

Stress and Physical Performance

Transcript: U.S. Army Directorate of Prevention, Resilience and Readiness Outreach Webinar

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Presenter:

Whitney Tramel, MS, CSCS*D, TSAC-F*D

Lytaria Walker: [00:04](#) Welcome to the Directorate of Prevention, Resilience, and Readiness Outreach webinar for August. At this time, all participants are in listen-only mode. However, you may ask questions at any time by placing them in the Q&A box. There will be several opportunities for questions throughout the webinar, and we should have some time at the very end as well. Please note the views of DPRR Outreach webinar presenters are their very own and are not endorsed by the Department of the Army or the Department of Defense. This month, our guest is Ms. Whitney Tramel. Ms. Tramel has a BS in Movement Science and Kinesiology from Texas Christian University and an MS in Sports Medicine Strength and Conditioning from the University of Colorado. She is also pursuing a PhD in Health Sciences and Medicine from Bond University in Australia. Tramel helps coordinate and develop educational resources in curricular related to each domain of Total Force Fitness, TFF. As a strength and conditioning coach and researcher within tactical populations, she is experienced in developing and implementing research-based practices for making the most of all areas of human performance for Service Members. Tramel is currently a senior health education administrator at the Henry M. Jackson Foundation for the Advancement of Military Medicine, which is a part of the Consortium for Health and Military Performance, also known as CHAMP. Ms. Tramel, thank you for joining us this morning, ma'am. Take it away.

Ms. Whitney Tra...: [01:51](#) Thank you so much for the presentation. I'll be presenting today on stress and physical performance. I've had a couple of internet connection issues this morning, so I'm definitely hoping that doesn't affect the presentation. But without further ado, I will hop into it. Most importantly here. Well, here we go. Starting off, disclosure information. As mentioned, the opinions expressed in this presentation are that of myself and not that of the Uniformed Services University or the DoD. The contents in this publication are that of my own, and I have no financial interest or relationships to disclose. These are the objectives of this presentation and the things that we're going to go over:

we'll start with reviewing and defining stress. Some of you might be familiar with what stress is, especially if you are an MRT or work with those individuals.

- Ms. Whitney Tra...: [02:50](#) I'm trying to find a good balance between reviewing it for folks who know, and then giving a solid definition for those who maybe do not know. We'll identify stressors that Service Members face, both on the job and outside of the job. We'll talk about the impact of stress and the job demands that we face on our physical fitness measures and task performance on the job. We'll go into stress optimization, how we can optimize stress and the impact that our physical fitness has on our stress. Lastly, we're going to tie in those five dimensions of personal readiness from the Directorate of Prevention, Resilience, and Readiness. I'm going to start this presentation off with a question for you. If you're not familiar with Poll Everywhere, the way this works is, on the next slide, a link will pop up, or you can choose to text in, and you can choose to be anonymous as well.
- Ms. Whitney Tra...: [03:48](#) If you do use the link, make sure you just keep that same browser open the entire time, as the whole presentation will populate. If you choose to text in, just text to the same number each time. That way I can get your answers in each one. So we'll go on to this first question here: What is the most common stressor that Service Members face? This can be both in the job and outside of the job. If you want to go ahead and put in some answers here. If you want, you can choose to include just on the job or just outside of the job, or you can do both as well. Hopefully those will begin to populate. There we go. Sleep deprivation is huge. I hear that one a lot.
- Ms. Whitney Tra...: [04:46](#) Yes, there are bills and financial stress that is involved. Workload, very much so. Whether it's a physical job or an office-related job, the workload can be a big stressor. School. Those of you that are in school while doing this, I can relate. Time management, lack of predictability. Good. When you have a family, that can definitely make things challenging. Changes in leadership. You never know who you're getting until you get them, and then you never know how things are going to go sometimes. For the sake of time, we'll cap it right there. I do have a couple more of these questions throughout the presentation, so I'll allow about a minute for each one for these answers to come in. But thank you. A little bit of background here as we get into it.
- Ms. Whitney Tra...: [05:50](#) As you know, Service Members are exposed to high-stress training and work environments, both physically and mentally. The stressors that we face can have a negative impact on

performance characteristics that are critical to the job that we must carry out. The smallest decrease in performance could potentially be life-threatening, not just to individuals, but the others that are around them. As far as more of the physical roles go, tasks may include, but are certainly not limited to: maneuvering unpredictable terrain; periods of heavy or prolonged load carriage often ranging from 10 to 45 kilograms, and sometimes even more for long periods of time; disaster response; evading human threats; evacuating casualties; combat simulations; and then there's often these field trainings that we have that can be anywhere from one day to sometimes weeks in length.

Ms. Whitney Tra...:

[06:48](#)

We'll talk about how different acute or more long-term stressors can affect us. I also recognize that not all Service Members work physically demanding jobs or are physical grunts. Also, it's very important to note that there are stressors that Service Members may face if you work more of an office or intel-related role. Some of those tasks may look like excessive workload, like a couple of you mentioned in that question that I asked in the beginning; lack of support or control or changes in leadership; pressure from the top down; cognitive tasks; peers or coworkers, stress from them; and work-life balance, like was mentioned in the answers there. I mean, oftentimes these folks are mostly sedentary, which can lead to irritability sometimes, and when we're irritable, we're going to respond more negatively to things that are happening in our lives.

Ms. Whitney Tra...:

[07:40](#)

As we continue to move forward throughout this presentation, the main questions that I want you to think about are: What impact do stressful tasks and environments have on tactical personnel? Can this be mitigated, or can we at least better prepare the individuals for the environments that they may find themselves in? What is stress? How can we define stress here? Hans Selye was really the first to define stress, and he proposed that it is present in any individual throughout a period of exposure to a non-specific demand. Stress implies that there's been a disruption to an otherwise normal environment, or there's an existing imbalance that is there. We have eustress and we have distress here. It's important to note that stress is very relative to the individual's perception of what is deemed a stressor.

Ms. Whitney Tra...:

[08:34](#)

One person may find an event to be highly stressful, while another person may find that same event is not stressful at all. It's relative to the individual's perceived ability to either control or modulate the stress response and maybe what resources they might feel that they have available or don't have available

to respond to the stressor or manage the stress that they're experiencing. So, eustress and distress here, like I said, I really want to emphasize the perception of stress, and how we perceive it is really going to play a big role into the stress response that we experience. Eustress, we would typically define as good stress, which elicits a positive response in the body, and the brain typically will have feelings of excitement, fulfillment, meaning, satisfaction, and generally we feel like our wellbeing is positively impacted.

Ms. Whitney Tra...: [09:27](#)

Distress is what we would define as bad stress, eliciting a negative response in the body and the brain. This is where you're going to feel overwhelmed because maybe you feel that your resources, whether physical, mental, or emotional, are inadequate to meet the demands that you're facing. I list some stressors here on top of the ones that you mentioned early on. Just the demands of the job, the physical fitness levels that maybe you have to maintain, traveling often, work life balance from family and home, social life, poor sleep, and sometimes poor nutrition. But for the rest of this presentation, we're going to focus on distress or bad stress and relation to physical fitness measures and task performance and the demands of the Service Member. Han Selye also adapted this General Adaptation Syndrome theory, otherwise known as the GAS theory.

Ms. Whitney Tra...: [10:22](#)

Kind of what this theory states is that when an individual is first exposed to a stressor, whether it be internal, perceived, or external, something that is in the environment that they had no control over, the individual's going to experience a disruption in their physiological system. This causes a shift in homeostasis, or these baseline levels as we see here. That's going to initiate a cascade of hormonal responses that we'll talk about next. Following an acute response, as we look at here, we have this initial alarm phase. When we experience a new stressor or just even a new stimulus, we're mostly going to experience a decrease in performance, and that's normal and perfectly okay because then over time, the body learns to adapt to that stressor that we've experienced, and we begin to go into what has been deemed as a resistance phase.

Ms. Whitney Tra...: [11:17](#)

If the stressor is applied appropriately, we can super compensate and even increase those baseline levels, and that's when we begin to see those increases in performance. But unfortunately, oftentimes, as you may know and can relate to, Service Members find themselves in environments where, the word used here is over-training. But overstressed ultimately is what we're looking at here. When we're in these high stress environments for long periods of time where we don't allow

ourselves time to recover, we're not giving ourselves enough rest, the body's regular physiological mechanisms really begin to shut down. That decreases the body's ability to perform at the levels we need to perform at, and our ability to return to those baseline levels begins to go down.

Ms. Whitney Tra...: [12:11](#)

Continuing on with what is stress. Here we see this cascade of responses that occur as a result of perceived stress. When a threat is perceived, the brain initiates a number of adapted responses down here at the bottom, and I'll talk through those here as well. Through the autonomic nervous system. The hypothalamus pituitary adrenal axis is responsible for that initial shock that results in that fight, flight, or freeze response. Important to note that not everyone responds the same, but we still experience that same cascade of reactions that's listed here. The brain perceives a threat or a stressor, releases a hormone that acts on the pituitary gland, and then the adrenocorticotropic hormone is released onto the adrenal glands, which releases these glucocorticoids like cortisol and adrenaline into the bloodstream.

Ms. Whitney Tra...: [13:15](#)

Then that's what elicits these adaptive responses in response to a stressor that we've experienced. The first one listed here, liver converts glycogen to glucose. We use glucose as an immediate form of energy under stress or attack. But over the long term, this can have a negative effect on our blood glucose levels, possibly leading to hyperglycemia or insulin resistance. We see an increase in blood pressure, an increase in sweat rate. I don't know about you, but when I am very stressed, I tend to sweat a lot. I know that my stress sweat smells very different than my workout sweat, so that's another sign that I know that I'm stressed. Maybe TMI, but I shared it with you anyways. Fast breathing or breath rate's going to increase. Accelerated heart rate, that kind of ties in with that fast breathing.

Ms. Whitney Tra...: [14:08](#)

We'll get tunnel vision, otherwise known as ocular occlusion. Really, that just means our ability to be aware of our surroundings goes away because we're so focused and narrow-minded on what's going on in the moment under stress. Then our digestion begins to slow down. Each of these responses are really the body's regulatory mechanisms to counteract the effects of stress that we've experienced and suppress the negative reactions of the HPA axis through a negative feedback mechanism. But this same response also returns the body back to baseline values when a threat no longer exists. Carrying on with what is stress, stress or any shock to the system can be triggered in a variety of ways. Short-term exposures are not necessarily harmful in the moment that they're happening, and

in fact, as we'll learn, can be beneficial when applied appropriately.

- Ms. Whitney Tra...: [15:05](#) However, long-term and repeated exposure of some of these that I'll list out can have a negative impact on our health and performance. Exercise itself is a stress to the body. No matter how much you love exercise and training, at the end of the day, that is a stressor that our body is experiencing. Traumatic events that we may experience. Simply the environment that we're in. Extreme cold or heat, so extreme temperatures. That kind of ties in with environment a little bit. Perception of threat. I'll keep touching on multiple times throughout this presentation, perceived stress. At the end of the day, it's how we perceive an event or an action to be stressful to us.
- Ms. Whitney Tra...: [15:47](#) Then our thoughts and our emotions. You can be sitting at your desk, sitting at home, not doing anything, but if you have negative thoughts and emotions that are stressing you out, that same stress response that we just talked about you are going to experience. I have a case study here for you. I'm going to list a couple of stressors for Sergeant Smith and Sergeant Clark, and then I'll ask you which Service Member you believe to be the most stressed. Sergeant Smith has a high cognitive load at work. His job requires a lot of focus, a lot of precision and definitely attention to detail in the role that he has. He's got many approaching deadlines that he's not quite sure he is going to be able to meet in time. He has financial stress unfortunately. He doesn't feel like he's going to be able to put up with some of the things that he has coming up. He has the ACFT and the body comp assessment coming up, and he doesn't quite know if he's prepared for that in the moment.
- Ms. Whitney Tra...: [16:45](#) Then we have Sergeant Clark. He's got a high op tempo. He's frequently deploying, he's gone from home a lot. His spouse is also complaining that he's not home, which is adding to the stress that he's experiencing. He's got a nagging shoulder injury that he keeps saying, "If I just keep carrying on, it'll go away. Maybe nothing's actually wrong. If I don't think about it, that pain's going to go away." Sergeant Clark is getting sick a lot, and he's simply just getting sick because he is under a high stress load. My question to you is: who is more stressed? Sergeant Clark or Sergeant Smith?
- Ms. Whitney Tra...: [17:57](#) I'll let maybe one or two more come in. Exactly. It's almost like somebody should be presenting this for me. At the end of the day, one may perceive the other to be more stressed, but stress, as we talked about, it's how we perceive it. You could argue that both are equally as stressed, and stress looks

different for everyone. As I mentioned, it's mostly how we perceive that stress and our stress response. Even if you said Sergeant Smith or Sergeant Clark, you are not wrong. Because maybe you are in a similar situation, and you feel to be highly stressed. But both individuals are very stressed, and I would not necessarily say that one is more stressed than the other. One more quick question before we dive into a little bit more here.

Ms. Whitney Tra...: [18:56](#)

When you are stressed, what technical or tactical skills at work do you feel like are affected? Asking this question in advance of some of the things that I'll go over: A) I have an idea of where you are before I get into that, and then, B) if I haven't touched on any of these, I can touch on them. I love that these are all more so far cognitive-based ones, because I think that's something that is highly overlooked, especially in this population.

Ms. Whitney Tra...: [19:49](#)

That's huge. General interest in work. I'll allow one or two more to come in here. We'll go ahead. Patience. That's very huge. Your patience can be tested under stress. Absolutely, and I love that it came in twice. Thank you for your responses on those. We'll start off here. We defined stress a little bit. We're going to talk about the negative effects that stress can have on our health, our wellness, and as I mentioned, our job performance and our physical fitness. I promise we'll end on a positive note and how we can optimize our stress and how it's good for us. Both short and long-term exposure to occupational stressors that we experience can lead to a number of behavioral and health issues.

Ms. Whitney Tra...: [20:50](#)

Acute stress in the short term may not have these same responses, but when we're repeatedly exposed to these stressors, we will start to experience some of these reactions and some of these negative responses. So hypertension or high blood pressure, cardiovascular disease. The prevalence of that increases when we're under stress for long periods of time. Respiratory illnesses, impaired immune function. You might find yourself getting sick more often. Our injury risk tends to go up, and we'll talk more about that. Poor sleep habits. Anxiety goes up, instances of burnout, increased depression, and oftentimes weight gain or even weight loss because sometimes weight loss can be negative for us. The impact that stress has on our physical fitness. The Military does expose individuals to a variety of stressors that can negatively impact physical characteristics.

Ms. Whitney Tra...: [21:50](#)

Sustained levels of stress can lead to decrements in the ability to perform physical and cognitive tasks that are part of operational duties. The research shows negative changes that

have been observed in physical fitness measures related to stress; we see negative changes in body mass. As I mentioned, either negative weight gain or weight loss and negative changes in fat-free mass. Maybe we're losing muscle under stress, and that could be a result of the training that we're doing or simply just the stressors that we're experiencing. Negative changes in our cardiovascular endurance, our work capacity, and our maximal lifting strength, and our ability to produce power both in single instances such as a vertical jump performance and repeated instances such as ballistic power in both the upper and lower body.

Ms. Whitney Tra...: [22:44](#)

Previous research has observed two major findings of the impact of stress on physical fitness. The demands of the job can lead to decreases in physical performance measures, as I just mentioned. But on the other end of that, prior involvement in physical fitness and exercise can be an indicator of decreased stress and sustained work, thus mitigating the negative effects on performance that we may experience. Increased fitness levels can decrease the amount of stress that we experience, as well as increase our work capacity, in turn reducing the negative effects that we could experience in job performance. We'll go into task performance here. Service Members obviously need the ability to apply technical and tactical skills to emerging tasks while making critical decisions in real time. Pressure that can be brought on by a sense of urgency or the demands of the job can negatively affect some of these skill-based tasks, which will ultimately result in undesired outcomes and a decrease in performance.

Ms. Whitney Tra...: [23:52](#)

Some that are on more of the physical side of tasks that have been found to be negatively affected by stress: grenade throwing ability, marksmanship accuracy, obstacle course times, and time to complete relevant tasks. Just tying a tourniquet on another person or reloading a handgun can take longer. But as I mentioned, stress also negatively affects cognitive-based tasks. You listed: precision and detail, strategic decision making, analytical skills, and oftentimes our sense of timing is off. The impact that stress has on injury risk. Tactical personnel are among the top occupations considered high risk for injuries related to both physical and occupational stress. MSKI, this stands for musculoskeletal injury. This is the leading cause of lost duty time, medical encounters, and disability. Musculoskeletal injuries account for around 75% of limited duty cases. This is just often due to the high training and work volumes that are a large contributing factor of stress that increase this injury risk.

- Ms. Whitney Tra...: [25:00](#) Most musculoskeletal injuries occur during PT and recreational sports. Now you might be thinking, Whitney, if I'm getting injured during PT or recreational sports, that has nothing to do with the stress on the job that I'm experiencing. But if you think about that GAS theory that we talked about earlier, if I go into a training session or playing a sport or anything that's physically active, and I am already below my baseline levels of performance because I am stressed, that's where we see that increase in risk of injury. We want to at least be at baseline or even optimizing our stress where we can be above those baseline levels. Stress and thermoregulatory strain here. Last one before we get into, how can we optimize our stress? Increases in core temperature are commonly observed in high stress environments and scenarios, which can increase the instance of heat-related exhaustion.
- Ms. Whitney Tra...: [25:54](#) Heat-related exhaustion is where blood is redistributed away from our central circulatory system in an attempt to cool our extremities. This really inhibits the body's ability to regulate our core temperature under stress. Keep in mind that we don't have to be in a hot or a warm environment for this to happen. This is one of the body's natural responses to stress. Things that we start to see when our body's ability to auto-regulate our core temperature goes down: we see decreased heat tolerance and time to exhaustion. We might fatigue quite a bit faster than we normally would under stress. We'll see decreases in cardiac output, aerobic power, muscular endurance, as well as decreases in attention, vigilance, and short-term memory. We'll also see major increases in heart rate and perception of exertion, so we'll perceive a task to be more challenging than we would normally perceive it when we're under stress and we can't regulate core temperature as well.
- Ms. Whitney Tra...: [26:54](#) Each of these changes as a result of heat stress really decrease our ability to perform our job optimally, potentially increasing the risk of making mistakes on the job or the risk of injury to self or others. We've talked about all of the negative things, and you're probably saying, "I understand that stress is bad for me. Why did you have to emphasize this even more?" What can we do to potentially optimize the stress that we're experiencing? As I said, stress can be and is useful when applied appropriately. We're talking about how can we use the stress to our advantage. We'll talk about it in relation to the five pillars of R2 Readiness as well as the Total Force Fitness model and framework that we have on human performance optimization.
- Ms. Whitney Tra...: [27:41](#) A quote from Kelly McGonigal here, "There is always stress, so the only point is to make sure it is useful to yourself and to

others." Throughout the rest of this presentation, I have a resource sheet handout that I'll provide in the comments at the end. I'll reference those also throughout the rest of this presentation so you know what those resources are. I've included a stress mindset self-check in that resources handout. I'd strongly recommend taking yourself through it after this presentation. Your stress mindset and the way that you perceive stress and the way that you view stress can really be a critical factor in your ability to use it as a tool to optimize your performance and mission essential tasks.

Ms. Whitney Tra...: [28:26](#)

This self-check just really asks key questions to help you reflect on your general beliefs about stress and how you tend to react to it. We'll get into the five dimensions of personal readiness here. We have physical, emotional, social, spiritual, and family. Sustaining healthy behaviors within and across these five dimensions is essential to personal readiness and our ability to optimize stress. When we look at the physical domain, when we're maintaining physical fitness and building our physical resilience, this not only gives us the ability to lead ourselves and others through tough situations, but also helps build our self-confidence in stressful scenarios. From the emotional perspective—and we'll talk about more in depth how physical fitness can help our emotional readiness. When we can notice how our emotions are either getting in our way or helping us thrive, that can be critical to our resilience as well.

Ms. Whitney Tra...: [29:21](#)

From the social domain, our connections to other people as a critical component of remaining resilient. Over the course of life, you are significantly more likely to overcome challenges with others than if you are in it alone. Spiritual. When we talk about spiritual readiness, this involves improving our spiritual posture through a self-directed process. This is mostly informed by our core values that form our sense of identity, purpose, motivation, character, and integrity. This allows us to build inner strength through perspective and challenges that we're experiencing. Lastly, from the family domain, when we build and maintain healthy familial relationships and we strengthen problem solving skills within those, this can help us effectively navigate the challenges of daily living that we experience in the unique context of the Military service. I'll go on and talk about more the intersection of Total Force Fitness that we at CHAMP and how those reflect on the R2 pillars.

Ms. Whitney Tra...: [30:21](#)

Total Force Fitness is what we at CHAMP recognize as a holistic approach to performance optimization. Consequently, when we optimize our performance, we can better optimize the stress that we're experiencing and the impact that stress has on us. As

you'll see here, the TFF model includes some of the same pillars as the R2 personal readiness pillars, and those are highlighted here in blue. Physical, psychological or emotional, social, and spiritual. We also have four others: nutritional, environmental, medical/dental, and financial. These two models are very similar in that both models take a holistic, well-rounded approach to increasing the readiness of the Service Member, which in turn primes the individual to be prepared for whatever work or life stressor that they may encounter. We also have this human performance optimization spectrum of functional fitness.

Ms. Whitney Tra...: [31:16](#) On the far right side here, we have health sustainment. Really, this is where health and performance improvements are happening, but really just merely to sustain physical and mental health, not necessarily leading to optimal capabilities. As we move a little bit farther left, we go to performance sustainment. Maybe we're optimizing our performance for core tasks and primary duties. Once again, we're more or less just meeting basic occupational demands here. But then our goal, we want to move far right into the purple side, performance enhancement or optimization here. We're really moving beyond just health and towards mission-focused capabilities. Our PT is going to be more structured to exceed the demands of the job that we're experiencing, as well as going to incorporate multiple Total Force Fitness skills to optimize our performance. We do strive to be in the purple, as I mentioned, but it's also important to note that we have to get there first.

Ms. Whitney Tra...: [32:19](#) We have to work on improving basic human health and basic war fighter capabilities, and then we can begin to build and optimize our performance in a variety of ways. The stress and performance curve that we have here. Stress, as I mentioned, can be good for us. Knowing that stress is good is important. On the y-axis here, we have performance, and on the x-axis we have our stress level. You'll see as we're on the far left side here, we have too little stress. We're feeling inactive, we're feeling bored. There's little motivation there to do things. As we move a little bit farther to the right, we start to build a healthy amount of stress that we're experiencing and our focus increases.

Ms. Whitney Tra...: [33:08](#) Then we'll meet this point of optimal stress for each individual. That's where we can perform at our peak. Then we start to go beyond that. We experience too much stress, then we begin to experience fatigue and exhaustion, maybe even sickness. The more stress that we begin to experience, then we start feeling feelings of anxiety, anger, burnout, and then over the long term, this can even lead to disease. It's important to know that the

right amount of stress can vary between each person and each task. I have provided a resource in the handout that I'll give you as well that talks you through how to find your sweet spot and ways that you can relax when you find that your stress is too high when you do need to perform optimally.

Ms. Whitney Tra...

[33:59](#)

Stress optimization and physical activity. As I mentioned earlier, research has found that our physical activity can be good for our stress. Prior exposure to stressors, whether they're physical, environmental, or emotional, can lead to increases in performance. Decreases in fitness and task performance may be mitigated by having higher levels of physical fitness prior to involvement. We're already adapted. We're better able to use those stressors to our advantage. Physical activity increases our mental resilience and readiness as well. Really the long-term health and resilience of Service Members are dependent on their ability to tolerate the demands of the job and respond to these stressors that we experience over time. The principle of this is when we expose ourselves to something that is perceivably hard or challenging or stressful, such as intense physical activity, we are better able to adapt to other situations that are challenging or stressful.

Ms. Whitney Tra...

[35:00](#)

Why do we need physical activity? Because when we increase our readiness, we increase our resilience. There's a number of resources on physical fitness and stress that I've included in the handout that you can sort through as well. Physical activity can be good for our mental health and our performance, which we'll touch on a little bit more when we dive into the emotional pillar here. But it can have protective effects against depression and anxiety, and also reduce symptoms of depression. It can increase our ability to tolerate high workloads, and also it helps maintain a circadian rhythm and improve our sleep quality. It's important to note that that sleep does impact both our physical and mental performance. Physical activity has positive impacts on our physical health through improvements in cardiorespiratory and muscular fitness. We see improvements in our bone health and our bone density, improvements in cardiovascular and metabolic health, and improvements in our sleep quality.

Ms. Whitney Tra...

[36:02](#)

It can also help reduce the risk of early death, heart disease, and as we mentioned earlier, that we experience that does physically combat that. Same with stroke, high blood pressure, type two diabetes, abdominal obesity, and a variety of cancers as well. To define "physical activity," physical activity is really any energy expenditure. That can range from basic daily movement to structured exercise. Exercise is structured, and it

is usually for a specific purpose. That could be improved health, improved performance, improvement on your ACFT, and improved mental health. We usually have a specific goal in mind when we're talking about exercise. For the sake of time, I'm only going to discuss basic physical activity principles, but there is so much more that can be done beyond the scope of this presentation that can also be beneficial and further optimize your performance.

Ms. Whitney Tra...: [37:04](#)

Let's discuss the physical activity guidelines for American adults. This comes from the Department of Health and Human Services. Ultimately, move more and sit less. They recommend 150 to 300 minutes a week of moderate intensity aerobic activity or 75 to 150 minutes a week of vigorous intensity aerobic activity or a combination of the two, including muscle strength activity at least two times per week. These are basic recommendations that will keep you somewhere in the realm of health and performance sustainment. But something is always better than nothing at the end of the day. Especially in this case, where we're talking about the effect that physical activity can have on our stress. These small things are compounding. When we're keeping up with these day-in and day-out, that's when we start to see the positive impacts that we want to experience there.

Ms. Whitney Tra...: [37:57](#)

It's better to get up and walk every day of the year than to just simply prepare for your PT test once a year. What counts? Low intensity physical activity: leisure walking, going for a daily walk, yoga, Pilates, working around the house or the yard, rowing, cycling, water aerobics, or just recreational sports, maybe pickleball or badminton. More moderate to vigorous physical activity. It's going to be a little bit more strenuous. Moderate, on a scale of one to ten, is going to be at about a five, maybe a six. For vigorous intensity exercise, on that scale of one to ten, it's going to be at a seven or even higher. What could count for that? Fast-walking, cycling, dancing, hiking and backpacking, running or jogging, swimming laps, strength training, or high intensity interval training. These are certainly just to name a few. That is by no means an exhaustive list.

Ms. Whitney Tra...: [38:54](#)

Now we're going to get into the impact that physical fitness has on the emotional domain and then each of the other pillars as well. Our perceptions of stress are highly dependent on our emotional readiness and our ability to regulate our emotions. For the next few slides, I'm going to touch on just a few specific examples of the impact that physical fitness has on our ability to regulate stress and our emotions. The first one here is yoga. Yoga and mindfulness-based practices help to reduce physiological symptoms associated with stress and research. We

see decreases in cortisol, blood pressure, heart rate, and overall greater heart rate variability. We see reduced fasting blood glucose, cholesterol, and low-density lipoprotein. It's common that there are many Military personnel and veterans that do live with chronic mental and physical health conditions that often do not respond well to pharmaceutical agents which has led to this widespread effort to study and promote non-pharmaceutical and behavioral health treatments such as yoga and a couple other ones that we'll mention here.

Ms. Whitney Tra...: [40:06](#)

Running. In a study that looked at running therapy, which is what they called it. It's shown to have a positive effect on overall general anxiety. This study specifically looked at running therapy compared to antidepressant medications. It found that there were similar effects on mental health, although running did outperform medications on increasing our physical health variables. I don't know about you, but if I have the option to increase my physical health, because that's going to affect multiple aspects of my life, and reduce my symptoms of anxiety, I'm going to choose running therapy over medications. Then we have resistance training. Strength and resistance training has been shown to reduce depression, anxiety, and symptoms of PTSD and overall has just shown an increase in general mental health and quality of life. The last one I'll mention here, as far as physical fitness on emotional readiness, hiking and just being outside. There are multiple health benefits that are linked to hiking and outdoor walks.

Ms. Whitney Tra...: [41:15](#)

I've included a resource in the handout that I'll provide on nature bathing, and this is simply mindfully spending time in nature. This has been shown to fight symptoms of depression and anxiety and boost your immune system. A couple more ways in which physical activity improves our physical health. Some of these have been mentioned. We see increases in bone health, positive improvements in weight status. We reduce the risk of cancers, cardiovascular disease, and all-cause mortality. We reduce the risk of some cognitive diseases, the risk of diabetes, and see an overall improved quality of life. The impact that physical fitness can have on our social readiness because exercise can help better manage our stress, this can allow us to better manage our relationships, whether those are familial, romantic, friendships, or coworkers. We can also use exercise to help strengthen our relationships with others by doing partner workouts or group workouts. There is something to say for the sense of camaraderie.

Ms. Whitney Tra...: [42:30](#)

Regulate our emotions: we're able to show up and be more present and have more genuine interactions with others. Social

support increases the likelihood that we will get things done or achieve the goals that we have set for ourselves. To the right here, I have this Got My Six logo here. I briefly wanted to mention an ongoing campaign that we at CHAMP have. We do highlight this Got My Six campaign every September, but it goes on throughout the entire year. Really, this just shined a spotlight on how social support from friends and loved ones can help you maintain total fitness. Whether you're looking for group exercise classes, you need a friend to spot you on a lift that you're doing, or you're looking for a partner to join you on your run.

Ms. Whitney Tra...: [43:19](#)

As I mentioned, that social support really increases your chances of sticking to your exercise plan. I'll provide a link for you in that handout as well to be able to look more into that. If you're interested in participating, you can certainly shoot me an email at the end of this. Family readiness and the impact that physical fitness can have on our Family readiness. As I've mentioned a handful of times already, exercise does better manage our stress. When parents can better manage their stress, it can allow them to have better relationships with their children. When parents are modeling healthy physical behaviors, children really learn how to be from their caregivers, and we want to model those healthy emotional and physical behaviors for them. When we do things together as a family, such as playing, exercising, and eating dinner together, that does help establish healthier familial relationships.

Ms. Whitney Tra...: [44:14](#)

Kids are usually more well-adjusted, and kids in turn tend to have better relationships and friendships outside of the family when we do those things together as a family. We can include certain family traditions that include physical activity. Maybe that's your annual Thanksgiving turkey trot, maybe you go hiking every weekend. Maybe there is a sport that you like to play together. But when we do those things together as a family, that can really help optimize our stress as well. Then last, spiritual readiness here. Fitness and exercise can help us find meaning and purpose in life. The positive effects that exercise has on our brain can really open up your mind to other things that can help you find meaning and purpose. For me, this also ties in with that self-efficacy bullet. I know when I'm getting stronger and faster, that ties into all other aspects of my life where I'm able to put myself out there and pursue things that would make me happier and decrease the stress that I'm experiencing.

Ms. Whitney Tra...: [45:16](#)

For gratitude, simply just being grateful to have the capability to move, to train, and to work out. Some folks maybe aren't

capable, and I think that's something that a lot of folks do take for granted. I have included a gratitude calendar in that resources handout as well that you can use to help write things down that you are grateful for, which can in turn help your performance. Lastly, character: we know that physical activity can help develop positive character. It can help you be on the right track to building healthy habits. We've also seen in the research that those who engage in physical activity are more likely to show positive personality traits such as openness, agreeableness, and conscientiousness, which is simply just wanting to do things well. I've included a resource on physical activity and character building as well.

- Ms. Whitney Tra...: [46:09](#) To wrap things up, I have one more question for you. In this Poll Everywhere, what is something from one of the five domains—physical, emotional, spiritual, family, social—that you can do today to optimize your personal readiness? I really want you to take this as an opportunity, A, to maybe share something that you've taken away from this presentation, but B, maybe you have an idea outside of something that I've stated that others could also take away as well. I'll leave this part open for about a minute or two, and then we'll open it up to questions if you have any. "Slow down." That's huge.
- Ms. Whitney Tra...: [47:01](#) "Get more exercise with my kids." These are all good. I think people underestimate how beneficial just taking a daily walk can be. I'll see if a couple more come in. I didn't mention pets, but pets are also very beneficial. With that, I will end and open up to questions. Thank you all for attending this presentation. You can ask questions in the chat or my email is here if you want to send me an email as well. There is this QR code that you can go to and provide some feedback for the presentation as well. I would greatly appreciate if you could do that.
- Lytaria Walker: [48:49](#) Thank you Whitney, for the presentation today. We will now take a few questions from the audience. If you would like to ask a question, please type your question in the Q&A box, and we will read them aloud. There will be a short delay before the first question is announced.
- Ms. Whitney Tra...: [52:53](#) Please feel free to check out the resource. There are lots of great links on there. I mentioned and referenced over half of them but there are also a couple on there that maybe I didn't quite mention. Those are just things that we with HPRC tend to put out. There is a question that came in.
- Ms. Whitney Tra...: [53:14](#) "In those moments of stressful times/activities, how important is having compassion with yourself, breathwork, stillness, and

social activities?" I think that is a great question, and thanks for asking. That's one thing that I really like to talk about specifically with Service Members that I'm working with one-on-one, that it is important to have compassion for yourself. Something personal for me and more personally related, something that I struggled with early on is putting others before myself. It is good to help others. But if you can't fill your own cup first, I always say, it's very hard for others to be able to fill your cup as well. Having compassion for yourself, taking care of yourself, going on daily walks, multiple things that we talked about, taking care of yourself, whether that is through meditation and breath work, whether that's socializing, whether that's through physical activity. That's not only going to help in optimizing your stress, but as well as your interactions with others. I think that's a great question. Thanks for asking.

Lytaria Walker: [54:33](#)

At this time, you may drop your question in the Q&A box or the chat box.

Ms. Whitney Tra...: [54:39](#)

Just like we're reminded every time, in the event the oxygen masks fall, put yours on first so you can help others if needed. I actually heard someone say that exact reference the other day. I think instincts, everyone's going to vary. Some people instinctually want to help others first. But they always mention to put yours on first. I have a few more minutes for more questions if anybody has any that you want to drop in the chat. I did pull up that QR code again, I hope everyone was able to get that for those who needed it.

Lytaria Walker: [55:25](#)

It looks like we don't have any other questions. If there are no more questions at this time, we will conclude this morning's webinar. I want to extend a gracious thank you to Ms. Tramel for joining us this morning. Also, thank you, listeners, for joining today's webinar. Once the webinar ends, you will be prompted to complete a survey. We appreciate your feedback as this helps us to improve upon future webinars. If you'd like to receive invitations for DPRR webinars and receive the latest news and information from the Directorate of Prevention, Resilience, and Readiness, please go to DPRR's website at armyresilience.army.mil and sign up for notifications there. Please also follow us on DPRR's newly launched LinkedIn and Instagram platforms. Thank you again for joining us. Have a wonderful rest of your day.

Ms. Whitney Tra...: [56:24](#)

Thank you.