

KUSA BREED JUDGES LEARNING PROGRAMME

STUDY GUIDE 6: GENERAL

ANATOMY, CONFORMATION & MOVEMENT

EXAMINATION CONTENT FOR LEVELS 1 & 2

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Edition September 2019

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PART ONE:

STRUCTURAL BALANCE

FIRST IMPRESSIONS

In Study Guide #4: Judging Technique, we explored the five essentials of dog judging: **type**, **balance**, **soundness**, **temperament**, and **condition**. Good judges approach their assignments with these elements foremost in mind with the intent of finding and evaluating each of these elements in the exhibits they encounter. None of these elements should be viewed in isolation and none sit in opposition to the others - the concepts work together like bread and butter.

In this study guide, we delve deeper into what makes a dog what it is, but instead of diving directly to the points of anatomy that can frighten the more seasoned enthusiast, we start with what we see first – the total dog as it appears before us – then we peel away the layers, exploring each level in reasonable detail, with examples of the myriad variations that define the different breeds.

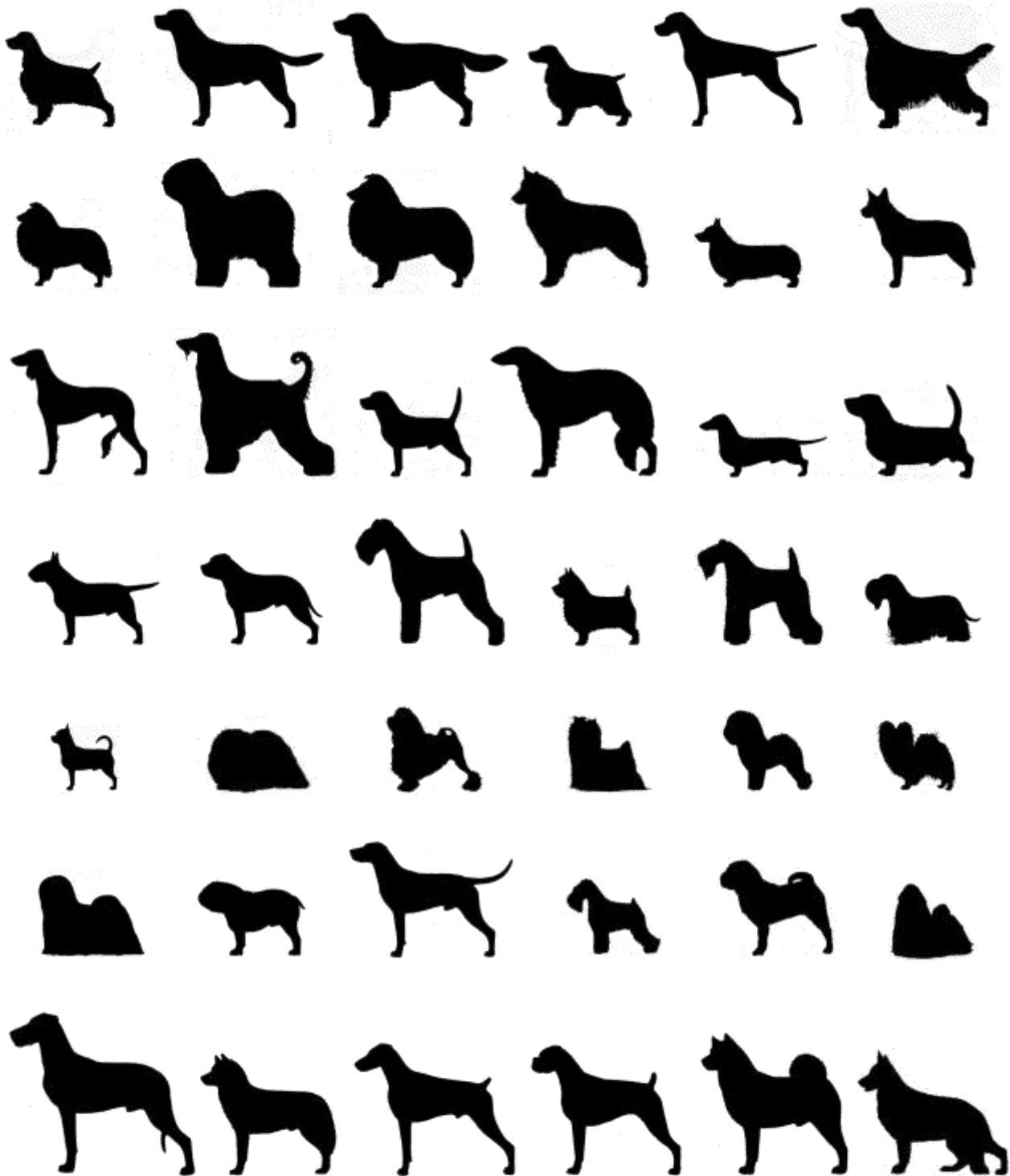
Regardless of various structural shapes and characteristics of different breeds, all members of *Canis lupus familiaris* (the dog) possess the same anatomical features. So, while there is much reference in this study guide to varying characteristics, the anatomical and conformational illustrations are of a generic dog, let's call it a "Westphalian Truffle Hound"!

Type vs style

Let's begin with what you see first – the total dog with all its characteristics that, together, **define its breed**. This is what one calls **type**. Breed type includes every aspect that defines that breed – its character, silhouette, head, movement and coat, together with all its particular breed hallmarks. Breed type separates one breed from another; for example, an English Springer Spaniel's type describes it as the tallest of all land Spaniels, symmetrically built and compact, having a liver and white or black and white coat, and moves in an easy, free manner. In the ring, however, you may find a selection of ESSs with excellent breed type, but of vastly different **style** – the American style and the English style – so different, in fact, that one wonders if they ought not to be declared different breeds! While these **variations** are very obvious, even to the novice, some variations in style may be very subtle, defining, for example, a particular kennel's preferred breeding style. So the breed type may be correct, but style may vary subtly or enormously. A good judge judges to the breed standard (ie. type), not to a particular style.

Silhouette

Your first sight of the exhibits in the ring will be the entire picture – the all-important silhouette. It's not unusual that your winner will be found during your first impression – the subsequent examination will either prove or disprove this impression. It's not by accident that almost every breed standard begins with a description of the dog's **general appearance**. During study of the various breeds, a judge builds an experiential reference to the perfect silhouette – the sum of everything in all the correct proportions that makes the breed what it is. Every breed is governed by certain general dog terms, namely, height, length of body, length of leg and so forth. There are also common expressions such as "low on leg," "long in body," "racy," "cobby", and hundreds of other terms that judges must learn to use. In pursuit of correctness, it is imperative that one understands how these terms apply to any specific breed of dog. Understanding and building a 'mental library' of silhouettes takes considerable study, but it is this mental image that a good judge takes into the ring in an effort to find a match in the ring.

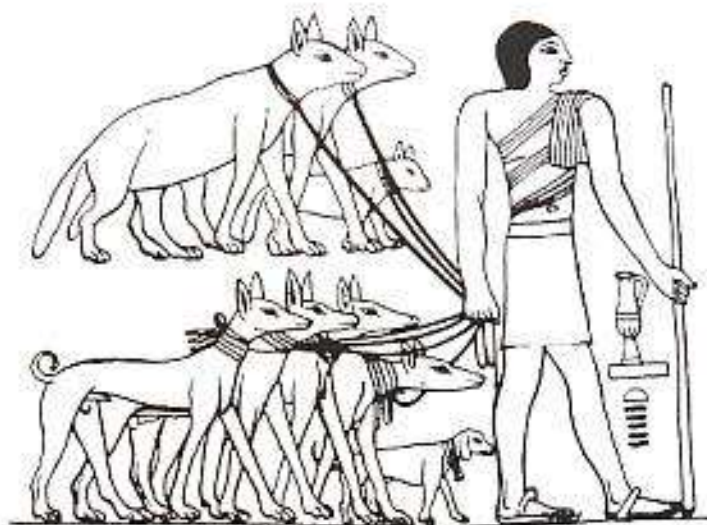


Silhouettes of a few dog breeds. Can you identify them correctly? (Answers on last page)

FORM AND FUNCTION

A breed's conformation, temperament and style of movement are influenced by its original function, which, in most cases, was to partner humans through hunting, retrieving, carting, guarding, protecting, herding, and many other functions.

Although dog jobs have changed or disappeared and modern humans value dogs more as companions than partners, form and function remain critical to the selection of a healthy, well-conformed dog that is physically able to meet expectations. For example, a Golden Retriever or English Springer Spaniel with poor shoulder structure may not only lack the stamina to hunt all day, he is unlikely to be able to jog, hike, jump, romp with the kids, or chase a ball for any length of time, particularly as he gets older. An Australian Shepherd or Pembroke Welsh Corgi that will never herd cattle still needs proper structure to compete in agility and obedience events; a Saluki or Greyhound that will never course after buck or hare must still have the proper front and rear angulation to gallop after the plastic bag on a lure-coursing field. Beyond the need to maintain the original purpose of a chosen breed, we are often in awe of the incredible way that dogs are far more than a sum of their parts.

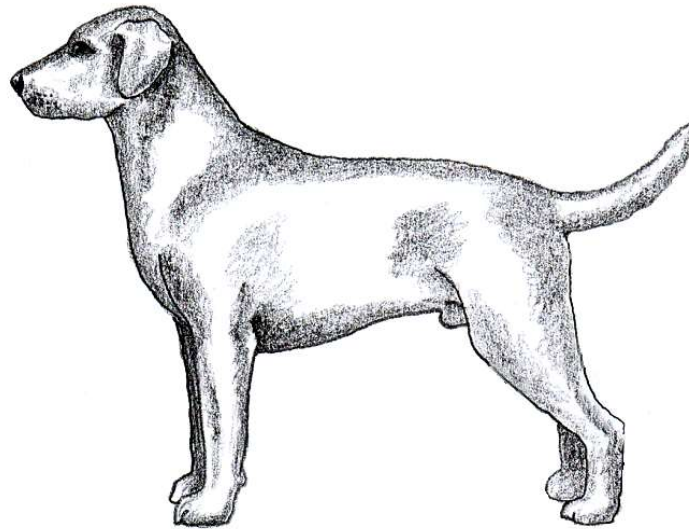


The notion of “**form following function**” is a valid idea that can be tested by science. The testing of our dogs was done primarily by those who preceded us and the principles were based on performance, a sort of working science, in its way. When judging in the breed ring, we cling to the belief that the standards we are interpreting will guide us in finding those dogs that could best fulfill their original purpose. This appreciation of the dog as an animal, an athlete, a protector, an alarm, or simply a creature of great beauty should figure in the search for the perfect specimen.

In order for dogs to carry out their respective purpose – or appear to be able to do so – a dog must possess a specialised degree of **structural balance**. One of the biggest challenges of judging is acquiring the skill of evaluating this structural balance.

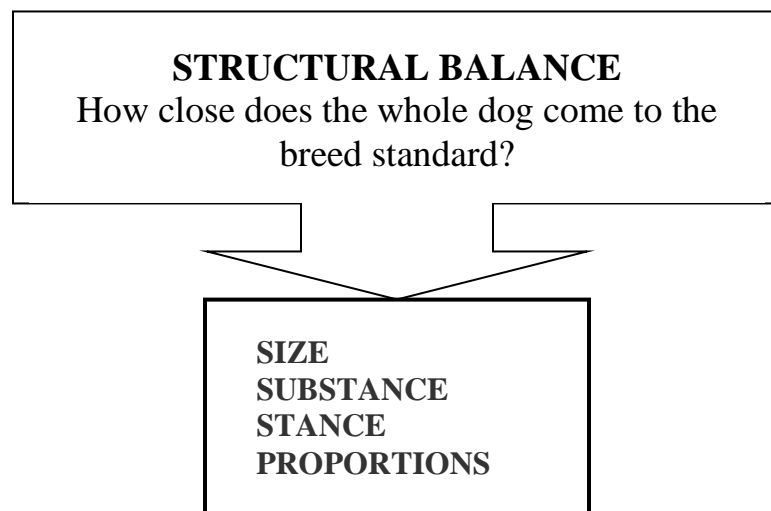
STRUCTURAL BALANCE

Balance exists when a dog appears as a symmetrical, harmonious and well-proportioned blend of all its parts...



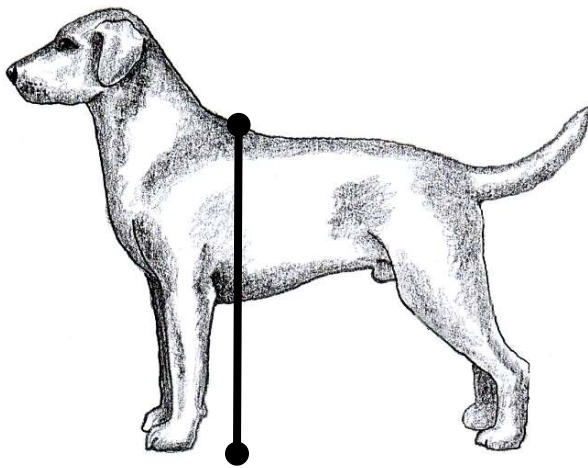
Let's look at canine conformation and anatomy within the framework of a dog's structural balance, which is made up of its **size, substance, stance** and **proportions**. In this study guide, we discuss characteristics that apply to a majority of breeds, but not all breeds, so it is essential that this material is studied in conjunction with the respective breed standards.

For the sake of clarity, the term "structural balance" is used in this study guide to refer to how correct the dog's structure is and how closely it resembles its breed standard. This is a rather subjective task, and somewhat daunting because a dog's 'correctness' can be perceived differently by different people. This subjectivity revolves around how a judge prioritises virtues and faults.



To **understand** a dog, the student must **analyse** it – break it down into easier, more tangible features that are easier to evaluate as being correct or incorrect.

To **judge** a dog, the judge must **synthesise** it – bring all the elements together into a cohesive whole.

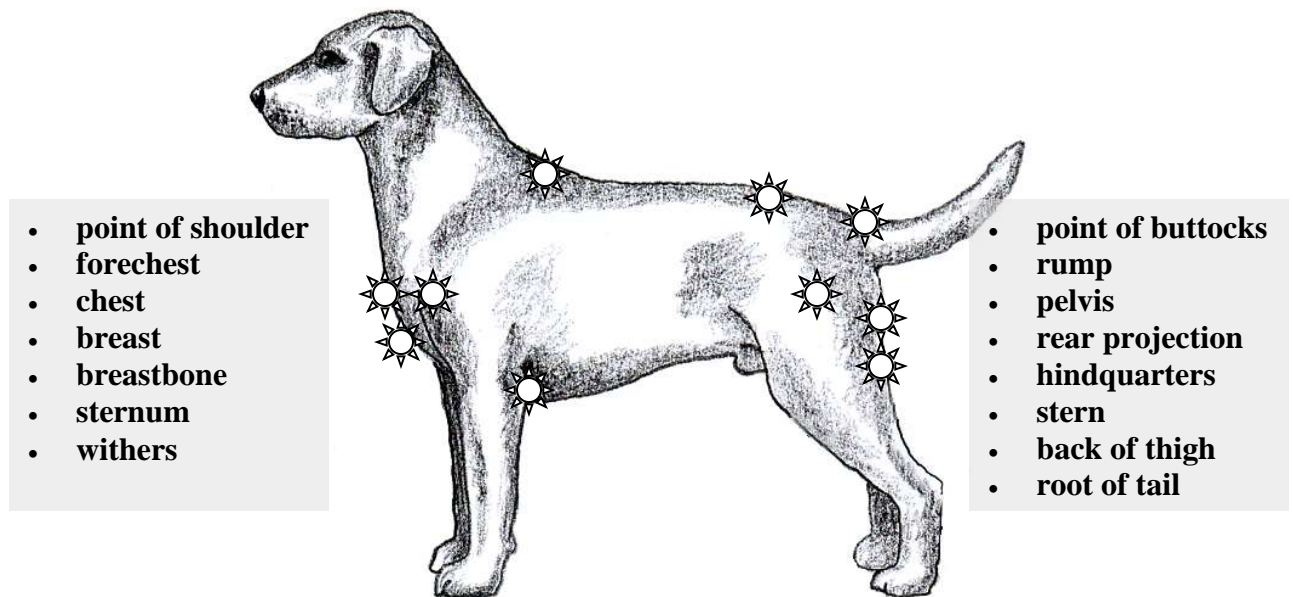


1. Size

Correct size is an important feature of structural balance. Size refers to a dog's **height** and **weight**, both or either of which are usually mentioned in the breed standards.

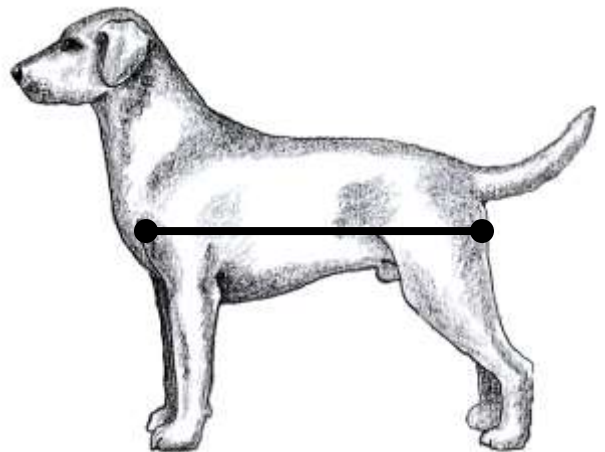
Height is always measured from the ground to the withers with a rigid **measuring stick** or **measuring hoops** while the dog stands on a firm surface.

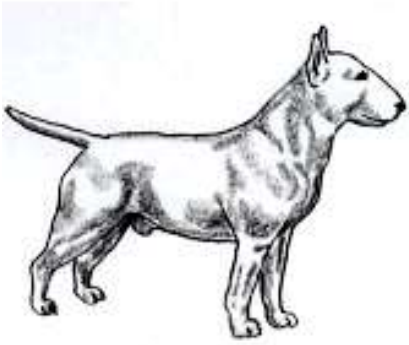
The method of **length** measurement varies by breed so judges need to know how length is to be measured in each breed. Here are a few possible measuring points as mentioned in various breed standards:



In most breeds, or where a measurement method is not specified, the most common way is to measure from the **point of shoulder** to the **point of buttocks**.

Note: In South Africa, no disqualifications are made on size infringements, regardless of the recommendations in various breed standards. However, a judge would not normally award an out-of-size dog unless its other qualities outweigh this fault.





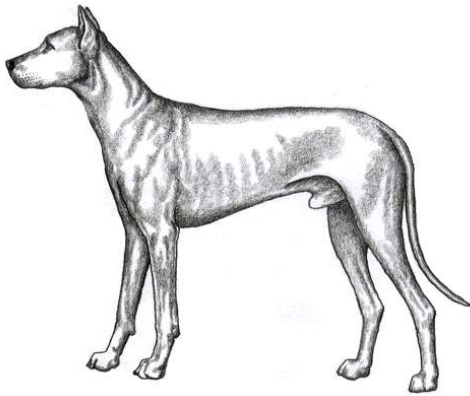
2. Substance

Substance is synonymous with the heaviness of a dog's **bone** – not to be confused with fat! As related to the overall structure of the dog, a judge establishes the correct heaviness of bone in the foreleg, where it will be found that there are basically three basic longitudinal shapes of bone:

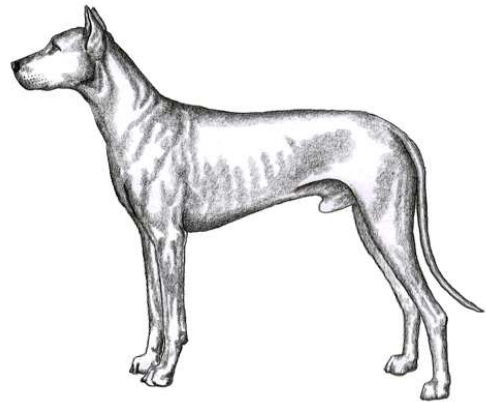
- **flat (bladed) bone:** weighs less and allows for greater speed, eg. Borzoi
- **oval bone:** balances the frame of the dog, eg. Pointer
- **round bone:** resists lateral contact and stress, eg. Shar Pei

Some judges believe that a well-muscled dog “has substance”, but if it is well muscled and has insufficient bone, this would be an incorrect assessment. It is important for judges to know what level of substance is required in the breed standard.

3. Stance



natural stance



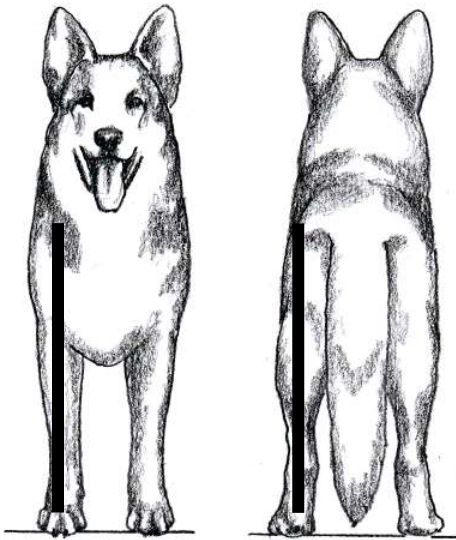
hard stacked

The way a dog stands naturally, without being **hard stacked** or baited into position, is called its **natural stance**. Exhibitors are often experts at stacking their dogs in a pleasing four-square stance – possibly to disguise conformation weaknesses – so it is useful for judges to study sufficient dogs in natural stance to be able to understand true dog structure. When judging, you can request the handler to allow the dog to stand in a natural stance as it returns to you after an ‘away-and-back’ gaiting pattern. A dog standing on its own often presents a truer picture of its natural balance.

A dog that stands **four-square** disperses its weight correctly for its breed, over all four legs, which serve as **columns of support**.

What to look for:

To look for a correct four-square stance from the side, evaluate if the front legs are vertical and the rear pasterns are perpendicular to the ground.



In correct four-square stance, the bones in the front and rear legs will be aligned to provide a strong support structure.

What to look for

- *front and rear legs are almost parallel*
- *a straight or nearly-straight line can intersect all the angles of the front or hind assembly.*

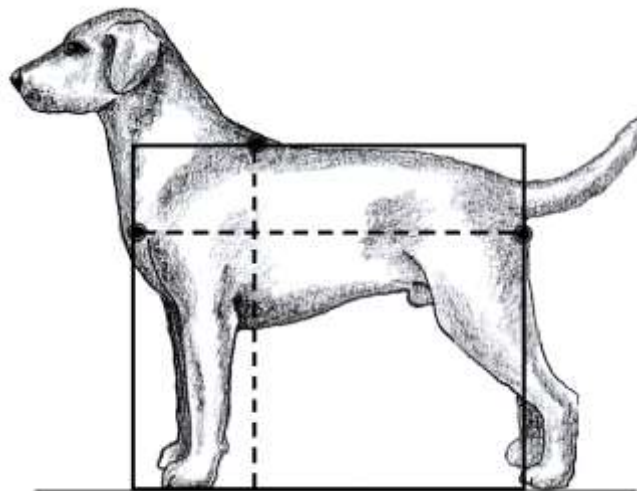
A straight column of bones provides support – the ribcage shape and depth are the key.

Of course, there are some exceptions to the rule – some **achondroplastic** breeds, such as the Dachshund and the Basset Hounds, etc. have a **wrap-around front** so that the chest is supported by the front legs.

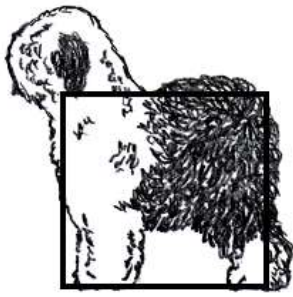


4. Proportions

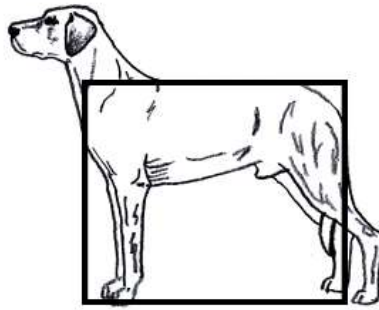
Proportions are comparisons between two or more features, for example, a dog's head to the rest of its body, or the ratio of foreface length to back skull length, etc. There are dozens of different proportions described in breed standards, but one of the most important with regard to a dog's structural balance is **length versus height**, in other words, the apparent **squareness** of a dog's structure.



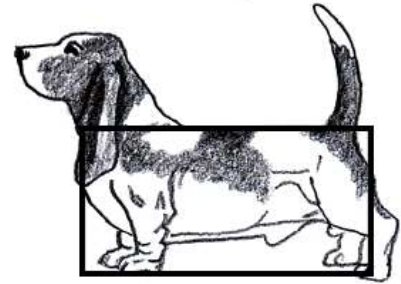
Generally, breeds will fall into one of three categories regarding height proportions:



SQUARE
eg. Old English Sheepdog

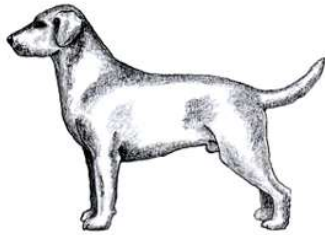


OFF-SQUARE
eg. Rhodesian Ridgeback

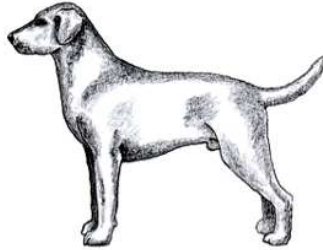


RECTANGULAR
eg. Basset Hound

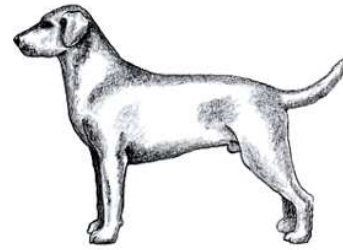
While considering balance, our perception of squareness may be affected by factors such as leg length and coupling. See how the following examples affect the perception of height and length.



shorter legs = body appears long

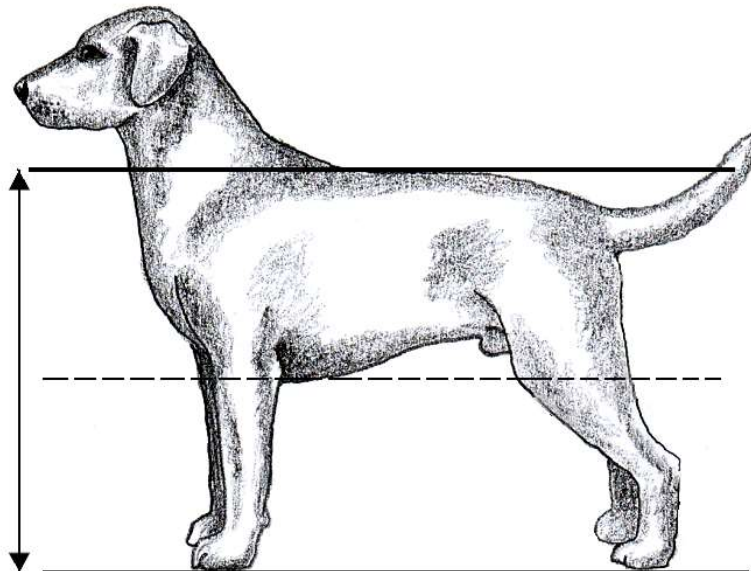


longer legs = body appears short



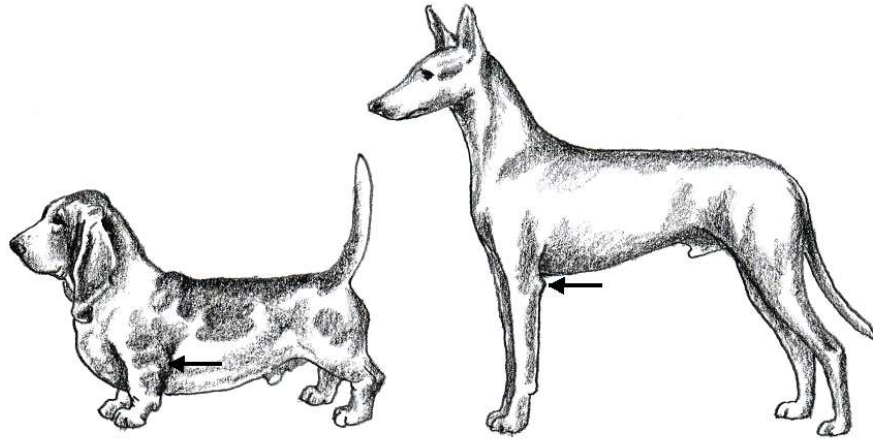
long coupling = body appears long

Another important concept of proportion subscribed in many breed standards is the **leg length** versus **brisket depth**. Many breed standards require the brisket to reach the elbow at the half-way mark of the total height of the dog.



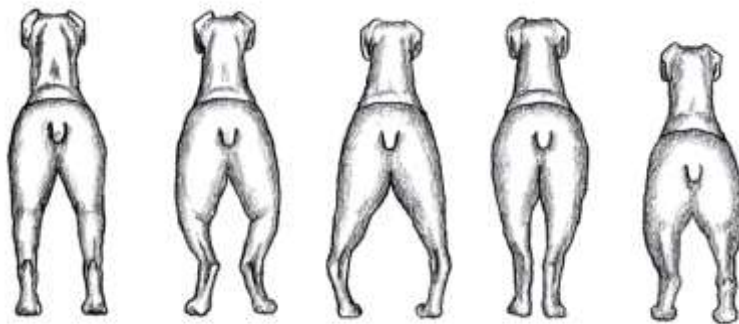
leg length and brisket are each 50% of the total height of the dog to the withers

In some breeds, the depth of brisket is discussed in terms of whether it should be **above**, **level** with, or **below** the elbow. In a Basset Hound, for example, the brisket should extend below the elbow, while in a Sighthound most briskets are considerably above the elbow to facilitate agility.



Variations of hind structures

- **cow hocks:** as viewed from behind, cow hocks turn inwards, causing restricted action and, very often, the hocks can brush against each other when passing.
- **bowed hocks:** the opposite of cow hocks – the hocks turn outwards. This also indicates a weakness in hind structure and movement will be restricted, often appearing as a waddle.
- **straight hocks:** insufficient angle at the hock, often caused by a second thigh lacking length.
- **sickle hocks:** The contour of the hock and rear pastern simulates a sickle. Usually caused by an over-angulated rear, the structure is weak and movement is uneven.

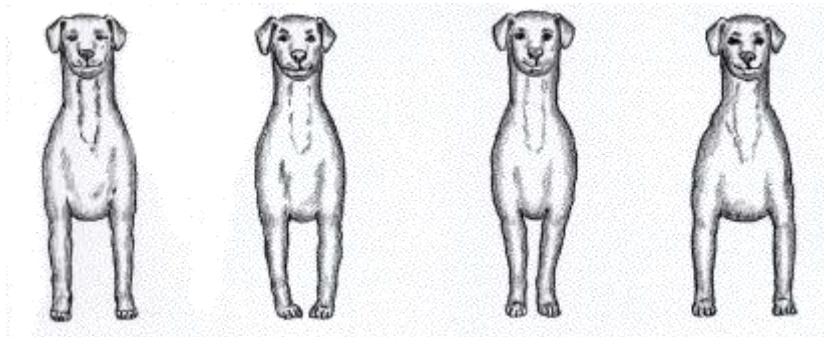


correct cow hocks bowed hocks too narrow over-angulated

Variations of front structures

Depending on the specific breed standard, there are several types of fronts, some of which are desired, others are described as faults:

- **bowed front:** when viewed from the front, the forearms curve outwards from the elbows, then close inwards towards the pasterns – sometimes caused by genetic influence, sometimes caused by nutritional deficiencies or disease. This presentation is generally considered faulty, but is required in the Pekingese.
- **crooked front:** the forearms incline symmetrically inwards and may be slightly bowed from the elbows to the wrists so as to create a cradle-like support for the chest. It is present in some achondroplastic breeds such as the Basset Hound and Dachshund, where it is called the ‘crook’.
- **east-west front (French front):** when the pasterns are incorrectly positioned, they may turn the feet outwards. This is very often a fault associated with a narrow front. Not to be confused with certain breeds where the feet are required to turn outwards slightly, eg. Saluki, Staffordshire Bull Terrier.
- **fiddle front (Chippendale front, cabriole front):** a front that resembles a fiddle shape – elbows rather wide, forearms sloping inwards, and pasterns and feet turning out.
- **horseshoe front:** where the forearms are further apart at the elbows than at the pasterns, which are perpendicular to the ground. While this may be a fault in most breeds, it is a requirement of the Bedlington Terrier.
- **narrow front (pinched front):** one in which the forearms are presented closer to each other than desirable. Usually a fault, especially in working breeds, but a requirement in some, such as the Borzoi and Saluki, which call for a moderately narrow front.
- **normal front (gun barrel front, straight front):** a true and straight front where the forearms, pasterns and feet are positioned vertically and parallel to each other.
- **pigeon-toed front (toeing in):** the pasterns and feet turn inwards towards the centre line. The opposite of an east-west front.
- **wide front:** the front assembly is built wider than normal, often associated with a barrel chest. Usually a fault, but a requirement in, for example, the Bulldog.

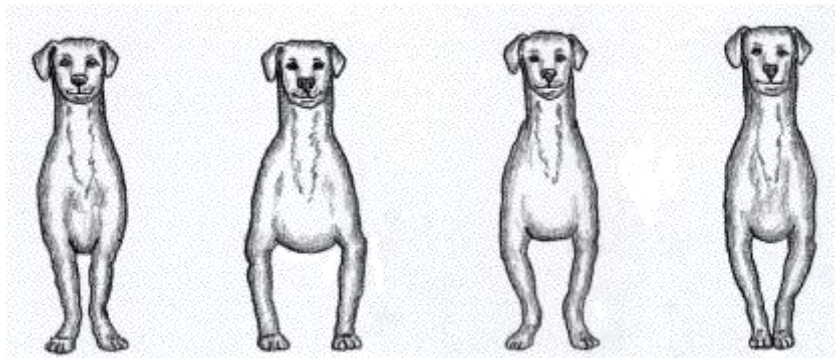


normal front

pigeon-toed front

narrow front

wide front



east-west front

bowed front

fiddle front

horseshoe front

PART TWO:

COAT & SKIN



The dog enters the ring and it attracts your attention immediately with the healthy bloom in the well-groomed coat glinting in the sunlight or flowing in the breeze with the action of the dog. The coat is easily visible, very often an indicator of a dog's general health and well-being, and is an essential element of a dog's breed type. Since it is the first thing you are likely to notice, it's the first element we will examine in the study of a dog's conformation and anatomy.

A universally generic description of canine coat will never be truly adequate because of the enormous varieties of coats that have developed along with the development and maintenance of different breeds. At all times, therefore, the breed standard must be used as starting point for a study of any particular feature of any breed, and in this case, the coat.

Dogs basically have two types of coats:

- **double coat:** this type of coat comprises an **outer coat** and an **undercoat**. The undercoat is normally short, dense, soft and acts as a blanket close to the skin to regulate body temperature not only in cold conditions, but to protect against harsh heat as well. The outer coat is supported by the undercoat and is usually longer, harsher in texture and may stand off the body. Often called guard hairs, the longer outer coat serves to protect the softer undercoat and provide weather-proofing. If a dog is supposed to have a double coat, but the undercoat is very sparse or completely shed, it is called an open coat, a fault.
- **single coat:** this coat comprises only a top coat.

Every hair in the dog coat grows from a **hair follicle**, which has a cycle of growing, then dying to be replaced by another follicle. When the follicle dies, the hair is shed during the **moulting process**. The length of time of the growing and shedding cycle varies by breed, age, and by whether the dog is an inside or

outside dog. Many dogs shed their undercoat each spring and regrow it again as colder weather comes in; this is also referred to as **blowing the coat**. Many domesticated breeds shed their coats twice a year. In some climates, the topcoat and undercoat might shed continuously in greater and smaller quantities all year.

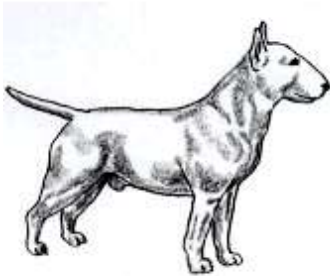
As you work through the many different breed standards, you will encounter many grooming traditions – some breeds that are presented in a scissored clip, such as the Poodle, while in other breeds, scissoring and trimming is forbidden, such as the Welsh Corgi. Many Terriers are hand-stripped seasonally, such as the Airedale Terrier, while other breeds are brushed and teased into flowing tresses and topknots, like the Shih Tzu. By and large, exhibitors go to great lengths to ensure their exhibits are presented in peak condition, proved by a coat glowing in good health and good grooming. Your task, as a judge, is to respect the grooming hours involved (ie. please don't leave the Poodle's headpiece in a mess when you've finished examining it), but make an effort to find the dog underneath the flowing tresses – a lot easier on a smooth-haired dog, admittedly!

Many breeds no longer perform their original function, while coat care and presentation has vastly improved. The secret of good judging is to be mindful of the breed's original purpose and find the balance between glamour and purpose.

Coat characteristics	
It is useful to discuss canine coat in terms of the following characteristics, all of which help to determine breed type	
functionality	refers to the function of the coat in terms of the breed's original purpose, as described in the breed standard, eg. a Labrador Retriever in its water environment needs a weather-proof double coat to keep the skin warm and relatively dry.
texture	is a distinctive characteristic of breed type, often related to functionality, eg. a Cocker Spaniel's silky, straight coat should allow easy escape from brambles and brush in the field.
quality	refers to the condition of the coat and the way it reflects the health and well-being of the dog. In the past, when dogs worked in the field, matted, dirty coats were the norm – the only consideration being how the dog could work and be protected from harsh elements. Nowadays, one wouldn't dream of showing a dog with a matted coat and the level of grooming has ensured longer coats in better condition.
amount	refers to the proper amount of coat as prescribed by the breed standard – no more, no less. Ironically, what we consider these days to be an inadequate amount of coat was, in the past, considered too much!
distribution	refers to the specific location of different coat types on the dog's body, also historically connected to functionality. For instance, a Rough Collie is expected to have a full mane of hair – originally to protect the vital organs in the chest during the dog's herding activities.
colour	in some breeds, colour is relatively irrelevant, such as the Chihuahua, which is available in all colours, while in other breeds colour is essential, often because deviation leads to health problems, eg. white Boxers, which show a high incidence of congenital deafness.
markings / pattern	a dog is usually described by its colour first, followed by its pattern and markings (if any). Patterns such as colour patches can cause illusions, if unfortunately positioned, and depth of colour in the markings can make or break a dog's expression. In some breeds, the positions of markings are essential to determine breed type, eg the Rottweiler.
trim	refers to the trimming permitted on certain breeds, such as scissoring on a Poodle or Bichon Frise, or stripping on a Miniature Schnauzer or Airedale Terrier. In some breeds, trimming is not permitted, such as on the Afghan Hound. It is up to the judge not to be misled by clever scissor work and sneaky "tricks of the trade".



stand-off coat



smooth coat



curly coat



combination coat



wire coat

Coat textures

Based on texture and length, some of the coat descriptions you will encounter in the breed standards may include:

- **bristle coat:** short, harsh and bristly, straight and stand-offish, without undercoat. eg. Shar Pei.
- **broken coat (wire coat):** a harsh and wiry outer coat with a soft, dense undercoat. The outer coat texture often resembles coconut matting. Periodically, this kind of coat ‘blows’, in other words, it softens and loosens, and must be stripped out so that new coat can grow, eg. Airedale Terrier.
- **combination coat:** this kind of coat has both short, smooth hairs and long, silky feathering, eg. Saluki.
- **corded coat:** the top coat and undercoat naturally intertwines into cords, varying in width from quite narrow to broad, always completely separate, eg. Hungarian Puli.
- **curly coat:** comprises a mass of thick, tight curls, which trap air and protect the dog from water or cold, eg. Irish Water Spaniel.
- **hairless:** as the description implies, the coat is without hair, the skin typically warm to the touch, but prone to blemishes and sunburn, eg. Xoloitzcuintle.
- **harsh coat:** hard, wiry and rough in texture, usually stripped to lie flat against the body, eg. Miniature Schnauzer.
- **heavy coat:** characterised by long, thick coat together with short, smooth coat, requiring regular brushing, eg. Newfoundland.
- **hypoallergenic coat:** often claimed to be allergic free, this type of coat is less allergic (not free of allergens) because they shed very little, eg Poodle.
- **linty coat:** a soft, downy-textured coat, typical of the Bedlington Terrier.
- **long coat:** hair that is longer than about 3cm, eg. Afghan Hound.
- **open coat:** sparsely coated – the hairs are quite widely separated from each other, lacking undercoat and often off-standing. The opposite of compact, flat coats.
- **out of coat:** used to describe a dog that has moulted its coat due to seasonal changes, heat seasons, illness or stress.
- **short coat:** hair that is shorter than about 3cm, eg. Pointer.
- **silky coat:** softest in texture, a silky coat feels heavy and ‘cold’ to the touch and falls easily back into place, usually long, eg. Yorkshire Terrier
- **smooth coat:** short, close-lying hair, eg. Whippet.
- **stand-off coat:** a characteristic of all spitz-type breeds, the coat stands away from the body as opposed to lying flat, usually also supported by a dense undercoat, eg. Pomeranian
- **pily coat:** crisp in texture with a harsh outer coat and a soft, fur-like undercoat that lies close to the skin, particularly used to describe the coats of the Dandie Dinmont Terrier and the Border Collie.
- **weather-proof coat:** usually double-coated, the outer coat often quite harsh in texture and coated with natural oils to provide good weather-proofing, eg. Labrador Retriever.

Coat distribution

Different breeds have hair growing in different places. Let's look at a few specific descriptions of coat distribution:

- **beard:** thick, longish, often stand-off, longer hair around the cheeks, lower jaw and on the chin, it sometimes contains wiry guard hairs, the length varying according to the requirements of the breed standard, eg. Miniature Schnauzer
- **bloom:** the sheen of a coat in good condition
- **bracelets:** the unshaven hair pompons on the ankles and pasterns of Poodles cut in the Continental clip.
- **breeches / trousering / culotte:** longish hair at the rear of the upper thigh region, eg. Australian Shepherd.
- **brush:** a synonym for tail, often mentioned in breed standards of dogs with bushy tails, eg. Siberian Husky
- **cape:** a profuse collar of hair that covers the shoulder region, usually blending into a ruff or jabot, eg. Schipperke.
- **fall of hair / topknot:** a fringe or shock of hair on the forehead of long-coated breeds, sometimes tied up, as in a Shih Tzu, or left to form a veil, as in a Briard.
- **feathering / fringing:** longish, usually softer, silkier hair compared to the rest of the coat that appears on the legs, ears, tail, eg. Saluki, and, in some breeds under the belly.
- **frill:** a raised ridge of long or short hair formed by the junction of the mane from above and the apron from below usually extends down the sides of the neck. In long-coated dogs it is known as the chest frill, eg. Shetland Sheepdog.
- **furnishings:** an abundance of coat as required in specified areas according to the breed standard, eg. the eyebrows of Schnauzers, the moustache of the Bouvier des Flandres, the ears of the Long-haired Dachshund, etc.
- **jabot:** the name given to the longer-coated apron of the Schipperke
- **mane / shawl:** longish, usually fairly coarse hair growing on the neck to resemble the mane of a lion, eg. Pekingese
- **ridge and crowns:** The crowns are the circular hair-growth patterns on either side of the start of a ridge at the withers, typical of a Rhodesian Ridgeback.

Coat colours

During your study of the breed standards, you will encounter many varied descriptions and names of coat colours. Essentially, these will include variants of the following:

- **brown:** (including liver, chocolate, sedge, Blenheim) eg. a chocolate Labrador Retriever
- **red:** (including mahogany, cherry, chestnut, orange, roan, red-gold, reddish-brown, russet, cinnamon, tan, and ruby) eg. a red Irish Setter.
- **gold:** (including fawn, apricot, wheaten, deadgrass, fallow, lion-coloured, isabella, tawny, straw, sandy) eg. a Golden Retriever
- **yellow:** (including blonde, lemon, and yellowish-gold) eg. a yellow Labrador Retriever
- **cream:** (including broken white, ivory, pale crème, gold-cream) eg. a cream French Bulldog
- **white:** (distinct from albino dogs in that the pigment is dark) eg. a Bichon Frisé
- **grey:** (including pale to dark grey, silver, pepper, slate, blue-black, lavender, steel blue) eg. a steel grey Weimaraner
- **blue:** (including dark metallic grey) eg. a Kerry Blue
- **black:** (including self-black or black with another colour) eg. a black Newfoundland

Coat patterns

Having established the coat colour, there may also be a prescribed pattern option. The same pattern may be referred to differently in different breeds:

- **badger / beaver:** an admixture of white, grey, brown and black hairs in varying intensity, often occurring in patches on a white background, as in badger-pied Pyrenean Mountain Dogs
- **bicolour / Irish-marked / flashy:** any colour couple with white, the main colour covering most of the dog. The pattern can be symmetrical or asymmetrical, but usually comprises a white chest, white belly, white feet and sometimes a full or partial white collar around the neck, eg. a flashy Boxer.
- **black and tan / liver and tan / blue and tan:** the coat contains both colours in clearly-defined and separated areas, as described in the relevant breed standard, some of which are very specific about the correct positioning of such patterns and the richness of colours, eg. the Dobermann. Usually, the darker colour fills most of the body with tan at the points.
- **blanket / mantle:** a different colour (usually darker) over the centre of the back, part of the neck, head, tail and, sometimes, the legs, eg. Airedale Terrier
- **brindle:** fine black stripes on a brown, tan, red, gold, grey or fawn coat, eg. Bulldog. Most standards call for the stripes to be clearly marked.
- **flecking / ticking / speckling / mottling:** flecks or dots of dark-coloured hair on a white background. Flecking can be heavily distributed as in an Australian Cattle Dog or lightly ticked as in a ticked parti-colour Saluki. In English Setters, the flecking is termed belton.
- **grizzle:** an admixture of black or grey hairs together with the base colour, usually covering the upper parts of the body, gradually becoming less prominent towards the base colour only covering the under parts.
- **harlequin:** torn patches of black or dark grey on white – a distinctive coat pattern of the Great Dane.
- **hound-marked:** usually a white coat with tan and/or black patches on the head, back, legs and tail.
- **merle:** a marbled coat with patches of a darker shade of the specified colour, such as a blue merle or red merle Australian Shepherd. In Dachshunds, this pattern is called dapple.
- **particolour / pied / piebald:** patched of colour, usually on a white coat, appearing in irregular patches, well-defined. The breed standard may or may not allow it to be accompanied by the ticking gene. eg. a parti-colour Whippet.
- **peppering:** an admixture of white and black hairs, giving the appearance of pepper and salt, eg. a Miniature Schnauzer.
- **roan:** a fine mixture of white hairs with another colour, usually blue roan, orange roan, lemon roan, etc. eg. a blue roan Cocker Spaniel.
- **sable:** black-tipped hairs against a background of any lighter colour, eg. a sabled red Rough Collie. The darkness of the sabling depends on the length of the black tips. Sabled dogs often have dark or black masks on the face.
- **spotted:** dark spots on a white background, eg. the Dalmatian.
- **tricolour:** three distinct colours, usually black or liver or blue with tan and white, the white usually covering the under parts and the dark colour blanketed or patched on the upper parts, with tan at the borders, eg. a Bernese Mountain Dog
- **tuxedo:** a solid-coloured coat (usually black) with a clear white patch or shirt front on the chest and chin and usually white on the feet and face, eg. Boston Terrier

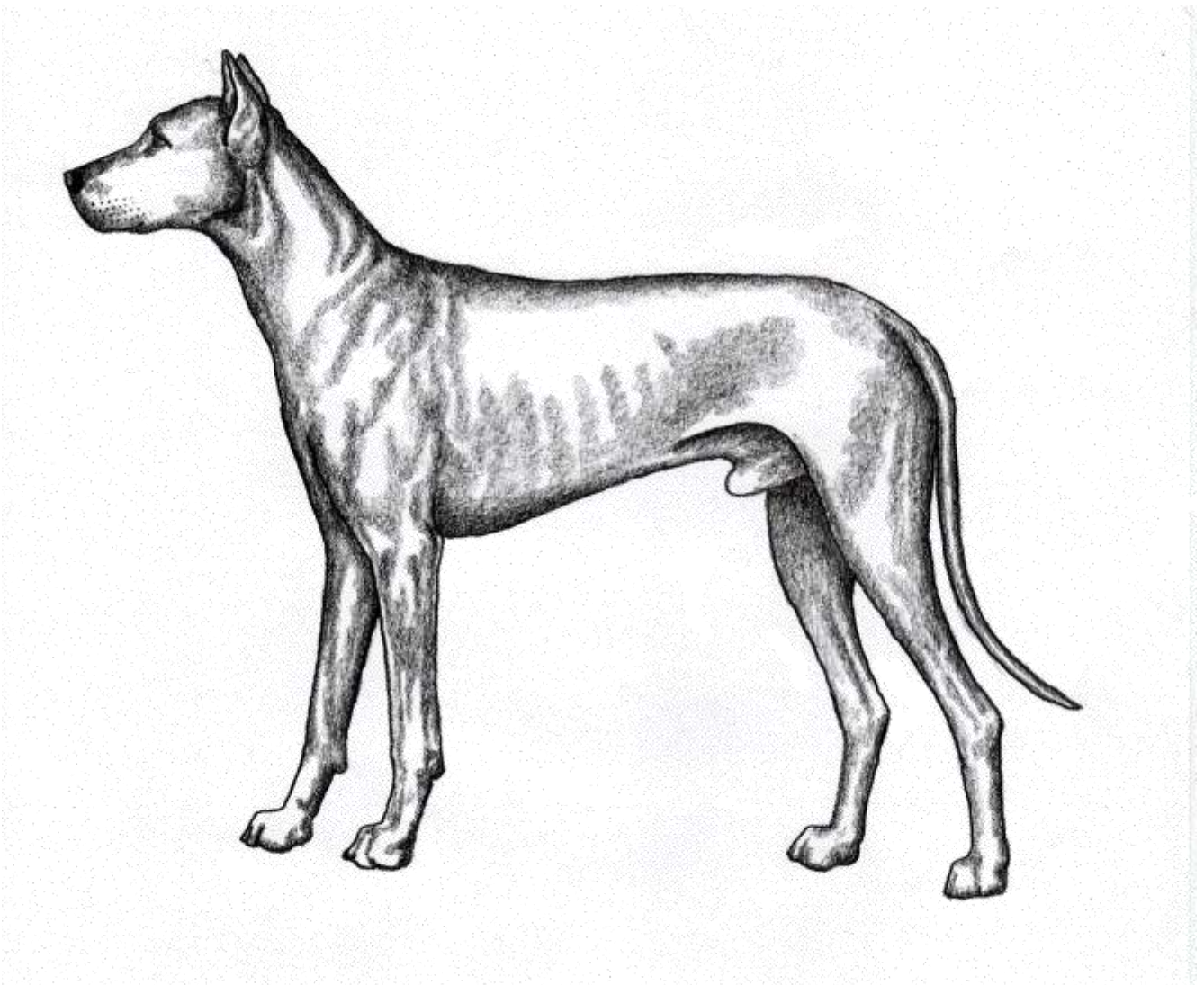
Coat markings

In addition to specific colours and patterns, a breed may have required markings such as the following:

- **blaze:** a white strip running up the centre of the face between the eyes. In some breeds, such as the Papillon, this is a hallmark of the butterfly-shaped expression. If the blaze broadens towards the top of the skull, it is known as a flare.
- **frosting:** similar to greying in humans, frosting can occur on the face of aging dogs, also an option in the Belgian Shepherd Dog breed standard.
- **lozenge:** a distinct spot of colour surrounded by white, which may be found on the foreheads of Blenheim Cavalier King Charles Spaniels. A similar spot of a lighter colour against a darker background on a Saluki's forehead is called the "Kiss of Allah". The dark black mark on the forehead of a fawn Pug is called a diamond.
- **mask:** dark or black shading on the muzzle up to the eyebrows, eg. Pekingese)
- **pencilling:** distinctive black lines that divide the tan on the toes, eg. Manchester Terrier
- **points:** the standard may mention the tan on black-and-tan dogs to appear on the points, namely the cheeks, muzzle, throat, chest, legs, over the eyes and under the base of the tail.
- **rosettes:** the small tan patches on each side of the chest above the front legs in black or brown and tan dogs, eg. Dobermann
- **spectacles:** shadings or dark markings around the eyes, often including a line from the eyes to the ears, eg. a Keeshond.
- **trace:** a dark stripe down the back of a Pug.
- **vent:** tan-coloured marking under the base of the tail, usually apparent in black-and-tan dogs, eg. Dobermann
- **widow's peak / cap:** the darkly-shaded colour pattern on the skull of some breeds, it usually extends in a point towards the stop and encircles the eyes towards the cheeks, eg. Alaskan Malamute. In an Afghan Hound, this pattern is called domino.

Tip: Judging the coat

When you evaluate coat type and condition, make sure you know exactly what type of coat to expect according to the breed standard. As you run your hands over the dog, feel the texture with the palms of your hands. Is it smooth to the touch, or harsh? Check texture by feeling a few hairs between thumb and fingers. Check for undercoat by parting the coat with your hands on the side of the chest. Make a note of correct length of coat in the required areas, eg. short coat on muzzle, feathering on legs, etc.



Beneath the coat, the skin is the dog's largest organ, covering its entire body to hold water, ions and microscopic molecules inside and to protect the body from bacteria, water and other invasions from outside. Dogs, unlike humans do not have sweat glands in their skin and thus do not sweat. To regulate their body heat, dogs lose moisture from the pads of their feet and by panting.

Some breeds do not grow hair on parts of their bodies and may be referred to as hairless, such as the Xoloitzcuintli, the Peruvian Hairless Dog and the Chinese Crested. The skin on these dogs is remarkably warm to the touch with a soft, chamois-like texture.

Very few breed standards specify skin characteristics, but on most dogs, skin is meant to be pliable and, often, well-pigmented. The Basenji calls for "very pliant" skin and the Boxer specifies "dry, elastic skin without any wrinkles". In contrast to the usual tight-fitting skin covering, some breeds have loose to very loose-fitting skin over body and head, some also with a marked dewlap on the neck, eg. Basset Hounds, Neapolitan Mastiffs.

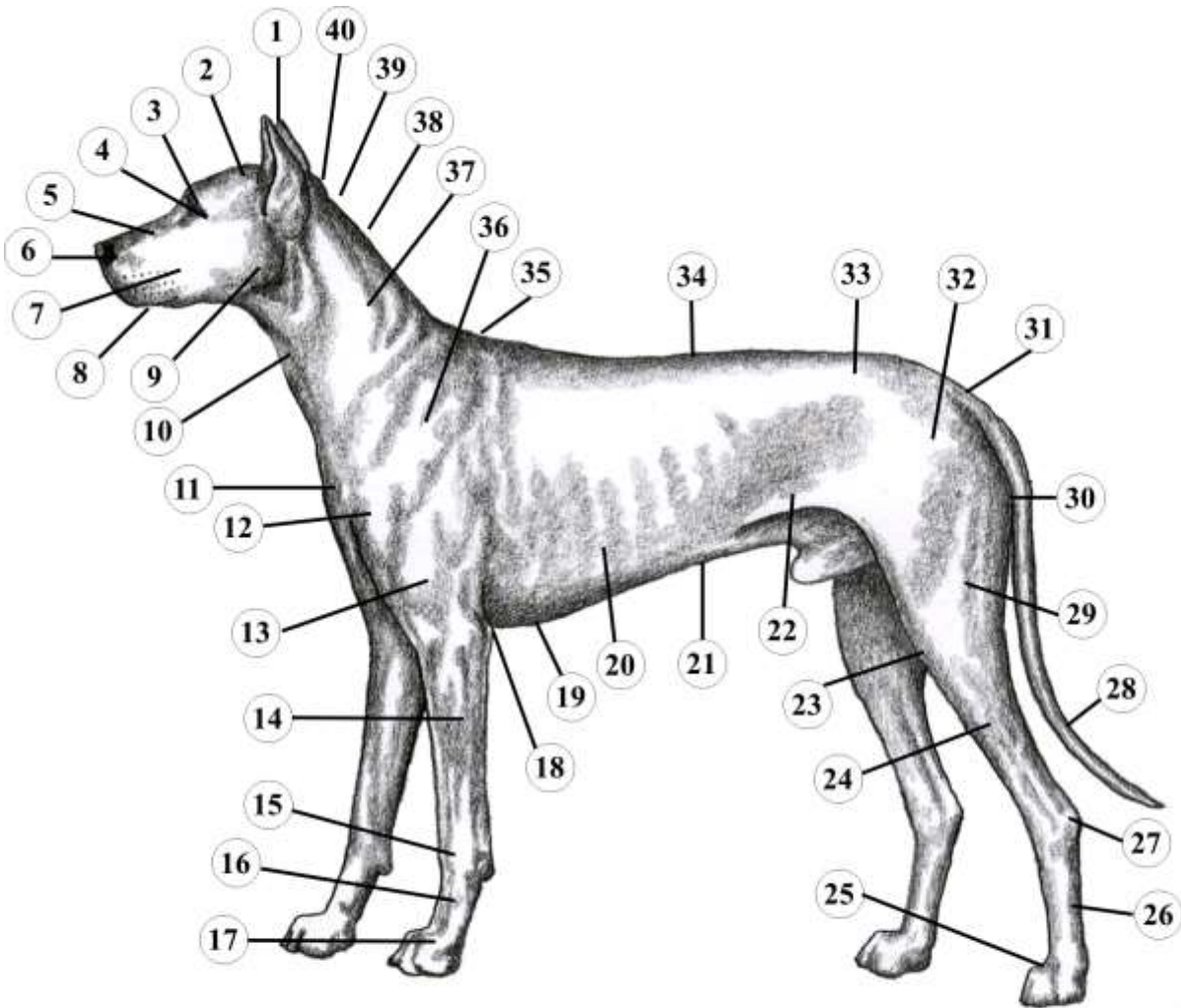
PART THREE:

CONFORMATION

CONFORMATION

The term “conformation” refers to the outward appearance (topographical view) and the identification of the various regions of a dog’s body. These terms are most used when discussing and describing dogs.

There are approximately 227 recognised breeds of dog in the world, and more in various stages of development; their shapes and sizes are as varied as chalk is to cheese. Conformation is the term that refers to the dog’s externally-visible details, also referred to as the dog’s topology or the points of a dog.



- | | | | |
|-------------|-----------------------|----------------------|--------------|
| 1. ear | 11. prosternum | 21. belly | 31. croup |
| 2. skull | 12. point of shoulder | 22. flank | 32. rump |
| 3. stop | 13. upper arm | 23. stifle | 33. loin |
| 4. eye | 14. forearm | 24. lower thigh | 34. back |
| 5. foreface | 15. wrist | 25. hind foot | 35. withers |
| 6. nose | 16. pastern | 26. rear pastern | 36. shoulder |
| 7. muzzle | 17. forefoot | 27. hock | 37. neck |
| 8. chin | 18. elbow | 28. tail | 38. crest |
| 9. cheek | 19. brisket | 29. upper thigh | 39. nape |
| 10. throat | 20. ribcage/chest | 30. point of buttock | 40. occiput |

Because there are so many different breeds, each with its own breed standard, we judge a dog's **conformation** in terms of how well it **conforms** to the breed standard. All dogs will possess the same conformational points, but the breed standard will define where these points will be positioned and what they should look like. Furthermore, within each breed's specific requirements, there will be minor differences in conformation, which will determine which exhibits deserve to be awarded, and which ones don't.

**Tip:
Judging
conformation**

Remember that a good judge evaluates a dog according to its own breed standard – an ill-prepared judge is charmed by a flashy, generic show dog!

Whether judging a Bulldog or a Greyhound, a Chihuahua or an Irish Wolfhound, each specimen will possess the same points in different shapes, sizes and proportions. The terminology used is universal across all breeds so, if an exhibitor asks, you will be able to refer to the appropriate terminology, regardless of the breed. Your task, as judge, is to be completely familiar with conformation terminology and how these are presented according to particular breed standards. Judging is no walk in the park!

When examining a dog's conformation, the most logical way is to define the following divisions:

- head and neck
- forequarters
- body
- hindquarters
- tail

HEAD AND NECK

Some fanciers claim the head and expression is the be-all and end-all of the dog and, literally, everything behind the head is of little consequence. Others consider the head as something that sits on the top of the neck – after all, a dog doesn't run on its head! While it is absolutely essential that a judge evaluates the dog in its entirety, it is also useful to have an understanding of the reasons for certain breeds being considered "head breeds".

As a Judge, you can study the terminology inside out and stare at illustrations and photographs endlessly, but that will never make you a good judge. Essentially, you need to learn to identify good heads from mediocre or bad ones and the only reliable way to do this is to look at the dogs with discernment and comprehension. It is extremely beneficial to find a mentor who can help you identify good examples, and then show you how the other examples deviate from the good one. A good start is to fix in your mind the picture of a good head, beginning with the general shape and proportions of the head, the skull and the foreface. Can you recognise the basic shape of the breed's head – round, angular, square, etc? A Pekingese without a horizontal oblong-shaped head lacks one of its defining hallmarks and a Bullmastiff without a head that looks square from all directions is not typical.

Head shapes

The variety of head presentations is as varied as there are various breeds:



Apple head



Round head



Short, round head



Ovoid head



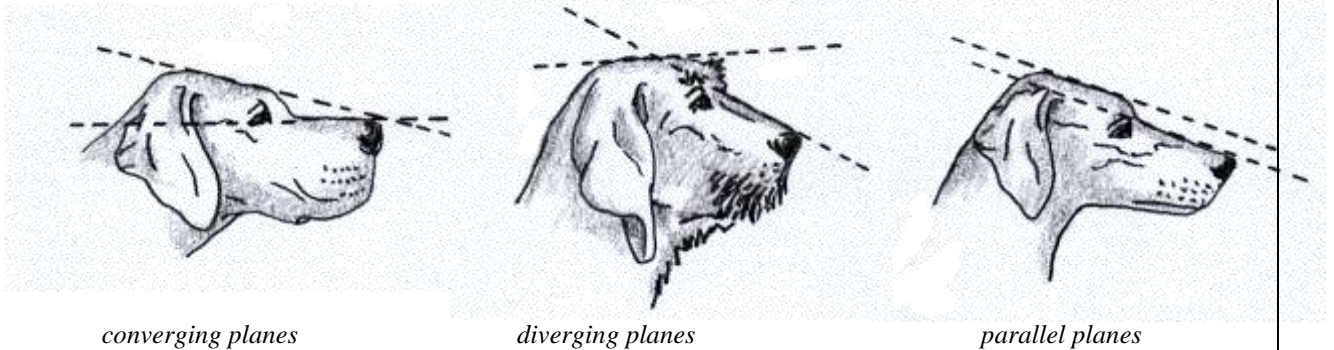
Long, tapering head

- **apple / domed skull:** very rounded skull, a particular requirement of the Chihuahua
- **rounded skull:** the skull is arched roundly; different from the domed skull in that it is not as exaggerated, eg. American Cocker Spaniel
- **flat skull:** flat between the ears and between stop and occiput, eg. Pointer
- **oval skull:** a gently-curved skull that contours from ear to ear, eg. English Setter
- **balanced head:** where the skull and the foreface are of equal length, eg. Gordon Setter and most breeds
- **blocky head:** a head broader than that which considered to be ideal, usually a fault
- **brick-shaped head:** long, rectangular head where the width of the skull and the foreface are relatively equal, eg. Great Dane
- **clean-cut head:** head properties that are smooth and refined, free of bumps and bulges, eg. Whippet.
- **coarse head:** generally not a complimentary description, meaning lack of refinement, heaviness, plainness, large size.
- **conical head:** cone-shaped, triangular in outline as seen from above and the side, eg. Dachshund
- **dry head:** taut skin on the head and neck, free of wrinkles and folds
- **egg-shaped:** an ovoid head, specifically required in the Bull Terrier
- **fox-like head:** a spitz-type head that resembles a fox by virtue of the placement of head properties, eg. Welsh Corgi
- **long, tapering head:** long, narrow and tapering, usually accompanied by a slight stop, eg. Borzoi
- **otter head:** the specific shape of the Border Terrier, which resembles that of an otter
- **pear-shaped head:** a specific description of the contours of the head of the Bedlington Terrier
- **round, short head:** the muzzle is fore-shortened and, together with the broad skull, gives a general impression of roundness, eg. Boston Terrier
- **squared-off head:** when the lips and the muzzle end abruptly in a square instead of tapering, eg. Pointer
- **wedge-shaped head:** triangular as viewed either in profile or from above, or both; it differs from a conical head in that the wedge shapes do not necessarily need to be equal in dimension, eg. Dobermann
- **dish face:** concave contours in profile where the tip of the nose is higher than the base at the stop, usually a fault but a requirement of the Pointer.
- **down face:** the foreface and skull planes diverge so that the foreface inclines downwards, usually a fault, but a requirement of the Bull Terrier
- **filled face:** clean and smooth facial contours showing no bony ridges or depressions, also refers to a well-cushioned face, eg. French Bulldog
- **frog face:** a faulty construction in brachycephalic breeds where the nose is set too far forward

Head planes

In profile, a judge evaluates the head planes, ie. the angles at which the topline of the skull is set to the topline of the foreface. Generally, three types of planes can be found:

- **converging planes:** the topline of the skull slopes towards the topline of the foreface
- **diverging planes:** the topline of the skull slopes away from the topline of the foreface
- **parallel planes:** the toplines are in line with each other, separated by a stop



Elements of the back skull

- **back skull:** the area of the head behind the foreface, ie. the brain case. Some breed standards call for well-developed back skull in the head.
- **occiput:** the rearmost part of the skull. In some breed standards the occiput is required to be prominent and clearly visible, while in other breeds it can be felt but not seen. The occiput helps to determine the shape of the head.
- **median line / median groove:** the longitudinal line down the centre of the skull towards the stop, formed by bone formation and/or muscle, required in some breed standards, eg. Weimaraner. The line may be visible or it may be felt with the fingers.
- **brows / eyebrows:** the skin and hair above the eyes, they vary greatly in prominence and hair coverage.
- **stop:** the depression between the skull and the foreface, usually positioned centrally between the eyes. Stop development varies vastly between breeds from an imperceptible stop, eg. Borzoi, to a well-defined stop, eg. Bulldog.
- **zygomatic arch:** the bony ridge under the eye that influences the contours of the face and the degree of fall away under the eye. Many breed standards require strong, prominent zygomatic arch, eg. Rottweiler

Ears

While there are many different types of ear shapes and set, they can basically be grouped as follows according to the way the ear leather (the cartilaginous ear lobe) is positioned:

- **erect / pricked:** eg. German Shepherd Dog
- **semi-drop / semi-pricked:** eg. Australian Shepherd
- **drop / pendant/ pendulous:** eg. Dachshund

Ears can be set high or low, wide or upright. In addition, the terminology (nomenclature) used in breed standards may define ear types as follows:

- **bat ear:** stiffly erect with rounded tips, facing forwards and set wide apart, eg. Cardigan Welsh Corgi
- **button ear:** semi-erect, where the lower lobe stands upright and the top is folded forward towards the eye, partially obscuring the ear's orifice, eg. Irish Terrier
- **candle-flame ear:** flame-shaped, erect ears specific to the English Toy Terrier
- **cocked / tipped / semi-prick ear:** erect ears in which only the tip fold forwards (not down), eg. Shetland Sheepdog
- **drop ear:** hang down from the junction with the head, eg. Beagle
- **filbert ear:** the specific requirement for a Bedlington Terrier's ears, derived from the shape of the hazelnut (filbert)
- **folded / rolled ear:** drop ears, usually somewhat long, that hang in longitudinal folds, eg. Bloodhound
- **heart-shaped ear:** shaped as a heart and hanging as a pendant, eg. Pekingese
- **hooded ear:** smallish, erect ears, where the lobe edges curve forwards markedly, eg. Basenji
- **rose ears:** smallish ears that fold over and back so that the burr of the ear is exposed, eg. Whippet
- **round-tipped ears:** blunt and well rounded, eg. Chow Chow
- **tulip ears:** slightly different from bat ears in that, while also erect with rounded tips, the edges turned slightly forward to resemble a tulip and set closer together (upright), eg. French Bulldog
- **triangular ears:** often carried pricked and quite wide apart, eg. Siberian Husky
- **v-shaped ears:** triangular-shaped ears, carried in dropped position, eg. Bullmastiff.



pricked ear



drop ear



bat ear



filbert ear



tipped ear



rose ear



rounded ear



button ear



hooded ear

Eyes



almond eye



oval eye



round eye



triangular eye

Many different shapes (as determined by the eye rims):

- **almond eyes:** bluntly pointed at both corners, eg. Basenji
- **oval eyes:** very similar to almond eyes, oval in shape, eg. Border Collie and most breeds
- **beady eyes:** small, round and usually listed as a fault.
- **deep-set eyes:** well-sunken eyes set deeply in the sockets, eg. Chow Chow
- **globular:** set in round apertures, often prominent without being protruding, eg. Chihuahua
- **round eyes:** set in round apertures, eg. Rhodesian Ridgeback
- **obliquely-set eyes:** when the outer corner of the eye is set slightly higher than the inner corner, eg. Bull Terrier
- **square-set eyes:** when the inner and outer corners of the eye are set at right angles to the longitudinal axis of the skull, eg. Bulldog and most breeds
- **protruding eyes:** bulging, full eyes, goggled eyes, usually described as a fault.
- **triangular eyes:** angular and usually set obliquely, eg. Afghan Hound

and colours:

- **bird of prey / hawk eyes:** yellowish to amber-coloured eyes, usually harsh and staring, usually a fault
- **China / fish / jewelled / marbled / wall eye:** incomplete, flecked distribution of the melanin on a blue iris, common in breeds that carry the merle gene, eg. Australian Shepherd
- most breed standards call for dark eye, ranging between hazel to dark brown.

Eye rims

These are the upper and lower edges of the eyelids. Breed standards usually require a tight fit of eye rims – this as a health effect to prevent wear and tear and the introduction of debris into the eye. **Ectropion** (aka haw eye) is a condition where eye rims are loose and droop outwards. **Entropion** is a painful condition where eye rims turn inwards and the cornea is damaged through friction with the eyelashes. Eye rim colour is usually an indication of **pigmentation** in general, eg. the Maltese, in which black eye rims (haloes) are required. In some breeds, light eye rims are required, eg. Italian Spinone.

Expression

Expression is obtained by the interaction of various elements; ears, eyes, facial coat, temperament:

- **Eastern / Oriental expression:** far-seeing, slanted eyes, aloof expression, eg. Afghan Hound
- **gruff expression:** a particular characteristic of the Bouvier des Flandres, enhanced by bushy eyebrows
- **monkey-like expression:** an apish expression, enhanced by facial coat growth, eg. Affenpinscher
- **saucy expression:** a perky expression created by the position of facial elements, unique to the Chihuahua
- **foxy expression:** describes the appearance of the combination of ear set and the properties of the face to appear fox-like, eg. Pembroke Welsh Corgi
- **varminty:** a game and spirited expression, indicated by the temperament and sparkle in the eye, a specific requirement of the West Highland White Terrier

Elements of the foreface

The portion of the skull in front of the brain case.

- **blunt / square-cut muzzle:** a squared-off muzzle, forming a right angle with the upper line of the face, eg. Mastiff
- **chiselled foreface:** clean-cut lines and contours of the foreface, without bumps and bulges, eg. Borzoi
- **over-filled foreface:** the opposite of chiselled; a great amount of bone and muscle in the face, usually used to describe a fault
- **roman / ram's nose:** where the profile of the top of the muzzle curves slightly towards the nose from the beginning of the nose cartilage, eg. Scottish Deerhound
- **short muzzle:** stubby and short, a feature of the brachicephalic breeds, eg. Bulldog
- **snipey foreface:** usually a fault in which the foreface lacks substance.
- **tapering muzzle:** where the diameter is greater at the stop than at the nose; can be mildly tapered, eg. Pharaoh Hound, or acutely tapered, eg. Greyhound.
- **cheeks:** the fleshy region under the eyes at the side of the face. Cheeks, in breed standards can be described as: **cheeky / bulging:** fleshy, bulging, eg. Staffordshire Bull Terrier; or **clean:** structurally lean, unexaggerated. eg. Fox Terrier
- **whiskers (vibrissae):** harsh, thick, singular-stranded, thick and longish hairs that extend from the sides of the muzzle and on other areas of the face such as the eyebrows and on the cheeks, specialised in that they serve as sensory stimulators. They are considerably more rigid than other hairs and are embedded more deeply. At the base of each is a high concentration of touch-sensitive neurons.
- **flews:** the pendulous, fleshy upper lips of some breeds, eg. Bloodhound
- **chops / jowls:** the thick, well-muscled and very pendant flews, specifically of the Bulldog.
- **lips:** the fleshy portions covering the upper and lower jaws. Several types can include **clean lips:** tight-fitting, closing the mouth neatly, eg. Whippet; **pendulous lips:** loosely-hanging, hiding the jaw line as viewed in profile, eg. Saint Bernard; and **lippy:** excessively pendulous, usually a fault
- **commisures:** the lip corners; where the upper lip meets the lower lip on the sides of the muzzle.
- **upper jaw:** two identical halves joined at the centre, firmly and immovably attached to the rest of the skull; contains 20 teeth
- **lower jaw:** also two identical halves joined at the centre front, contains 22 teeth. A few breed standards call for punishing jaws, eg. Afghan Hound, meaning strong enough to bring down prey.
- **chin:** the lower portion of the muzzle, viewed from the front, prominent in, for example, Bulldogs.



Nose

Two nostrils are divided by the **philtrum (nasolabial line, medial cleft)** – the vertical groove in the middle of the upper lip that extends into the nose. The purpose is to carry moisture from the mouth to keep the nose wet and enhance the trapping of odour particles. Most breed standards require wide nostrils to facilitate easy breathing. Breed standards define or deny certain nose colours and/or markings:

- **butterfly nose:** partially unpigmented with irregular patches typical of merle or harlequin dogs, eg. Australian Shepherd; may be a fault in some breeds
- **dudley nose:** weakly-pigmented, flesh-coloured nose, very undesirable in a Bulldog
- **flesh-coloured / pink nose:** can be acceptable in some breeds, eg. Weimaraner
- **self-coloured nose:** where the nose is the same or similar colour to the dog's coat colour, eg. a brown Dobermann
- **snow nose:** normally solid black, but it acquires a paler streak during winter; an acceptable characteristic of some breeds, eg. White Swiss Shepherd Dog

Tip: Judging the head

Once you have analysed and studied the myriad possibilities of shape and placement of all the elements of the head, and you have a complete understanding of how deviations of these can affect the total picture, it's important to synthesise these elements back into the whole – the head as a **whole**. Judging a dog's head is a matter of finding all the virtues that collectively determine quality and correct expression. It's more than simply the sum of all the parts; it's the way the parts interact and influence each other to define the make-up of the breed's head. It's not likely that you will find perfection in every detail, so you would be seriously failing the breed if you penalise a good specimen for an insignificant fault. As easy as it is to pick out the faults, remember, our task as judges is to find the best dog – the dog with the greatest number of virtues that makes an overall excellent picture.

Neck

The section of body that joins the head to the shoulders, it is often an important indicator of the quality of a dog. The **nape** is the area of the neck at the junction with the skull



Clean, dry crested neck



Bull neck



Upright neck

- **bull neck:** powerfully muscled and very strong, usually has an accentuated crest, often rather short, eg. Staffordshire Bull Terrier
- **clean / dry neck:** the skin covers the neck tightly and smoothly, no excessive amounts of loose skin or dewlap, eg. Italian Greyhound
- **crest of neck:** the upper area of the neck, flowing from the juncture at the occiput. Many breed standards call for a well-arched crest, which indicates correct structure and solid muscling. An arched neck is better able to accommodate the pull from the shoulder muscles.
- **ewe neck:** concave neck, often called an upside-down neck – a fault because it denotes weakness and probably poor shoulder construction
- **goose / swan neck:** an excessively long and weak neck, tubular shaped – a fault because it denotes lack of strength
- **reaching neck:** the opposite of a short, stuffy neck; good length, well-muscled, refined and elegant
- **stuffy neck:** inelegant, short, often over-muscled and usually referred to as a fault
- **upright neck:** the neck is set into the shoulders very sharply, resembling an L-shaped angle, often indicated by wrinkling at the wither.
- **throaty / wet neck:** the opposite of clean and dry, the skin is loose and there are wrinkles and folds, often also a dewlap, can be a fault, but also a requirement in certain breeds, eg. Neapolitan Mastiff
- **dewlap:** loose, pendulous skin, hanging in folds around the throat as required in some breeds, eg. Basset Hound



Ewe neck



Goose neck



Wet neck

Tip: Judging the head and neck

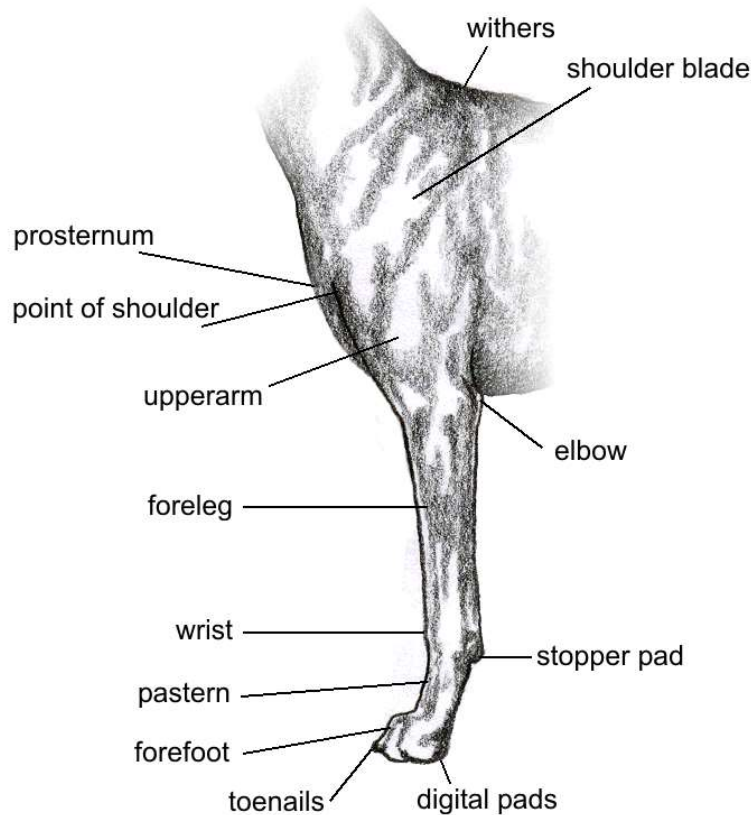
As a general rule, breeds with shorter heads tend to have shorter necks, while breeds with longer heads tend to have longer necks.

In a breed that calls for a long neck, a short neck may accompany a straight shoulder.

Dogs with short necks tend to lower their heads as they gait and may also display a roach back in action.

FOREQUARTERS

The forequarters may also be referred to as the **front assembly**, **the forearm** or the **forehand**; made up of the **shoulder**, **upper arm**, **foreleg**, **pastern** and **foot**.



Withers

This word is an ancient Anglo-Saxon word meaning 'against', brought over from horse terminology to refer to the highest part of the shoulders of the horse that pushed against the harness when pulling a cart. You can find the withers at the top of the shoulders, at the juncture with the neck. Ideally, this connection should be smooth, which would indicate a correct juncture. A sharp, L-shaped juncture likely indicates a poorly-set shoulder.

When a dog lowers its head to the ground, the shoulder blades move closer together at the withers. Therefore, there needs to be sufficient separation of the shoulder blades. Dogs with marked muscle development in the shoulders will have the blades fairly widely separated while poorly-developed muscling will bring the shoulder blades markedly closer. Galloping dogs, such as Sighthounds, will have shoulder blades separated by a width of about 3 – 4 fingers.

Shoulder

The shoulder blade is a wide, flat bone with a prominent ridge running down the centre. The ridge helps to attach the muscles – the longer the shoulder blade the more muscle attachment, the shorter the blade, less muscle attachment. Unlike humans, the shoulder is not attached to the dog's body at a joint. Instead, it is

held in place by muscles and tendons. This anomaly allows the dog greater flexibility in its forequarter, which it may not have with a rigid joint, but it also leads to a great variety of possibilities in the position and angle of the front assembly. Obviously, sufficient muscling in this area is essential, otherwise movement will be affected. As a point of interest, musculature has a high heritability, so puppies are very likely to inherit their parent's good or poor front assembly, which is why it is so difficult to breed out poor shoulder characteristics.

Upperarm

The upper arm completes the shoulder angle, running downwards and back to join to the foreleg at the elbow joint. In most breeds, it is expected that the upperarm be of equal or nearly equal length to the shoulder blade to facilitate good reach in action. The upperarm is fairly straight and very strong, since it plays a role in supporting 60% of the dog's weight at its **centre of gravity**.

Foreleg

When feeling for **bone (substance)** in a dog, it is the foreleg that a judge must feel for thickness, quality and strength.

Wrist

The wrist is the joint between the foreleg and the pastern, also known as the **carpus**. Behind the wrist, is the **stopper pad** – a fleshy cushion that acts as shock absorber when a dog is in full gallop.

Pastern

Most breeds require a certain amount of slope in the pasterns to allow sufficient shock absorption. Strong pasterns usually accompany well-built fronts because they are part of the shock-absorbing assembly.

The pasterns of different breeds present great difference in type, strength, length and slope:

- **bare pasterns:** in Afghan Hounds, a 'patterned' coat can present pasterns without long hair covering.
- **broken-down pasterns (sunken pasterns, down in pasterns):** pasterns with a greater than normal slope, may be caused by excessively long pasterns, but may also be a result of injury, illness or poor condition.
- **distended pasterns:** enlarged pasterns, often quite unsightly, could be caused by coarse bone, injury or arthritis.
- **sloping pasterns:** most-commonly required in breed standards, they serve as efficient shock-absorbers and contribute towards effortless movement.
- **upright pasterns (steep pasterns):** the opposite of being down in pastern, these are carried perpendicular to the ground and have little if any shock-absorbing qualities. Dogs with upright pasterns often also have shorter strides.
- **knuckling over:** a serious fault where the carpus joint bends forwards, causing weakness in the joint. Also known as **hyperextension of the carpal joint**.

Most breeds require short hocks (rear pasterns), especially endurance trotters, because it places less stress on the **Achilles tendon** and helps to reduce muscular effort. A dog with longer hocks (rear pasterns) will have greater jumping power and speed, but may waste energy.

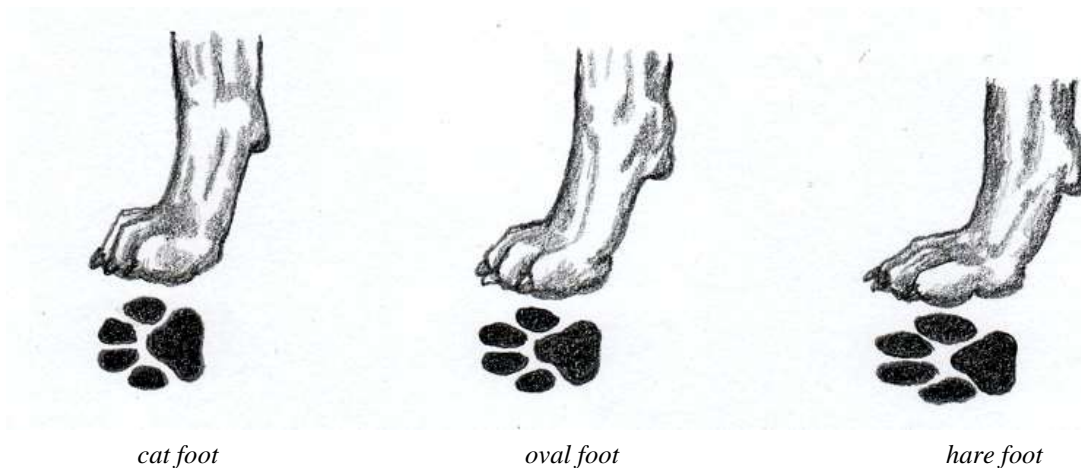
Forefoot

A dog's foot comprises four separate toes, equivalent to the fingers on a human hand. The toenails (claws) arise from the lowest joint in each toe. Joining each toe is a section of skin called **webbing**, which varies from breed to breed in its extent and development. Below the foot, each toe is cushioned by a **communal pad** at the base of the foot and **four digital pads**. These pads are made up of fatty tissue interspersed with elastic fibres, protected by a thick, rough and usually darkly-pigmented outer covering. Feet with strong, well-developed pads are referred to as well-cushioned and well-padded.

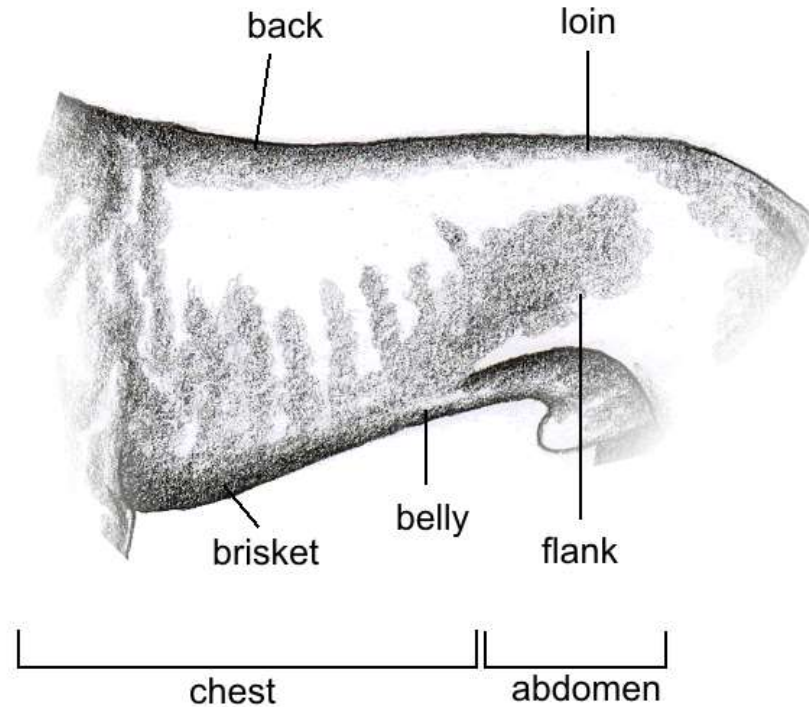
Dewclaws are the vestiges of thumbs, positioned on the inner part of the pastern and generally has no function. In many breeds, the dewclaw may be surgically removed.

Breed standards call for different types of feet:

- **cat feet** : as the name suggests, these feet resemble those of a cat, are round and compact with well-arched toes tightly cupped together eg. Boxer The two inner toes are only slightly longer than the outer two. The impression left by such a foot is round.
- **ferretty feet**: long, narrow, flat feet with toes insufficiently arched and poorly cushioned. Usually a fault indicating weakness, but not to be confused with hare feet.
- **flat feet**: as the name implies, feet without the desired arch in the toes. Usually a fault.
- **hare feet**: long feet, where the two inner toes are considerably longer than the outer toes. The arch must be strong, but slightly less arched than a cat foot. eg. Borzoi.
- **oval feet (spoon-shaped feet)**: similar to the cat foot, except that the inner toes are slightly longer so that the impression left by the foot is oval, rather than round, eg. German Short-haired Pointer.
- **snowshoe feet**: requirement of the Arctic breeds, these feet are oval-shaped, firm and compact and the well-arched toes are joined with firm webbing and furring between the toes. eg. Alaskan Malamute.
- **splayed feet**: regardless of the shape of the foot, if the toes are widely separated, it is a splayed foot and is generally considered a fault. Not to be confused with **spreading feet**, which is a requirement for the Irish Water Spaniel.
- **webbed feet**: all dogs have some webbing between their toes, but some water-retrieving breeds such as the Newfoundland, possess marked, strongly developed webbing for swimming purposes.



BODY



The **body** is the container that keeps together all the animal's essential organs and forms the anatomical section between the forequarters and the hindquarters. It doesn't exist in isolation – it is an integral part of the dog's being and its influence on the placement and function of limbs, head, neck and tail. It comprises the chest (**thorax**) (containing organs for breathing and circulation) and the **abdomen** (containing organs for digestion and reproduction). These two sections are separated by a sheet of muscle and tendons called the **diaphragm**, which also assists the breathing process.

Chest

Essential organs are encased safely inside the **ribcage**. Viewed or felt in the front, between the points of shoulder, is the **prosternum** – the foremost tip of the ribcage. In most breeds, when the prosternum is visible in profile, it is indicative of a well-set front assembly. On the underside of the chest is the **brisket**, the deepest portion of the chest near the breastbone.

A judge will evaluate a dog's chest in three dimensions: depth, length and width. In most breed standards, descriptions call for a chest structure that will give maximum heart and lung capacity. Judges talk of evaluating the **spring of rib** in reference to the shape of the ribcage after the ribs emerge from their join at the vertebrae. Spring of rib refers to chest capacity – an oval-shaped ribcage may have more capacity than, for example, a flat, narrow ribcage. Of equal importance is how far the chest is **ribbed up**. Generally, the longer the ribcage, the greater the capacity. Also, a judge needs to evaluate the **depth of chest** – how deep is the measurement between withers and brisket? Breed standards call for an evaluation of different shapes:

- **barrel chest:** a rounded chest where the ribs begin to arch immediately from the attachment to the vertebrae. It can be a fault in many breeds, but a requirement in others, eg. Labrador Retriever.
- **deep chest:** usually develops in adulthood to the level of the elbow to allow sufficient heart and lung capacity.

- **oval chest (well-sprung chest):** the normal chest shape for most breeds. the ribcage is egg-shaped as viewed from the front.
- **shallow chest:** a chest that is insufficiently deep in adulthood, ie. at the brisket it falls far short of the level of the elbow.
- **flat ribs:** the opposite of barrel ribs, the ribcage is narrower than the oval-shaped chest. A requirement of the Bearded Collie. Not to be confused with **slab-sided ribs**, which is excessive flatness, leaving little heart and lung room and considered a serious fault in most breeds.

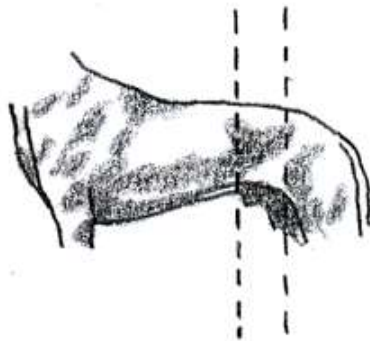
Abdomen

This is the part of the body between the ribcage and the hindquarters. The **loin** is the muscular area positioned on either side of the spine behind the ribcage. The muscling around the loin is very often indicative of a dog's conditioning. The loin can be presented in various forms:

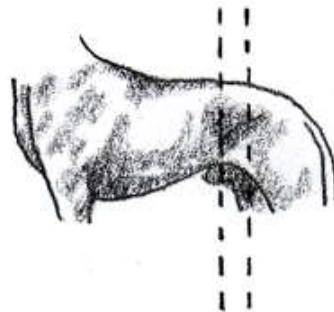
- **arched loins:** some breed standards call for a marked or slight arch over the loins. This is not a skeletal structure, but a reference to the amount of muscling in the loin. Slightly-arched loins facilitate strength and agility, eg. Greyhound.
- **light in loin:** light development in the loin creates a desirable waist in certain breeds, eg. Staffordshire Bull Terrier.
- **sagging loin:** a weakness due to loins that are too long and insufficiently muscled. In this case, it is the spine that sags because there is not enough muscle to support it, thus it is considered a fault.

The area beneath the loin is called the **flank** – the fleshy portion either side of the **belly**, which refers to the underside of the abdomen. This term has been borrowed from horse conformation and describes the same area.

Together, the loin, flank and belly (the area between the ribcage and the hindquarters) forms the **coupling**. Breed standards may specify **short coupling** – when the distance between the ribcage is relatively short, or a dog may be **long in coupling** – when the distance is greater. Bitches very often have longer coupling than males for reproductive purposes. Long loins (long coupling) is generally regarded as a structural weakness, unless specifically required for turning agility.



long in coupling



short coupled

As the **underline** sweeps from the brisket towards the hindquarters, the degree of **tuck-up** will be described in various breed standards. In galloping dogs like Whippets and Greyhounds, the tuck-up will be very tight as it curves from the deep chest to allow the legs to fold underneath during a double-suspension gallop, while in other breeds the tuck-up may be moderate, eg. Dobermann, or almost non-existent, eg. Rottweiler.



Topline

Strictly speaking, the **topline** describes the top edge of the profile from the dog's occiput to the root of tail. Colloquially, however, most people prefer to use this term to describe the profile between the withers and the tail, although this is more technically correctly called the **backline**. Characteristics may include:

- **hollowed back (saddle back):** a small, shallow hollow or dip behind the withers at the anticlinal arch (where the vertebrae change direction). Can be a fault, but desirable in some breeds, eg. Poodle
- **level topline:** the height at the withers is level with the height at the loin.
- **roach back:** a roached back is an arched back, usually a fault of construction although in some breeds it is a requirement. Depending on where the roach occurs, it is given different names:
 - carp or camel back – first dips at the withers, then arches over the ribcage and loins, before dropping at the rump.
 - wheel back – a continuous curve that runs from the withers to the tail, eg. Bedlington Terrier. Can also be a fault in other breeds.
- **slack back (soft topline):** a mild form of sway back due to structural weakness – a fault.
- **sloping topline:** the height at the withers exceeds the height over the withers, eg. Boxer.

sway back (dippy back): a back that sags markedly in the topline, usually as a result of poor muscle development or weakness, sometimes can be due to overweight.



level topline



slack back



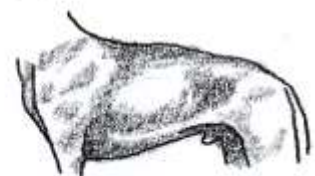
sway back



sloping topline

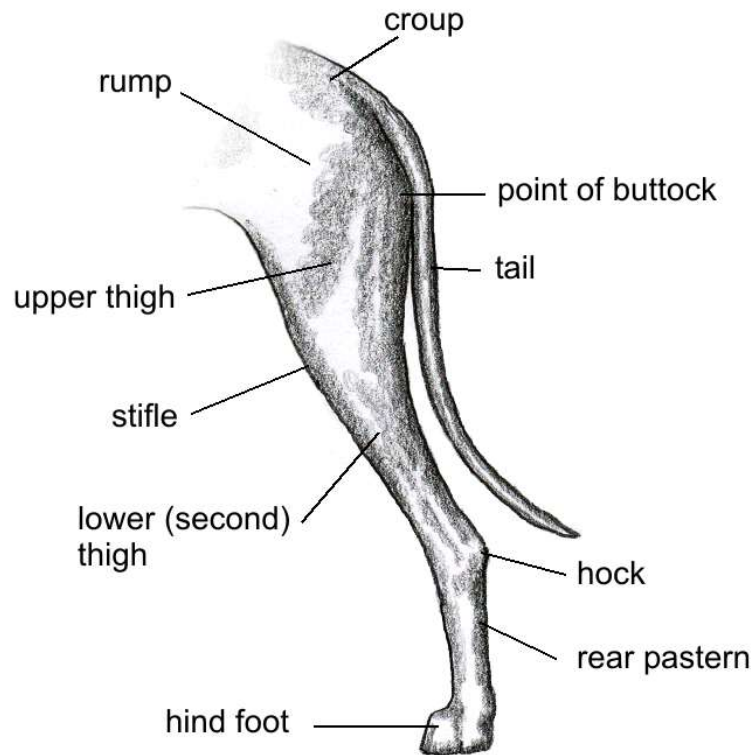


wheel back



roach back

HINDQUARTERS

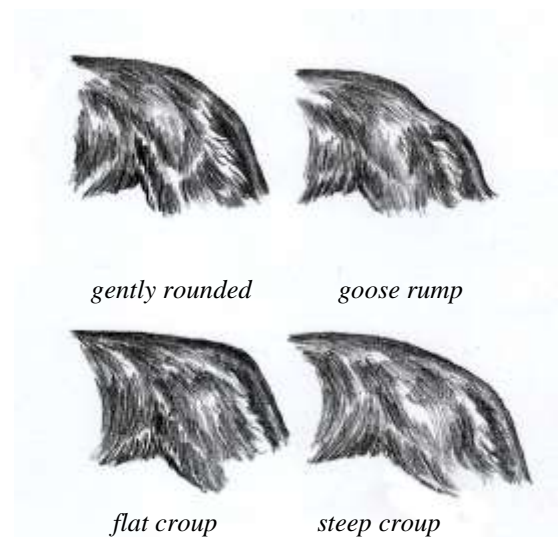


The hindquarters, also referred to as the **quarters**, comprise the **croup**, **rump**, **upper and lower thighs**, **hock**, **rear pastern** and **hindfeet**.

Croup and rump

The croup is the muscular area around and above the set-on of tail. Croups are typically described as follows, mainly according to the influence of the pelvic slope:

- **normal croup:** gently rounded with the tail set smoothly set as a continuation of the spine
- **goose rump:** a rounded croup with a low-set tail resulting in a hollow at the tail juncture
- **flat croup:** usually associated with high-set tails
- **steep croup:** usually associated with low-set tails; also called a fall-away croup



Upper and lower thighs

The **upper thigh** contains the femur, a long bone that runs downwards and forwards to end at the **stifle joint**, where it joins with the **lower (second) thigh**. A dog that lacks sufficient muscle in this region can be referred to as light in hindquarters, and it is generally a fault.



wide thigh



narrow thigh

Hock and rear pastern

The **hock** is the name given to the **heel** at the joint where the second thigh meets the **rear pastern**, although colloquially, it is common to refer to the whole rear pastern as the hock. Ideally, the rear pastern should be short and positioned perpendicular to the ground.



correctly-angulated hock



straight hock



sickle hock

- **cow hocks:** as viewed from behind, cow hocks turn inwards, causing restricted action and, very often, the hocks can brush against each other when passing.
- **bowed hocks:** the opposite of cow hocks – the hocks turn outwards. This also indicates a weakness in hind structure and movement will be restricted, often appearing as a waddle.
- **straight hocks:** insufficient angle at the hock, often caused by a second thigh lacking length.
- **sickle hocks:** The contour of the hock and rear pastern simulates a sickle. Usually caused by an over-angulated rear, the structure is weak and movement is uneven.

TAIL



otter tail



scimitar tail



ring tail



tufted tail



double-curved tail



frou-frou tail



stern

The tail is the final portion of the spine and its length varies in different breeds. The junction of the tail to the sacral region is called the **set-on of tail** and can vary from a high tail set to a low tail set. The **tail carriage** refers to the way the tail is carried, particularly in action, which can be dropped, horizontal, gay, sabre-like, curled, cascading, etc.

- **bobbed tail:** a dog born tailless or a tail docked very closely to the body, eg. Pembroke Welsh Corgi, Old English Sheepdog.
- **brush tail:** a tail covered in medium-length stand-offish hair, the same length on all sides, eg. Siberian Husky.
- **carrot tail:** a shortish tail strong and thick at the root, tapering to the tip, characteristic of the Scottish Terrier.
- **curled tail:** one type is a single curl with many variations, such as a single curl falling down one side, eg. Lhasa Apso, or a single tight curl, eg. Elkhound. A double-curved tail is typical of a Basenji and a Pug.
- **docked tail:** refers to a tail that has had a portion surgically removed.
- **flat tail:** a characteristic of the Chihuahua, where the tail is flattish and slightly broader in the centre, tapering to a point.
- **hook tail:** a tail that hangs downwards with a hook at the tip, eg. Briard.
- **kink tail:** a tail with a sharp bend somewhere along its length, usually a deformity or due to injury. Some breeds are permitted to have a kink at the tip of the tail, eg. Lhasa Apso.
- **otter tail:** a strong tail, thick at insertion, shaped as an otter tail and covered in dense hair, characteristic of the Labrador retriever and essential to serve as a rudder when swimming.
- **plumed tail:** a tail covered with longish or long hair and carried in the shape of a plume over the dog's back, eg. Pomeranian.
- **pot-hook (pot-handle) tail:** a tail covered up and over the back in a high arc, never touching or lying flat against the back – a fault in a Lhasa Apso and a requirement in a Shih Tzu.
- **pump-handle tail:** the tail arches out at the root before hanging down vertically, rather resembling an old-fashioned pump handle, characteristic of the Staffordshire Bull Terrier.
- **rat tail:** this tail has a thick root covered in soft curls with the lower section sparsely covered or devoid of hair, eg. Irish Water Spaniel.
- **ring tail:** a tail that curls in circular fashion – a requirement of the Afghan Hound, but usually a fault in most breeds.
- **sabre tail:** a tail shaped like a sabre that is carried erect in a slightly curved fashion, eg. Basset Hound.
- **scimitar tail:** similar to a sabre tail, but usually carried less erect, eg. English Setter.
- **screw tail:** a short, twisted tail, kinked and turned in a spiral fashion, eg. Boston Terrier.
- **stern:** the name given to a Beagle's tail – carried erect and covered with short, weather-proof hair, always with a white tip, called a flag.
- **tufted tail:** long or short with a plume on the end, eg. Chinese Crested Dog.
- **whip tail:** similar to a bee sting, this tail is thick at the root from where it tapers horizontally to a point, eg. Bull Terrier.

PART FOUR:

ANATOMY

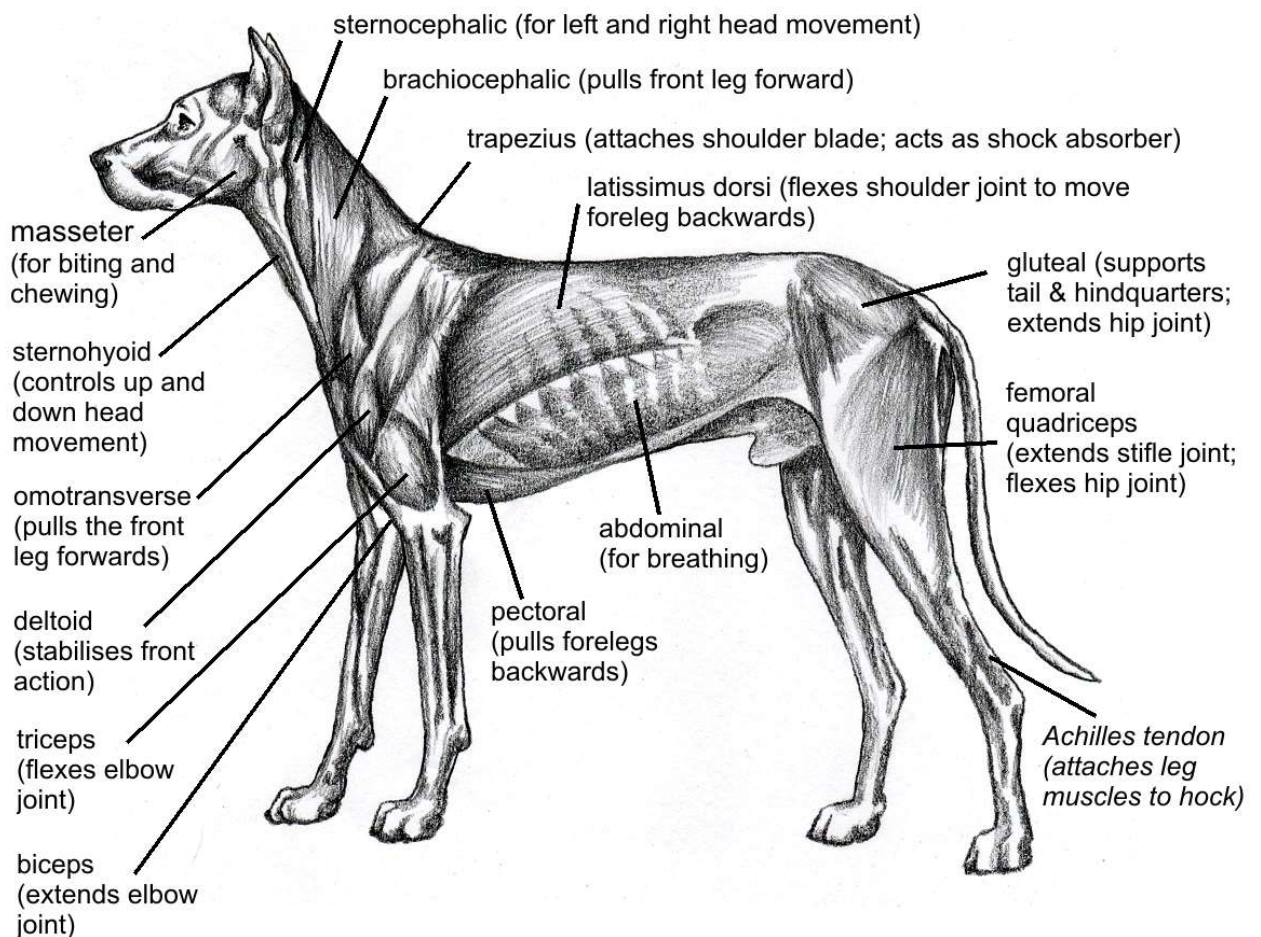
ANATOMY

The word “anatomy” is a scientific term that refers to the inner structure of the dog, comprising the muscles, skeleton and vital organs.

MUSCULAR ANATOMY

As judges, we tend to focus less on muscles than the bony landmarks and angles, yet, it is the dog’s musculature that holds everything together and facilitates its movement.

Note: You do NOT need to memorise the names of these muscles for the examination, but it is useful to know the names of the most important muscles (indicated on the sketch) and their functions.



Muscles are attached to the skeleton by tendons and controlled by nerves. Muscles can only **contract** or **relax**. For this reason, two opposing sets of muscles are needed to perform normal functions – **flexors** and **extensors** – one to pull in one direction, the other to pull in the opposite direction.



flexor causes a bend



extensor causes an extension

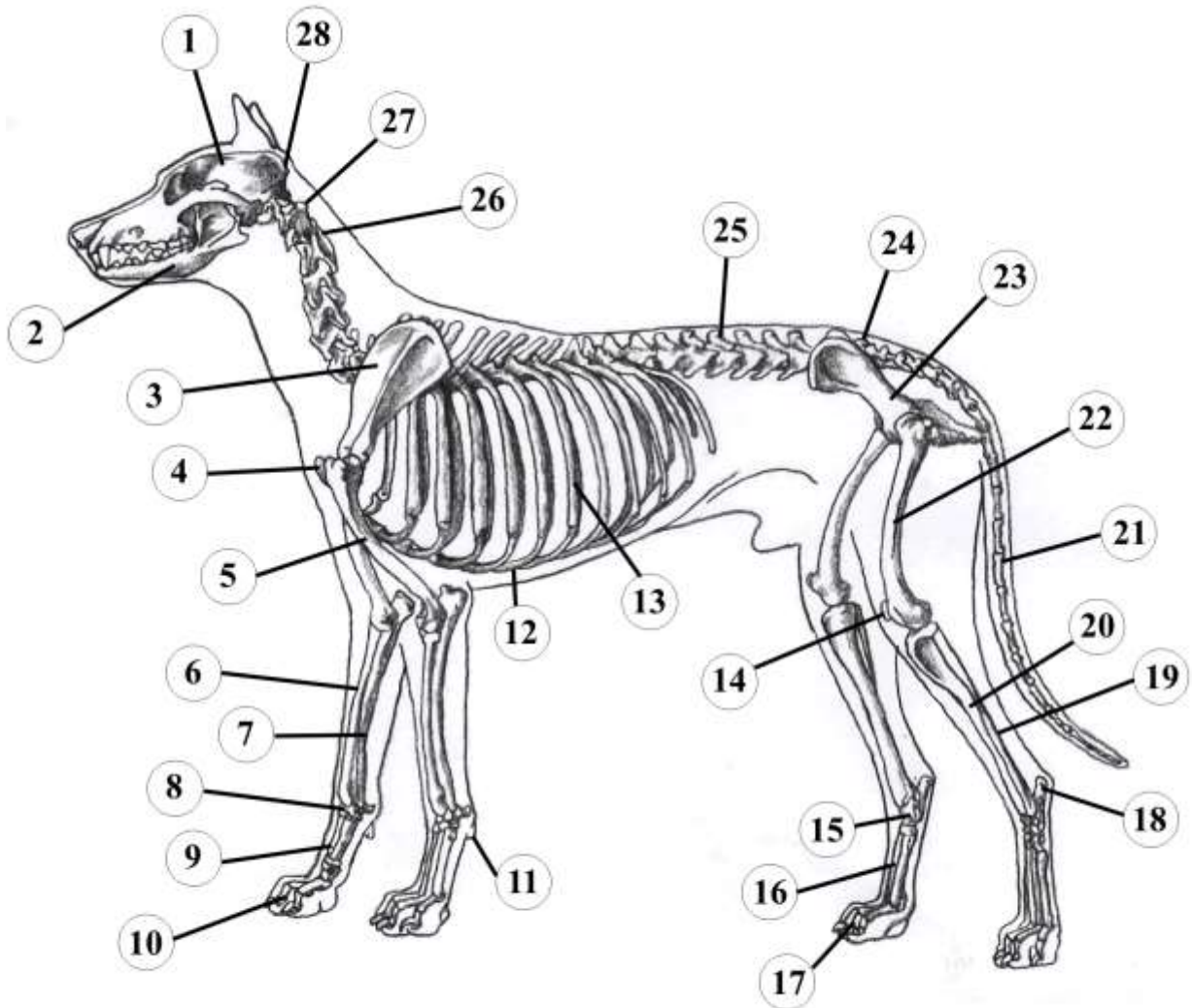
Tip:
Judging muscle
structure

As a general rule, if the skeletal angulation is incorrect, the muscles will have a reduced area in which to affix themselves, so there is likely to be less muscle development.

Thus: correct angulation = appropriate muscling

SKELETAL ANATOMY

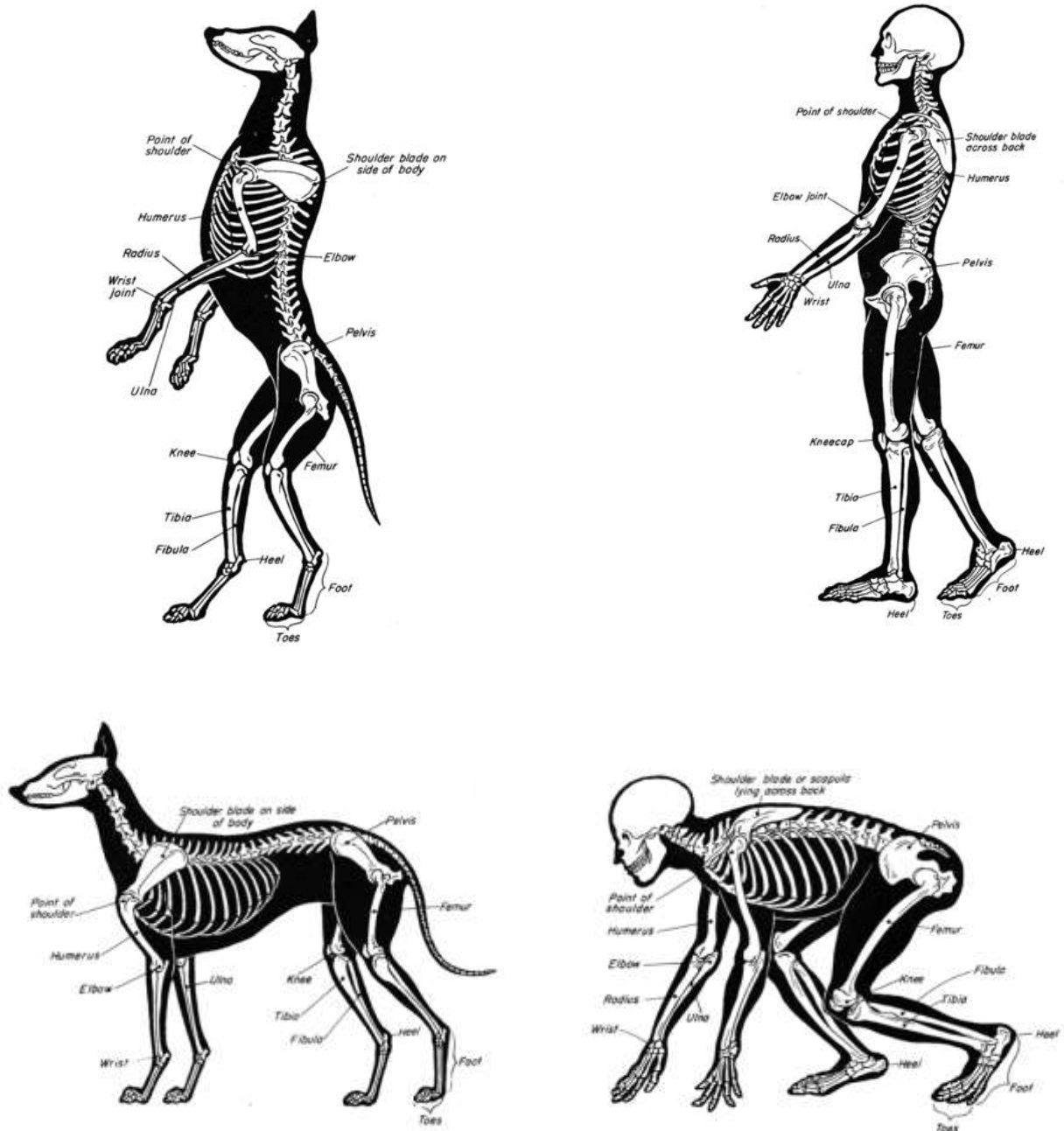
The skeleton is divided into two sections – the **axial skeleton**, which comprises flat and irregular-shaped bones that house and protect the body's vital organs, and the **appendicular skeleton**, which consists mainly of long and short cylindrical-shaped bones that support the body and used for locomotion. Bones act as levers to which the muscles are attached and they also store minerals and fat, and assist in the manufacture of blood cells.



- | | | | |
|--------------|----------------------|-----------------------|-------------|
| 1. skull | 8. carpus | 15. tarsus | 22. femur |
| 2. mandible | 9. metacarpals | 16. metatarsals | 23. pelvis |
| 3. scapula | 10. phalanges | 17. phalanges | 24. sacrum |
| 4. manubrium | 11. pisiform process | 18. calcaneal process | 25. spine |
| 5. humerus | 12. sternum | 19. fibula | 26. axis |
| 6. radius | 13. ribs | 20. tibia | 27. atlas |
| 7. ulna | 14. patella | 21. tail | 28. occiput |

Comparison of human and dog

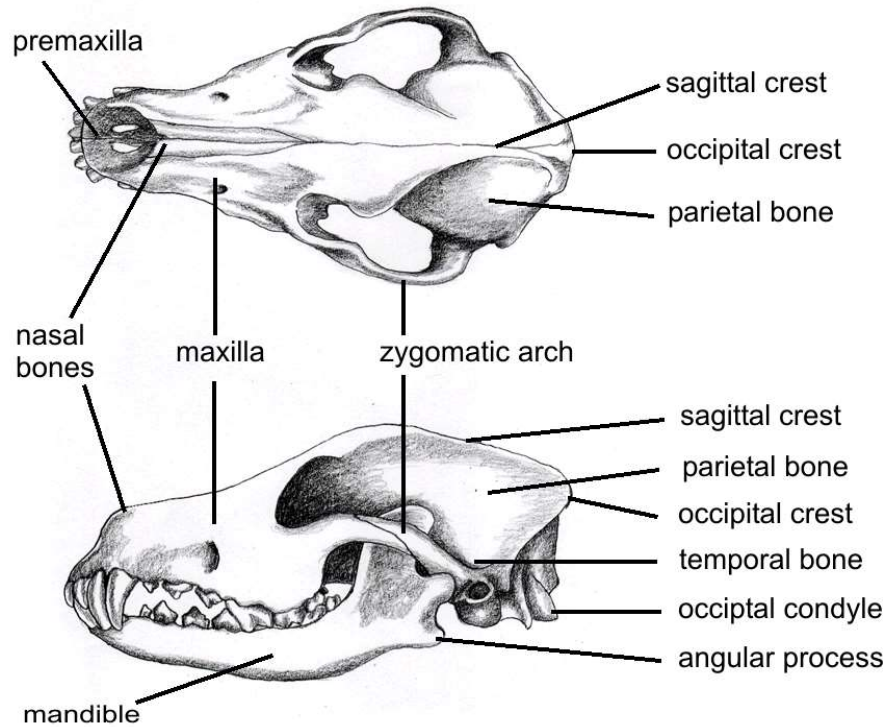
The anatomy of the dog is remarkably similar to that of a human in many respects, but there are also some very obvious differences, the main difference being in the shoulder assembly. In the human, the shoulder blade lies across the back and is attached to the body by the clavicle (collar bone). The dog still has a vestigial clavicle, but it doesn't attach the shoulder to the body – instead, the shoulder assembly is attached by muscles and tendons. Another major difference is that the human walks on the whole foot – from the heel to the toes, while a dog walks on its phalanges (fingers and toes), the heel acting as a hock joint and the wrist serving as a pastern joint.



(Illustrations by the late Charles R. Knight: "Animal Drawing – Anatomy and Action for Artists (Dove)

The skull

The skull includes the **brain case (back skull)** and the **facial area**. While, in usual terminology, judges normally use the term “skull” to refer to the brain case, but in fact, the skull includes the brain case as well as the facial area and the lower jaw (**mandible**).



The sizes and shapes of skulls are as varied as the number of different breeds, but generally, skulls can be grouped into 3 basic shapes:

dolichocephalic
(eg. Rough Collie)



brachycephalic
(eg. Boston Terrier)

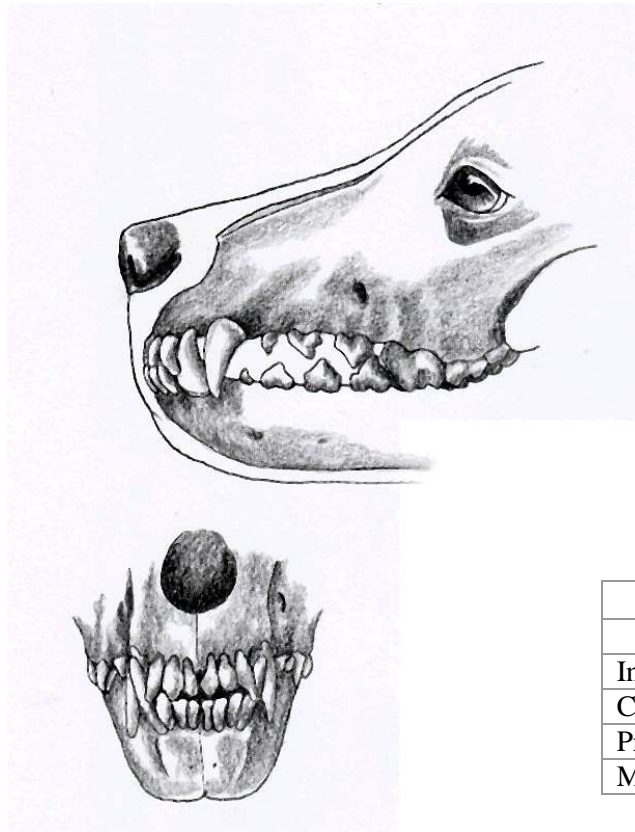


mesocephalic
(eg. Australian Shepherd)



Dentition

Adult dogs have 42 permanent teeth – 20 in the upper jaw and 22 in the lower jaw. Puppies have 28 deciduous (temporary) teeth – 14 in the upper jaw and 14 in the lower jaw – that begin to erupt at around 3 – 4 weeks of age. Puppies do not have any of the molars or premolar 1. The permanent teeth start replacing the deciduous teeth from about 3 – 4 months old.

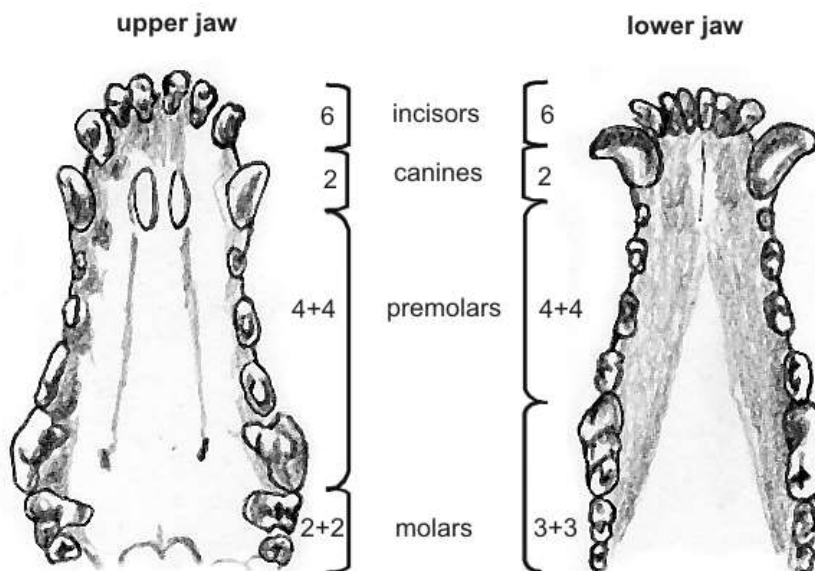


Tooth Emergence Schedule		
	Deciduous	Permanent
Incisors	4-6 weeks	3-5 months
Canine	5-6 weeks	4-6 months
Premolars	6 weeks	4-5 months
Molars		5-7 months

There are 4 types of teeth with different functions:

- **incisors** - used for cutting and nibbling food, scooping, picking up objects and grooming. These are the front teeth situated between the canines. In adults and puppies there are 6 upper and 6 lower in rows in each jaw. The centre two incisors are usually somewhat small while the others, away from the center, increase proportionately in size and depth.
- **canines** - used for holding and tearing prey or food, slashing and tearing when fighting and as a cradle for the tongue. The lower canines lock in position in front of the upper canines and are placed on either side of the incisors. In adults and puppies there are two upper and two lower canines, one upper and lower on each side of the jaw.
- **premolars** - used for cutting, holding, shearing, carrying and breaking food into small pieces. These teeth are situated behind the canines. Puppies do not have P1 teeth (only P2, P3, P4), while adults have 8 premolars in the upper jaw and 8 in the lower, 4 on each side.
- **molars** - used for grinding food into small pieces. The molars are situated behind the premolars and are the last teeth in the back of the jaw. Puppies do not have molars, while adults have 4 molars on the top, two on each side of the upper jaw and 6 molars on the bottom, 3 on each side of the lower jaw.

All these specialised teeth are not independent entities. Their position in the jaw is determined by their function and they require a properly-formed skull and lower jaw to function efficiently.



Most breeds call for a **scissor bite** – where the upper teeth closely overlap the lower teeth and are set square to the jaw. A **reverse scissor bite** (not to be confused with an undershot mouth) occurs when the lower teeth closely overlap the upper teeth and, in all respects, resemble a scissor bite in the opposite direction (typical of a Mastiff). A **level bite (pincer bite)** occurs when the incisors meet edge to edge, desired in, for example, the Bullmastiff.

Typical dentition faults usually include **missing teeth** and **malocclusions**. Missing teeth can obviously not do the work they were intended to do, and this is a very important fault in some breeds, especially the working breeds. In other breeds, however, the degree of fault varies, so judges can show reasonable tolerance. A missing P1 (the first premolar) – one of the smallest teeth – is less of a problem, for example, than a missing carnassial (the fourth premolar in the upper jaw).

Malocclusions most generally manifest in **undershot** and **overshot** bites, **crooked teeth**, or **wry mouth**. An undershot bite occurs when the lower jaw extends beyond the upper. This may happen because the lower jaw has grown too long or the upper jaw is too short. In an overshot bite, the upper jaw is longer than the lower. In both instances, the teeth will not mesh properly. Sometimes a slightly overshot or slightly undershot bite can be forgiven, but if the distance between the teeth is considerable – a limit of which is often mentioned in some breed standards – the occlusion is seriously affected and the fault must be considered serious. Crooked teeth may be due to crowding in a too-small or too-narrow jaw or the result of damage to the mouth. In a wry mouth, one side of the lower jaw has grown longer than the other, causing the jaw to skew to one side so that the incisors and canines cannot align properly.

Given the many possibilities of malocclusions, consideration must be given to the cause of such problems, which generally begin with poor jaw development, strength, width, length and depth – the root of the problem often being more serious than the actual manifestation of poor occlusion.



scissor bite



level bite

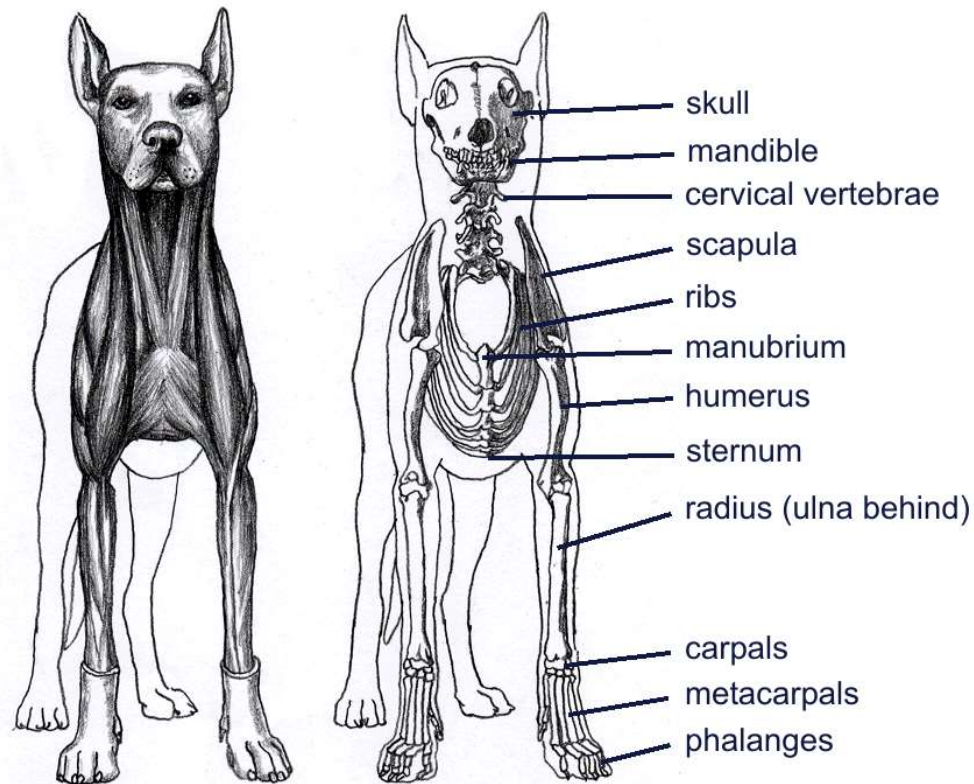


undershot



overshot

The forequarters



Approximately 60% of the weight of most dogs is supported by the forequarters, which acts as a shock absorber as it absorbs the impact from the ground and co-ordinates with the drive from the hindquarters. Equal to the importance of a well-built, well-proportioned front assembly on a dog, is the necessity to observe and evaluate the effectiveness of all the elements that make the front assembly work for a dog – the columns of support, the layback of shoulder, the depth of chest, the amount of bone, the slope of pasterns, the structure of the feet.

Attached purely by muscles and tendons to the first five ribs and adjacent thoracic vertebrae, the **scapula** is a large, flat, triangular bone with a ridge down the centre called a **spine**, its purpose to allow firm attachment of muscles. At the highest part of the scapula, the two blades almost meet at the withers with a small space between them to allow sufficient flexibility for the dog to lower his head to the ground. There is no bony connection between the ribcage and the scapula, although a vestigial clavicle remains as a floating, unused bone in the shoulder assembly. At the lower end of the scapula is a hollowed section that allows the **humerus** to snugly fit in a **ball-and-socket joint**.

The **humerus** is the largest bone in the forequarters. The shaft of the humerus runs down and back towards the elbow joint, where another hollowed section facilitates the elbow joint, which is also a ball-and-socket joint. It is at this joint where **elbow dysplasia** can occur, which can only be diagnosed by thorough veterinary examination and is not to be confused with looseness in elbow.

From the elbow to the pasterns, the **forearm (lower arm)** comprises two fused parallel bones, the **radius** and the **ulna**. Being the larger of the two bones, the radius is positioned in the front and carries most of the weight. The ulna, considerably smaller and slimmer is joined to the radius behind it so that the two bones can work as one. A protuberance on the top of the ulna, called the **olecranon**, extends beyond the elbow joint to form the **point of elbow**.

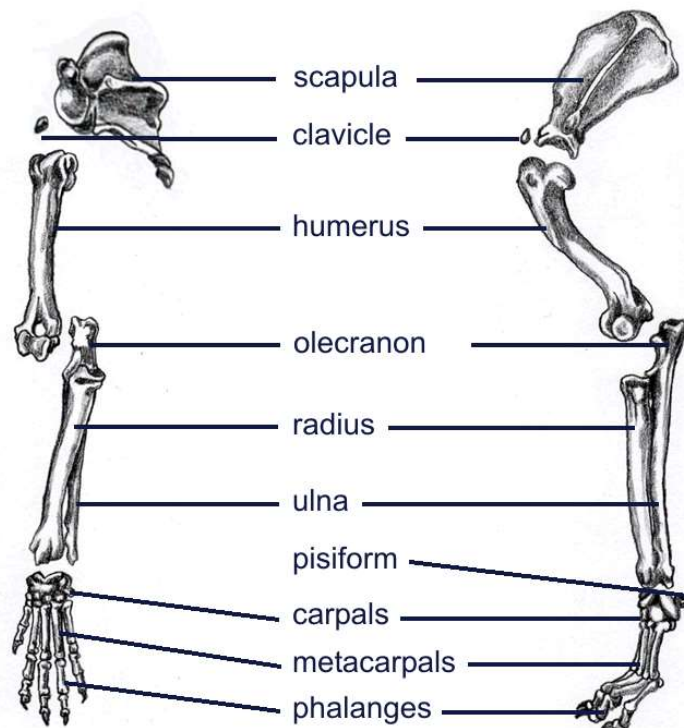
The forearm ends at the **carpus**, which is the equivalent of a human's wrist. This joint comprises 7 **carpal bones** arranged in two rows plus a number of **accessory bones**, including the **pisiform bone**, which is a small knobby, pea-shaped bone at the back of the wrist at the base of the stopper pad. From this joint, the **metacarpus (pastern)** comprises five long, slender **metacarpal bones**. These are equivalent to the bones of the hand in a human.



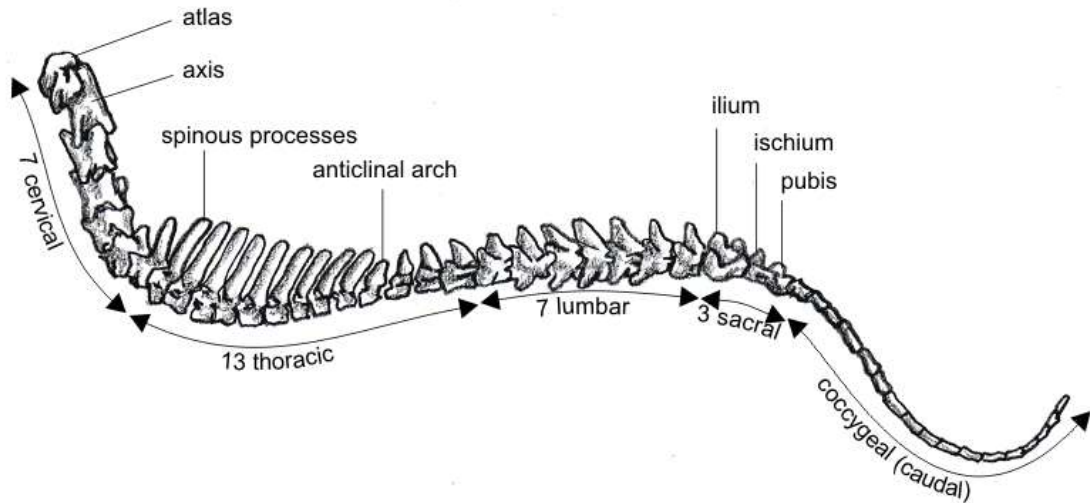
When judging a dog in profile, ensure that the dog is standing with its forearms perpendicular to the ground. A **propped (posting) stance** alters the balance and appearance of the exhibit.

Depending on the specific breed standard, there are several types of shoulders, some of which are desired, others are described as faults:

- **flat shoulders (smooth shoulders):** shoulders are sufficiently muscled, yet not excessively so. The appearance is smooth and clean.
- **loaded (bossy) shoulders:** coarse shoulders that show excessive muscle development so that the dog tends to look lumpy and over-developed. Not to be confused with well-developed shoulder development, which is a requirement of draught and harness dogs.
- **loose shoulders:** when the muscle attachments are insufficiently firm, allowing excessive movement of the shoulders from the ribcage; it usually results in weaving in front movement and usually presents as loose in elbow.
- **low in shoulder (flat withers):** when the withers are set lower than the spine – usually a fault, but a requirement of the Dandie Dinmont Terrier.
- **steep shoulders (straight in shoulder):** steep angulation between shoulder blade and upper arm resulting in a shortened neck and restricted movement. Not to be confused with slightly open shoulders, often typical in Sighthound breeds.
- **tied-in shoulders:** when the muscle attachments are too firm or inelastic; it usually results in restricted length of stride.



The spinal column



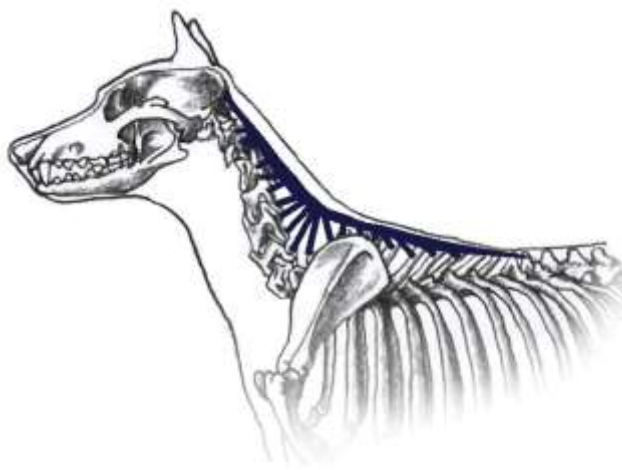
The **spine (vertebral column)** contains and protects the spinal column. Except for the **caudal (coccygeal)** vertebrae, which vary in number in some breeds, the number of **cervical** (neck), **thoracic** (chest), **lumbar** (loin), and the **sacral** vertebrae contain the same number of segments in all breeds.

In the neck area, the first two vertebrae behind the skull, the **atlas** and the **axis**, are shaped differently from the other cervical vertebrae because they allow freedom of head movement in many directions.

The **thoracic vertebrae** form the anchorage points for the ribs and the shoulder blade via muscles and tendons. Between the 10th and 11th thoracic vertebrae, the **spinous processes** (spines of the vertebrae) change direction – this for flexibility. This area is called the **anticlinal arch** and is very obvious in some breeds, particularly galloping breeds.

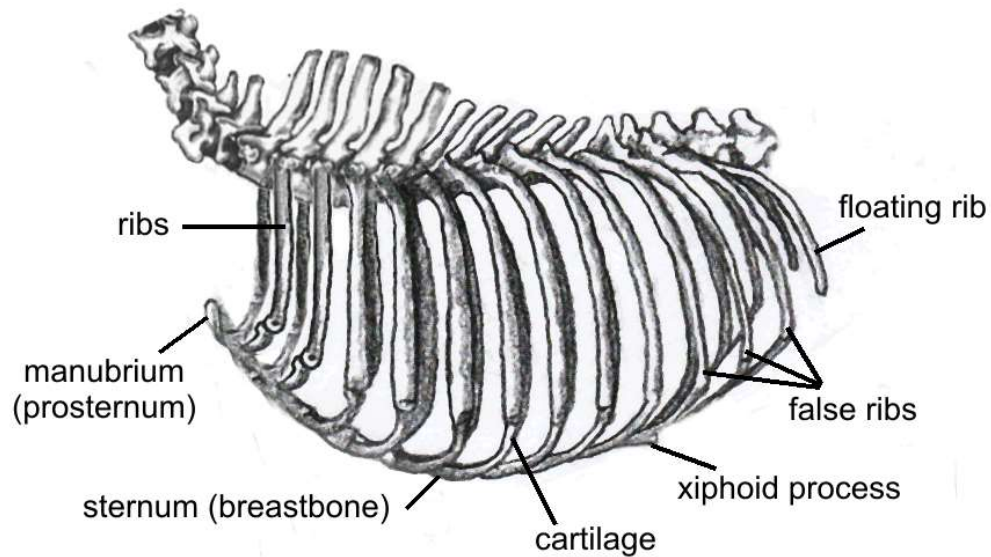
The **lumbar vertebrae** provide support for the loin and abdominal muscles – this in the area also called the coupling. Excessive length in this area often causes weakness in the spine.

The **sacrum** comprises 3 fused bones, the **ilium**, the **ischium**, and the **pubis**, that do not permit movement – this area provides a firm attachment for the pelvis.



There is a very strong set of **ligaments** that connects the axis of the neck to the spinous processes of the vertebrae. (*Note: tendons connect muscle to bone, while ligaments connect bone to bone*) The neck ligaments provide the power to raise and lower the head, particularly during gaiting. The bigger the neck vertebrae and the longer the spinous processes, the better the neck ligament attachment. In many breeds, particularly galloping breeds, high withers indicates long spinous processes, which is a strong advantage. The strength of this neck ligament is manifested in an **arched neck** instead of a **ewe neck**, which is faulty.

The ribcage



The ribcage contains a series of flat, narrow, elongated bones called **ribs**. The ribcage contains and protects the vital organs and also serves as a mechanism to aid breathing. For this reason, the capacity of the chest is important and often specified in most breed standards.

Measurement of the chest is considered in **length, breadth** and **depth**, defined primarily by the dog's function. So, for example, a Sighthound will need a deep chest with plenty of heart and lung room, not too broad to allow flexibility in action.

There are 13 pairs of ribs, each with a boney section and a lower cartilage section. Ribs 1 – 9 are the only **true ribs**. They are attached to the vertebrae and the **breastbone (sternum)** and are, thus, less flexible than the other ribs. The first 4 or 5 ribs are flatter to accommodate the action of the scapula. Ribs 10 – 12 are called **false ribs** because they attach to each other by cartilage. The last rib, called a **floating rib**, is unattached to the breastbone or the remaining ribs.

In most breeds, the ribcage should be well sprung, which means that it should have sufficient curve – **oval or egg-shaped**. It is in the middle section of the ribcage where variation occurs between breeds, some requiring flatter sides, such as the Bearded Collie, while in some, excessively flat is a fault called **slab-sided**. Some breeds require well-rounded, **barrel ribs**, such as the Labrador Retriever, but in many this can also be a fault.

In most breeds, the ribs should be angled backwards because as the dog breathes, the ribs rotate forwards to increase lung capacity. A **good length of rib** – where the ribcage well laid back and occupies most of the body length – is said to be "**well ribbed up**". While you may not be able to see or feel the front ribs, the layback of the last few ribs should give sufficient reflection of the rest of the ribcage.

Spring of rib also affects how the shoulder blade is attached and functions. On a barrel-shaped ribcage (like a Bulldog's, the shoulder blade tends to move more up and down (hence the characteristic roll), while an oval-shaped ribcage offers a flatter surface for the shoulder blade to move and allows the legs to converge or single-track under the body.

The hindquarters

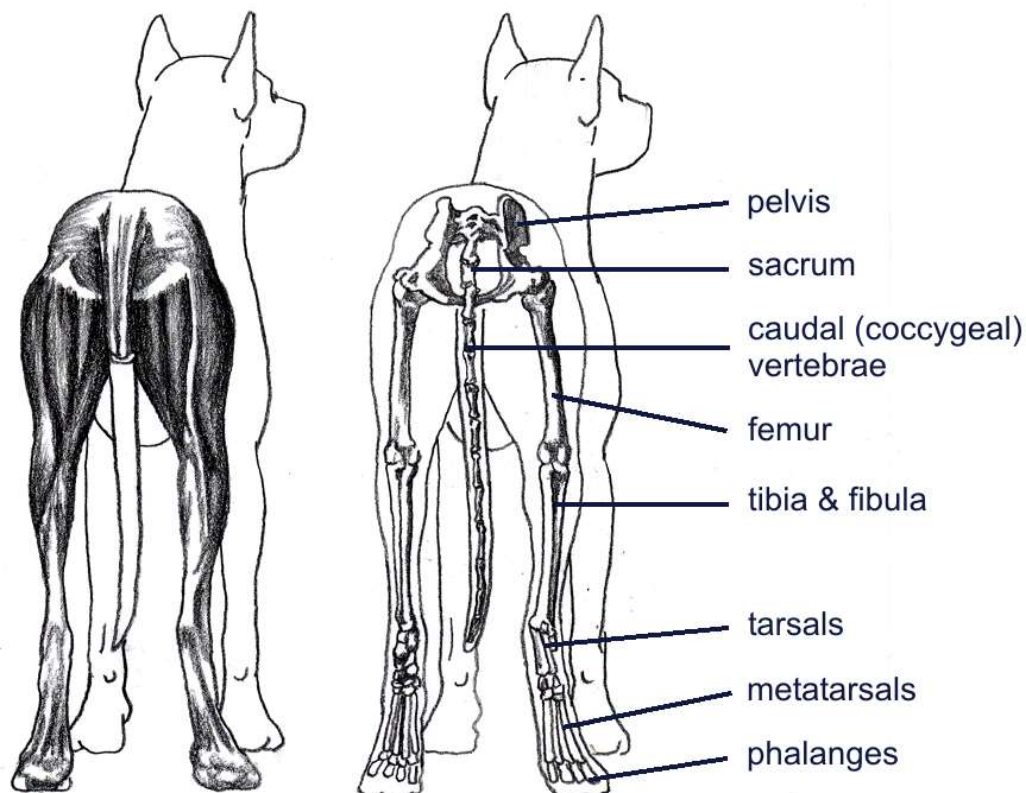
At the base of the spine, at the conformational area we call the croup, the **pelvis** comprises two fused halves of flat bone that attach to the spine at the sacrum. The pelvis is angled to the degree that defines the slope of croup (pelvic slope). A hollowed area on each **pelvic wing**, called the **acetabulum**, houses the head of the **femur** to form another ball-and-socket joint – the hip joint. It is at this joint where **hip dysplasia** can occur, but no judge is to be expected to know how to identify this condition – this diagnosis is purely reliant on thorough veterinary examination.

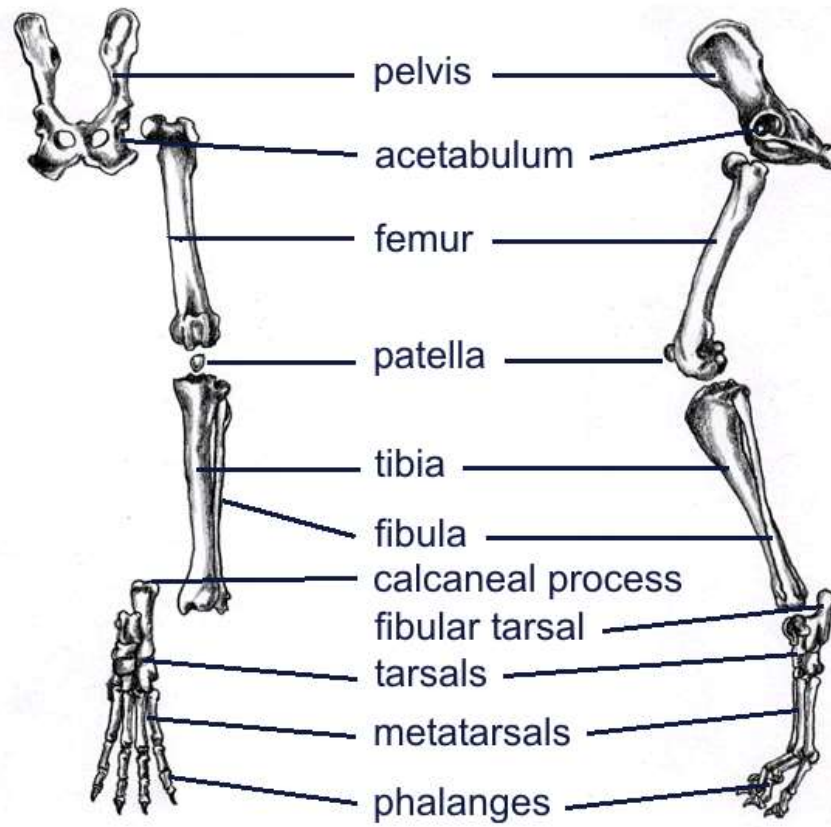
The femur is the longest single bone in the dog's skeleton. This bone runs down and forwards towards the **stifle joint**. At the lower end of the femur is a shallow groove, called the **trochlea**, in which the **patella** (kneecap) is positioned firmly between strong ligaments. The stifle joint comprises the trochlea, the patella and the upper portions of the **tibia** and **fibula** (the bones of the lower thigh).

Similar to the radius and ulna, the tibia and fibula are fused at both ends, allowing them to form a single leverage unit. The tibia is the larger of the two bones and positioned in front of the smaller fibula. They slope downwards, completing the stifle angle and connect to the bones of the hock (heel).

The **tarsus** comprises 7 **tarsal bones**, the largest of these is the **fibular tarsal** that extends upwards to form the hock (heel). The **achilles tendon** – the main tendon that attaches the leg muscles – is rooted to this bone at the uppermost part, the **calcaneal process**.

Connected to the tarsal bones are the elongated **metatarsals**, equivalent to the bones of the foot in the human. Together, these bones form the **metatarsus** (rear pastern). In most breeds, the first metatarsal is absent, but when it is present, it forms a hind **dewclaw**, which may need to be removed or may be a requirement, as in the Pyrenean Mountain Dog, which actually must have a **double dewclaw**. The hind feet comprises **phalanges** similar to the front feet, but are usually smaller, longer and narrower.





PART FIVE:

ANGULATION

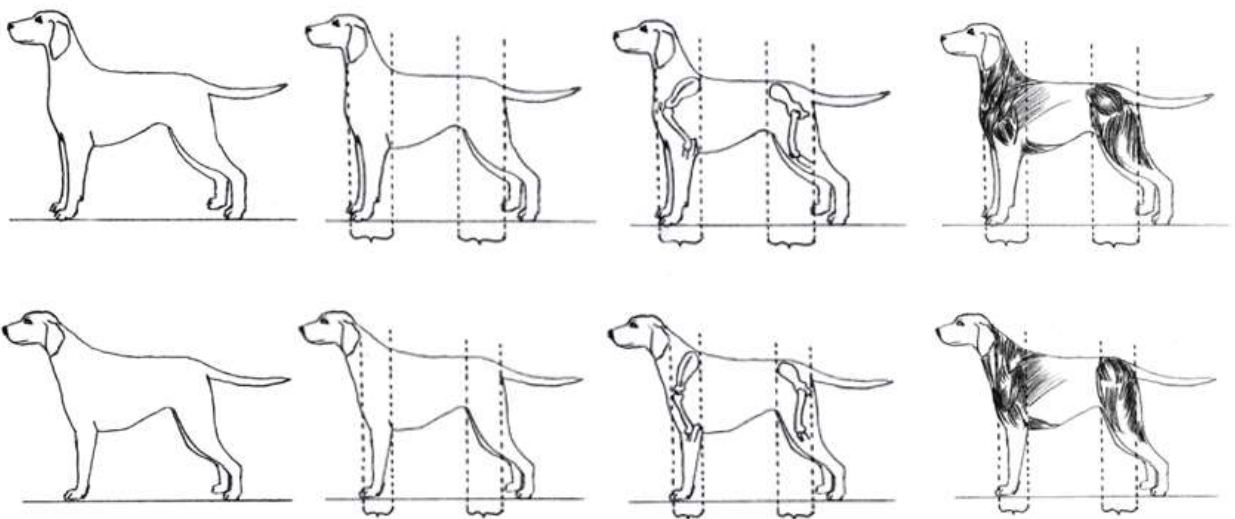
ANGULATION

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 – 90°, 110°, 115°, 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

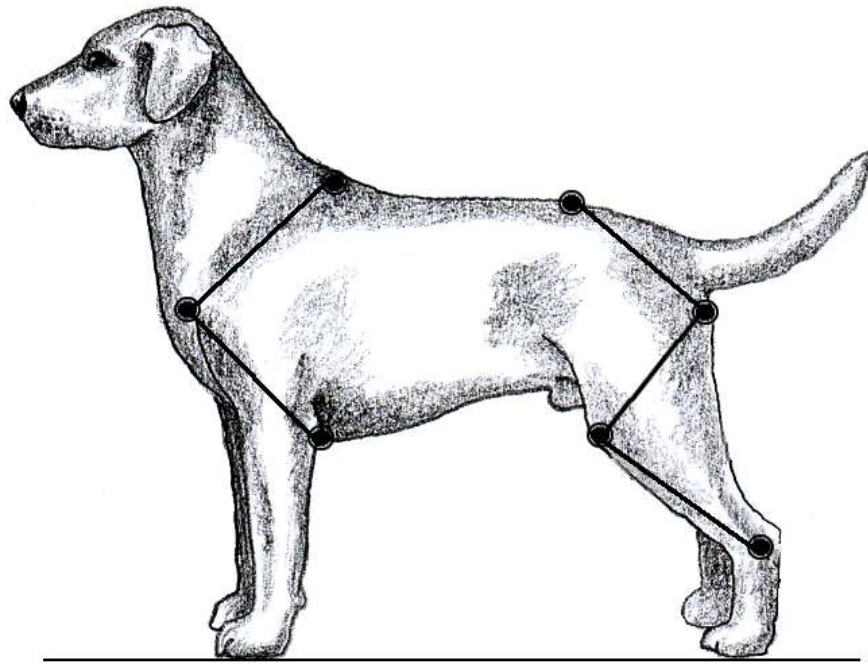
During your initial view of the exhibit stacked in front of you, and before you can evaluate the dog you're your hands, what can you look at to estimate correct angulation? Try to imagine vertical lines outlining the width of the forequarters (between the point of shoulder and the elbow) and the width 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.



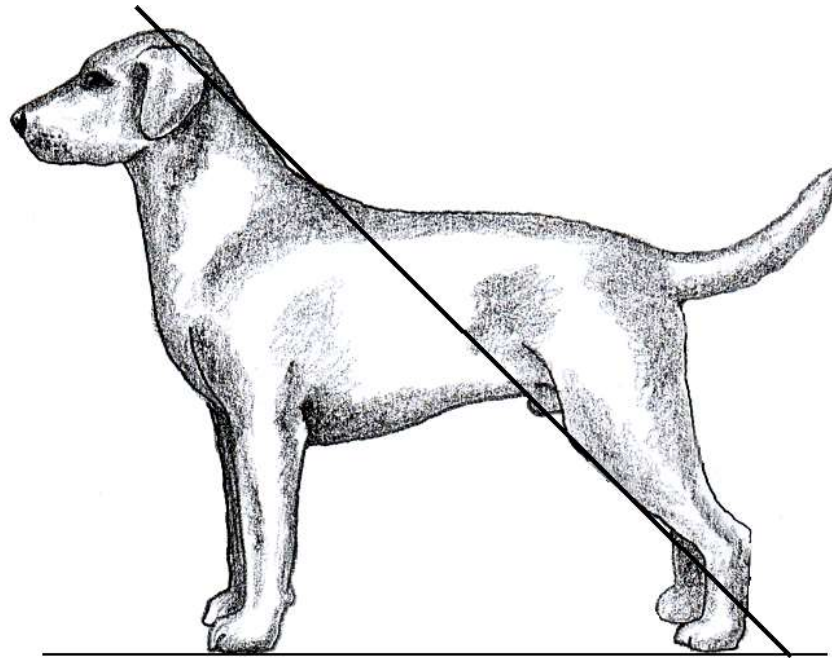
If the shoulder blades and pelvis are correctly slanted, and the angulation in each of these areas is good, there is more space for muscle attachment, which ultimately ensure proper functionality and substance. Conversely, narrow angles provide less space for muscle development, which will not only restrict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

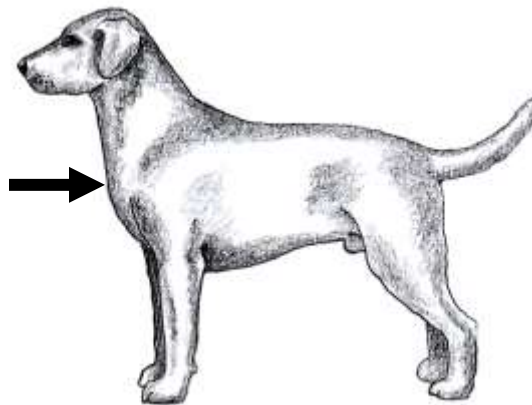
The dog whose front assembly you are about to evaluate is a living creature – not a statue! The slightest shift of position or turn of head can alter the view of angulation so it is useful to confirm what you see by touching (going over) the dog. A thorough hands-on evaluation is an absolute must for 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.

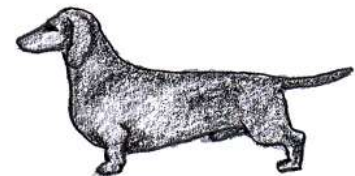
The amount of forechest varies by breed, thus you should always consider the breed standard – never judge generically.



minimal forechest



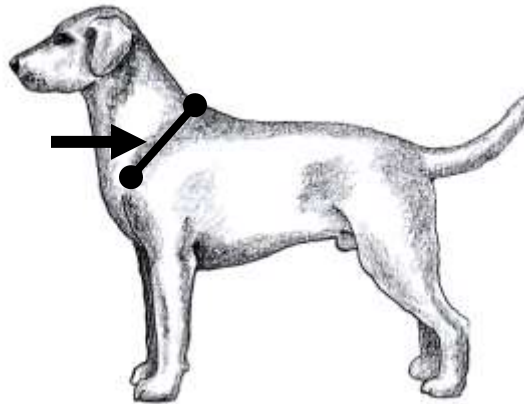
average forechest



marked forechest

Shoulder layback

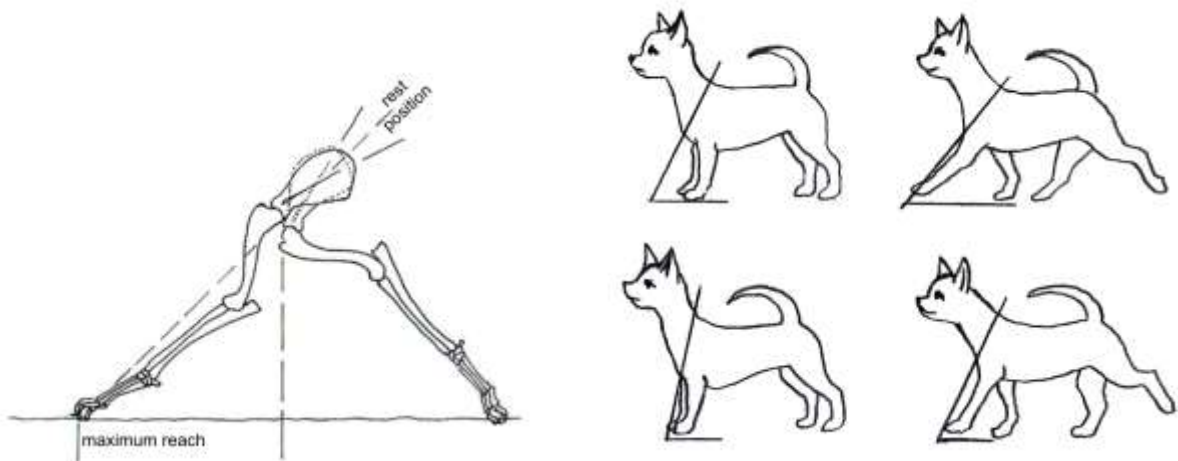
Shoulder layback refers to the angle at which the scapula lies against the ribcage. Many references call for a 45° angle in all dogs – this may be appropriate in some breeds, but not all.



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 45°**, front reach may be affected by a steep shoulder layback.

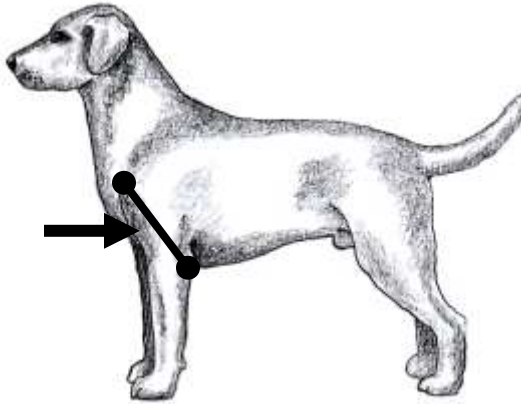


In the illustration above left, note that it is a physical impossibility for the shoulder blade, upperarm, elbow and foreleg to reach in a perfectly straight line – the bone protuberances in the scapula and humerus will simply not allow it. This ought to explode another myth!

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:

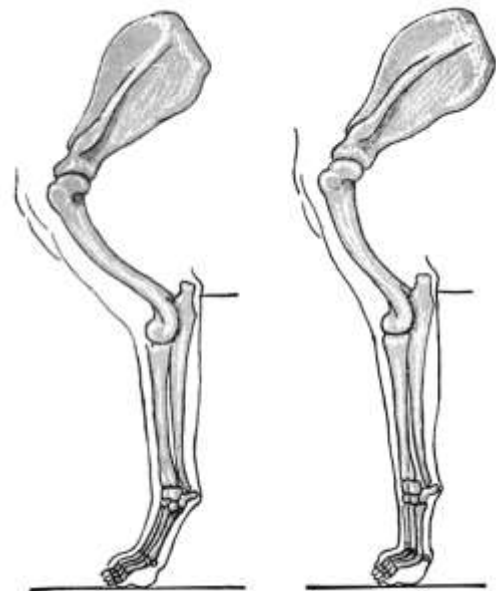
- ensures that the forearm supports the dog's centre of gravity
- determines the shoulder angle at point of shoulder



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).

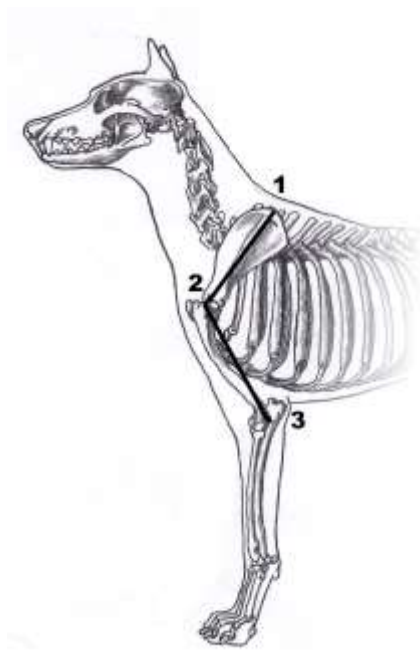


correct

short upperarm and insufficient return

Shoulder angle

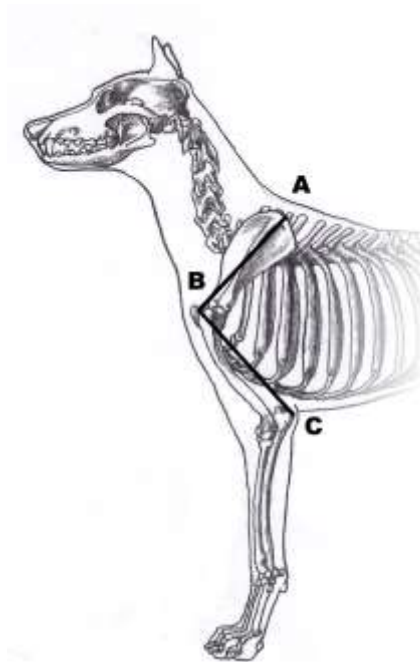
Judges usually use one of two methods to trace the shoulder angle with the hands:



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.

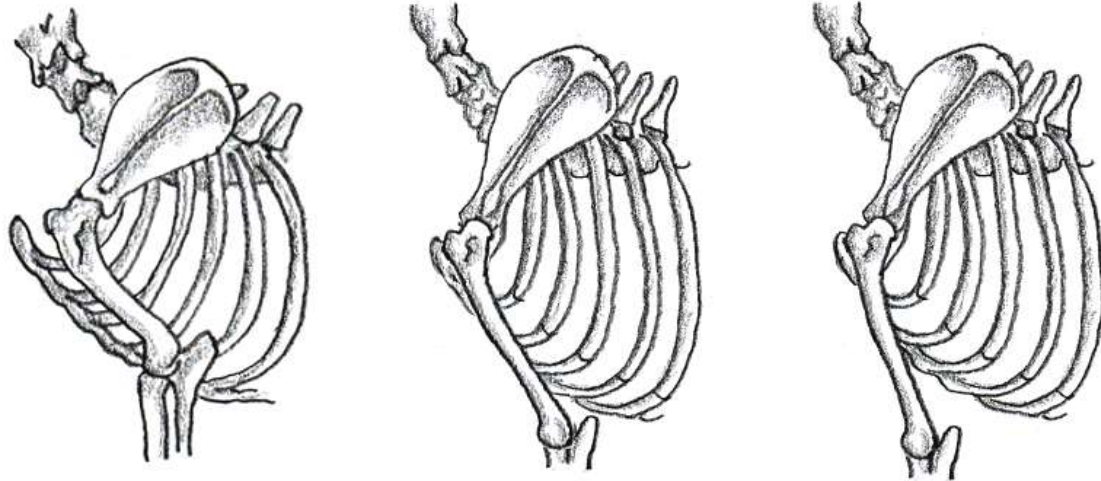
Most judges prefer to use this method.



Not all shoulders are created equal!!!

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

While, for many years, it was believed that ALL dogs ought to have a shoulder angle of 90° 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 90°

approx 110°

approx 130°

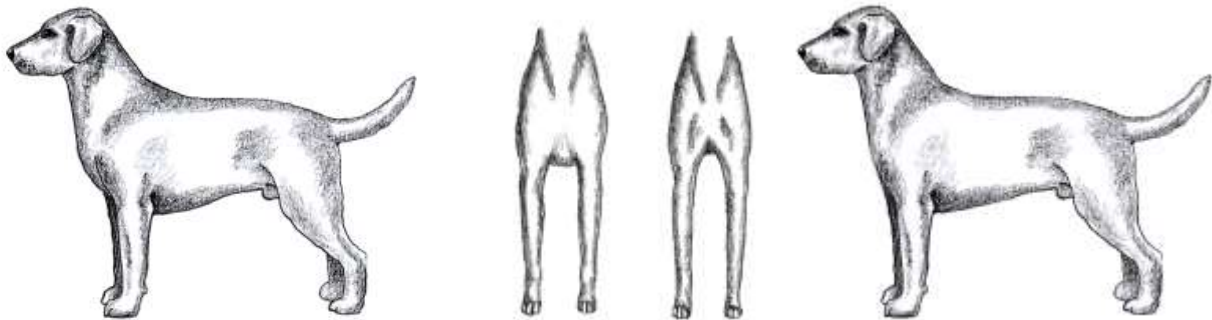
Examples of typical shoulder assemblies may include the three illustrated here, with many shades of variance in between:

- **Achondroplastic breeds**, eg. Dachshund, Basset Hound, Corgi, etc. tend to have a shoulder angle of approximately 90 ° 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

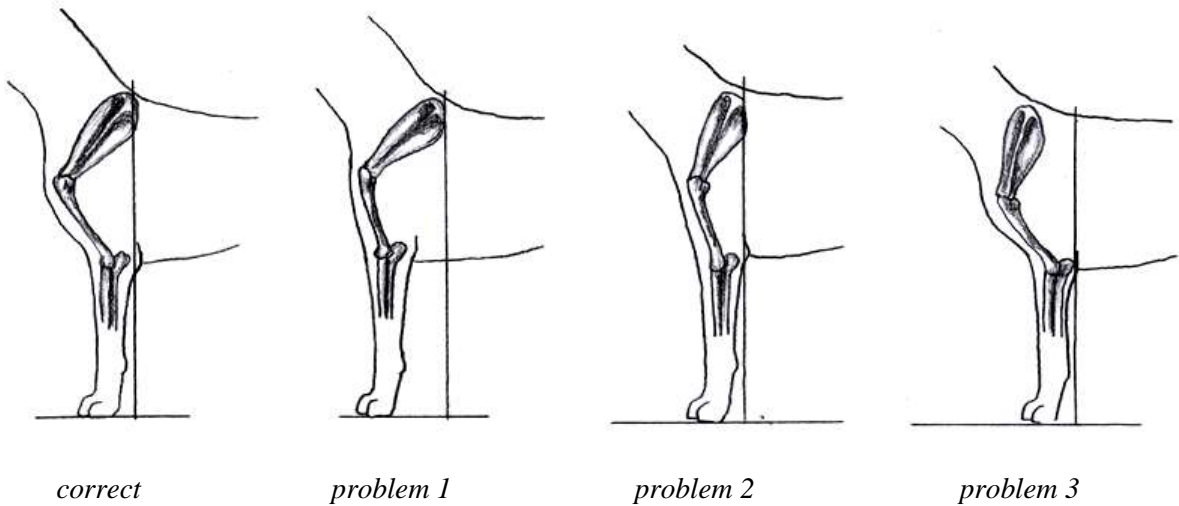
poor front fill because front assembly too far forward

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



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

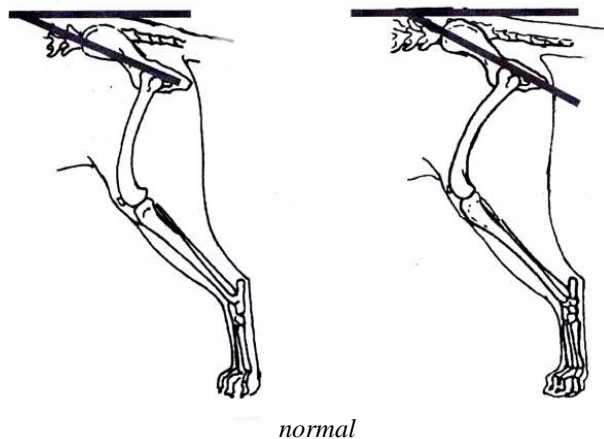
While the forequarters support the bulk of the weight of the dog, the hind quarters provide the stability and drive in action. For the mechanics to work optimally, the angulation in front and rear ought to be balanced so that all parts are in proportion and work harmoniously together.

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

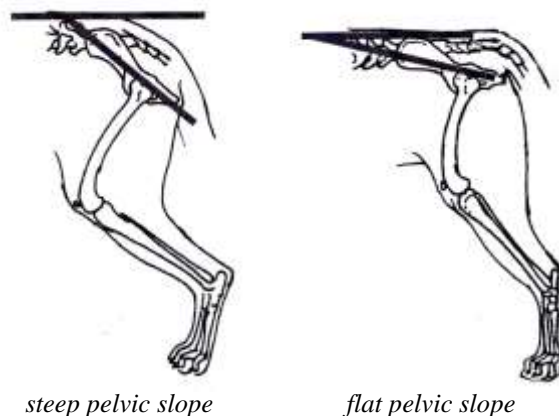
- pelvic angle
- stifle joint
- hock joint

Pelvic angle

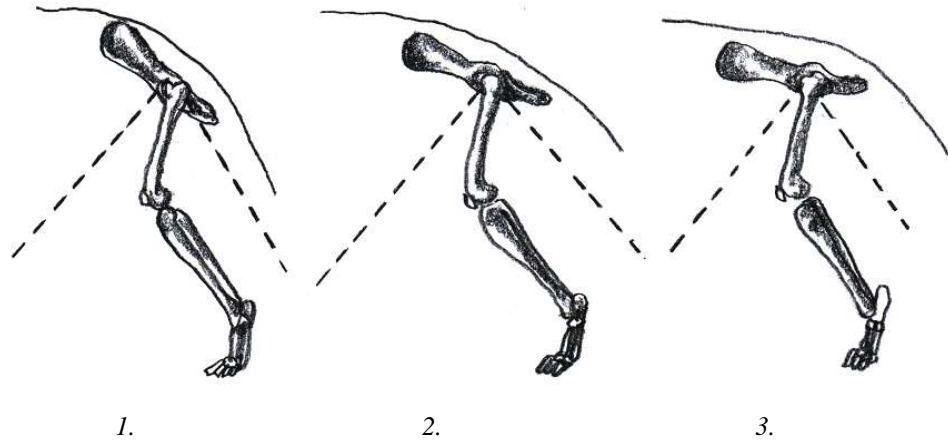
The length and set of the **pelvic girdle** in relation to the spine often affects the angulation of the whole hindquarters. Excessive angulation here (over and above the requirement of the breed standard) is never a good thing. More is not better – it's all down to the amount that is needed for functional 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.



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

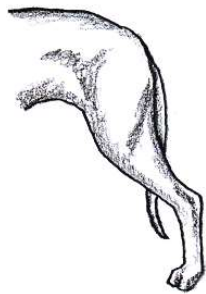


The pelvic angle influences rear drive in action.



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

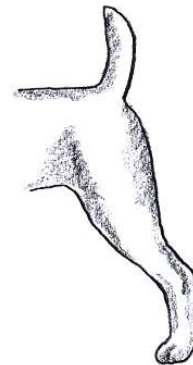
The slope of the pelvis can also affect the slope of the croup and the set on of tail.



*well-rounded croup;
low tailset & carriage*



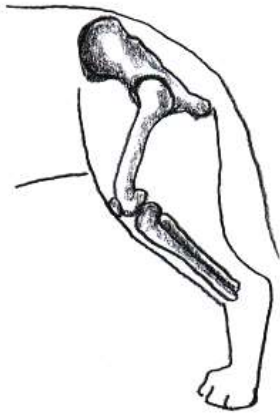
*gently-rounded croup;
low tailset, level carriage*



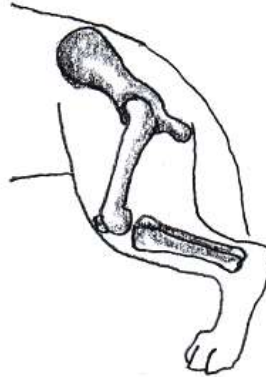
*flat croup;
high tailset & carriage*

Stifle joint

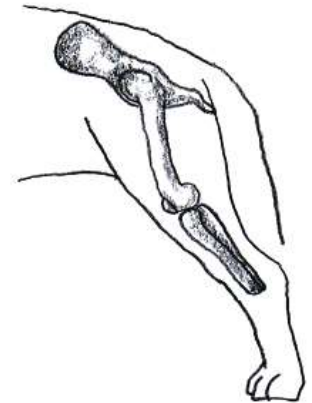
The angle formed by the femur and the tibia and fibula forms the **stifle joint** (also called the **knee joint**). The angles vary according to breeds, but poor construction will negatively affect stifle angle.



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.



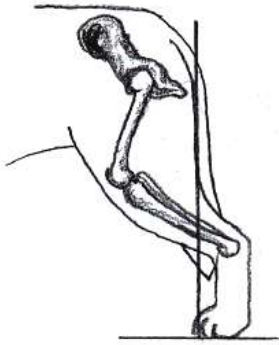
Straight hock joint, often accompanied by straight stifle.



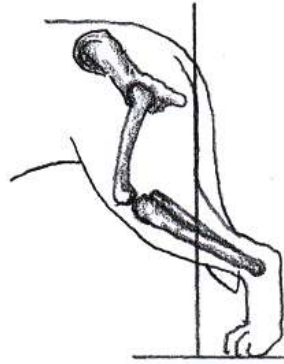
Sickle hock, where the joint is over-angulated, often accompanied by long second thigh and/or long rear pasterns.



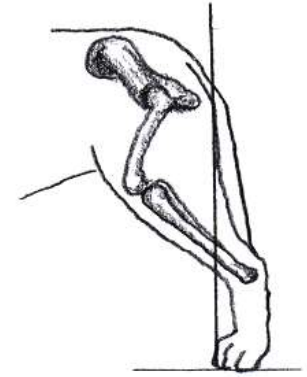
A few examples of hind assemblies



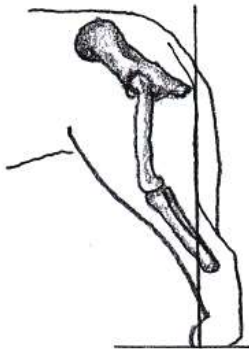
correct



second thigh too long



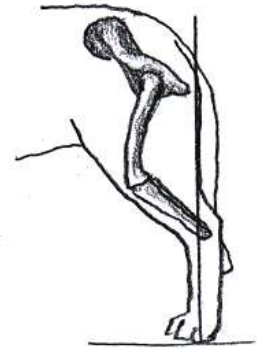
straight stifle & short upper thigh



straight stifle & short second thigh



*over-angulated stifle, long second thigh,
sickle hocks*



long rear pastern

PART SIX:

MOVEMENT

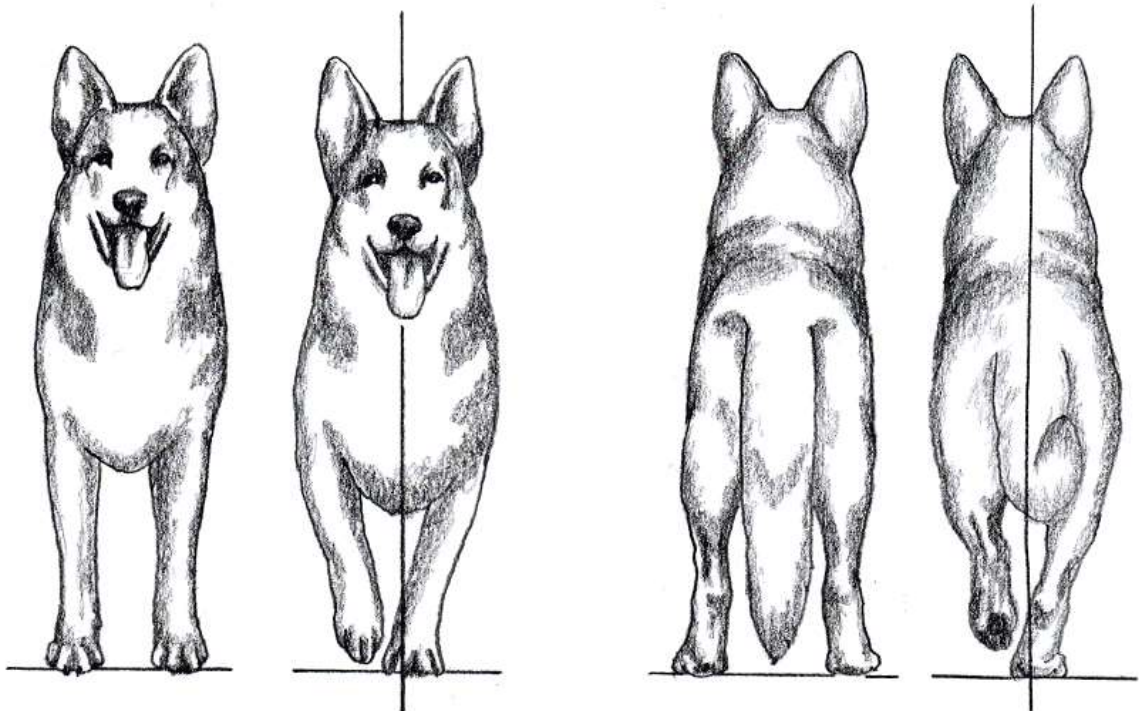
MOVEMENT

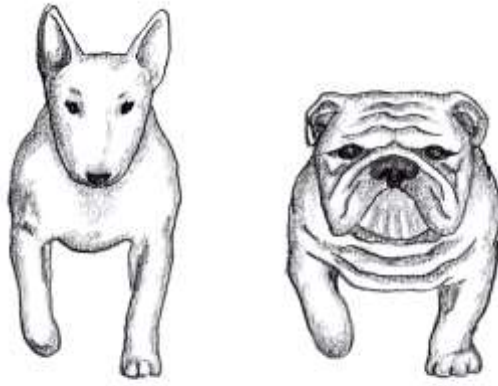
Movement is a symphony of bones, joints, muscles, tendons and ligaments, all working together. As a judge in the ring, you will seldom be able to evaluate a dog on its functional purpose – you will only see the **trot**. From this, you need to estimate functionality and gaiting efficiency.

CENTRE OF GRAVITY

Let's take a look at how the dog's mechanics allow him to move without falling over. If you were to make yourself a pendant of your favourite breed to hang around your neck, you would need to find a point on the pendant where it can hang without tipping forwards or backwards. So it is with real-life dogs. At some point in their bodies, they have a centre of gravity that ensures that their stance and movement will be balanced. While this point will depend on length of leg, height and length of body, and weight of head and neck, most dogs have a centre of gravity over or near the forequarters. Remembering that a dog carries approximately 60% of its weight over its forequarters, it stands to reason that the centre of gravity is an essential feature of balance. Dogs with a poor centre of gravity may have to expend greater muscle power, which leads to wasted energy and inefficient movement.

Considering a few exceptions, where the requirement is to move parallel, most dogs naturally bring their feet under themselves as they speed up their movement in order to keep balance and prevent falling over. The faster they move, the closer the legs will converge until, at great speed, the feet may follow a single line – best viewed in soft or damp sand. This is called **single-tracking**, an extreme form of **convergence**.

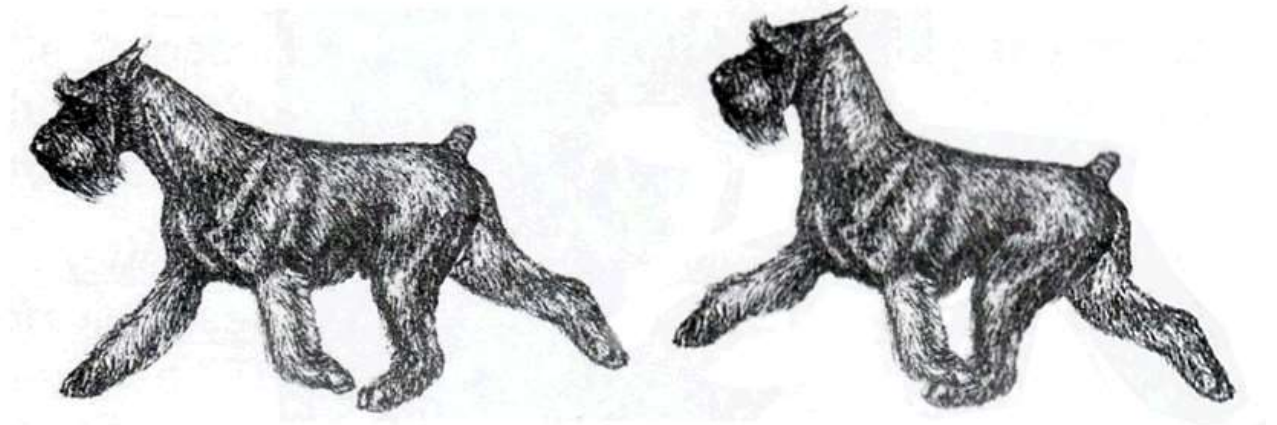




Some breeds, particularly those with broad ribcages and shorter legs, move parallel – the Bulldog is the most extreme example. Such breeds often sway or roll from side to side as they move forward. This action is called **lateral displacement**, which is energy-wasting and can cause early fatigue.

HEAD CARRIAGE IN MOVEMENT

Many breeds will carry their heads at around 10 o'clock – this for efficient reach and style. If the dog carries its head lower than this, say at 9 o'clock, the dog may be going too fast or there may be insufficient reach. If the dog's head is carried too high, there is less front reach. Handlers who string their dogs up on a tight lead may cause this to happen because the pressure placed on the **brachiocephalic muscle** in the neck causes the front legs to lift higher than they should. It is always advisable, therefore, to be on the lookout for exhibitors who keep a tight lead on a moving dog – it could be causing or hiding serious faults.



normal movement

head is strung up causing unnatural front action

NORMAL GAITS

The **gaits** of the dog are patterns of movement that can be divided into two main groups: symmetrical and asymmetrical.

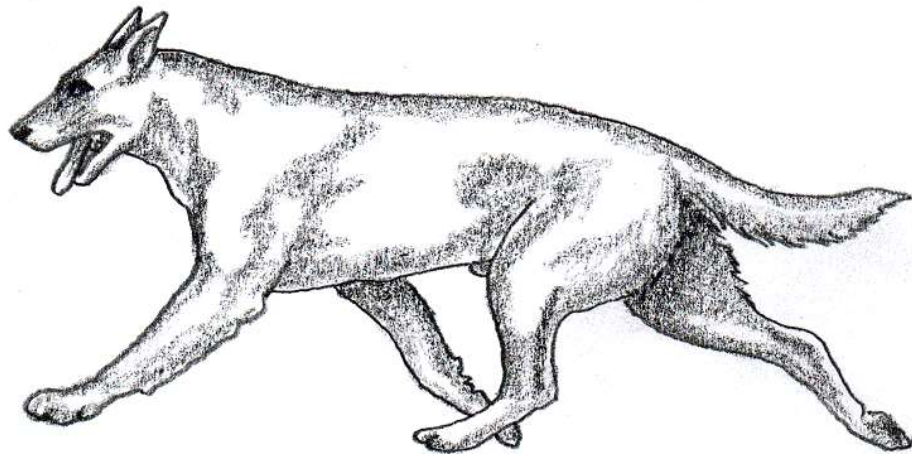
- **symmetrical gaits:** the **walk**, **trot**, and **pace (amble)** – the movement of the limbs on one side of the dog's body repeats the motion of the limbs on the opposite side with the intervals between foot falls being nearly evenly spaced. The walk is a four-beat gait, while the pace and the trot is a two-beat gait.
- **asymmetrical gait:** the **gallop** and the **canter** – the limb movements of one side do not repeat those of the other and the intervals between foot falls are unevenly spaced.

When considering gaits, one full cycle is referred to as a **stride**.

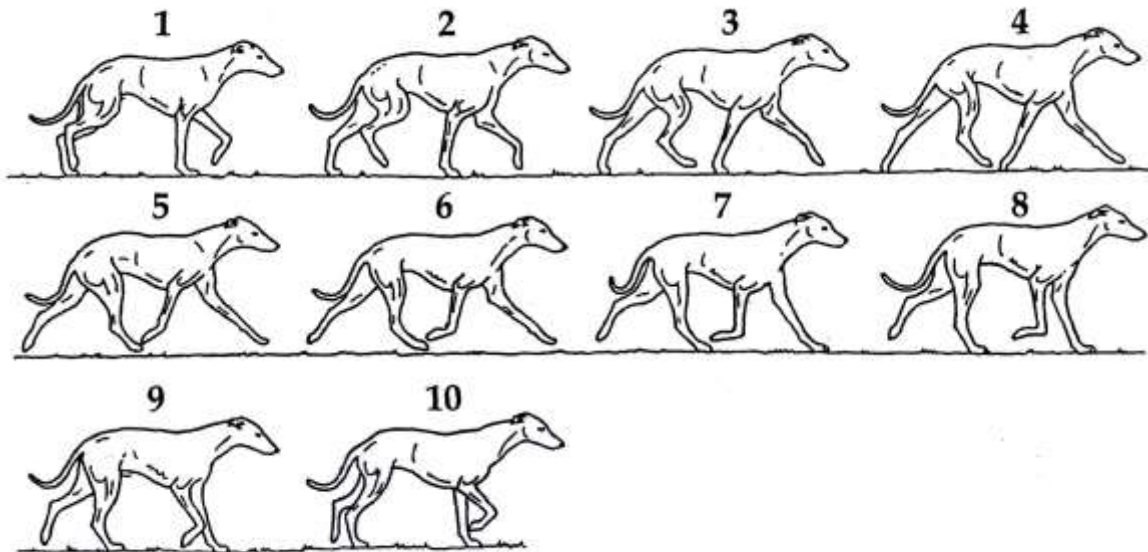
The only two gaits to be studied in this study guide are the **pace** and the **trot**.

THE PACE

The **pace (amble)** is a two-time gait pattern where the front and hind legs on the same side touch and leave the ground together. Some dogs, like the Old English Sheepdog, pace naturally, but for most it is an energy-saving technique a dog uses when it is fatigued to reduce lateral displacement. In some breeds, unfortunately, pacing becomes a bad habit, which is unfortunate because it is undesirable in the show ring.



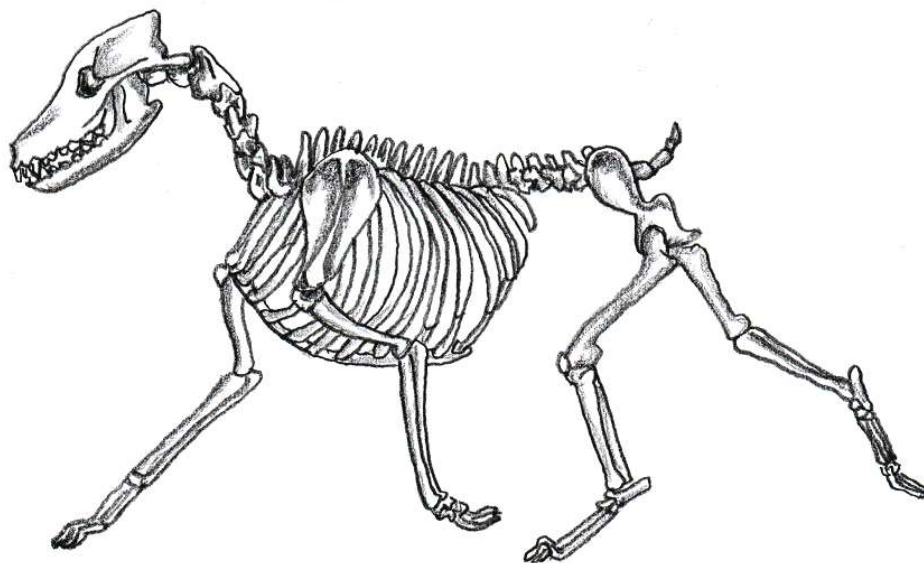
the pace (amble)



(Illustration from: *An Eye for a Dog: Illustrated Guide to Judging Purebred Dogs* Robert W. Cole. 2004)

The trot is

- a **diagonal gait** (right hind with left front, left hind with right front)
- a rhythmic **two-beat gait** (diagonal pairs strike and leave the ground at the same time)
- there is a brief period of **suspension** during the change-over of support



HOW TO EVALUATE MOVEMENT



There is no such thing as a “universal style of trot” - all breeds are different. Thus: beware of expecting all dogs to move alike. All breed standards describe different gaiting styles, depending on the breeds’ original functions.

Never lose sight of evaluating the **WHOLE** dog in movement – don’t obsess about one aspect when you judge.

Don’t be bought by “flash and dash”.

Let’s look at the mechanics of judging a dog’s movement. Judges need to evaluate three views:

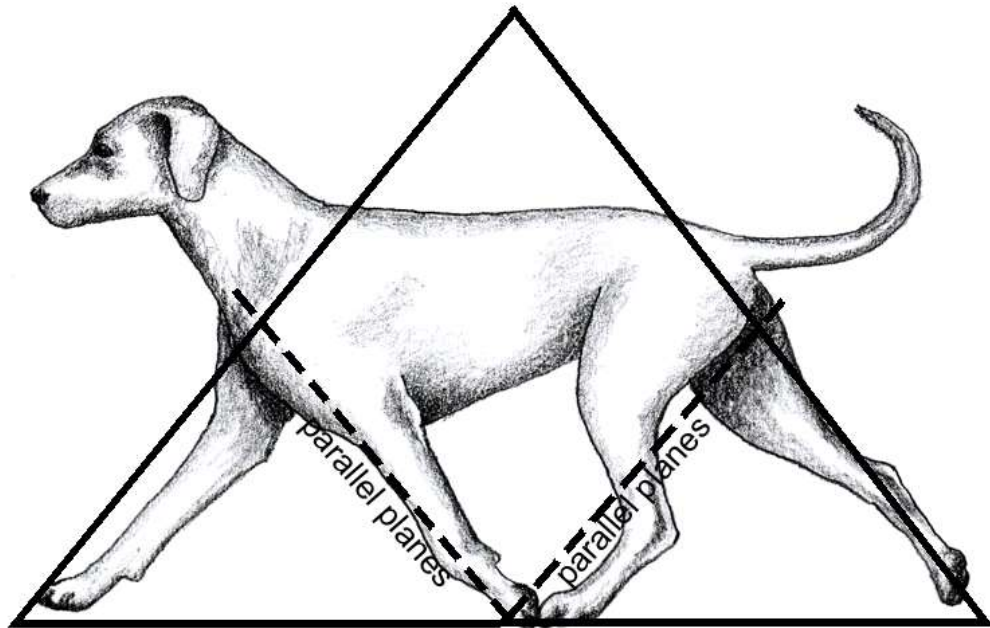
- the side view – to evaluate the side gait
- the rear view – to evaluate the going gait
- the front view – to evaluate the coming gait

Most experienced judges will agree that more attention needs to be paid to the side gait than the coming and going gait because of the greater number of characteristics one needs to observe in the profile gait.

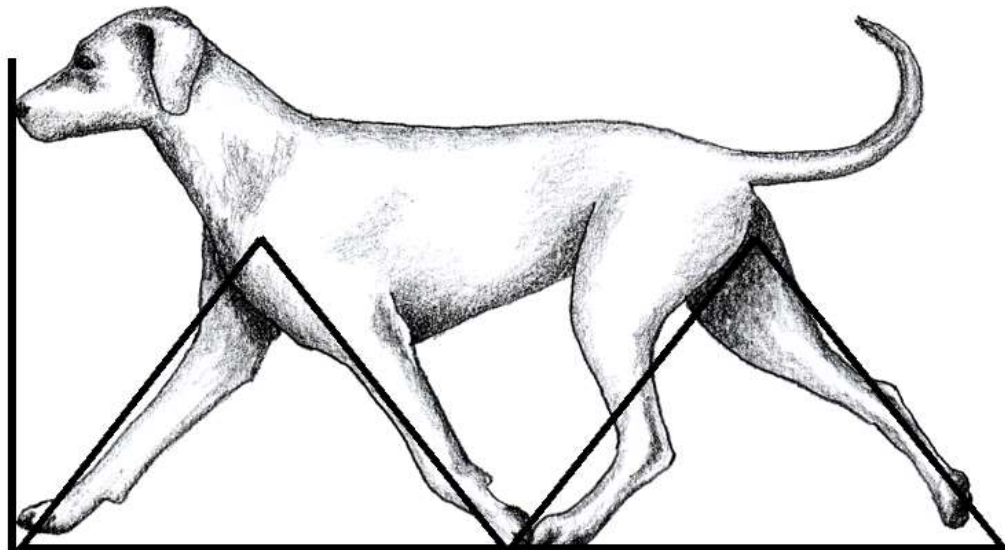
The view in profile

As the dog gaits around the ring, you need to look for an athlete in action. There is much to evaluate during this view:

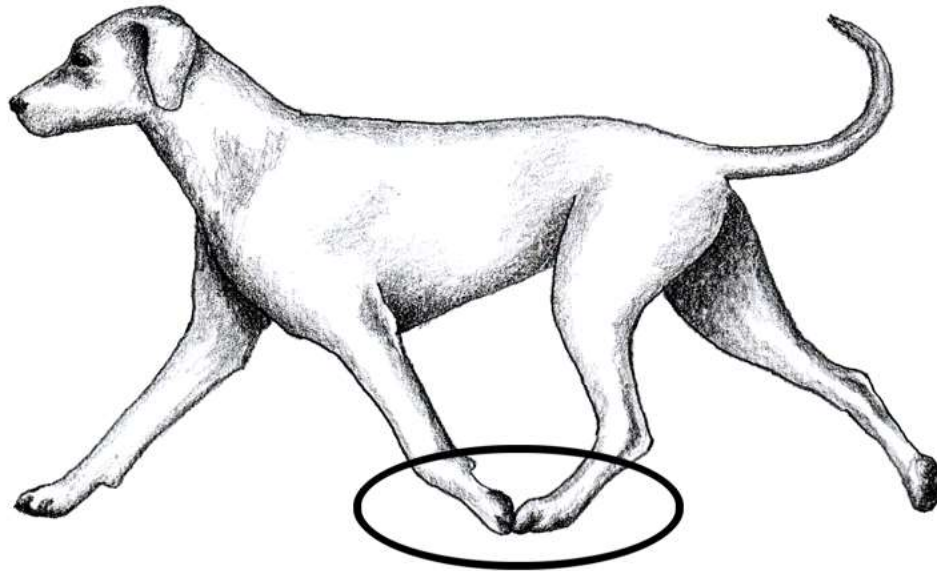
- **length of stride** (adequate reach and drive)
- **timing of the feet** (two-beat gait)
- **diagonal leg co-ordination** (the rear foot tracking the front foot)
- **suspension** (a moment of suspension with each stride)
- **stability** (without rolling or bouncing)
- **topline strength** (strong, firm top line)
- **joint articulation** (smooth flexion and extension)
- **head carriage** (level or above level)
- **tail carriage** (carried correctly)
- **grace** (effortlessness and efficiency)
- **foot and pastern strength** (effortless footfall, springy pasterns)
- **balance** (front and rear stride)



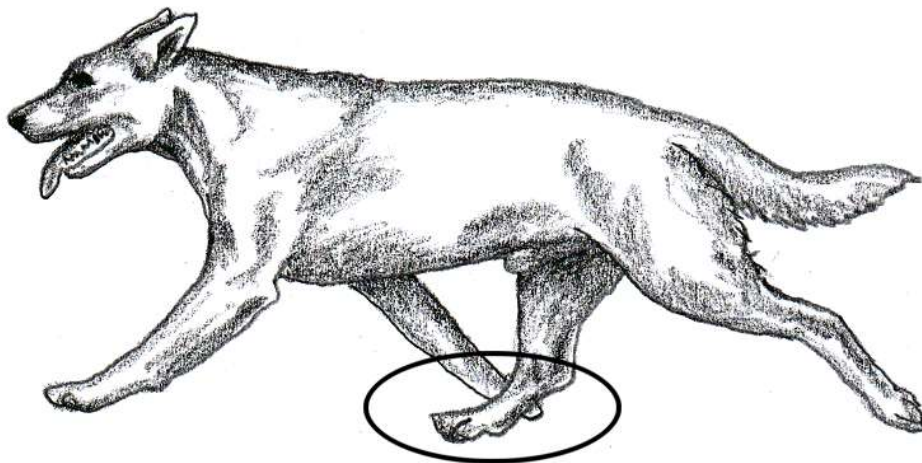
Balanced gait is typified by a **synchronisation** of front reach and rear drive. If a dog were to have a somewhat straight front assembly, it would be better for it also to have straight rear assembly to remain in balance, rather than a straight front trying to move in sync with an angulated rear. This problem would manifest itself as tremendous **kick-back** behind, yet the front would be unable to reach an imaginary plumb line dropped down from the nose. Such unbalanced movement is energy-wasting and can quickly lead to exhaustion.



Balance calls for identical triangular action in front and back. This is the best indication that the dog, as a whole, is correctly constructed and capable of performing its function efficiently without excessive energy consumption. Generally, reach should not extend beyond an imaginary plumb line from nose.



For the most efficient movement, the hind foot steps into impression made by front foot. When the hind foot is unable to step into the track left by the front foot, it is called **undertracking** and is usually a result of under angulation in either or both the forequarters and the hindquarters. When the hind foot exceeds the track left by the front foot, this is called **overtracking**. While desirable in some breeds like the German Shepherd Dog, it is mostly considered a fault – a result of overregulation in either or both the front and the rear.



overtracking

The front and rear view

During away-and-back gaiting, you are essentially judging only two main features:

- **degree of leg convergence** (lateral displacement, single-tracking)
- **plane of action** (deviations from the norm)

The **degree of leg convergence** will, as discussed previously, depend on the dog's structure and where its centre of gravity lies. In this respect, a judge can only follow the requirements of the breed standard to establish how closely the exhibit emulates that requirement.

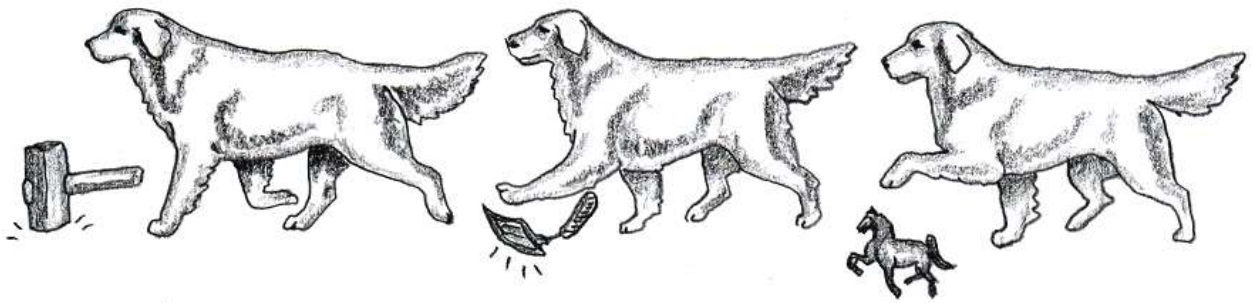
Deviations from the normal **plane of action** could include a number of faults that have all been given names. Essentially, these include the list below, which are useful to understand, but only faulted by the degree of its severity. It would be unfortunate, therefore, if you were to place an apparently faultless, very mediocre specimen on a breed over an otherwise outstanding specimen, possessing all the attributes of breed type, balance, profile soundness, temperament and condition, but who runs slightly wide on the going away. Remember the Golden Rule!

- From the front:
 - **crabbing (side-winding)**: moving with body at an angle to the line of travel
 - **paddling**: throwing the front feet out sideways in a loose, uncontrolled manner
 - **toeing-in**: forefeet turning inwards towards each other
 - **weaving (dishing, plaiting)**: forefeet swing around and cross over
 - **out-at-elbow**: elbows loose or turning out from the body
 - **tied-in-at-elbow**: elbows set too close under body, thus restricting movement
 - **running-wide**: lack of convergence when required
- From the rear we see:
 - **crabbing (side-winding)**: moving with body at an angle to the line of travel
 - **cow-hocks**: hock joints turned towards each other, causing the feet to turn out
 - **moving close**: legs moving very close, sometimes brushing against each other
 - **popping-hocks**: hocks very loose, turn inwards and outwards
 - **barrel-hocks (bowed hocks)**: legs are bowed in a bandy action
 - **running-wide**: lack of convergence when required
 - **crossing over**: feet cross over one another as well as imaginary centre line

In summary

Whenever judges evaluate dogs' movement, it is important to assess how all the parts function as a total unit. A correct approach to evaluating gait uses all views, and looks closely at each aspect of movement. However, when we assess movement we must put much more weight on side gait than on the information gathered while simply viewing the dog coming and going.

A few examples of faulty movement



pounding

paddling

hackney action



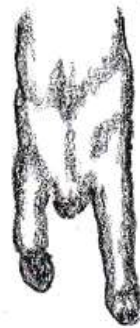
correct



elbowing out



moving close



tied in at elbow



paddling



normal convergence



bowed hocks



cow hocks



moving close



weaving

Answers to the Silhouette exercise:

1st row: Gundogs

English Springer Spaniel, Labrador Retriever, Golden Retriever, Cocker Spaniel, Pointer, Irish Setter.

2nd row: Herding dogs:

Shetland Sheepdog, Old English Sheepdog, Rough Collie, Belgian Shepherd Dog, Pembroke Welsh Corgi, Australian Cattle Dog.

3rd row: Hounds:

Saluki, Afghan Hound, Beagle, Borzoi, Smooth-haired Dachshund, Basset Hound.

4th row: Terriers:

Bull Terrier, Staffordshire Bull Terrier, Airedale Terrier, Norwich Terrier, Kerry Blue Terrier, Cesky Terrier.

5th row: Toys

Smooth-coat Chihuahua, Pekingese, Lowchen, Yorkshire Terrier, Bichon Frise, Papillon.

6th row: Utility dogs:

Lhasa Apso, Bulldog, Dalmatian, Miniature Schnauzer, Shar Pei, Shih Tzu.

7th row: Working dogs:

Great Dane, Siberian Husky, Dobermann, Boxer, American Akita, German Shepherd Dog.

ACKNOWLEDGEMENTS

This study guide:

Written and illustrated by McFarlane, Joy. *Anatomy, Conformation and Movement*. On behalf of The Kennel Union of Southern Africa. 2013

Reference sources:

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