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**“Beef Production Strategies” article**  
**Structural Soundness – Part 2**

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As we continue our series on structural soundness in beef cattle, in this month’s column, we’ll go over the stifle, hip joints, knees and shoulder.

Many would say that the stifle joint in livestock is the most complicated and important joint. In fact, stifle injuries are some of the most common mishaps in breeding livestock. Comparable to the human knee, the stifle joint in cattle connects the femur to the tibia and fibula. There is a knee cap and several ligaments that keep the rear leg 'in place'. However, unlike the human knee, the stifle joint is at an angle when the animal is at rest. When viewing an animal from a rear view, the distance between the left and right stifles should be the thickest part of the animal.

When I analyze a calf's hip, I look for long and level. Both the distance and hip angle are visualized between the hooks and pin bones. I often caution youth to not mix up a long hipped animal with a short, steep angled hip and high tail head. While a high set tailhead may give an illusion of added body length in breeding heifers, it can cause additional problems during calving. Think about it, the cow has to push the calf up hill! Contrastingly, while a cow with a downward sloping hip may be more functional during the act of giving birth, the poor angle will cause problems in the animal's movement. It's important to remember that the hind leg begins at the hip and ends at the toes. Each joint is responsible for supporting a percentage of the animal's weight. A poor structured hip can change the allocation of weight, often times, unfavorably which will cause a lower joint on the rear leg to compensate.

As we move to the front leg and analyze the knees of the calf it is necessary to look at a front and side view. Ideally, the front leg should be straight from any view. From a frontal view, if the knees point toward the outside, a calf is called bow-legged. If the knees point in, the calf is said to have knock-knee. From a side view, the knee should not be bucked over (buck kneed) of hyperextended (calf kneed).

Shoulder structure sets the stage for movement off the front end of the animal. To evaluate shoulder structure, we want to look at the angle from the top of the shoulder to the point of the shoulder. A 45 degree angle is ideal for smooth easy movement. Shoulders that are too straight will restrict the animal's movement. Shoulders with too much angle will put excess pressure on the knee joint and cause a calf kneed condition.

While many view structure correctness as an aesthetics, it also contributes to an animal's ability to walk, graze, and mate. Good structure in cows will encourage longevity in the herd. Structure is an attribute that changes as the animal increases in body weight and very rarely improves. Generally, it worsens with time. Be mindful of structure when selecting replacement heifers or new herd sires.

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For more information about beef cattle production, contact an office of the Mississippi State University Extension Service.