

COLOUR VISION IN THE DOG: A BRIEF SUMMARY

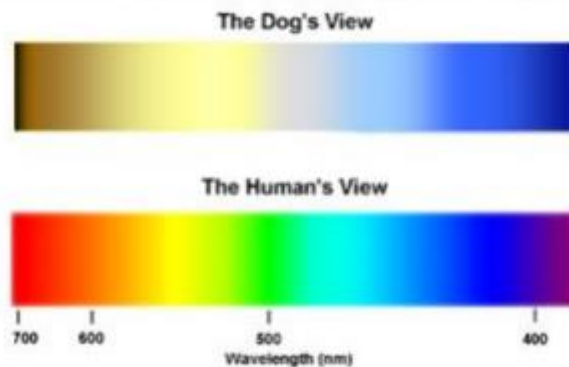
Colour Vision

Early research into colour vision in the dog was previously debated. Even in the present day some general dog health text books note inaccurate information relating to this area. For example: *“it is believed that dogs are colour blind and only see in black and white”* (Bleby and Bishop, 2003, P277).

Research has proven that dogs do possess dichromatic colour vision, (they can see two colours similar to that of the human blue-yellow system) (Neitz et al., 1989). In comparison, humans and some primates have colour vision (blue-yellow, red–green system) where they are able to see all primary three primary colours, known as trichromatic vision (Neitz et al., 2001). The retina of a dog contains only 10 – 20% of the cones which humans possess which are located within the central area of the retina which means colours to dog may not be as intense in comparison to humans (Miller et al., 1995; Cook, 2009).

Dogs have two types of cone photoreceptors which include short wave sensitive or Scones (sensitive to wavelengths between 429 to 435 nanometers (nm)), seen as blue and longwave sensitive or L cones (sensitive to light wavelength of 555nm) seen as yellow See Figure 1. The region between 475 – 485nm is a spectral neutral point which is likely to appear white or grey to dogs which would appear green or light blue to humans (Neitz et al., 2001). Therefore, dogs may have difficulty in differentiating between colours which humans see as green, orange or red (Neitz et al., 1989; Miller, 2001).

How the spectrum looks to dogs and people



(Permission to use from Prof Coren (see Coren, 2008))

Dog Vision Tool

On the dog vision website (<https://dog-vision.com/>) a tool allows a standard image to be processed and displayed as a dog may visualise this. For example the below is a comparison between canine colour vision and human colour vision using the Kennel Club Image and equipment images as examples. However, it should be noted that the accuracy of this online software is unknown, but the website does explain the technical details (<https://dog-vision.com/technical.php>). Note: the visual acuity (clarity of vision) can be affected by the quality of the image and DPI of the computer screen.

Dog Colour Vision



Human Colour Vision



Equipment colour example using Dog Vision Tool (Visual Acuity: 2)



References & Further Reading

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