

## Military OneSource Video — Tactical Nutrition Strategies Webinar

**Program title: Military Community Support Programs**

**Video transcript:**

**Host:**

Welcome to the webinar titled Tactical Nutrition Strategies. This webinar will discuss strategies designed to support the war fighter and mission readiness. It will include an overview of basic performance nutrition principles and nutrient timing recommendation to support exercise.

We are thrilled to have with us today Brooks Ford. Brooks Ford is a Performance Dietitian and Nutrition Content Lead for the Human Performance Resources by CHAMP. Her tactical nutrition experience draws on expertise as an active duty army dietitian as well as her work with Service Academy Cadets and Special Forces.

Without further delay, I will turn things over to you Brooks.

**Brooks Ford:**

Great! Thank you so much for that introduction and thank you so much to Military OneSource for having me today. This is a topic that I am really passionate about and really interested in. So it's such a pleasure to be able to share this with all of our participants.

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And I have no financial interest or relationships to disclose. I am a contractor through The Henry M. Jackson Foundation.

So what I want to cover today when we talk about tactical nutrition is I would really like to highlight the role of nutrition in mission readiness. So often when we hear about nutrition, it's really easy to equate it with, OK, it's a certain way of eating to meet a

certain body composition. And yes, that's true to a point, but I really want to focus on the ultimate end goal in the military space of mission readiness.

And then I will end up reviewing some basic nutrition principles that will help to optimize performance. And when we talk about performance, I am not just referring to physical performance; you know, how fast or how strong you are, but also mental performance as well and how you feel throughout the day. Do you have the energy to complete all of your daily tasks that you need to do?

And then I would also like to discuss nutrient timing strategies that do help support exercise, because there is a lot of research out there on what we eat can affect how well we are able to exercise and engage in physical activity and how quickly we can recover. And that's really important in the military because many times you're constantly being, you know, tasked, you're drained, you're working out regularly, and we want to make sure that you're providing yourself with the fuel that you need to support that activity as well as recover so that you're ready for that — for that next round.

And then lastly, I am going to provide some resources on dietary supplements and some additional resources on performance nutrition. Dietary supplements, I could spend hours talking about supplements, so that's sort of beyond this scope of this presentation, but I will at least give you some resources and point you in the right direction if you would like more information.

All right, so I sort of alluded to this already, but when we think about nutrition, I really want you to think about it as a key to success — or in the context of the military, a key to mission success. We know that when you choose the right foods and fluids at the right times, it's going to help enhance your mental and physical performance. Those same nutrition strategies that you use to promote performance are also going to help support optimal lifelong health.

And I know a lot of us, we may not always consider, oh, I need to eat this way to reduce my risk of cardiovascular disease or to reduce my risk of diabetes, but it's something to think about, especially if you have a strong family history of chronic disease or you might be worried about your risk down the road.

And it's really important, again, just to reiterate that when you prioritize nutrition and you're adjusting your eating habits based on your daily activities and those lifestyle factors, it's going to help support mission readiness and optimal performance so that you can perform your best throughout the day.

All right, so here I have on this slide is the definition of nutritional readiness, and I borrowed this from the Army's Holistic Health and Fitness operating concept, and the way that they define nutritional readiness is, I mean you can read the definition for yourself, the ability to recognize, select and consume the requisite food and drink to meet the physical and nonphysical demands of any duty or combat position, accomplish the mission and come home healthy.

So ultimately what it is, it's being able to choose the right food and fluids to help meet the demands of your job in the military so that we keep you healthy, both when you're back home, you know, on post or on base and also in a deployed environment so that you are coming home healthy.

I know there are certain challenges to the eating environments depending on what your situation is, maybe perhaps where you live or your station, what your field exercise is, but the military is definitely focused on trying to make it easier for its service members to have those nourishing foods and fluids so that they can accomplish the mission. Doesn't always happen, but at least here as a dietitian I am definitely advocating for better nutrition overall.

And what I think is really unique about tactical nutrition, just to differentiate it from maybe sports nutrition, is that tactical nutrition focuses specifically on what the war fighter needs. And you could often think of service members as tactical athletes, but athletes are — if we think of, you know, regular competitive pro elite athletes, collegiate athletes — there is always an off-season and there is sort of, you know, that preseason train up, you've got your season of competition, whereas a war fighter doesn't really get a break.

I mean yes, you have your deployment cycles where things may not be as crazy and you have sort of that training leading up to a deployment, you have your deployment, so it sort of does mimic the cycle that an athlete might go through.

However, with tactical nutrition, again, with the military you are on 24/7 regardless of whether you are deployed or whether you are, you know, back at home. And so the nutrition strategies that we talk about, you know, there is a lot of overlap between sports nutrition, but I think it's particularly important to focus on fueling yourself properly to do your job and ensuring that you are able to adequately recover.

So what are some basics of nutrition? I don't want to get into too many details without building a solid foundation of what is a healthy eating pattern, and I don't really like to use the word diet. Sometimes diet can seem like a four-letter word.

And just to give you my personal philosophy, when I've counseled folks in the past, I follow an 80/20 rule, so eating healthy 80% of the time, at least 80% of the time, the other 20% eat and drink what you want, OK? All foods can fit into a well-balanced healthy eating pattern.

So what is a healthy eating pattern? Well, first of all, it includes a variety of nutrient-dense foods from all of the different food groups, OK? There is not one magic food or one magic food group that's going to give you everything that you need, and so it's really important that we're getting that variety so that we can get, you know, the right amount of carbohydrates and protein and fats as well as vitamins and minerals.

You also want to follow an eating pattern that's tailored to your energy needs. And so this is where that individualization comes into play. Again, it's not one-size-fits-all and you don't want to, you know, overeat because you think you need all these, you know,

healthy foods, but you don't want to under-eat either, you've got to find something that's going to work for you and your needs.

And then finally, a healthy eating pattern limits saturated and trans fats, added sugars, sodium and alcohol. So again, I am not saying that any of these ingredients are off-limits completely, but it is best to limit them because they're not really going to provide you much in the way of nutrition and they're certainly not going to help optimize your performance.

But again, I get it, life happens. You know, we've got holidays, we've got birthdays, celebrations, and so these — and a lot of times if you think about what's available on a lot of military installations, the food is loaded with these ingredients, and so it's really easy to indulge in them, but try to keep it to a minimum, but again, I am not saying that it's completely off-limits.

These are some of my Top Performance Fueling Tips, and I am going to get into, you know, more specific foods that I would recommend, but just to give you an overview of what is, again, reiterating, what does a healthy eating pattern look like. Well, first of all, you want to eat frequently, especially if you are active. I usually suggest eating every 4-6 hours or so; for some people they might need to eat a little bit more frequently than that, but in general I say try to avoid going more than about 5 hours without food.

And the reason I say that is because if you let yourself go too long without eating, a lot of times you might get hangry, your energy starts to drop, you might get a headache. I don't know if any of you all get hangry out there; I know I definitely do, so I have to eat every couple of hours. I am not really pleasant to be around when I am starving.

And also, when you're eating frequently, it can prevent you from overdoing it later on in the day. I have worked with a lot of people that they might eat just a really light breakfast, might grab something quick for lunch if they have time, usually they get caught up in the day and they don't have time to eat. And then by the time that the day is over, they get home and they're ravenous and they eat everything in sight, and let me tell you, when you're starving, will power and that desire to eat well and healthy tends to just go out the window. So again, I think it's important to eat frequently throughout the day.

Now, there is a lot of, you know, different trendy diets out there that might suggest oh, you know, eat with only, within a certain range of time, and that can work for some people, but I think for tactical athletes, especially if you're exercising, you really miss out on an opportunity to get in some good solid nutrition that helps support your performance if you're, if you're opting to eliminate an entire meal throughout the day.

I also suggest consuming a variety of nutrients at each meal or snack. And so what I mean by that is choosing a variety of food groups. And so I always say that at meals try for three different food groups, one being a fruit or a vegetable and then two different food groups at snacks. I am going to give you some examples of what that's going to look like.

But I am always going to emphasize fruits and vegetables and I will reiterate that again throughout this presentation. But that variety is really important because that way you can fill up with the nutrients that you need, you know, to maybe get you through the next hour or so. But also, if you consume that variety, you're going to be able to sustain that energy over the next couple hours until you're able to eat again.

And again, going back to tailoring your plate and portions to your needs, and I will talk a little bit more about how you can do that. But you really want to make sure that you're tailoring your intake to what your individual needs are. And sometimes it's hard to figure out well, how much should I be eating? You know, is this too much? Is it too little?

And if you end up meeting with — I would definitely suggest meet with a registered dietitian who can actually sit down and help you better tailor your plate and portions to your need. I will give you some general guidance. But it's really important again to know that your needs are going to be different from the person sitting next to you.

And then, lastly, food first, it's really best to get your nutrients from food. There are so many different supplements out there, whether it's for protein or vitamins or the specific phytochemical or antioxidant, whatever it might be, you get the most benefit when you get those nutrients from food itself. Plus, in my opinion, food just tastes better, rather than, you know, drinking a powder or swallowing some pills. Plus, it's a lot more filling too.

So this is one of my favorite graphics. This you can find on the HPRC website. And this is our Power Plate, how to eat to fuel your performance. And if you look at that plate there, it's, I don't know if you're familiar with the government's ChooseMyPlate, where it's got the different food groups and, you know, your fruits, your vegetables, your grain. So this might look a little bit similar, but we try to tailor it more for the tactical athletes.

And so what I want to do is I want to show you this plate and in the context of how you can tailor your plate to your needs so that you are getting a variety of different foods and getting all the nutrients that you need. So if we look at this plate you will notice that you can, you know, change the portions a little bit.

So, for example, I always suggest starting off with, you know, when you sit down to a meal, make sure you've got some kind of, you know, fruits or vegetables on your plate, you know, whether that fruit is, you know, a dessert or, you know, even maybe it's a snack option for later on, but you've got some kind of fruit or vegetable there, and especially with vegetables, those nonstarchy vegetables are going to be key. They're packed with nutrients. They will help fill you up, and whether you're trying to maintain your weight, gain weight, lose weight, you still need them, and they're going to provide you so much good stuff.

Some of my favorites, when it comes to vegetables, are going to be bright-colored vegetables — so your dark green leafy vegetables, like spinach, collard, kale, cruciferous vegetables like broccoli, but even options like bell peppers, onions, mushrooms, eggplant, beets, all wonderful options.

And the more color, the better, because typically the richer the color, it means it's more packed with nutrients, and I am talking nutrients beyond just vitamins and minerals. You're going to get what are known as phytochemicals, and these are chemicals that plants make to protect themselves from the environment, but when you eat them, you get a lot of those same benefits to your own health. So again, making sure that you've got some good vegetables on your plate.

Now, if you're someone that maybe you're mindful of your weight or you're trying to lose a couple pounds, you might consider making half of your plate vegetables and making it a much larger portion and, you know, cutting back on portions of other food items. Whereas, if, you know, you are really active or maybe you're trying to put the weight on, you might actually increase the amount of, you know, complex carbohydrates and even protein on your plate. But again, you still need — you've still got to eat those vegetables.

So moving on to the next food group, protein. I think it's always important to have at least a little bit of protein at each of your meals, and how much protein you need is so individualized so I don't really like to give blanket recommendations. But in general, I find that somewhere between like 20-40 grams of protein a meal meets the needs of most people.

And your best sources of protein are going to be the leaner options and there is quite a bit that you can choose from when it comes to lean proteins. So you can do options like fish, poultry, even lean meats like say like a sirloin steak, flank steak, or with pork, like pork tenderloin and pork chops, those are actually fairly lean compared to say something that's like, you know, really greasy, fatty burger or, you know, ribs, where you see a lot of visible gristle and fat.

Other good sources of protein include dairy products. I am a huge fan of Greek yogurt. It's got more protein than regular yogurt. Cheeses have a little bit of protein.

Now, if you follow more of a plant-based eating pattern, there is plenty of plant-based sources of protein too. And whether you are plant-based or you eat animal products, I still recommend eating foods like beans, lentils, nuts and seeds, nut butters. They will have a decent amount of protein as well. Soy and tofu are also great options. And I know guys are always hesitant with soy and tofu, but if you're just eating the whole food soy and not taking, you know, soy supplements, you're going to be totally fine.

And it's really best to choose less processed options of protein. That way you're not getting a lot of additives, like the nitrates and, you know, for example, say like your lunch meats or, you know, sausages. For instance, so going say perhaps to the meat counter to get your meat instead of the deli. But again, just to reiterate my philosophy, 80/20 rule. So I like a turkey sandwich every once in a while and even if it's just like your regular deli meat turkey, hey, like it's a super lean option, so don't stress it.

And then the last food group on this plate that — or I guess second to last food group on this plate that I will talk about — are, you know, grains and starchy vegetables. Now,

carbohydrates get such a bad rap right now and so I don't want you to think that, you know, starchy veggies and grains are off-limits, because you need them. You need carbs to optimize performance. In fact, that's the only fuel source that your brain can operate on, and if you're not providing your body with enough carbohydrates, your body is going to make carbohydrates itself to fuel your brain.

The key with carbohydrates is choosing smart quality options. So for example, with grains, choose options like whole-grain bread instead of white bread or brown rice instead of white rice. Other good options might be oats, quinoa, some of the ancient grains like farro, sprouted breads are really trendy right now. Those are super nutrient-dense. You get a lot of good fiber, B vitamins, even some small amount of healthy fats too from your whole grains.

And then starchy vegetables, so corn, potatoes, peas, and hey, there is nothing wrong with white potatoes, they're actually a great source of potassium and B vitamins, fiber. Just keep your portions in check, again, especially if you're watching your weight, you know, you don't want, you know, this massive pile of pasta on your plate. Keep it small, load up on the vegetables. Make sure you've got a lean protein source, OK? So again, you need those carbohydrates, you just really need to tailor it depending on your goals and your needs.

And then we've also got our healthy fats. So foods like olive oil, avocado, your nuts and seeds, and if you'll notice, you know, as I mention nuts and seeds, we also talked about those when we discussed protein. You will notice that there is a lot of overlap. A lot of foods offer a number of different nutrients. So again, beans could be considered a starchy vegetable, but they also have a decent amount of protein in them.

So going back to fats, I like to use fats as sort of a topper or an add-on. So maybe I am using olive oil as part of a salad dressing or to marinate some chicken. Nuts and seeds, you know, maybe I am, you know, having like a peanut butter sandwich or something like that, but they're definitely something that you want to include. A lot of these good healthy fats have anti-inflammatory properties, especially if you're consuming omega-3 fats, which you find in foods like salmon or tuna, your fatty fish.

You can also find them in walnuts, flaxseed, chia seeds, really important to make sure that you're consuming at least a small amount of healthy fats. Fat is very high in calories, so if you are watching your weight, you know, I wouldn't suggest dumping, you know, half a cup of olive oil, you know, on your salad, but just, you know, a tablespoon or two and that's enough to give you a good benefit.

We briefly touched on fruit earlier when we talked about emphasizing those fruits and vegetables, but I would just like to highlight a couple of my favorite options. Fruits like berries, cherries, pineapple, citrus are super nutrient-dense. I know some people tend to steer clear of fruit because they're afraid it's just too much sugar.

Again, unless you're eating, you know, 10 bananas at a time, which most people aren't, I definitely recommend including fruit. You know, I usually try and have a couple servings



of fruit each day. For me, I like to have it as a snack or with breakfast rather than at every single meal. But really important to make sure that you are getting in that variety.

And we will talk a little bit more about hydration in a couple of slides, but just overall I would suggest, you know, when you do actually sit down to eat, which sometimes it's hard to do, just with the nature of the military, if you're in an environment with a really high ops tempo, you're constantly on the go, it can be hard to actually sit down and get a nourishing meal.

You know, I would always recommend if you can slow down when you eat, take smaller bites, try and chew a little bit more, try and be in the moment with your meal. It's often really hard to do and I'm guilty of this. I tend to work a lot through lunch, you know, you take a bite of something and you type away. But when you do have that opportunity, you know, even if it's just one meal a day that is home with your family, try to slow down a little bit.

And I think the military is a hard culture too, to often do that, because you are basically trained from the time that you enter basic training to eat as quickly as possible because you don't know when you might get, you know, your next meal or snack.

This slide right here is probably going to make you hungry, or hopefully it makes you hungry. I really wanted to show you how you can customize that plate to find a meal option that works for you and the foods that you enjoy eating. And so, you know, if you just look at some of these examples here, each one of them has a variety of different food groups, each of which offers a wide variety of different nutrients.

So, you know, take the example of the eggs and the toast, you know, you've got a good hearty, whole-grain bread, full of B vitamins and fiber, good complex carbohydrates. You've got the good healthy fat from the avocado and a great quality source of protein from those hard-boiled eggs.

You know, even a dish like tacos, you've got, you know, looks like some fajita veggies, that looks like, you know, some peppers, maybe some zucchini in there, maybe a lean meat, whether it's chicken or, you know, like a lean type of steak. You could do whole-grain or corn tortillas, you know, topped with something like salsa. Hey, throw on some, you know, guacamole on there. You've got a nice blend. A lot of good nourishing food groups.

And we didn't mention this so much on the last slide but, you know, even with those tacos, you could top it with something like cheese. You know, cheese is a great source of calcium and I think it's really important that you have a source of a food in your diet daily that has a lot of calcium and vitamin D. A lot of service members are low in vitamin D and dairy is one of the few foods that offers that.

Maybe some of us grew up with, you know, drinking three glasses of milk every day, which is certainly important, but there is other ways that you can get, you know, your vitamin D and calcium in as well.



And so really, again, going back to the whole point of this slide is you can customize that plate based on what you enjoy eating and what you need. And to me all of those dishes look delicious. I would eat all of the above.

All right, some snack options. So I definitely encourage snacking when you're choosing smart choices. Now, some people when they tell me they're trying to eat healthy, they will say, well, I am just going to stop snacking. And I will ask them, you know, well, why? And they say well, every time I snack I go for cookies and chips. And I say, OK, well, maybe those aren't the smartest snacks, and not to say that those are bad foods, off-limits, again, 80/20, but are those snacks going to offer you nourishment? Are they going to help you — help fuel you throughout the day?

And so I've listed some snack ideas on here, you know, for example, if you are looking for — if you need a quick pick-me-up, I mean, I don't know about you all, but I typically get an afternoon slump about 2:00 to 3:00 in the afternoon and so instead of going for like, you know, a candy bar, maybe you try a piece of fruit or, you know, have a bag of low-fat popcorn, even granola, or some, you know, baked chips.

It's funny when I was at the — when I worked at the Air Force Academy, cadets loved to squeeze applesauce, like the type that you would maybe give to your kids, and I will often, you know, use it on some of my long runs, and it's a great option.

If you want something that's maybe got a little bit more protein in it, I really like options like those tuna or salmon pouches. You could do jerky even, Greek yogurt, hard-boiled eggs, string cheese. If you need something that's packed with a little bit more nutrients, try some, you know, veggie sticks and hummus, or one of my favorite snacks are those little individual bags of roasted chickpeas. Super high in fiber, they're filling, they've got a little bit of protein in them, great option.

And then if you need something to help fill you up, but also keep you fueled throughout the day, I really like things like plain oatmeal packets; I travel a lot with those, and I will just — as long as you've got some hot water, you just take one of those oatmeal packets, add in the hot water. I might even stir in a scoop of peanut butter, or if you've got one of those individual packets of peanut butter, those are great on the go.

Even things like fruit and nut trail mix, whole-grain crackers, there is a lot of different bars out there now too. So, you know, grabbing something like a granola bar. I really like bars that are made with more whole food type ingredients. So instead of being sweetened with added sugar, they're sweetened with dates.

So I like the ones that have dates or dried fruit for the sweetness and then they've got some nuts and seeds in them as well. So I always look for bars that don't have a ton of added sugar and are made with, you know, real food ingredients rather than just, you know, a bunch of fillers and, you know, added protein powders. I would rather get, you know, more of the real food sources of all those different nutrients.

OK, hydration, so sort of switching gears a little bit. Just know that hydration recommendations and fluid requirements are highly individualized. Even more so than I

would say your, you know, your food intake and how much you should be eating at meals. Each one of you probably sweats a different amount, different body size, you know, here we are in the virtual space, which means that I am probably joined — you all are probably joining from all over the country, so you're all from different environments. You're probably all at different activity levels as well, and so all of those factors are going to affect how much fluid that you need.

I mean there's different recommendations out there for at least just a starting point. If you're trying to figure out, well, how much should I be drinking each day, what we often use is the adequate intake for water, which is — might seem like a lot, but it's almost 4 liters a day for men and almost 3 liters a day for women, but that includes fluids from both the beverages that you drink as well as foods that you might get from food sources. So if you're eating like a soup or stew or a watery fruit or vegetable like grapes or something, that can all count towards your fluid intake.

You may also hear, you know, drink half your body weight in water in ounces every day. That's another rough estimate. I mean really the best way is to actually, you know, measure how much, you know, you're consuming on a daily basis, how much you lose through exercise, and then how much you're paying out and, you know, to actually do like a full-on fluid assessment, which is sometimes challenging to do outside of a lab environment.

OK, so just some general tips for staying hydrated. I've got my chart on the following slide that we will go over here in just a second that will show you some quick and easy ways to help ensure that you're staying hydrated. But just in general tips, because I think if there is one strategy that you could implement to, you know, improve your nutrition, for a lot of us it's just drinking more water. A lot of us tend to walk around dehydrated on a daily basis, and so making sure that you're staying hydrated is one of the best things that you can do to really optimize your performance.

And so just some of my general tips is keep a water bottle with you. I never go anywhere without a water bottle. I mean, even in my house, I have a water bottle downstairs and one upstairs. Every time I leave the house it's like it's my phone, it always goes with me. And when you do drink, make sure that you're sipping fluid and not chugging it all at once. The best way to, you know, hydrate and stay hydrated is to take small sips frequently.

And then choose watery foods in addition to those foods that you drink. So, you know, I've got the picture of the watermelon on there, that can help hydrate you, especially in the summertime as we head into these hot months.

Melons are great, grapes, apples, citrus can provide you at least a small amount of fluid. Now, as far as what to drink, you know, generally, I'll always recommend water, but milk, black coffee unsweet tea, sparkling water, there are other great choices. I often get the question of, "Well, doesn't coffee and caffeine, anything with caffeine dehydrates you?" Not necessarily. If you're used to a regular dose of caffeine, you can count that towards your fluid intake.

I do suggest keeping your caffeine intake ideally less than 400 milligrams a day. In the military environment, we're a little bit more lenient and so we say, we try and keep it to less than about 600, and then if you're in a deployed environment, where you need to be alert and you had two hours of sleep, sometimes, you can go even a little bit higher than that, but you want to be strategic about it, but that can all count towards your fluid intake.

Again, I would not suggest abusing sports drinks. They're really designed more for exercise rather than just a general way to hydrate throughout the day, and I do not recommend energy drinks. There's a lot of additives in energy drinks in addition to caffeine that can often do more harm than good.

So, as promised, I said I was going to provide you with a resource to help you identify how hydrated you are, and I'm sure that you all have seen this already. I often would see these posted in bathrooms on military installations, and I think we all know how it works. You really want your urine to be a pale yellow color. That indicates that you are well hydrated. You don't want your urine to be completely clear, because it is true, you can drink too much water. What happens when you drink too much water is you end up diluting all of your electrolytes. Instead, you want the pale yellow.

If you are taking dietary supplements that happen to be high in B-vitamins, if you take a multivitamin that's really high in B-vitamins, it will turn your urine with that bright fluorescent yellow. That's OK. It doesn't necessarily mean that you're dehydrated, it's just your body getting rid of those excess vitamins that you don't need. Now, if your urine is dark, like that dark brown or amber color, you probably need to go to the ER, especially if you've been heavily exerting yourself, that could be an indication that something's going on with your kidneys.

I mean, we see this a lot during — or at least for service members when they experience some type of heat illness or heat injury and end up with a condition known as rhabdomyolysis. But not anything to stress over right now, but again, just look for that pale yellow color and you should most likely be good.

All right, nutrient timing. So, this is sort of the fun part that I think a lot of people are interested in when they think about sports nutrition or tactical nutrition. What do I eat for exercise? In general, when we refer to nutrient timing, we're really just referring to a strategic food and fluid plan that helps support performance. Most people think of it in the context of exercise, what do I eat pre, during and post exercise, but it also includes regular meal consumption as well.

The goal with a specific nutrient timing strategy is that it's going to help you perform better, whether that's during exercise or whether that's for your job or helps you feel better throughout the day, and then also recover faster. With the recovery piece, that is most often referring to exercise, how many of you have done a workout, maybe it was like a leg day or something at the gym and you're sore for three days. Well, that recovery is spanning over that three days.

So, what you eat during that timeframe is going to help or hinder your progress on how quickly you're able to recover. So, let's talk more specifics. What does optimal nutrient timing look like? All right, so let's talk about pre-exercise, so before you go work out. Let me just preface this by saying, if you are someone that exercises first thing in the morning, I mean you literally roll out of bed and go exercise, you may not be interested and it may not necessarily apply.

I can attest. I am one that works out first thing in the morning. I'm not usually up to eat something because I just want to get my workout done and get on with my day. However, when you do that, you often limit how long and how hard you can push yourselves. So, right now, I only really have time to exercise for about an hour. If I were to go longer than that, I would definitely need to eat something. So, what I would suggest is that if you do work out first thing in the morning, have a snack before you go to bed and follow some of these principles that we're about to cover.

If your activity is going to be within an hour, usually what we'll suggest is maybe 30 to 60 minutes prior to exercise, have a snack or a small meal that's rich in carbohydrates. OK, you want to give your body a readily available source of fuel to burn. Generally, it can be about 200 to 300 calories or so, depending on your body size and what your individual tolerance is. This is so individualized when we talk about fueling for exercise, but what I would suggest is avoid foods that are high in fat and high in fiber. It's going to take way too long to digest and it's going to leave you really uncomfortable during exercise itself. I'll give you specific examples of what these foods might be on the next slide.

If your activity is longer than an hour away, you can actually dose your carbohydrates based on when you're going to be exercising. So, anywhere from 1 to 4 grams of carbohydrates per kilogram of body weight, one to four hours prior to exercise. What that means is if you're working out in an hour, do 1 gram of carbohydrate per kilogram. If you're going to be working out in four hours, do 4 grams of carbohydrates per kilogram. That way, you can dose it and you can adjust the timing and amount to match your schedule and activity.

Now, if this is going to be a super easy workout, you may not need to eat that many carbohydrates. If it's going to be a really intense workout and you really want to make sure that you're well fueled, I would go on the higher end for carbohydrates. You can also have a little bit of protein with that pre-exercise meal or snack. I wouldn't suggest eating all protein. You definitely need those carbs but you know, maybe 10, 20 grams of protein would be completely appropriate, whatever you feel like you can digest, because having that little bit of protein can sort of help. What I like to say, "prime the pump," and it gives your body a readily available source of amino acids, so that when you're done exercising, it can help kick-start that recovery process, and we'll talk about what you want to eat after exercise too.

So, what are some examples? If you're going to be exercising here, in the next hour or so, something small, like behind carbohydrates. My go-to, a banana — I love bananas,

graham cracker, some yogurt, even a piece of toast with a little bit of jam on it, something like that. Now, if it's going to be a little bit longer until you exercise, you can probably tolerate a little bit more. So, that's where you'll hear like a bagel and peanut butter, you can have a small bowl of pasta, even a granola bar, even the example of some eggs and some toast could be a good option for you.

What you need to recognize is that you need to experiment, because I'm sure many of you know people — I've been a runner for the past 20 years. I know people that can go eat a cheeseburger and go run 10 miles 10 minutes after eating that cheeseburger. There are other people I know that will eat a banana, and they have to wait three hours before they can go exercise because it just doesn't sit well on their stomach. So, what you choose needs to be based on what you know that you can tolerate during exercise.

All right, fluids. Again, with fluids, your needs are so individualized, so it's hard to give a general prescription of how much you should consume. But what I would suggest is that you don't want to start exercise dehydrated, and I mean that's kind of common sense. But if you need kind of a general guide of where to start, usually about 2 cups of fluid about two to four hours prior to exercise can help me meet those fluid needs. But again, you've got to know your body best and know if you might need more or less fluid.

It is well established that caffeine can help improve exercise performance, and so, I've got listed here an optional 200 milligrams or less of caffeine, 30 to 60 minutes prior. I would suggest sticking with coffee, tea or like the caffeine gum or mint and not opting for energy drinks on pre-workouts because of all the other stimulants that are in those products. Again, if you're used to a regular dose of caffeine, you're not going to be dehydrated if you have a cup of coffee before you go exercise. I'm an avid coffee drinker and so, I always will have at least like two cups of coffee, but I usually have to wait about like two hours before I go exercise.

All right, fuel during exercise. So, if you're going to be exercising for an hour or longer, you might actually have to think about fueling while you're exercising. If you're working out for an hour or less, probably not, but for a sustained exercise, if you're like going on a ruck march or a really long hike or something like that, definitely have some fuel with you. What we recommend is for activity that's going to be longer than an hour, aiming for about 30 to 60 grams of carbohydrates every hour.

And then for activity that's going to be longer than three hours, you can actually tolerate up to 90 grams every hour and so there are different fuel sources there that are about 25 grams of carbohydrates each. And so some of my favorites, especially when I do long runs or hikes is I, going back to those applesauce pouches or the squeeze fruit pouches, you can do a lot of the sport products out there, like the gels, the chews, even foods like, I've done pretzels, raisins or dates. Even a sports drink, and a lot of it depends on the type of activity that you're doing and what you can handle.

I know a lot of people, they might have a sensitive stomach or they're doing really intense exercise — something like running is different from like a hike or a bike ride. And so what you choose might be different depending on the type of exercise that

you're engaging in. Fluid during exercise, again, so individualized, but what we generally recommend is at about 2 to 2 cups of fluid every hour in general. Some people sweat a lot more than others, and when it comes to electrolytes, some people are saltier sweaters than others.

And so you may actually need to consider joining the supplement with some type of electrolyte beverage, or an electrolyte tablet, or maybe the fuel sources that I'm choosing during exercise. Maybe, I want to make sure that those have electrolytes in them, but again, it needs to be tailored to what your sweat rate is and how much of these electrolytes you are sweating off.

The big electrolyte that you lose in sweat is sodium, and so that's the main electrolyte that were concerned about replenishing. But if you eat regularly and you're not working out for hours on end, most of the time you can replenish those electrolytes with food or you might want to add in a sports drink during exercise.

Post-exercise, I think this is an area that a lot of people are interested in, and they know that they're sort of that ideal anabolic window after you exercise. You want to eat something and yes that's true. You do want to have a meal or snack after exercise, and what I always recommend is, I mean, yes, you need your protein. I think most people understand that "OK, I've got to have my protein after exercise" and so that's when I see people pounding protein shakes and OK that's great. They've got the protein down, but they probably don't need quite as much as they're consuming. And then you also need to make sure that you're consuming carbohydrates.

So, what I always recommend is choose something that's high in carbohydrate about 50 grams or so with about 15 to 30 grams of protein. I know that's a pretty wide range but again, it comes down to what are your individual needs. Ideally, we would like to see you consume that meal or snack within two hours after exercise. Originally, or at least in older research, it was, OK after within 30 minutes of finishing exercise you want to have that meal or snack, but now what we're finding is that if you can at least replenish, rehydrate within two hours, you can still get a lot of the same benefits. Now, if you are one that is going to be working again later that day or within 24 hours, certainly the sooner the better.

And then when it comes to fluid, you might try weighing yourself before and after exercise to see how much fluid you lose from sweat, and what we would recommend is for every pound that you lose during exercise, rehydrating with two to 3 cups of fluid over the next couple of hours.

And you want to start hydrating immediately after you're done exercising. But again, it just, as you can see, it's so individualized because I think about like, my husband who's a super heavy sweater and I mean, I will definitely sweat but nothing like him. So his fluid and electrolyte needs are going to be a lot higher. So again, it comes down to what's going to work for you individually.



So, what are some examples of these optimal post-exercise food options? So, the rumor is true. Yes, you can have chocolate milk after exercise. It is that ideal ratio of carbohydrates and protein, and it's a source of fluid. So if you enjoy chocolate milk that's a great option, but even doing something like, maybe some fruit and hard boiled eggs, or my go-to is often, I like the berries with some Greek yogurt and maybe it's like some toast or granola or something for some extra carbs.

You could do something like that's a peanut butter and jelly sandwich or a tuna sandwich with a little bit of proteins and complex carbohydrates from the bread. Lots of different options. If you don't feel like you can stomach whole food right after exercise, that's when something more like the liquids can be helpful. So, like the chocolate milk or like a sports drink, but if you can get a meal in within two hours after finishing exercise, that can also help promote that optimal recovery from that exercise session.

All right, recovery. Note that recovery doesn't end after that last meal or snack that you had after your workout, OK? We talked about the example of you're sore from a workout that you did three days ago, OK? So, what you're fueling your body with during that time is going to help or hinder that process, and so I'm still going to emphasize a lot of nutrient-rich foods.

Some of the examples that are provided on this slide like your dark green leafy vegetables. That's tart cherry juice right there, and there's a lot of research on tart cherry juice in helping promote recovery from exercise reducing inflammation kind of muscle soreness. It's also a natural source of melatonin and so it's often recommended that if you drink it before bed it might help with sleep. I'm not 100% sold on that, but it is suggested and there are some studies that have demonstrated that.

I've also got the example of water, that making sure you're staying hydrated. Choosing some good healthy anti-inflammation fats like, I've got the examples of fish, and so making sure that you're consuming those nutrient-rich foods and focusing on that balance and variety in each of your meals and snacks to help promote recovery.

All right. So if you're considering making changes to your eating habits, what I always suggest starting with is try keeping a food log for a week. See where you're at and I think by keeping a food log, you gain a lot insight into what the main areas of focus should be when it comes to making changes. You might realize like, I don't eat any fruits and vegetables, or I skip a lot of meals, or I don't eat on any kind of consistent schedule. And it can help you identify, like what are the areas that you might want to focus on.

And then if you are watching your weight, the suggestion I have is to time your exercise sessions around your meals, so that you're not taking in a bunch of extra calories. And so what that might look like is, OK, well, I'm going to exercise in the afternoon, but instead of when you're done with that exercise session instead of having a snack and then having dinner maybe just have dinner within two hours after finishing exercise.

So that you can be saved those extra calories that way and then also be honest about the frequency and intensity of exercise that you're doing, going out and biking or



running for two hours straight is very different from going to the gym. “Oh yeah. I was at the gym for two hours,” but were you actually moving and exercising for this full two hours or were you doing a set, taking a little break. You know, going to do another set, socializing.

So, you want to be honest with how hard are you really exercising and just know that you can't out exercise a bad diet, OK? Just because you are exercising doesn't mean — or that doesn't give you a reason to eat a bunch of junk food. I always tell people that say, “Well, I perform fine. I can run fine or I can, my strength is great and I can eat like garbage.” Well, my point is well, how much faster, how much stronger will you be if you focus on your nutrition?

And just lastly, just to give you some resources on supplements. Dietary supplements should supplement an already well-balanced eating pattern, and they can certainly be helpful, but just know that they're not regulated like food and drugs are. So you want to be smart about your choices, and so I always suggest go with food first. That's the best way to get your nutrients.

And we have a wonderful resource our sister site, Operation Supplement Safety, can provide you with some great resources. If you're considering taking a supplement, or maybe you're taking one already. I'll just highlight the Check Your Supplement option. There's a little scorecard.

If you have a supplement that you're curious about, you can actually go through and answer some questions and it will tell you, is this something that you might want to be careful with or does this seem OK?

Just to wrap it up. We know, what we've covered today. We do know that nutrition does play a key role in mission readiness and optimizing performance. And when you are strategic about fueling practices, it involves choosing the right foods and fluids at the right time. And when you are timing those fuel sources appropriately, it does additionally, help support optimal physical performance and recovery from exercise. And then lastly, just be cautious with dietary supplements and really try and get your nutrients from food first.

These are just some of the resources that we have on our website. For example, to highlight some nutrition resources, we have Get Into Fighting Weight guide. We have a nutrition guide. So, check out our website if you are interested, [hprc-online.org](http://hprc-online.org).

And then lastly, just some additional information, you can reach out to Champ or the Consortium for Health and Military Performance, or you can reach out to me directly. We've got our web resources, and then if you do have specific questions and want to figure out an eating pattern that's going to work for you or an individualized fueling plan, I highly recommend visiting with a registered dietitian, who can help you come up with an appropriate fueling plan. These are my references. Again, just want to thank you so much for hosting me today. I love this picture right here. I feel like sometimes this

captures my job in a nutshell, but it really should be a war of broccoli versus cookies. Hey, those can both fit.

**Host:**

Thank you, Brooks, for your time, for sharing your invaluable experience and expertise. And I also want to thank all of our attendees for joining today's webinar. If you do find yourself having questions, after the webinar's over, you can always email us at [MOSWebinars@militaryonesource.com](mailto:MOSWebinars@militaryonesource.com), and we can send those questions over to Brooks to find answer. Brooks, do you have any closing thoughts or final thoughts you'd like to share with everyone.

**Brooks Ford:**

Just that one, I thank you so much for having me today. This is, the military environment is so unique, and I think that it's just important to reiterate that it is not one size fits all when it comes to finding an appropriate fueling pattern that's going to work for you, and I think about the different jobs that I've had in the past and the different populations that I've worked with, everything from paratroopers in the Army to cadets to flyers. Those jobs and the demands are so different.

We've got one population that's super active, they're the ground pounders with the big old rucksacks, rucking all the time and then we've got our flyers that spend most of their flying time, they're sedentary, but they're having to be so alert. And so it's just really interesting to see how it's not a one-size-fits-all approach to our military population and so really trying to tailor your nutrition to what your job is and what the demands are I think it is the key if you're looking to optimize performance.

**Host:**

Thank you. I believe this is going to conclude our webinar today on Tactical Nutrition Strategies. Thank you so much everyone for joining.