

Ethical Considerations in Animal Research: A Focus on China

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Abstract. Laboratory animals have played an indispensable role in advancing human knowledge and serve as essential subjects for generating reliable and precise outcomes in life science research. However, the ethical quandaries associated with animal testing, including issues related to their treatment and welfare, demand careful consideration. Similar to numerous developed nations, China has dedicated significant efforts to the protection of laboratory animals. This paper primarily examines China's legislative modifications concerning animal experiments within the cosmetic industry, conducts an ethical analysis of these legislative changes, and applies the 3Rs (Replace, Reduce, Refine) framework to propose practical recommendations for improving China's approach in this context.

Keywords: Animal testing, Ethics, China, 3Rs, Animal welfare.

1. Introduction

In the mid-19th century, biomedicine experienced rapid development. Laboratory animals emerged as indispensable components of biomedical research, occupying a central role in scientific inquiry. The progress of biomedicine became intricately entwined with the use of laboratory animals. This interconnection assumed heightened significance in the context of the cosmetic industry, given that cosmetics come into direct and prolonged contact with the human body. To ensure the safety and non-irritating, non-toxic, and non-mutagenic attributes of cosmetic products, animal testing has become a widespread practice within the industry. According to Human Society International (HSI, n.d.), between one to two million animals endure suffering and mortality due to animal testing in the cosmetic sector.

Broadly speaking, animal testing is a practical way to use animals for scientific research, testing and identification, or teaching demonstrations. According to Human Society International, the term "animal testing" refers to procedures performed on living animals for purposes of research into basic biology and diseases, assessing the effectiveness of new medicinal products, and testing the human health and environmental safety of consumer and industry products such as cosmetics, household cleaners, food additives, pharmaceuticals, and industrial/agro-chemicals. (Humane Society International, 2012)

2. Animal Testing in Cosmetic Industry

Skin irritation test: The standard animal skin irritation test is the Draize test. It is a way to apply the test substance once or multiple times to the depilatory area on the back of a white rabbit, and observe the degree of irritation of the animal skin within a specified time interval. (American Anti-Vivisection Society, 2020)

Acute toxicity: It is a way to investigate the acute adverse reactions caused by applying a single dose of cosmetics to the skin, and to evaluate the acute adverse reactions caused by oral feeding the cosmetic products. The test result is based on the lethal dose to judge the level of toxicity. (American Anti-Vivisection Society, 2020)

Eye irritancy: The test rat will be instilled into the conjunctival sac of one eye, and the other eye will be untreated; it is used as its control. In a specified time interval, scientists will observe the degree of irritation and corrosion to the eyes of the animal and score it to evaluate the irritation of the test substance to the eyes. (American Anti-Vivisection Society, 2020)

Dermal penetration: In this method, rats are the most used test animal; it monitors the penetration of chemicals from the skin surface to the blood. Dermal penetration is a good way to help people know better about the absorption of cosmetic products. (American Anti-Vivisection Society, 2020)

Skin sensitization: This is a way to determine whether a chemical substance is causing an allergic reaction. Guinea pigs were usually used as experimental animals in this method, the substance will be applied to a piece of shaved skin and according to the skin changes the substance will be evaluated. (American Anti-Vivisection Society, 2020)

3. China's Regulatory Landscape in the Cosmetics Industry

China is one of the largest and fastest-growing beauty markets in the world. For many years, the Chinese government has been paying close attention to animal testing of cosmetics. Since June 2014, China has issued many relevant regulations that allow ordinary cosmetics produced and sold in China to no longer be compulsory for animal testing. However, for imported cosmetics and cosmetics, animal testing is still required. As the world's second-largest cosmetics consumer market, China's imported cosmetics data keeps increasing. According to Agne Blazyte's report, China's share in the cosmetics market has taken up to 12.7%, the monthly retail trade revenue of cosmetics in China has reached 36.75 billion CNY. (Blazyte, 2020) However, in the back of this considerable amount of data, there is an unimaginable high cost. To test the skin irritation of cosmetics, it is legal to sacrifice animals such as mice and rabbits in 80% of countries all around the world. This means that an estimated at least 300,000 animals are used every year in tests for cosmetics products or ingredients in China alone, and the global total amount is much higher. (People for the Ethical Treatment of Animals, 2021) Fortunately, almost all countries are committed to finding alternative ways to change laws and regulations to eliminate these inhumane experiments completely. For China, according to documents published by the National Medical Products Administration of China, from May 1, 2021, imported general cosmetics will be exempted from animal testing. But now, this shift of China's law may trigger a new wave of beauty brands to enter the market.

3.1 Why China Changes the Law?

Moral Philosophy: Kant's moral philosophy believes that animals have feelings and can feel pain. Still, he denies that people have any direct moral obligations to animals because animals are neither rational nor self-conscious. They are only means to serve human purposes. They can be defined as tools of humans. Their meaning of existing is for the use by human beings; they have no value inside of themselves. (Korsgaard, 2012) He stated that any violation of a duty to others implies a breach of duty to oneself, whereas a violation of duty to oneself does not imply a violation of duty to others. (Alexander Broadie, 1974) Kant's theory suggests that the character of human beings is affected by many factors. People with good characters who are kind in treating animals will also give kindness to human beings. On the contrary, treating animals with cruel behavior may also treat others rudely. To a certain extent, from the perspective of nations, the attitudes of the people of a country towards animals also reflect the level of civilization of the country. Irregular animal experiments are not only a manifestation of personal morality, but to some extent also reflects the country ignores humanity, lack of moral education to the citizens. A person with morality and cultivation should know how to treat animals well, and it is a person's duty as a person has rationality.

Animal Consciousness: Animal consciousness was raised by David Premack and Guy Woodroof in 1978, animals have theory in mind like human beings. (David Premack, 1978) Based on Bentham's utilitarianism which regards whether it can bring happiness as a criterion for judging morality and immorality. Peter Singer pointed the animal liberation theory; he believes that animals also have emotional expressions and can feel pain and happiness. (Singer, 1975) For instance, the well-known film which is adapted from the true story: Hachi: A Dog's Tale. The film tells the story of a professor who adopted a dog named "Hachi". Every day Hachi went with the professor to the station in the morning and waited for the professor to go home with him in the evening. After the professor passed

away, Hachi still waited at the station on time every day for the next nine years until he finally died. This story indicates that animals also have full emotions. They can cry, scream, and twitch and have very similar nervous systems to human beings. Even sometimes, animals may suffer more because their understanding ability is very limited. Thus, it is difficult to comfort and alleviate the suffering of them. Moreover, Peter Singer also stated that all animals are equal, human beings should abandon species discrimination. (Singer, 1975) Indeed, humans should, according to the different characteristics of animals to give them corresponding rights. For example, for human children, we need to teach them reading books, catching knowledge, while for pig cubs, the care we shall provide them is for instance sufficient food and free movement space. From these perspectives, animals should indeed be included in the scope of moral evaluation like humans, and receive the same moral care as humans and it is against ethics to ignore the sensations of animals. As a matter of fact, many developed countries have already established strict ethical review systems for laboratory animals. However, in China, the practice is relatively unsatisfactory. Many experimenters do not pay much attention to animal rights; based on the theory of animal perception, it is necessary to pay attention to the spiritual life of animals, respect the living habits of animals, and prevent the isolation of animals from the outside world. Animals have emotions like humans, it is against ethics to ignore the spiritual life of animals, and it is necessary to provide enough water and food for them to ensure that the animals can grow up healthily.

Animal Rights: Tom Regan's rights theory supported Peter Singer's animal liberation theory; he believes that animals, like humans, have innate value and they are the subject of life. Animals have the same equal rights as humans. This right is not a legal right but a moral right. Animals also have the right to be treated with respect. (Regan, 1985) In this case, humans cannot eat animals to satisfy their own desire, cannot wear animal furs to meet their own preferences, nor can they use animals for medical experiments. Human beings use animals for experiments in large quantities and kill a large number of diseased animals for their health. But as a matter of fact, irregular animal experiments will cause plague, environmental pollution, and other problems. It cannot be denied that both human beings and animals are the most critical parts of the earth, and they should enjoy all kinds of natural resources together and live in harmony. Human beings should fully protect every life in nature and treat them equally. The existence of animals has its own specific value, humans should not harm them just due to their own subjective feelings. Therefore, animals should be given the basic rights of freedom of life and the animals around us should be protected.

Reverence for Life: In 1987, the well-known philosopher, Schweitzer has posted the theory of reverence for life, he has extended the scope of moral care to all life. A human being is thus part of nature and his life is essentially connected with other living organisms. (Globokar, 2009) He has proposed that organisms are the center of life. Organisms are existences with their "goodness" and therefore all organisms have their innate value. They give value to the plants and animals and advocates the value concept of equality among all beings. In the past, many cosmetic companies labeled that they are "cruelty-free" were still conducting animal experiments because the enterprises don't want to give up the huge and potential Chinese market. It is necessary for human beings to do animal protection and welfare, handle the relationship between humans and animals reasonably and respect their lives.

3.2 Why is Animal Testing Still Needed?

However, it is only the first step for China of its way to banning animal testing, "general" doesn't mean "all", many special-use products still need to do animal experiments, these products involve hair dyes, anti-hair loss products, whitening products, etc. In this case, it indicates that animal testing is necessary for some areas. The reason is that although the light industry is developed in China, the precision of processing still cannot meet Europe's strict standards.

Utilitarianism. John Stuart Mill has given an explanation of utilitarianism in his book: utility, or the Greatest Happiness Principle, holds that actions are right in proportions they tend to promote happiness, wrong as they tend to produce the reverse of happiness. (Mill, 1863) Therefore, on the

other hand, utilitarianism is an important condition for the existence of animal experiments. Because of animal experiments, humans have avoided the harm of experimenting directly on human beings. It is precise because animal experiments have helped human beings to develop various chemical products and reduce the probability of human death substantially. And thanks to animal experiments, humans have begun to explore and recognize their physiological structure, which increases the longevity of humans considerably as well. It cannot be denied that animal experiments have brought significant happiness and benefits to humans. As time goes by, animal experiments are closely integrated with the survival and development of human beings increasingly, and animal experiments are playing a more and more important role.

Mutualism. From the perspective of mutualism, animal experiments play an important role in promoting human health and. At the same time, it is necessary to study and understand the physiology and life of animals, as well as the health and reproduction of animals. As Heffner written in his article, “the measure of benefit derived from a mutualistic relationship is the amount that the relationship has contributed to the reproductive success of both species and, conversely, has reduced the probability that either might become extinct.” (Heffner, 1999) Apparently, it plays an essential positive role, this kind of mutual benefit is obvious. Therefore, the mutual benefit can bring about balance, it can solve the ecological imbalance to some extent.

Anti-animal rights. Many scholars also doubted animal rights. Carl. Cohen wrote in the New England Journal of Medicine published in October 1986: " The holders of rights must have the capacity to comprehend rules of duty, governing all including themselves. In applying such rules, the holders of rights must recognize possible conflicts between what is in their interest and what is just. Only in a community of beings capable of self-restrict-ing moral judgments can the concept of a right be correctly invoked.” (Cohen, 1986) It is true that human beings are subjects with a sense of morality. In other words, people know how to make judgments morally and they also can understand their moral obligations and as is known to all, it is easy for human beings to make moral judgments and realize their mutual rights. Therefore, rights are obviously something that human beings created from their perspectives and inventions, and the object of the development of rights is to enable people to live peacefully in a complex society. In human society, those who cannot fulfill the duties of a morally-sense may lose their rights as well. Animals don’t have a sense of morality and they can’t recognize other animals’ rights when they hunt. They will eat their prey without considering the rights of the prey in order to survive. It is an action out of instinct, they don’t know how to make moral judgments. Hence, animals don’t have rights.

4. Animal Welfare and 3Rs

4.1 Animal Welfare Definition

The concept of animal welfare has multiple interpretations from different perspectives. Based on Corrado Carenzi and Marina Verga’s research, basically speaking, animal welfare consists of five basic elements: physical welfare, environmental welfare, health welfare, behavioral welfare, and psychological welfare. (Corrado Carenzi, 2007) However, the most widely accepted theory is the “Five Freedoms”, which was initially developed by Farm Animal Welfare Council (FAWC):

1. Freedom from Hunger and Thirst - by ready access to fresh water and a diet to maintain full health and vigor.
2. Freedom from Discomfort - by providing an appropriate environment including shelter and a comfortable resting area.
3. Freedom from Pain, Injury or Disease - by prevention or rapid diagnosis and treatment.
4. Freedom to Express Normal Behavior - by providing sufficient space, proper facilities and company of the animal's own kind.
5. Freedom from Fear and Distress - by ensuring conditions and treatment which avoid mental suffering. (Farm Animal Welfare Council, 2012)

4.2 3Rs Definition

The thought of experimental animal welfare is based on the 3R theory.

According to Russel and Burch, they have defined 3Rs to testing animals in their book “The Principles of Humane Experimental Technique”, which was published in 1959. (W.M.S. Russell, 1959)

3Rs represent: Replacement, Reduction, Refinement.

Replacement means the substitution for conscious living higher animals of insentient material.

Reduction means a reduction in the number of animals used to obtain information of a given amount and precision.

Refinement means any decrease in the incidence or severity of inhumane procedures applied to those animals which still have to be used 3Rs.

China as a developing country, there is still a considerable gap in animal welfare and the five internationally recognized principles. In the implementation of the 3R theory of experimental animals, there is a long way to go compare to the foreign developed countries. For instance, laboratory animal regulations are not perfect, the experimental animal management legislation focuses more on the quality of experimental animals, but less on animal welfare; not enough relevant training, which means they lack application, experimental method introduction, and systematic animal ethics and protection education, etc.

5. Alternative Approaches to Animal Testing

Culture in vitro: This method refers to the culturing of the primordium, part of the whole organ under conditions similar to tissue culture, so that the cells can survive, grow and maintain a certain function in vitro. For example, the application of reconstructed skin as an alternative to animal experiments to study skin corrosion and irritant screening. (Jerry W Shay, 2000)

Human volunteers: Human volunteers are another alternative for skin sensitivity testing of cosmetics. In this method, volunteers are given a very small drug dose, and scientists will use advanced imaging technology to trace the behavior of the drugs. (Langley, 2010) This method has very limited harm to the human body, but it can greatly reduce the use of animal experiments and can get more accurate results as well.

Mathematical and computer models: Designing new compounds directly with computers can help to reduce the number of animal experiments which need large-scale screening greatly. For instance, the QSAR method, it is the use of mathematical models to describe the relationship between molecular structure and certain biological activities. This kind of relationship usually uses an algorithm to associate the molecular structure with the biological activity of the molecule, through computer models to estimate and predict properties or activities of certain substances. (Homburger, 1985) At present, the commonly used QSAR software include OECD Toolbox, TOPKAT, Toxtree, Lazar, MultiCASE, CAESAR, etc. (Rositsa Serafimova, 2010)

Alternative organisms: In some cases, the use of lower vertebrate organisms is also feasible, such as bacteria, fungi, mollusks, or aquatic animals, which can reduce the use of higher vertebrate animals. There are fewer ethical problems of lower vertebrate organisms. For example, zebrafish, have a strong reproductive ability and fertilization is carried out in vitro, their major tissues and organs will grow within 24 hours after fertilization. Besides, their embryos are transparent, which means it is convenient for scientists to observe their development status. Therefore, zebrafish has not only become one of the important model animals in developmental biology research, but are also used increasingly for environmental pollution monitoring and drug safety evaluation. (Adrian J. Hill, 2005)

6. Suggestions for China

National perspective: It is important to improve the animal protection and welfare legal system, strengthen the animal protection and supervision system. China has formally publicized the

"Guidelines for the ethical review of laboratory animal welfare People's Republic of China National Standard" in 2018. (Clark, 2020) However, to promote the further development of animal protection and welfare, China also needs to improve the laws and regulations of animal protection and welfare to fundamentally protect the basic rights of animals. Moreover, to develop the supervision and management system to realize the safeguard function of animal protection and welfare. The Chinese government should formulate relevant laws and regulations, and it's also vital to strengthen theoretical education and publicize the significance of animal protection and welfare to the whole society through various channels.

Social and corporate perspective: In animal experiments, it is necessary to strengthen the staff's awareness of animal protection and welfare. Try the best to provide animals with better life needs, treat animals humanely to meet their basic survival needs, and pay attention to their health as well.

School perspective: Schools should strengthen animal protection and welfare ethics education. In China, there is a lack of animal protection and welfare ethics education, students don't have sufficient awareness of animal protection and welfare ethics. Therefore, it is particularly important to carry out animal protection and welfare ethics education in schools, to help the students to establish correct ecological values. Besides, schools can organize students to participate in public welfare activities on the protection of animals and lives, and they can also organize activities such as visits to the laboratory in person; thus, the concepts of animal protection and welfare will penetrate into the students' minds.

Personal perspective: As individuals, people can change their consumption way. For instance, use cruelty-free cosmetics, people should have the concept that beauty with love is the real beauty, every time we choose, it is the love and respect for life. Everybody can make a contribution to protecting animals.

7. Conclusion

In conclusion, a comprehensive analysis of animal experiments is imperative, guided by a scientific and ethical perspective. On one hand, animal experimentation and research play a pivotal role in advancing human knowledge and development. On the other hand, the protection of animals is essential for the overall progress of human society. Scientists should remain committed to making significant contributions to the continued advancement of our global community. Concurrently, it is vital to consistently enhance research methodologies and standards, employing efficient, cost-effective, and ethical approaches. Humanity must collectively endeavor to establish a harmonious coexistence between humans and animals within our shared global community.

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