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How animals see color

**Introduction**

Life is all about colors, in the absence of color, everything looks bleak and monotonous. It would not be wrong to say that colors are the soul of life. Cat, one of the most famous animals is assumed to be fascinated by life the same way as that of humans because of active involvement but science has dragged mentality towards another avenue. “How cats see color” is of significant importance because cats or felines are one of the best friends of human. Cats are the type of animals that are equally participating in life as that of humans, taking into account the fact that they are assumed to see the world much like humans. In accordance with scientific approach and word of mouth, it is asserted that dogs are color blind so are cats. The topic I chose, “how cats see color” is much relevant to my life because I like cats and I own cats. Sometimes I observe that my cats are good at color judgment, they like to sleep on cushions of specific colors and they have specific attachment to few things. Sometimes my cats react too strange with colors like blue and aqua. The stance of observation highlight, “cat’s perspective about colors”. Do they see color? Do they perceive the world in the same way as we do?

**Discussion**

There are different justifications that reflect how cats see colors and this colorful world. People have associated a myth that cats are colorblind because this question has been tickling the minds of people and scientists for so long. It is important to note that the myth has been proven false almost half-century ago. The myth seems to be backup even by the impact of certain experimentations as well. In 1915, the University of Colorado issued a research paper that comprises of research in which two scientists aimed at knowing either cat can see colors or not. In order to prove it, scientists conducted an experiment in which two jars were taken; one of the jars was wrapped with gray paper and others with some other colored paper. Both the jars were placed before the cat and it was determined that if the cat will touch colored jar with its paw or nose it will get a fish but if cat will touch the grey jar, it will get nothing. After 100,000 tries and experimentation of 18 months, the tested cats picked the colored jars in half the time. It is significant to note that the odds were having the ratio of 50/50 in the first place and it proved that cats couldn’t see the colors. (Seidensticker, 2016).

In accordance with this research, it was asserted that cats could not see colors but it was also stressed that cats have both rods and cones. This fact of having cones and rods, paved the way for another research, in a more scientific way. It incorporated electrodes, neurologists wired up the cat’s brain and various sides of colors were shown. It was recorded that the brain of cat responded and distinguished between the different shades of colors. In accordance with the experiments conducted in 20 century, whatever facts were proved by the two researchers in 19 century were negated, it was asserted that cats have the ability to see colors but they have little ability to differentiate between the different sections of color spectrum. This condition is same, like that of human color blind experience known as, deuteranopia. (Rotaru, et al. 2018, pp. 84-88).

It is significant to note that, research has proven, cats see colors differently than other humans. It is the reason behind the fact that the images from the cat's eye look less vibrant as compared to the version of human vision. Many of the scientists thought that cats are dichromate and they only see two colors, but it is not the case. It is important to note that the photoreceptors in cat's eye are more sensitive to the wavelength ranging from blue-violet to greenish yellow wavelengths. (Rochlitz, et, al. 2018, pp. 52-80). An exegetical analysis infers that cats are able to see tints of green color as well. In other words, cats are color blind to red-green color with a minor reflection of green as well. It is highlighted that cats are able to see better in the conditions with low light. It is assertive that the presence of two types of cons in contrast to human's three types of cons has resulted in variation regarding perception of colored objects in world. (McGregor, 2016, pp. 63). As cats are assumed to see few shades to colors, an interesting fact is, cats are good at watching colors at one-sixth of light, taking into account that cats don’t require ample light to see objects around. It is also asserted that cats could not see all colors and they are red-green colorblind.

It is scientifically proven that color is discerned with the help of nerve cells that are present in cat’s eye. There are two types of cell in the retina of eye, cones, and rods. The ability of any species to differentiate between colors is dependent on the presence of color sensitive cells, also called cones. In contrast to humans, cats have 10 times less number of cones as that of humans so cats cannot perceive the full range of colors. (Rochlitz, et, al. 2018, pp. 52-80). Many of the scientists assert that cats can only see blue and grey color while other researchers think that cats can also see yellow color much like canine counterparts. It is interesting to note that cats have eight times more rod cells as compared to humans and it makes them more sensitive to low light. Moreover, the elliptical eye shape and larger cornea and tapetum referring to a layer of tissue have better potential to reflect light back to the retina. The tapetum can shift the wavelength of light that cats can see, making them good at preying others against a night sky. The presence of a large number of rod cells facilitates cat to sense motion in dark as compared to humans. (Rochlitz, et, al. 2018, pp. 52-80).

Research has highlighted that cats have a wider view of world i.e. 200 degrees as compared to that of humans referring to 180-degree view. In accordance with science, cats have a greater range of peripheral vision, having the potential to spot a mouse even from the corner. It is asserted that cats are crepuscular; they are active at both dawn and dusk. (Feldman, et, al. 2018). The clearness of vision is one of the major aspects that play a significant role in color vision. Human eye has the visual activity of 20/20. It is asserted that the visual activity of cat is somewhere between 20/100 to 20/200 that means that a cat has to maintain a distance of 20 feet to see what a human eye can see from 200 feet. It is important to note that in cats, pupil dilated with the background level of 10-30cd/m2. It is sufficient to saturate the rod system for all the existing units, if the rods are saturated, the spectral sensitivity rises (Feldman, et, al. 2018).

**Conclusion**

This paper is more like a "platform" of knowledge I observe that while writing this paper I could relate a lot of things that I actually noticed in my feline friends. I observed that a scientific approach is much accurate to define what humans assume in accordance with real-life events. I came to know that humans are much blessed, they have such an extended yet mesmerizing version of this world where beauty prevails, in contrast, animals, are actually at a lower level to man, taking into account the limited approach to vision and color spectrums. It is important to know that while doing this research I was more interested in knowing the stance of couloir vision in other animals and birds. I am keen to know how color visions vary in animals and what are certain characteristics that placed one animal equivalent to others because of some traits of vision and observation. Side by side, I came to know that colors are a major tool to make a thing worth looking and attractive. Colors play a major role in shaping the spectrums of vision as well because it is the wavelength of color that demonstrates vision. It is assertive that colors are related to many factors of visions, taking into account that the number of rods, cons, placement of rods and cones are equally important. One of the significant facts is, shape is also a major factor that determines vision and colors. The research I did for cats left me with several questions as well, I am interested to know more about cats, is there any relationship between the breed of a cat and its vision towards the world. I observed that different cats have different eye color so does it infer a different approach to color recognition. I am also looking ahead to practice how my cats view different colors.

Work Cited

Feldman, Amy. *Cats of the National Trust*. Pavilion Books, 2018.

Kelber, Almut. "Vision: Rods See in Bright Light." *Current Biology* 28.8 (2018): R364-R366.

McGregor, Juliette E. "Can We See Beyond the Rainbow?." *A Flash of Light: The Science of Light and Colour* (2016): 63.

Rochlitz, Irene, and James Yeates. "Cats (Felis silvestris catus)." *Companion Animal Care and Welfare: The UFAW Companion Animal Handbook* (2018): 52-80.

Rotaru, V., et al. "How useful are signalments to diagnose otitis externa in dogs and cats." *Lucrari Stiintifice-Universitatea de Stiinte Agricole a Banatului Timisoara, Medicina Veterinara*51.3 (2018): 84-88.

Seidensticker, John, and Susan Lumpkin. *Cats in question: the Smithsonian answer book*. Smithsonian Institution, 2016.