# Navy Fitness Gets Operational

Lateral Squat
Low Alternating

**BY PAUL RAGUSA**
**Managing Editor**

OPERATIONAL PHOTOS COURTESY OF U.S. NAVY
NOFFS EXCERCISE PHOTOS COURTESY OF API.

Navy Fitness is about to embark on an unprecedented journey as it begins the arduous task of rolling out its new fitness and nutrition program, which aims to boost sailors' operational readiness, decrease injuries, and provide them with the nutritional resources and smarts to refuel and regenerate their bodies during long deployments at sea, whether in a submarine, on an aircraft carrier, or on shore. The new program, called Navy Operational Fitness and Fueling Series (NOFFS), was created by the Center for Personal and Professional Development (CPPD), and will be delivered to the fleet by Commander, Naval Installations Command (CNIC), the lead agency for the Navy Fitness program.

Born from sailors voices and needs, and developed and designed using a collaborative effort by some of the leading fitness, health and nutrition minds in the Navy and fitness industry, NOFFS introduces to sailors a new methodology of training and a new approach to operational readiness — one that has the potential to dramatically improve the overall culture of fitness in the Navy, across a population of over 300,000 sailors.

"The goal of NOFFS is to provide the Navy with a world-class performance training resource that offers specialized guidance to sailors, and Navy health and fitness professionals," says Capt. Jonathan Picker, CPPD commanding officer. "It was developed in partnership with Athletes' Performance Institute (API) (and input from over 750 sailors) to instruct individuals on ways to physically train safely and effectively."

Each of the four NOFFS series — subs, surface ships, large decks, and group physical training — is tailored specifically for each operational platform, with more than 90 exercises designed to replicate the activities that sailors are asked to do during daily operational routines, from pushing and pulling to lifting and carrying. Laminated exercise cards, with pictures of sailors themselves modeling each exercise, were created to eliminate any guesswork when providing a program in any operational setting. The primary components of the program are: movement preparation, multidirectional movement training, strength training, cardiovascular training, recovery training, nutritional fueling strategies.

"It combines human performance, injury prevention strategies and proper nutrition that will result

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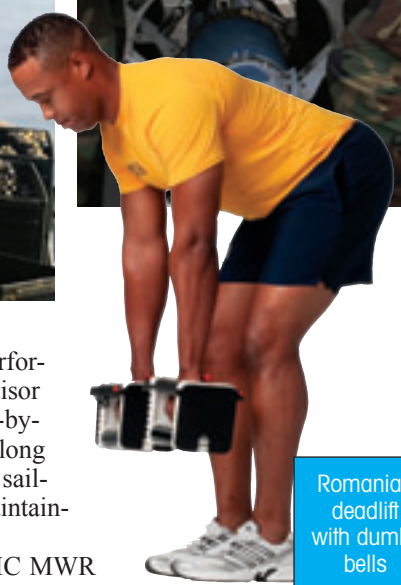


Romanian deadlift with dumbbells

in safer training and improve human performance," notes Diana Strock, senior advisor for health and fitness, CPPD. "The step-by-step instructions for each exercise, along with the demonstration photos, provide sailors with an outstanding resource for maintaining fitness in all environments."

Following the initial training of CNIC MWR fitness personnel, command fitness leaders (CFL) and assistant CFLs fleet-wide will receive training and indoctrination to ensure they implement the new exercises correctly at their individual commands. NOFFS will be a component of the education track that will be required by more than 6,000 CFLs and ACFLs Navy-wide by the end of 2010.

"We have a great opportunity here," notes Lisa Sexauer, CNIC Fitness, Sports and Deployed Forces Support program manager. "I think that we are probably the only branch of the services that has ventured to roll something out of this magnitude across an enterprise. This is going to be very hands-on in the field and that makes it much more relevant and deliverable at the deck plate."

According to CPPD's Command Master Chief Stephan Fontenot, "The initial responses to NOFFS from Navy-wide physical fitness, nutrition and operational experts have been extremely positive. The program was briefed at the Master Chief Petty Officer Leadership Mess, Fleet and Force Master Chief Conference, and the Enlisted Board of Advisors. Many have expressed great interest in getting NOFFS into the hands of sailors and commands to help them maintain fitness in all situations."

## DEVELOPMENT AND DESIGN

To get to the origins of NOFFS, one must look at the Injury Prevention research and findings that CPPD has accumulated over the past few years. Strock, who works as the program manager for Physical Fitness & Injury Prevention at Navy and Marine Corps Public Health Center, points out that some of the research and findings that NOFFS is based on comes from information that came out of the Joint Services Physical Training Injury Prevention Work Group.

"Out of the evidence of research that we have, one of the main areas to focus on are overtraining injuries, and running volume is a great example of that." she

notes. "Overtraining, caused largely by excessive distance running, results in higher injury rates, lowered physical performance, decreased motivation and attrition. Number two is proprioreceptive training, which is neuromuscular training or training body-movement skills — focusing on core body movement. A lot of times we train linearly; like performing a seated leg extension in one plane of motion. But NOFFS is multi-dimensional, multi-planer motion, which is how a sailor's body moves in the operational environment."

To help develop a program, CPPD partnered with API, an organization that is at the forefront in athletic performance, working with the best athletes in the world. The API in Gulf Breeze is a part of the Andrews Institute, which is renowned for its work with top athletes, especially in the area of injury prevention.

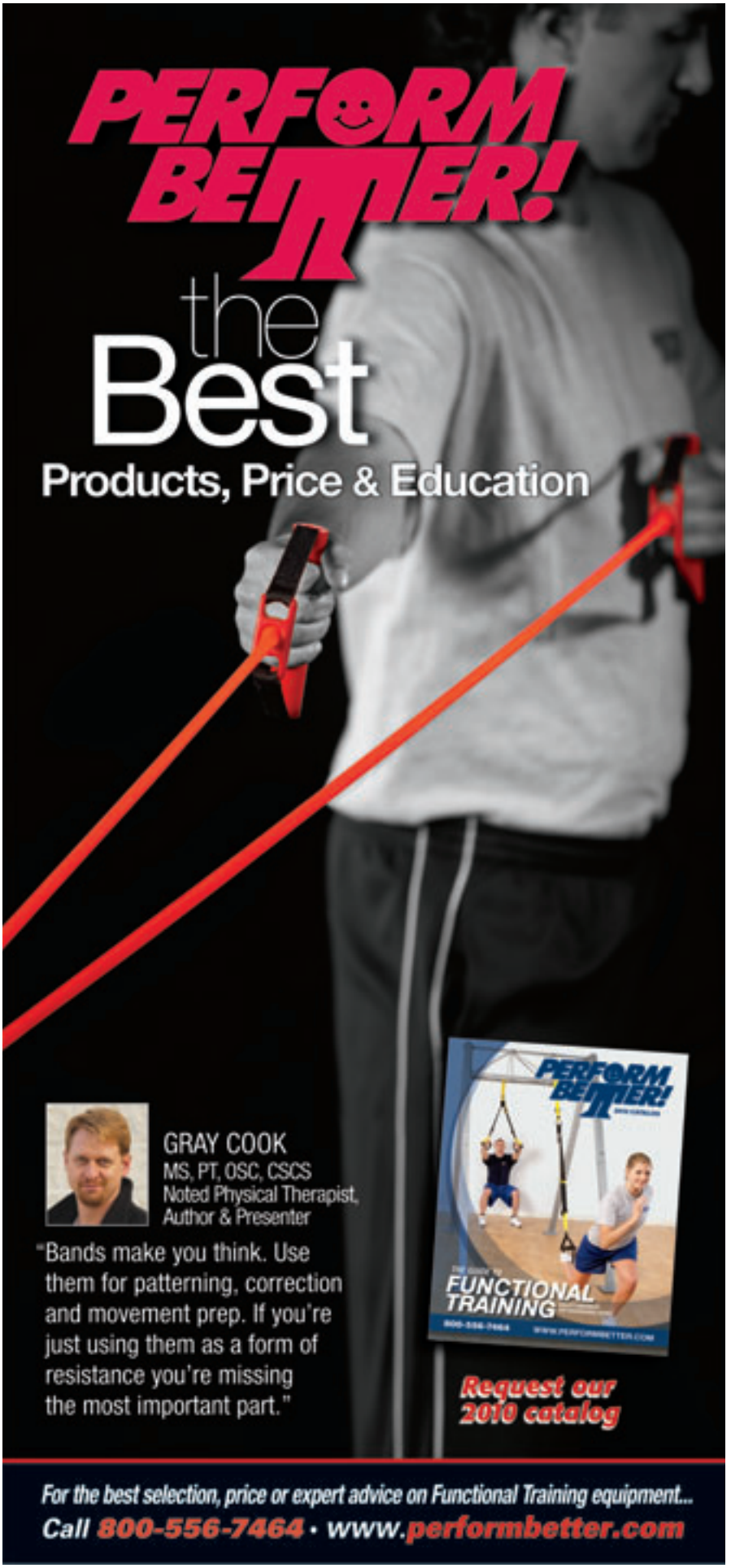
"Everyone at API was great to work with, and it was a partnership we really felt good about," says Strock. "They have a winning record and reputation, and they were really focused on the injury prevention piece, which was key. For example, the main person that I worked with down there when I went through the mentorship is a physical therapist for the L.A. Dodgers. So, this is tip of the spear."

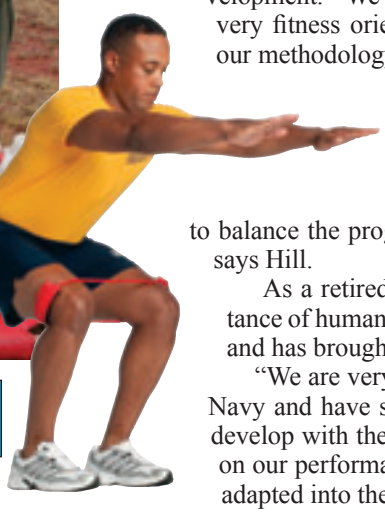
When doing the site visits and watching sailors work out on fitness equipment or doing their typical PT of just going out for a run, Strock says that she saw a lot of the same things.

"They were doing very little in the area of pillar preparation, which is important for physically preparing the body for movement," she points out. "Pillar preparation is injury prevention. It turns on the light switches in the body — the neuromuscular system. So the big thing behind NOFFS is that it is based on science."

For example, when Strock and the team from API did site visits and watched sailors do their PT, they were doing an enormous amount of anterior loading. "Part of what we do with the PRT is push-ups, stomach and abdominal crunches, and that's flex, flex," Strock points out. "They were doing very little to balance out the anterior (front of the body) with poster performance exercises."

CPPD and API worked with Navy personnel, including top level subject





Single leg squat with miniband

matter experts (SMEs), master-degree level physical therapists, athletic trainers, certified strength and conditioning specialists, and obtained input and feedback from more than 750 sailors during the many focus groups. During the design of NOFFS, site visits were done aboard numerous operational platforms, including the Los-Angeles class attack submarine USS Boise (SSN 764), the guided-missile destroyer USS Benfold (DDG 65), the guided-missile cruiser USS Princeton (CG 59), the Nimitz-class aircraft carrier USS George H.W. Bush (CVN 77), and the Red Rippers of Strike Fighter Squadron (VFA) 11.

"We've taken a top-down approach, as well as a bottom-up approach," notes Harold Hill, API director of tactical performance business development. "We knew that we wanted to do a program that was very fitness orientated but in the same turn we wanted to tie in our methodology that speaks to mindset, movement, nutrition and recovery."

In interviewing all the different ranks of sailors and officers, the NOFFS development team got a feel for what sailors liked in their program and what they didn't like. "You've got to balance the program with what they want with what they need," says Hill.

As a retired Army Special Forces soldier, he saw the importance of human performance within his own Special Forces ranks, and has brought that passion to API.

"We are very excited to have the opportunity to work with the Navy and have such a large impact Navy wide, and to be able to develop with them a program, a systematic approach that is based on our performance training system, and that would be able to be adapted into their environment," says Hill.

API Director of Performance Russell Orr points out that a big challenge was introducing this new methodology, because many of the moves are somewhat new to the Navy.

"This is operational fitness, which really means operational readiness," notes Orr. "When we looked at what the needs of the sailor are, from all the site visits, interviews, photos and surveys, and looked at the moments that happen on board a ship, we then were able to start to mimic those movements, in our movement design and development, to show that we can actually strengthen those movements to prepare the machine — the athletes or sailor's body — for their daily tasks."

Orr points out that the API methodology is based off of movement so everything is designed to improve movements that sailors are typically asked to do — squatting, lunging, single leg stands, pushing and pulling.

"We are basically looking at how sailors do those motions and we are going to try and correct inefficiencies and deficiencies to get them better in those patterns," Orr explains.. "We also took into account what they did and didn't have in terms of equipment, even the non-skid surfacing that they have on the decks, for example."

Strock points out that the program is truly based on feedback and input from the sailors. When the NOFFS development team went out to the different operational platforms, one of the things that they realized from sailors is that they wanted something that eliminates the guesswork, and is based on sound exercise-science principles that will help them operationally.

"They didn't want any more CDs or manuals," Strock admits. "We had put together beautiful manuals for muscular fitness, one for aerobic fitness, but they basically said to us that regardless of how informative and helpful these manuals may be, we just aren't going to take the time to go through all of them and put a program together."

The Navy spent six months worth of data collection and analysis and then curriculum development for NOFFS.

"Since the beginning it really has been about working together on all sides to make sure we put together the most effective product as possible," adds Kevin Elsey, API training systems and curriculum manager, who worked closely with the Navy on the development of the operational fitness piece.

"What they wanted was a simple and clear product that would guide them through the most appropriate movements, taking into consideration the space they had to work within, the equipment they had available, and their schedules — the time they had to actually do the movements," notes Elsey.

To meet the sailor's need for ease in use and accessibility, the NOFFS program features easy to follow exercise and nutrition cards. One nice touch is the actual use of sailors as the models for the 90-plus exercises available in the NOFFS series.

"We've eliminated the guesswork," notes Strock. "You pick up one of those cards and start with level one. And level one has four sublevels. It is a full packaged program that is tailored to each operational setting."

CNIC worked closely with API to make sure that the NOFFS program was able to incorporate the equipment avail-

able in the Fit Kits, which include three different resistance levels of tubing with handles on each end, lex-loops (similar to mini bands), an exercuff, and stretch straps.

"We worked with SPRI, the fitness equipment provider for the Fit Kits, to make sure that the equipment could handle the rigors of the NOFFS program," says Elsey. "So, with the Fit Kits, dumbbells and a bench, which we found are readily available at every location and operational platform, you can do a phenomenal amount of work, and we incorporated all of this in the NOFFS program."

**PUT TO THE TEST**

As part of the development process, the program was put to the test during numerous SME reviews (over 30 groups). The beauty of the SME review was that it connected with all primary organizations in the Navy to provide input and SME review.

"These are our Navy's best," says Strock. "And they are asking us — and this is one of the best examples: 'Why are you strapping mini-bands around the quads for the squat? That is not traditional; that is not normal.' What we found was: A lot of people have weak glutes, and if you look bio-mechanically at how people are doing squats, there glutes aren't firing. So, in order to teach a sailor the neuromuscularly correct form for doing this properly, we put that mini-band on there and as their legs keep that mini-band up, they are going to fire their glutes, which stabilizes their back, i.e., injury prevention."

She points out that if you look at injuries to a sailor, they are usually in the knees and back.

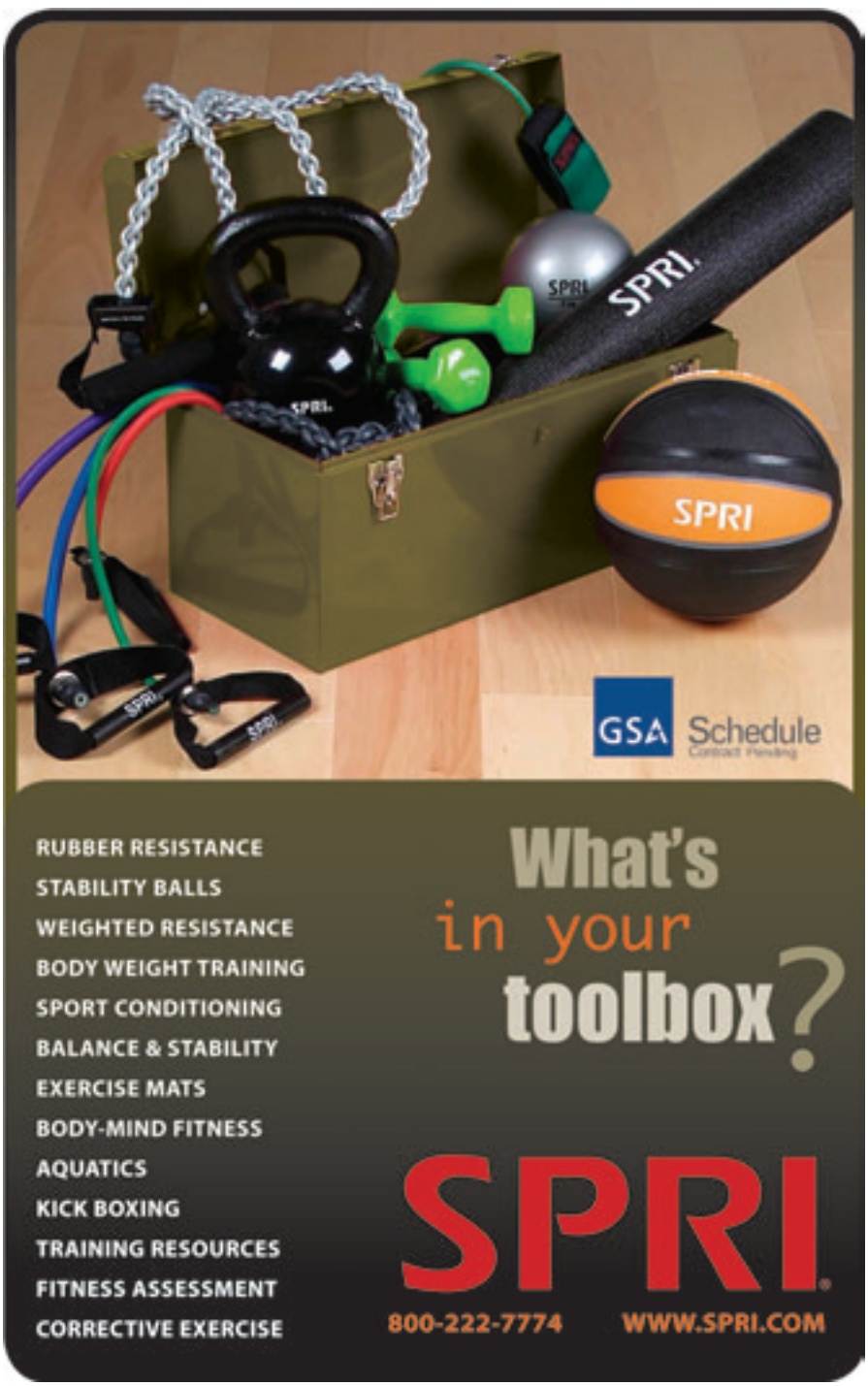
"Spinal biomechanics is critical," says Strock. "And API partnerships are state-of-the-art in this area. API is working with the University of Waterloo — Dr. Stuart McGill, for example — one of the pioneers in spinal biomechanics."

Athletes' Performance, the Andrews-Paulos Research and Education Institute biomechanics lab, and University of Waterloo Department of Kinesiology recently conducted groundbreaking research with the cooperation of the Pensacola Fire Department. The objective was to better understand the effect that individualized movement-based coaching can have on preparing firefighters to meet the physical demands of their job while also reducing their potential for injury.

This is what makes NOFFS so specific to the Navy, as it takes a functional approach, using injury prevention exercises that are tied directly to what they are doing operationally. One good example of injury prevention is the lack of traditional crunches in NOFFS.

"We have an enormous amount of core training — core exercises and movements — but it is just not the traditional crunch or sit-up," says Strock. "Dr. McGill has found that the load of a traditional crunch is pretty high to extremely high. So you want to decrease the compression load on the lower back area, and some other exercises will do that and give you a very intense workout without risking injury."

Aerobic and anaerobic conditioning is another important part of



NOFFS. Cone drills, for example, in the large deck series, provide challenging levels of workouts tailored to the flight decks of aircraft carriers. Body movement skills are also an important aspect of the program, and this is where creating muscle memory is so critical for sailors, who will be asked to do these movements as part of their daily duties.

"This one gets so overlooked in the military community," says Strock. "It is not a primary component of fitness but is a critical movement skill. When we did the Joint Services Physical Training Injury Prevention work group and looked at and analyzed weaknesses by evidence, one of the top three areas to focus on was proprioreceptive training or kinesthetic awareness, which is knowing where your body part is and being able to accommodate when you are making movements."

One of the things that Strock likes about the API performance-training model is that it looks not just at the athlete in action but at the entire "cradle-to-grave approach."

Kneeling Press with Band

## OPERATIONAL FUELING

The Operational Fueling series was developed in very much the same manner as the Fitness series, and equal time was spent at site visits, in meetings with SMEs, and talking with sailors.

"It is important to find a balance between fitness and nutrition, which is why we wanted to create a fueling series as well," says Strock.

CPPD worked with NAVSUP, CNIC and API to develop a program much the same way the fitness series was. When they did the focus groups they got basic questions like, "What is a portion size?" and "What are the best foods to eat?" To address some of these concerns, the series covers everything from portion sizes and meal planning to the 80 percent, 20

*— Continued on page 45, NOFFS*

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percent rule and performance nutrition.

"It really is hands-on training that they can use on their own," says Strock. "A lot of people don't know that the main part of your nutritional recovery comes 30 minutes from when you work out and no one has told them that. The golden window is ten minutes."

CNIC Performance Enhancement Dietician Chris Halagarda and NAVSUP dietitian Jen Person were the leads for the fueling series, and worked closely with API, as well as other nutrition experts, culinary experts and the Navy to create this companion to the fitness series.

"The main message that we wanted to get across is that we wanted sailors to see food as fuel and nourishment, and not just as single nutrients, vitamins or minerals," says Halagarda. "With such a focus on supplements in our population we want them to focus on food and not worry about just protein or vitamins. A good diet will help you with all of that and will provide you with the fuel to train and recover effectively."

During site visits and speaking with the sailors, the NOFFS development team got a lot of great feedback on what they were looking for from a nutritional program, according to Amanda Carlson, API director of nutrition and research. "When we first started out, before we met with the sailors, we thought we would be asked a lot about high-level nutrition and supplementation but what we found was that what they wanted was some good foundational nutritional principles to follow," she notes. "So the whole program was driven by the needs of the sailor."

Carlson says that as a truly collaborative effort, the goal was to get everyone on the same page with the same foundational information, and then take it one step further with the meal builder system for sailors, which helps them to start to think about how to build meals that are specific to them.

"The Fueling series is a really important companion piece to this, because oftentimes we only focus on fitness," says Carlson. "But you can really use nutrition as your training partner, and I am hoping that by creating a fitness and fueling series together, that it will have a positive impact. The nutritional content that we put together was truly driven by the voices of the sailor, and we are really excited that it is mirroring the fitness series, because it gives the sailors all the tools they need to reach their particular goals."

The fueling series will be rolled out concurrently with the fitness series.

## EXECUTION AND DELIVERY

CNIC Fitness, which oversees all Navy shore installation facilities, staff and programs, as well as afloat fitness personnel who deploy aboard the ship, worked as SMEs during the development of NOFFS, and is the lead on delivering this across the fleet. OPNAV 135 Physical Readiness Division will provide the initial guidance to CFLs.

"NOFFS is a good program that provides a different methodology for training," says Sexauer. "It also provides a more scientific approach than a lot of other off-the-shelf programs that are available out there. So, sailors who are looking to find something that is already mapped out and laid out for them, we feel like this is more appropriate to our environment than anything else that they may be able to find out there."

Currently, CNIC is completing the planning process for rolling out the NOFFS program, and meeting the difficult challenge of training MWR fitness professionals in this new methodology.

"The first step will be to roll it out with the MWR fitness professionals and then they will be able to bring it back to their installations, and reach out to their CFLs and ACFLs," says Chad Quinn, the Navy's new Fitness program manager. "We have five, one week-long training sessions planned at sites all over the world."

The Navy hopes to have its professionals trained in NOFFS by mid-June.

"Once these folks return to their installation armed with this knowledge and info, they can market it to their CFLs and ACFLs," notes Sexauer. "There will also be some Web-based applications that sailors will be able to tap into and download the product or their workouts, and they will be able to locate a NOFFS trainer on the Web. We are also building a Navy Fitness Facebook page, which won't be solely for NOFFS but will be a site to find all things Navy Fitness, including NOFFS resources and info."

By mid-June CNIC hopes to have about 120 trained MWR professionals, one from each installation across the Navy, who will be able to lead sailors in the NOFFS program, and be able to train CFLs and ACFLs to lead NOFFS at their command.

"We will be providing the program initially with hard copy material (cards) and then downrange sailors and commands will be able to utilize our Web resources and tools to utilize the product," notes Sexauer. "We already provide a pretty amazing infrastructure from the standpoint of fitness professionals, fitness equipment at both shore-based and afloat commands, all of which will help support this program and to roll it out effectively."

She points out that the NOFFS exercise cards will be laminated, printed and distributed to all shipboard and afloat commands, along with a small supply of Fit Kits to be kept in a centralized location to be checked out for use. There will also be some laminated cards at each of the shore installations that can be checked out and used for NOFFS. The sailors can download a portion of a series or an entire series for themselves if they want to online. In addition to the Fit Kits, CNIC is also putting a group exercise kit together for NOFFS.

"We only provide Fit Kits to shipboard commands with limited equipment availability or space-confined environments," says Sexauer. "We will not supply for our shore installation command and our ground-based commands, although they will be able to purchase the kits from the vendor."

The biggest challenge for CNIC, notes Sexauer, is delivering NOFFS at the deck plate. The goal is attainable but Sexauer realizes that reaching the entire Navy population is a tremendous challenge that will take time.

"We do hope that there is a groundswell reaction among sailors," she says. "I see the opportunity with young sailors who adopt this as their personal fitness system. We are currently developing an iPhone app for this as well. Our vision is that sailors will see this as a really cool kind of workout and it will take hold in the younger community."

"Our hope is that everyone takes in the concepts, actually applies the concepts and keeps up with them," adds Quinn. "It has great potential for the sailors and the Navy in general."

—GRF