



# Training with Purpose

Bringing Your Horse Back Into Work

She entered by the old wooden doors around back. She had been to this barn many times, and the familiar smell of hay and horses permeated the air. Today, she was called in for a routine checkup on a client's dressage mare that was just coming back into work.

The area had a long, tough winter. Bitter cold. Too much snow. No one wanted to go outside into the bitter wind, not even the horses. Some riders bundled up and braved the wrath of ole man winter, but most of my adult amateur clients curled up on the couch instead. Who can blame them? It's hard enough balancing work, family, and riding, but then add the weather difficulties too. In fact there were many days she would have stayed inside... if she had the choice.

"She lost some fitness this winter," the client warns as she pulls off the blanket. "But I wanted to make sure she felt okay now that we've started riding again."

"Yeah, you can really see it in her top-line and hind-end muscles," she replied. "What's your plan for bringing her back into full work?" she asks.

"Not sure," the owner says. "What do you recommend?"

She gets asked this question often. Sometimes, because a horse has been off a month or two due to unforeseen circumstances, and sometimes because an injury has the horse laid up for longer. Whether it is rehabilitation or just getting fit, there are some guidelines to follow and some concepts to be aware of.

"Let me compile some information and email it to you", she said. "That way you have it for future reference", she added.

She started thinking, I bet others are in this same predicament right now. This would be a good time to share what research recommends. Basically, if clients can understand how the body reacts to exercise demands, they can develop a training program for their specific horse and discipline. Of course, with injuries, always consult your vet for the best rehabilitation schedule.

So what did she recommend?...

## You Know Your Horse Best



So, the best scenario is to review the information below and then come up with your individual horse's schedule based on discipline, age, health, and future goals. However, Dr. Lori Warren says, "as a rule of thumb, each additional month off beyond the first month of layup requires a month's reconditioning". After a prolonged layup, it's important to work on general fitness first, paying attention to building muscle and cardiac fitness. Strength work and work in a particular discipline come later. Once work in a particular discipline is part of the horse's routine, make sure only about 50% or 3 out of 6 rides are actually in the discipline. The other workouts can be in general fitness or cross-training.

### Where To Start

When first starting a horse back into work, the most important aspect of fitness is the 2-12 months spent on long, slow, distance training. The rule is to progress slowly and give alternating days of rest. This is true for the horse who has had the winter off and the horse who is coming back from an injury. The goal is to prepare the horse for 45-60 minutes of easy exercise at walk, trot, and canter. Once this stage is reached, you can increase the objective according to the discipline.

## How The Body Works



When bringing a horse back after some wintertime off, the question is how much fitness is lost and how fast will it build back up?

Fairly quickly, the body adapts to the training, and fitness increases. After 10 days, the horse will plateau in his fitness unless challenged more. Dr. David Marlin suggests that a change of intensity in the training occur around every 2-3 weeks. The key is to balance fitness versus the risk of injury. If you increase the intensity too quickly, you risk injury. On the other hand, if you increase too slowly, you risk wear-and-tear-type injuries. However, the worst type of training for preventing injury is intensive three days a week, back to back, and then 3 days off. No weekend warriors here. Not if you want your horse to be sound. Dr. Lori Warren also warns that large oscillations in fitness are detrimental to long-term soundness. "In older horses, it is particularly important to maintain fitness in the off-season because reconditioning takes longer as the horse ages." So as hard as it may be, you have to come out after work, rain or shine, and keep the horse fit during the week and during the winter.

## Individual Response Times

Not all horses respond the same to training. Older horses lose fitness more quickly and gain it back much more slowly. Past injuries and health issues will also slow the process. Of course, genetics and confirmation play a role. If the horse finds the work easy, it may be too easy and actually delay fitness. Of course, you will have less risk of injury if they find the work too easy. On the other hand, if the work is very hard for the horse, proceed at a slower pace and keep the duration short.

Other variables that influence your fitness schedule include intensity (how hard the work is), duration (how long), and frequency (how often). High intensity for a long time on a frequent basis is a recipe for disaster. Good practice is to change one variable at a time, but not the others. Increase the frequency every 2-3 weeks, but not the duration or intensity. Or increase the intensity but not the frequency or duration.

The body doesn't gain fitness linearly. Some tissues and systems gain fitness more quickly, and other structures take months to gain strength. Let's talk about these systems.

## Tissue Fitness Rates

One of the first areas to get fit is the horse's cardiac system. One way to measure a horse's cardiac fitness is with a heart rate monitor. With increased fitness, you will notice that not only is the heart rate slower during exercise but also recovers more quickly when you stop exercising. To record this, your horse has to be wearing a heart rate monitor during exercise. Other factors that will influence your horse's heart rate include pain, heat, dehydration, excitement, and heart problems. A change in your horse's cardiac fitness will happen in as little as 1-2 weeks of starting training.

VO<sub>2</sub> is the oxygen consumption by the muscles during exercise. An important part of the cardiovascular system is to deliver oxygen to the working muscles. VO<sub>2</sub> max is a measure of the cardiac, respiratory, and muscular systems' ability to work at capacity. The most substantial increase in VO<sub>2</sub>max happens in the first couple of weeks of training. In addition, in the first couple of months, the body increases the red blood cells, hemoglobin, and plasma volume to better carry oxygen to the muscles. After about 4-6 months of training, the number of mitochondria that make ATP (energy the muscle cell can use from glucose) increases.

Fit horses sweat more easily and are better at dissipating heat before it overloads this system. Thermoregulation is another system that reacts fairly quickly to increases in

training. However, a minimum of 2 weeks is needed for the horse to acclimate if moved to a climate with higher heat and humidity.

## Fitness Chart

Adaptation	Time Course
Increase in VO <sub>2</sub> MAX	1 – 2 weeks
Increase in plasma volume	1 – 2 weeks
Improved sweating response	1 – 2 weeks
Increase in red blood cells & haemoglobin	2 – 4 months
Increase in muscle capillaries	3 – 6 months
Increase in muscle mitochondria	4 – 6 months
Increase in muscle aerobic enzymes	4 – 6 months
Increase in bone density*	4 – 6 months
Strengthening of tendons and ligaments	4 – 6 months

## Tendons And Ligaments Take Time



However, the most important take-home message from this chart is that it takes 4-6 months for the bones, tendons, and ligaments to strengthen. The slow adaptation limits the entire fitness program, and time must be given for these important supporting structures to adapt. Even consider the ligaments of the back and neck, not just the legs. It is these supporting structures that adapt more slowly and are susceptible to overloading injuries.

When rehabilitating an injured tendon or ligament, consult your veterinarian for the proper training schedule to ensure complete recovery.

So, for those you gave your horse the winter totally off because of the bad weather, you can't expect them to come back into full work, collection, and carrying capacity in 1-2 months. It's more like 6 months. It's an important reminder when you look outside at the dreary weather and decide to stay inside. You may be okay giving our horse time off, but you must realize that your plans for showing early in the season or moving up a level will have to be delayed.

## What Are You Training For?



When getting your horse fit, it's important to remember what you are training them for. Will they need power or stamina? Speed or distance? What happens when you change disciplines? Is the horse fit for galloping, but you want to teach it collection? Giving the horse's body time to adjust to the demands of a new discipline is equally as important as getting them fit in the first place. In addition, you may have the horse fit for what you can do, but is the horse fit enough to go to the trainers, where the demands will be higher? These are all important questions to ask oneself if you want your horse to stay sound both now and in the future.

Sprinters need large, powerful muscles with few capillaries and mitochondria that carry them quickly for a short distance and work primarily anaerobically. In contrast, an endurance horse has thin muscles, packed with mitochondria and capillaries, and works primarily aerobically. Although much of this is determined genetically, you can train a horse to be good at one or the other but not both.

## Dressage Horses Fitness



According to Dr. David Marlin, dressage horses in competition work at heart rates around 120-150 beats per minute. To improve their aerobic capacity, they should be trained at around 150-180 bpm for around 10 minutes several times per week. This kind of training can only be accomplished by fitting your horse with a heart monitor, but usually, a fit horse has to be at a hand gallop to reach a heart rate of 150-180 bpm.

While cardiac fitness is important in dressage horses, so is strength. After general fitness is achieved and you start working on discipline-specific movements, then muscle strength is important. When building muscle for specific movements, it's best to begin by performing the movement for 20-30 seconds with rest in between.

While we know that dressage is primarily an aerobic exercise, it's realistic to think that during intense strength training (ie piaffe) anaerobic (without oxygen) pathways are being used when the muscles are engaged and working hard. Working anaerobically should only be asked from the horse once it has a fair amount of fitness. Otherwise, you will only be breaking the horse down. Think of a race horse. First, they must be able to gallop a moderate distance before you can ask them to run all out a short distance.

This takes us back to the concept of intensity, duration, and frequency. In dressage, in intense exercises which require large, powerful muscles to carry the horse (ie piaffe, passage, pirouettes), it's best to first be able to increase intensity. The horse must slowly learn to increase the carrying capacity of its hind legs. As the hind legs gain power, you can increase the duration. Only then can you ask for a few ½ steps or a few steps of ultra collected canter. Then over months, you can only increase the intensity of that movement, OR the duration (ie more piaffe), OR the frequency. It is still important to remember that it takes 4-6 months for the tendons and ligaments to respond to the increase in workload, and also that working in a particular discipline should only take up about 50% of your training time.

Remember, your goal should always be to increase skill, performance, and resistance to injury. Training too hard, too quickly, sets the horse up for lameness. On the other hand, if you never challenge the horse by increasing either duration, intensity, or frequency, your horse will never be fit enough to handle the demands of the sport.