



SIXTEEN

Veterinary Medicine and Animal Welfare: A Forward View

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Introduction

A considerable increase in public concern about the welfare of animals, starting in the late 1960s, has had a variety of consequences for science and for the veterinary profession. Scientists whose work involves animals have come to think more carefully about its effects on those animals and its real value. Scientific knowledge in general has advanced and the concept of animal welfare has changed from being somewhat nebulous to being more precise because it has been defined scientifically and is measurable. The public image of the veterinary profession has changed in some ways which have been seriously detrimental to it but has then started to improve again. Young people entering the veterinary profession, as well as others, have had different expectations and attitudes from those of people already established in their profession.

As the efficiency of national and international communication continues to improve and both public attitudes and legislation become more international, demands for improvements in animal welfare are more likely to result in new legislation in an ever-widening range of countries. In this and in the interaction between such trends and new developments in biology, the veterinary profession has an important role to play.

Welfare Concepts and Problems

A question which is of fundamental importance in biology is how animals cope with the wide variety of difficult conditions and circumstances which they encounter during their lives. There has been progress in recent years

in understanding the various ways in which individuals try to cope with difficulties and in measuring these. Closely associated questions concern what happens when individuals fail to cope and when they succeed in coping. A usable concept of animal welfare must be based on the body of scientific evidence which has been produced by those seeking answers to these questions. *The welfare of an individual is its state as regards its attempts to cope with its environment* (Broom, 1986, 1988). Hence welfare is a characteristic of an individual, not something given to it, and it can vary from very poor to very good. This concept and its relationships with other concepts such as stress and suffering are discussed further by Broom (1991, 1992) and Broom and Johnson (1993).

As our knowledge of the physiology and behaviour of animals has increased, it has become clear that the complexity of organization of the lives of our domestic animals is much greater than people have formerly believed. Such knowledge will become more comprehensive in the future and will continue to narrow the difference perceived between man and other species. The nearer to that of man that the complexity of life of a domestic animal is seen to be, the harder it is to treat it badly. The trend towards treating our farm and companion animals as sentient beings deserving respect, is accelerating. For most people, such a change in attitude does not preclude using animals for food, as companions, etc. but it does mean that there is a desire to ensure that the welfare of the animal is maintained. A further consequence of this shifting of attitude is that veterinary surgeons are seen to be more and more like human physicians.

Factors Undermining Animal Welfare

The major causes of poor welfare in domestic animals are deliberate abuse, neglect, inadequacy of housing or management system, and disease. For the individual animal, welfare is poor if there is pain, fear, lack of control over interactions with the environment, or reduction in biological fitness. Lack of control includes frustration, the absence of some important stimulus, insufficient stimulation, overstimulation with too much unpredictability, ineffectual physiological adaptation attempts, and impaired immune system defences. Any animal could be subject to some of these problems: domestic animals are complex and can be subject to any of them. The problem can exist irrespective of the way in which we perceive the animal and it is becoming difficult for people to persuade themselves that dogs can suffer but pigs or rats cannot. In considering animal welfare, there has been a preoccupation with pet animals amongst the general public and with 'factory farming' or experiments on laboratory animals amongst active members of the animal protection societies. The welfare of both companion and laboratory animals needs to be improved but by far

Table 16.1. Animals killed per annum in the USA in relation to use.

Use	Numbers in millions	%
Food	6086	96.5
Hunting	165	2.6
Unwanted pets	27	0.4
Research and teaching	20	0.3
Fur	11	0.2
Total	6309	100.0

the greatest numbers of animals, hence potentially the greatest welfare problems, are on farms. Table 16.1 shows the results of a survey carried out in the US by Nicol and Russell (1990). This refers to animals killed but in each case there is potential for poor welfare before death.

The list of animals whose welfare can be affected by man should also include animals which are pests. Humane methods of killing and catching pests, including some rodents and birds, will be more actively sought in the future and methods of scaring pests, or preventing them from having access to places where they can cause damage, will be used more.

The major problem for many animals which are kept by humans is their housing conditions. A situation which is difficult on every day of their lives is of greater significance than a brief, if more extreme, problem. The daily management and the nature of interactions with people or other animals can also result in difficulties, as can handling, transport, operations and experimental procedures, genetic abnormalities or modifications and disease. Some future research which is needed in order that welfare can be improved is listed in Table 16.2.

It is important that a wide range of scientific methods of welfare assessment should be used when carrying out practical studies comparing the various alternative ways of keeping and managing animals.

Table 16.2. Priorities for animal welfare research.

Study coping methods, motivation and cognition
Improve identification of poor welfare
Try to identify good welfare
Study social behaviour and human-animal relationships
Investigate effects of early conditions and treatment
Develop systems allowing more animal control of environment
Compare alternative systems or methods

Animal Welfare and the Public's View of the Veterinary Profession

Public perception of the veterinary profession which was widespread until the 1970s was of a body of people who cared for and benefited animals and were helpful to their clients. Some members of the public had tales to tell of veterinary surgeons whose prime aim appeared to be a mercenary one and many people were disturbed by the prospect of large veterinary bills. However, reports of veterinary surgeons taking care of patients to a greater extent than mere financial reward would appear to justify, were frequent enough to be the strongest factor affecting public perception. These sympathetic views of the profession have persisted to some extent but the rise in concern for the welfare of all animals, not just those which were of large financial value to their owners, resulted in some decline in the standing of the profession during the 1980s.

One adverse effect results from a failure, on the part of some members of the profession, to condemn any aspect of animal experimentation. At this time the majority of people in the country thought that greater controls were needed and more thought about the relationship between the value of the laboratory work and the adverse consequences for the animals. Despite the fact that some veterinary surgeons, including the British Veterinary Association, supported this view, many said nothing critical. A second problem arose from the increasing public opposition, during the 1980s, to the more extreme forms of confinement practised on farms. Most statements by veterinary surgeons supported these practices and no policy statements were made by the British Veterinary Association. In several other areas the veterinary position seemed to support some commercial interest rather than to help the animals. One example was the support for the gassing of badgers which might be carrying bovine tuberculosis and another was insufficient criticism of the breeders of farm animals or dogs with genetic characteristics clearly harmful to individual animals. By the mid-1980s, most active members of animal protection societies and a proportion of the general public thought of the veterinary profession as a barrier to progress in attempts to improve animal welfare. Some of these people held extreme views and would never be reconciled to human usage of animals but the majority were more moderate and were rather surprised to find that veterinary surgeons, who appeared to be caring in some ways, might not be in other ways.

In reality, what had happened was that public opinion had changed faster than veterinary opinion. Some people saw that and made substantial efforts to improve the public perception of the profession, to involve veterinary schools more in research on animal welfare and to provide the teaching which veterinary students themselves were demanding. As a result of these efforts the British Veterinary Association (BVA) set up the

Animal Welfare Foundation and an Animal Welfare Committee (later combined) and posts were created for teaching and research on animal welfare at veterinary schools. Public statements were made on major issues concerning animal welfare and more of those consulted on such topics, by government and the European Commission, came from veterinary departments. These actions received quite a lot of publicity and the image of the profession improved considerably during the late 1980s and early 1990s.

In the future, a greater openness will be demanded in our society. Members of the public will want to know more about what happens in laboratories and on farms. Communication with the public and provision of unbiased opinion to government will be required more of the BVA, the Royal College of Veterinary Surgeons (RCVS) and some of those involved in veterinary teaching and research. What the public expect from a veterinary spokesperson, and indeed from their own veterinary surgeon, is a certain amount of basic information and some informed comment about such topics as the effects of operations or housing conditions on animals, or the consequences for the animal of genetic engineering. An underlying desire to improve animal welfare is expected.

Veterinary students in the 1980s and 1990s hold views about animal welfare which may diverge considerably from those of the majority of the staff who teach them. They want to know about the latest scientific studies of welfare in order that they can decide upon their own attitudes. They are often asked about these by their peers and they want to be able to use the information during their careers. The teaching of welfare should be in part a specific course and in part a series of cross-references and topic enlargements in other parts of the veterinary course. The basic science aspect of welfare teaching cannot easily be incorporated in other courses, although some of it follows on from aspects of animal physiology, behaviour and husbandry. The specific details which should be included in an animal welfare course are listed in Table 16.3. Applications of this information should be presented in courses such as those on the medicine of particular species, including slaughter procedures.

Table 16.3. Welfare course contents.

Causes of welfare problems
Ethics and attitudes
Biology of systems for coping
Indicators of poor welfare
Alternative systems and problem areas
Animal preferences, recognizing good welfare
How to improve welfare
Moral and legal responsibilities

Training in recent developments in animal welfare is also needed by those in practice and those in the State Veterinary Service. Veterinary input is also important in courses on animal welfare for all others who have responsibility for animals.

Developments in Welfare Assessment

The fundamental questions in welfare assessment are: how do animals cope with difficulties, what happens to them when they are being damaged, and how can we discover what conditions and resources are good for animals? Measures of poor welfare are listed in Table 16.4 and are discussed at length elsewhere (Broom, 1988; Fraser and Broom, 1990; Broom and Johnson, 1993).

In order to assess welfare adequately a range of measures is needed and the number which can be used is increasing as we learn more about coping systems. The use of immunological measures (Kelley, 1985) or measures of opioid involvement (Cronin *et al.*, 1985; Zanella *et al.*, 1991) is relatively recent and these both are areas where advances are likely in the future. Our ability to assess welfare during life by carcass characteristics and pathology after death is also likely to improve. The question of disease as a welfare problem was addressed at a recent symposium (Gibson, 1988).

Recent advances in our knowledge of pain have a variety of consequences. Until quite recently, many human physicians stated that very young babies could not feel pain and operations were carried out without anaesthetic. Behavioural studies have now made it quite clear that babies can feel pain before and at the time of birth. The use of anaesthesia for operations on other species, such as castration of farm animals, has increasingly become normal practice as the extent of the pain involved becomes clear from experimental studies. Post-operative use of analgesics is likely to be much commoner in future in veterinary treatment as knowledge of, and concern about, pain in domestic animals increases.

Table 16.4. Measures of poor welfare.

Reduced life expectancy
Reduced ability to grow or breed
Body damage
Disease incidence
Immunosuppression
Physiological adaptations
Behavioural adaptations
Behaviour pathology
Self narcotization

Table 16.5. Breeding and welfare.

Aim of breeding	Consequences for welfare
Cosmetic – dogs	Movement difficulties, respiratory, sensory or neural malfunction
Double muscling – cattle	Calving difficulties, caesarians needed
Fast growth – pigs, broilers	Leg growth inadequate for body support
Extra size – foxes	Limb distortion, locomotion difficulties

Studies of the preferences of animals are steadily becoming more sophisticated and are yielding information on what is important to animals (Dawkins, 1983; Duncan, 1987). The whole question of how to recognize good welfare and how to assess the needs of animals is going to be the subject of much research. Animals vary in the methods which they use to cope with a variety of situations (Koolhaas *et al.*, 1986; Mendl *et al.*, 1993) and it will be necessary to allow for and be aware of such differences when managing them.

New Biological Developments and Animal Welfare

Our ability to control the genome of animals and of other organisms is increasing rapidly. Traditional genetics has posed a number of problems as regards the welfare of animals (Table 16.5). Dogs of various breeds have substantial abnormalities such that they should not be bred: neither should strains of cattle (e.g. Belgian Blue) which cannot calve except by caesarian section. Most of these breeds and strains are likely to disappear.

Genetic engineering opens up possibilities for much more rapid change in domestic animals, as explained elsewhere in this volume. Welfare could be improved by carefully controlled drug production from genetically

Table 16.6. Genetic engineering and welfare.

Aim of manipulation	Consequences for welfare
Extra production	Can be various body malfunctions and greater disease, e.g. lameness, mastitis
Drug or hormone production	Could be as above
Disease resistance	Reduced disease so better welfare

engineered animals (Table 16.6) or the use of gene splicing to produce disease resistant individuals. Attempts to obtain greater production from animals, by introducing new genes into the normal genome, could well, however, result in severe welfare problems.

Future Laws

Changes in the laws of many countries are likely to be passed in the future as a consequence of public concern for animal welfare. On farms the general tendency will be to enrich the environment of the animal and to ban the most restrictive systems. Crates for veal calves, tethers and stalls for sows and the battery cage for hens are likely to be banned in most countries. Cages for laboratory animals and zoo animals are likely to be increased in size and in complexity. There will probably be tighter restrictions on zoos and circuses and on the keeping of horses and other species for entertainment. Putting wild mammals, birds and some other animals into cages so that they can be kept as 'pets' is likely to be prevented in many countries because of the extreme effects on the individuals when it is done. Where animals must be transported, better loading facilities, lower stocking densities and shorter journeys are likely to be stipulated by law. For some species at least, mobile slaughterhouses will be developed so that poor welfare during loading and transport is prevented and meat quality is improved. Cosmetic mutilations of pets and various farm operations such as tail-docking, beak-trimming and castration in many species will be banned. Much more laboratory work will be carried out on cultured tissue, fewer animals will be used, analgesia will be used more widely and welfare will be monitored as a standard part of laboratory procedure. Laws relating to genetically modified animals should state that chemical or genetic engineering procedures shall not be allowed for general use unless they are proven harmless to animals thus treated, by studies of their health and welfare carried out throughout their normal longest commercial life.

Conclusions

Trends which are evident already relating to animal welfare are likely to continue in future. Attitudes to animals are changing and animal welfare, although already a scientific concept, will be understood better. The veterinary profession and veterinary research centres will have to keep in close touch with both public attitudes and animal welfare research if the public image of the profession is to improve. Veterinary students need to have a course on animal welfare in their curriculum and they will demand it. Animal welfare, and the advances in our knowledge about it, will have to

be taken into account whenever new techniques and procedures which can affect animals are devised. The trends towards more laws which improve animal welfare, which is already evident in some countries, will result eventually in the enactment of such laws in all countries.

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