

June 2, 2014

INSSC **This Week**



U.S. Army Garrison **Public Affairs Office**



Soldiers test skills, Army Mountaineering Kit against North America's tallest peak

Also inside:

2013 Department of Defense Thomas Jefferson & U.S. Army MG Keith L. Ware Award-winning Digital Publication



Publisher's Note

John Harlow
USAG-Natick and NSSC Chief of Public Affairs



Thanks and Congratulations!



I would like to open by taking a moment to thank [Col. Deborah Whitmer](#), the commander of the U.S. Army Research Institute of Environmental Medicine. Col. Whitmer will be relinquishing command of USARIEM on June 9, and I wanted to thank her for the support she has provided. Thanks for encouraging USARIEM's subject matter experts to tell their story. Godspeed as you head to your next assignment, and thanks for your service here at Natick.

This morning, Brig. Gen. William Cole, the NSSC commanding general, presented coins and one-star notes to employees of NSRDEC and ILSC who captured awards from the [Greater Boston Federal Executive Board](#). Congratulations to Christine Charette, winner of Outstanding Innovation in the Workplace (SAVE); Dale Tabor, winner of Outstanding Innovation in the Workplace (Initiative); and Melynda Perry, Specialty Employee of the Year. Congratulations to the finalists in the GBFEB awards, who include: John Walker, Duane Young, Beverly Lange, Kelly Mitchell, Dean Rogers, Frank Olejarz, William Millette, John Mahon, Jennifer Kovan, Ryan Mayfield, Steven Capelli, Daniel Gailor, Marie Belmore, CW3 Robert Rowland, Anne Marie Galiastro, Joseph Cooper and Kelly Field.

Congrats to everyone at NSSC for contributing to the clothing drive for veterans. We will have more in our next issue, but the contributions more than doubled what was donated last year. Thanks on behalf of the veterans for your kind-heartedness.

Coming up in the next couple weeks, your vehicle's struts and shock absorbers will be thanking you. The [Town of Natick](#) and the [Commonwealth of Massachusetts](#) will hold the groundbreaking of the reconstruction of Kansas Street. The groundbreaking is June 16.

NSSC will be observing the [Army's 239th birthday](#) on June 13 at 10:30 a.m. in Hunter Auditorium. Col. Collier Slade, the military deputy for the Natick Soldier Research, Development and Engineering Center, is the speaker.

Enjoy your weekend, and thanks for reading *NSSC This Week*.

John Harlow
USAG-Natick and NSSC Chief of Public Affairs

NSSC This Week

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About this newsletter

NSSC This Week is a biweekly newsletter covering NSSC news within the Army and commercial media.

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Art Direction by Philip Fujawa, NSRDEC Strategic Communications.

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On the Web: www.army.mil/natick

Cover photo: National Park Service

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Upcoming Events

NSSC SHARP Training

"Sex Signals" will be presented June 2 and June 3 at 9 a.m., 12:30 p.m. and 2:30 p.m. at Hunter Auditorium.

Sex Signals has become one of the most popular programs on sexual assault awareness among college and military audiences, personnel and educators.

For more information, please contact your training coordinator or SHARP personnel [Laura Capehart-Hall](#) at ext. 6922 or [Julie Lindahl](#) at ext. 6925.

Cruising Speed

Join the Civilian Welfare Fund for a Cruise to Bermuda, Aug. 28-Sept. 4, on Norwegian Cruise Lines.

CWF has 18 cabins available: eight mid-ship insides, \$797.78 per person; four obstructed ocean views, \$877.78 pp; two ocean view with porthole windows, \$927.78 pp; two mid-ship ocean view with picture windows, \$967.78 pp; and two balconies, \$1,157.78 pp.

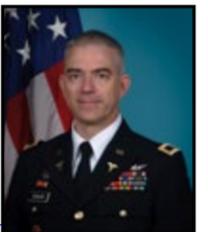
Travelers must have passports or passport cards.

Make initial reservations by Sept. 1 through [Janice Kopacz](#), ext. 4205.

Within the Gates

USARIEM Change of Command

Col. Thomas G. Eccles III will take command of the [U.S. Army Research Institute of Environmental Medicine](#) in a ceremony June 9 at 10 a.m. at the flagpole.



Eccles takes over from Col. Deborah Whitmer.

Above the Clouds

Seven Soldiers from [1st Stryker Brigade Combat Team, 25th Infantry Division](#), arrived at Kahiltna Glacier Base Camp here, May 21, in preparation for their ascent of [Mount McKinley](#), the highest peak in North America.

The [Fort Wainwright](#)-based team is prepared to spend 14-21 days ascending more than 13,000 feet in some of the most severe conditions in Alaska, in a test of their high-altitude and mountaineering skills, as well as the [Army Mountaineering Kit](#).

“(While) climbing McKinley, these Soldiers are going to live in unheated tents for about 20 days,” said Capt. Sam Palmer, 1/25 SBCT climbing team leader. “They’re going to learn arctic and cold-weather skills on a level no one else in their unit (had before), and they are going to be able to bring that depth of knowledge back (to the unit).”

Team members’ mountaineering skills range from having climbed McKinley last year, to skiing for the first time in March. Their training began three months ago and was designed

to ensure each Soldier would be prepared for this climb, regardless of experience level.

With their training behind them and the mountain before them, the team joked and laughed as they trekked across the snow, hauling their equipment from the plane to their camp, setting up tents and making preparations.

“The knowledge I’m gaining here and how everything incorporates in movement and being physical, I can bring that back to my unit,” said Spc. Joshua Sexton, a cannon crew member with [2nd Battalion, 8th Field Artillery Regiment](#). “We do a lot of training and snowshoeing and skiing, so taking that back and explaining to the guys, how temperatures work and elevation and how to move through it, that could be a big help to us.”

Although the Army has had teams climb the mountain since 1980, this is the first year they will be doing so relying completely on the Army Mountaineering Kit. In the past, the Soldiers have worn a mix of civilian and Army gear.

Changes in the Army’s cold-weather uniform, which includes silk base layers, windproof jackets and a soft-shell outer layer, make them fit for climbing McKinley, Palmer said.

In addition to clothing the Army Mountaineering Kit provides, the Soldiers will climb with anchors, ropes, ice axes, crampons and a variety of equipment to help them traverse the unique terrain they will face. The kits also feature avalanche transceivers, gadgets that send a locating signal out in case Soldiers are buried in an avalanche.

Upon returning to their units, the team members will share what they have learned from this experience with their fellow Soldiers and instruct them in how these skills can be used in any of the areas across the Pacific in which they may be called upon to serve.

“The expedition validates training procedures used to maintain readiness for operating in austere, high-altitude, extreme cold-weather environments,” said Lt. Col. Alan Brown, [U.S. Army Alaska](#) spokesperson.

Soldiers test skills, Army Mountaineering Kit against North America’s tallest peak

By Staff Sgt. Mylinda DuRousseau / MOUNT MCKINLEY, Alaska (May 28, 2014)



Photo: Staff Sgt. Mylinda DuRousseau

Natick tests lightweight, body-worn system

Helping Aircrews Keep Their Cool

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (May 29, 2014)

For years, helicopter pilots have kept cool by plugging into aircraft-mounted microclimate cooling systems, but their crews have used them less frequently to avoid becoming entangled in the tethers that connected them to the systems.

That's why researchers at the [Natick Soldier Systems Center](#) have been testing the "Light-Weight Environmental Control System," or LW ECS, a body-worn microclimate cooling system that allows crew members to move around inside the aircraft without tripping on tethers, and to exit the aircraft while still being cooled.

"Basically, it's a small refrigeration device," said Brad Laprise, a mechanical engineer with the Warfighter Directorate, [Natick Soldier Research, Development and Engineering Center](#), or NSRDEC. "It's the same technology that's in your air conditioner or in your refrigerator, except instead of conditioning air, it chills a fluid. And then it pumps that fluid through a tube-lined cooling vest."

The cooling unit is a cylinder 3 1/2 inches around that connects to a cooling vest and provides 120 watts of cooling. The vest has approximately 110 feet of tubing through which fluid can pass, and it is worn against a Soldier's skin. The system is powered by a plate-like conformal battery that can fit inside body armor.

"So we're hoping that this small, lighter-weight system would give them a lot more autonomy in the rear of the aircraft," said Laprise, "and to allow them to get the cooling when they need it."

Researchers from NSRDEC and the [U.S. Army Research Institute of Environmental Medicine](#), or USARIEM, working with Product Manager Air Warrior, have been

testing LW ECS at Natick's [Doriot Climatic Chambers](#). With the assistance of volunteers wearing MOPP 4 chemical-protective gear, they have been simulating 11-hour missions in desert and jungle conditions.

"We've been living in the desert for the last 20 years, but we also know that the Pacific Rim is the next area that we're looking at," said Bruce Cadarette, a research physiologist with USARIEM's Thermal and Mountain Medicine Division. "We've been providing microclimate cooling for the pilots ... for 16 years now. It made them be able to prolong their mission, their endurance time, and able to perform at a higher level."

The hope is that their crews will be able to realize similar benefits with LW ECS, without being tethered to an aircraft-mounted system.

"Right now we're looking at crew chiefs that have to load and unload cargo and maintain the cargo," Cadarette said. "They also have to sit as rear gunners in some of the helicopter frames."

"The other people that we're concentrating on ... are the medics, who have to fly out in the back of the helicopters and who have to go out and treat wounded in the field, load them onto stretchers, (and) get them onto the back of the helicopter."

Over two weeks, the five test subjects each took two turns in the simulated desert conditions and a pair in the jungle conditions – one using the cooling system and one without it – in the chamber.

"It's really a critical step, ... proving out the efficacy of this microclimate cooling technology and the capability that it provides," Laprise said. "If we don't have Doriot, we need to find somewhere else to do it, and I'm not

so sure there's a place in the world where we can do this testing. So it is absolutely critical that we have this capability here at Natick."

The cooling systems and the volunteers performed well, according to the researchers.

"We really haven't had any issues with (the LW ECS)," said Laprise, who looked at the fluid temperature before and after it passed through the system, and monitored flow rate. "By and large, they've been very reliable."

Cadarette said the same for the volunteers, who sat for 50 minutes and walked for 10 minutes each hour to simulate missions during which they would get off and back on the aircraft.

"A lot of the day is not heavy work, but for brief periods of time, they work very, very hard," Cadarette said. "Now you've got a battle between your muscles calling for blood in order to exercise and your skin calling for blood in order to cool off."

During the 11-hour sessions, Cadarette and his team monitored core and skin temperature, heart rate, and everything that went into or came out of the subjects' bodies.

"From our point of view, we monitor everything we can, physiologically," Cadarette said. "So now we know, are you doing better with the cooling?"

Cadarette has a great deal of data to sift through, but the early indications are that the LW ECS is making a difference.

"Physiologically, we're seeing that their body core temperatures are lower, their heart rates are lower," Cadarette said. "So far, what I'm seeing looks really good. I think we can show that the cooling portion of this does what we're asking of it."

Volunteers wear MOPP 4 gear during testing of a body-worn microclimate cooling system for the helicopter aircrew members in Doriot Climatic Chambers.



Photo: David Kampp, NSRDEC Strategic Communications

Heavy Load

Looking at Soldiers' physical, mental fatigue

By Alexandra Foran, NSRDEC Public Affairs / NATICK Mass. (May 30, 2014)

A new collaborative study at [Natick Soldier Research, Development and Engineering Center](#) looks at biomechanics and cognitive responses simultaneously to help determine how fatigue affects both the mind and body of Soldiers.

Researchers at NSRDEC are testing Soldiers as they complete a prolonged march while carrying a load totaling 88 pounds. The Army is developing future predictive models of Soldier performance, including load carriage.

“What we are striving to do with our current research is to identify the biomechanical markers at the onset of fatigue and supply data for validation purposes to analyze what happens to the Soldier over time during prolonged marching tasks,” said Dr. Leif Hasselquist, NSRDEC biomechanist. “In addition to the collection of biomechanical and physiologic data, we’re administering cognitive tests that will allow us to evaluate both the biomechanical and cognitive changes that occur over time during a march. This research is unique in that we are combining our traditional biomechanical tests with dynamic cognitive tests. This hasn’t really been done before – especially with Soldiers.”

Every Soldier’s peak VO_2 – maximal oxygen intake – is measured and used as a measure of his or her fitness level. During the studies, Soldiers are pushed past 50 percent of their peak VO_2 . This is the level of exertion used in this research to define the onset of fatigue for Soldiers.

Biomechanical and cognitive measures are analyzed to reveal how the Soldiers are changing their gaits and cognitive functions as they continue to fatigue. The first phase of testing, completed last year, involved Soldiers marching on a treadmill for a two-hour march, or six miles, at a four-percent grade uphill.

While continuing to analyze data from the first phase of the study, Hasselquist said that “our goals of achieving the onset of fatigue

were met. During that second hour, we see a creeping up in the energy cost over the 50 percent peak VO_2 levels.”

The second phase, currently ongoing, looks at recovery from fatigue. The Soldiers march uphill for one hour and then either descend at an eight-percent grade during one condition or march at varied grades during the second hour (uphill four percent, level and downhill eight percent).

NSRDEC’s biomechanics lab has unique motion-capture system and integrated force plate treadmills that allow scientists to record this data from Soldiers during prolonged load carriage. The lab can capture biomechanics and physiologic measures in a synchronized fashion.

“I like to say that Soldiers are like athletes,” said Hasselquist, “except athletes perform and they’re done. Soldiers have to do a six- to 12-mile road march and get in there, and then they have to perform, so you want them optimized. If we can find strategies to mitigate or predict how fatigue from load carriage affects the Soldier, our research will be helpful.”

“It’s a complete look at the Soldier, not just one segment, one task or one response at a time.”

Dr. Leif Hasselquist, NSRDEC biomechanist

Cognitive testing ranged from simple to complex tasks that looked at different brain functions throughout the march. During one test, Soldiers received audio cues of either AK-47 or M-4 fire. They then had to differentiate friendly fire from opposition fire and respond through a trigger switch on their weapons.

A visual task using state-of-the-art eye-tracking glasses monitored Soldiers’ eye

movements as they scanned environments for targets on TV screens. At detection of pop-up targets, the Soldier was required to respond as quickly as possible though the trigger switch. Response time and whether or not they were making the right choices were recorded.

“This is a synchronized evaluation of the Soldier in the biomechanics lab,” Hasselquist said. “It’s a complete look at the Soldier, not just one segment, one task or one response at a time. You get the whole picture of what’s going on with the Soldier.”

Markers are placed on Soldiers’ bodies, as in the video gaming industry, to build physics-based models of Soldiers through the motion-capture software. [Electromyography](#), or EMG, is also used and measures the muscle activity from the Soldiers’ muscles. Researchers are able to detect the intensity and fatigue in the leg muscles over time, and the cognitive responses during the march are overlaid on top of these results.

In the past, researchers looked at biomechanical, physiologic and cognitive studies separately. Now, NSRDEC’s study brings those key pieces together to improve the understanding of the science behind the Soldier as all of the data is captured simultaneously.

Information acquired in this study is critical for accurate representation of the capabilities and limitations of the dismounted warfighter in Soldier models and simulations. The data acquired will result in recommendations regarding existing and future load carriage strategies, route-planning tools, Soldier performance expectations, and improvements in designs of future load-carrying equipment.

It is the goal of the NSRDEC researchers to apply the current research strategies to a third phase of research. New technology in biomechanical sensors and cognitive measures will allow the Soldier’s biomechanics, physiology and cognitive responses to be captured outside the laboratory during field exercises.



A Soldier marches with full combat gear including body armor, a 50-pound rucksack, his weapon and a basic load of ammunition, at Fort Benning, Ga.

Photo: Eric Kowal, RDECOM

Monica Borgogno, a visiting food scientist earning her Ph.D. in science and agricultural biotechnology from the University of Udine, Italy, conducts consumer research on energy bars for NSRDEC.

A Bit of Italy

Scientist lends international flavor to Natick

By Jeff Sisto, NSRDEC Public Affairs / NATICK, Mass. (May 16, 2014)

Researchers at the [U.S. Army's Natick Soldier Research, Development and Engineering Center](#) are leveraging the unique perspectives of visiting international scientists through a program with the [U.S. Army International Technology Center – Atlantic](#).

The USAITC-A promotes cooperation between the [U.S. Army Research, Development and Engineering Command](#) and international researchers in order to advance broader science and technology knowledge as well as the technical capabilities for U.S. Army missions.

Based in London, the USAITC-A facilitates relationships with international partners by connecting foreign scientists and engineers with U.S. research organizations. One of those connections resulted in a collaborative research approach for several ongoing NSRDEC projects.

Monica Borgogno, a food scientist earning her Ph.D. in science and agricultural biotechnology from the University of Udine, in northern Italy, was accepted for a three-month stay with NSRDEC as a visiting scientist.

“My program encourages students to work abroad in the final year of their Ph.D.,” said Borgogno, who graduates in December. “It’s important to gain experience with how outside people work.”

When her professor told her about the opportunity to work with the U.S. Army, she

jumped at the chance to come to Natick.

“I knew it would be an honor to work with Dr. Cardello,” said Borgogno, referring to NSRDEC’s senior scientist, Dr. Armand Cardello. “He is known all over the world in my field.”

It would prove to be a mutually beneficial relationship.

Borgogno already holds both a bachelor’s and a master’s degree in food science and technology from the [University of Florence](#), Italy, and has experience working in the Italian commercial sector conducting quality control for Latte Trento, a dairy producer in that country. She has also worked in the development of olive oil, wine and ham.

“Monica’s background was a major factor in my support of her visit,” said Cardello. “She has tremendous expertise in sensory and consumer science, especially with regard to perceptual mapping of product spaces.

“This involves using techniques that enable us to understand how the consumer or Soldier perceives food products in terms of their similarities and dissimilarities to other products.”

During her three-month stay at Natick, Borgogno worked on three projects for the NSRDEC: the Macro-nutrient Optimized Dense Ration Components project, a study on the emotional response to foods, and another basic research study to understand how foods and meal situations influence a person’s sense of well-being.

As a specialist in sensory science, Borgogno used her expertise to determine the design and decision-making for experiments.

In the MODRaC study, Borgogno sampled and analyzed the perceptions of three flavors of energy bars developed by NSRDEC’s [Combat Feeding Directorate](#), compared to those of commercial energy bars. Subjects expressed their perceptions of the products by physically placing them on a large mat and arranging them so that the distances between them reflected the similarities and differences among them. This procedure produced a perceptual map from which differences in appearance, flavor, texture and overall acceptance can be discerned.

The results from the data Borgogno collected will guide further development and refinement of MODRaC products in order to provide an energy-dense, portable ration component capable of maximizing the warfighter’s performance.

“I hope my contribution will help the Army find the best way to determine what is needed in the energy bars,” she said.

In the emotion study, Borgogno examined the effect of emotion words on consumer responses using both the check-all-that-apply and rating response formats. Her analysis showed that both the total number of checked emotions (CATA) and the total number of non-zero ratings (rating) varied with the number of emotions on the questionnaire, signifying that the number of available emo-

Photo: Jeff Sisto, NSRDEC Public Affairs



tion words directly influences the number of emotions described by the consumer.

In the well-being study, the objective was to develop and assess different evoked meal scenarios to determine their ability to affect well-being regarding the physical, spiritual, emotional, social and intellectual domains.

“We performed focus groups to understand differences among the concepts of health, wellness and well-being to better understand the five dimensions of well-being, and to assess how foods impact each of them,” said Borgogno.

“These results will be employed to understand how different rations and meal situations could affect perceived well-being of American Soldiers and consumers.”

To Borgogno, the most notable difference in working here was the approach to the research.

“In Italy, the boss decides, and you do it,” Borgogno said. “Here, it is more collaborative. Everyone has a say. It is continuous involvement and improvement.

“Also, we didn’t have as many labs to develop prototypes.”

While the knowledge and experience she gained will undoubtedly propel her career, it is the people she met that made Borgogno’s stay most enjoyable.

“I love the people here,” she said. “If I needed something, they were always there to help.”

As the Army continues to operate in a con-

strained resource environment, Cardello said he believes engaging in more international partnerships will be of critical importance in addressing the challenges faced in future Army research and development.

“Only through such person-to-person, scientist-to-scientist communications and collaborations can leveraging of new ideas and approaches be made,” he said.

“Future breakthroughs on all major problems faced by the Army and by the international scientific community can only be made through the exchange of ideas and joint research.”

Researchers at the U.S. Army Natick Soldier Research, Development and Engineering Center's [Combat Feeding Directorate](#), or CFD, are investigating ways to incorporate 3D printing technology into producing food for the Warfighter.

CFD's Food Processing, Engineering and Technology Team, led by food technologist Lauren Oleksyk, is investigating possible 3D applications for food processing and product development. Team member and food technologist Mary Scerra is performing extensive market research to see what can be learned from the commercial sector.

The team is also looking into collaborations with the Massachusetts Institute of Technology's [Lincoln Laboratory](#). Scerra and senior food technologist Tom Yang, Ph.D., visited the Rapid Hardware Integration Facility at Lincoln Laboratory and met with experts to discuss the feasibility and applications of using 3D printing to produce innovative new military ration products.

CFD has an impressive history of inventing its own food, food technologies and processes serving the Warfighter. CFD also leverages and advances already available technologies through their partnerships with industry and academia.

"Many people are building or buying 3D food printers just for their specific application," Scerra said. "Some 3D printers have the hardware to attach a 3D scanner."

"The printer is connected to software that allows you to design what you want to build in layers. Say you wanted to print a candy bar – there are different cartridges that are filled with ingredients that will be deposited layer upon layer. The printer will switch the cartridges as needed as you build each layer. This is being done already. This is happening now," Oleksyk said.

A food revolution (or let them eat 3D cake)

"It is revolutionary to bring 3D printing into the food engineering arena. And to see in just a couple of years how quickly it is advancing, I think it is just going to keep getting bigger and bigger in terms of its application potential," Oleksyk said.

Oleksyk believes that her team is the first to investigate how 3D printing of food could be used to meet the needs of Soldiers. The technology could be applied to the battlefield for meals on demand, or to food manufacturing, where food could be 3D printed and perhaps processed further to become shelf stable. Then, the foods could be included in rations.

technologies to create nutrient-rich foods that can be consumed in a Warfighter's specific environment on or near the battlefield.

Nutritional requirements could be sent to a 3D food printer so that meals can be printed with the correct quantity of vitamins and minerals, thus meeting the individual dietary needs of the Warfighter.

"If you are lacking in a nutrient, you could add that nutrient. If you were lacking protein, you could add meat to a pizza," Oleksyk said.

"You could take into account your needs at that time. Say you were on a difficult mission and you expended different nutrients, while I was on base and didn't need as many nutrients — a printer could print according to what your needs were at that time," Scerra said.

"This technology does allow for that type of customization," said Oleksyk.

"It could reduce costs because it could eventually be used to print food on demand," Scerra said. "For example, you would like a sandwich, where I would like ravioli. So, instead of assuming everyone gets ravioli, you would print what you wanted, eliminating wasted food."

Forage and create a 3D-printed porridge

In the future, making something from scratch may have a completely different meaning.

A Soldier from the [U.S. Army Research Institute of Environmental Medicine](#) has been named [Army Medicine's](#) Soldier of the Year.

Spc. Travis Crook, a Biological Science Specialist with the U.S. Army Research Institute of Environmental Medicine, won the MEDCOM Best Warrior Competition that took place the first week of May.

During the weeklong competition held at [Camp Bullis](#), Texas, Crook competed against dozens of Soldiers from around Army Medical Command in a series of challenging events meant to test their physical and mental stamina, as well as their warrior task knowledge, to earn the title 'best of the best.'

"When they called my name, I just had a big smile on my face," Crook said. "It meant so much for me to win, because it means I can do what the Army needs Soldiers to do. Competing for Best Warrior was not just a onetime event; it's a lifestyle for me. That's the profession."

Crook said the competition consisted of the Army physical fitness test, weapons qualification, warrior tasks and battle drills, mystery events, day and night land navigation, obstacle course, a written exam with essay and a board. The culminating and most challenging event, Crook said, was a 12-mile road march that had to be completed in less than three hours while he wore a 35-pound ruck sack and full battle rattle.

"I was so tired, my boots were soaked like I had walked through water, but I knew what I had to do to give me the best chance of winning," Crook said.

It is this passion for being the best that immediately resonated with Crook's leadership.

"Specialist Crook's performance throughout all the events was nothing short of amazing," said Master Sgt. Miguel Chacon, the senior enlisted leader for USARIEM. "Hearing the news, I burst into a roar of pride. This is a Soldier that went out to prove he is the best warrior, and that's something I have great pride in, knowing we as an Army have prepared this Soldier and he is ready for anything that comes his way ... That's something we all should be proud of."

As for Crook, he is humble and grateful for all the support that others have given him throughout his preparation and the competition.

"There are so many people to thank from USARIEM, MRMC and ISR," Crook said. "All my mentors made sure I had every resource I



USARIEM's Crook named MEDCOM Soldier of the Year Moves on to Army Best Warrior Competition

By Kelly Field, USARIEM Public Affairs / NATICK, Mass. (May 13, 2014)

needed and they were always positive, which helped me the most. They trusted me to be successful and kept reminding me that they were already so proud of me, and for that I am so thankful."

Next up for Crook is to represent MEDCOM at the [Army-wide Best Warrior Competition](#) later this year, but for now he is taking this win in stride.

"Right now it is best to recover so I can really jump in. I want to be better than before, better than those I am competing against so I can be an example to other young Soldiers," said Crook. "I want to go there and be my best, because that's what the Army expects."

Printing Chow

By Jane Benson, NSRDEC Public Affairs / NATICK Mass. (May 30, 2014)

Will 3D revolution come to combat feeding?

"The mission of CFD's Food Processing, Engineering and Technology Team is to advance novel food technologies," Oleksyk said. "The technologies may or may not originate at NSRDEC, but we will advance them as needed to make them suitable for military field feeding needs. We will do what we can to make them suitable for both military and commercial applications."

It's already happening.

"Printing of food is definitely a burgeoning science," Oleksyk said. "It's currently being done with limited application. People are 3D printing food. In the confectionery industry, they are printing candies and chocolates. Some companies are actually considering 3D printing meat or meat alternatives based on plant products that contain the protein found in meat."

"We have a three-year shelf-life requirement for the [MRE](#), for instance. So, we're interested in maybe printing food that is tailored to a Soldier's nutritional needs and then applying another novel process to render it shelf stable if needed," Oleksyk said. "For example, we are looking at ultrasonic agglomeration, which produces really compact, small snack-type items. Combining 3D printing with agglomeration could yield a nutrient-dense, shelf-stable product. Another potential application may be 3D printing a pizza, baking it, packaging it and putting it in a ration."

Get your daily requirement of Vitamin You

Currently, most 3D printed foods consist of a paste that comes out of a printer and formed into predetermined shapes. The shapes are eaten as is or cooked. CFD food technologists hope to further develop 3D printing

"We are thinking as troops move forward, we could provide a process or a compact printer that would allow Soldiers to print food on demand using ingredients that are provided to them, or even that they could forage for. This is looking far into the future," Oleksyk said.

"If you have to forage, wherever you are, whatever environment you are in, and you forage for raw basic ingredients and you have access to a printer, you could make something out of the ingredients that you can consume. You wouldn't have to carry the ingredients," Scerra explained.

Oleksyk, who was a little skeptical when she first heard that 3D printers could be used to engineer food, now marvels at the possibilities.

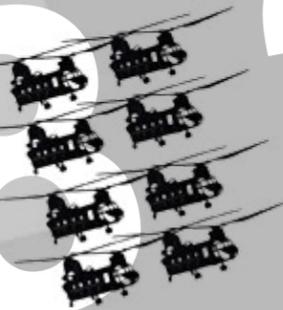
"I've been here long enough to see some of these 'no ways' become a reality. Anything's possible," Oleksyk concluded.

Know your HRVs

What's your MOS?

8

Chinook Repairers (15U)



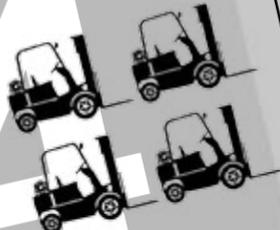
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Kiowa Repairers (15S)



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Supply Specialist (92Y)



Gender

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Female



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Male



Sports Rivalry?

4 Boston Fans

Why come to NSSC?

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Experience Boston



2

Interest in Science

4



4 New York Fans

Come put a face behind the word "Soldier" at Natick Soldier Systems Center!

You are invited to attend the 2nd Human Research Volunteer (HRV) Meet and Greet, June 5, 2014, 12:30-1:30pm at the Doriot Climatic Chambers.

Starting in early March, this class of HRVs began to arrive here at NSSC for a voluntary 90-day TDY. These Soldiers have selflessly volunteered to participate in studies that will better the lives of military members. Our 15 current HRVs would like to meet the workforce, to swap stories and learn how YOU support the NSSC mission.

We invite you to join in for a cup of coffee and a dessert and start a conversation with the newest NSSC team members. Please feel free to bring your favorite sweet snack!



Photo: David Kamra, NSRD/EC Strategic Communications

Pizza Taste Test like an HRV!

Combat Feeding and the Consumer Research Team will be conducting a taste test of newly developed MRE Pizzas! We want to know what you think of them and will have a 3-5 minute test session set up for you to evaluate the pizzas.

We will also have the wind and solar lights operating in the Tropic Chamber. This is a great way for the NSSC workforce to experience what it is like to be a Human Research Volunteer, if for only a moment.

2nd Human Research Volunteer (HRV) Meet & Greet
June 5, 2014 / 12:30-1:30pm
Doriot Climatic Chambers

Memorial Day 2014



2014

Photos: John Harlow, USAAG-Natick Public Affairs