



Radiography guide

Below is a brief guide, with tips and tricks on how to get better radiographs.

Quick notes:

- orthopaedics need high mAs and average kV (mAs around 10-16 and kV around 50-70)
- always use markers; if you can, use a scaled marker
- do not superimpose marker on area of interest
- materials needed: large sandbags, small sandbags, ties, foam wedges;
- troughs are not essential but they are helpful

Elbow

☒ cranio-caudal (CC)

- dog in sternal
- lift head and rest it on sandbags, opposite to the leg of interest; the sandbags should be quite high/tall
- support the side with the leg of interest with a sandbag
- the general feeling is that the dog will roll towards the leg of interest - it won't if the sandbag is well positioned
- keep the leg straight with a tie/rope
- collimate long i.e. from carpus to shoulder

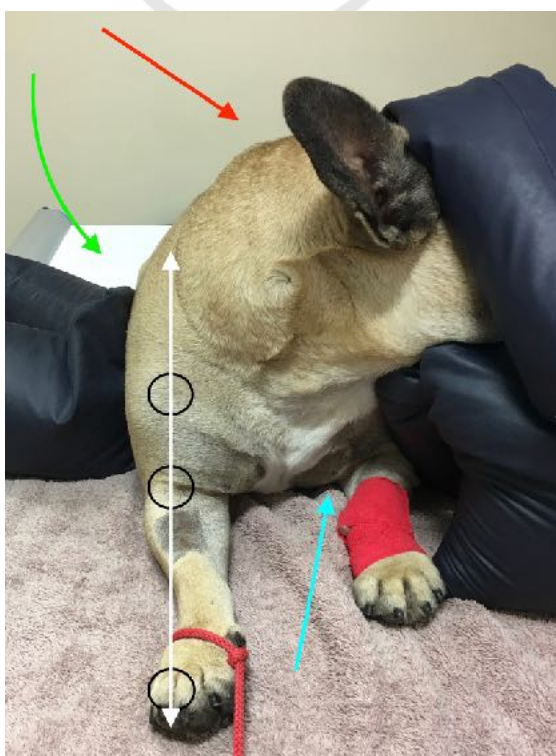


Image 1. Cranio-caudal view of the elbow. Note the tall positioning of the head on the sand bags (red arrow). Note the rotation of body and the sandbag to stop it (green arrow). The circles represent shoulder - elbow - toes. The white arrow is the alignment of the joints. Please note that the carpus is not part of the alignment. Indeed, for most dogs, the carpus is in varus and the alignment is shoulder - elbow - toes. In breeds with straight legs (Greyhounds, Collies) the carpus is aligned with the shoulder - elbow - carpus.



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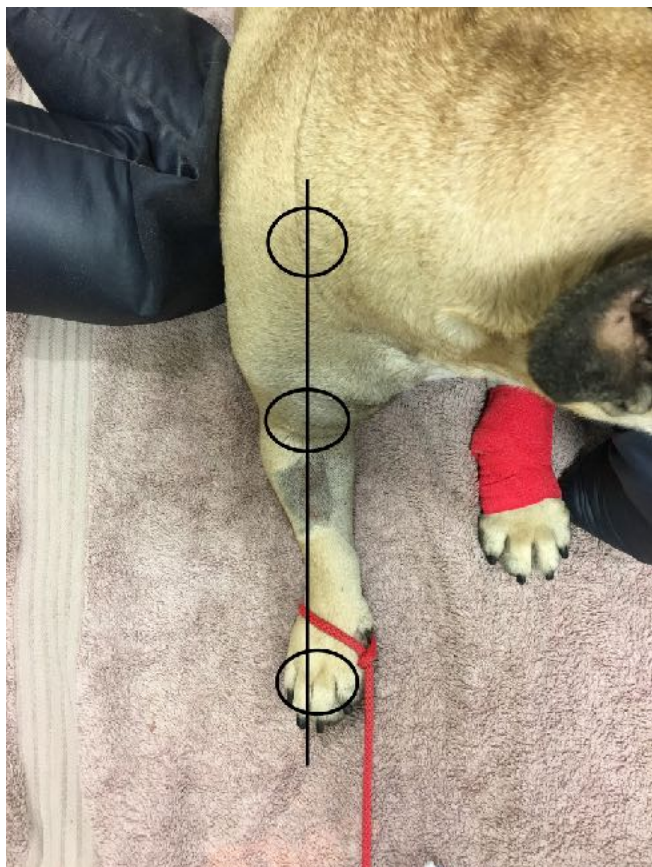


Image 2. Cranio-caudal view of the elbow. Please note again the alignment shoulder-elbow-toes but not the carpus. Also, note the tie that keeps the leg straight - notice the tie pulls parallel to the limb alignment axis. Note how deep is the shoulder for this muscly dog.

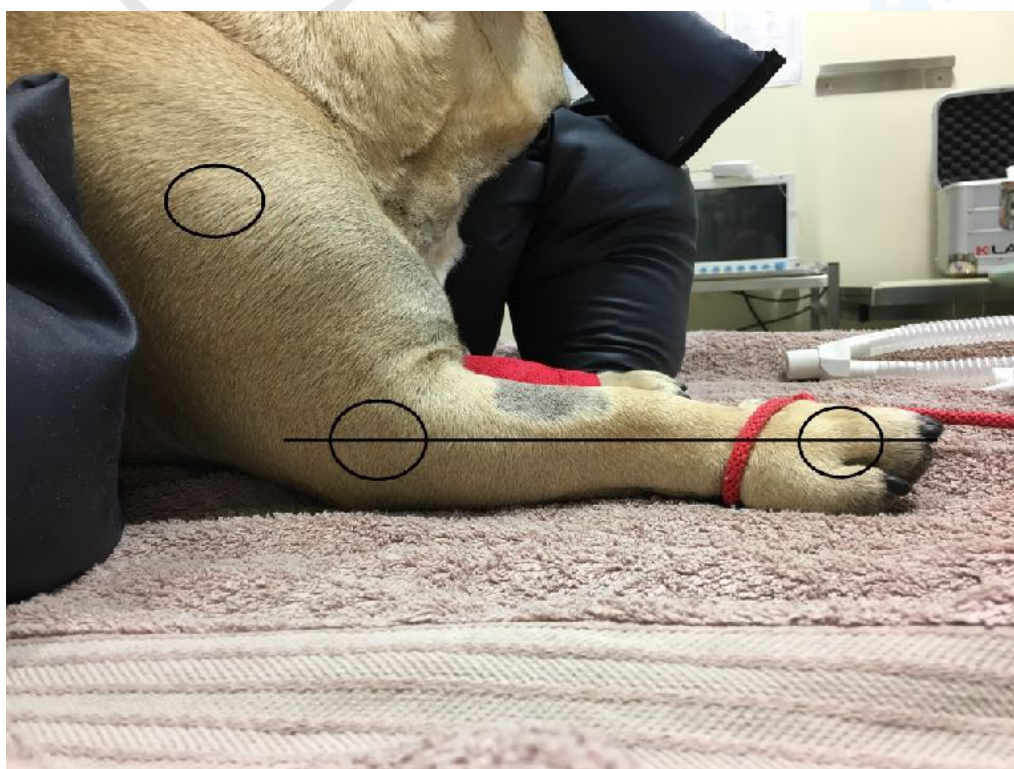


Image 3. Cranio-caudal view of the elbow. Note the elbow-toes axis is parallel the table.



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☑ medio-lateral (ML)

- lateral recumbency, leg of interest is down
- pull opposite fore leg back and keep it there with a tie/rope/sandbag
- leg of interest - flex the carpus gently as this will prevent rotation of the elbow - the plane will be defined by humerus, radius and carpus; as they will be 90 degrees from each other, it will make a parallel plane with the table
- collimate long i.e. from proximal humerus to carpus



Image 4. Medio-lateral view of the elbow. Note the flexion of the carpal joint and the position of the sandbag (red arrow). The sand bag does not sit on the toes, it only restricts extension. Also, notice the position of the contralateral limb.

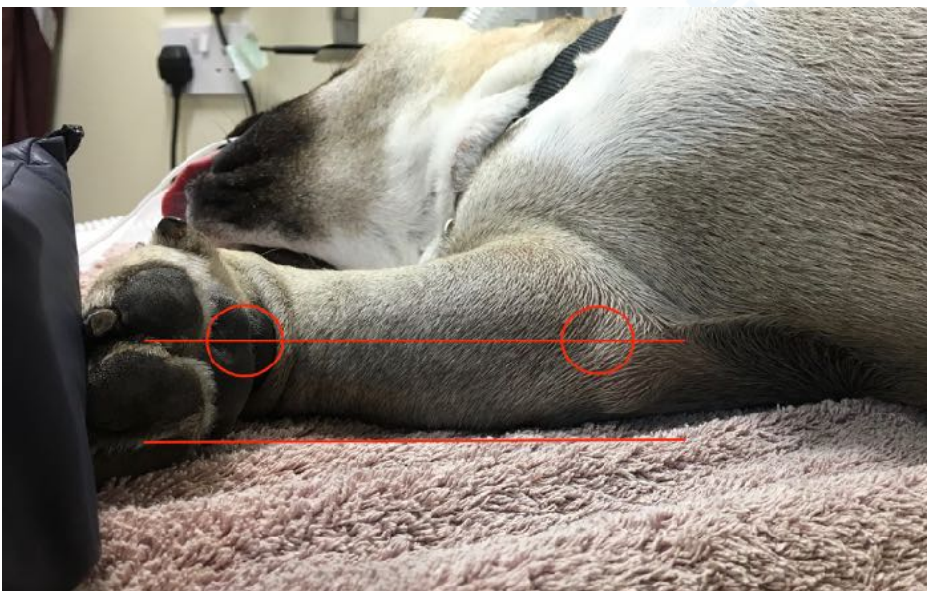


Image 5. Medio-lateral view of the elbow. Red circles are elbow and carpus. Note the axis of the forearm is parallel to the table. Also note the position of the sand bag relative to the carpus (it does not sit on the toes).



Stifle

☒ cranio-caudal (CC)

- dog in sternal
- lift the contralateral hind leg, with the stifle flexed and keep it on a sandbag
- support the side of interest with a sandbag under the flank
- the general feeling is that the dog will roll towards the leg of interest
- the leg of interest tends to move medially - keep it straight with a wedge/sandbag - it should be parallel to the spine
- collimate long from proximal femur to tarsus

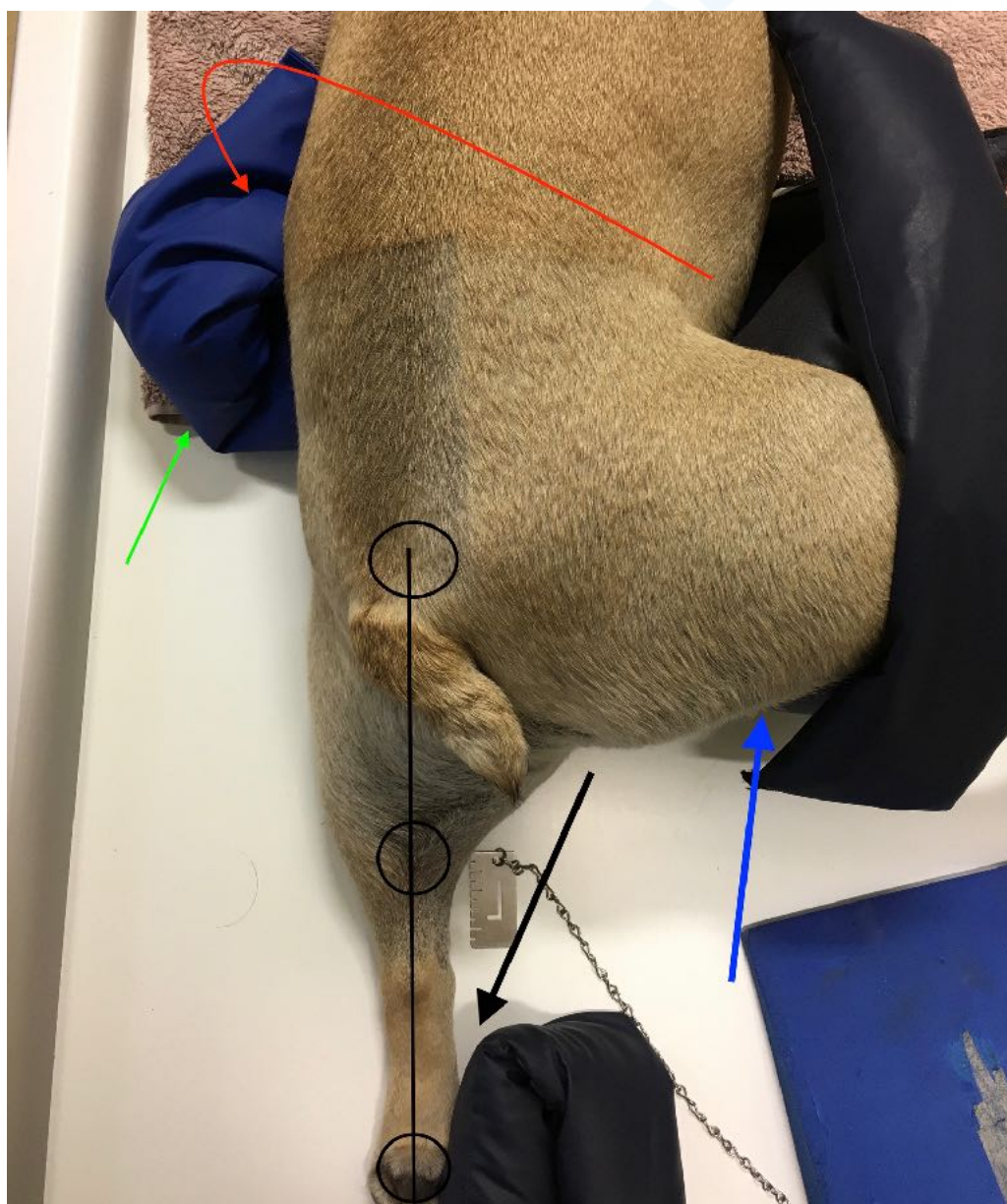


Image 6. Cranio-caudal view of the stifle. Black circles are hip, stifle and toes. Note the alignment of the leg. A sandbag holds the leg straight (black arrow). The right leg is secured with sandbags (blue arrow). The body is rotated towards left (red arrow) and supported by a sandbag (green arrow).



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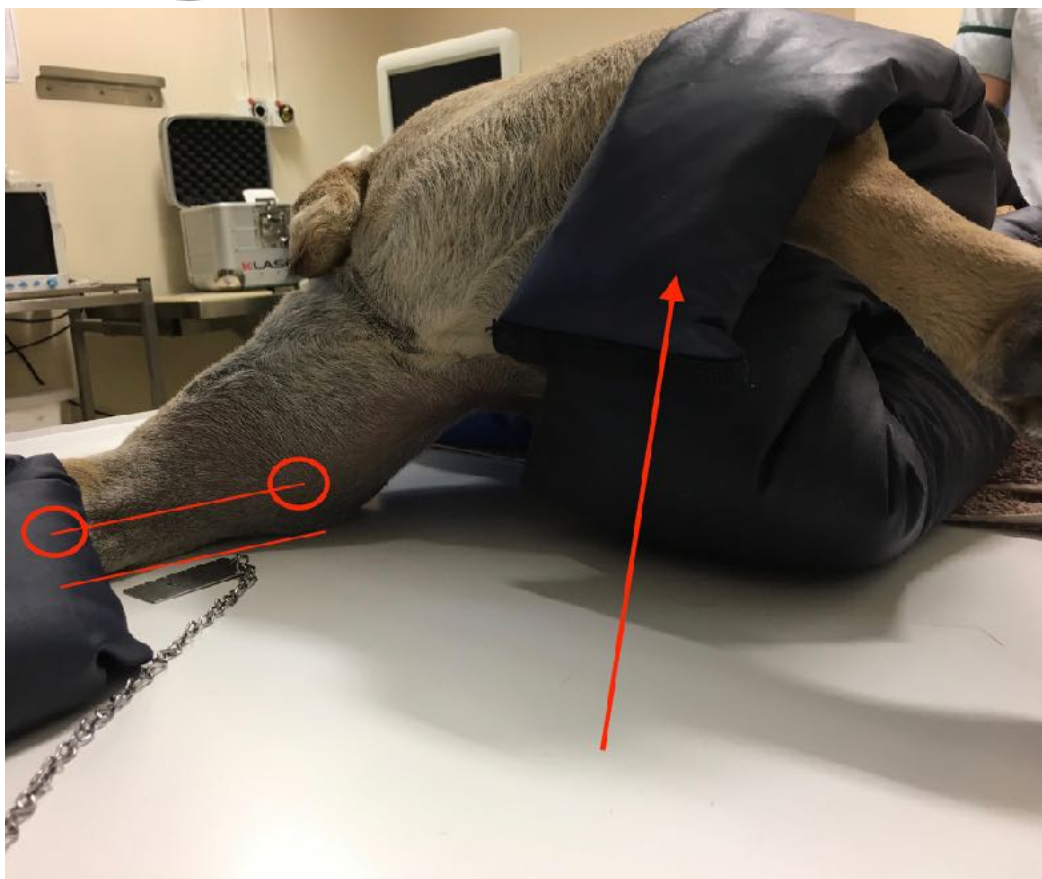


Image 7. Cranio-caudal image of the stifle. Note the axis of the tibia is parallel to the table. Also notice the high positioning of the right leg.

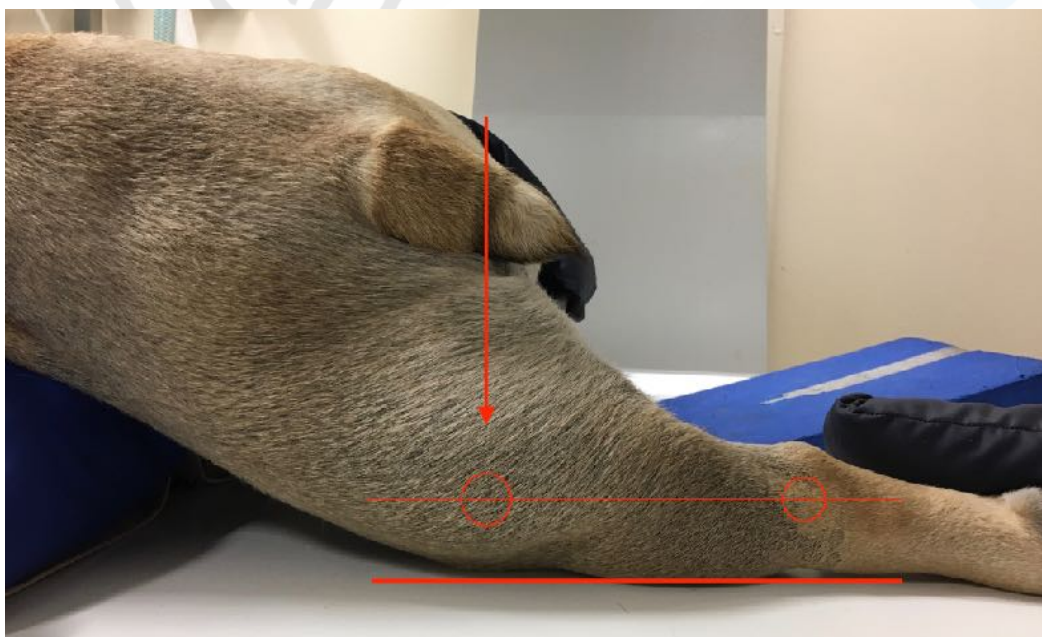


Image 8. Cranio-caudal view of the stifle. Please note the collimation point (red arrow).



☑ medio-lateral (ML)

- lateral recumbency, leg of interest down
- lift the upper leg, flex the stifle and pull backwards slightly; keep it there with tie/rope or sandbag
- leg of interest - flex the hock to around 100 and the stifle to approximately 100 degrees
- place a 30 degree wedge under hock - the aim is to keep the hock at the same level with the patella
- collimate wide - this is important - from proximal femur to hock, inclusive

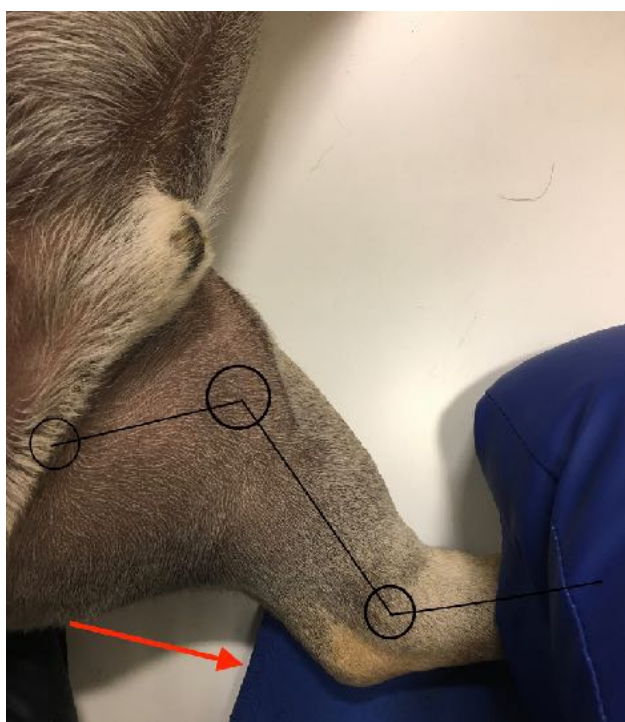


Image 9. Mediolateral view of the stifle. Circles represent hip, stifle and hock. Note the wedge that supports the hock (red arrow). Note the sandbag that forces the toes down to the table.

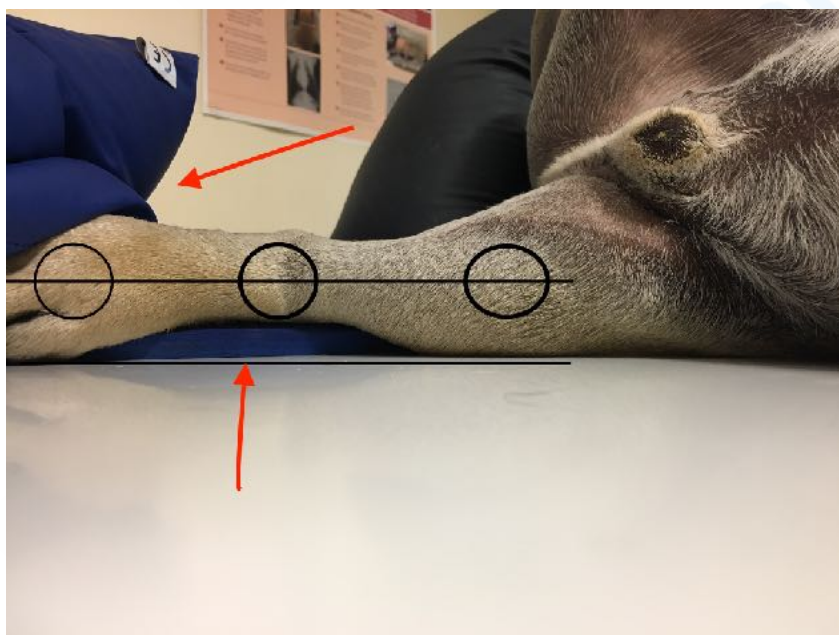


Image 10. Mediolateral view of the stifle. Note the stifle - hock - toes axis is parallel to the table. Note the wedge supporting the hock and the sandbag over the toes (red arrows).



Hips

☑ latero-lateral (LL)

- suspected hip down and the femur forward
- upper femur back - support it with a sandbag so it will remain roughly parallel with the table
- check the thorax: sternum and spine should be parallel - this usually aligns the pelvis
- collimate from distal femur to spine and from rectum to lumbar L3 or more cranial

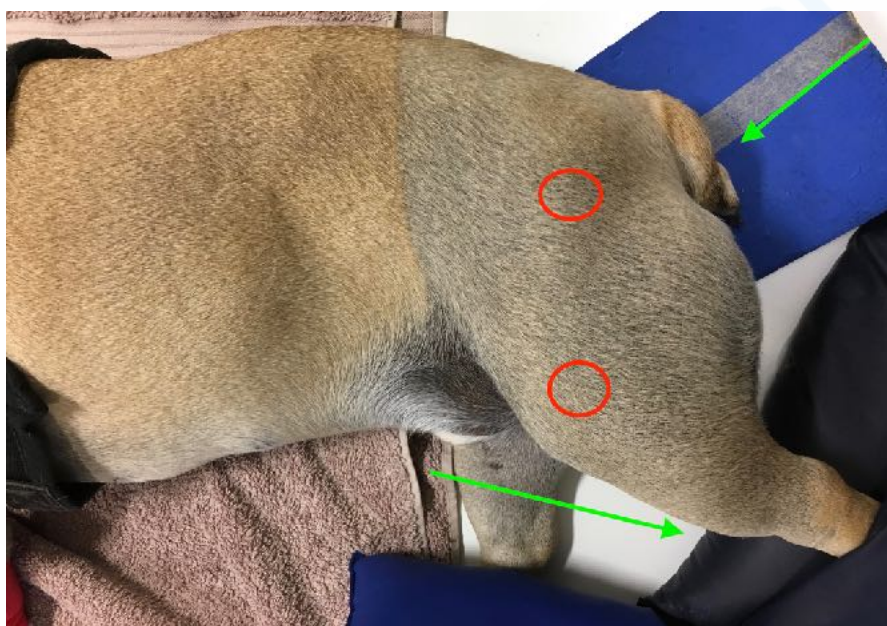


Image 11. Laterolateral view of the pelvis. The circles represent the hip and stifle. Note the wedge supporting the ischium rotation and the sandbag supporting the upper hind leg (green arrows).

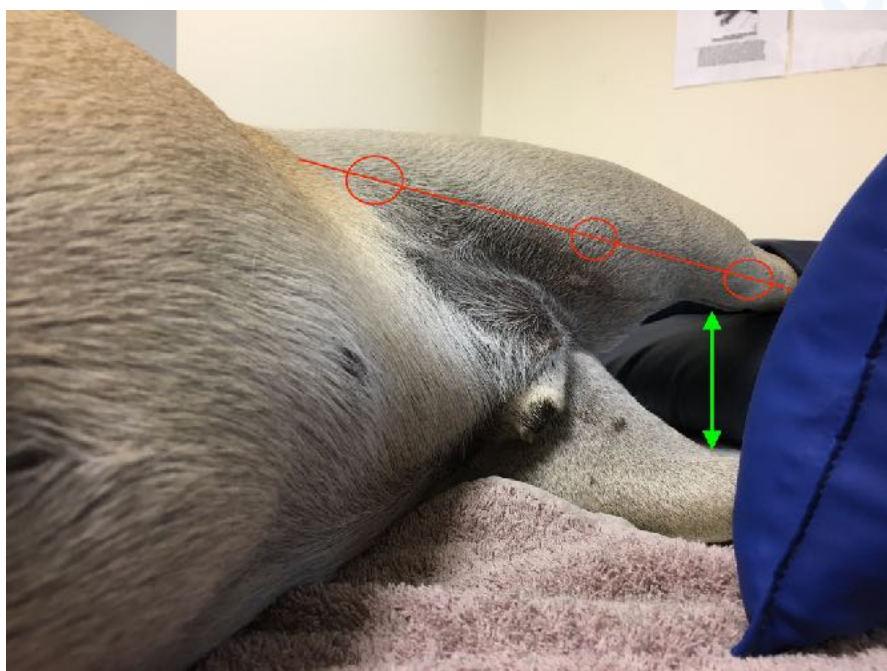


Image 12. Laterolateral image of the pelvis. Note the axis of the upper leg is parallel to the table (due to the parallax the axis seems oblique in this picture).



☒ ventro-dorsal (VD)

- dog in dorsal recumbency - stabilise with trough (you can add wedges in the trough) or sandbags
- pull hind legs towards back - aim for hock to be 5-10 cm from the table
- tape over the patellae - tape tight as the medial thigh muscles will oppose the position; mnemonic 'tape it like you mean it' comes to mind
- extend the hips, rest them on a sand bag and place another sandbag to keep them in position
- align the thorax; usually a straight thorax makes a straight pelvis
- collimate long, from distal femurs to middle lumbar spine

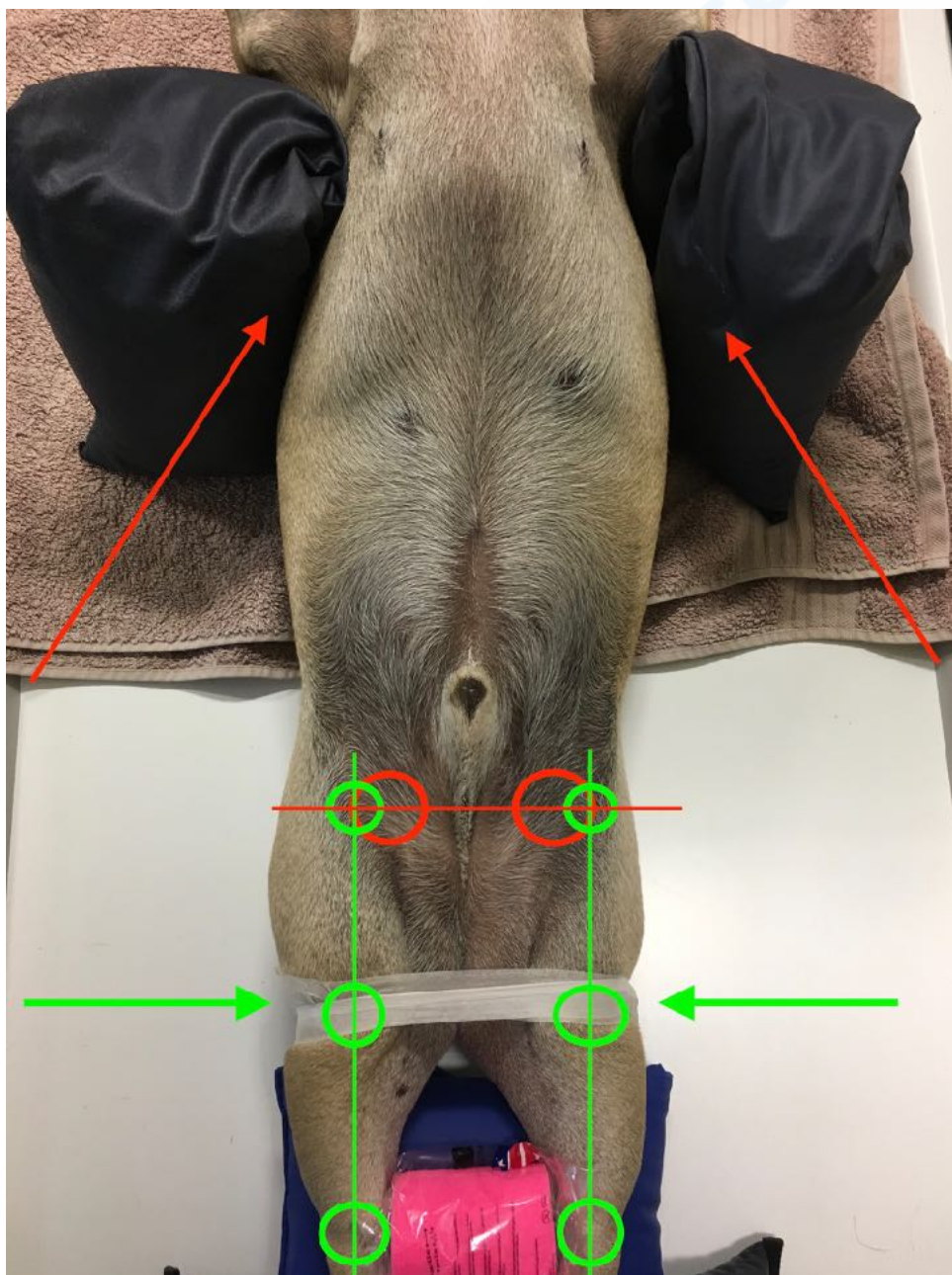


Image 13. Ventro-dorsal image of the pelvis. Green circles are trochanters stifles, hocks. Red circles are hips. Notice the axis of the hind legs: they are parallel to each other. Notice the hocks are aligned with the help of Vetrap (but any radiolucent material will do). Notice how tight the tape is (green arrows). Notice the sandbags for support and alignment (red arrows).



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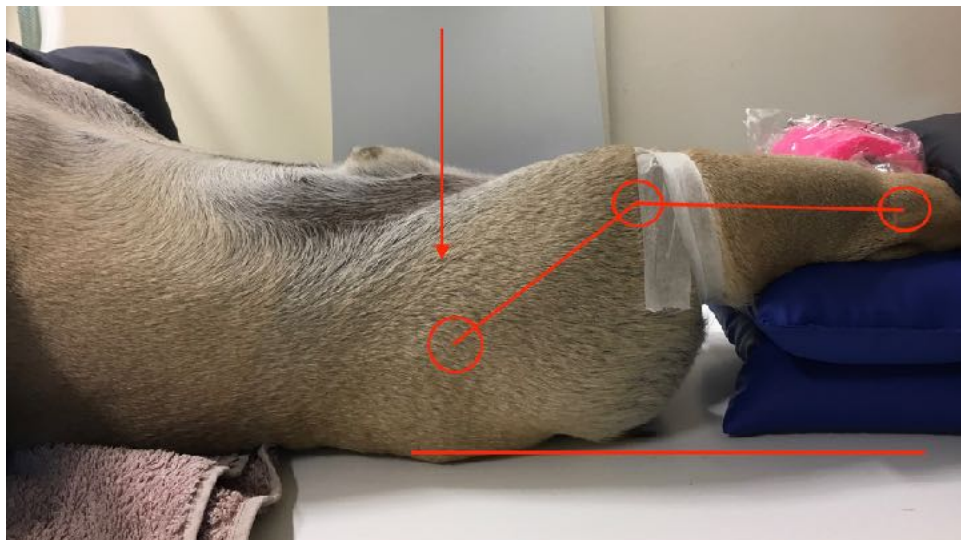


Image 14. Ventro-dorsal view of the pelvis. The red arrow is the collimation point. The tibial axis should be parallel to the table but this is not always possible.