feet deep and located 120 feet from the edge of the runway. (Apr 12)

SENIOR AIRMAN MICHAEL A. BILODEAU, 455 ELRS, BAGRAM AF, AFGHANISTAN. Sr. Airman Michael Bilodeau proved vital as Squadron Safety Rep in organizing and directing four flights, 16 unit and flight safety representatives, ensuring the safety and welfare of 212 members. He reviewed JSTO's for 14 separate job locations identifying four sections that needed updating due to recent building moves. With his assistance, the four sections updated their JSTOs in less than three days. His meticulous attention to detail and dedication to safety ensured zero mishaps for the month of April 2012. (May 12)

Pilot Safety

MAJ. THOMAS M. BEAN, 335 FS, SEYMOUR JOHNSON AFB, N.C. Dude 08 was number two of a two-ship CAS sortie ISO OEF. En route to KAF, thunderstorms began to build south and west of the airfield; the two-ship encountered significant lightning once in the vicinity of KAF, though storm cells were not identifiable on the F-15E radar. His outstanding airmanship, exceptional actions and critical decision-making saved a valuable combat aircraft and potentially two aircrew along with any collateral losses on the ground should the aircraft have run out of fuel. (Apr 12)

CAPT. TYLER B. MARSH, 44 EFS, AL DHAFRA, U.A.E. Capt. Marsh was number one of a four-ship of F-15Cs on an AFCENT ATO-directed sortie in a heavy-weight, three external tank configured jet. On takeoff roll for Runway 31, accelerating through 100-120 knots, Capt. Marsh began to apply aft stick pressure for takeoff rotation. A loud popping sound was heard, and the aircraft began to settle and drift towards the left side of the runway. Capt. Marsh's superior airmanship and judgment during a critical phase of flight safely prevented the potential loss of this critical combat asset. (May 12)

Unit Safety

455 EOSS, BAGRAM AF, AFGHANISTAN. The 455th Expeditionary Operations Support Squadron shined in all aspects of safety as the standard bearer for the 455th Air Expeditionary Wing. Weather flight continued excellence by issuing 18 warnings, watches, and advisories as Afghanistan recovered from one of the coldest winters on record. Their efforts notified all personnel of changing conditions utilizing BAF's online alert system. They also informed 455 AEW leaders of upcoming weather hazards with 16 briefings and over 20 e-mailed storm updates all of which focused on ATO execution. (Apr 12)

7 EACCS, AL UDEID AB, QATAR. A JSTARS crew deftly handled an engine that exceeded its oil pressure limitations. A rare EP, the crew expeditiously shut down the engine to prevent further damage. Shutting the engine down led to degraded hydraulics and subsequent non-standard landing data; the crew ran all of the appropriate checklists in a timely and efficient manner. Landing without incident, the crew's actions saved a \$1.2 million engine. Another crew on 4 March suffered an injured crewmember after responding to a TCAS-directed maneuver to prevent a midair collision. (May 12)

Flight Safety



CAPT. HUGH E. WALKER III, 77 FS, SHAW AFB, S.C. Capt. Walker had an uneventful takeoff and recovery in his F-16 until short final during the landing phase of the mission. At that time, Capt. Walker encountered a flock of birds and maintained superb aircraft control in order to continue the landing. Without time to spare, he was able to maintain an appropriate glide slope and airspeed for landing and was able to determine that the aircraft was capable of landing. Capt. Walker landed the aircraft uneventfully avoiding any further complications. In addition to this event, during the months of Jan., Feb. and Mar., Capt. Walker expertly organized and directed three LFEs within the local MOAs. His steadfast dedication to safety contributed to the safe departure, tactical employment and recovery of over 54 aircraft during the LFEs without incident. Assets that were directly coordinated by Capt. Walker include AWACS, KC-10s, F-16s, F-18s and F-15Es among various others. With altitude de-confliction and training rules at the forefront of his planning and execution phases, Capt. Walker showed outstanding compliance with all applicable regulations to make these LFEs challenging yet safe in all facets of the operation. Capt. Walker's outstanding airmanship, dedication to safety and technical order knowledge provided valuable training to all involved including three mission commander up-grades as well as saving a \$25M asset with no casualties.

Ground Safety



STAFF SGT. FRANCIS J. MAHER, 28 BW, ELLSWORTH AFB, S.D. Sgt. Maher provided guidance and advice to leaders to help mitigate risks for 4K+ Bomb Wing Warriors and \$10.1B worth of assets in preparation for the wing's ORI. Managed the Hazard Abatement Program in which he created and ensured the posting of 100+ Form 1118s to ensure employees were notified of hazards in their workplace. As information manager of the safety office, he has created a robust SharePoint site that has allowed free flowing information to the entire base with a click of a mouse, enabling Wing Safety to dedicate more time in the field educating personnel and listening to safety concerns from employees. He instructed eight safety courses which educated nearly 220 Ellsworth AFB personnel. Sgt. Maher also revamped the Ellsworth AFB Seatbelt Safety Awareness and Statistic Tracking program. The new program increased the number of seat belt checks, making the trend data more accurate. He supported the lead investigator for a Class A mishap with his mathematical knowledge by accurately determining speeds of impact ensuring all causal factors were correctly determined. His drive to excel and expertise led him to revise a base-wide template for the Job Safety Training (JST) Outline resulting in the compliance of every unit's JST Guide.

Weapons Safety



STAFF SGT. BOBBY L. COFFMAN, 492 EFS, AL DHAFRA, U.A.E. Sgt. Coffman authored and validated an explosive handling safety operating instruction for all Air Force munitions handlers on Camp Lemonnier. His actions mitigated an explosive safety shortfall and ensured streamlined munitions management for all Air Force and Naval ordnance handlers on Camp Lemonnier and future personnel/unit rotations. When Staff Sgt. Coffman was notified of a dangerous dropped munitions item on the aircraft parking ramp, he immediately responded to the location to assess the situation. Upon further investigation, he noticed the weapon had exceeded drop tolerances and was in an unsafe condition. He evacuated non-essential personnel and established an initial cordon of 300 meters. He then notified Munitions Control and the Maintenance Operation Center and provided accurate and detailed information while directing both entities to contact EOD personnel. Staff Sgt. Coffman realized the weapon could affect other parked aircraft and coordinated additional evacuation of adjacent flight line maintainers due to the potential of propagation to highly explosive weapons. As a result, he initiated a 2,500' clear zone, thus securing the safety of personnel from three different units. Staff Sgt. Coffman responded to the Camp Lemonnier Combat Operations Center (COC) to coordinate the response and safe removal of the armed and dangerous weapon threatening the safety of personnel and potential damage to DoD property.

Congratulations

COLOMBIAN SAFETY AWARD

332 AEW
Ahmed Al Jaber AB, Kuwait

AF EXPLOSIVES SAFETY OUTSTANDING ACHIEVEMENT AWARD

MSgt Christopher D. Kreyling
23 WG, Moody AFB, Ga.

AF CHIEF OF SAFETY OUTSTANDING ACHIEVEMENT AWARD FOR GROUND SAFETY – Cat II

332 AEW
Ahmed Al Jaber AB, Kuwait

CHIEF OF SAFETY MEDICAL ACHIEVEMENT AWARD

633 AMDS
Joint Base Langley-Eustis, Va.

FLIGHT SAFETY PLAQUES

1 FW, Joint Base Langley-Eustis, Va.
4 FW, Seymour Johnson AFB, N.C.
46 ERS, Ahmed Al Jabber AB, Kuwait
552 ACW, Tinker AFB, Okla.

MISSILE SAFETY PLAQUES

20 FW, Shaw AFB, S.C.
83 FWS, Tyndall AFB, Fla.

EXPLOSIVES SAFETY PLAQUES

9 MUNS, Beale AFB, Calif.
99 ABW, Nellis AFB, Nev.
355 EODF, Davis-Monthan AFB, Ariz.

GROUND SAFETY PLAQUES

1 FW, Joint Base Langley-Eustis, Va.
20 FS, Shaw AFB, S.C.
4 FW, Seymour Johnson AFB, N.C.
552 ACW, Tinker AFB, Okla.
332 AEW, Ahmed Al Jaber, Kuwait





**Declare
independence
today!**

Don't drive drunk.

You have the right to a designated driver this 4th of July. Use it!



Mishap Statistics Scoreboard

FY12 Flight As of May 31, 2012			
	Fatal	Aircraft Destroyed	Class A Aircraft Damage
1 AF			
9 AF			
12 AF			
USAFWC			
ANG (ACC-gained)			
AFRC (ACC-gained)			

FY12 Ground As of May 31, 2012			
	Fatal	Class A	Class B
9 AF		1	1
12 AF		6	1
DRU's		1	0

FY12 Weapons As of May 31, 2012		
	Class A	Class B
9 AF	0	0
12 AF	0	0
AWFC	0	0

Legend

Class A - Permanent Total Disability; Property Damage \$2,000,000 or more
 Class B - Permanent Partial Disability; Property Damage between \$500,000 and \$2,000,000
 Class C - Lost Workday; Property Damage between \$50,000 and \$500,000
 (Class Description Effective October 1, 2009)

** Non-rate Producing * Fatality

= Fatal = Fatal due to misconduct

Symbols for Mishap Aircraft



Flight Notes

Springtime has brought with it the traditional rise in aviation mishaps. In the past two months ACC has experienced four Class A aviation mishaps. Three of these mishaps (F-15E, F-16 and B-1B) were rate producers. A little over half way through the FY and we have already surpassed the total number of reportable Class A aviation mishaps from FY10 and FY11. The lack of basic airmanship is an underlying theme in many of our recent mishaps.

Ground Notes

During FY12 ACC has experienced eight PMV related Class A mishaps with four attributed to PMV4 and the other four to PMV2 (the eight Class A mishaps resulted in 10 fatalities). Contributing factors were the "routine" culprits, including: alcohol, excessive speed, failure to wear the proper personal protective equipment and inexperience. When operating any type of PMV, we expect everyone to exercise sound judgment and self-discipline in all activities. Here are some control measures to mitigate some of the factors that have contributed to the ACC PMV mishaps. Make decisions on some controls to reduce or mitigate hazards such as wearing seat belts, checking the weather and driving accordingly. Drive knowing that you may be slowed by construction, accidents or for other untold reasons. Drive defensively and cautiously on roads you have not previously traveled. Be ready for wildlife at all times that can step in front of your vehicle at any time. DON'T DRINK AND DRIVE. Don't make irresponsible decisions, and once you select appropriate control measures, ensure they are used because a plan is only good if it is followed.

Weapons Notes

Great job ACC weapons community for educating yourselves and others on mishap prevention! Safety awareness never stops; during the last quarter we've experienced five Class E mishaps. Of the five mishaps only two were results of complacency and not following technical order procedures. These trends are positive but let's continue to work on the small stuff to prevent the big mishap. Quality is job one; let's take our time and do it right the first time.



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OVER the Edge

MAGAZINE



PLUS DANGER AHEAD **PAGE 4**

RED WHITE AND BUSTED.



Make the Fourth a blast, not a bust.

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Courtesy of the U.S. Coast Guard
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*by Capt Elizabeth Combs,
673 AMDS/SGPF, Joint Base
Elmendorf-Richardson, Alaska*
- 10 | **DON'T SHOOT YOUR EYE OUT**
*by Mr. Mark Seaman,
1SOW/SEW, Hurlburt Field, Fla.*
- 12 | **DROWNING DOESN'T NECESSARILY
LOOK LIKE DROWNING**
by Mr. Mario Vittone

Check out the
resiliency article
on the flip side.



SUMMER LUCKY, SOME ARE NOT



VISIT WWW.THATGUY.COM

DANGER AHEAD

COURTESY OF THE U.S. COAST GUARD

The 4th of July holiday is the busiest and often deadliest time of the boating season. The 4th of July, along with Memorial Day and Labor Day, typically account for more than one third of all boating-related accidents and fatalities. Simply put ... boating and alcohol do not mix. Boaters are reminded of the dangers of drinking and boating. Along with decreasing the operator's ability to make good judgments, the consumption of alcohol also negatively affects the ability of passengers to respond in the case of an emergency on the water. The effects of the sun, wind, waves and a boat's motion in the water can add to an operator's impairment. Intoxicated boaters can face both federal and state charges with penalties of up to one year in prison and up to \$100,000 in fines. Boating under the influence (BUI) or boating while intoxicated (BWI) of alcohol is illegal! That said, while 76 million people enjoy boating on America's waterways each year, many are not aware of the very real, life-threatening dangers associated with consuming alcohol and boating. Boating while intoxicated is the leading contributing factor in fatal boating accidents. Operators with a blood alcohol level of 0.10 percent (for most of us that means just one to three beers) are 10 times as likely to be killed in a boating accident as a sober boater.

Liquor is quicker on the water. Alcohol, with its well-known ability to impair performance, creates an even more hazardous situation when added to the stress of the marine environment. This is because the marine environment — the fluid base, motion, vibration, engine noise and elements of sun, wind and spray — accelerates impairment. The operator's coordination, judgment and reaction time are reduced by fatigue caused by these stressors. Tests have proven that only one-third of the amount of alcohol that makes a person legally impaired on the road is enough to make a person equally impaired on the water.

Further, alcohol can be more treacherous for boaters since they are less experienced and less confident on the

water than on the highway. Recreational boaters do not have the advantage of experiencing daily operation of a boat. In fact, boaters average only about 110 hours of boating in a whole year. And in areas with seasonal boating, there can be months between boating outings and fishing trips.

In light of the dangers, the Coast Guard Auxiliary offers the following tips to stay safe while boating during this summer season:

- **Always wear a personal flotation device.** While in many areas of the country it's hot and steamy, don't be tempted to forgo wearing a life jacket. Accidents happen quickly, and often there isn't time to put on a life jacket once an accident has happened. Statistics consistently show that 80 percent of those who perished in boating accidents were not wearing a personal flotation device.

- **Make sure your boat is properly equipped and required equipment is functioning properly.** The 4th of July is sometimes the first and only time people venture out on the water after dark. Make sure your navigation lights work so you can be seen. Better yet, request a free vessel safety check (<http://www.vesselsafetycheck.org/>) to make sure your boat has all the legally required and recommended equipment onboard.

- **Be prepared for emergencies.** Accidents happen quickly, often with little or no warning. Take the time to familiarize your crew with basic emergency procedures, and show them how to contact authorities for help via marine radio or cell phone. If you

boat in an area that requires flares, make sure they are up to date, but never use flares as a form of fireworks. Doing so constitutes a false distress call, which is a Class D felony, punishable by up to six years in prison and up to \$250,000 in fines, plus the cost associated with the false distress.

- **File a float plan with a friend.** A float plan for a boater is similar to a flight plan for a pilot. It lists who is going, where you're going, what the boat looks like, and when you expect to be back. Don't file this with the Coast Guard; rather share it with a friend

who will be staying ashore, and instruct them on what to do in the event they don't hear from you within a reasonable time of when you expect to return home. Visit <http://floatplancentral.org/> for a complete plan along with instructions.

- **Keep a sharp lookout for other boats, the weather or anything that is unusual.** The Coast Guard asks the public to be more aware of their surroundings, including carefully watching the weather, celebrating responsibly and understanding the hazards of boating under the influence. Report any emergencies to local authorities by calling 911 or VHF-FM channel 16. Any suspicious activity that might involve terrorism should be reported to America's Waterway Watch at 877-24-WATCH.

- **Practice the three Cs — caution, courtesy and common sense.** Use caution, especially in close quarter maneuvering situations with other boats. In such situations, slow speeds are better. Be courteous to your fellow boaters and use common sense. Don't cut people off at the launch ramp and never light fireworks from your boat!

Not all boating accidents happen on the water.

When it comes to trailered boats, nine out of 10 trailering malfunctions and accidents can be directly traced back to a failure to dedicate some time to the most basic preventative maintenance. Wheel bearings, suspension parts, lights and a host of other components require constant attention to help ensure a smooth and hassle-free trailer trip. Special attention to the tow vehicle's hitch is a good idea as that is the only link between the tow vehicle and the trailer.

Every boater is encouraged to be serious about boating safety, starting with the proper kind and amount of boater training. Remember, a boating mishap or fatality often involves innocent people who share in none of the blame, but all of the consequence. As a responsible boater, the life you save may very well be someone else's. For more information on safe boating or to take a boating safety course visit: <http://www.uscgboating.org/>.



Sunscreen Saves Lives AND Prevents Mishap Fatalities

BY CAPT. ELIZABETH COMBS

The title of this article may be a little deceiving. 'Sunscreen saves lives.' Well, of course it does. Sunscreen provides a protective layer between the harmful UVA/UVB rays of the sun and our delicate skin. But preventing mishaps? How in the world can a bottle of Coppertone save a pilot? While this may seem like a very odd question, it is something that the pilots in Del Rio, Texas face. Lake Amistad, famous for its fishing, is a haven for UPT students and IPs alike. However, the water provides a distraction from the harmful effects of the sun. When the UV index hovers at 10 or 11+, residents of Del Rio need to take extra precautions like sunscreen and sunglasses before heading to the lake. But can forgetting to don your SPF really affect your flying the following week?

I learned the answer to that question from a student pilot who took an unnecessary risk. No, he was not doing unsafe maneuvers in the T-6. This student did something that at the time seemed inconsequential. While on the lake he forgot to put on sunscreen. In the civilian world a mistake like that carries only the consequence

of being in pain for a time. In the military, however, the consequences and the demands of our jobs place us in a unique situation. The flight environment presents certain physical and physiological demands that are specific to the field. As we all know, you shouldn't fly with a cold, but what about with sunburn?

The aforementioned student, as expected, sustained very severe sunburn. His neck, back and shoulders were red and painful to the touch. After completing a walk around, both the student and the IP strapped in. After starting the engine and on taxi, the student noticed that the pain in his shoulders was intensified by the harness straps.

The student made a very unwise decision when he removed his harness straps, taking them completely off his shoulders and proceeded to begin the flight. To reiterate, the student flew the sortie minus the shoulder straps.

Would you have made the same decision? Hopefully not! While the sortie for this student was uneventful, what would have happened if he

had to eject? In one scenario, he attempted to don his shoulder straps before ejecting only to subject himself to an improper body position for ejection. In this scenario he could face broken bones, whiplash or worse.

What if there was not enough time to get properly strapped in? This situation presents a much more significant problem. Upon ejection, this student would have been exposed to upwards of +15Gz, forcing his upper body forward, possibly injuring his back or snapping his neck. If he survived the ejection, his next challenge would be to stay in the harness. If the shoulder straps were removed, the upward

momentum could be enough to pull him out of his leg straps and away from the seat. Assuming his leg straps were tight enough to keep him in the remainder of his harness, he would have the difficult task of trying to stabilize himself while steering his parachute. To put it mildly, the odds for survival would be greatly stacked against an individual in that situation.

So, the moral of this story is to wear sunscreen, right? No. While sunscreen is beneficial to protecting your health, the big picture here is

to remain operationally ready. By taking risks with your body, you are potentially taking yourself out of the fight. As this student discovered, even the seemingly insignificant decision can have a huge impact on you, your family and the mission.

Risk management is something we preach on a daily basis but don't live by when we are not on the airfield. Had this particular scenario turned south we could have lost a student, not to mention the man-hours required to investigate the mishap. Remember and respect that you are the Air Force's most important resource. Without the people, the fight doesn't happen (yes, even the Predator needs a pilot).✈



Don't Shoot Your Eye Out

BY MR. MARK SEAMAN

I have firsthand knowledge about fireworks and their potential for mishaps. When I was about 8-years old, I sat on my front lawn and watched the neighbors celebrate the 4th of July. The next morning, I found unexploded bottle rockets around the yard. With my young inquisitive mind wanting to experiment, I figured I could make one big bottle rocket with duck tape and send this rocket to the moon ... not my brightest idea.

I gathered up all the bottle rockets, un-wrapped them, and poured the powder into one. I then placed my new and improved bottle rocket in a Coke bottle and lit the fuse. By this time, I'm feeling like Ralphie from the "Christmas Story" with his red rider BB gun. Then reality set in; the fuse ignited extremely quickly and the bottle rocket exploded instead of launching. It exploded next to my left hand and face.

I felt an incredible amount of pain and started thinking of a Ralphie story to tell my mom ... I knew I would be in trouble. My mother always told me not to play with fireworks because I would get hurt (or in Ralphie's case, you'll shoot your eye out). I looked at my hand and noticed it was injured between the first and second finger. My middle finger had a lot of missing skin between the first and second knuckle, and my whole hand was numb for a day. I still have the scars on my middle finger to remind me of the accident.

This accident could have been prevented if I had listened to my mother and not played with fireworks. Of course, being that young, curiosity took over. Parents can play a huge role in educating their children and ensuring their safety during this holiday. The following is some important information I found worthy to pass on concerning fireworks safety. 🚀

Firework Safety and Mishap Prevention

According to Prevent Blindness America, nearly 13,000 fireworks victims end up in the hospital every year — more than half of those injured are children. Fireworks not only injure users, 40 percent of firework mishaps also injure bystanders.

One of the reasons fireworks injuries continue to occur is because people just don't consider how dangerous these devices can be. People often don't realize — until they are injured — that the risk of blindness or injury far outweighs the excitement of taking risks with fireworks. Giving fireworks to young children can mean a trip to the hospital emergency room.

Three popular types of fireworks that keep hospital emergency rooms busy are: bottle rockets, firecrackers and sparklers. Bottle rockets and firecrackers can fly in any direction prior to exploding, hot enough to melt gold. Bottle rockets are among the most dangerous fireworks available today. They account for the majority of all fireworks injuries that lead to permanent eye damage. Bottle rockets can move as fast as 200 miles per hour and explode in midair. Sparklers are the second highest cause of fireworks injuries that require hospitalization. Most of these injuries occur among preschool-age children.

Some fireworks contain gunpowder which causes these devices to explode. Class C fireworks (e.g., firecrackers) are legal in many states and contain up to 50 mg of gunpowder. Anything higher and the fireworks may be compared to an explosive bomb.

Because fireworks are unpredictable, injuries can occur even if the person is careful or under supervision. The best way to avoid injury is to not use fireworks.

Adult males and boys are the most frequent users of fireworks. That's why four out of every five fireworks injuries happen to them. Men between the ages of 22 and 44 and boys ages 12 to 14 are the most common victims.

Homemade fireworks are often more hazardous. Those who make their own fireworks tend to combine the chemicals from other devices to create a bigger and more dangerous explosion (sound familiar?).

According to AFMAN 91-201, Firework Display and Air Show Events: *Commercial fireworks are extremely hazardous, even in the hands of trained experts. Air Force personnel, on or off-duty, must not take part in the transportation, storage, and setup or functioning of commercial fireworks for on-base fireworks displays. Units must contract with properly licensed commercial firms to provide all necessary transportation, storage and security, set up and functioning of fireworks for on-base displays. Contractors must comply with safety guidelines in NFPA 1123, Code for Firework Displays.*

The bottom line: Enjoy a great 4th of July! I urge everyone to balance the fun associated with fireworks and keep safety in mind at all times.

The above article was written by then Master Sgt. Mark Seaman; Mr. Seaman currently works as the Chief of Weapons Safety, Hurlburt Field, Fla.



drowning doesn't necessarily “LOOK LIKE” DROWNING

BY MR. MARIO VITTONI

He jumped from the deck, fully dressed and sprinted through the water. A former lifeguard, he kept his eyes on his victim as he headed straight for the couple swimming between their anchored sport fisher boat and the beach. “He thinks you’re drowning,” the husband said to his wife. They had been splashing each other and she had screamed but now they were just standing, neck-deep on the sand bar. “We’re fine, what is he doing?” she asked, a little annoyed. “We’re fine!” the husband yelled, waving him off, but this stranger kept swimming hard. “Move!” he barked as he sprinted between the stunned owners. Directly behind them, not 10 feet away, their 9-year-old daughter was drowning. Safely above the surface in the arms of the stranger, she burst into tears, “Daddy!”

How did this stranger know — from 50 feet away — what the father couldn’t recognize from just 10? Drowning is not the violent, splashing call for help that most people expect. This particular individual had been trained to recognize drowning by experts and years of experience. The father, on the other hand, had learned what drowning looks like by watching television. Until she cried a tearful, “Daddy,” she hadn’t made a sound.

Drowning is almost always a deceptively quiet event. The waving, splashing and yelling that dramatic conditioning (television) prepares us to look for is rarely seen in real life. This is not to say that a person yelling for help and thrashing about isn’t in real trouble — they are experiencing aquatic distress. Not always present before the instinctive drowning response, aquatic distress doesn’t last long, but unlike true drowning, these victims can still assist in their own rescue. They can grab lifelines, throw rings, etc.

Unfortunately, about 10 people die from drowning every day. Drowning is the sixth leading cause of accidental death for people of all ages and the second leading cause of death for children ages 14 and under. In 2009, more than 5,000 children sustained non-fatal near drowning-related injuries. Two-thirds of drowning deaths occur in the summer, between May and August, and most commonly on the weekends.

When most of us are enjoying time at the pool or beach, injuries aren’t necessarily the first things on our minds. The following tips may help keep us and our families safe so we can truly enjoy the summer:

- **The buddy system.** Always swim with a buddy/wingman and never swim alone. Swim in protected or supervised waters. Swimming in unprotected waters places you at risk of drowning because there is no one to alert you to dangerous conditions or provide rescue in the event of distress.
 - **Environmental conditions.** Know the local weather conditions and forecast before swimming or boating. Know the water environment — currents, depth changes, obstructions, etc. Strong winds and thunderstorms with lightning strikes are dangerous. Stop swimming at the first sign of bad weather.
 - **Stay alert and in control.** Watch for dangerous waves and signs of rip currents. If you are caught in a rip current, try not to panic — swim parallel to the shore. Once free of the current, swim toward the shore.
 - **Avoid Alcohol.** Avoid drinking alcohol before or during swimming, boating or water skiing. Water-related activities and alcohol and don’t mix.
- Make safety a priority to protect those we love in and around the water. Be aware of the dangers, avoid the risks and have fun. For more information on recreational/water safety, go to <http://www.cdc.gov>.