3Rs

Developed in the 1950s, the 3Rs are a framework for humane animal research. They are now embedded in UK Animals (Scientific Procedures) Act 1986, amended 2012 and EU Directive 2010/63/EU legislation regulating the use of animals in scientific procedures.

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THE

3Rs

Understanding
ANIMAL RESEARCH

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REPLACEMENT of 'protected' animals (all living vertebrates, octopuses, and other cephalopods) in research with alternative techniques, or avoiding animal use altogether **REDUCTION** of the number of animals used by obtaining more information from the same number of animals or the same amount of information from fewer animals **REFINEMENT** of scientific procedures to minimise animal suffering enhancing welfare of animals throughout their lives in the animal house as well as in research situations

COMPUTER MODELLING

An example of Replacement in practice:

Sophisticated computer programmes mimic how new drugs might interact in the human body by using data from similar compounds. In silico models have replaced animals in some early stages of drug development, also identifying potentially hazardous new compounds.
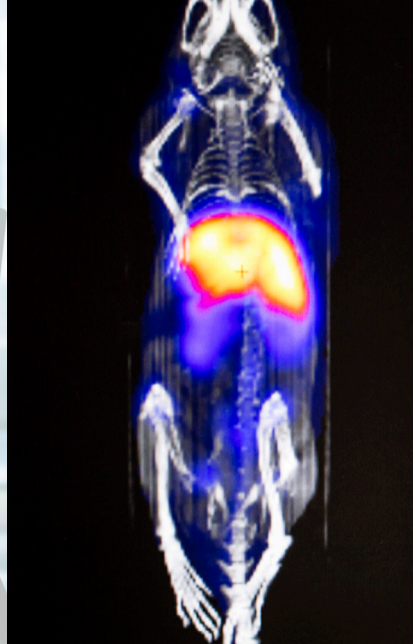
MAGNETIC RESONANCE IMAGING

An example of Reduction in practice:

Imaging technologies such as MRI allow changes to be seen inside the bodies of living animals. Tumour growth over time can now be measured in a single animal by weekly recordings. Previously, similar studies used post-mortem measurements, each requiring separate animals. The number of animals needed for a study has been dramatically reduced by these techniques.

PHOTO: Queen Mary University of London
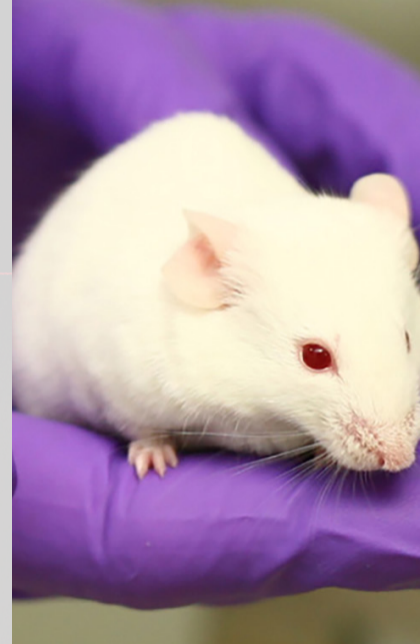
HANDLING MICE

An example of Refinement in practice:

Mice exhibit less stress when handled by cupping in a hand, or picked up in a tunnel than when they are picked up by the tail. Until recently laboratory mice were usually handled by their tails, but the new technique has improved both mouse welfare and the robustness of experimental data by reducing their anxiety.