

# Managing the Equine Athlete

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The horse is an incredible athlete, as evidenced by the diverse nature of equine performance events. Physiologic adaptations including efficient thermoregulation through sweat, elastic tendons, and a large reserve of red blood cells in the spleen provide the horse with an athletic advantage over other animals of similar body size. When determining how to manage horses in work, it is important to consider their current workload, fitness level and nutrition components. Use the information below to determine how hard a horse is working, how to make adjustments to their diet and management tips for improving fitness. Consult with your local county Extension agent, equine nutritionist or veterinarian, and visit UTHorse.com for more information on the athletic horse.

## ON UP

**MOVING** Determining how hard a horse is working is a critical component to managing their nutrition and training program. The National Research Council (2007) classifies equine work into four categories: light, moderate, heavy and very heavy. Use the hours per week, gait breakdown and average heart rate during exercise to determine how hard horses are working, and additional nutrient needs accordingly. For horses working less than the light work description, no additional nutritional considerations are needed due to exercise.

**Maintenance**  
Not currently working/exercising

**Light Work**

- 1-3 hrs/week
- 40% walk
- 50% trot
- 10% canter
- Avg. HR 80 BPM

**Moderate Work**

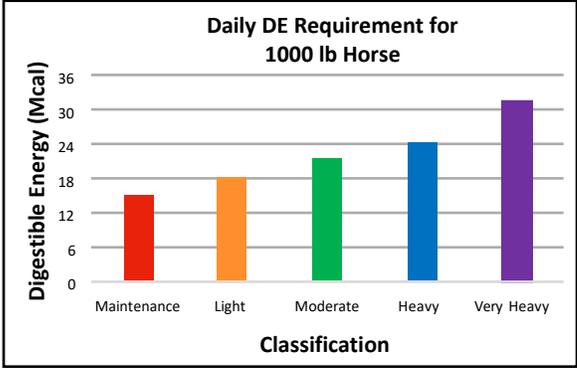
- 3-5 hrs/week
- 30% walk
- 55% trot
- 10% canter
- 5% skill work
- Avg. HR 90 BPM

**Heavy Work**

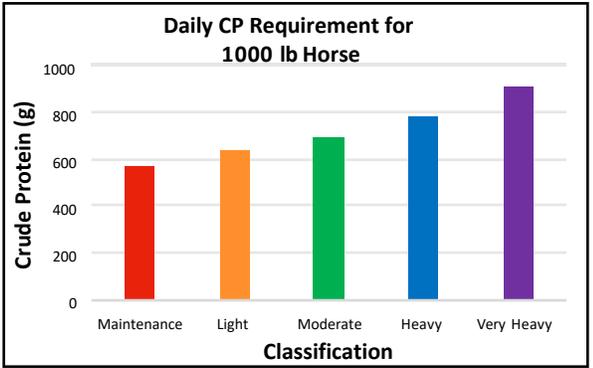
- 4-5 hrs/week
- 20% walk
- 50% trot
- 15% canter
- 15% skill work
- Avg. HR 110 BPM

**Very Heavy Work**

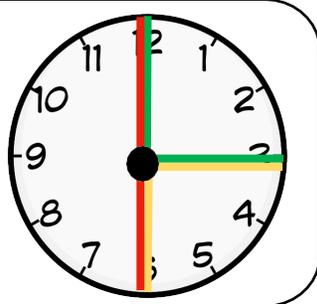
- 6-12 hrs/week
- Various; ranges from 6-12 hrs of slow work to 1 hr of speed work per week
- Avg. HR 110-150 BPM



**Did you know?**  
As horses increase their workload, their energy and protein needs increase. Increasing the quantity of forage or concentrate in the diet will often provide adequate calories and protein for most work classifications without the need for a specialized protein supplement.



**Take the Time**  
Monitoring a horse's heart rate or respiration rate at rest is not a good indicator of fitness level or difficulty of a workout. Instead, monitor the time it takes for the horse's heart or respiration rate to return to resting after an exercise bout. If it takes **15 minutes or less** to return to resting rates, the horse has been worked adequately to maintain the current fitness level. Heart and respiration rates that take **15-30 minutes** to return to rest indicate the horse has been challenged adequately to increase fitness. If recovery takes **longer than 30 minutes**, the exercise activity may be too challenging for the horse. Consider scaling back the exercise difficulty to target 15-30 minute recovery periods while completing conditioning exercises until the horse can increase fitness.



## Consider the Nutritional Factors

When determining how to feed performance horses, use these guidelines to make workload-appropriate diet decisions.

### Forages

Adequate daily forage consumption is critical for the equine athlete. Horses should consume no less than 1 percent of their body weight in forage dry matter per day. Ideally, horses should eat 2-2.5 percent of their body weight in forage dry matter daily. A forage test is useful to determine nutrients provided to the athletic horse, and if a concentrate or supplement is needed.

### Protein

Protein quality is more important than protein quantity for all horses. The horse requires certain amino acids, or protein building blocks, to be provided by diet such as lysine and methionine. Without adequate amounts of these amino acids, protein synthesis needed for muscle growth and repair will be impaired. Most athletic horses require between 8-12 percent protein in the diet. Look for feeds containing soybean meal, sunflower or canola seed meal as these ingredients improve overall protein quality of a concentrate. Use caution not to overfeed protein, as excess intake may reduce muscle glycogen stores, can impact soil fertility, and can increase overall diet cost.

### Vitamins

The exercising horse has requirements for both fat-soluble (A, D, E, K) and water-soluble (B and C) vitamins. The horse's hindgut can synthesize vitamins B, C and K to meet maintenance requirements, while vitamins A, D and E are contained in good quality forage. There may be a need to incorporate a vitamin supplement into an exercising horse's diet, especially those in heavy or very heavy work. Consult with an equine nutritionist to determine if a supplement is needed.

### Water

All horses should be provided free choice access to water daily. Exercising horses will require more water per day dependent on activity level compared to those at maintenance. Despite popular belief, hot horses can have as much water of any temperature as they wish without risk of colic. It is more important to make sure the horse is hydrated rather than limiting voluntary intake.

### Carbohydrates

Both complex (fiber) and simple (sugars/starch) carbohydrates are required within the equine diet and provide energy to the horse. Fiber is provided primarily through forage consumption and is digested by microorganisms within the cecum. Sugars and starches are digested within the small intestine and are needed to form muscle glycogen, a fuel source for exercise. Use caution to prevent over- or underfeeding sugars/starches as colic, laminitis and/or performance limitations can occur.

### Minerals

Dietary calcium to phosphorous ratio should be no less than 2:1 to maintain proper bone health. As the horse loses electrolytes such as sodium, chloride and potassium ions in sweat, it is important to ensure adequate daily intake. Good quality forage and a balanced concentrate should meet most horses' mineral requirements. Supplementation may be necessary for hard-working horses. Visit with an equine nutritionist to determine if a supplement is needed for dietary balance. Do not rely on a salt block to deliver daily mineral needs, as horses may ingest variable amounts per day.

### Concentrates

If nutrients provided by forage are not adequate to meet the horse's daily requirements, a concentrate may be needed. When selecting a concentrate, pick a commercial product formulated for performance or working horses and feed according to the manufacturer's guidelines. For example, do not select a senior feed for a working horse. If using an at-home mixture, have an equine nutritionist evaluate the ration to determine if the nutrients are adequate to meet horse's daily requirements. No more than 0.75 percent of the horse's current body weight should be fed in one concentrate meal to avoid starch spillover into the hindgut.

### Fat

Fat is 2.25 percent more energy dense than carbohydrates or proteins, and can be a useful source of extra calories for exercising horses. On average, 1 cup of oil provides 1 Mcal of energy. Although horses have a low dietary requirement for fat alone, it can safely be incorporated up to 20 percent of the total diet. Fat supplementation can also spare muscle glycogen by changing metabolic activity during low or moderate intensity exercise, and thus may improve performance. Top dressing oil over concentrates at feeding time is the easiest method for additional fat supplementation. Oils such as soybean (vegetable) or corn are palatable to horses and safe to feed. Fish or krill oils can also be used, but often need to be flavored to encourage consumption. If electing to supplement with oil, start slowly and work up to desired feeding levels over two to three weeks to prevent digestive upset.

### Special Credit

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