



APG Tax center nets \$1 million in refunds for troops

By **DAN LAFONTAINE**
RDECOM Public Affairs

The installation tax center secured about \$1 million in refunds for Soldiers, their families and retirees, Staff Judge Advocate Lt. Col. Joseph Masterson said.

Maj. Gen. Nick Justice, senior APG commander, joined Masterson April 19 in a ceremony to mark the end of tax-filing season outside Building 4313.

Masterson and Justice recognized the four Soldiers and four civilians and four civilians who prepared more than 1,000 tax returns and saved clients about \$100,000 in preparation fees since the center's opening Feb. 8. The tax center's service is provided for free.

Justice thanked the tax center's staff for providing one of the Army's core missions -- educating young Soldiers.

"Teaching young Soldiers to be responsible and contributing citizens to our nation -- that's the value of the Army and the leadership you provide," Justice said. "[You are] helping to ensure we have a vibrant formation, just like we do on the battlefield."

APG Soldiers and civilians at the tax center prepared more than 1,000 tax returns and saved clients about \$100,000 in preparation fees since Feb. 8.

Women in combat



Photo by Staff Sgt. Todd Pouliot, Task Force Falcon

Pfc. Michelle Dunning, a human resources specialist with Headquarters and Headquarters Company, Task Force Falcon, gets ready to react during reflexive-fire training at a Bagram Airfield, Afghanistan, Feb. 28.

Commission gives women in combat thumbs up

By **ALEXANDRA HEMMERLY-BROWN**
Army News Service

A report released to the president and Congress March 7 recommends 20 changes in the way the military facilitates diversity, and suggests gender barriers be lifted on all career fields.

The Military Leadership Diversity Commission, established under the National Defense Authorization Act, is a group of 31 active-duty and retired officers, enlisted personnel and senior executives from major corporations.

Research the commission conducted included finding a new universal definition of diversity and how to increase language, regional and diverse cultural knowledge in military leaders.

The commission is also recommending that the Department of Defense eliminate its combat-exclusion policies, which currently bar women from combat-arms specialties and from assignment in units battalion-size or smaller that have a routine mission to engage in direct combat.

According to the report, the commission would like the military to immediately allow women to be assigned to any unit that requires their military occupation, regardless of the type of unit. It would also like the DoD to take steps to open up career fields traditionally not available to women, including combat-arms.

Several of the changes recommended will need a congressional vote -- others could be implemented at the level of the secretary of Defense.

Sgt. Amanda Solitario, an Army Reserve Soldier with the 304th Public

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Running with Science: Local biomechanics expert opens research

By **T'JAE GIBSON**
U.S. Army Research Laboratory - AMC

For scores of runners who sustain overuse injuries each year, learning to run the right way could literally keep them on the road to good health.

Doing so could also save the U.S. military nearly \$6 million spent annually on recruits who cannot complete basic combat training because they sustain stress fractures.

Dr. Philip Crowell, biomechanics team leader with the Human Research and Engineering Directorate, or HRED, at the U.S. Army Research Laboratory, helped develop what could turn into a training program for runners - both inside and out of the military - who are at risk for stress fractures.

That's a potential outcome from a 2009 study he conducted as part

of a University of Delaware collaborative effort with physical therapy professor Dr. Irene Davis, director of the institution's Running Injury Clinic in Newark, N.J.

The study focused on seeing if runners could reduce the factors that lead to stress fractures through gait retraining.

Crowell is now presenting his findings in journals and meetings with various groups to draw attention to the study in hopes of finding transition partners, first, within the Army. He said this is a fairly new area of research that doesn't exactly fit into the type of human factors research that has traditionally been done by HRED.

Findings from their study, he said, could open the door to deeper understanding of the effectiveness of gait retraining as a means for

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Photo by Spc. Jessica Kent

Findings from the study could open the door to deeper understanding of the effectiveness of gait retraining to reducing stress fractures risks.

Month of the Military Child CDC study shows autism on rise

By **BRANDY GILL**
Carl R. Darnall Army Medical Center Public Affairs

For nine long months, parents anticipate the birth of a new baby. They buy clothes and diapers, assemble furniture, pick out names and dream about a happy, healthy, bright future for their impending arrival.

However, many parents find themselves facing a very different reality when they discover their child is autistic.

The Centers for Disease Control's latest published study in 2006 estimated one in every 110 children was diagnosed with autism spectrum disorders.

The CDC's Web site states, "Autism spectrum disorders, known as ASDs, are a group of developmental disabilities characterized by atypical development in socialization, communication, and behavior. The symptoms of ASDs typically are

AT APG

An Autism and Related Disorders Expo is set at the APG North (Aberdeen) recreation center April 30 from 10 a.m. to 2 p.m. Call 410-278-2420 for information.

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'I AM EVIDENCE'

Former female POW says her experience shows women can endure the hardships of war. **SEE PAGE 8**

CECOM: 30 years of Commo-Electronics in war and peace

By **CHRISIE REILLY**
Staff Historian, CECOM

The U.S. Army Communications-Electronics Command, CECOM, celebrates 30 years of service to the nation and the Warfighter next week.

On February 16, 1962, then Secretary of Defense Robert S. McNamara's Project 80 was quietly put into effect. Done with little fanfare, Project 80 totally reorganized the Army. One result was the establishment of the Army Materiel Command, to handle all logistics, research, and development for the Army.

One of the major subordinate commands of AMC, the U.S. Army Electronics Command, was established at Fort Monmouth, N.J., on Aug. 1, 1962. ECOM assumed responsibility for oversight of the Army organizations charged with the development, procurement, and support of Army signal materiel. These organizations included, most notably, the former Signal Corps Laboratories.

At its inception, ECOM had a combined military and civilian work force of about 14,000 and was responsible for the total life-cycle management of electronic materiel, to include research, development, procurement, production, distribution, maintenance and final disposal.

ECOM managed a number of high-technology commodities during the Vietnam conflict: radios, mortar locators, aerial reconnaissance equipment, sensors, air traffic control systems, night vision devices, and surveillance systems.

Further Army-wide organizational changes splintered ECOM into a half-dozen new organizations, including the Communications Electronics Readiness Command and the Communications Research and Development Command.

On May 1, 1981, Maj. Gen. Donald M. Babers accepted command of CECOM, which stood up as a new, unified command from the consolidation of CERCOM and CORADCOM. The Army charged CECOM with research, development, engineering, acquisition, and materiel readiness of communications and electronics systems.

Throughout the 20th century, CECOM's predecessor organizations, like the Signal Corps, ECOM, CERCOM, and CORADCOM, contributed significantly to communications satellite development, including bouncing a radio signal off the moon and solar-powered device development. These "firsts" included hand-held radar, microelectronics, defibrillator pacemakers, night vision, mortar-artillery locating radar and laser mini rangefinders.

Former CECOM historian Dr. Richard Bingham characterized the research and development activities of the 1980s as "force modernization" - the acquisition and fielding of powerful new weapon systems, largely based on technologies developed the previous decade. Bingham wrote that "the American Soldier gained battlefield capabilities no

Throughout the 20th century, CECOM's predecessor organizations contributed significantly to communications satellite development, including bouncing a radio signal off the moon and solar-powered device development.

other Army possessed."

Much of this occurred during a decade of budgetary crisis, as the federal government reduced spending and eliminated inefficiencies.

Many of CECOM's systems would prove vital in Operations Desert Shield and Desert Storm to include night vision equipment, sensors, the Single Channel Ground and Airborne Radio System known as SINCGARS and mobile radio-telephone system Mobile Subscriber Equipment.

For example, the CECOM Readiness Directorate completed 1,318 fieldings between July 1990 and February 1991, and many were accelerated specifically to meet the requirements for Desert Shield/Desert Storm.

The DoD, the Army, and CECOM learned many lessons during Operations Desert Shield and Desert Storm. Although the Gulf War was viewed as an overwhelming success for the nation, the experience demonstrated the undeniable need for enhanced communications and more integration on the battlefield, along with a better logistics infrastructure. These lessons became the impetus that shifted military strategy towards one that emphasized information dominance over brute force.

The missions of CECOM acquired enhanced significance in the 1990s when the Army Chief of Staff defined the Army's role in the new world order and identified requirements for decisive victory: to own the spectrum, to own the night, to know the enemy, and to digitize the battlefield.

CECOM began a strategic alignment in 1993 when it formed TEAM C4IEWS or Command, Control, Communications, Computers, Intelligence, Electronic Warfare and Sensors. Several organizations comprised this partnership: CECOM, the Program Executive Offices (PEOs), plus the Army Research Laboratory, and the Defense Information Systems Agency.

Although the names of some of these organizations have changed through the years, their commitment to the partnership has not. Team C4IEWS would eventually be transformed and renamed Team C4ISR, or Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance.

The Command's systems are as indispensable in actions other than war as they are in

wartime.

When Hurricane Andrew hit Florida in 1992, CECOM personnel deployed for about one month in order to help set up a humanitarian depot that facilitated the distribution of rescue supplies and to restore communications in the area.

In 1994, the same year that CECOM was given the technical lead in "Battlefield Digitization," it also assisted with the North Ridge Earthquake relief effort in Los Angeles in 1994.

Y2K compliance became a significant issue at CECOM, and represented the single largest IT project ever undertaken for the Army Materiel Command in general, and for CECOM in particular.

Over 1.3 million items were inventoried and assessed during CECOM's Y2K project. Over 986,000 were corrected for potential problems. No significant problems were associated with Y2K and CECOM clocks switched over to the new millennium without incident.

CECOM aided in the search and rescue efforts at the World Trade Center and the Pentagon after the 9/11 attacks. The world's smallest infrared camera, developed by CECOM and attached to PVC pipe, was used for finding and searching through voids in the rubble.

A laser doppler vibrometer was also used to judge the structural integrity of the buildings. Electronic listening devices detected distress calls to 911 made from cellular phones. Additionally, hyperspectral flyovers monitored and controlled recovery operations from the air.

Four years later, CECOM provided valuable assistance in the Gulf Coast Region in support of Hurricane Katrina relief efforts during 2005.

CECOM provided satellite communications technologies and generators ranging from 10KW to 840 KW prime power units and communications systems. These were sent to the region to aid rescue workers and government agencies.

In 2008, CECOM's Foliage Penetrating Radar (FOPEN) was successfully used to locate hostages in Colombia that were constantly being moved beneath the covering of very dense foliage. Locating these hostages made their release possible.

As the technology has advanced, so has the military's reliance on it. Former Chief of Signal and current CECOM Commander Maj. Gen. Randolph P. Strong has said that a revolution is occurring within the military as kinetic warfare is decreasing and information warfare is increasing.

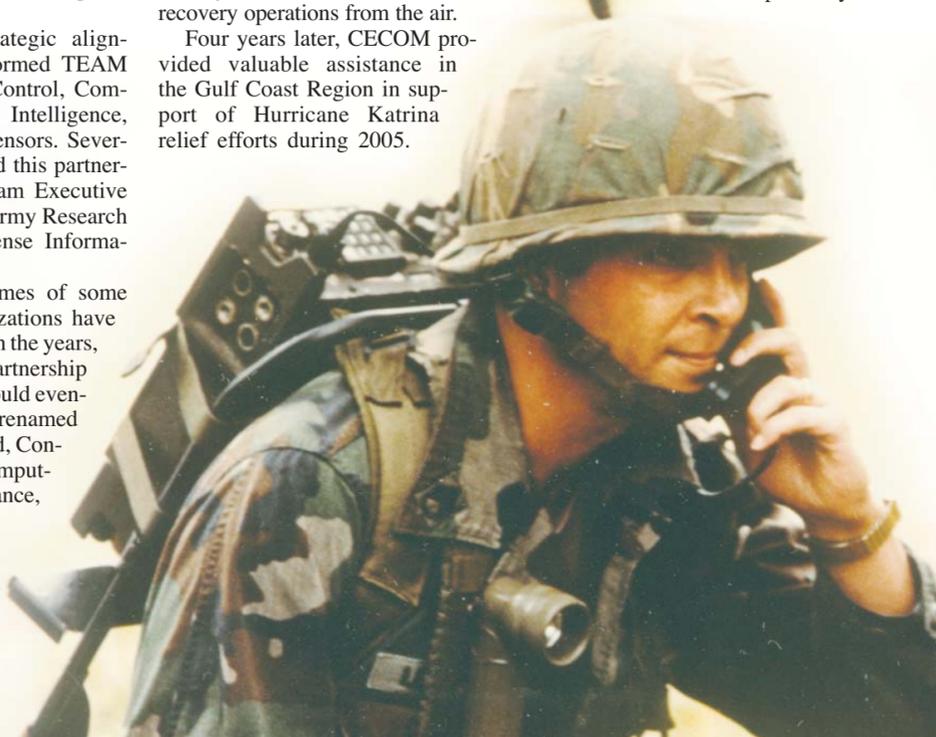
The trend in modern warfare indicates a movement away from "heavily kinetic fighting" to a more information-based way of combating the enemy, with precision strikes being carried out through the use of advanced technologies. Huge amounts of information are being captured, collected and used to fight.

CECOM is now headquartered at Aberdeen Proving Ground, Md., and intensively manages some 128 major defense programs, amounting to over \$10 billion in total obligation authority to acquire, field, and provide new equipment training on C4ISR systems.

In recent years the command has repaired, recapitalized, or replaced more than 127,000 C4ISR systems. The CECOM team is responsible for almost half the Army's inventory of end items and spare parts.

This special community of scientists, engineers, program managers, logisticians and support staff has given the Army the world's best, most reliable systems for extracting, digesting, and communicating battlefield information.

The capabilities these systems provide ensured support to combat operations and peacekeeping missions alike for the past 30 years.



The SINCGARS radios revolutionized communications and are still used by Warfighters today.

CECOM photo

APG SEVEN DAY FORECAST



APG NEWS

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Deadline for copy is Thursday at noon for the following Thursday's paper.

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DoD hopes ‘click, call or text’ will boost assault reporting

DoD news release

The Department of Defense today launched its newest initiative to support victims of sexual assault. Using DoD Safe Helpline, service members can “click, call or text” for victim support services for themselves or others.

The free, anonymous and confidential resource can be accessed worldwide, 24-hours a day, every day, to connect with live sexual assault support professionals.

In addition to improving victim care, secure and confidential access to Safe Helpline was developed to encourage victims to come forward when they might not otherwise.

“The underreporting of sexual assault poses a serious challenge to military readiness,” said Clifford L. Stanley, under secretary of defense for personnel and readiness. “We believe the Safe Helpline will provide DoD sexual assault victims with a variety of support outlets, which will lead victims to report sexual assault, seek needed information, and receive care.”

Safe Helpline offers three access

options designed for service members. Users can log on to <http://www.SafeHelpline.org> to receive live, one-on-one confidential help with a trained professional through a secure instant-messaging format.

The website also provides vital information about recovering from and reporting sexual assault. A second option is to call the telephone hotline at 877-995-5247 to speak with Safe Helpline staff for personalized advice and support. Safe Helpline staff can also transfer callers to installation-based sexual assault response coordinators (SARC), on-call victim advocates, civilian rape

crisis centers, or to the Suicide Prevention Lifeline.

The third option is for users to text their location to 55247 inside the United States or 202-470-5546 outside of the United States to receive automated contact information for the SARC at their installation or base.

For more information on Safe Helpline, visit <http://www.SafeHelpline.org> or at <http://www.sapr.mil>

The Safe Helpline will provide DoD sexual assault victims with a variety of support outlets, which will lead victims to report sexual assault, seek needed information, and receive care.

Clifford L. Stanley

Under Secretary of
Defense, Personnel and Readiness



MORE ONLINE



To view more photos of events going on at and around the U.S. Army Garrison Aberdeen Proving Ground, visit the garrison Flickr site <http://www.flickr.com/photos/usagapg/> or scan the QR code.

Net Threats: Knowing the do's and don'ts of posting on social media

By **MINDY CAMPBELL**
IMCOM

During World War II, the U.S. government adopted the slogan “loose lips might sink ships” to warn people to be careful when talking in public. Started in 1942 by the U.S. Office of War Information, the “loose lips” slogan was coined to help the public understand that casual conversations about sensitive information could tip off enemies.

Almost 70 years later, the same slogan could be used in relation to today's tweets, posts and published photos in the online world of social media. With the proliferation of social media sites such as Facebook, Twitter, YouTube and Flickr, the world has turned into a global network of connections and open source information.

Seemingly, innocent comments or posts could be used by terrorists and media organizations to negatively affect the military. Whether you are a Soldier, spouse or relative, community members need to be aware that what they post, however innocent, can have ramifications.

For the world to see

Social media sites are great, especially for military Families. They allow Soldiers and their Families, who may move many times throughout a career, to stay connected with friends and Family worldwide by allowing us to share our thoughts, photos and events throughout deployments. Even people's daily life and military experience is shared for all the world to see. But that doesn't mean that anything goes.

“Social media provides the opportunity for Soldiers to speak freely about what they're up to or what their interests are,” according to the U.S. Army Social Media Handbook. “However, Soldiers are subject to (Uniform Code of Military Justice) even when off duty, so talking negatively about supervisors, or releasing sensitive information is punishable under the UCMJ.”

Spouses and Family members, while not subject to UCMJ, also need to be careful what they post.

“Sharing what seems to be even trivial information online can be dangerous to loved ones and the fellow Soldiers in the unit - and may even get them killed,” the handbook said. “America's enemies scour blogs, forums, chat rooms and personal websites to piece together information that can be used to harm the United States and its Soldiers.”

Many people think that if it's unclassified information, it's safe to post, said Tonya Heinbaugh, U.S. Army Garrison Bamberg security officer. However, it's those small pieces of information that could be the most harmful.

Bits and pieces

“I don't think spouses and sometimes, even Soldiers, realize how great a threat it is,” Heinbaugh said. “They only need bits and pieces of information.”

In fact, it's unclassified information that can be the most harmful. According to the “Manchester Papers,” an Al-Qaeda terrorist training manual found in England in 2000, more than 80 percent



The APG Facebook page has seen a significant increase in exchanges among its users. Army-wide commands and Soldiers are embracing social media more than ever before.

of all the information the terrorist group received was through unclassified material, Heinbaugh said.

That was even before social media sites took off, she said. So that number has probably dramatically increased.

“Think what they are collecting now,” she said. “We give them all the information they need.”

Those small bits of information can be added to other items you have already posted or will post in the future. For example, you generalize and say that your husband has deployed to Afghanistan. While looking through your photos on Facebook, someone might be able to see the unit patch on your husband's Army Combat Uniform or notice you are a “fan” of a specific unit's Family Readiness Group.

Those little pieces of information can be put together to give the enemy a larger picture.

One careless post

“Even small pieces of information can do harm when they pair it with other information,” Heinbaugh said.

For instance, when a group of 173rd Airborne Brigade Combat Team Soldiers was redeploying back to Bamberg this fall, one careless post from a spouse on Facebook naming the time of the return, caused the entire flight to be delayed due to operational security concerns, said Heinbaugh.

“Our adversaries are trolling social networks, blogs and forums, trying to find sensitive information they can use about our military goals and objectives,” wrote former Sgt. Maj. of the Army Kenneth O. Preston in the social media handbook. “Therefore, it is imperative that all Soldiers and Family members understand the importance of practicing good operations security measures.”

According to “Killing with Keyboards,” an operational security training slideshow, anyone can be a target.

However, some community members may think that enemies wouldn't read their profile or comments because they aren't anyone special or important.

“That may be true for now, but you never know when one online posting will bring you to their attention,” the training states.

Others might say that they don't have any enemies.

The information can be used by not just terrorists but by former girlfriends, boyfriends of divorced spouses, the

report states. Angry neighbors, disgruntled co-workers and even identity thieves could use the information you posted.

Avoid revealing too much

If information on social media sites is being used by the enemy, is the answer to stay off the internet highway? Realistically, the answer is no. Social media sites are here to stay and are becoming an even more important tool in communication in modern technology. However, you can take some precautions to help keep both you and your loved ones safe.

“The adversary Al Qaeda and domestic terrorists and criminals for instance have made it clear they are looking. When using social media, avoid mentioning rank, unit locations, deployment dates, names, or equipment specifications and capabilities,” the social media handbook said.

Used by the enemy

Don't talk about unit morale, said Heinbaugh, who said that things such as bad equipment or not enough equipment, bad leadership and other complaints can be used by the enemy.

And, in fact, it's not just social media sites. Commenting on newspaper articles, blogs or other public forums can also give away more information than you intend.

For example, Heinbaugh said that a recent article about a local commander in the “Stars and Stripes” caused many people within the unit to comment on the newspaper's website. These comments exposed a low morale and even possibly leadership problems within the unit. All this information can be used by the enemy.

“If they know you are upset, they could target you,” she said. “If a person is upset, they may vent or get emotional and could reveal more things than they should.”

Check your settings

Take a close look at all privacy settings, especially on Facebook. Heinbaugh recommends checking out your setting at least once a month. Often, the website administrators will change or add security features without letting the customers know. She also recommends changing your privacy settings to be “friends only.”

Talk to members of your extended Family and friends about what they can post. How well do you know your

“friends” on Facebook? If you have several hundred “friends” chances are you don't know all of them that well. In addition, it's easy to fake an account, Heinbaugh said.

“What you post to friends is not the same thing you would post to someone who is just an acquaintance,” Heinbaugh said.

Do not reveal sensitive information about yourself such as schedules and event locations, the social media handbook states. Ask, “What could the wrong person do with this information?” and “Could it compromise my safety or that of my family or my unit?”

Revealing your location

Look at photos, as well as what you post. Geotagging is a feature that reveals your location to other people within your network, the social media handbook states. Consider turning off the GPS function of your smart phone. In the same way, videos can be damaging as well. Make sure the videos don't give away sensitive information.

If damaging information has already been posted, that's not an excuse to post sensitive information. Some spouses, Heinbaugh said, have the attitude that since Soldiers post things that it's fine for spouses to post information.

“That's not an excuse to keep doing it,” she said. “Two wrongs don't make a right. You can't control anyone but yourself.”

Not a private forum

If you see information posted you think is inappropriate, contact the site administrator, she said. The administrator can delete the comment and send the person a personal message explaining the reason for the deletion. If you reply in the comment section that the information is a violation of operation security that just waves a red flag to others about the information. The more you are aware, the better protected you are, Heinbaugh said.

“These are not personal forums,” Heinbaugh said. “They are public forums. In a technology world, not much is private anymore.”

To read more about the U.S. Army's social media regulations, log onto <http://www.slideshare.net/USArmy-SocialMedia/armysocial-media-handbook-2011> or to read “Killing with Keyboards” log on to www.slideshare.net/pastinson/killing-withkeyboards.

How are we doing? E-mail comments and suggestions for the APG News at editor-APG@conus.army.mil

ATC experiment looks at how clay performs in body armor testing

By **MIKE CAST** and
BARBARA GILLICH

Army Test and Evaluation Command

To support the Army Product Manager, Soldier Protective Equipment, the Army Developmental Test Command's Aberdeen Test Center recently conducted an experiment to characterize the clay backing material used for testing body armor.

The Army rigorously tests both hard armor plates and soft armor vests and their components, as well as helmets. It conducts this testing to verify the adequacy of a system's design and conducts further testing to ensure that the quality of the system is maintained during production.

One of the ways to characterize how these systems perform is to determine to what extent an armor system will deform itself in response to an impact from a projectile while preventing the projectile from completely penetrating the system. The crater or indentation formed by the armor giving into the backing material is called "back-face deformation." Roma Plastilina No. 1 clay is the backing material used to characterize how much of this deformation takes place.

Even if a bullet doesn't completely penetrate body armor, it can cause enough back-face deformation, or BFD, to result in catastrophic injury, so the clay that helps testers determine how much of this deformation takes place is critically important to the test process.

For test purposes the clay is built into boxes that are 24 inches by 24 inches by 5.5 inches, and these clay boxes must pass a calibration test to be declared ready for testing. The drop calibration test, or "drop test," is the standard way the Army validates the consistency of the clay blocks.

The drop test involves dropping a 2.2-pound weight that is 1.75 inches in diameter from a height of 6.5 feet. The clay blocks are considered to have passed this test if three drop indentations into the clay measure between 22 and 28 millimeters.

According to a report on the experiment released by ATC, the first objective was to "characterize the relationship between drop depth and radial distance from the center of the clay box." The second objective of ATC's experiment was to "characterize how that relationship may change as the clay box ages," and the third objective was to "characterize how those relationships may be affected by the position of the clay box in the temperature conditioning oven."

To do this effectively and ensure drop uniformity, ATC developed a template specifying 11 drop locations at varying radial distances from the center of the box. Testers selected three pairs of boxes from ATC's inventory, each pair representing a separate "age" based on when the boxes had been packed.

They used a six-position temperature-



Photo by Air Force Master Sgt. Demetrius Lester

A critical mission for the Aberdeen Test Center is the testing of body armor such as that worn by U.S. Army Spc. Aaron Franklin in this photo. ATC designed a unique experiment to characterize a special clay used to determine the back-face deformation that occurs when a bullet strikes such protective equipment during testing.

condition oven between experiments. Two dedicated crews conducted the testing, each working 12-hour shifts so the test could run 24 hours a day from March 8-14, 2010.

Between experiments, ATC personnel conditioned the clay boxes in a 105-degree-Fahrenheit oven for six hours. They opened the doors just once an hour to remove a box for the experiment and to return the box they had just used for that purpose. They conducted the 11 drops at a controlled rate of one minute between drops.

When they had finished conducting all of the drop tests, they measured the indentations in each box with a digital caliper and recorded the results. They then repaired the clay boxes by filling the indentations with clay and after an hour returned them to the oven.

ATC personnel conducted 22 replications of the drop test per box, so that each of the 11 positions marked out with the template on each box could experience each drop order twice in each box. The order of drop locations on the boxes was random for each drop replication. The boxes were rotated through each of the six oven positions at least three times. In all, ATC made a total of 1,452 individual drops, based on 22 replications of the 11 drops on each of the six clay boxes.

To examine the results of the experiment, ATC used a statistical method called analysis of variance. In layman's terms, this is an analysis of the outcomes of an experiment where the contribution of each source of variation under study is compared to the total variation to assess which factors, if any, are contributing at a rate greater than one would expect by chance alone; that is, if any factors are having a significant effect on the experimental outcomes.

The results of the study revealed the following:

The most significant factors affecting the depth of indentations were the differences between one clay box and another based on box serial number rather than age, the location on the clay box where the weight was dropped, and the interaction between individual clay box by serial number and drop location, respectively. By contrast, oven position had no practical effect on the results at any drop location. And because the date the boxes of clay were packed showed no correlation with test results, it was learned that a better definition of clay age is needed.

ATC's analysis of the experiment further revealed that four of the six clay boxes showed no correlation between the drop depth and its radial distance while two showed a "moderate nega-

tive linear correlation," meaning there was some evidence that a relationship exists between the two variables and the shape of that relationship is described by a line. A negative linear relationship means that as one variable increases, the other decreases. In this case, as radial distance increased away from the center of the box, the drop depths for those two clay boxes tended to decrease in depth.

A most interesting finding was that the depth of indentation at the center of all the blocks remained consistently near 25 millimeters, despite the mixed results when dropping the weight at other locations.

Additionally, while there seemed to be a "marked difference" in the drop-test results between new and used boxes at the beginning of the experiment, by its conclusion all boxes experienced similar variation of results, independent of box age. That is, as more drops were performed, the clay became softer, judging from indentation depth, and testers observed less variation.

ATC's Barbara Gillich, who helped design and analyze the experiment, said it was a very worthwhile project.

The experiment was seen as an "excellent" effort between ATC and the Product Manager, Soldier Protective Equipment, designed to increase the knowledge of Roma Plastilina No. 1 clay for the entire body armor community. Although ATC was able to answer the three specific objectives of this experiment, quite a bit of work remains to be done on the subject of clay and its use in body armor testing.



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SATURDAY

APRIL 30 STEPPINGSTONE MUSEUM FLEA MARKET

An outdoor flea market will be held 9 a.m. to 2 p.m. at the Steppingstone Museum, 461 Quaker Bottom Road, Havre de Grace. Search for great bargains or sell stuff that's just been cleaned out of the closet. Vendor spaces cost \$20. Admission is free. For information, call 410-939-2299 or 888-419-1762, or email steppingstonemuseum@msn.com.

LYRIC OPERA BALTIMORE TO PERFORM IN HARFORD

The Havre de Grace Arts Commission will sponsor the Lyric Opera Baltimore, 7 p.m. at Havre de Grace United Methodist Church, 101 South Union Avenue, Havre de Grace. Doors open 6:30 p.m. The Lyric Opera Baltimore will perform highlights from "La Traviata," "Le Nozze di Figaro" and "Faust" and favorites from other operas. Tickets cost \$10 for adults and \$5 for stu-

dents, payable by cash or check to the HdG Arts Commission. Pre-event sales are available at Havre de Grace Visitor Center, 410-929-2100; Preston's Stationery, Bel Air, 410-838-5858; and at the door.

For more information, visit www.ModelIPAC.com.

BASKET BINGO

Basket Bingo will be held at the VFW Darlington-Dublin Memorial Post 10146 located at 3440 Conowingo Road, Street, Md. Doors open 6 p.m.; Bingo starts 7 p.m. Tickets cost \$10 each with \$5 for extra packs. There will be a drawing for a basket of cheer and a voucher for a free bushel of crabs. Food and drinks will be available.

For more information or to purchase tickets, call Sue Rigdon 410-838-1542 or Shirley Wagner, 410-939-2045 or email shirley.wagner@comcast.net.

COUPLE'S BOWLING FUNDRAISER

Bring your partner to the Harford County Mocha Moms Couple's Bowl-

ing Fundraiser, 7 to 9 p.m. at AMF Country Club Lanes, 9020 Pulaski Highway, Baltimore. Tickets cost \$20 per person in advance; cost includes shoe rental. There will be a prize for the highest score. Donations will be collected at the event for the Harford House homeless shelter.

For more information, call Tricia Clarke, 212-960-8070.

SATURDAY AND SUNDAY APRIL 30 AND MAY 1 4TH ANNUAL RAMJAM MUSIC AND ARTS FESTIVAL

The 4th Annual RamJam Music and Arts Festival will be held from 10 a.m. on April 30 to noon, May 1 at Uncle Bob's Western Corral located on 565 Kirk Road, Fair Hill, Md. Performers include Mad-Sweet Pangs, Smooth Kentucky, Baygrass, Second Self, Lost in Company, 61 North and more. There also will be Cirque Oya circus troop, art exhibits, late night music sets, camping and more. Advance tickets cost \$36.86 for day/night plus camping and \$47.12 on day of event

for day/night plus camping. RV/heavy camping tickets cost \$21.49 and must be purchased in addition to general admission ticket. To purchase tickets, visit <http://www.ramjamming.com/tickets.html>.

For more information, visit <http://www.ramjamming.com/home.html>.

FAMILY FEUD TRYOUTS

The classic game show Family Feud will search for contestants, at Harrah's in Atlantic City, N.J. Each team of five Family members has a chance to audition, but each Family must have an appointment.

For more information and available times, call 323-762-8467 or email atlanticcity@familytryouts.com.



MORE ONLINE
More calendar events can be seen at www.apgnews.apg.army.mil under Community Notes.

Post SHORTS

Spring Tech Expo April 28

Edgewood Chemical, Biological Center Corporate Information Office of the U.S. Army Research, Development and Engineering Command will host the 2011 Annual Spring Information Technology Expo 9:30 a.m. to 1:30 p.m., April 28, at The Aberdeen Area Recreation Center, Bldg. 3326.

Admission is free and open to all DoD, government and contractor personnel. Refreshments will be served. For information, call Deb Daniel at 410-436-6087 or FDAE toll-free at 877-332-3976.

Arbor Day and Earth Day events slated April 29

Celebrate Arbor Day and Earth Day, 10 a.m. to 1 p.m. at the Aberdeen Area

museum. The Arbor Day theme is "Light of the Bay." Events will include awards for best Earth Day poster and essay contests by students from Harford, Cecil and Baltimore county schools; hands-on Earth Day science activities; Tree City USA awards; Pooles Island Lighthouse replica and time capsule encasing; MD People Loving and Nurturing Trees (PLANT) awards; and a special appearance by Smokey Bear.

For more information, call Kathy Thisse, 410-436-8789 or email kathy.thisse@us.army.mil.

May 3 Days of Remembrance event location change

The location of the Days of Remembrance observance has been changed from the EA Stark Recreation Cen-

ter to the post theater. Team APG will present the Holocaust Days of Remembrance observance at 10 a.m. May 3. The Days of Remembrance theme is "Justice and Accountability in the Face of Genocide: What Have We Learned?" Guest speaker will be Holocaust survivor Nicholas Attias. Call 410-306-2053, 410-436-1023 or 410-278-5964 for information.

Military Spouse Tea, Dinner scheduled May 3

A special Spouse's Tea will be offered for military spouses noon to 2 p.m. May 3 at the Aberdeen Area Recreation Center, Bldg. 3326. RSVP by April 22.

Also, a Spouse's Appreciation Dinner will be held 6:30 to 9:30 p.m. May 6 at the APG North (Aberdeen) recreation center. Child care will be provided at no cost. Reservations are required. This event will be casual with a buffet and Family-style seating. RSVP by April 22.

For more information or to RSVP for these events, call Marilyn Howard, 410-278-9669/7572 or email Marilyn.e.Howard@us.army.mil.

Win with Picerne

Picerne Military Housing is celebrating Military Spouse Appreciation Day May 6. Residents are invited to stop by the Neighborhood Office to pick up a gift, enjoy light refreshments and enter to win a "Date Night" package for two.

Residents can stop by at their convenience during regular business hours for a chance to be the lucky winner of a \$100 gift card to the Red Brick Station restaurant in White Marsh and a \$25 AMC gift card.

Winners will be announced May 9 at 9 a.m. Call the Neighborhood Office at 410-305-1076 for more info.

Annual motorcycle training

The Aberdeen Proving Ground Safe-

ty Garrison Safety Office has kicked off its annual motorcycle training. Register for classes at <https://airs.lmi.org> or call Mike Allen at 410-306-1081 for more information.

"We're also looking at the possibility of civilians being offered motorcycle training through the Army Traffic Safety Training Program," said Garrison APG Command Sgt. Maj. Rodney Rhoades. "IMCOM and region safety managers are working to ensure training is in accordance with established Department of Defense/Army guidance and contract/fiscal law. We'll get the word out to the community via the APG News, APG Live and the garrison's Facebook page."

Survivor Coffee Break

APG's Survivor Outreach Service (SOS) program will host a Survivor Coffee Break for Families of fallen Soldiers May 14 from 8 to 10 a.m. at Rutgers Golf Course.

During the event, survivors will learn about services that are available to them. Application can be picked up or completed at the coffee for Survivor decals and APG Survivor ID cards for anyone having difficulty gaining access to the installation.

The Survivor Vehicle Decal Program was developed by SOS to ease access to the installation and provide survivors with special recognition. Decals can be obtained at the SOS Office, Bldg. 2503, Highpoint Road, Room 109 on Aberdeen Proving Ground from 8:00 am-5:30 pm.

Contact SOS Support Coordinator Annette Sanders at 410-278-2861 or annette.sandersnash@us.army.mil for information.



MORE ONLINE
More shorts can be seen at www.apgnews.apg.army.mil under Shorts.

FAMILY AND MWR

Activities/Events

Army Community Service Family Advocacy Program Classes

The Army Community Service Family Advocacy Program is committed to offering support to the APG Family through a series of dynamic classes. What makes FAP classes so dynamic is a mix of the community members who participate, the exciting and innovative materials, and the facilitators. Classes are free and are open to all members of the APG community, so don't delay. Families can get the tools that they need to get on the right track by joining a FAP class today.

All programs will be held at ACS,

Bldg. 2503 High Point Road.

- Effective Parenting for ages birth through age 5: 11:30 a.m. to 1:30 p.m., April 19 and 26
 - Couples Communication Class: 5:30 to 7:30 p.m., April 27
 - Blended Families (Stepfamilies): 5:30 to 7:30 p.m., May 5, 12 and 26
 - Staying Connected With Your Teen: 5:30 to 7:30 p.m., June 2, 9, 16, 23 and 30
- For more information or to register, call 410-278-7478.

Luray Caverns discount

Take a spin through time, 400 million years worth to be exact, to discover the amazing history of these unearthly caverns. Tickets cost \$18.25 for adults

13 years and older; tickets for children ages 3 to 12 cost \$9.25. Luray Caverns is located on 970 Highway 211 West, Luray, Va., in the Shenandoah Valley. Prices are subject to change without notice. Visit <http://www.luraycaverns.com/PlanyourVisit/AboutLurayCaverns/tabid/507/Default.aspx>. For more information or to purchase tickets, call the MWR Leisure Travel Office at 410-278-4011/4907, visit the AA Recreation Center, Bldg. 3326 or e-mail APGR-USAG-MWR-LeisureTravel@conus.army.mil.

Personal Training

APG Sports Branch is offering personal training programs. All active duty military and Family members, DoD civilians and family members, and DoD contractors are eligible.

Training is offered at the athletic center, fitness center and Hoyle Gym to assist customers in meeting their personal fitness needs. The program is offered in individual half-hour and one-hour sessions and blocks of sessions. Individual half-hour sessions cost \$40 each; one-hour sessions cost \$55 each. Blocks of six half-hour sessions for the cost of five sessions is \$200; blocks of six sessions for the cost of five sessions is \$275

Contact the athletic center or Hoyle Gym for details.

Discount Aquarium tickets

The Leisure Travel Office offers discount tickets to the National Aquarium in Baltimore. Adult tickets cost \$23.25 per person; tickets for children ages 3 to 11 cost \$17.50; active duty tickets cost

\$19 each and are issued one per active duty ID card only.

Tickets do not include the dolphin show or the 4D Theater, but are upgradeable at the aquarium.

Take an unforgettable journey into the mysteries of water and the beauty of the natural world. Watch brilliantly colored triggerfish explore a coral reef. Marvel as sharks glide through the shadowy depths just an arm's length away.

For more information or to purchase tickets, call the MWR Leisure Travel Office at 410-278-4011/4907, visit the AA Recreation Center, Bldg. 3326 or e-mail APGR-USAG-MWR-LeisureTravel@conus.army.mil.

Board horses at APG Stables

The APG stables are a self-care boarding facility located in the Edgewood Area, Bldg. E5286, for privately owned horses of military and civilian employees, retirees and Family members.

All patrons must have a valid military or installation ID card.

- Monthly stall fees include:
- Four turn-out pastures
 - Lighted riding arena
 - Water troughs in each pasture
 - Run-in sheds
 - Barn with water and electricity
 - Tack rooms, grain room and hay storage provided

For more information or to sign up, call Outdoor Recreation at 410-278-4124 or visit www.apgmwr.com/recreation/odr/stables.html.

Daily bus trips to Atlantic City now cost \$29 per person

The cost of the daily bus service to Trump Taj Mahal Casino has increased to \$29 per person.

Only for ages 21 and over. The bus will leave Vitali's Restaurant, Best Western in Edgewood 9 a.m. and return 9 p.m. Seating is limited and sells quickly. Seats must be purchased at least two weeks in advance.

For more information, contact MWR Leisure Travel Services, AA Recreation Center, Bldg. 3326, 410-278-4011/4907 or e-mail APGRUSAG-MWR-LeisureTravel@conus.army.mil.

April bowling specials

- Early Bird Special: Bowl from 7 to 10 a.m. for \$1 per game. Shoe rental costs \$2.
- Each Friday, 9:30 to 11 p.m., bowl for \$1.50 per game. Shoe rental costs \$1.
- Cosmic Saturdays: Each Saturday, receive one hour of bowling, one whole cheese pizza (toppings extra)

and one pitcher of soda for \$32. Shoe rental costs \$2.

Bowling rates

Bowling costs \$3 per game, Monday to Friday from 7 a.m. to 5 p.m.; games cost \$3.50 each on Fridays, 9:30 to 11 p.m.; Cosmic Saturdays cost \$3.75 per game; and \$3 per game on Sundays.

APG Bowling Center Snack Bar specials

Building 2342

The Bowling Center hours are 7 a.m. to 8 p.m., Monday and Tuesday; 7 a.m. to 10 p.m., Wednesday and Thursday; 7 a.m. to 11 p.m., Friday; 1 to 11 p.m., Saturday; and 1 to 6 p.m., Sunday. Lunch delivery is available for orders of \$25 or more. Call for delivery before 11 a.m.

Week of April 25

Special #1: Two hot dogs with French fries, cookie and regular soda for \$4.95.

Special #2: Kielbasa and sauerkraut with potato chips, cookie and regular soda for \$6.50.

Week of May 2

Special #1: Chicken salad sandwich with potato chips, cookie and regular soda for \$6.75.

Special #2: Italian sausage with french fries, cookie and regular soda for \$6.50.

The Bowling Center also serves breakfast. For more information or to place an order, call 410-278-4041. Orders must be placed before 10:30 a.m.



Looking for a job?

Visit FMWR Jobs Available at www.apgmwr.com.

All jobs for Aberdeen Proving Ground are listed at <http://www.armycivilianservice.com> or check out AAFES Jobs link <http://odin.aafes.com/employment/> for additional job opportunities.



WOMEN IN COMBAT

Female POWs show women can endure hardships of war

By **ALEXANDRA HEMMERLY-BROWN**
Army News Service

Maj. Rhonda Cornum could see her breath when she awoke on the fourth day of ground fighting during Operation Desert Storm.

It was February 1991, and the flight surgeon combated the chilly Iraqi morning by slipping on her jacket and nursing a few cups of hot coffee.

She was headed out on a routine flight to shuttle passengers, when her UH-60 Black Hawk crew received a call telling them their mission had changed and was now a rescue. That call changed Cornum's life forever.

A fighter pilot, Air Force Capt. Bill Andrews, had been shot down behind enemy lines and suffered a broken leg. Cornum's crew was the closest aircraft around.

"Unfortunately we flew right over a big bunker full of weapons and they shot the tail off my helicopter ... and they shot me," said Cornum, now a brigadier general.

Cornum was one of three Soldiers to survive the 140-mile-per-hour crash. She suffered two broken arms, a bullet wound to her shoulder, and a torn knee, only to be dragged from the wreckage and taken into Iraqi captivity.

She was held in a primitive underground jail cell for eight days in what she calls "austere" conditions. She was also sexually molested by an Iraqi Soldier while being transported to the prison, but said being fondled was low on her list of things going wrong that day.

"The molestation didn't do a thing to me," she assured. "It was just as irrelevant now as it was then."

Cornum said she was more surprised than emotionally damaged from the assault - she was dirty, bloodied and badly wounded.

"If it doesn't increase the likeliness you were going to stay there longer, and it wasn't excruciating, and it wasn't life-threatening, then it really didn't matter," Cornum explained.

On March 6, 1991, Cornum was released along with 23 other POWs in end-of-war negotiations.

Cornum's story is as relevant today as it was 20 years ago. Few women have served as prisoners of war.

From Florena Budwin, a Civil War woman who disguised herself as a man to join union troops and was held in a confederate prison camp, to the 67 Army nurses who were taken captive by the Japanese in World War II, there have been less than 100 military women held as POWs throughout American history.

As the debate of women serving in combat roles continues, Cornum said she believes the biggest contribution of her career is simply the proof that military women can persevere in tough situations.

While Cornum always felt that she was a strong person, she said her experience as a POW only confirmed her belief that she was resilient.

"It helps put everything else in perspective," Cornum said of being taken captive. "It made you recognize your strength, when previously it hadn't real-



Photo by Marine Cpl. Michael Leitenberger

Lance Cpl. Curney Russell, from the 3rd Light Armored Reconnaissance Battalion, provides a steady arm for former prisoner of war Spc. Shoshana Johnson, with the 507th Maintenance Company, at Kuwait City, April 13, 2003, during Operation Iraqi Freedom.

ly been tested much."

Cornum completed five more years of medical training upon her release, and while studying to take the board, many of her colleagues said it was the most stressful and worst experience of their life - Cornum disagreed.

"The same reason that I came through the POW experience well is the same reason I came through graduate school well, and the same reason I flipped my car and came out of that well —it's that I approach every problem very similarly, that no matter how bad it gets, it will always get better."

The brigadier general is now the director of Comprehensive Soldier Fitness - the Army's authority on resiliency training - and in the past 20 years has authored a book, become a urologist and earned a doctorate's degree in philosophy.

Cornum said she didn't come up with how to instill resilience, but she did strongly advocate teaching it before something traumatic happens, rather than after.

She likens teaching resiliency to training for a marathon: not everyone who trains finishes the race, but those who do train have a much better chance at succeeding. "So you ought to train first," she said.

"I'm evidence that it works," Cornum pointed out.

Cornum's approach is similar to how former Army Spc. Shoshana Johnson has lived her life since she was taken into Iraqi captivity in 2003. Johnson, who joined the Army with the goal of one day attending culinary school, was shot in both legs before being taken by Iraqi militants after her convoy was ambushed.

Johnson and six other American Soldiers were moved seven times during

their 22 days of captivity in Iraq.

"You don't know what's going to happen from day-to-day," Johnson said of her time as a POW. "I wanted to see my daughter grow up and live her life."

Johnson's daughter was 2 years old at the time, and she said her family was shocked that she had been taken prisoner. Even though her dad spent 20 years in the Army and understood the military's demands, when she joined in 1998, being captured wasn't really a consideration.

Johnson said her strong belief in God and thoughts of her family got her through the 22-day ordeal, yet she admits she was terrified.

"It's a constant fear, because you're in the middle of a combat zone and this country has a history of executing people," she explained.

Now, Johnson said, she is more grateful for the little things in life and sees herself as very blessed. She will finish her culinary arts degree in May, and is set on becoming a pastry chef.

Johnson said she is proud of her time

in the Army and doesn't regret her decision to join. However, she said military women have long served in roles they aren't recognized for, and they should

receive the proper training for what they might possibly encounter in combat — just as male Soldiers do.

Her advice on staying tough while in captivity: "Follow your instincts ... you've got to listen to your gut."

Cornum agreed. "You've got to make the decision that what you're doing is worth the risk before you do it," she said. "Recognize that you have a new job, and that is staying alive with honor."

Not long after Cornum's rescue in 1991, the restriction of women flying aircraft in combat was repealed, and in 1993 Congress rescinded female combat exemption laws, opening up a quarter million jobs previously closed to women.

Earlier this month, the Military Leadership Diversity Commission recommended to the president that DOD eliminate all combat-exclusion policies for women.

“Unfortunately we flew right over a big bunker full of weapons and they shot the tail off my helicopter ... and they shot me... Follow your instincts ... you’ve got to listen to your gut. You’ve got to make the decision that what you’re doing is worth the risk before you do it. You have a new job, and that is staying alive with honor.”

Brig. Gen. Rhonda Cornum

A fighter pilot during Operation Desert Storm, she was captured and molested by an Iraqi soldier. Now the Comprehensive Soldier Fitness director.

Hardest to change is 'culture of military'

Continued from Page 1

Affairs Detachment at Joint Base Lewis-McCord, Wash., said she doesn't agree with the idea of women serving on the front lines.

"I don't really feel that women should be serving in combat-arms positions," she said. "I don't know how the average American feels about this, but I think that even if the woman is qualified for the position, I think it would be detrimental to put her in an all-male unit."

Solitario, who served in Iraq in 2007, explained that while there on one occasion she was the only female Soldier traveling with an all-male infantry unit. Solitario convoyed with the unit, and spent the night in an empty building with them en route to their destination.

She explained that even though the unit was stand-offish toward her at first, they warmed up to her after one day. However, sleeping in a room full of men with no privacy to change her clothes or use the bathroom was uncomfortable for Solitario.

Solitario's main concern of having

women in combat-arms units, is that she thinks women would simply slow the men down. She said she thought that women would hold them back in training, and in a combat situation, men might be more worried about protecting the female Soldiers than their mission.

"There are separate standards ... so how can you ask to put a female in an all-male unit?" Solitario said, pointing out the differences in scoring for the Army Physical Fitness Test as an example.

Solitario also said she was worried that more female Soldiers being killed in combat could have a detrimental effect on the country.

"If you put women in combat-arms positions, there are simply going to be a lot more female fatalities," she said.

Conversely, Staff Sgt. Genevieve Chase, a military intelligence Soldier and founder of American Women Veterans, has a very different point of view.

"We serve in normal society as equals now," Chase said, explaining that she

thinks women should be allowed to join combat-arms units — if they can keep up.

Chase said she doesn't think standards should be altered to cater to women, noting that she knows some female Soldiers who are just as physically fit as their male counterparts, so they should have an equal shot at any career path they choose.

"The infantry is not for every female Soldier, just like it's not for every male," Chase explained. "There are a lot of men in the Army, and not all of them want to be infantry."

As a military intelligence specialist, Chase, who speaks fluent Pashtu, said she's often been in circumstances where she is the only woman in a group of male Soldiers, and she's fine with that. She said her experiences with otherwise all-male units have been good ones, and she would like to see all jobs opened up to women — if they can make the cut.

Chase also said she would like to see more acknowledgement for female ser-

vicemembers killed in combat, which is part of the reason she started American Women Veterans. She said that American society largely ignores the fact that more than 140 female servicemembers have been killed in Iraq and Afghanistan, and that women are already unofficially serving in combat-arms positions in jobs like military police.

Overall, she said she supports what MLDC is trying to accomplish, but said the hardest thing to change will be the culture of the military.

"The commission envisions expanding opportunities while maintaining the military's high standards," said retired Air Force Gen. Lester Lyles, chairman of the commission in an MLDC press release. "This could be done by removing barriers that are unrelated to doing the job, such as barriers related to the individual's demographic membership, rather than their ability."

To view a copy of the MLDC's final report, visit <http://mldc.whs.mil>.

RDECOM NEWS

BRAC to increase local education needs Justice encourages county development to accommodate needs

By **DAN LAFONTAINE**
RDECOM PAO

Base Realignment and Closure will significantly increase the need for higher-education programs near APG, Army and Maryland state officials said at Aberdeen Proving Ground last month.

Maj. Gen. Nick Justice, APG senior commander, encouraged the development of an infrastructure in Harford County to accommodate the needs of scientists and engineers coming to the area.

"Maryland has an incredible opportunity," Justice said during a March 8 meeting. "Government, industry and academic collaboration is incredibly valuable as a catalyst for innovation."

"There is going to be a very strong demand here for graduate education. The opportunity is knocking; it's just what strategy do you want to attack it with," he said.

APG leaders met with officials from the University System of Maryland,

There is going to be a very strong demand here for graduate education. The opportunity is knocking; it's just what strategy do you want to attack it with.

Maj. Gen. Nick Justice
APG senior commander

Maryland Higher Education Commission, Governor's Subcabinet on BRAC and St. John Properties to ensure the state can support the growing demand for advanced degrees.

Gary Martin, executive deputy to the commanding general, U.S. Army Research, Development and Engineering Command, discussed a report issued by local community colleges titled "Workforce Training Initiative." The report addresses the educational needs of the APG workforce.

Martin said the greatest hiring needs will be in mechanical engineering, elec-

trical engineering, computer science, acquisition logistics and contracting. The biggest need is for master's degree programs.

Several factors will influence the hiring and skill set needs during the next decade at APG, Martin said. The installation expected 25 percent of Fort Monmouth workers to move to APG; however, because of the recession, about 65 percent have transferred.

Martin also said the last Fort Monmouth employees moving to APG will arrive by July. Also, about 40 percent of Department of the Army civilians at

APG will be eligible for retirement within the next five years.

Brit Kirwan, University System of Maryland chancellor, said his schools are prepared to provide the necessary courses and degree programs to APG workers.

"Obviously, we see this as a huge opportunity. We're ready to do whatever is needed up here," Kirwan said. "In partnership with other institutions in the state, we're ready to play whatever role is needed."

Kirwan noted that University of Maryland University College offers courses on APG, and Harford Community College opened a classroom in September 2010 outside the installation's Route 715 gate. He also said University System of Maryland Board of Regents recently announced that building a better-educated science, technology, engineering and mathematics, also known as STEM, workforce in the state is one of its key initiatives.

The group plans to meet again in early May to discuss its progress.

Study eyes reducing stress fractures

Continued from Page 1

reducing the risk of stress fractures.

"The retraining methods could be used by athletic trainers or physical therapists to train people to run in a way that may prevent stress fractures. It could also be used by athletic trainers or physical therapists to help injured runners rehabilitate and learn to run in a way that may reduce their risk of re-injury," Crowell said.

"The model can be used to examine strain rates on the tibia during activities such as walking, walking while carrying a load like a backpack, running uphill or downhill, running at various speeds, and running over and around obstacles. The model can also serve as the basis of comparison for a more sophisticated finite element model that will be developed," he added.

Stress fractures in bones are overuse injuries that occur as a result of repeated loading on the bone. Repetitive loading from activities such as marching and running causes microdamage to the bone. Normally, bones can repair themselves; however, if the microdamage occurs faster than it can be repaired, or if the normal repair mechanisms are disrupted, the microdamage can accumulate and result in a stress fracture.

Crowell said the study was designed to determine if runners can use real-time visual feedback from an accelerometer to achieve immediate reductions in tibial acceleration and vertical-force loading rates. The study also aimed to determine if multiple training sessions would allow subjects to reduce their lower extremity loading and to maintain those reductions for one month, and to determine if reduced lower extremity loading associated with the gait retraining program resulted in reductions in the loading on the tibia itself.

As part of the study, runners were prescreened to identify those at higher risk for tibial stress fractures, which considered runners' training regimen, diet, running surfaces, fitness level and bone structure, for example. Recent evidence suggests, though, that stress fractures of the tibia are related to acceleration of the tibia and vertical force loading rates that occur as the foot impacts the ground.

Subjects then ran on a customized, instrumented treadmill for eight control sessions, followed by eight retraining sessions. During retraining, an accelerometer, an electromechanical sensor, placed just above the subject's ankle measures the acceleration of the tibia. Output readings from the accelerometer appear on a monitor in front of the treadmill, showing runners their tibial acceleration relative to a threshold prescribed by the researchers.

A line placed across the output monitor, or display, provides a target goal for subjects.

"We have a database of 125 runners who have not had stress fractures. We measured peak tibial acceleration as those runners ran across the laboratory at approximately 3.7 meters per second," Crowell explained.

"For that group, the average peak tibial acceleration was 6 g [g = acceleration due to gravity] and the standard deviation was approximately 3 g," said Crowell. "Then we screened runners looking



Photo by Pfc. Jessica M. Kuhn

Paratroopers from the 82nd Airborne Division's 3rd Brigade Combat Team take part in a four-mile division-wide run to kick off the 82nd's All American Week celebration May 18, 2009.

Humans are pretty good at adjusting their running gait to accommodate different types of terrain.

Dr. Philip Crowell

Human Research and Engineering Directorate, Army Research Laboratory

for those with peak tibial acceleration that was one standard deviation above the average (or 9 g.)"

"This was roughly the peak tibial acceleration measured on another group of runners who had sustained stress fractures, so that put those people at increased risk of sustaining a stress fracture," he said.

"When we brought subjects in for their first retraining session, I looked at the peak tibial acceleration displayed on the monitor in front of them. Then I adjusted the line across the screen so that it was at approximately half of their peak value. This gave them a goal to work for and if they achieved it or at least got close, they would be running with peak tibial acceleration that was near the average for the group of 125 uninjured runners."

Runners could, in effect, tune into the rhythms of their running style and make mental notes correlating their gait to performance on the monitor as outputs from the accelerometer.

Runners were expected to modify their running gait in such a way as to keep their acceleration peaks below the line but they weren't told exactly what to do or how to do it. By focusing on their rhythms, pace and how their feet landed on the treadmill, they were able to get the readings below the line.

"Humans are pretty good at adjusting their running gait to accommodate different types of terrain, and each person has a slightly different way of doing it. So we felt it would be best to let the subjects determine what adjustments to make to their gait in order to land more softly and reduce their peak tibial acceleration," Crowell explained.

During the first handful of retraining sessions, subjects ran on the treadmill for about 10 to 15 minutes and were able to see accelerometer readouts on the mon-

itor. Slowly, that information was taken away so by the time they entered the seventh and eighth sessions, which lasted about 30 minutes, they were able naturally regulate their gait to reduce their tibial acceleration.

In one case, a runner who was a heel-striker changed to a forefoot strategy which meant she'd land more on the ball of her foot. Others made more of a conscious effort to roll on the whole length of the foot and then push off.

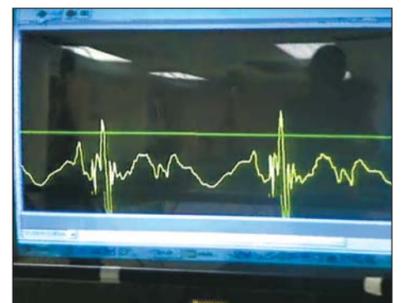
In their pilot study, four of the five runners were able to adjust their running style in just one session using feedback queues they got from their own bodies to reduce tibial acceleration.

In the retraining study, 10 new subjects, provided with real-time feedback, were instructed to run "softer" and try to reduce their tibial shock. They achieved reductions in peak tibial acceleration (approximately 50 percent) vertical loading rates (roughly 30 percent), and impact peak (20 percent) and were able to continue showing this adjustment one month after the study concluded.

"We gradually reduced the amount of feedback so that the subjects would pick up on internal cues that would help them maintain reductions in peak tibial acceleration. This is something that has been shown to be successful in motor learning studies," he said.

As part of this study, Crowell created a simple model of the tibia to examine the strain rates in tibia. The model considered the tibia as a hollow cylinder. Before and after training, researchers collected data from runners to estimate muscle forces, joint reaction forces and moments, and inertial forces and moments that were entered into the models.

For the model, he added muscle forcing where the muscle would be attached



Army Research Laboratory Photo

An output reading from the accelerometer appears on a monitor in front of the treadmill, showing a runner her tibial acceleration.

to the tibia; muscles can create very large forces during activities such as running. This mathematical model was run through simulation software to ultimately see stresses, strains, and strain rates at the medial and posterior sides of the mid-tibia and the distal third of the tibia – all points around the tibia that are common for stress fractures. The results of the model showed that strain rates on the tibia were reduced as a result of the retraining program.

"I calculated strain rates from data collected before subjects entered the retraining program. I also calculated strain rates from data collected one month after they finished the program," Crowell said.

"The results showed that the strain rates were decreased after the retraining program, and they were decreased in regions where stress fractures are common," he noted.

Crowell said the model could also be used to examine stresses, strains, and strain rates for data collected under various other conditions like speed, slope, fatigue, and even footwear.

"Prospective studies are needed to determine if the gait retraining program can reduce the occurrence of stress fractures. If the retraining program can reduce the occurrence of stress fractures, it may be beneficial to establish gait retraining programs in physical therapy clinics, fitness centers, and military training facilities as a means of preventing stress fractures," he said.



Economic Development UPDATE

Deputy Director of the Harford County Office of Economic Development Denise Carnaggio briefed attendees on area retail projects during the Community Action Council meeting April 21 at the APG South (Edgewood) chapel. Visit www.apg.army.mil/apg-home/sites/local/index.cfm/ to view the slides from the meeting. The next CAC meeting will be held May 19 at the chapel on APG North (Aberdeen).

Photo by Rachel Ponder

MONTH OF THE MILITARY CHILD

To vaccinate or not to vaccinate is a question parents still ask

By **BRANDY GILL**

Carl R. Darnall Army Medical Center Public Affairs

Childhood immunizations may possibly be the worst part of becoming a new parent, and they are certainly the low point of all well-baby appointments, but most parents view them as a necessary evil.

But are they really necessary?

Lt. Col. (Dr.) Joseph Llanos, chief of Preventive Medicine at Fort Hood's Carl R. Darnall Army Medical Center said "yes," immunizations are crucial for children.

"It really is important for people to get vaccines to prevent infection," Llanos explained. "Immunizations lower the risk of very serious illnesses like polio, invasive haemophilus influenza type b, and measles, and the vaccines are leading to the eradication of some of these major illnesses too."

Poliomyelitis, more commonly known as polio, is one of those eradicated illnesses.

It was the worst pandemic in American history with over 57,000 reported cases in the early 1950's. Polio attacked mostly children, killing more than 3,000 and leaving 21,000 others disabled or paralyzed.

Now polio is more of a distant nightmare than a true threat for Americans. It

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Lt. Col. (Dr.) Joseph Llanos

Chief of Preventive Medicine at Fort Hood's Carl R. Darnall Army Medical Center

hasn't been seen in the Western Hemisphere at all since 1992, and in United States since 1979.

Haemophilus Influenzae Type b (Hib), which was a leading cause of meningitis and pneumonia in children before a vaccination was implemented in the 1980's, is heading in the same direction as polio, Llanos said.

"Since routine vaccination began, the incidence of Hib disease has decreased by greater than 99 percent in children younger than five years old," he said.

Despite these well-known success stories, some vaccines still have a bad reputation -- especially the measles, mumps and rubella, or MMR, vaccine.

Certainly the possible secondary effects of measles alone, which include

diarrhea, ear infections, blindness, encephalitis (swelling of the brain) or pneumonia are enough to send most parents running for the immunization clinic. Some parents, however, are still afraid to give their child the MMR vaccine because of speculation it may be connected to autism in young children.

Parents should not skip this important vaccine, Llanos said.

"An increased number of cases of autism in the 80's was thought to be linked to the MMR vaccine, but at this time there is no proven scientific evidence that links immunizations with any neuro-development abnormalities," he said.

Vaccines do have side effects, but for most they are minor and may include tenderness, swelling, redness, itching or

bruising at the injection site or a low-grade fever, headaches or fatigue. More severe reactions like hives, seizures, breathing problems or loss of consciousness require immediate medical attention.

So the evidence shows that, like them or not, vaccines have played a major role in the development of an overall healthier and protected public.

Instead of dreading a stop at the immunization station after a well-baby appointment, parents might bring along medication to reduce fever for their child and medication to stop headaches for themselves. Vaccines may make for a long fitful night, but at least they shield children from deadly and debilitating illnesses.

Llanos encouraged parents who still have concerns to do their research, and if they still have questions, talk to their child's pediatrician.

"Parents should not fear vaccinations. (They are) a preventive measure," he said. "Parents need to be proactive."

Col. (Dr.) Mark Croley, chief of Pediatrics at Carl R. Darnall Army Medical Center agreed.

"If parents bring their children in for their well baby appointments, the primary care physician will make sure immunizations get taken care of," he said. "If parents have any questions we can address them."

Cause of autism is still a mystery

Continued from Page 1

present before age 3 years, and often are accompanied by abnormalities in cognitive functioning, learning, attention, and sensory processing."

Symptoms of autism can be minimal or severe, and they can vary dramatically from one child to another.

Autistic children may struggle to maintain or completely avoid eye contact, prefer to play alone, avoid cuddling or touching, have poor speech or communication abilities or not develop speech at all. They may rub surfaces repeatedly, have a heightened or lowered response to pain or display intense tantrums.

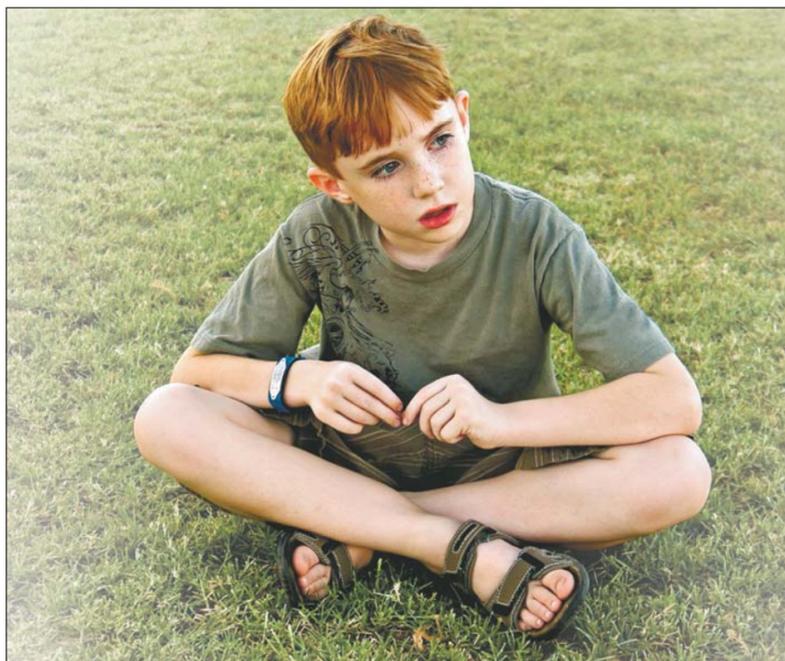
Other symptoms of autism may appear to indicate other disorders like Attention Deficit Hyperactivity Disorder, Tourettes, Obsessive Compulsive Disorder or Oppositional Defiant Disorder, which can make an accurate diagnosis difficult.

Studies show autism affects boys more often than girls.

The CDC reported one in every 70 males and one in every 315 females are diagnosed with ASDs by the age of 8. The same report said studies in 2002 and 2006 in sample populations show rates of ASDs diagnoses are on the rise.

"Of 10 sites that collected data for both the 2002 and 2006 surveillance years, nine observed an increase in ASD prevalence," the study said. "The average prevalence of ASDs identified among children aged 8 years increased 57 percent in 10 sites from 2002 to the 2006."

These statistics are certainly shocking, but the good news is doctors are getting better at identifying autism, said Col. (Dr.) Mark Croley, chief of Pediatrics at Carl R. Darnall Army Medical Center.



U.S. Army photo

The Centers for Disease Control reported one in every 70 males and one in every 315 females are diagnosed with autism spectrum disorders by the age of 8.

"You know, 20 or 30 years ago children who may have had autism were just considered different. There was no official diagnosis then. It may have always been there. We've just gotten better at identifying it and categorizing it," he said.

Unfortunately, the cause of autism is still a mystery. Some factors that have been considered are diet, digestive tract changes, mercury poisoning, poor vitamin and mineral absorption, or vaccine sensitivity, Croley said.

"A lot of things have been looked at, but researchers don't really know what causes autism," he said.

Croley stressed the importance of regular well baby check-ups especially if parents are concerned about their child's development.

"When parents come in they are usually most concerned about where their child is on the growth chart, but we're looking for developmental milestones like eye contact and babbling," he said. "Even with infants there may be warn-

ing signs."

While there is no cure for autism, there are treatment options for the symptoms Croley said.

"The mainstay treatment (for autism) is behavioral therapy because it reinforces behaviors we want to see and it helps desensitize them," he said. "There are other treatments too, like weight vests and medications for problems sleeping. Some parents also try special diets."

Doctors who suspect autism may ask the parents a series of questions about how they interact with their child, or they may provide a questionnaire designed to help determine if a child should be referred to a specialist for further testing.

Once a child is diagnosed with delayed development they may be referred to the Exceptional Family Member Program, or EFMP, Lisa Schimmels, a Carl R. Darnall Army Medical Center EFMP case coordinator said.

"The primary care manager is the first step. Then the Family should enroll in EFMP," she said. "The child will most likely then be referred to a developmental pediatrician in the local community for further testing."

Facing an autism diagnosis can be scary, but Carl R. Darnall Army Medical Center doctors and support services are here to support and guide Families through the process.

If you think your child may have autism or is showing signs of developmental delays talk to your primary care provider or contact Carl R. Darnall Army Medical Center's Patient Appointment Service, 254-288-8888, and request a well baby check-up.