**CONTROLLED CHAOS:**

**Guidelines for Increasing Stamina & Endurance**

For a working canine to reach his or her full working poten­tial, training for both stamina and endurance is needed. A dog with excellent stamina and endur­ance will search better, track longer, fight harder and stay more focused than a dog that is less fit.

Although we frequently use the terms interchangeably, stamina and endurance refer to two different things when discussing exercise and fitness. ***Endurance*** refers to the maximum amount of time that a given group of muscles can perform a certain action. An example of this is a dog being able to track for one hour without physically fatiguing compared to an out of shape dog that tires after 15 minutes.

***Stamina*** refers to the amount of time that a given muscle or group of muscles can perform at maximum capacity. An example of this would be how long your dog can maintain maximum speed while sprinting or how long your dog can main­tain maximum pressure on the suit when biting a decoy.

A training program that empha­sizes both physical endurance and stamina is essential if we want our canine partners to reach and main­tain peak performance. Of course, mental endurance and stamina are also important when it comes to working efficiently and effectively. The good news is that a dog in ex­cellent physical condition can bet­ter withstand the mental challenges compared to a dog that is less fit.

**Exercise Principles that Inform Training**

How do we increase endurance and stamina? How do we help our dogs track further, search longer and work harder?

When creating canine fitness pro­grams that are designed to increase both stamina and endurance, there are two key principles to consid­er. The first is called ***progressive overload.*** The second is a concept called ***periodization.***

***Progressive overload*** is a concept developed by Thomas Delorme, a U.S. Army physician, when reha­bilitating soldiers from injuries they incurred during World War II. The principle emphasizes the need for greater demands to be placed on the body during successive work­outs over time if improvement is to be achieved (Delorme & Watkins, 1948). The term is frequently used to refer to resistance training and build­ing muscle strength, but it is also rec­ognized as a fundamental principle for success when designing fitness programs and high intensity cardio training. The idea is that in order for the body to get stronger and faster, workouts need to become progres­sively more challenging.

***Periodization*** is a structured ap­proach to training that involves grad­ual cycling of various aspects of a training program during a specific period of time (Frankel & Kravitz. 2000). The idea here is that we need a structured training routine that pro­gressively overloads our dog’s body, making it get stronger and faster, while also building in periods of time for rest and recovery before increas­ing the workload again. In this way, we push the body enough to prog­ress to the next level while also build­ing in recovery time so that the body has time to physically adapt to exer­cise without risk of injury.

**Implications for the Working K-9**

How do we apply the principles of progressive overload and peri­odization when it comes to training our working canines? What does a training program that utilizes these approaches look like?

When applying progressive over­load, we need to identify an area that we want to improve, and we want to gradually increase the workload in this area. When chang­ing your training routine to make it more challenging, it’s best to change one variable at a time. This will help ensure that you don’t over­load your dog’s body by doing too much too quickly, which can result in injury.

Training variables include such things as intensity, duration and fre­quency. When it comes to building endurance and stamina in tracking, for example, you can change the intensity of the workload by chang­ing the terrain. You can increase the duration of the track by making it longer. You can change the fre­quency by increasing the number of tracks that you do in a single day or increase the number of days that you track per week. When deciding which variable to change, consid­er the needs of the individual dog. In the end you might want to see improvement in every area, but it’s best to start with one variable (such as increasing the length of your track) and then change anoth­er variable (such as the difficulty or intensity of the terrain) once you’ve achieved your initial goal.

What might this look like for a pa­trol dog? Let’s suppose your dog gets tired on the bite. Signs of this might be seen by a changing grip or even coming off of the bite. Ap­ply the same principle of progres­sive overload to increase your dog’s stamina and endurance. You could start by gradually increasing overall time on the bite with a decoy who is moderately resisting. After you see improvement in the amount of time that your dog stays engaged without fatiguing, you would then gradually increase the intensity of the bite by having the decoy be­come more aggressive in the fight.

By structuring training in this way, you are progressively overloading your dog’s body in ways that will help increase both stamina and en­durance.

By applying the concept of pro­gressive overload to your training, you will begin to see improvement. This system of overloading, how­ever, also needs to include time for rest and recovery so that your dog’s body has time to safely adapt to the increasing physical stress. This is where you apply the principle of periodization. We need to structure training so that we don’t have too much time between training ses­sions or else dogs lose physical adaptions that were just gained. Allowing time for adaptation and re­covery helps prevent injury.

**Guidelines for Success**

When to advance in training and when to allow for rest and recovery will vary by each individual dog. A dog that is just starting a training program, for example, won’t prog­ress as quickly as a fit and experi­enced dog. When moving forward in your training program, however, here are some general guidelines to follow.

Before planning your training, al­ways keep your end goal in mind. For example, is it to increase stamina so that your dog can work a 1-mile track in rough terrain once a week? Do you want to increase cardiovascular endurance so that your dog can continuously work at a trot or run for 30 minutes with­out tiring? Keep your end goals in mind as you map out the upcom­ing weeks or months of training.

Establish a baseline before do­ing more challenging, high-inten­sity work. For example, build up a steady 20-minute cardio workout at an easy to moderate pace at least 3 days per week before incor­porating more challenging activities like speedwork or hill work. Estab­lish a baseline for the length of a search before adding variables that make the search more physically challenging for your dog. Keep in mind that if you increase the level of difficulty too quickly or change too many variables at one time, like adding more challenging terrain on a day that is hotter than usual, you might have to make your track shorter than normal.

Build consistency into your pro­gram and try to engage in the ac­tivities that you want to improve at least twice per week. When in­creasing my dog’s cardio endur­ance, for example, I found that doing long runs twice per week helped us maintain our current fit­ness level. When I added a third day of running into our weekly routine, however, I saw my dog’s cardio endurance improving more quickly.

Don’t forget about rest and re­covery days. If we continually push our dogs physically at every train­ing session, multiple times per week, their bodies don’t have time to adapt and recover from addi­tional stress placed on them. Rest and recovery, however, does not necessarily mean your dog sits in the kennel all day. Active recovery can include a change in activity so that you work your dog’s body dif­ferently. For example, if you have a day with a lot of high impact ac­tivities like jumping, a recovery day might include swimming.

Finally, always be sure that your dog is cleared by a veterinarian be­fore engaging in a regular fitness routine. The recommendations provided here are only for healthy dogs who are physically mature and free of injury and/or pain. No matter what you have planned for your training day, always observe your dog closely for subtle signs of soreness, weakness or pain. Also be alert to signs of heat distress. Make adjustments to your training based on the dog in front of you and how your dog is responding to exercise on that particular day. If you see unusual changes in your dog that raise concern, be sure to seek veterinary support.

Delorme, T.L. & Watkins, A.L (1948). Techniques of progressive resistance exercise. Archives of Physical Medicine, 29, 263-273.

Frankel, C.C. & Kravitz, L. (2000). Periodization: Latest studies and practical applications. IDEA Per­sonal Trainer, 11(1), 15-16.

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