

# Animal Experimentation : An Overview

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Respect for animals and their care with all kindness and even reverence has been ingrained in the basic tenets of our religion more than in any other culture. The lowliest and the mightiest, even the venomous ones, are worshiped since most of these are associated with some deity or other.

The use of laboratory animals in Scientific Research has been a subject of debate for over a century. Though the animals were first used in research in second century AD however their systematic use in research began about 100 years ago, when vaccines for polio and rabies came up for production. Since then, the animals have been used in research investigations and production of biologicals and have played an important role in unfolding vital information about the human and animal life processes. This has helped in the advancement of Scientific Knowledge, development of drugs, diagnostics and production of biologicals for alleviating sufferings of both human and animals.

Innumerable discussions and debates all over the world have led to the indisputable conclusion that in the present state of our knowledge properly conducted animal experimentation is essential not just for advancement of scientific knowledge, but even more so for the development of diagnostics, drugs and other therapies for promotion of health and prevention and treatment of diseases not only of humans but also of animal themselves.

Many countries around the world have therefore introduced legislation to control animal experimentation. The earliest, to my knowledge, to enact such a law was Government of the United Kingdom in 1876, followed by many European countries. The need for animal experimentation for biomedical research virtually became mandatory following The Nuremberg Code (1946), which has later been superceded by the Declaration of Helsinki, which states, "Biomedical research involving human subjects must conform to generally accepted scientific principles and should be based on adequately performed laboratory and animal experimentation and on a thorough knowledge of the scientific literature."

Under our First Prime Minister Shri Jawahar Lal Nehru, an animal lover, India enacted a law, “Prevention of Cruelty to Animal Act” in 1960, amended in 1982, to prevent the infliction of unnecessary pain and suffering on animals. The Act provided for the creation of the “Animal Welfare Board”.

During the 1980s there was a sudden upsurge of anti-vivisectionist movement in many countries abroad, specially the United States and the United Kingdom. Animal activists raided animal houses in scientific institutions, indulged in public demonstrations, violent activities and even use of fire bombs and other explosives, threatening and even physically assaulting concerned scientists. This prompted a reappraisal of the conditions prevailing in such animals houses by scientists themselves resulting in laying down of guidelines for providing ideal conditions for the housing, nutrition, health and human care.

It is surprising that the 1960 Act, and Rules, Regulations amended upto 2002, did not provide any statutory guidelines for the humane care of the laboratory animals. However, already in 1992, after wide consultation and taking note of the developments abroad, the Indian National Science Academy published detailed “Guidelines for Care and Use of Animals in Scientific Research”. These not use aroused awareness of these concerns but also were adopted by many scientific institutions across the country.

# Recent Events Related to Prevention of Cruelty of Animal Act

1. In February 1996, the Ministry of Environment and Forests of Govt. of India constituted a body to regulate animal experimentation; “The committee for the Purpose of Control and Supervision of Experiments on Animals” (CPCSEA)
2. In April 1998, the CPCSEA formulated, “Draft Rules for Animal Experimentation” which were notified in Gazette of India, December 1998.
3. A Committee constituted by INSA submitted a detailed note pointing out major problems in the Draft Rules in October 1998, even before these were Gazetted.
4. Several notes indicating problems faced by the scientist submitted to CPCSEA and sent to the Government in May, June, July, August, November, 1999. No response was received. Hence we approached the then Hon’ble Minister for Human Resource Development and Science and Technology & ultimately Hon’ble Prime Minister.

5. At the initiative of the Prime Minister's office (PMO) a meeting of the CPCSEA along with representatives of INSA and Department of Biology was held in December 1999.
6. The mutually accepted modifications of the 1998 rules were approved for Gazette Notification.
7. A newly reconstituted CPCSEA in its meeting in April 2000 arbitrarily modified the commonly agreed rules. Even these were not Gazetted till September 2000 and further amended in February 2001.

Notwithstanding these amendments scientists continued to face many problems (see Mohan Kumar 2004). However, as a result of mutual consultations there has been a reasonable understanding on either side. In the meanwhile the Expert Committee appointed by INSA to upgrade the 1992 Guidelines, submitted its report in October 1999 (later published in 2000). This was done after a wide national consultation and taking note of guidelines developed by WHO, NIH associated NRC, USA and the European Union.

However, for reasons not provided, in 2011 a new Animal Welfare Act has been framed by the Ministry of Environment and Forests (MOEF) obviously with a view to replace the existing one. Some of the provisions of the proposed Act, particularly those in Chapter V (Experiments on Animals) have once again raised grave concerns among the scientists. INSA therefore organized a series of discussions involving representatives from national science agencies, institutions and other experts.

It is regretted that the Ministry while preparing the Draft Act, particularly its Chapter V (Experiments on Animals) did not consider it necessary to involve scientific organizations or the INSA which had played a constructive role in helping the CPCSEA in modifying its 1998 draft.

On the basis of discussions organized by INSA, Dr. Krishan Lal, President, communicated to Honourable Shri Jairam Ramesh Minister for Environment and Forests some of the concerns of the scientific community related to the 2011 draft Act and offered to help in the development of the new legislation.

Without going into the details of concerned clauses in the Draft 2011, let me quote from the recent communication by Dr. Krishan Lal, “Detailed deliberations on the current legislative draft have identified many serious issues, which are of great concern to the Scientific Community and would need to be addressed before the draft is finalized”.

As an appendix to this letter Dr. Krishan Lal gave some of the examples of the areas of concern. Similarly, soon after the release of the 2011 Draft, Prof. P.N. Tandon, a Past President of INSA, who was responsible for the preparation of 1992, INSA Guidelines (mentioned earlier) and their updating in 2000, wrote a letter to the then Honourable Minister in this regard. It is regretted that these communications have not even been acknowledged.

# *CONCLUSIONS*

It is now globally accepted that in the overall interest of both human and animal welfare, animal experimentation cannot be completely abolished. As a matter of fact such experiments are statutory requirements for the developments of drugs and diagnostics and other therapies both for men and animals all over the world.

At the same time it is acknowledged that for such experimentation all efforts must be ensured to provide humane care of the animals before, during and after the experiments. These should follow the now well accepted the three R-rule prior to planning any such study.

The use of animals continues to be mandatory to meet the statutory regulatory requirements. At the same time, it is an obligation of the scientists to ensure that the experiments conducted on animals are rational and unavoidable, and no unnecessary pain or injury is inflicted on them and they are maintained in best possible environmental conditions.

There is an urgent need to provide resources to upgrade the standard of the existing animal houses in the scientific and educational institutions and to establish training programmes for all those who are involved in caring for animals and carrying out animal experiments. It is obvious that mutual collaboration, rather than confrontation, between all concerned parties is the only solution.

# In-vitro Systems to replace Animals

A number of *in vitro* systems can be used to reduce/replace animals in experimentation. These systems could be the living or the non-living systems. The living systems are tissue and organ culture, lower animals and microorganisms and human volunteers in restricted cases. The non-living systems could also be used to place of animals in certain areas and these include chemicals, mechanical models, mathematical models, computer simulation, DNA recombinant technology and synthetic substances.

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A report in the 24 January, 2011, issue of one of the most prestigious scientific journal Nature stated, "In the past five years animal-rights activists have perpetrated a string of violent attacks". And further, "Nearly one-quarter of biologists say they have been affected by animal activists". A poll conducted by it found, "Researchers have suffered fire bombings, physical attacks, destruction of personal property and campaign of harassment." Thus during the past decade, both the United States and the United Kingdom have enacted tough laws in response to violent tactics from activists. (Cressey 2011)