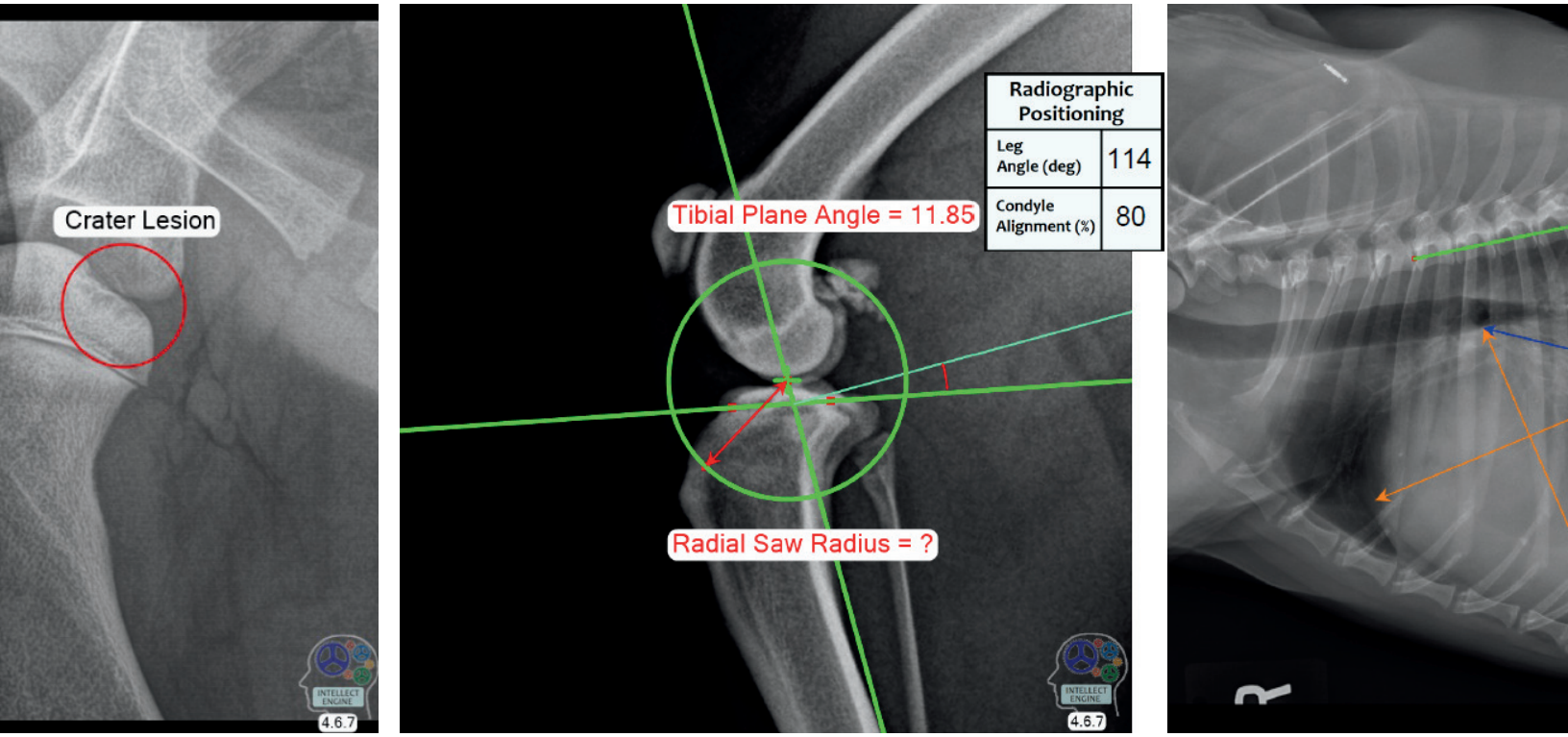
METRON INTELLECT MODULE

COMPANION ANIMAL DIAGNOSTIC REPORTS



GENERATED BY EVIDENCE-BASED ARTIFICIAL INTELLIGENCE

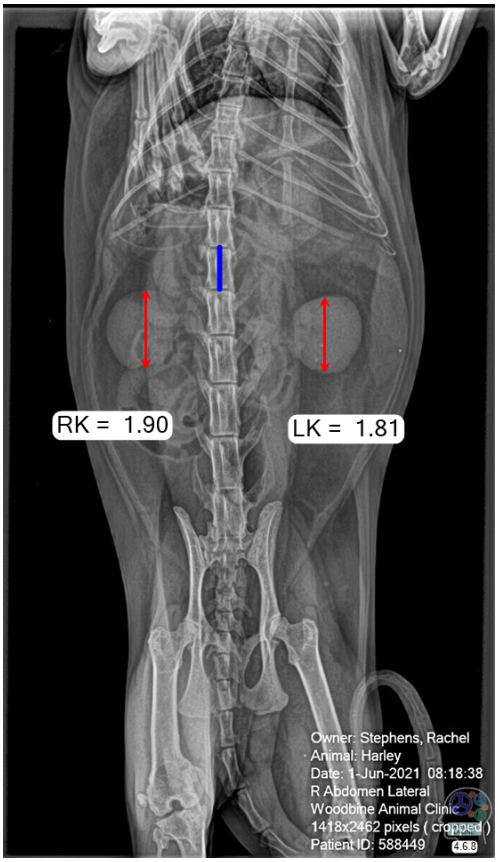
VETEL

Feline Kidney Size

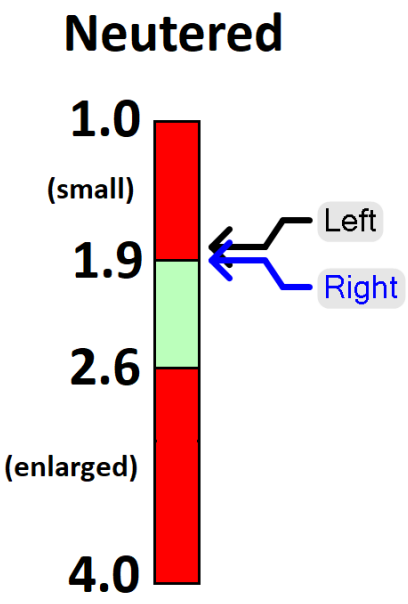
Metron-IQ

19:39:40

SampleOwner / SampleCat / 20-Mar-2025



Kidney size is assessed by forming the ratio of kidney length over the length of the L2 vertebra. This measurement of kidney size, when compared to published norms, is one way to help assess the state of the kidneys in the cat. Use this data in combination with all relevent clinical information.



The right kidney is small with a kidney to L2 ratio of 1.90.

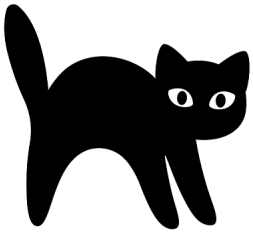
The left kidney is small with a kidney to L2 ratio of 1.81.

Small kidneys are consistent with chronic renal disease. Clinical significance should be correlated with bloodwork. A special diet could be considered:

Hill's Prescription Diet k/d

Reference: Shiroma et al, 1999

Algorithm Notes



Interpretation and Notes

If both kidneys are smaller than normal in your cat, it could suggest chronic kidney disease (CKD) which is a very common condition in older cats. However, radiographs only provide limited information, and further diagnostic steps are essential.

What These Results Might Indicate

- Chronic Kidney Disease (CKD) is quite likely
  - * Chronic degeneration and fibrosis cause the kidneys to shrink over time.
  - * Kidneys may become: Smaller, Irregular in shape, Less distinct in margins
  - * Common in older cats, especially over age 10.
  - * Early CKD may still show normal kidney size, so small kidneys may imply advanced damage.
- Other (less common) causes of bilaterally small kidneys:
  - * Congenital hypoplasia (kidneys never developed fully; rare)
  - * End-stage renal disease from previous toxin or infection
  - * Post-inflammatory scarring (e.g. from feline infectious peritonitis)

Recommended Follow-Up

- Bloodwork
  - * BUN, Creatinine, and SDMA to assess global kidney function
  - * Check electrolytes, phosphorus, potassium, etc.
- Urinalysis
  - * Look for concentrating ability (USG), protein, or signs of infection
  - * UPC ratio if proteinuria is found
- Blood Pressure Check
  - * Hypertension is common in cats with kidney changes
- Abdominal Ultrasound (Highly Recommended)
  - * Gives a detailed look at internal kidney structure
  - * May provide evidence of hydronephrosis, stones, tumors, or other issues

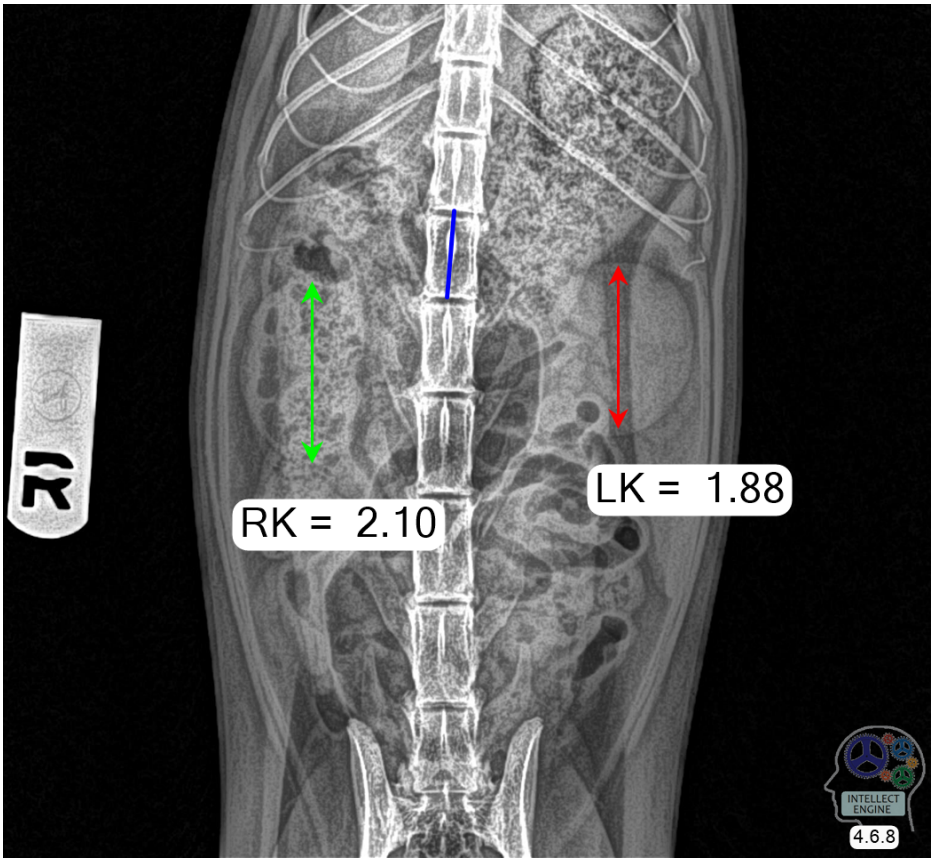
Prognosis / Action

- Lab work rules out CKD → Explore less common causes, including congenital issues
- Other tests confirm CKD → Chronic and irreversible, but manageable, especially in early stages. Special renal diet is recommended.

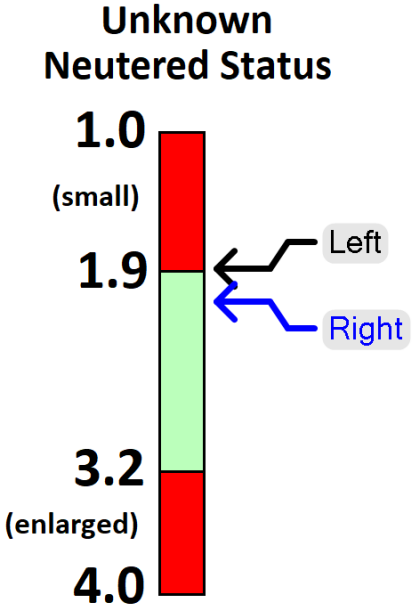
Feline Kidney Size

18:39:40

SampleOwner / Kitty / 26-Jan-2025



Kidney size is assessed by forming the ratio of kidney length over the length of the L2 vertebra. This measurement of kidney size, when compared to published norms, is one way to help assess the state of the kidneys in the cat. Use this data in combination with all relevent clinical information.



The right kidney size is normal with a kidney to L2 ratio of 2.10.

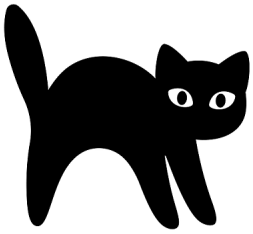
The left kidney is small with a kidney to L2 ratio of 1.88.

Small kidneys are consistent with chronic renal disease. Clinical significance should be correlated with bloodwork. A special diet could be considered:

Hill's Prescription Diet k/d

Reference: Shiroma et al, 1999

Algorithm Notes



Interpretation and Notes

If your cat has one kidney that is smaller than normal and the other kidney is normal in size, it raises several possible interpretations. This asymmetry in kidney size is a clinically important finding and can point to a variety of underlying conditions.

What These Results Might Indicate

- Chronic Kidney Disease (CKD) affecting one kidney. The smaller kidney may be scarred or atrophied due to:
  * Past infection, inflammation, or trauma
  * Obstruction (like a ureteral stone) that caused damage over time
  * The normal-sized kidney may be compensating, doing more of the filtration work
  * Common in middle-aged to older cats
- Congenital Hypoplasia (underdeveloped kidney). The small kidney may have never developed fully.
  * The other kidney typically enlarges (compensatory hypertrophy) to maintain function
  * Often asymptomatic unless the functioning kidney becomes diseased later
- Previous Kidney Injury. From ischemia (poor blood supply), toxins, or trauma.
  * Causes permanent shrinkage and loss of function in one kidney
- Chronic Obstructive Uropathy. Past or current ureteral obstruction (stone, stricture) can cause long-term damage
  * A history of straining to urinate, vomiting, or pain may be present

Recommended Follow-Up

- Bloodwork
  * BUN, Creatinine, and SDMA to assess global kidney function
  * Check electrolytes, phosphorus, potassium, etc.
- Urinalysis
  * Look for concentrating ability (USG), protein, or signs of infection
  * UPC ratio if proteinuria is found
- Blood Pressure Check
  * Hypertension is common in cats with kidney changes
- Abdominal Ultrasound (Highly Recommended)
  * Gives a detailed look at internal kidney structure
  * May provide evidence of hydronephrosis, stones, tumors, or other issues

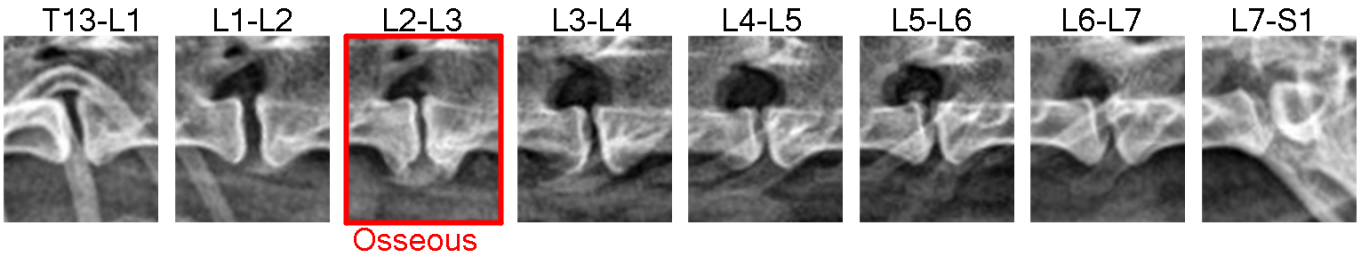
Prognosis / Action

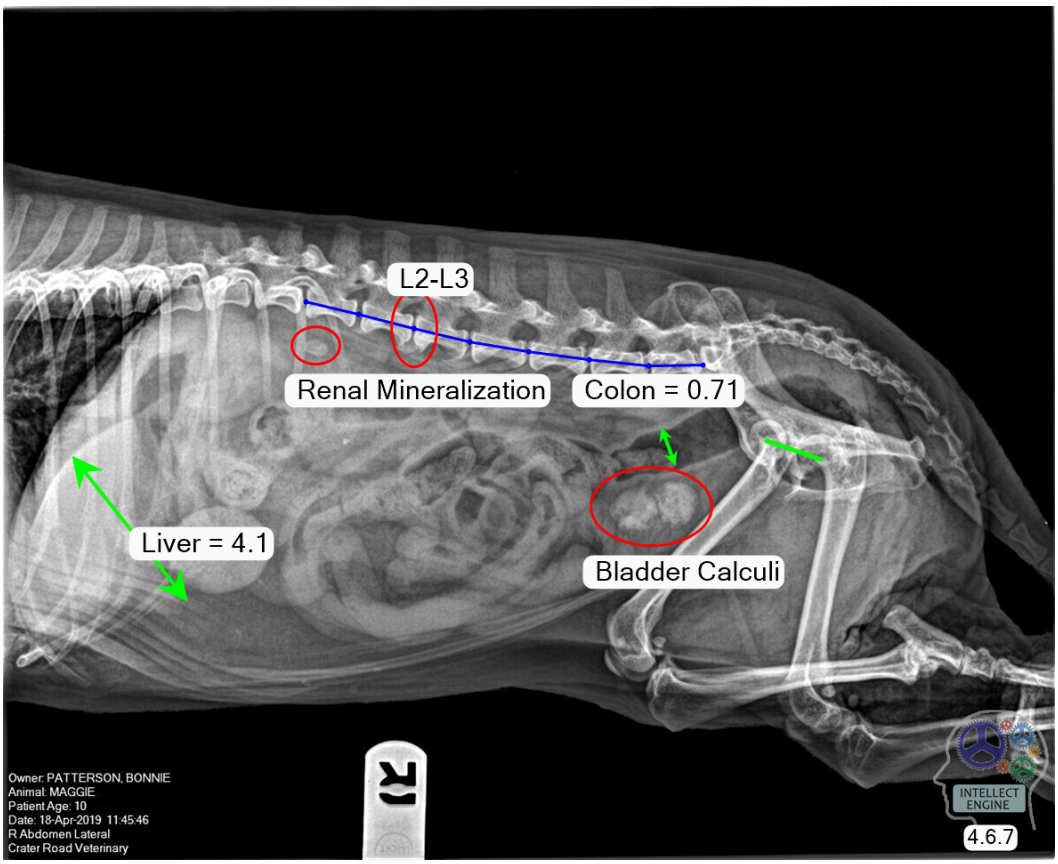
- Small kidney + normal lab work → Likely past injury or congenital issue.Recheck periodically.
- Small kidney + abnormal bloodwork → Likely unilateral CKD with possible early disease. Suggest a special renal diet.

Canine Abdomen

11:47:12

Smith / Yodo / 8-Jul-2022





T13-L1	Pregnant	Urethral Calculi
L1-L2	Barium Swallow	Visible Prostate
L2-L3	Mild GD	Enlarged Colon
L3-L4	GD or GDV	Rotation
L4-L5	Enlarged Liver	(OK= Found= N/A= Info=)
L5-L6	Micro Liver	
L6-L7	Renal Mineralization	
L7-S1	Bladder Calculi	

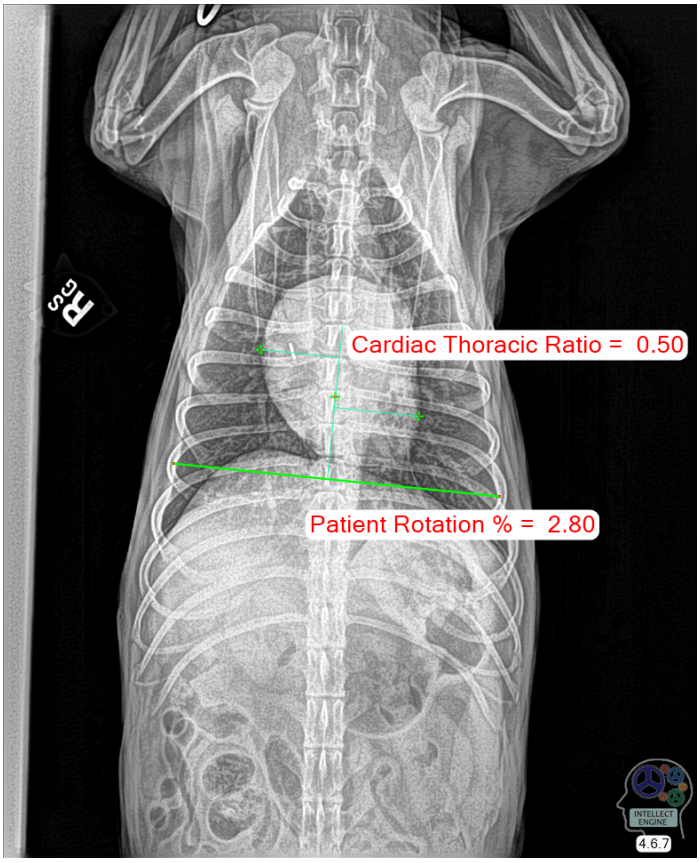
Algorithm Notes

References: J. Choi et al., 2013

Cardiac Thoracic Ratio

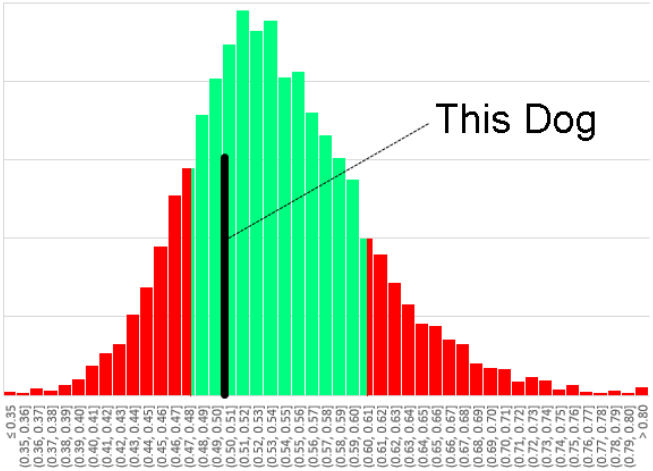
11:47:12

Smith / Yodo / 8-Jul-2022



The Cardiac Thoracic Ratio measurement is one way to help assess the size of the canine heart. It measures the size of the heart as a fraction of the width of the thorax at the 8-th rib. Use this result in combination with all relevent clinical information. Patient rotation less than 5% is best.

Cardiac Thoracic Ratio (CTR) for 14,231 Dogs



Distribution of 14,231 mixed breed dogs

The CTR measurement for this dog is 0.501. This value is indicated on the histogram to the left by the vertical black line. Large values might indicate cardiomegaly, small values might indicate microcardia.

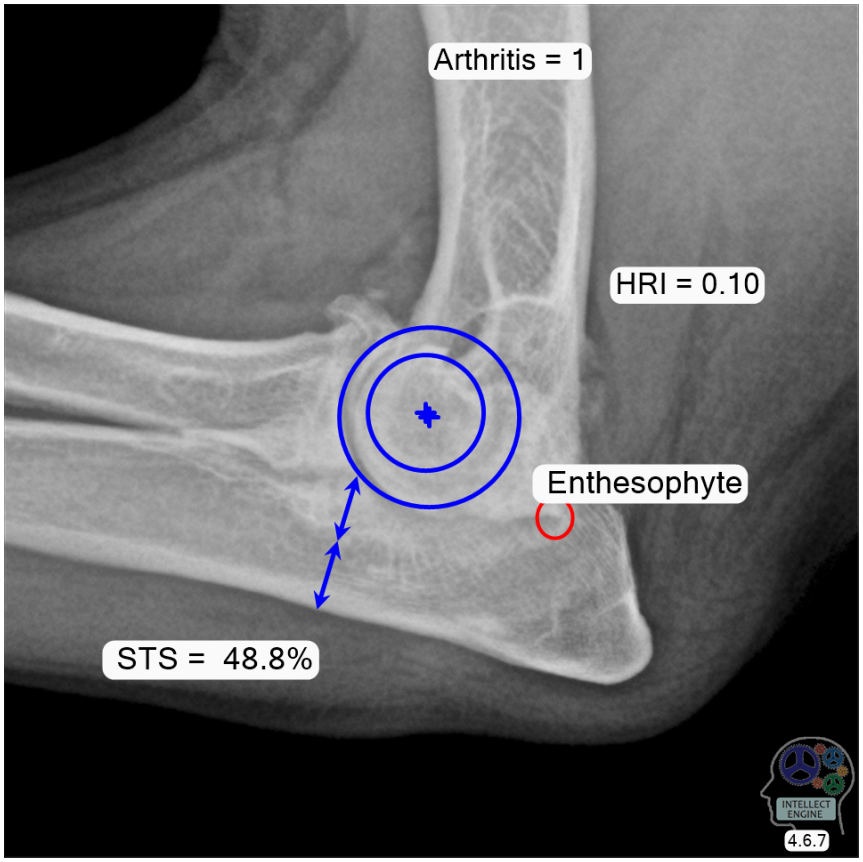
The CTR is within the central 70% of dogs.

Reference: Azevedo et al, 2016

Algorithm Notes

Canine Elbow

17:11:10



Elbow Health Score: 74%

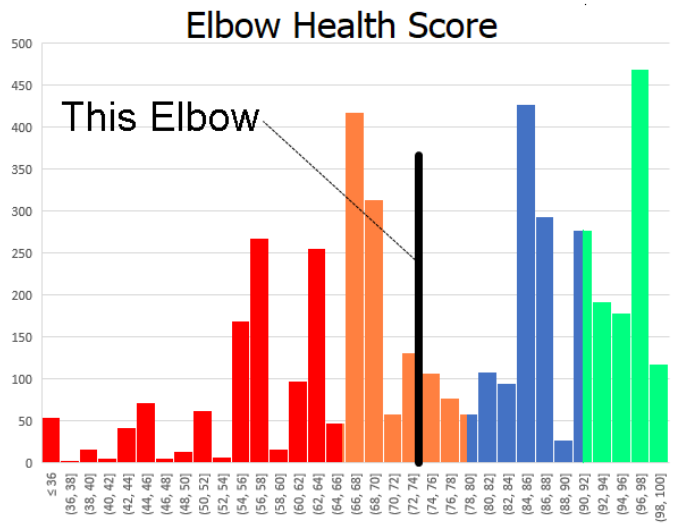
UAP
Enthesophyte
HRI (0.10)
STS (49%)
Arthritis (1)
Elbow Angle (96.1 deg)
(OK= Found= N/A= Info=)

References for understanding these measures

HRI: A. Mostafa et al., 2019

STS: T.J. Smith et al., 2009

Several measurements have been made on this image. You can learn more about each of these measures by clicking on the blue links in this report. In order to give an overall numeric assessment, we have computed the 'Elbow Health Score' based on what is visible in this radiograph. This measure, serves as one data point for the veterinarian, to help monitor the pet's well-being.



'Elbow Health Score' for 4,485 elbows

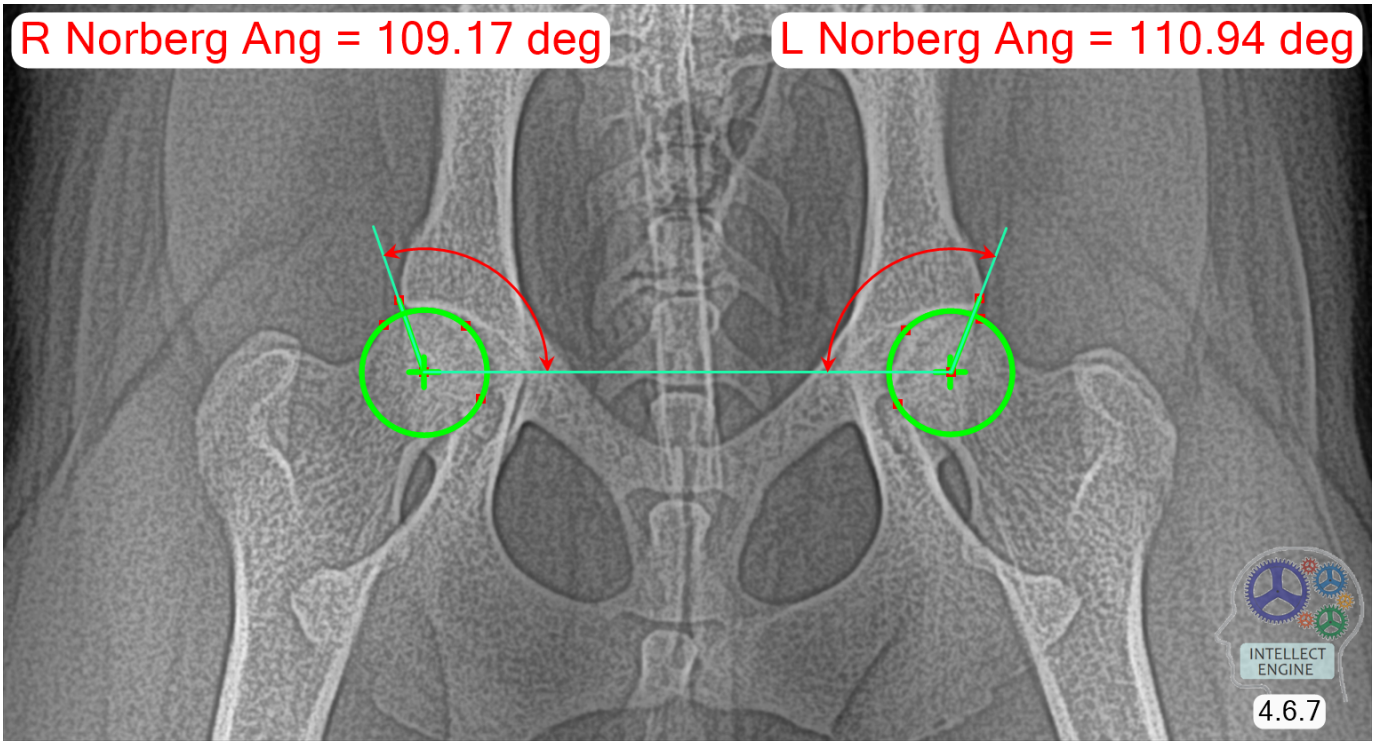
The 'Elbow Health Score' for this elbow is 74%
This value is indicated on the histogram to the left by the vertical black line. The further to the right on this diagram, the better.

This elbow is in the 3rd (below ave) quartile.

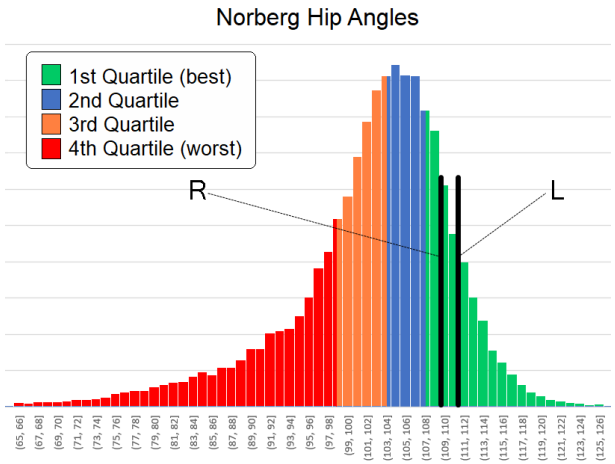
Algorithm Notes

Norberg Hip Report

17:16:01



The Norberg Hip Angle measurements are one way to help assess the morphology of canine hip joints. Each hip joint is assigned a score - the larger the value, the better. The measurement is used as an indicator in combination with other relevent clinical information.



Distribution based on 29,000 canine hips

The Norberg measurements for this pet are 109.2 for the right hip and 110.9 for the left hip. These values are indicated on the histogram to the left by the vertical black lines. The further to the right on this diagram, the better.

The right hip is in the 1st (best) quartile.

The left hip is in the 1st (best) quartile.

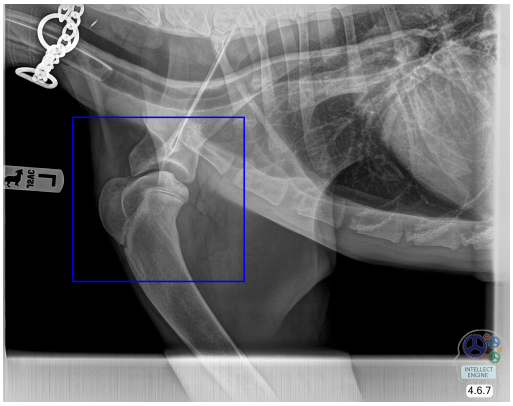
Reference: M. Flückiger, 2007

Algorithm Notes

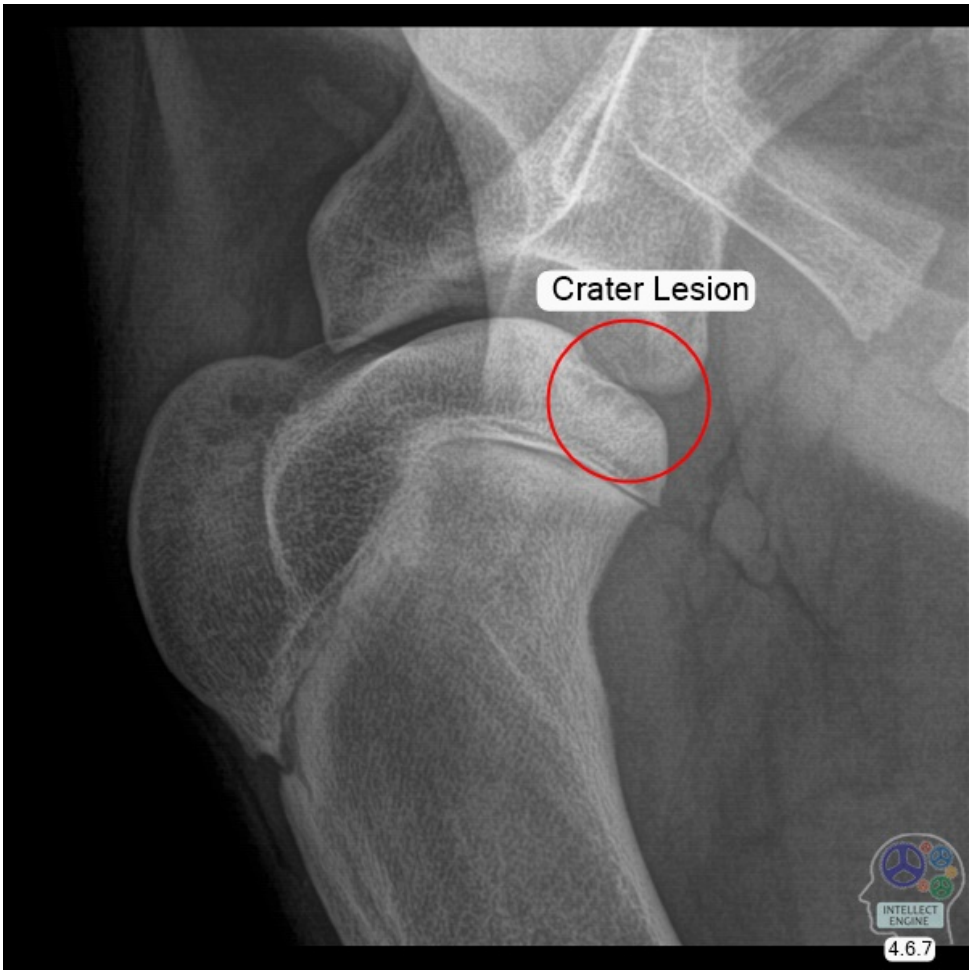
Canine Shoulder

10:13:18

Smith / Yodo / 8-Jul-2022



Original Image



Zoom in on Shoulder

The area around the shoulder joint has been checked for various anomalies. If an anomaly was found, it is circled in red on the large image above, and is highlighted in red on the indicator below. Green indicators below signify that the named anomaly was not found. Yellow indicators signify that the determination could not be made for this image.

Crater Lesion	Osteochondroma
Caudal Capsule Osteophyte	Humeral Lysis
Caudal Sac Osteophyte	Frac Supraglenoid Tubercle
Caudal Capsule Ossicle	Humeral Sclerosis
Caudal Sac Ossicle	(OK= Found= N/A= Info=)
Bicipital Tendon Anomaly	

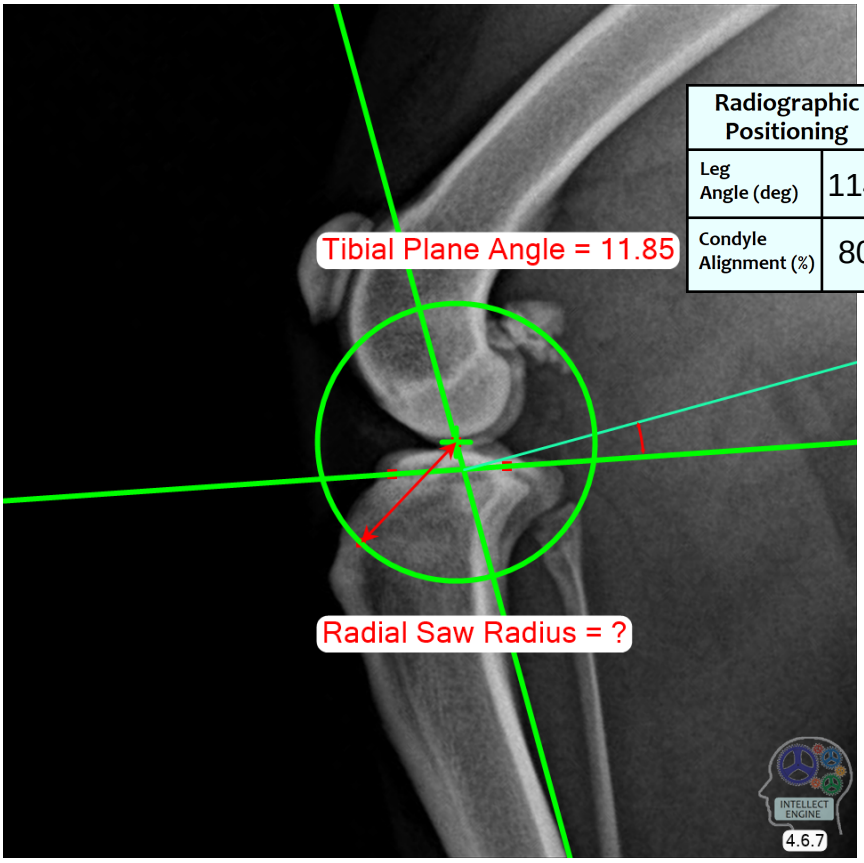
Algorithm Notes

Reference: King et al, 2017

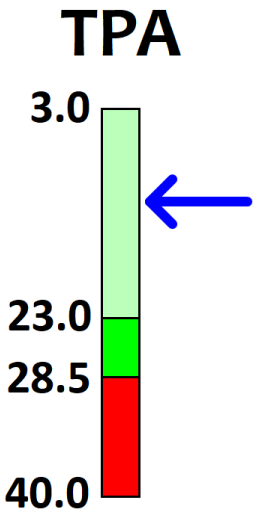
Canine TPLO Report

11:47:12

Smith / Yodo / 8-Jul-2022



The Tibial Plane Leveling Osteotomy (TPLO) is a procedure to lower the effective value of the Tibial Plane Angle (TPA). High values of TPA are weakly correlated with risk of CCL damage. Other stifle procedures might also be considered.



The TPA measurement for this stifle is 11.8 degrees and is indicated on the diagram to the left by the blue arrow.

The Tibial Plane Angle (TPA) of the stifle joint is normal or low.

For best results, position the leg with the stifle flexed so that 'Leg Angle' is 90 degrees.

To calibrate for saw sizing, please use our 'AutoScaler'

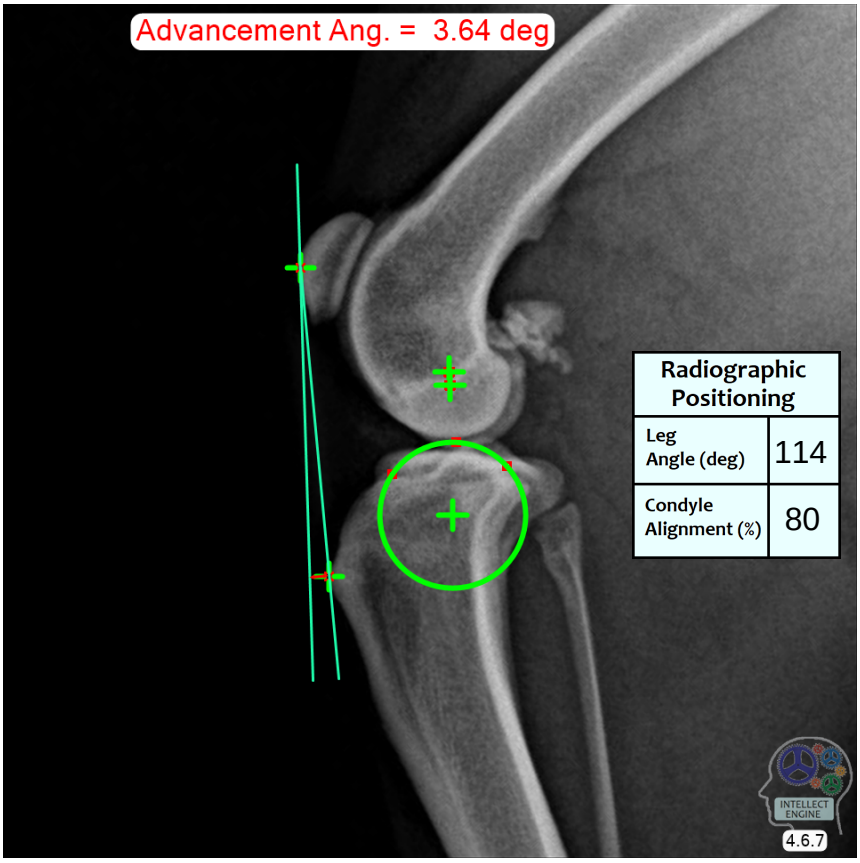
Ref: Todorovic et al, 2022

Algorithm Notes

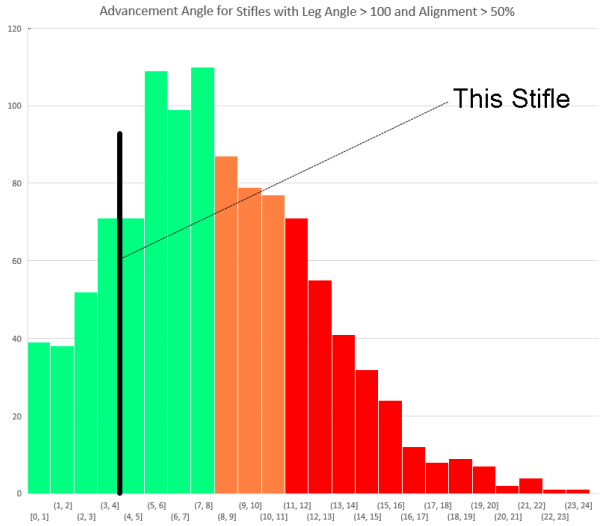
Canine TTA Report

11:47:12

Smith / Yodo / 8-Jul-2022



The Tibia Tuberosity Advancement (TTA) is one measurement made to help assess whether this stifle might benefit from the TTA procedure. If the measured advancement is large, the TTA procedure might be of benefit. Other stifle procedures might also be considered.



Distribution for dogs under veterinary care

The TTA measurement for this stifle is 3.9 degrees and is indicated on the histogram to the left by the vertical black line. The green-colored region of the graph represents the 'normal' range.

The relative positioning of the bones of the stifle joint appear normal. This stifle probably would not benefit from the TTA procedure.

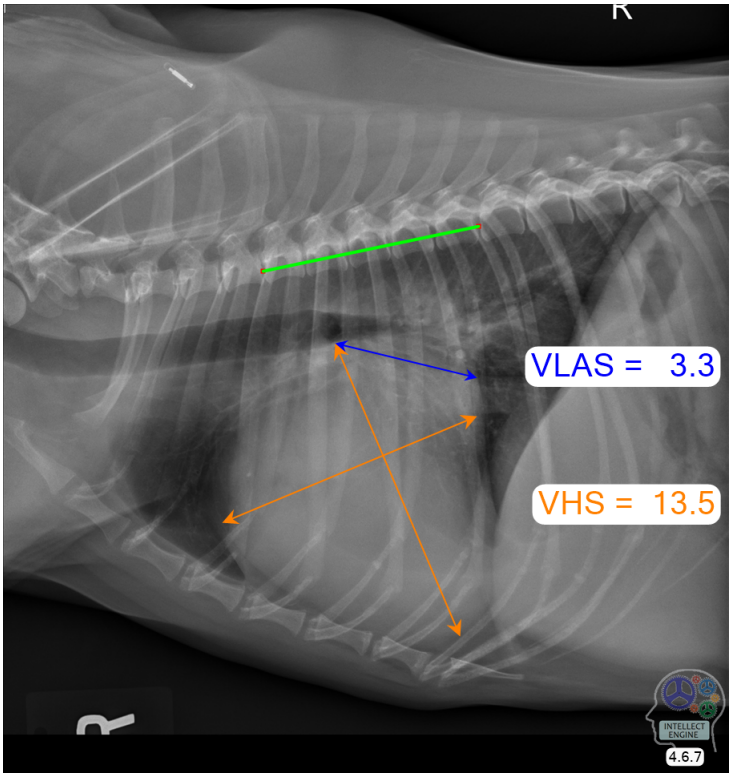
Ref: Background Info on TTA

Algorithm Notes

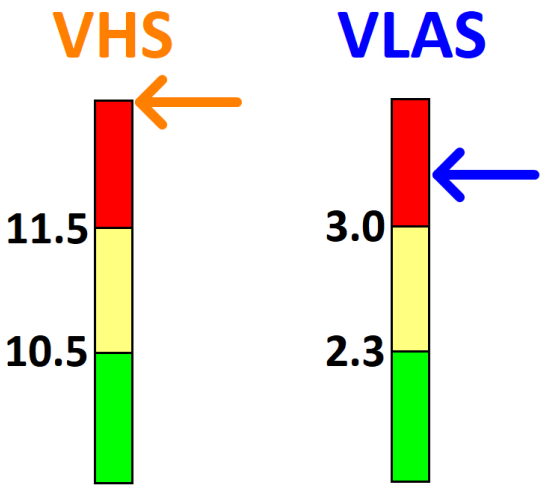
Canine VHS/VLAS Report

11:47:12

Smith / Yodo / 8-Jul-2022



The Vertebral Heart Size (VHS) and Vertebral Left Atrial Size (VLAS) are two objective measurements of heart size, which in combination with other clinical data, can help stage acquired canine heart disease including myxomatous mitral valve disease (MMVD) and dilated cardiomyopathy (DCM).



Analysis powered by www.MetronMind.com

Algorithm Notes

In the absence of an echocardiogram, older small breed dogs with moderately loud murmurs consistent with mitral regurgitation can be considered Stage B2 if the VLAS is >=3.0 and or the VHS is >=11.5. In large breed dogs suspected to have heart disease, VHS >=11.5 is strongly supportive of clinically relevant cardiomegaly and warrants additional evaluation.

References for understanding these measures

Ref: The Cardiac Education Group

Ref: The ACVIM MMVD guidlines

Ref: Large Breed Dogs

Breed-Specific for norwich terrier

VHS Normal Range: 9.4 - 11.8 (Mean +/- 2 SD)

Ref: Colin Taylor et al (2020)

These results should be considered in light of all relevant clinical information.