

# DALMATIAN GAITING

## GAIT IS THE EXPRESSION OF CONFORMATION

**As has been considered in the discussion on the Dalmatian Standard, certain anatomical features are especially important to determine efficient gait, for example:**

- A 10:00 o'clock neck carriage to allow effective lifting of the foreleg.
- A 34 to 39 degree vertical-to-scapula layback (top of scapular spine to point of shoulder) to maximize reach.
- A slightly forward sloping pastern to absorb shock.
- A deep, long chest to allow the greatest possible oxygenation of the blood.
- A well-muscled loin to coordinate foreleg action and hindleg thrust.
- A 30 degree horizontal pelvic angle to give the most efficient conversion of hind-limb extension into forward motion.
- Well let down hocks to reduce the fatigue of prolonged travel.
- A horizontal tail to counterbalance limb side-to-side movement.
- Moderate size, bone thickness and muscling to reduce carrying weight.

Though the first definitive text on quadruped gait was produced in 1873, the subject is complex and still not completely understood. Only a strictly scientific approach will carry our knowledge further.

### **Limb Sequence**

Gait can be seen as a transition from the walk when three feet are always on the ground to the gallop where all feet are off the ground for some of the time. With increasing speed it becomes important that side to side movement be reduced and all effort concentrated on symmetrical forward reach and rearward thrust.

### **The Walk**

Is based on movement of one side at a time. The hindleg commences by moving forward and just before it touches the ground the corresponding forelimb lifts and moves forward. The effect is that each hind foot seems to "kick" the forefoot on the

same side forwards. The sequence is left rear, left front, right rear, and right front.

### **The Trot**

Which is the normal 'ring' gait allows sway to be reduced by diagonal movement of limbs. The sequence is left rear and right front, then right rear and left front. It can be seen that this arrangement also allows speed to be doubled, as instead of each side completing its sequence before the other, there is a 'doubling up' with each side acting as the mirror image of the other.

### **Tracking**

Another accompaniment of increased speed is 'tracking in.' Here the pads tend to touch the ground more and more beneath the dog's centre of gravity – eventually resulting in some breeds in all four pads falling in a straight line in the direction of movement. Whereas the walk produces a separate track for each side, the trot results in almost one, and the dog is said to be 'single tracking.' With this change, three principles come into operation.

1. The limbs of each side from shoulder and hip downward should follow exactly the same inward sloping plane.
2. Each limb must lift and flex when passing the corresponding leg of the other side (some mistakenly argue that there can be no single tracking as the feet would interfere.)
3. The front and rear feet must not touch or interfere with each other during locomotion.

### **Judging Gait**

Assessing gait is difficult and requires practice. Observations should follow the routine practiced by the conformation judge that is from the side, from the rear and from the front.

Some of the sources of faulty gait appear to be:

## 1. Interference Between the Fore and Hind Limbs

Oddly enough, a dog with restricted range at one end with equally restricted range at the other end may seem to have balanced gait! Neither the breeder nor the judge should be accepting of this. The emphasis has always been on good reach at the front and good angulation at the rear. However, overreach in the forelimbs restricts the angle to which the forearm can remain in contact with the ground in a rearward direction. As the principle function of the forelimbs is to act as a shock absorber and fulcrum for rear-end thrust, efficiency is reduced. This aside, hind-limb overreach relative to delayed lift off of the forefoot, is one of the most common faults. This can be caused by a poor front, a rigid back, a roached back, a short back or abnormal rear angulation. This situation results in:

a) **Crabbing** – most evident on the diagonal in the ring. The hind-feet land one between the forefeet and one outside both forefeet.

b) **Hackney Gait** – the forefeet are lifted too early and in an exaggerated fashion in order to avoid the arrival of the hindfeet.

c) **Pacing** – here the whole gait is altered and hind and forelimbs of each side move forward together in a two step movement.

If these measures fail, the forefeet have to absorb excessive shock by either:

a) **Pounding** – when the joint and foot take the direct, uncushioned force. This results in a choppy gait and forelimbs joint damage, or

b) **Padding** – where the dog appears to try and absorb shock by lifting the toes to allow the force to land on the heel rather than the toes of the pad.

## Structural defects

The reasons for many gait abnormalities are unknown. A few specific structural faults can be recognized.

a) **Sickle Hocks** – eliminate the final degrees of thrust because the force is directed at a weakened joint at an inefficient angle to the ground.

b) **Broken Pastern** – in a similar way the forefeet lift off the ground before the proper angle is reached, the possibility of interference with the hindfeet is increased and the full force of the forelimb liftoff cannot be exerted on the ground because of the possibility of injury to the weakened wrist joint.

c) **Running Downhill** – the appearance of a high rear and a low front in gaiting is normal in puppies. The same appearance in adults may be secondary to forelimb collapse, e.g. broken pasterns, padding and pounding above.

d) **Cowhocks** – the turning in of the rear pastern joint (hocks) results in interference (brushing) and toeing out.

e) **Elbows Tied** – restriction of elbow outward movement is associated with flailing of the forelimbs – paddling where the whole forelimb is thrown limp and in a wide arc from the elbow. Winging describes a similar movement wherein addition the forefeet turn outward in passage.

f) **Out at Elbows** – results in ‘moving out.’ Here the foot motion is correct by the upper and lower arm and elbow describe an outward arc rather than the more efficient direct course.

g) **Weak Carpal (wrist) Joints** – can result in ‘toeing out.’ (Forefeet pointing outwards) and an ‘east-west front.’ (Feet pointing outward at rest.

h) **Spread hocks (rear)** – results in ‘toeing in’ behind.

## 3. Movement Abnormalities Without Structural Explanation

a) **Moving wide in front and moving wide behind** – here the forelimbs or hindlimbs move in a parallel walking fashion as opposed to the inwardly sloped plans of correctly moving limbs.

b) **Crossing** – as indicated either front or rear limbs overlap (cross) each other as observed along the line of movement.

c) **Weaving** – this complex action involves the forelimbs in twisting elbows, toeing out and crossing.

d) **Moving Close at Rear** – the hock joints are turned in as in cow hocks but the rest of the foot is not turned out but parallel to the other side. This results in brushing but not interference.

e) **Snatching Hocks** – the hock turns inward when lifted and causes a rocking behind.

f) **Twisting Hocks** – refers to twisting in and twisting out of the hocks in rear action.

g) **Pitching** – involves swinging of the rear limbs (as in paddling) which often includes body rocking.

h) **Twisting** – elbows and twisting pasterns are further examples of the complexity of gait.

## On Inspection

### 1. The dog moves around the ring.

a) When viewed in profile, one should look for a level back moving smoothly without any bumping up, down or sideways. The head should be held moderately high and the tail with a slight upward curve. Reach should extend well in the front and drive well to the rear. There should be no interference between fore and hindlegs. Gait and structure defects, such as hackneying, padding and pounding, running downhill, sickle hocks, broken pastern are best detected from this angle. The impression should be of enjoyment and effortless, efficient smooth flowing movement.

b) When moving on corners, an angled view of both rear and front displays defects mentioned below, but may also provide evidence of 'stringing up' with the show lead. As the trot around the ring is faster than the trot on the diagonal gait, defects not evident at the slow pace appear. Watching the relative speed of the dogs, you may notice certain handlers holding the dogs back. This may mean that they are liable to gallop if pushed. (This of course is a sign of severe movement inefficiency.)

### 2. The dog is moved on the diagonal (in some cases this will be the 'T' or 'L' or triangle circuits.)

a) When the dog moves away there should be two inwardly converging planes along which right and left limbs move in perfect alignment. One should see the pads of the rear feet as they lift off. The most common and obvious gait defect seen both moving away and coming is crabbing. One should be satisfied that the dog is not pulling to the side or sniffing the ground when deciding that the crabbing is due to avoidance of interference. Other rear defects seen are brushing, toeing out, cowhocks, spread hocks, moving wide behind, moving close behind, crossing at rear, twisting hocks, snatching hocks and pitching. Look for side to side imbalance, e.g. limping due to disease or injury.

b) When the dog moves towards you the forelimbs are much more exposed to view than the muscle covered hindlimbs were.

i) See whether the elbows are in line or tied in or out. Look for 'paddling' and 'winging' or 'moving out.'

ii) See whether the wrists (front pastern joints) are properly in line. Look for toeing out when moving or and east-west front at rest.

iii) The whole limb may be uncoordinated. Look for moving wide in the front, weaving, crossing at the front and twisting elbows.