

Animals in research: against and for

Dr Andrew Knight, a Fellow of the Oxford Centre for Animal Ethics and author of the book *The costs and benefits of animal experiments* (2011), writes in response to the article by Dr Fiona McEwen, entitled “Animal research: necessary evil ... or moral good?”, published in the November issue of *Veterinary Practice* [43 (9): 20-21] “WORLD Wars, the Holocaust, nuclear weapons, the Cold War, and the failure of socialist experiments drastically undermined our confidence in our own species,” asserted the vice-president of the Institute of Animal Technology in this journal recently (McEwen, 2011).

Dr Fiona McEwen argued that this has contributed to a lack of appreciation of human superiority over other species, and an unjustified level of social concern about the use of animals in laboratories.

Fiona's claims are certainly striking. Her powerful examples do indeed support the notion of a fundamental moral difference between humans and other animals – none of whom has been observed to inflict anything close to the level of intentional violence honed to an art form by weapons scientists and torturers.

Yet, Fiona was attempting to argue for a superior human moral status, on the basis that no animals possess “anything close to the rich inner life that we experience”. Six of the 10 references she provided were web pages of research advocacy organisations, whilst another was from a charity funding animal research.

However, a wealth of empirical evidence recently published in peer-reviewed scientific journals reveals that the psychological abilities of many animal species differ from those of humans only by degree, rather than kind, and that those degrees are much smaller than once believed (Benz-Schwarzburg and Knight, 2011).

Of course significant differences in such capacities do exist between healthy, human adults and those of animals. Yet the same is true for many humans who are very young, old, injured or ill.

Such differences are not considered sufficient justification for subjecting them to potentially painful or dangerous procedures, however, or for arbitrarily ending their lives. It is difficult to see exactly what morally profound difference applies to animals commonly used in laboratories.

Serious moral concerns

Fiona also argues that social concern about animal research is an unfortunate result of the secrecy enshrouding it, and that animal rights extremists are to blame. In doing so she denies the serious moral concerns raised by such research. A more plausible explanation is that those responsible are fully aware of the public outcry that would likely result if their laboratories were effectively built with glass walls.

Fiona asserts that laboratory animal handling and husbandry can be excellent. This is, of course, commendable, where it occurs. Unfortunately, however, it is a rather one-sided portrayal.

A wide variety of stressors have the

potential to cause significant stress, fear, and sometimes distress in laboratory animals. The stress caused simply by routine laboratory procedures and housing, for example, commonly results in profound, statistically significant distortions in a range of physiological parameters, including cardiovascular parameters and serum concentrations of glucose and various hormones.

Behaviour may be markedly altered, and behavioural stereotypies and increased aggression may develop over time, as may alterations in certain neuroanatomical parameters and even cognitive capacities (Balcombe *et al.*, 2004; Balcombe, 2006; Baldwin and Bekoff, 2007). A substantial minority of all laboratory procedures are also markedly invasive.

Or, as a colleague put it more bluntly: “[Fiona McEwen] seems on another planet. She should pay a surprise visit to Huntingdon Life Sciences sometime, or the Oxford lab, or Porton Down.

Or look at the undercover footage showing handlers being what can only be termed sadistic. Doesn't she know animals can be used time and time again for different experiments over a lifetime? Perhaps worst of all she seems not to have a clue that results from animal experimentation are not reliably predictive of human responses.”

Peer-reviewed evidence

Fiona argues that such research is justified, because of the significant medical and scientific benefits it yields. Unfortunately, however, once again Fiona's position is at odds with much of the peer-reviewed evidence.

In only two of 20 systematic reviews – one of which was contentious – located during a comprehensive literature search (Knight, 2008), did animal models prove significantly useful in the development of human clinical interventions, or substantially consistent with clinical outcomes. Seven additional reviews failed to demonstrate reliable human toxicity predictions.

Fiona concludes by decrying the lack of veterinary support for animal research: “When the profession does state an opinion it tends to be couched in apologetic terms, emphasising that it respects “the intrinsic value and sentience of animals”, and supports the reduction and replacement of animal use and the continuing of the strict controls under which animal research operates.” (BVA, 2008).

Actually, that's exactly the sort of position the profession should be taking. Perhaps it's Fiona who should be reconsidering her position.

References

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Dr McEwen responds...

As I argued in my original article, there is currently a powerful tendency to take the worst examples of history – events that arose in specific historical and social conditions – and to assume that they represent the essence of humanity. We could equally look to the best aspects of humanity, such as the universal ambition to give our children a better life in a better world (not merely to survive and pass on our genes) as what defines us.

Choosing only to see the worst leads to a profoundly biased and pessimistic view of our species.

Indeed, the ability to make moral judgements about historical events, and to hold people to account for their actions, is striking by its absence elsewhere in the animal kingdom. Animal behaviour has an automatic and unreflective quality: their lack of capacity to make reasoned decisions is why we don't hold animals to be responsible for their actions, and why pigs are no longer put on trial for murder.

As I have argued in detail elsewhere, the importance of experiences such as pain and suffering arises from the conscious experience of physiological events, not the physiological events themselves. “Consciousness, as we experience it, is about more than just responding, however cleverly, to events in the outside world or internally generated factors such as hunger or thirst” (p4).¹ It is only through a lengthy and complex process of development that each child develops consciousness of self as an individual, with explicit memories of past events and an explicit sense of the possibilities that the future holds.

While there are undoubtedly certain continuities between human and animal psychological abilities, there are also important differences. For example, memory processes that serve to organise behaviour in the context of on-going events are likely to be common to animals and humans.

These allow prediction of the immediate future based on similar situations from the past, but without involving explicit memory of any specific event. A dog might predict that the owner's return home signals a walk, and an infant might predict each element of a bed-time routine, but without there being a specific memory of any particular walk or bed-time.¹

Infantile amnesia

The phenomenon of infantile amnesia – the inability to consciously remember episodes that occurred in the first two to three years of life – only retracts with the development of autobiographical memory.² This is the type of memory that forms one's personal life history, and it is only with this development that children develop a true conscious awareness of themselves. This radically transforms subjective experience and represents a qualitative, not just quantitative, shift in psychological abilities.

The recognition that there are truly important differences between humans and animals is why the majority of people are happy to eat meat and use animals in other instrumental ways. We choose to protect human infants and adults who are not capable of self-conscious experience because of what they represent: infants have the potential to become conscious agents and mentally impaired adults have meaning to us as part of families and human society.

Similarly, we tend to deal with pet animals differently than we do livestock, not because they really are different but because pets are given value as part of human families.

To deny that animal research makes any useful contribution to human medicine is to deny the history of medicine. The medication that I am dependent on – thyroxine – was developed through a combination of animal experiments and a range of other methods,³ bringing benefits not only to the significant minority of people with hypothyroidism, but also to many pet dogs with the same condition.

It is worth remembering that there is no species barrier to deal with in veterinary research. We can develop knowledge and test novel treatments in the same species in which they are to be used. For example, following the emergence of canine parvovirus-type 2 experimental dogs played one part in the bid to “understand a disease, devise a means for its control, characterise the nature of the causal agent and chart the mechanism of its evolution” (p310).⁴ It seems fairly reasonable to subject a relatively small number of animals to experimental procedures if it is likely to reduce the burden of disease in many times more.

Of course, not every experiment will lead to useful information. As a researcher I am all too aware that sometimes experiments just don't work. However, these failures themselves lead to refinement, and cumulatively, from many thousands of experiments, knowledge accumulates and we learn more about how bodies work and how diseases manifest. Sometimes this will quickly lead to new treatments; sometimes there may be no immediate benefit, but the knowledge exists with the potential for future scientists to make the important breakthroughs.

It will always be possible to find examples of bad practice and there have been exposés of cruelty in labs, abattoirs, and even veterinary practices. However, taking at face value the idea promoted by animal rights groups – that this is representative of the entire industry – is somewhat naïve, is contrary to my own experience, and certainly insulting to the majority of technicians who take pride in their work and care about the animals they look after.

I believe that given most people's acceptance of the use of animals by humans, there is little difference between using animals for meat or for science. Of course, some people have strong ethical objections to any use of animals and choose to live a vegan lifestyle. For most of us, however, there is nothing evil about either meat or science and medicine.

• The facts and figures from *Understanding Animal Research*, cited in my original article, come from the Home Office and can be accessed online:

<http://webarchive.nationalarchives.gov.uk/+/http://www.homeoffice.gov.uk/publications/science-research-statistics/research-statistics/science-research/spanimals10/>.

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