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**НЕКОТОРЫЕ ТРЕНДЫ В МИНИМИЗАЦИИ ДИСТРЕССА У
ЛАБОРАТОРНЫХ ЖИВОТНЫХ ВО ВРЕМЯ ЭКСПЕРИМЕНТА**

Аннотация: В статье рассматриваются некоторые существующие методы минимизации дистресса у лабораторных животных во время эксперимента. Автор описывает принципы гуманного отношения к подопытным. Отдельное внимание уделяется правильным способам фиксации животных. В заключение обосновывается важность применения описанных выше методов.

Ключевые слова: дистресс, лабораторные животные, эксперимент, фиксация, мониторинг.

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**SOME TRENDS IN MINIMASING LABORATORY ANIMALS’
DISTRESS DURING THE EXPERIMENT.**

Annotation: The article discusses some existing methods of minimizing distress of laboratory animals during the experiment. The author describes the principles of treating experimental subjects. Special attention is paid to the correct ways of fixing animals. In conclusion, the importance of using the methods described above is substantiated.

Key words: distress, laboratory animals, experiment, fixation, monitoring.

Pain and distress in laboratory animals are the most important factors in reducing the reliability of the experiment’s results. First of all, this applies to studies of the effect of drugs on the nervous system because it is sensitive to any

stimuli, which means that even the noise in the vivarium can further result in a negative effect of the drug on the body.

These factors for obvious reasons cannot be estimated by the same methods as in humans. The description of the mental state of the animal lies entirely with the specialists conducting the experiment and is subjective. They also need to minimize the impact of stressors on the animal and for this are considered:

- use of the most appropriate and humane methods;
- use of all technical skills and competent personnel;
- monitoring of the appearance of pain and distress;
- drawing up a clear plan to eliminate undesirable consequences from manipulation;
- the use of immediate measures to prevent pain and distress;
- the use of anesthesia, analgesia and tranquilizers suitable for the selected species of animals and the purposes of the experiment;
- development of an experimental plan that reduces pain and distress;
- conducting an experiment in the shortest possible time;
- use of suitable euthanasia methods.

The using of general or local anesthesia, analgesia or tranquilizers should correspond to the type of animal as well as the criteria adopted in veterinary medicine or laboratory animal husbandry practice.[2]

Experiments, which results can be distorted, are carried out without medical intervention. Then excessive excitement and pain can be avoided due to the good adaptation of animals to external conditions before the start of the experiment.

If during the experiment there was an unplanned death of the animal, it is necessary to notify the veterinarian about this and reflect this event in the experiment protocol. The researcher must know how the animal participating in the experiment signals pain and distress. Any changes in sleep, feeding, watering, scratching, and behavior should be described, evaluated, and accounted for in the future.[3]

Monitoring of the condition of animals during and after the experiment should be constant and adequate. If the pain or distress during the experiment becomes unbearable then it is necessary to provide the assistance immediately.

Pain or distress in animals can be expressed like:

- aggressive and or abnormal behavior;
- abnormal stance or movement;
- abnormal sounds;
- changes in cardiovascular and or respiratory functions;
- abnormal appetite;
- rapid weight loss;
- decrease in body temperature;
- vomiting;
- abnormal defecation or urination.

If the researcher cannot provide assistance on his own, he should immediately call a veterinarian.[3]

The end points of the experiment should be determined by the researcher in advance. Death should not be originally planned as the end point of an experiment. As points of the end of the experiment, they usually take:

- if the weight loss from the original exceeds 20%;
- if there was a weight loss of more than 10% in 24 hours;
- if the growth of the tumor is more than 10% higher than the weight of the animal;
- if an abscess has developed;
- if the body temperature has fallen sharply;
- if the animal has crippled itself;
- if the animal is not able to eat on its own or lead a normal life.

All animals that meet such requirements should be euthanized to relieve themselves of pain and suffering.[1]

Usually, animals are used in only one experiment. However, in some cases it is possible to reuse animals to reduce the total number of animals in the project and protect other animals from pain and suffering. In these cases, the animals are used in procedures not associated with pain and suffering or procedures with little biological stress, for example, the study of feed with blood sampling or non-invasive procedures. From one experiment to the next, enough time must pass for the animal to recover. The duration of the experiment is limited by the purpose of the study and should be as brief as possible, especially if it's attended by the pain and suffering of the animals.[4]

Fixation of animals is one of the most important aspects of working with laboratory animals. It is a set of physical or pharmacological measures aimed at restraining the animal's natural mobility in order to carry out the necessary actions of care, examination or experiment, including anesthesia. [3] Proper handling and immobilization can give the animal a sense of safety and thus reduce its pain and fright. This not only allows in some cases to conduct an experiment without anesthesia but also satisfies the principle of humane treatment of animals. Proper treatment of animals also ensures the safety of staff and researchers, as it calms the animal. Staff must be trained in the proper handling of animals, as physical contact with them is part of their daily work of caring for and reproducing animals. Researchers should also have experience handling animals, as they are the ones who conduct most of the experiments. Otherwise, a trained assistant should help the researcher in conducting the experiment.

In order not to frighten the animal, not to cause him harm or pain, the movements when handling it should be careful and gentle. In many cases. It is advisable to use nets and other special devices for catching and immobilizing the animal.[2]

Under normal conditions, the fixation of animals is carried out as follows. Rabbits are placed on the table sideways, facing the operator and fixed with their hands, after that they are lifted into the air, opening access to the necessary area

for manipulation. For intravenous injections, it is most convenient to wrap the rabbit in a piece of dense material, having previously bent his legs under the abdomen, the rabbit's head is left free or use special boxes.

The guinea pigs are taken with the left hand so the second finger is under the neck, and the first and third fingers are under the front limbs of the animal. With the right hand the pig is stroked on the stomach until it calms down. Only after that the specialist should proceed to the planned operation, holding the hind legs of the animal with the right hand.

Treating rats, the fold of skin in the back of the head is captured with forceps, tightly pressing the head to the surface of the table. With the other hand the tail of the rat is taken, raising it above the surface of the table. It should be held in such position so that the head is slightly pulled back by the forceps.

Mice are launched on the table, holding it with two fingers of the right hand by the tip of the tail. When moving in any direction the mouse pulls its tail with a quick movement of the left hand it is grabbed by the fold of skin in the back of the head closer to the ears so that it cannot turn its head. Raising the mouse above the table the assistant holds it on the weight with one hand by the tail, the other by the fold of skin on the back of the head, somewhat stretching in a position convenient for the experimenter.[1]

Thus, it is necessary to emphasize once again the importance of compliance with ethical standards for the treatment of laboratory animals. A set of measures minimizing distress contributes to an increase in the percentage of the obtained data reliability, and therefore prevents further errors in the interpretation of the results and eliminates the need for a second experiment. Proper treating of laboratory animals increases their quality and life expectancy, which significantly reduces losses and the necessity to introduce new heads into the experiment. And this directly affects the cost of work, which is also important.

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