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Full Speed Ahead

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Five years ago, the Naval Center for Combat & Operational Stress Control was created to help address the growing instance of stress and psychological illness among Sailors and Marines brought on by the long wars in Iraq and Afghanistan. From facilitating important research to promoting resilience, NCCOSC plays a significant role in the psychological health of our Sailors and Marines. I am proud and honored to lead such a wonderful organization of people who care so deeply about the men and women who serve our country.

Upon our fifth anniversary, we've had a chance to look back at some of the best practices we've developed to increase psychological force readiness. We've taken part in numerous studies that will inform the Navy's psychological care in the years to come. We've developed Psychological

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Health Pathways (PHP) – bringing mental health care to the digital age. And of course, we've continued to bring Operational Stress Control (OSC) awareness and resilience techniques to the fleet wherever and whenever possible.

Recently, we've pivoted to a new approach for delivering OSC and Resilience to the fleet. Recognizing the effectiveness of both the OSC training and NCCOSC's Resilience program, we decided to combine the two. The combination of OSC and Resilience aims to drive a culture change by raising awareness about stress-related psychological issues and the means to treat them, and providing Sailors and

Marines with resilience-building techniques that improve job satisfaction, unit cohesion and personal well-being.

When the commanding officer of the USS Boxer requested OSC training, the NCCOSC team went aboard to conduct a two-day train-the-trainer event. Day one featured NCCOSC subject matter experts teaching the components of OSC, Resilience and Post-deployment Reunion and Re-integration to designated senior enlisted and officers. On day two, we conducted a roundtable discussion of the course components, training and education best practices, and program and training implementation tailored to the Boxer.

By employing a "train-the-trainer" model, we believe that OSC and Resilience training can be exponentially spread to the fleet by creating organic champions within commands

who can recognize and address stress issues as they arise. The program and training have been positively received and early feedback indicates the program and implementation have been successful. In the five months since the training started, more than 1000 Sailors

and Marines have been trained in OSC and Resilience principles across the Boxer Amphibious Ready Group.

NCCOSC will continue to research and develop additional best practices to improve psychological force readiness, like the Stress Resilience Training System app, which you'll read about inside this issue. We're very proud of our contribution to the great strides made in the prevention of, and care for the mental health issues of our Sailors and Marines over the last several years, and are excited to continue to "move the needle" on psychological health in the years to come. 📧

There's an App for That

Can a new app train Sailors and Marines to physiologically control stress? The Defense Advanced Research Projects Agency (DARPA) and the Office of Naval Research (ONR) hope so, and have enlisted NCCOSC to conduct a study on the effectiveness of the Stress Resilience Training System (SRTS) as a training tool for regulating stress and optimizing performance.

The app, deployed via iPad, not only teaches users about stress and its effects, but also trains them to achieve “HRV Coherence,” a term describing optimal heart rate variability. Heart rate variability (HRV) is the variance in time between heartbeats; HRV Coherence means a strong and regular pattern of variability. Recent studies have shown that having high HRV Coherence allows individuals to reduce the adverse effects of stress and think more clearly in stressful situations.

SRTS teaches Sailors and Marines how to achieve high HRV Coherence through a series of tutorials and video games. The app's aesthetically pleasing layout – featuring black and white photographs depicting Navy life – is broken down into four sections that develop the user's understanding of stress before teaching techniques to help reduce it.

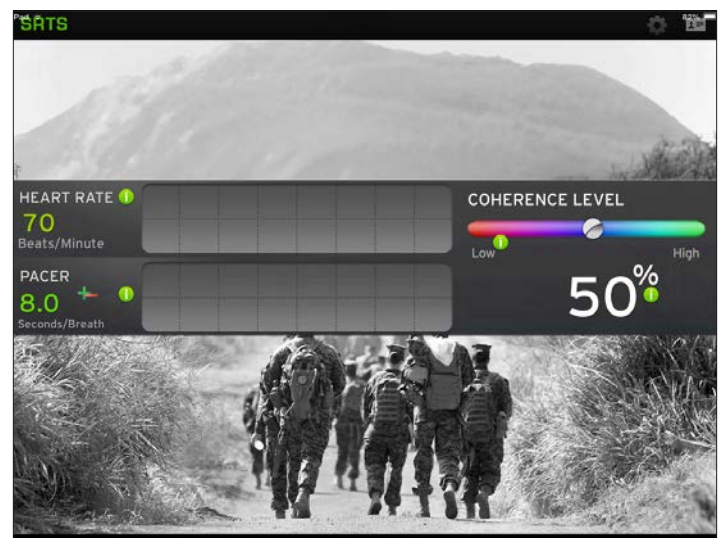
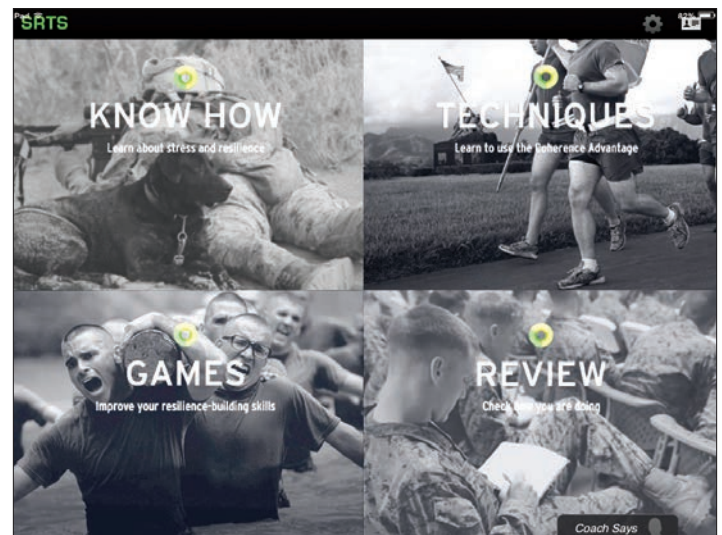
Know How, the first section, teaches users about stress, its positive as well as negative effects, how to recognize it and how building resilience can mitigate its negative effects and increase performance, personal well-being and unit cohesion. The next section, *Techniques*, delves into the concept of HRV Coherence, its impact on regulating stress under duress and attaining optimal performance, and how to achieve it. After completion of the tutorials, users take narrative based quizzes to gauge comprehension.

The third section, *Games*, trains users to improve their Coherence by providing feedback. Using a heart rate sensor that attaches to the earlobe, users watch a “pacer” that helps them get their breathing in an optimal rhythm and watch their heart rate variability respond through both a heart rate graph and a Coherence slider with a number display. The objective is to raise your Coherence level into the “green” zone (75-100%). The SRTS feedback allows users to see, in real time, how they can affect their neurophysiology.

Once basic training is complete, it's time to move on to the actual games in the third section. The old adage about walking and chewing gum at the same time applies here – the games force users to concentrate not only on their breathing, but also on what is in front of them on the screen. The games become more difficult as Coherence drops, and easier as it rises – recreating the

way stress works in real life. Stressful situations tend to build on themselves – if a person under duress cannot control his or her stress, the stress tends to get progressively worse.

The final section, *Review*, displays metrics on the user's performance, identifying areas for improvement and encouraging users to continue their training.



Top: The SRTS app home screen. **Above:** SRTS features a heart rate monitor and “pacer” that helps users improve Coherence through breathing. **Right:** A Sailor plays one of app's games. The games challenge users to maintain measured breathing while concentrating on maneuvering through a series of obstacles. Photo by Joe Griffin.

Like anything else in life, practice makes perfect. The SRTS app is designed to be used consistently not only to learn how to achieve Coherence, but also to routinely practice optimizing physiological and psychological performance. But does it work?

NCCOSC is currently conducting a study to determine the app's effectiveness when compared to similar techniques like Progressive Muscle Relaxation (PMR) for regulating stress. The study uses an experimental research design in which Sailors and Marines are randomly assigned to one of three conditions: the iPad-based SRTS condition, an iPad-based PMR condition, and a wait-list control condition (wait-list controls receive the iPad-based SRTS program following the two-month assessment).

Participants receive training and are issued iPads with either the PMR or SRTS applications and are encouraged to use the self-paced program twice daily for eight weeks. Assessments are conducted at the beginning of the study, and at two and four months. The study asks participants to self-report levels of post-


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traumatic stress, sleep quality, depression, anxiety, stress, combat exposure, unit support and quality of life. Participants are also asked to self-report on how often they use SRTS or PMR.

Preliminary results from two Navy commands indicate that, as compared with wait-list controls, SRTS condition participants experienced a significant decrease in both depressive symptoms and perceived stress and a non-significant increase in response to stressful experiences. While PMR participants also showed improvement in these areas, the increase was not as significant.

The SRTS group also used the app about two and a half times as often as the PMR group, perhaps suggesting that the SRTS “game” format will entice Sailors and Marines to use the app more frequently than they would a more traditional technique, like PMR.

SRTS does not require a connection to the Internet – making it available for use practically everywhere. This availability, combined with the app's game format, give it the potential to reach a larger number of Sailors and Marines than conventional methods.

“We’re increasingly looking for ways to leverage technology to improve psychological force readiness,” said Capt. Scott Johnston, director, NCCOSC. “The technological boom of the last decade has created an opportunity to fundamentally change the way we create awareness of psychological issues and execute mental health care. Going forward, NCCOSC will continue to identify and evaluate technological solutions, like SRTS, to strengthen our Sailors and Marines and ensure a ready and resilient fighting force.” 



The Unique Mental Health Issues of Reserve Forces

Nearly 900,000 National Guard and reservists have deployed to conflicts over the last 12 years. While they serve under the same conditions as active duty troops, National Guard and reserve forces face very different challenges.

When one joins the armed services, he or she dedicates a great deal of their life and identity to the military. They still have family members, a community and friends outside of the service, but military culture permeates every aspect of a reservist's life.

Those who join the reserves or the National Guard sign up for what is essentially a part time job. When they are called up, however, this part time status changes abruptly. Existing social roles are replaced by a full time identity as a service mem-

ber. Adding to this abrupt life change, National Guard and reservists are more likely to be broken out of their units and transferred into others, leading to weakened unit cohesion during deployment.

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Deployment frequency has increased for National Guard and reservists, while the span of time between these increased deployments has gotten shorter. Reservists and National Guard troops are actually more likely to have been deployed repeatedly than their active duty counterparts. Unsurprisingly, these realities have had some undesirable effects.

Post-Traumatic Stress Disorder (PTSD) and depression are two of the possible negative mental health outcomes of


deployment. Sometimes, alcohol misuse or aggressive behavior occurs along with PTSD or depression. When returning service members were screened for these issues at three months and 12 months after deployment, the active duty group had the same amount of issues at three months as they did at one year. The National Guard and reservists, however, showed an increase in these problems between the three month and the 12 month screenings, meaning they were more likely to have a delayed onset of mental health issues compared to their active duty colleagues.

One particular problem – unique to reservists and National Guard deployed troops – is returning to find significant problems in their civilian workplace. The more that returning troops and reservists struggled with financial hardship, job loss, employer support and the effect of deployment absence on co-workers, the more likely they were to have problems with depression or PTSD.

While National Guard and reservists are eligible for Tricare Reserve Select, they do not have access to military treatment facilities when they are not on orders. Also, they tend to live in wider geographical areas than a contained traditional military community. National Guard and reservists who seek mental health care post-deployment may have difficulty finding qualified care providers in their own communities.

Steps have been taken, however, to address these issues. The Navy and Marine Corps, for instance, each have Psychological Health Outreach Programs (PHOP) that ensure reservists and their family members have full access to appropriate psychological health care services to increase resilience and facilitate recovery. PHOPs, developed by the Navy Bureau of Medicine and Surgery (BUMED) in 2008, are set up by region and offer Behavioral Healthcare Screenings (BHS), resource

and referral services, demobilization outreach, 24/7 telephone assistance and more.

Recognizing the unique issues faced by reservists and developing care and prevention options to address those issues will be necessary going forward to ensure a ready and resilient fighting force in the years to come. 

On the Cover: Quartermaster 3rd Class Larissa Mejia Castillo assumes her post aboard the Arleigh Burke-class guided-missile destroyer USS Stockdale (DDG 106). U.S. Navy photo by Mass Communication Specialist 2nd Class David Hooper.

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