PART FIVE:
ANGULATION

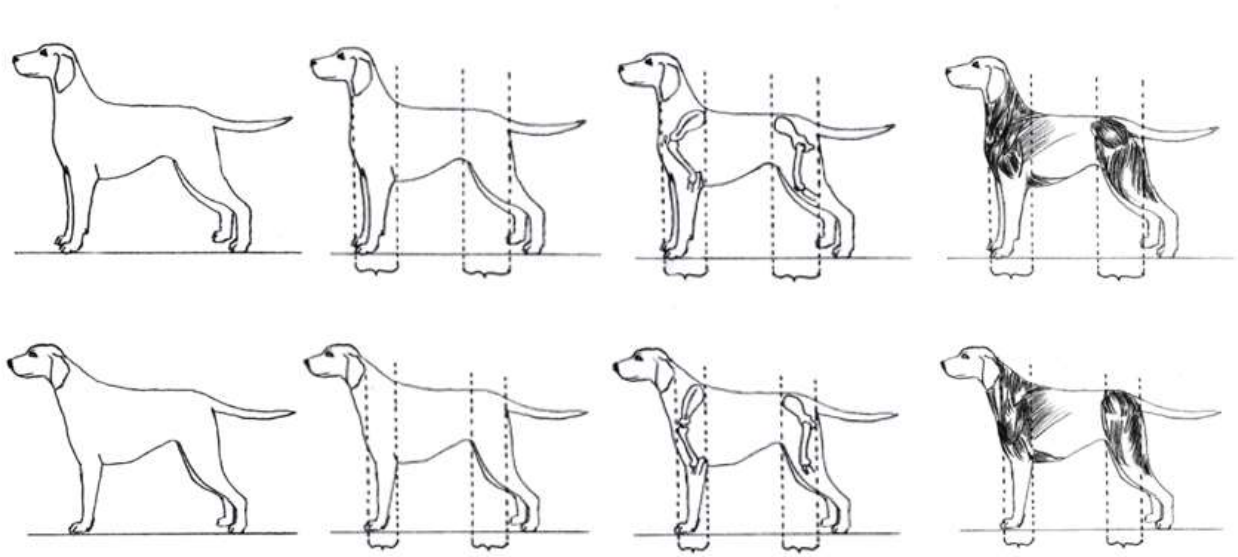
ANGULATION

Now that we've examined all the individual parts of the dog, let's look at how they join together to determine how the dog will function. **Angulation** refers to the angles created by bones meeting at various joints.

In many books and articles, as well as several breed standards, you will find mention of exact angles – 90º, 110º, 115 º, and so on – but, since you shan't have any instruments of angle measurement with you in the ring, your evaluation of angulation will need to rely on estimation. There are several methods to trace layback and angulation to assist with this estimation, but it is your responsibility as a judge to develop your 'eye' and gain the experience necessary to correctly assess this important aspect of canine conformation, anatomy and movement.

FIRST IMPRESSION

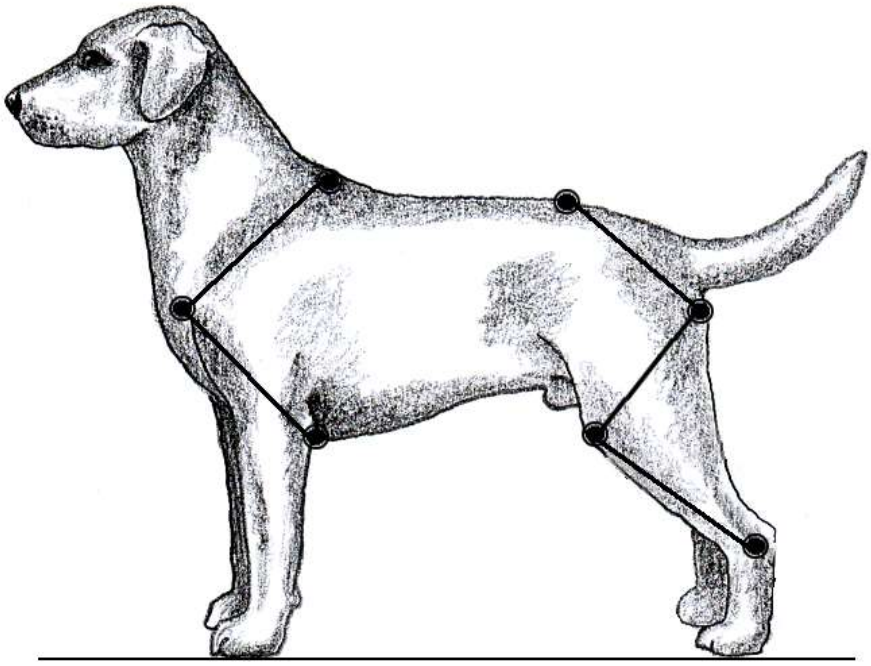
During your initial view of the exhibit stacked in front of you, and before you can evaluate the dog you're your hands, what can you look at to estimate correct angulation? Try to imagine vertical lines outlining the width of the forequarters (between the point of shoulder and the elbow) and the width of the hindquarters (between the end of the loin to the point of buttock). As a general rule, the wider the spread, the better the angulation.



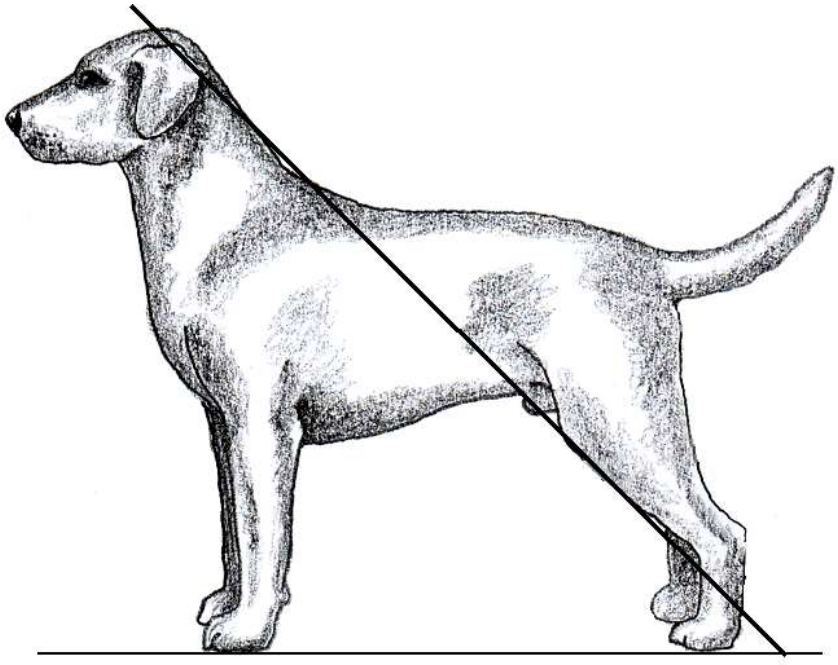
If the shoulder blades and pelvis are correctly slanted, and the angulation in each of these areas is good, there is more space for muscle attachment, which ultimately ensure proper functionality and substance. Conversely, narrow angles provide less space for muscle development, which will not only restrict movement, but will reduce strength and substance.

Tip: Judging angulation at a glance

A skilled exhibitor will be able to place a dog in a hard stack in such a way as to hide an angulation fault, which is why it is useful to look at the dog in its natural stance as well.



A well-constructed dog shows balance in its angulation – where the front and rear angulation is similar.



A well-constructed dog carries itself in balanced proportion

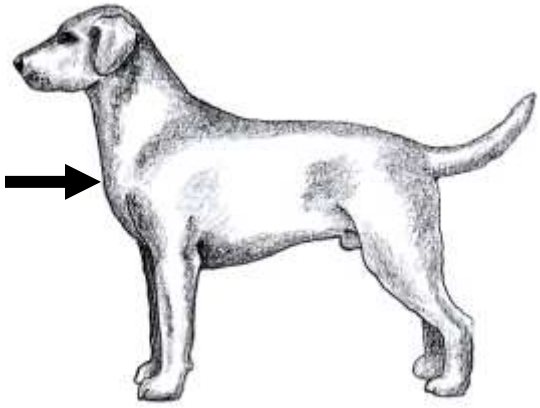
The dog whose front assembly you are about to evaluate is a living creature – not a statue! The slightest shift of position or turn of head can alter the view of angulation so it is useful to confirm what you see by touching (going over) the dog. A thorough hands-on evaluation is an absolute must for coated breeds, but take care not to leave the coat in a mess after your examination. While some experienced judges may advocate against "doing the laying-on of hands", until you are entirely confident in your evaluations, feel free to allow your hands to confirm what your eyes have seen.

Let's look at the main markers of the front assembly:

- forechest
- shoulder layback
- return of upperarm
- shoulder angle
- placement

Forechest

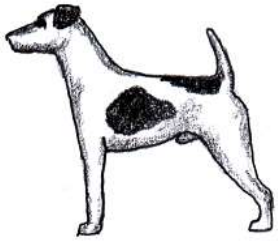
The forechest is the portion of the dog that shows in front of the forelegs, as viewed in profile – the prosternum and soft tissue (beware: not the point of shoulder).



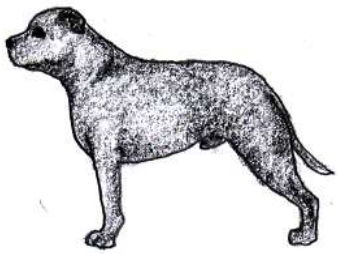
What to look for

Look for sufficient forechest in profile, and then feel it by running your hand down the front. Also view from the front – there should be sufficient fill for the breed requirement.

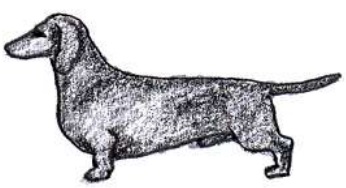
The amount of forechest varies by breed, thus you should always consider the breed standard – never judge generically.



minimal forechest



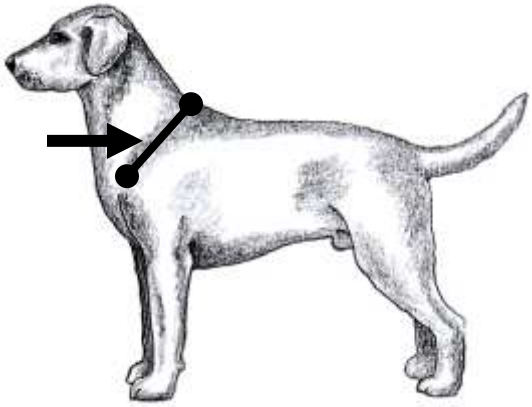
average forechest



marked forechest

Shoulder layback

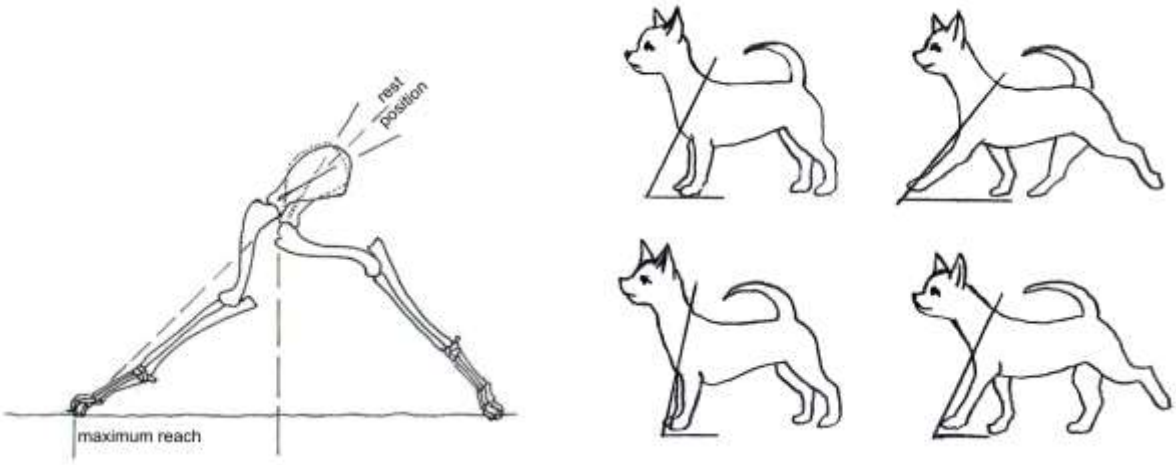
Shoulder layback refers to the angle at which the scapula lies against the ribcage. Many references call for a 45º angle in all dogs – this may be appropriate in some breeds, but not all.



What to look for

First note the angle of the scapula in the profile view, then confirm your findings by tracing the layback with your hands. You are unable to measure the angle exactly in the ring, so you can only estimate the adequacy of the angle.

A good shoulder layback is **one of the features** that influences the amount of reach in action. (Flexibility of muscle is another, which explains why some straight-shouldered breeds can actually reach very well!) As a general rule, in a breed that calls for an angle of **about 45º**, front reach may be affected by a steep shoulder layback.

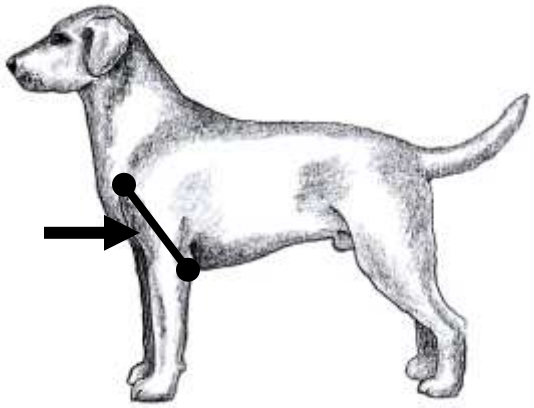


In the illustration above left, note that it is a physical impossibility for the shoulder blade, upperarm, elbow and foreleg to reach in a perfectly straight line – the bone protuberances in the scapula and humerus will simply not allow it. This ought to explode another myth!

Return of upperarm

The humerus (upperarm) is attached to the scapula and runs down and back to attach the elbow. A good return of upper arm:

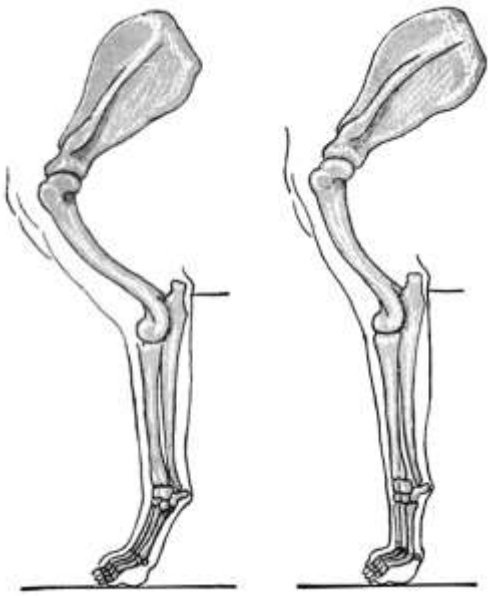
- ensures that the forearm supports the dog's centre of gravity
- determines the shoulder angle at point of shoulder



What to look for

An observation of the width of the front assembly in profile will give you a good idea of the length and angle of the upperarm, then trace it with your hands. .

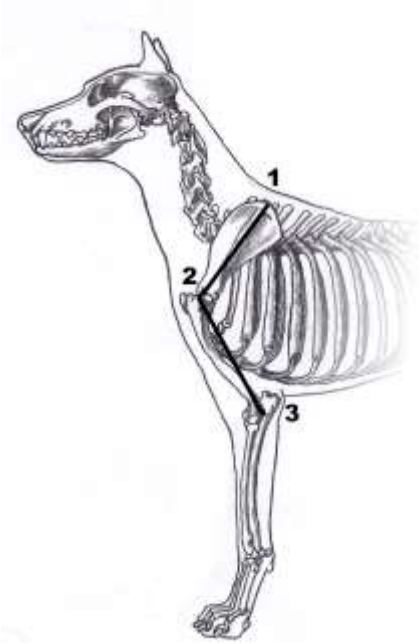
While shoulder layback, as described above, may manifest at various angles, it is a deficiency in the upperarm that the most front assembly errors arise. The length of humerus may vary between breeds and between exhibits – most call for upperarms of equal length to the shoulder blade, but there are exceptions. In most breeds, if the upperarm is shorter than the shoulder blade, the forelegs will not be able to support the heaviest part of the chest because the elbow joint wouldn't reach a plumb line dropped from the tip of the scapula. This means that the legs would not be set well under the dog and they would have difficulty converging to a centre line at speed, nor would they be able to swing forward freely in action, thus insufficient reach. A shorter upper arm can also result in inefficient movement, such as lifting the front feet too far off the ground with each stride (the front feet should just clear the ground as the dog moves – anything more is wasted motion).



correct *short upperarm and insufficient return*

Shoulder angle

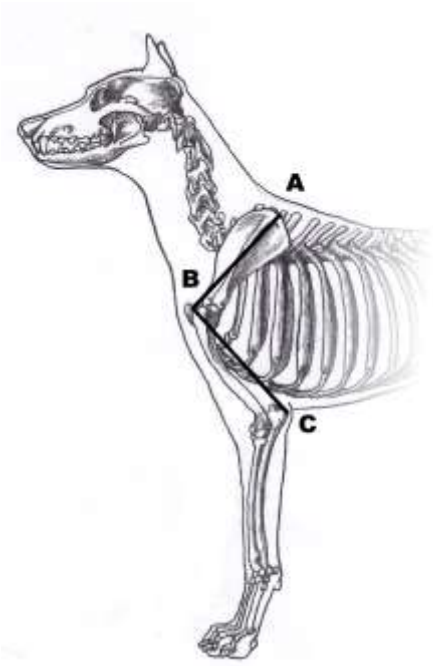
Judges usually use one of two methods to trace the shoulder angle with the hands:



Method 1: Through the bones

Trace the bony ridge along the scapula to the end (points 1 – 2). Then trace the outline of the actual humerus to its end. (points 2 – 3) – not the elbow.

This method is useful for determining shoulder layback but it is often difficult to accurately locate the actual bones behind strong muscling, unless you also have x-ray vision…..



Method 2: Palpable points

Find the uppermost tip of the shoulder blade and the point of shoulder, then trace an imaginary line (not along the bony protuberance) to estimate the layback of shoulder (points A – B). Find the point of elbow (point C) while keeping your other finger on the point of shoulder to estimate the angle of the upper arm.

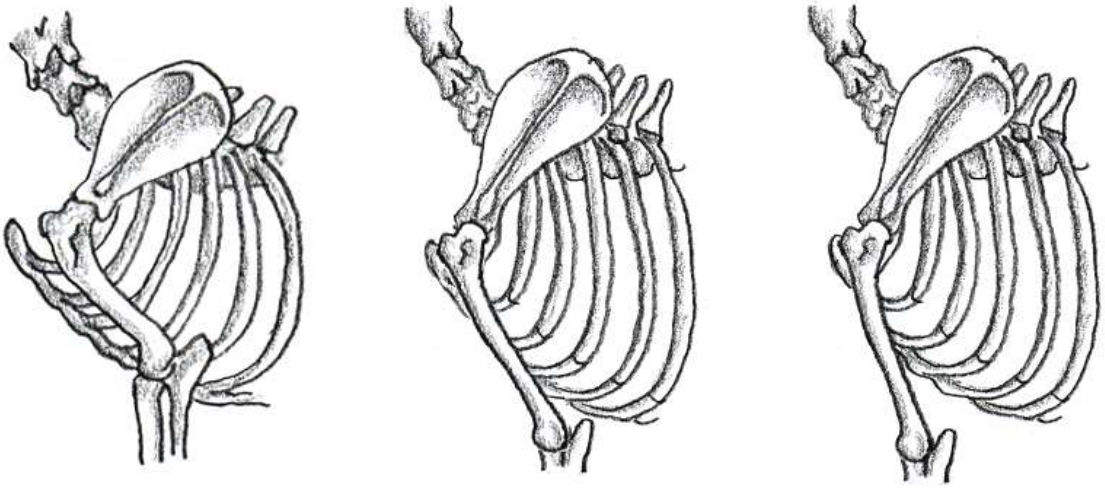
Most judges prefer to use this method.

NB!

Not all shoulders are created equal!!!

Not all shoulders must form a 90º angle!!!

While, for many years, it was believed that ALL dogs ought to have a shoulder angle of 90º at the point of shoulder, this has since been proven mythical and it is unfathomable why some judges continue to seek it in *all* their exhibits. The ideal angle varies between breeds, dependent largely on function. In this study guide, no exact angles are prescribed for all the reasons already given, so references to angles will be approximate, in keeping with the reality of judging a live dog with no measuring instruments. Several breed standards may actually specify a particular angle, but in most cases, the requirement is for angulation that allows the dog to fill its purpose. Thus a shoulder construction that is built less or more than the recommendation must be considered a fault to the extent it affects the structure and function of the whole dog



approx 90º *approx 110º* *approx 130º*

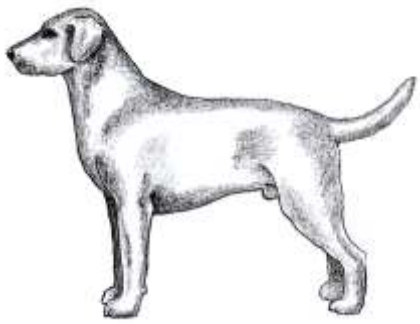
Examples of typical shoulder assemblies may include the three illustrated here, with many shades of variance in between:

- **Achondroplastic breeds**, eg. Dachshund, Basset Hound, Corgi, etc. tend to have a shoulder angle of approximately 90 º because their elbows lie close to the ribcage and well above the brisket.
- **Working breeds**, eg Retrievers, Great Danes, Dobermanns, etc. tend to have a more open-angled shoulder because the upperarm needs to be long enough to place the elbow properly under the body so that the legs can converge towards a centre line during gaiting.
- **Galloping breeds**, eg. Greyhound, Irish Wolfhound, Saluki, etc. tend to have a more open shoulder because the upperarm often drops quite sharply. Consequently, the elbow will be below the brisket to allow flexibility during the typical double-suspension gallop.

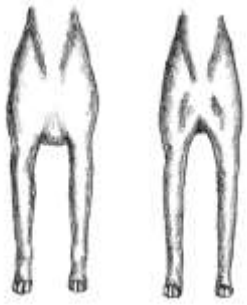
Shoulder placement

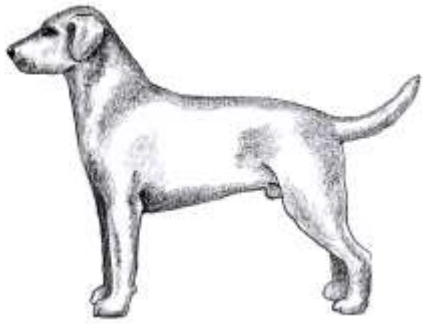
Because the scapula, and thus the whole front assembly, is held in place by muscle tissue, it is entirely possible, that the placement of the shoulder may not be optimal.

When a shoulder assembly is correctly placed, the well-laid shoulder and good shoulder angle will be obvious and there will be good length of neck and usually, some prosternum visible in profile. When the shoulder assembly is set too far forward, the first tell-tale signs are an obviously shorter neck, an apparently longer body, and lack of prosternum visible in profile. Because the dog's body is mostly supported on the front column, a poorly-placed shoulder assembly will cause the dog to lose that centre of gravity and the joints will weaken in their attempt to compensate for being unable to support the body. From the front, the body will lack sufficient muscling and **fill**, resulting in the appearance of an **inverted V** or a **cathedral peak**, which is faulty.



correctly-positioned shoulder & correct front fill





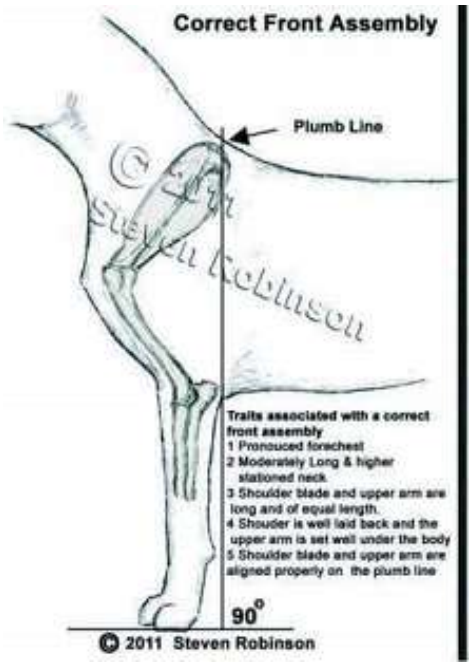
poor front fill because front assembly too far forward

What to look for

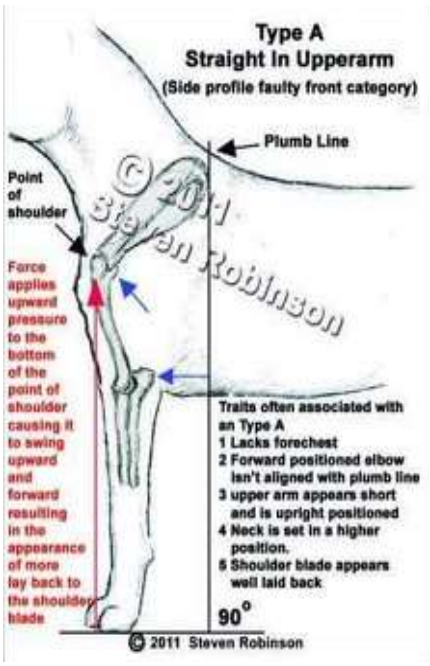
Here are a few markers that may indicate a poor front assembly:

- *poor reach*
- *short, choppy steps*
- *bouncing up and down at withers*
- *front pastern too straight*
- *short neck*
- *lack of forechest*
- *skin wrinkling over withers*

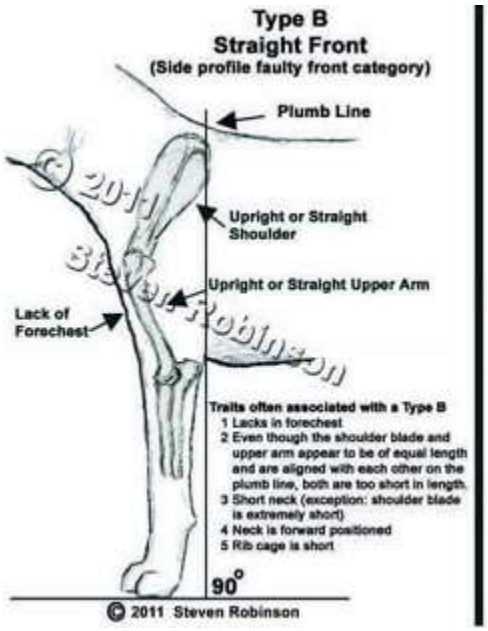
A few examples of shoulder assemblies



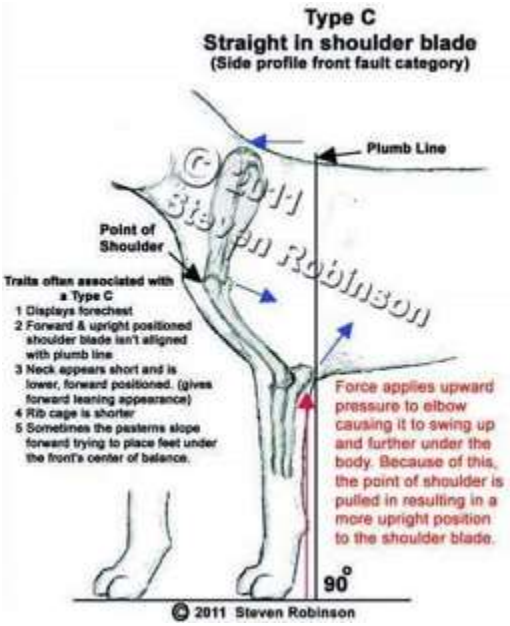
correct



problem 1



problem 2



problem 3

1. Correct front assembly:

- sufficient forechest
- moderately long neck
- scapula well laid back
- scapula and humerus of equal length
- shoulder and elbow aligned to plumb line

2. Problem 1:

- lacks forechest
- neck carried slightly higher to compensate
- scapula seems well laid back (pushed up by humerus)
- humerus is shorter than scapula and set steeply
- elbow is not aligned to plumb line

3. Problem 2:

- lacks forechest
- neck short and carried forward
- scapula and humerus set steeply
- both scapula and humerus are short
- elbow is aligned to plumb line, but both are too upright

4. Problem 3:

- shows forechest
- neck short and carried forward
- scapula short and set steeply
- ribcage appears shorter
- forward-set and upright scapula is not aligned with plumb line

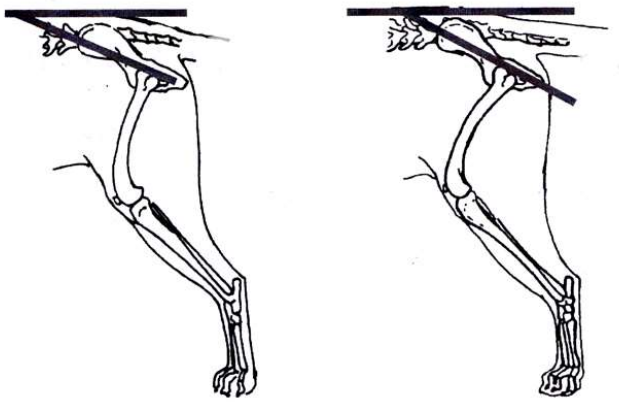
While the forequarters support the bulk of the weight of the dog, the hind quarters provide the stability and drive in action. For the mechanics to work optimally, the angulation in front and rear ought to be balanced so that all parts are in proportion and work harmoniously together.

Now let's look at the main markers for assessing hind angulation:

- pelvic angle
- stifle joint
- hock joint

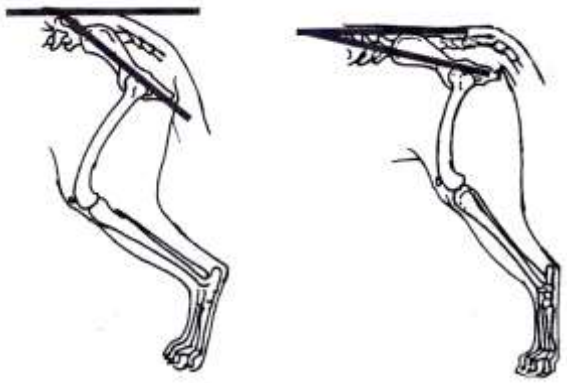
Pelvic angle

The length and set of the **pelvic girdle** in relation to the spine often affects the angulation of the whole hindquarters. Excessive angulation here (over and above the requirement of the breed standard) is never a good thing. More is not better – it's all down to the amount that is needed for functional efficiency. Consequently, pelvic angles range widely in different breed standards. In most, the requirement is a moderate slope that allows a smooth transition from the back through the croup to the hindlegs.



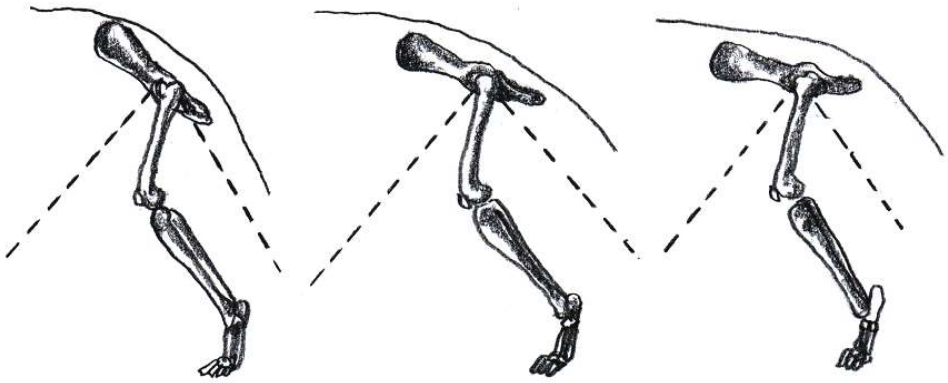
normal

Unless required in the particular breed standards, these examples would be a diversion from normal – their degree of fault in relation to its importance.



steep pelvic slope *flat pelvic slope*

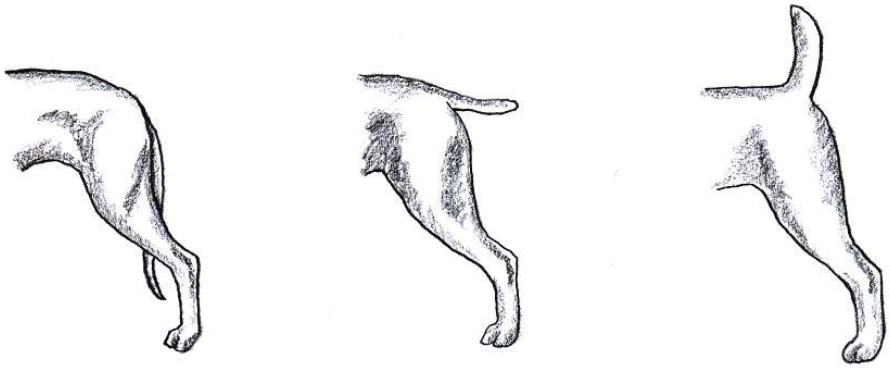
The pelvic angle influences rear drive in action.



1. *2.* *3.*

1. **too steep:** the thrust moves upwards instead of forwards, causing the back to rise during movement; rear extension is also restricted
2. **good slope:** there is good swing forwards and backwards, which allows powerful drive
3. **too flat:** insufficient thrust forwards so there is more rear extension than forward thrust, so drive is restricted

The slope of the pelvis can also affect the slope of the croup and the set on of tail.



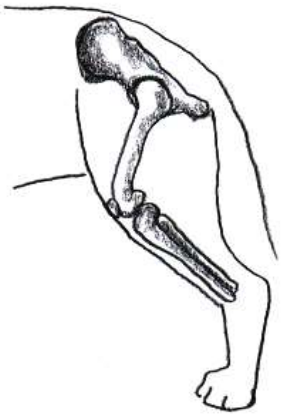
well-rounded croup; low tailset & carriage

gently-rounded croup; low tailset, level carriage

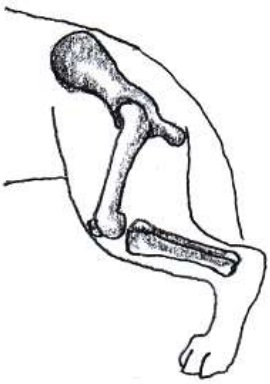
flat croup; high tailset & carriage

Stifle joint

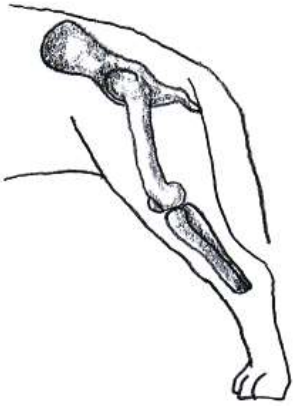
The angle formed by the femur and the tibia and fibula forms the **stifle joint** (also called the **knee joint**). The angles vary according to breeds, but poor construction will negatively affect stifle angle.



normal, well-angulated stifle



very steep pelvic slope and over angulated stifle with sickle hocks



flattish pelvic slope and under angulated stifle

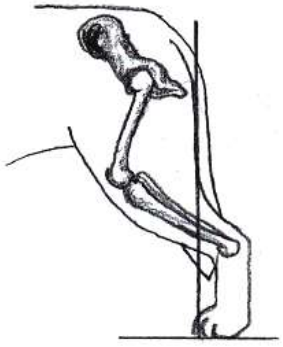
Hock joint

Completing the structure of the hind assembly is the joint formed with the connection of the tibia and fibula (second thigh) and the tarsals (rear pastern). Ideally, the rear pastern should be set perpendicular to the ground.

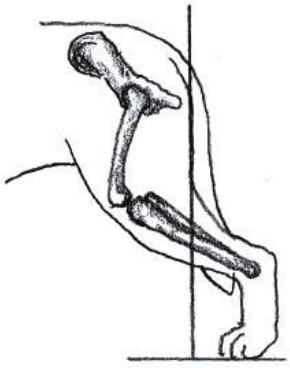
Straight hock joint, often accompanied by straight stifle.

Sickle hock, where the joint is over-angulated, often accompanied by long second thigh and/or long rear pasterns.

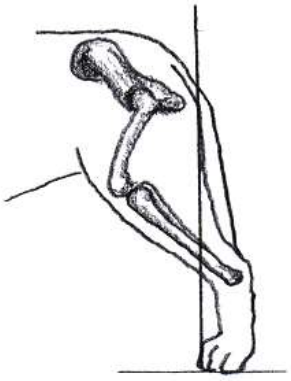
A few examples of hind assemblies



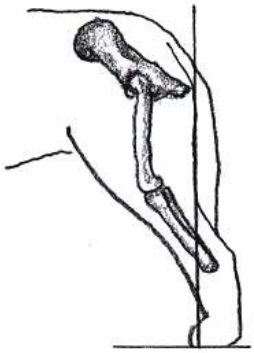
correct



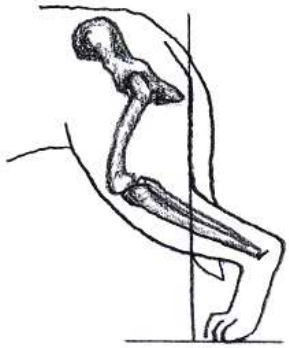
second thigh too long



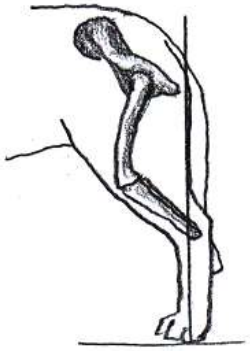
straight stifle & short upper thigh



straight stifle & short second thigh



over-angulated stifle, long second thigh, sickle hocks



long rear pastern

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Reference sources:

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