

## ● Guiding Principles for the Care and Use of Animals in the Field of Physiological Sciences

The Physiological Society of Japan

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Animal experiments are an unavoidable necessity in pursuing teaching and research activities in the field of physiological sciences. Results obtained from such experiments have contributed much to understanding and elucidation of the function of living organism. Their application to medical science and therapeutics have played an important role in the development of human and animal health and welfare. In order for even greater developments of education and research in Physiology, the Physiological Society of Japan (hereafter called the PSJ) urges all the physiologists performing and participating in animal experiments mainly using vertebrates in Japan to adopt the following guiding principles for animal experiments. It is the intention of the PSJ that all animal experiments should be designed and conducted on a valid scientific and ethical basis, and that sufficient consideration should be given to animal welfare. To ensure that these guiding principles are upheld, presentations at academic meetings of the PSJ and papers to be published in the Japanese Journal of Physiology (hereafter called JJP) should be restricted to those that have been confirmed by the committee for animal experiments of each institute or university or the PSJ.

Ethical standards for the animal experiments, designed to take care of both science and animal welfare, have been described and discussed in the following publications:

—Rules for the Protection and Care of Animals, Law No 105, revised, 1999.

—Standards Relating to the Care and Manage-

ment etc. of Experimental Animals, Notification of Japanese Prime Minister's Office, 1980.

—International Guiding Principles for Biomedical Research Involving Animals, CIOMS, 1984.

—Guide for the Care and Use of Laboratory Animals, DHEW Publication No. (NIH) 85-23, 1996.

—Guide for Animal Experimentation, Japanese Association for Laboratory Animal Science, 1987.

—Guiding Principles for Animal Experiments using Non-human Primates, Primate Society of Japan, 1986.

In concert with these ethical standards and in view of the recent act of “Rules for the Protection and Care of Animals” and “Plans for the Protection of Beasts and Birds”, we now revise the previous version of “Guiding Principles for the Care Use of Animals in the Field of Physiological Sciences” of the PSJ (19, December, 1988).

### General Principles

Maximum efforts should be made to respect the life of experimental animals so as to minimize any possible discomfort and stress involved in the experiments, and to provide proper care and a comfortable environment while these animals are maintained. The following guidelines discuss various issues relating to animal care and handling before, during and after animal experiments. Efforts should be made to fulfill the following three principles:

1) To replace animal experiments with non-animal experiments, whenever possible (Replace-

ment). 2) To plan animal experiments with detailed information needed to ascertain that sound methods are used (Refinement). 3) To obtain scientifically valuable results from the least possible number of experimental animals (Reduction).

### **Actual Guidelines**

#### **1. How to obtain and transport animals**

All experimental animals must be obtained from legally approved sources. If and when wild animals are to be used for experiments, these should be captured in accord with rules that do not harm the environment or associated natural resources. In the case of imported animals, only those which are permitted by the Washington Treaty can be used. All experimental animals must be inspected for disease or injury, by veterinarians or those who have professional knowledge of animal health care. These inspections must be performed when the animals are received, and while they are maintained until use, to allow the appropriate personnel to prevent spread of disease and infection among the animals themselves, or between the animals and any personnel who come into contact with them.

#### **2. Maintenance of the animals**

##### 1) Housing and equipment

Experimental animals should be maintained in clean and well controlled facilities. When, for inevitable reasons, experimental animals are going to be raised outside of these facilities, the researchers specialized for experimental animals should prepare clean and well controlled room spaces and take special care and attention against loss of animals due to escape or theft. They should also minimize the noises and smells of the animals, and protect animals and handlers against infections.

##### 2) Raising environment and control of the living

conditions

The cages for the experimental animals should have enough space according to the animal species and their size. Care should be taken to keep the cage and its surroundings clean with adequately controlled air, light, temperature and humidity. The foods to be used should be suitable in terms of nourishment, digestion and the experimental methodology selected. Fresh water should be available *ad libitum*. Furthermore, care should be taken to allow the animals to behave and exercise normally, and to minimize their fear and anxiety.

##### 3) Procedures to follow in the event of diseases

If some disease is discovered, researchers should immediately consult with veterinarian doctors or those who have specialized knowledge of animal disease. Following their advice, researchers should administer treatments that are designed to cure the diseases and to guard against spread of infections.

#### **3. Plans and procedures for the animal experiments**

##### 1) Planning of experimental designs

Plans for animal experiments, for the purpose of research and education, should clearly indicate how they incorporate the following considerations. First, the purpose and results of the experiments must be scientifically sound and highly valuable. Secondly, experimental procedures should be designed in ways that guard animal welfare while animals are housed, and do not cause unnecessary discomfort to animals at any stage (before, during, or after experiments are conducted). Thirdly, plans should be designed to minimize the number of experimental animals used and needed to perform the proposed experiments. Fourthly, all methods should include precautionary measures to protect experimenters and feeders from injury or disease.

Finally, no illegal practices or procedures should be used at any stage of any experiments.

#### 2) Examinations of the experimental plans

The principal investigator for each experiment to be performed must obtain written approval of the experimental protocols to be used, by the committee for animal experiments of each institute. No experiments can be performed without this approval.

#### 3) Filing the data of animal experiments and its maintenance

The principal investigator should maintain descriptions of all animal experiments in the form of “files of animal experiments” and keep them. The file should include a copy of the approved experimental protocols for animal experiments, descriptions of the action and process after some health problems or accidents happened (if any), and the copies of all presentations and publications that resulted from the experiments.

#### 4) Qualifications as experimenters

Experimenters have to be well trained in experimental procedures and handling of animals. Researchers without sufficient experience in animal experiments should do the experiments under the guidance of well-trained researchers.

#### 5) Measures to avoid or minimize pain, and to minimize physical restraint

Maximum precaution should be exercised to avoid causing pain or agony to experimental animals during all experiments. Constraints of the animal bodies, if necessary during experiments, should be done only when the animals become well accustomed. The extent that food and water are restricted, if necessary, should not cause measurable suffering to the experimental animals. In the case of experiments on pain and stress, only the necessary number and type of experiments should be done after the evaluation of the experiments by the committee for animal experiments of each institute

or university.

#### 6) Surgical procedures

Surgical procedures on experimental animals should be done with presurgical care, sterilization and disinfection. To avoid causing pain to animals, enough care should be taken for post surgical medications in addition to anesthesia during surgery.

#### 7) Treatment after the experiments

When animals are to be disposed of after experiments are completed, they must be killed humanely, in accordance with notification issued from the Government “Guides for the Disposal of Animals” by administering an excessive dose of anesthetic or by some other recognized means. Contamination of the environment, by the disposed animal bodies and/or by facilities and equipment used for the experiments, should be prevented.

### **4. Health and security of experimenters and feeders**

It is necessary to maintain secure and healthy working environments for experimenters and feeders throughout animal maintenance and performing experiments. Maximum efforts should be made to prevent injuries (e.g. bites) and infections from the animals and contamination of the environment by using disinfectants and detergents, and to prevent especially the spread of infectious diseases which are common to human and beast by quarantine procedures.

### **5. Supervision of the animal maintenance and experimental conditions**

The committee for animal experiments of each institute is responsible for the supervision of whether the animal maintenance and experiments take into consideration human and animal welfare. If a university, institute or any research facility has no committee for animal experiments, the commit-

tee of the PSJ is ready to fulfill its role temporarily, and will provide suggestions on how to establish such a committee.

### **6. Publications of experimental results**

The experimental materials that are going to be

presented at academic meetings of the PSJ or to publish in the JJP are limited to those approved by the committee for animal experiments of the institute the member belongs to or the committee of the PSJ.