

Conditioning for Performance

--By Lari Shea

Horses in days of old were generally well conditioned for performance because, day to day, they performed. Being ridden or driven for transportation on a regular basis kept them relatively fit for riding and driving.

In a natural manner, feral or pastured horses condition themselves while they graze, and walk at 2 - 4 miles per hour. They sleep about four hours out of the day. By slowly walking around at 2 MPH, grazing only 10 out of the 20 remaining hours, they are putting in 20 miles of movement per day, usually on varied footing. And of course, periodically, the whole herd gallops off to the top of a hill to gaze back at whatever excuse they used to incite themselves to a good jaunt.

Our recreational and competitive goals are demanding more and more of today's horses. Short of turning "Oh Noble Steed" out in the mountains of Montana, how can the thinking rider be sure his/her horse is fit enough to safely perform his required tasks? And conditioned to perform even better?

First, buy a stethoscope. In order to gauge and improve the degree of equine conditioning, learn to monitor and understand some basic measures of metabolic function. Conditioning will not improve without periodic increases in the amount of stress the body is asked to handle. The secret to successful conditioning is to stress the body enough to force it to remodel into a stronger and fitter being, without increasing the stress on the body to the point of distress.

Soft tissue can be remodeled in six months to one year. In other words, your horse's muscles, including the heart muscle, can soon be conditioned to make him go as fast as he's ever likely to be able to go. However, it takes the semi-hard tendons and ligaments one to two years to remodel, and bone, up to three years. That first year of conditioning, your horse has more heart than legs. Your job is not to ask him how fast and for how long he feels like galloping. Your job is to gradually toughen up his locomotive system to handle the stress that his conditioned metabolic system can put on him. Distance riders call it: LSDW long, slow, distance work.

After the horse has developed "bottom", conditioning can begin. The essence of conditioning is reaching the horse's body to utilize more oxygen more efficiently.

We'll first use the stethoscope to count the number of heart beats per minute. A normal resting mature riding horse has a pulse rate between 32-40 BPM. Some promising individuals with bigger, stronger heart muscle only need to pump blood 26 -30 times per minute. These are good prospects for sports requiring sustained cardiac output.

Place the diaphragm of the stethoscope on the horse's left chest wall in the girth area just behind and slightly above the point of the elbow. Wait for a few moments until the horse becomes accustomed to your invasion; his heart rate will stabilize. Each "lub-dub" you hear is counted as one heart beat. Count for exactly 15 seconds, then multiply the result times 4 to get the rate per minute.

Horses have an absolutely amazing cardiac capacity. At maximum work, they can multiply their resting pulse rate by a factor of 8-10. In other words, an athlete with a resting pulse rate of 26 BPM could work at maximum exertion for a short period with a heart rate of 260 beats per minute. Think what would happen to your own heart if your resting pulse rate of 60 went up to 600 when you ran. Kaboom!

It is most efficient, however, for horses to work aerobically with a working heart rate of between 120-160 BPM. A conditioned horse's heart rapidly drops back towards the resting rate the very moment he stops working. Most

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endurance riders find that no matter how steep the hill they just went up, or at what speed, it is hard to catch the heart rate at higher than 120 or 130 BPM after dismounting. Within 10 - 15 minutes the fit horse's pulse is in the low 60's.

Here is our first test for a state of conditioning. After a typical brisk workout lasting a good hour, take your horse's pulse rate immediately upon stopping, and continue to monitor it every few minutes until it is down to 64 BPM. If it took 30 minutes for your horse to recover to 64, you are working him too hard for his degree of condition. Back off, find the level that he can handle, and gradually increase the duration and intensity of his workouts from there.

If he recovered easily to the required parameter in 10 minutes, you are not making him more fit with the degree of workout he is receiving. He may retain his current condition, but he will not become more fit without more work. Remember that working in sand or in the hills, or doing more speed work, puts a considerable amount of additional stress on all systems.

Although we all have watched a hot horse blow after vigorous exertion, respiratory rate itself is not the best indication of how a horse is doing. Research in equine sports physiology has shown that respiratory intake usually is not the limiting factor in performance. In other words, horses take enough oxygen into their lungs. It is the ability to distribute oxygen to the tissues, there to be "burned" to create energy, that differentiates the fit animal from the unfit.

In addition to bringing oxygen in, horses breathe to push waste products of metabolism out, and to cool themselves off. The resting respiratory rate of 2 - 20 breaths per minute will usually increase to match the stride rate per minute at the trot or canter (they breathe in rhythm with the diagonal on which the rider is posting), and may rise dramatically when the horse stops. Although respiratory rate usually drops concomitantly with pulse rate as a horse recovers, some horses continue to pant if they are hot. This may be normal for the individual.

Initially, conduct conditioning workouts 3 - 4 times per week, interspersed with quiet hacks or non-stressful arena work 1-2 days per week. After your horse is fit, if he competes regularly, he may not need additional conditioning, particularly if he lives at pasture.

While you are conditioning your horse, you must watch for certain dangers. Notice his attitude; he'll soon tell you when he's had enough. Don't argue with Mother Nature. Check for structural soundness, and take any indication of filling or heat as a sign that you are pushing too hard. Do not wait for actual lameness to occur. But your greatest danger during conditioning or competition is dehydration and the consequent electrolyte imbalance.

Work produces heat as a byproduct. Horses dissipate heat by shunting blood to peripheral blood vessels, there for body heat to be radiated off. (Thin skinned, leanly muscled horses do this best.) They also pant like a dog, literally exhaling hot air and breathing cooler air. But their most efficient means of dissipating heat is evaporation due to sweating.

Horses do not have a "sweat sack": a reservoir of water stored somewhere in their body to be used for cooling. The fluid component of sweat taken from intra- and extra-cellular fluids, from gut contents, and from blood itself. The skin loses elasticity, becoming more like parchment, gut motility slows down, and the blood actually gets thicker. Your veterinarian can teach you to perform simple tests to check for dehydration by monitoring skin response, capillary refill time, gut sounds, and quality of mucous membranes.

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The working horse needs a lot of water. When at rest, a normal equine consumes 5 - 6 gallons of water per day. When working at length in hot weather, he may drink up to 20 gallons or more per day!

A dehydrated, hot horse needs to drink quantities of water with the chill taken off, and then needs to have his lost electrolytes (salts) replenished. While riding, allow the horse to drink whenever the opportunity occurs.

After the ride, walk the horse around a bit while he is cooling off, so he does not become stiff, but pause frequently for him to drink his fill. Do not make him wait until you decide he is cool and put him back in his stall to take a drink. At that point, he will be in danger of gulping too much at once, and will not have the advantage of natural movement to aid in dissipating the water.

If you question your horse's state of being, Dr. Kerry Ridgway's "cardiac Recovery Index" will give a good indication of his ability to continue, or, conversely, his need for rest. By gradually increasing the work load, while monitoring your horse's well-being, you can create a horse fit enough to take you wherever you want to go.

For further information, contact:

The American Endurance Ride Conference

www.aerc.com

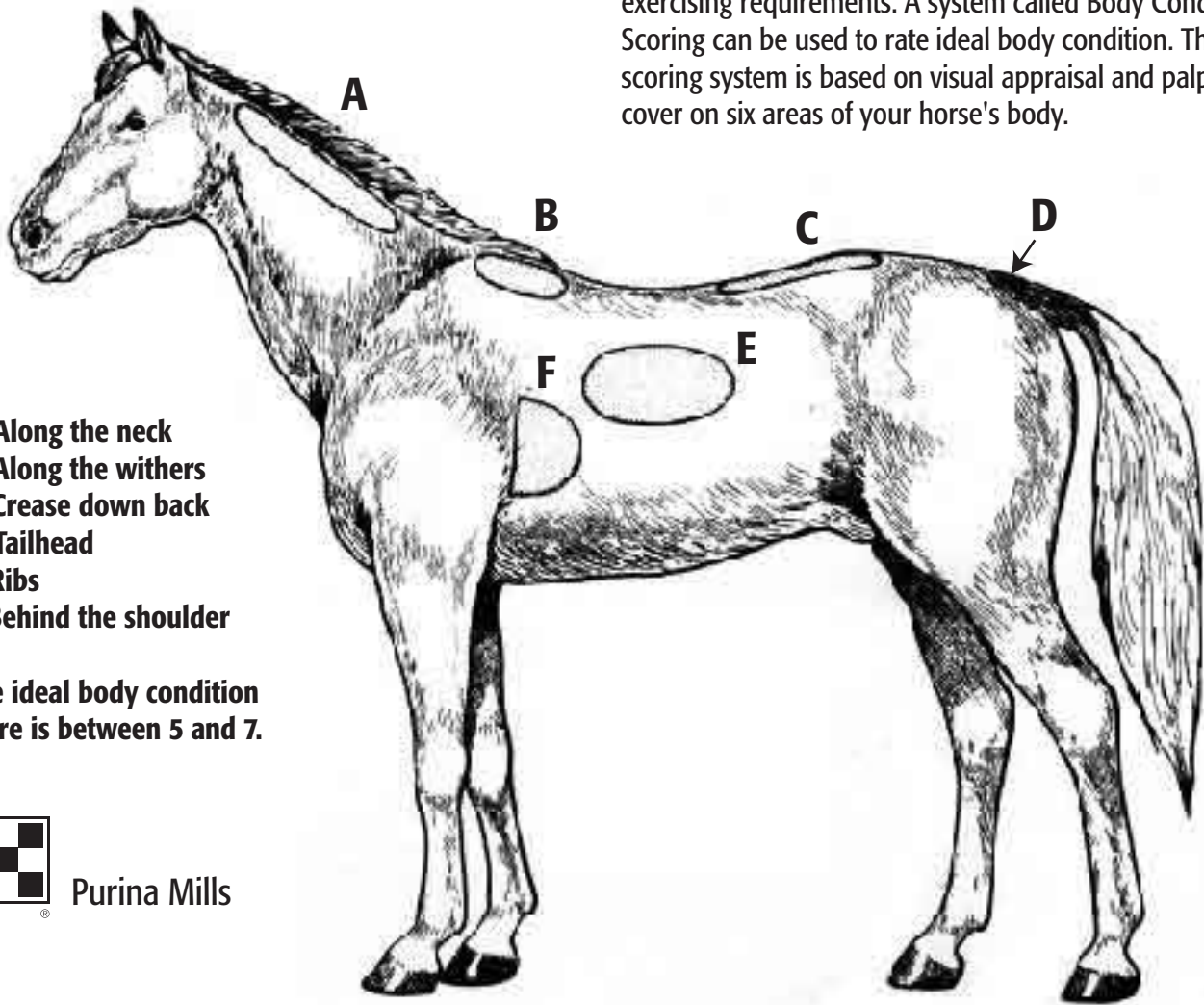
701 High St.

Auburn, CA 95603

(916) 823-2260

Body Condition Scoring

Many physiological functions in horses are influenced by body condition, including a horse's maintenance, reproductive and exercising requirements. A system called Body Condition Scoring can be used to rate ideal body condition. This condition scoring system is based on visual appraisal and palpable fat cover on six areas of your horse's body.



- A. Along the neck
- B. Along the withers
- C. Crease down back
- D. Tailhead
- E. Ribs
- F. Behind the shoulder

The ideal body condition score is between 5 and 7.



Purina Mills

Description of Individual Condition Scores (Score 1-9)

1. Poor: Animal extremely emaciated; spinous processes, ribs, tailhead, tuber coxae (hip joints), and ischia (lower pelvic bones) projecting prominently; bone structure of withers, shoulders and neck easily noticeable; no fatty tissue can be felt.

2. Very Thin: Animal emaciated; slight fat covering over base of spinous processes; transverse processes of lumbar vertebrae feel rounded; spinous processes, ribs, tailhead, tuber coxae (hip joints) and ischia (lower pelvic bones) prominent; withers, shoulders and neck structure faintly discernible.

3. Thin: Fat buildup about halfway on spinous processes; transverse processes cannot be felt; slight fat cover over ribs; spinous processes and ribs easily discernible; tailhead prominent, but individual vertebrae cannot be identified visually; tuber coxae (hip joints) appear rounded but easily discernible; tuber ischia (lower pelvic bones) not distinguishable; withers, shoulders and neck accentuated.

4. Moderately Thin: Slight ridge along back; faint outline of ribs discernible; tailhead prominence depends on conformation, fat can be felt around it; tuber coxae (hips joints) not discernible; withers, shoulders and neck not obviously thin.

5. Moderate: Back is flat (no crease or ridge); ribs not visually distinguishable but easily felt; fat around tailhead beginning to feel spongy; withers appear rounded over spinous processes; shoulders and neck blend smoothly into body.

6. Moderately Fleshy: May have slight crease down back; fat over ribs spongy; fat around tailhead soft; fat beginning to be deposited along the side of withers, behind shoulders, and along sides of neck.

7. Fleshy: May have crease down back; individual ribs can be felt, but noticeable filling between ribs with fat; fat around tailhead soft; fat deposited along withers, behind shoulders, and along neck.

8. Fat: Crease down back; difficult to feel ribs; fat around tailhead very soft; area along withers filled with fat; area behind shoulder filled with fat; noticeable thickening of neck; fat deposited along inner thighs.

9. Extremely Fat: Obvious crease down back; patchy fat appearing over ribs; bulging fat around tailhead, along withers, behind shoulders, and along neck; fat along inner thighs may rub together; flank filled with fat.