



## Module 19

# Welfare of Animals used in Education, Research and Testing

## Student Activities

### Questions

**1. List three reasons why the use of animals in laboratory scenarios causes concern for some people.**

**(3 marks)**

- Animals are often subjected to invasive procedures that cause immense harm and suffering.
- The animals' housing and care does not benefit them and little or no effort is made to mimic their natural environment and allow for natural behaviours, which often causes them to experience stress.
- The human benefits of research carried out on animals are limited.

**2. Explain why anaesthesia may not provide adequate pain management.**

**(1 mark)**

Anaesthesia does not provide adequate pain relief because while some anaesthetic drugs may have an analgesic effect (e.g. ketamine), anaesthesia *per se* does not inhibit the pain pathway – it simply prevents animals from being conscious of pain.

**3. Name two possible uses of transgenic animals in science or medicine.**

**(2 marks)**

Any two of the following:

- Bio reactors (e.g. providing therapeutic proteins in milk by introducing genes of human origin into animals).
- Livestock/agriculture: animals genetically modified to grow faster or produce more.
- Models of human diseases, e.g. Parkinson's.
- Xenotransplantation (use of animal organs in humans).

**4. In the context of the use of animals in science, what do the '3Rs' stand for? Describe each of them briefly.**

**(6 marks)**

Two marks for each of the following answers:

- Replacement – refers to the use of animal alternatives such as animal cells, tissues or organs (that can be obtained harmlessly and kept in lab environments) as well as methods that do not require the use of animals at all.
- Reduction – refers to the use of methods that enable researchers to obtain comparable levels of information from fewer animals or to obtain more information from the same number of animals.
- Refinement – refers to the use of methods that prevent, alleviate or minimise pain, suffering, distress or lasting harm and/or enhance welfare for the animals used.

**5. What is a 'humane end-point' in an animal experiment?**

**(1 mark)**

This is a previously decided degree of pain or suffering which, once reached, should prompt the termination of an experiment and/or use of analgesia or euthanasia for the animal involved in the experiment.

**6. There are three main models of animal research in medical and veterinary work:**

- 1) Exploratory models**
- 2) Explanatory models**
- 3) Predictive models**

**Below you will find a definition for each of the above. Match each model to its correct definition.**

**(3 marks)**

- A) These are practical, allowing us to solve problems and make practical decisions concerning the efficacy, potency and safety of products such as drugs, vaccines, household chemicals, and even food, e.g. mice are used to test for toxic substances that shellfish may produce.
- B) These are designed to discover mechanisms: the mechanisms of cancer development, aging, drug activity, anxiety, etc. This is an area where genetically modified animals may be used, e.g. mice with a gene that predisposes them to develop a specific cancer.
- C) These generate information that does not have immediate application. If the information should have application in future, this may not yet be obvious.

Answers (one mark for each correct pair):

- 1C  
2B  
3A

## In-class activity

### Discussion

Both discussions should take approximately 35 minutes; they can be conducted as a whole class activity or in small groups.

#### 1. Should veterinary students be able to 'opt out' of sections of their course that use experimental animals if they are ethically opposed to such use?

##### Key prompts:

- Identify and characterise the type and number of animals used in your veterinary school:
  - Do these uses raise particular welfare and ethical issues?
  - Where are the animals sourced and housed?
  - What are the procedures they are used for and what is their associated welfare impact?
  - If they are killed, how is this done?
  - How are the 3Rs (replacement, reduction and refinement) applied to these procedures?
  - Do lecturers who want to use animals have to apply for a licence from an ethical review committee (or an institutional animal care and use committee)?
- Are there particular religious, cultural or spiritual beliefs that a student may hold which mean they will not want to take part in a particular type of animal use?
- Will students be disadvantaged in exams or in passing their course if they opt out of the animal use? Will they be punished or coerced to take part? Or will they perceive this to be the case?
- Are alternatives for students available, such as videotapes of previous procedures, CD ROMs, ethical cadavers (animals who died naturally and may be donated by their owners and embalmed by the university), simulation models, mannequins, clinical surgery that benefits patients or other alternative methods?
- Do any of the procedures offer valuable experience that will substantially improve the student's skill in a way that cannot otherwise be replicated?
- Do students who repeatedly use experimental animals become 'hardened' towards animals, losing empathy for them?

**2. New cosmetics are often tested for skin, eye and mucus membrane irritation, toxicity, carcinogenicity and teratogenicity using animals. Is the use of animals in the production and testing of cosmetics ethically acceptable?**

*Ahead of time, you may wish to ask students to look up some of the companies and or governments which still carry out or require cosmetic animal testing so they are able to relate the debate to their everyday consumer choices.*

**Key prompts:**

Arguments against the use of animals for cosmetic testing include:

- Consumers would rather have products not tested on animals (abolitionist view).
- Testing is unnecessary and the severe costs to the animals (especially Draize test, LD50 test and acute skin toxicity tests) outweigh the trivial benefits to humans (utilitarian view).
- Enough cosmetic products are available and compounds/ingredients are known substances without the need to develop more.
- Human volunteers could be used instead.
- Validated alternatives such as cell cultures, synthetic skin models and computer modelling can be more effective, more efficient and more reliable than animal models.

Arguments for the use of animals for cosmetic testing include:

- More and more tests are now subject to refinement and much less suffering results.
- Consumers demand that products they use are 100% safe; animal testing is assumed to be the only means of ensuring this.
- There may be a legal requirement to perform animal testing.
- Not all 'cosmetics' are 'vanity products': most definitions include products such as sun screen, which may be considered therapeutic and which are currently tested on animals.
- A ban on animal use at some point in the past could have resulted in lost opportunities for consumers and industry (please note that a ban could equally have allowed for more opportunities).
- Information from animal tests is used to treat patients after substance misuse, for example, accidental swallowing of large amounts of a product by children.

## Applied Learning Opportunity

### Faculty audit

During your veterinary education, you have probably been taught using animals, perhaps in the dissection room, the physiology laboratory, or in practice surgery.

If your faculty permits, do some brief research into the animals used in the course of your own veterinary training. Think about:

- where they came from
- how were they kept prior, during and after your use of them
- how you used them
- how they were killed (if this was carried out), and how you felt about sacrificing the animals you had used.

Discuss the ethical and welfare aspects of each of these points with the rest of your class. Do you feel that the use of these animals was justified? How could the 3Rs (replacement, reduction and refinement) be applied to each of the animals you have used? Is there an animal care policy in place? If not, what should an ideal one include? Is there an Animal Ethics Committee at your educational institution? If there isn't, discuss why this could be a useful step in introducing the 3Rs methodology to your institution.

*Notes for lecturer: This is not meant as a judgemental activity or one where the student is expected to come up with recommendations, but purely an opportunity for them to realise how their studies affect animals.*