



Are Weimaraners supposed to single track?

We've heard this topic discussed on occasion, and there seems to be a variety of opinions amongst Weimaraners breeders. We think this article should put the controversy to rest.

Judging Single-Tracking Movement *by Dr. Peter Emily*

In order to judge movement, it is vitally important for judges and breeders to understand the physiology of movement. Correct canine movement has been one of the most carefully dissected, poorly defined, and widely discussed topics in the dog show world for some time. Both experienced and novice judges will benefit from close study - reading, watching videos, and attending presentations to learn more about the many physiological factors that affect canine movement.

Many reasons have been given and many explanations proposed as to why a dog moves the way he does. I have been part of a number of studies in kinesiology and the biomechanics of movement and have found that the most common conclusion is that a dog's function is directly related to how the dog is built. Function follows form, and structure is key: The only other influencing factors would be genetic, developmental, inherited, or acquired diseases of muscular or skeletal origin. These

later reasons are often used to explain why a particular movement problem exists, but if the underlying structure is faulty, movement will never be correct.

Gravity

Gravity affects and controls all physical structures, whether they are things that move or things that just stand still. Things that move must not oppose gravity or they will soon fail or succumb to stress. A dog's inability to deal with gravity during movement readily displays any movement problems and shows his structural faults.

The center of gravity for things that move is a single point in the body that is directly influenced by gravity. A dog's center of gravity is located at a midpoint in the body where a vertical line drawn down the middle of the back from behind the shoulder bisects a horizontal line that divides the upper two-thirds of the body from the lower third. This is the static or standing center of gravity. It is a point at which all forces are equal, a point from which the dog could be suspended and be in perfect balance. As the dog strides forward, this point - the center of gravity - moves forward to complement the motion. The faster the gait, the farther forward the center of gravity moves within the body. This moving point is termed the kinetic center of gravity.

When the dog is able to move his center of gravity along a straight line, without deviation from right to left, he does not fight gravity, but rather utilizes it to effect a functional, stress-free movement. This is accomplished by single tracking.

Single tracking allows the dog to achieve support beneath the center of gravity during locomotion. Working with gravity in this way will offset any lateral displacement while applying power to the line of locomotion. Again, this is accomplished by moving the dog's center of gravity in a straight line, with each footfall striking a point directly under the dog's kinetic center of gravity.

Convergence

Certain breeds exhibit a modification of single tracking (although the same principals of movement and gravity hold for all dogs, of course). These dogs - short - legged breeds, longer bodied breeds, and special-front breeds - should demonstrate footfalls that incline toward the midline. This is accomplished without the elbows flaring out, but kept in close to the dog's body. The center of gravity in the body thus gives the impression of slightly greater width from right to left rather than seeming to be a perfectly static point, as seen in the more narrow-bodied dogs.

Every animal is affected by gravity during movement. Animals in the wild must use it to their advantage in order to survive. Any deviation from proper single tracking produces fatigue, body stress, and eventual structural damage to a greater or lesser degree,

dependent on the degree of fault. To see a perfect single-track gait, one only has to watch a large animal, such as an elephant, walking. If an elephant did not employ single tracking during very long treks, his tremendous weight would quickly break down the shoulders and give way to lateral displacement. Both these consequences would result in a very quick susceptibility to predation - and an early demise.

An excellent demonstration of canine single tracking can be envisioned by moving a dog along a pointed strip on a gymnasium floor. The closer the dog's kinetic center of gravity follows this line - or, more correctly, stays on top of it - the less fatiguing the gait. (The wide-body dogs will place their footfalls on a convergent plane along each side of the line.) The less lateral movement or lateral displacement there is, the longer the dog can sustain this type of movement without fatigue.

This, then, is true single tracking or true convergence. But keep in mind that there will be a degree of rise and fall in the topline as the dog is gaiting. Rear drive moves the dog's body upward to a degree. The more efficient gait has less rise and fall, but the exact degree of rise and fall is affected by balance and proper angulation of each particular breed.

This article originally appeared in the October 2008 AKC Gazette, in "The Judge's Eye" column. Dr. Peter Emily, DDS, AVDC (hon.) teaches at Colorado State University in Fort Collins and is a Working Group Judge.