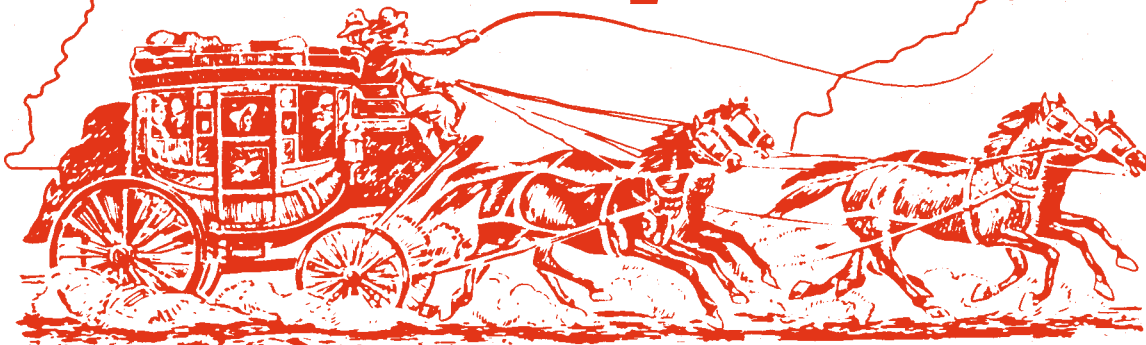


# Horse Express



Vol. 21, No. 2

April, May, June 2002

## Is Your Horse Ready for Spring?

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Individuals own horses for many reasons, which explains the numerous horse breeds as well as the great diversity of horse activities.

Most horses, about 70-75 percent, are owned for pleasure, personal or recreational uses. In this category are those who like to ride down a county lane or along a rugged mountain trail on a beautiful Sunday afternoon as well as owners who prefer more competitive activities ranging from local shows to world championship events.

**Horses Are Better Athletes Than Humans.** Horses can physiologically outperform human athletes. Horses have a greater capacity for taking in oxygen. From rest to maximum physical exertion, horses increase oxygen intake about 50 times compared to only a 7-10 times increase in humans. Greater oxygen intake results in greater athletic performance.

Horses' hearts beat faster. At rest, a horse's heart beats 28-40 beats/minute (bpm) which can increase to 250 bpm or a 10-fold increase. The human heart at rest beats about 55 bpm but only increases to about 210 bpm or about a 4-fold increase. A more rapid heart beat results in the blood carrying more oxygen to the parts of the body.

The horses' muscles can extract oxygen from blood better than human muscles can, and horses can also regulate the number of red blood cells through the action of their spleens. The horse has a vast tolerance for lactic

acid, a waste product produced when muscles do not get enough oxygen during exercise (anaerobic exercise). Horses performing to exhaustion produce four times as much lactic acid as do human athletes.

Human athletes, however, surpass horses in the exchange of oxygen from the lungs to the bloodstream.

Owners want the best for their horses as demonstrated by the amount of money they spend on feeds, facilities, tack, equipment and veterinary services and supplies. Therefore, it is amazing that some owners who want to do things right for their horses use them improperly. As spring approaches, thousands of horse owners are chomping at the bit to hit the trails and show rings. Whoa! A horse owner needs to wait a minute and take stock of the horse's condition.

**Horses Need to Be Physically Fit.** As athletes, horses must be physically fit to perform the various tasks demanded of them. Whatever the performance activity – a day-long trail ride, a 4-H horse show, a three-day event, team penning, jumping, barrel racing, etc. – horses must be physically fit. However, horses are often taken from the pasture or stall in the spring and ridden before being properly conditioned.

In late fall, many horses are turned out on pasture or stalled part or all of the winter. Most pleasure horses are not ridden often in the winter months. In early spring, most will still have their thick winter hair coats which impedes their ability to perform and sweat. Some pleasure horses will come through the winter with more body fat than is recommended for most performance horses. On the other hand, some may be thin. A horse's body condition may not be noticed until it sheds out in the spring. Some horses also enter the spring with long, neglected hooves.

Before embarking on serious riding in spring, owners need to:

- 1) properly groom horses to remove their long winter hair coat;
- 2) have their hooves properly trimmed and/or shod as needed;
- 3) address improper body condition (over fat or too thin);
- 4) have horses on a scheduled deworming and vaccination program;
- 5) physically condition the horse before riding.

All these issues need to be addressed simultaneously in the spring, and it takes time to get your pleasure horse to the stage where it can perform well and safely.

**Body Condition Score (BCS).** Body condition score is a visual, hands-on system to evaluate a horse's body fat content. A horse with a BCS of one is emaciated while a horse with a BCS of nine is obese. A score of five represents moderate body condition. One needs to evaluate the horse's neck, withers, shoulder, ribs, back, croup and flank areas. While the system was developed for evaluation of broodmares, it also works well for pleasure and performance horses.

Pleasure horses that do not perform often and at only a low level of intensity can have a BCS of 5-6.5. As the levels of performance intensity, longevity, and summer heat and humidity increase, fatter horses with a BCS above this level will be at a disadvantage.

Horses performing at moderate or intense levels should have a body condition score of 5-5.5. With a body condition score of less than 5 or more than 5.5, these horses tend to not perform as well. When performance is more intense, horses that have a BCS of less than 5 may not have enough energy to perform over time. Those with a BCS over 5.5 may have too much body fat which hinders more strenuous performance.

Once a horse has shed out and its body condition evaluated, its feeding levels may need to be adjusted. Thin horses need more feed. Horses at or below a BCS of 4 probably will require grain and/or more hay. Owners of horses in the low 5 range may increase the quality and amount of hay or grain for those individuals not intended for intense activities.

Over-fat performance horses, especially those with a BCS in the high 7's and above, need to lose body fat. Adequate exercise with proper feeding is required. Such horses need little or no grain. Hay should be limited and may even be of a lower quality, especially for horses stabled most of the time. Horses on high-quality pasture may have to be placed in a dry lot part of the time to slim them down.

**Physical Condition or Fitness.** Unfit horses are often seen even at high levels of competition. Riding unfit horses is unsafe for both rider and horse. This risk increases at moderate to intense levels of performance.

When pushed beyond their level of physical fitness, unfit horses become fatigued. At this stage, horses may stumble and make miscues, which can result in a serious or even life-threatening injury. A tired or fatigued horse cannot perform anywhere near its genetic and conformational potential.

Unfit horses breathe heavily and lather easily. Their nostrils flare and their flanks heave as they breathe rapidly and deeply, indicating that they have been pushed beyond their physical capacity. A physically fit horse produces a clear, watery sweat.

Pleasure horse owners must realize that they cannot take a horse out of the pasture or stable and ride it hard and/or for long durations before it is conditioned for such activities. If sixty days of inactivity results in a loss of bone density, what effect does winter inactivity have on a horse's physical condition?

To reduce stress and possible injuries, owners should properly condition horses not routinely exercised during the winter before riding them even for pleasure. This is probably more critical with older horses.

The level of intensity or degree of difficulty is the major key in performance; intensity level is far more important than the amount of time spent performing. In a few minutes of performance, a cutting or reining horse expends more energy than a horse ridden down a country road or along a trail at a walk for a few hours.

Horse owners must plan to spend six weeks physically conditioning their horses before attempting any serious training or competition. Often horses are started into training when they are not physically fit. This is counterproductive – a tired horse will not be responsive. The longer a horse is trained the more fit it will become; however, physical and mental damage may have been done before the horse was fit enough to be properly trained. Physical conditioning prepares a horse to perform at its genetic and conformational potential without becoming fatigued or exhausted. And, it must occur first for training to be effective.

Training enhances a horse's natural ability by developing action and maneuvers needed for a specific event. And, a horse can only reach its performance potential if it is physically fit. As with human athletes, a horse must have its cardiovascular, respiratory, muscular and skeletal systems conditioned for the level of performance expected. For motion to occur, muscles must contract by converting chemical energy into mechanical energy for propulsion and maneuvers. Oxygen must be transported from the lungs via the blood to muscles and other body tissues. Then, blood must remove waste products (lactic acid) from the muscles.

The heart pumps the blood throughout the body. With more intense performance, more oxygen is required; thus, the heart must beat faster. The resting heart rate is 28-40 bpm. Any exercise will accelerate the heart to 60 bpm, and

the horse's heart rate can reach a maximum of 250 bpm.

The horse's heart rate is a good measure of its physical condition and its performance effort. As the horse becomes more physically fit, its heart rate at a specific speed will be lower. When properly fit, a horse's heart rate should drop to 60-70 bpm within 10 minutes after completion of performance. Some trainers use on-board heart rate monitors to aid them in conditioning a horse.

Once a horse's heart rate exceeds 150 bpm, the horse's body shifts to anaerobic metabolism or metabolism without oxygen. Aerobic metabolism occurs in the presence of oxygen and efficiently converts energy to motion at heart rates below 150 bpm. Anaerobic metabolism cannot last long without the horse becoming fatigued. One result of anaerobic metabolism is the build-up of lactic acid, the cause of muscle soreness. As the horse becomes more physically fit, it becomes more efficient in converting chemical energy into physical energy (motion).

**Physical Conditioning.** It takes at least six weeks to get a horse physically fit for performance. More intense performance takes longer. It is relatively easy to get the horse's cardio-respiratory systems (heart and lungs) fit in this length of time.

A simple program is to start walking the out-of-condition horses for 30 minutes a day for a week. In the second week, continue walking 30 minutes per day and add 30 minutes at a trot. In the third week, ride the horse at a trot and slow canter for a total of an hour a day. For the next three to five weeks, increase the distance and speed on a regular basis as the horse responds.

It is advisable to rest the horse at least one day a week. This helps the horse to have a good mental attitude. Do not allow the horse to become tired in the early stages of the conditioning program. Some horses, especially those with high BCS, may need to be started at a slower pace. For example, ride them only 15-20 minutes a day the first week.

After the heart and lungs are conditioned, one can begin training. The horse's ability to perform specific maneuvers rather effortlessly is an indication that the horse's muscular system is becoming more fit. It takes longer to condition the muscular system, and even more time is needed for the skeletal system. This is more critical in race horses, three-day event horses and other such high intensity performance horses.

Since the activities that horses perform require sound feet and legs, it is imperative that their skeletal system be properly conditioned also. Long slow distance (LSD) conditioning helps strengthen and toughen the bones, ligaments, tendons and cartilage. This is often known as "legging-up" a horse. The intensity should be low and the duration relatively long. The idea is to elevate the heart rate and hold it at this higher level for several minutes. This level of intensity

should be done five to six times weekly for 3-4 weeks.

An exercised horse should have a heart rate of 120-200 bpm and a maximum respiration rate of 150 breaths per minute. These should drop dramatically 10-15 minutes after the end of performance in the fit horse.

For trail horses and most pleasure horses, six weeks of such a conditioning program should be adequate. Of course, allow for variation among horses – some will become fit faster and others more slowly. The level of fitness when riding ceased in the fall and the level of body fat content will also affect the spring time frame for conditioning. Fatter horses take longer to become properly fit.

**Riding Unconditioned Horses.** Research can help us understand the negative effect of riding unconditioned horses. Horses were physically fit at the start of a recent study. They were housed in individual box stalls and fed a ration that met or exceeded the current nutritional needs for intense performance. Two levels (0.36 percent or 0.62 percent) of calcium were fed. Prior to this study the horses had been physically conditioned for 12 weeks, then exercised to maintain condition for 30 weeks. During the study they were walked at a rate of 2.2 miles per hour on a walker for 60 minutes per day/seven days per week. All horses were healthy during the study and did not lose or gain any weight.

Bone mineral content (BMC) measured at three locations of the third metacarpal bone (front cannon bone) decreased rather linearly over the 12-week study. The BMC decreased 0.45 percent per week. This reduction was likely due to a lack of mechanical stimuli on the bone and fewer and less forceful movements than during the previous exercise regime. BMC has been shown to be highly correlated to bone strength, breaking load and elasticity. BMC may influence resistance to skeletal injuries.

Feeding extra calcium to horses being de-conditioned neither influenced their BMC nor overcame the effects of lack of exercise. The decrease in BMC might have been greater had the horses not been walked daily.

These results indicate that it is not advisable to take inactive horses on long or extensive rides or expect them to perform demanding tasks. Horses which have been confined to stalls due to injuries or bad weather should be re-conditioned prior to exercise.

Conditioned horses on pasture without any forced exercise program probably do not experience as great a decrease in BMC. Another study showed that yearlings on pasture had stronger bones than those stabled.

After a six-week conditioning program, your horse should have a more efficient cardio-respiratory system and its muscular system should be improved. If you plan to do only trail or pleasure riding, start with short rides. Each subsequent ride can be a little longer and more demanding as your horse becomes more accustomed to such activities.

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E12-4415-00-003-002

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