

Neuroscience guidelines

Neuroscience has, in recent years, made substantial contributions to our understanding of the working of the nervous system, and some of the information obtained has been useful in human clinical medicine. Part of this increase in understanding and knowledge has come from experimental investigations involving animals. In some of these experiments, for example, recording electrodes have been implanted in the brain, parts of the nervous system have been destroyed, tracer substances have been injected - to be located later on histological examination of nervous tissue removed from the killed animal. Some of these procedures are carried out only under prolonged anaesthesia and the animal finally killed while it is still unconscious, ie non-recovery experiments; in others the animals are allowed to surface from the effects of the anaesthesia so that clinical signs may be observed. Where recording electrodes have been implanted the conscious animal may have to be restrained in some way so that the delicate apparatus is not damaged. At times, and especially in investigations of the visual system, injected paralysing agents may have to be used. In many of the experimental preparations, however, the animals show few signs of pain once they have recovered from the immediate effects of the interference, although there may be obvious changes in behaviour and there may at times be clinical signs of malfunctions of the nervous system. Some neuroscience experiments have drawn criticism from animal welfarists, and at times, from other biomedical scientists.

In recognition of the fact that animal neuroscience is a very technical, difficult and at times contentious area of research, the US National Institute of Health held in 1989, a workshop on the care and use of animals in this branch of biomedical science. The intent was to develop guidelines which could be useful to those involved with the preparation and review of neuroscience research proposals. The workshop members comprised neuroscientists, members of Institutional Animal Care and Use Committees (the main US method of 'regulating' animal research) and veterinary specialists in laboratory animal medicine. Their report was published in 1991 and is an authoritative, detailed but inevitably a somewhat technical review of the main experimental procedures used. The emphasis in the report is on the improvement - in many cases refinement - of the techniques and on the care and welfare of the animals. It should prove a most useful document for neuroscientists, for veterinary surgeons involved with the care of laboratory animals in neuroscience establishments and for those who have to decide whether a particular neuroscience programme involving animals should be allowed, ie to those who, in the UK legal terminology, have to 'weigh the likely adverse effects on the animals concerned against the benefits likely to accrue'.

Preparation and Maintenance of Higher Mammals During Neuroscience Experiments. Report of a National Institutes of Health Workshop edited by Richard C Van Sluyters, Michael D Oberdorfer (1991). 45 pp. NIH: Bethesda MD. Obtainable from Michael O Oberdorfer, National Eye Institute, NIH, Building 31, Room 6A47, Bethesda MD 20892, USA. Free on receipt of a self addressed label.