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Sent: Monday, October 07, 2002 2:14 PM
Subject: PSG: balance (long)

Dear Irma:

There are several factors involved in what is termed "balance".

1. Length of the 4 main gaiting bones - scapula, humerus, pelvis and femur. (To be strictly accurate, when you look at the individual bones, the scapula is shorter than the humerus, but the distance from joint to joint is equal; this requirement was based on the work done for rehabilitation of limb loss in humans by the US army Medical corp, and verified by Dr. T. Hearne, who was working on dogs to study hip replacement in humans.)

2a. For a trotting dog, which includes the Poodle, the length of skull should equal the length of cervical vertebrae (neck), the length of the thoracic and the length of the lumbar- not many conformation poodles today have this type of balance.

2b. the length of the back (Thoracic+lumbar vertebrae) should equal the length of the coupling (the distance from elbow to stifle in a dog standing naturally and comfortably); in undocked breeds, the length of tail completes the triad. You will often find that the length of chest also equals these measurements. These measurements are very important for a trotting dog's endurance, since it will pick up the imbalance occurring when the forelimb assembly is placed too far forward on the body - a major weakness.

3. "Overangulation" in the rear is caused by an imbalance in the length of the fibula/tibia, often combined with the effect of an improperly angled pelvis - the vaunted "shelf". In some breeds the fib-tib(from stifle to hock) and the radius and ulna (from elbow to pastern), are equal to the other 4 bones in length, but the poodle is a higher stationed dog today, so balance front with rear is best compared by using the "units of support vs units of propulsion" graph developed by Casey Gardiner. This graph shows not only the balance front to rear, but also the extent of angulation, with 10 units equaling the perfect shoulder angle and pelvic angle according to Casey's (and McDowell Lyon's) theories. I think it is better to have a balance of angulation, even if relatively straight, than to have really good angulation in part and be imbalanced.

Now, from my experience with studying and measuring Poodles (and other breeds), lure coursing Ibizans, and helping Casey to refine her theories, the first "balance" you need is that of bone length. Dr. Hearne wrote software for Casey which calculated the joint pressures of the standing dog, according to its measurements, and bone length imbalance put more strain on the body than did joint angle, I think I recall. Certainly, based on my studies, Sighthounds with imbalanced bone lengths tend to injure more frequently than those with balanced bone lengths, whether they are straight or angulated.

For trotting endurance, the next step is to move the forelimbs back under the chest, so that the caudal process(rearmost point) of the scapula lies on the 6th rib. This position in Standards will leave a measurement of 1 1/2 - 2" distance in length (measured forward) between the point of shoulder and the menubrium (tip of sternum). Essential for support of the body during jumping. However, based on my experience with Ibizans, who have their forelimb assemblies lying on the 4th rib and who are extremely agile at high speed, this structure may not be as important as good shoulder angulation for the agilty dog. On the other hand, many of the Spanish bred Ibizans who are used for hunting are very straight (15-20 degree layback), and they do a lot of jumping, but also land rear feet first - further study of these dogs *may* shoot my theories all to h**l!

Finally, the dogs I measured in the '60's and '70's who had very good shoulder angulation(38-43 degrees), also had significantly longer bone length of scapula and pelvis than dogs of the same height have today. I

am not sure, but I believe that once you get your balance in body and limb structures, that the key to increasing angulation is increasing the bone lengths of the 4 main gait bones.

Sorry to run on, but one point leads to another!

Mary Jane