

Fundamental Components of Life: The Science of Animal Rights

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From laboratory testing to factory farming, the exploitation of animal life to benefit mankind has become a topic of controversy in the United States. Having taken the lives of over 4.5 billion animals in 2016 alone, the meat industry is one of the largest contributors to American agriculture and consumerism (The Humane Society, n.d.). In recent debate, scientists and factory farmers have faced the question of whether their practices on animal subjects are ethical, and their conflicting views are indicative of a collective disparity between clinical and moral perspectives on the issue. As such, this essay will present a scientific basis to support the thesis that the use of animal life to serve human purposes is unethical. Its arguments will be built upon two fundamental characteristics that correspond with conscious, living beings: the capacity to perceive pain, and the capacity to process cognitive thought.

#### **Physical Pain**

The International Association for the Study of Pain describes the sensation as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage” (Murrell & Johnson, 2006). When this damage is inflicted, nerve endings then sense the trauma and deliver a signal to the central nervous system. This signal is carried by nociceptors, sensory nerve cells that travel through neural pathways specifically related to painful stimuli. In an attempt to combat the sensation, the brain will release opiates and stress-relieving hormones such as endorphins, dynorphins, and cortisol. Research has also shown that nociception can occur at varying degrees according to factors such as age and sex; for example, women and elderly individuals are more sensitive to pain than are men and younger individuals (Freudenrich, 2007).

Murrell and Johnson (2007) note that very same terminology has been adopted to define pain in animals, and that the process of nociception in animals is similar to that shown in

humans. Their research states that EEG, neural activity monitored by placing electrodes on the scalp or head, can be used to assess levels of pain and analgesia in both human and non-human mammals. While initially applied in an attempt to assess the efficacy of pain-relieving agents, EEG recording techniques had proven inconsistent and failed to serve as a sufficient indicator of nociceptive and analgesic activity in animals. However, researchers did conclude that these neurophysiological studies could be of benefit to animal welfare by providing further insight on pain processing (Murrell & Johnson, 2007).

Research performed on rodents has also indicated that animals, like humans, experience varying levels of pain depending on factors such as sex, age, and stress levels. In a series of tests in which the tails of rats and mice would be flicked with hot water, 50 percent of the animals exhibited a response to the pain, while others appeared to better tolerate it. These varying responses, as shown in humans, are a result of differing conditional, genetic, and biological circumstances (University Of Illinois At Urbana-Champaign, 2000). Nociceptors have also been found in smaller organisms such as fruit flies, and further studies have revealed a pain response in invertebrates that lack a spinal cord such as squid and crabs (Stelling, 2014).

### **Cognitive Capacity**

As he is led to the slaughterhouse, a bull's eyes bulge with terror. A sow, once electrically stunned in what is meant to be a humane manner, cries out in pain. A cow, having given birth only to have her calf taken away and slaughtered as veal, exhibits depressive-like behavior. Calves, like human children, have been shown to thrive when raised with sufficient social stimuli, performing better in cognitive tests than those raised in isolation (Bates, 2014). These animals are aware of their own suffering, and of the suffering of those within their social circles. As shown in other primates, elephants, fish, and birds, non-human animals mourn their

deceased, partake in symbiotic relationships, and work in herds, flocks, schools, and packs in order to achieve a collective goal.

A fascinating presentation by primatologist Frans de Waal with TEDxPeachtree demonstrated how chimpanzees, bonobos, elephants, and Capuchin monkeys all possess an understanding of justice, fairness, and teamwork based on a series of experiments. These experiments involved tasks that would require animals to work alongside each other in order to attain a reward. On almost every occasion, the animals completed these tasks with ease of communication. In a particularly popular test, two Capuchin monkeys were placed in enclosures side by side and were instructed to complete a simple task: they were each to hand a rock to their caretaker and receive a reward of food in return. Upon completing the task, one creature was given a slice of cucumber, and the other was given a grape—the more desirable food. Realizing this, the monkey that had received the cucumber slice promptly flung it back at its caretaker in a show of indignation. This example of cognitive testing perfectly demonstrates an animal's sense of justice and awareness.

### **Ethical Considerations**

Where do we draw the line between testing on humans and testing on animals? On what grounds do we consider one life to be of greater value than another? At their simplest biological form, human and non-human animals are in more ways similar than not, as evidenced in the above material. If one should argue that non-human animals are of lesser value because of a lacking intelligence or ability to verbalize thought, of what value do they consider a human child or mentally incapacitated person? Are such lives expendable, then, as those of many non-human animals are believed to be? It is, perhaps more morally sound to perform clinical trials on willing, able-bodied humans who understand the risks than on creatures who are both terrified

and deprived of their instinctual stimuli. If the thought of testing on living subjects is so appalling, why is it not so when non-human animals are concerned? Humane practices—as ordained by procedural and legislative law—are not truly thus because of the pain and distress they inflict by removing an animal from its natural environment against its own will.

With new advancements in technology will come new possibilities in medical research. For the past fifty years, these advancements have been a result of mass animal testing—to our benefit, and to their detriment. Innovative technology has already proven useful in studying illnesses in humans such as paralysis and brain disease, and these tools could very well provide scientists with a means of studying living organisms without the infliction of pain or suffering of any kind.

### **Conclusion**

Many non-human animals are shown to possess the very same physical, mental, and emotional capacities shown in humans. As such, the debate surrounding these creatures' right to live should be carefully considered by the science community. While the argument can be made that animal testing has contributed to a swift progression in medical research, the fact remains that the very practice inflicts trauma and distress upon sentient life and is thus inhumane. With a continual advancement in technology, better research practices could be put into place that will benefit both human and animal populations—and in turn, planet earth.

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