



Body Condition of Horses

Kris Hiney

Extension Equine Specialist

Body condition refers to the amount of fat on a horse's body. Fat is tissue that serves to store energy and is produced when the horse is digesting more energy than is needed for maintenance and production processes. Over time, horses consuming rations with more energy than is needed will increase body fat. Horses receiving less energy per day than is needed will use significantly increased amounts of fat for an energy source, which decreases the amount of body fat.

Much of this body fat is subcutaneous, meaning fat accumulates in layers immediately below the horse's skin. This fat cover can be visibly assessed in several specific locations on the horse's body (Figure 1). The desired level of body condition will vary between horses. As a rule, horses used in athletic performance will maintain a lower body condition than non-performing horses. Additionally, horses will vary in the optimal body condition for productive functions because of individual differences. For example, one horse may perform athletic competition more effectively in a thinner condition as compared with another individual performing the same task in a heavier body condition.

The ability to accurately assess body condition allows horse owners to make ration adjustments that maintain horses at desired fat levels. A universally used scoring system assists communication between horse owners. Moreover, it aids in the application of recommendations to maintain desired levels of body condition for production and management. For more information on how to correctly score and record your horse's body condition over time, follow this link to an on-line learning lesson and phone app provided through eXtension and Horse Quest. (<http://www.extension.org/pages/71173/body-condition-scoring-apps-for-horses#.VMrJqmhDWS0>)

Using Body Condition Scores to Quantify Body Condition

The most tested and universal scoring system for assessing body condition was developed by researchers at Texas A&M University in the early 1980s. Since that time, nutritionists, breeding and farm managers, trainers of performance horses, veterinarians, those involved with evaluating animal welfare, and other equine professionals have incorporated the scoring system into their businesses.

This scoring system places the body condition of horses on a scale of one to nine, and provides descriptions which are used to assess fat accumulation along the neck, withers, over the ribs, behind the shoulder, around the tailhead, and the

Oklahoma Cooperative Extension Fact Sheets are also available on our website at: <http://osufacts.okstate.edu>

crease on the back (Figure 2). While the scoring system can be used on all horses, it was initially developed to quantify the influence of body condition on the reproductive performance of mares.

Body Condition and Reproductive Performance in Broodmares

Extensive research and field trials document that reproductive efficiency of mares is affected by body condition.

- Non-bred mares managed in a body condition of four or less will delay the time of their first ovulation of the breeding season. This delay can be three to four weeks as compared with mares in a body condition of five or greater, which is significant when breeding managers intend to settle open mares in the early part of the breeding season.
- Once cycling, mares in a condition of four or less can be

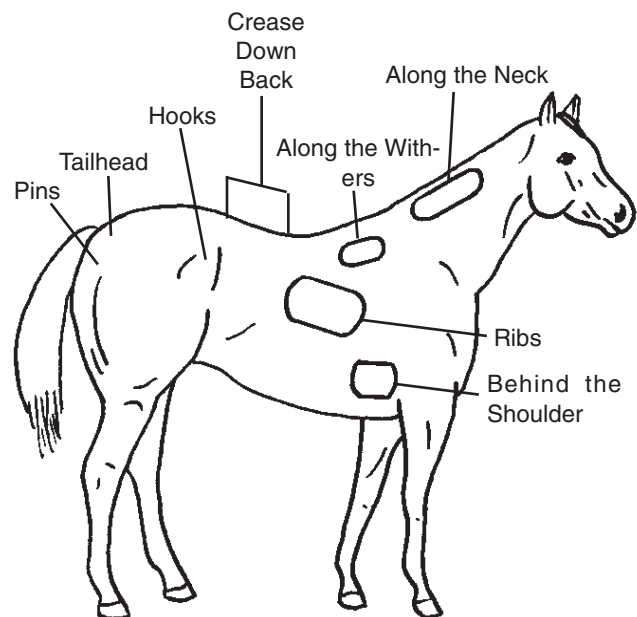


Figure 1. Location of Fat Deposition Used in Scoring System

Figure 2. Body Condition Scoring System.

1. **Poor.** Animal is extremely emaciated. Spinous processes (portion of the vertebra of the backbone which project upward), ribs, tailhead, and bony protrusions of the pelvic girdle (hooks and pins) are prominent. Bone structure of withers, shoulders, and neck are easily noticeable. No fatty tissues can be felt.
2. **Very Thin.** Animal is emaciated. Slight fat covering over base of the spinous processes. Transverse processes (portion of vertebrae which project outward) of lumbar (loin area) vertebrae feel rounded. Spinous processes, ribs, shoulders, and neck structures are faintly discernible.
3. **Thin.** Fat is built up about halfway on spinous processes. Transverse processes cannot be felt. Slight fat cover over ribs. Spinous processes and ribs are easily discernible. Tailhead is prominent, but individual vertebrae cannot be visually identified. Hook bones (protrusion of pelvic girdle appearing in upper, forward part of the hip) appear rounded, but are easily discernible. Pin bones (bony projections of pelvic girdle located toward rear, mid-section of the hip) are not distinguishable. Withers, shoulders, and neck are accentuated.
4. **Moderately Thin.** Negative crease along back (spinous processes of vertebrae protrude slightly above surrounding tissue). Faint outline of ribs is discernible. Fat can be felt around tailhead (prominence depends on conformation). Hook bones are not discernible. Withers, shoulders, and neck are not obviously thin.
5. **Moderate.** Back is level. Ribs cannot be visually distinguished, but can be easily felt. Fat around tailhead begins to feel spongy. Withers appear rounded over spinous processes. Shoulders and neck blend smoothly into body.
6. **Moderate to Fleshy.** May have slight crease down back. Fat over ribs feels spongy. Fat around tailhead feels soft. Fat begins to be deposited along the sides of the withers, behind the shoulders, and along sides of neck.
7. **Fleshy.** May have crease down back. Individual ribs can be felt, but with noticeable filling of fat between ribs. Fat around tailhead is soft. Fat is deposited along withers, behind shoulders, and along neck.
8. **Fat.** Crease down back. Difficult to feel ribs. Fat around tailhead is very soft. Area along withers is filled with fat. Area behind shoulder is filled in flush with rest of the body. Noticeable thickening of neck. Fat is deposited along inner buttocks.
9. **Extremely fat.** Obvious crease down back. Patchy fat appears over ribs. Bulging fat around tailhead, along withers, behind shoulders, and along neck. Fat along inner buttocks may rub together. Flank is filled in flush with rest of the body.

expected to require more cycles per conception. Research on one group of mares resulted in thin mares requiring an average of three cycles before settling as compared with one and one-half cycles per conception for similarly managed mares with condition scores of five or higher. More cycles per conception results in increased costs for the breeding manager and mare owner.

- Pregnancy rates are also affected. Mares in body conditions of four or less have overall pregnancy rate reductions as large as 20% less than mares in a greater body condition. Moreover, early pregnancy losses are significantly greater in mares with body scores of four or less.

To summarize, mares in body conditions of four or less will be poor breeders and more susceptible to pregnancy losses than mares maintained at higher body condition scores. Frequently, the onset of cold weather, changes in housing, transportation, foaling, and lactation reduce body condition. As such, recommendations are for mares to enter the foaling and breeding season in body condition scores of six or seven.

One concern expressed by owners is that mares with a body condition greater than five or six will have more trouble foaling. These concerns are unwarranted, as significant research has shown body conditions of seven or greater have no effect on gestation length, length of the foaling process, size of foal or placenta, or measures of foal viability.

Points to Consider

There are several points to consider when using body condition scores.

- Although visual appraisal is the primary tool of the scoring system, accuracy will increase when the areas of fat accumulation can be palpated. Long hair can mask the appearance fat. Also, different body conformations greatly affect the visual ability to determine body condition. Taller, larger framed horses with prominent withers may appear to be leaner than shorter, smaller framed horses with similar body conditions.
- Mares in late gestation may have less fat cover over the ribs because of the influence of the weight of the fetus and associated tissues. Thus, more emphasis should be placed on other locations of fat accumulation.
- Horses on large percentage forage diets will typically have larger bellies with lower, distended abdomens than horses being managed on grain or in exercise programs. These “hay bellies” can give the appearance of fat, causing overestimation of body condition.

It is important to recognize specific areas on the horse's body to assess body condition, and to gain experience in identifying body condition on different horses. Periodic re-evaluations of individual horses will help to decrease the influence of conformational differences in body condition assessment.

Body condition cannot be altered significantly in short periods of time. Gains in body weight must be made with gradual increases in the ration. The horse's body requires time to assimilate increases of energy into fat. Also, the incidence of colic and founder will increase when making dramatic adjustments in the amount of the daily ration. Increasing a mature horse's body condition from a score of three to a score of six may take four months when consuming about 1 3/4% of

body weight in grain per day and unlimited hay. This change in body condition represents an average of 2 1/4 pounds of gain per day, which should be considered near maximal for 1200 pound broodmares. Environmental stress will increase the length of time and energy intake necessary for increases in body condition.

The above example points out the need to plan well in advance when increasing body condition in horses. Under

practical management, increasing body condition at times when production needs for energy are high is difficult and costly. Therefore, allow several months for significant increases in body condition. Similarly, allow for gradual decreases in body condition when physically preparing horses for athletic competition, instead of promoting extreme, sudden weight loss by dramatic restriction of energy.

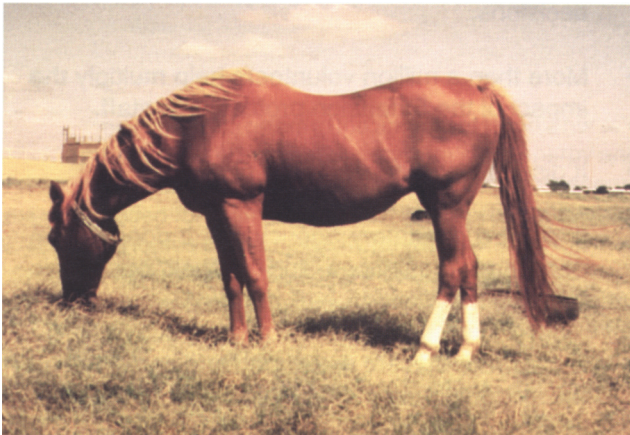


Figure 3. Aged broodmare in Body Condition 4: Moderately Thin. Note tailhead prominence, negative crease along back, and faint outline of ribs.

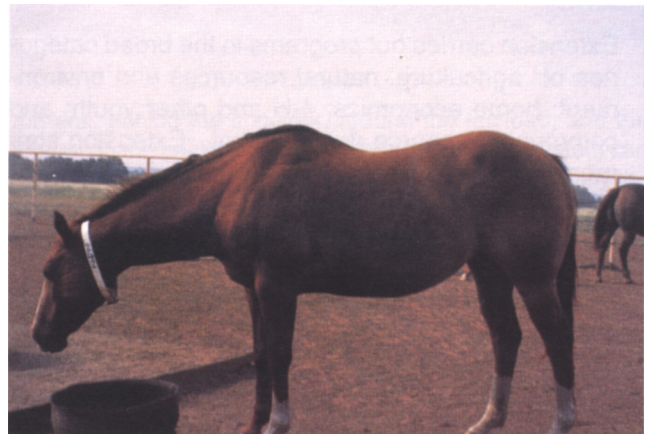


Figure 4. Broodmare in early gestation in Body Condition 5: Moderate. Note shoulders and neck blend smoothly into body. No visual appearance of ribs.



Figure 5. Broodmare in early gestation in Body Condition 6: Moderate to Fleshy. Note fat deposits along sides of withers, behind shoulders, and along the sides of the neck.



Figure 6. Broodmare in early gestation in Body Condition 7: Fleshy. Note noticeable filling between the ribs, roundness of tailhead, and appearance of fat behind the shoulder.

The Oklahoma Cooperative Extension Service Bringing the University to You!

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

The author would like to give credit to the David Freeman, retired Equine Specialist for the original content of this Fact Sheet.

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, gender, age, religion, disability, or status as a veteran in any of its policies, practices, or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, the Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 62 cents per copy. Revised 0215 GH