

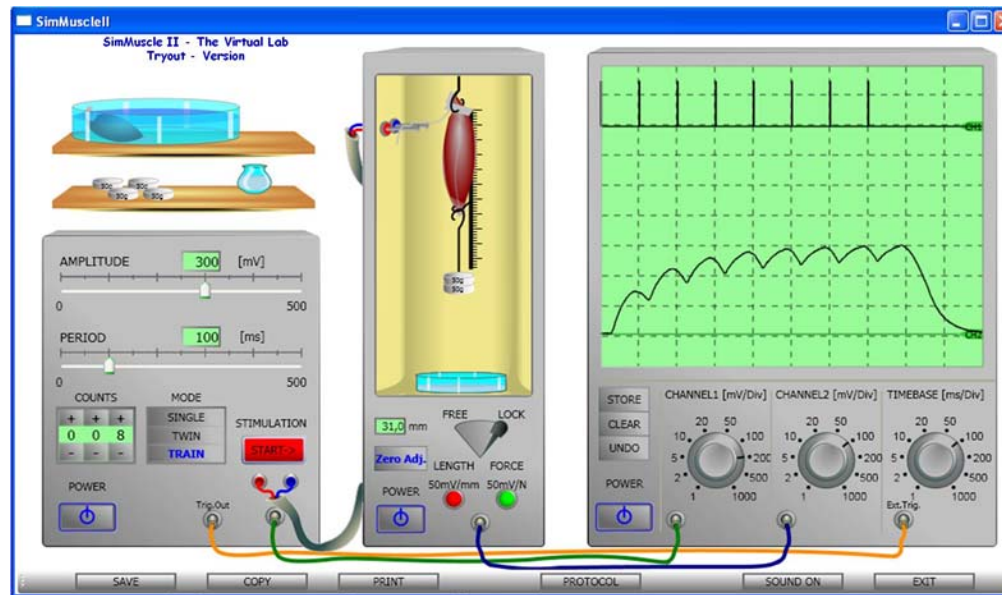


Supporting sustainable development through humane technologies and alternatives to animal experiments in education

Nick Jukes, InterNICHE



A taste of innovation and alternatives



A taste of innovation and alternatives



A taste of innovation and alternatives



Education and training



Not *research* (the acquisition of *new* rather than *known* knowledge)

Not *testing* (of drugs and chemicals for regulatory purposes)

But humane education supports humane science

Educational levels, faculties and disciplines



Education and training at secondary, university and professional level

Veterinary, medical and biology

**Anatomy, pathology, physiology, pharmacology, clinical skills
& surgery**

The focus



**Replacement of harmful animal use *within* education and training
to enable *learning through alternatives***

**Pedagogical: Effective acquisition of *knowledge, skills and
attitudes* by students and trainees**

**Design of the curriculum, and choice of learning method for
practical classes**

Animal use in education and training



The majority of conventional animal use has been harmful:

Dissection of purpose-killed animals

Animal experimentation

Other instrumental animal use



The real thing



Myth: **Animal experimentation is ‘the real thing’.**
Alternatives are not.

Clarification: ***This confuses the method with the objective***
Animal experimentation is just one method
The ‘real thing’ is effective gaining of knowledge,
skills and attitudes

Definition of alternatives in education and training



**Alternatives are educational aids or teaching approaches
that *replace* harmful animal use and meet teaching objectives**

Definition of harm



**Various aspects to harm, including pain, injury and disease;
death is also a significant harm**

See InterNICHE Policy for full definition

Multiple animal welfare and environmental problems



**Capture, breeding, selling, transportation, keeping,
preparation, killing and experimentation, disposal**

3Rs and the 1R of Replacement



Replacement, reduction and refinement of animal experiments

For education and training, full replacement is possible: 1R not 3Rs



Alternatives and animal welfare education



Teaching animal welfare and practicing harmful animal use is inconsistent

The lessons of animal welfare education are negated by harmful animal use: a significant negative lesson in animal welfare

Animal welfare education is essential, but must be done in parallel with replacement and alternatives

The use of alternatives is animal welfare put into practice

Alternatives: Tools and approaches



Non-animal tools

Humane approaches that involve animals (neutral or beneficial to individual animals)



Types of alternative



Film & video

**Clinical work with patients;
animal volunteers**

Models, mannekins & simulators

Student self-experimentation

Computer simulation & VR

***In vitro* labs**

**Ethically sourced animal cadavers,
organs & tissue**

Ethical field studies



Types of alternative



Film & video



Types of alternative



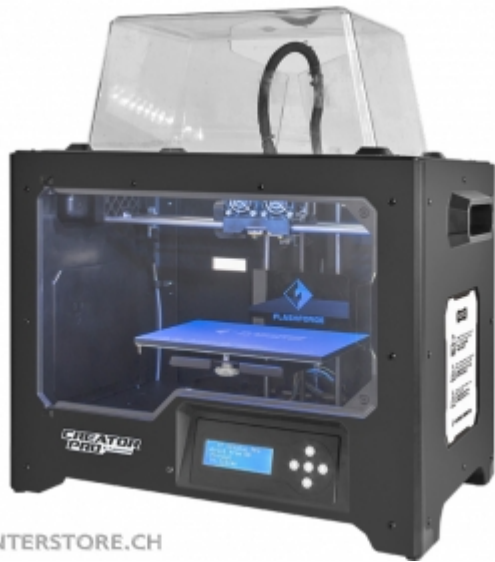
Models, mannekins & simulators



Types of alternative



Models, mannekins & simulators



3D-PRINTERSTORE.CH



Types of alternative



Models, mannekins & simulators



Types of alternative



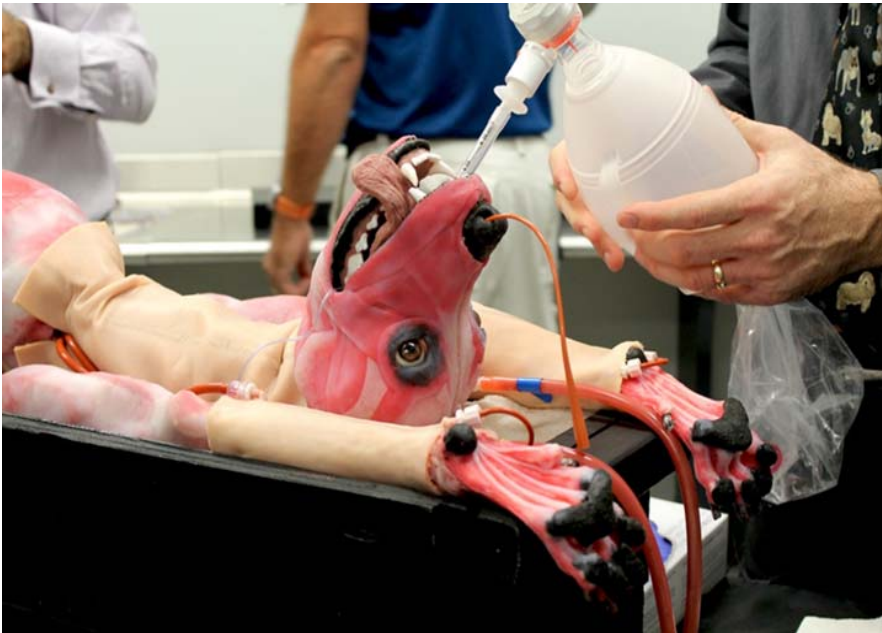
Models, mannekins & simulators



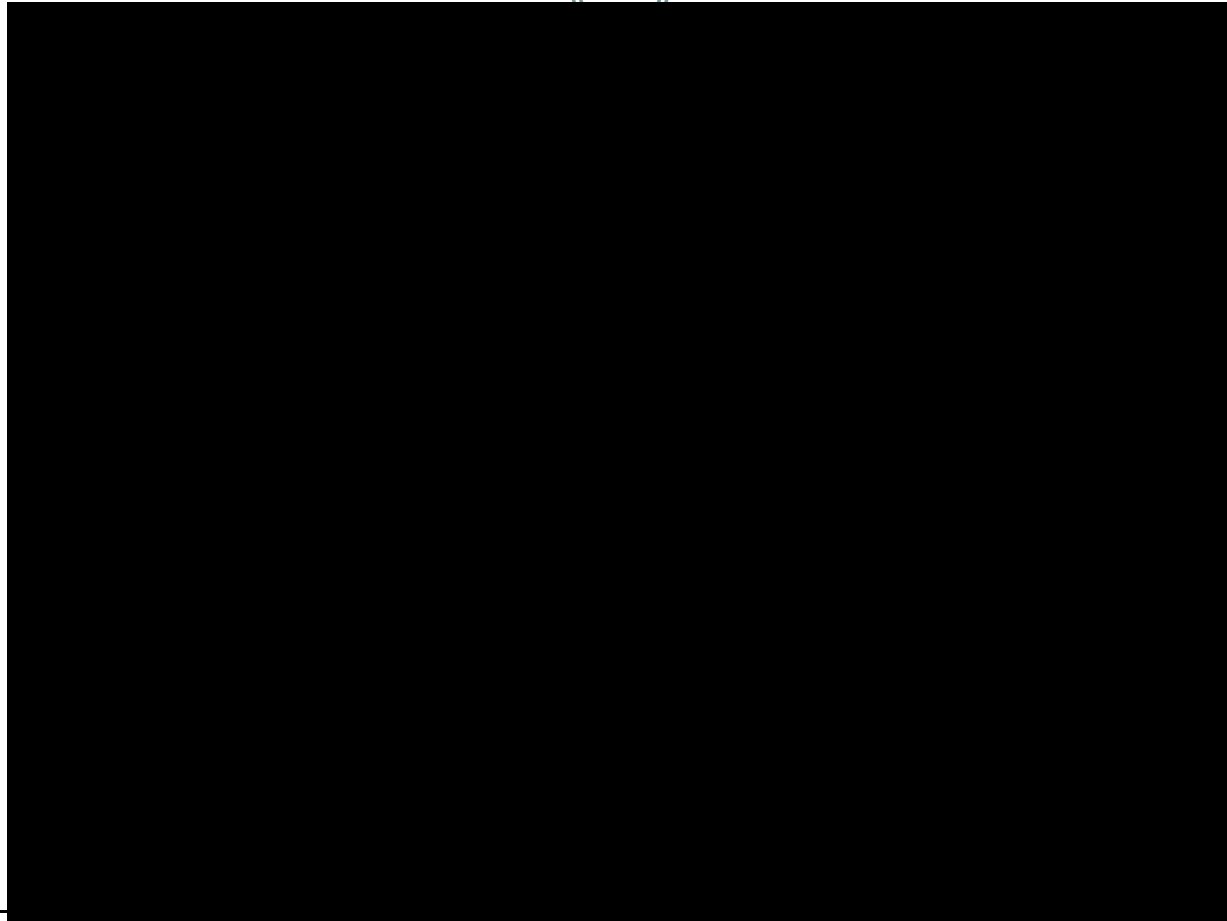
Types of alternative



Models, mannekins & simulators



Types of alternative



Types of alternative

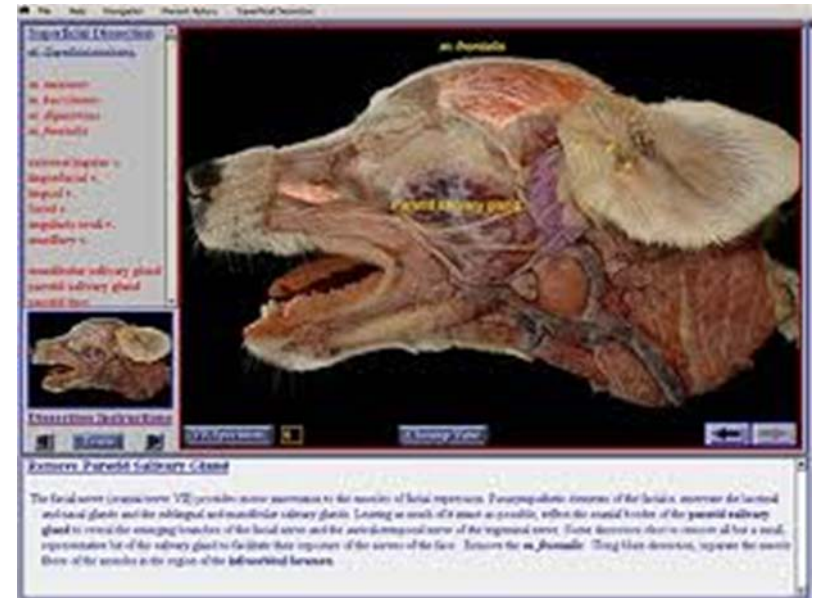
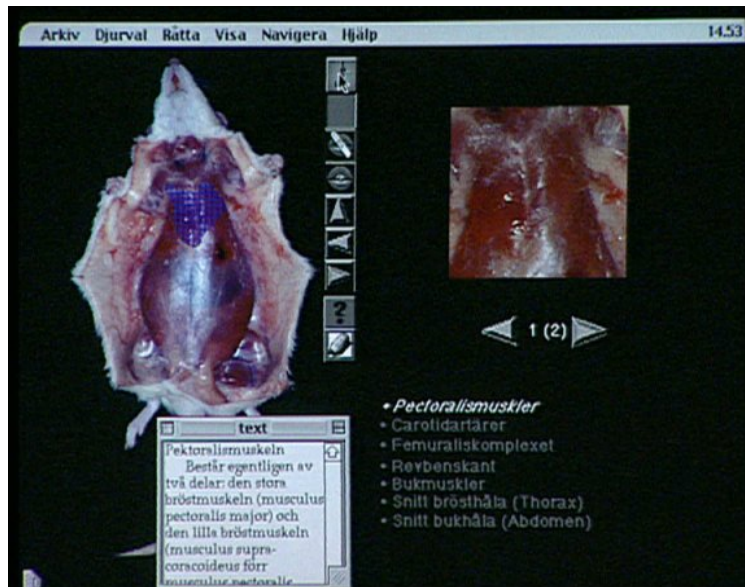


The screenshot shows a web browser window displaying the website for the Clinical Skills Learning Center at the College of Veterinary Medicine, University of Illinois at Urbana-Champaign. The browser's address bar shows the URL: `vetmed.illinois.edu/education/doctor-veterinary-medicine-degree/illinois-veterinary-curriculum/clinical-skills-learning-center/`. The website header includes the college logo and navigation links: NEWS, CALENDAR, DIRECTORY, CONTACT, INTRANET, LIBRARY, and a SEARCH icon. A dark blue navigation bar contains links for DEPTS/UNITS, RESEARCH, EDUCATION, ANIMAL CARE, DVM RESOURCES, ALUMNI, GIVING, and ABOUT. The main content area features the heading "ILLINOIS VETERINARY CURRICULUM" and "CLINICAL SKILLS LEARNING CENTER". On the left, a sidebar titled "EDUCATION /" lists "Doctor of Veterinary Medicine Degree" and "Illinois Veterinary Curriculum", with the latter expanded to show "Core Courses", "Elective Streams", "Clinical Skills Learning Center" (highlighted), "International Programs", and "Animal Use Policy". The main text describes the center's 24-hour access and comprehensive clinical skills training, followed by a bulleted list of offerings: small animal models (CPR, intubation, venipuncture, thoracentesis, bandaging, imaging, catheter placement, endoscopy), large animal models (equine colic, dystocia, pregnancy palpation, dehorning, castration, restraint, identification, medication delivery, epidural/CSF tap, transtracheal wash), sterile preparation for surgery, suturing simulators, and a communications skills center with four mock exam rooms.

Types of alternative



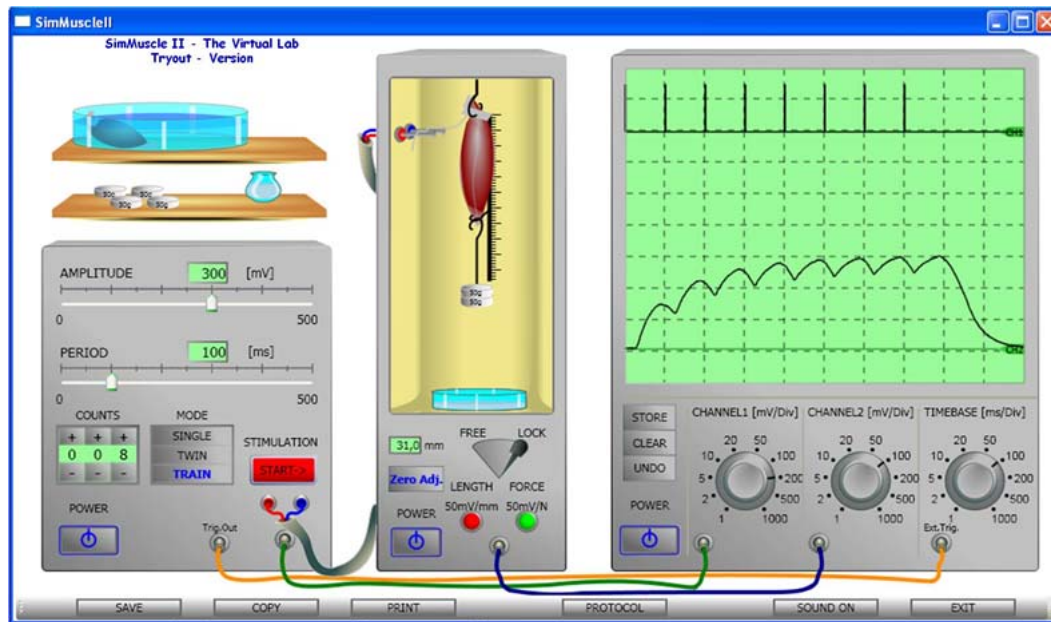
Multimedia computer simulation



Types of alternative



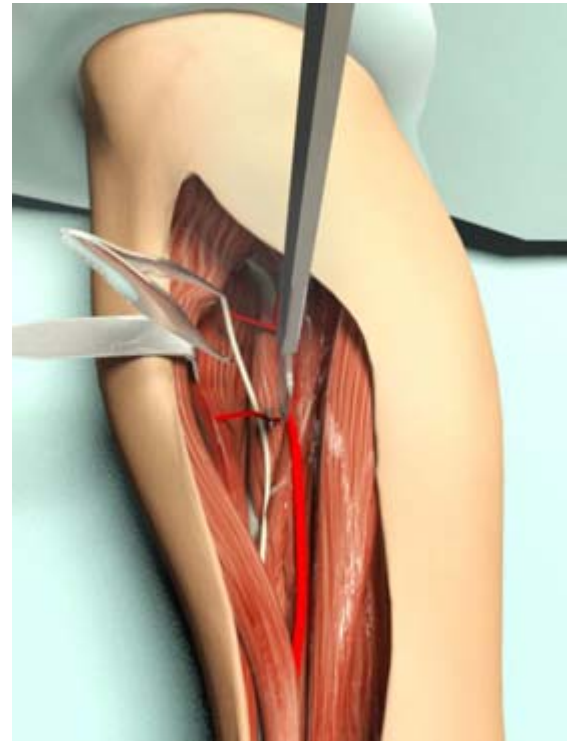
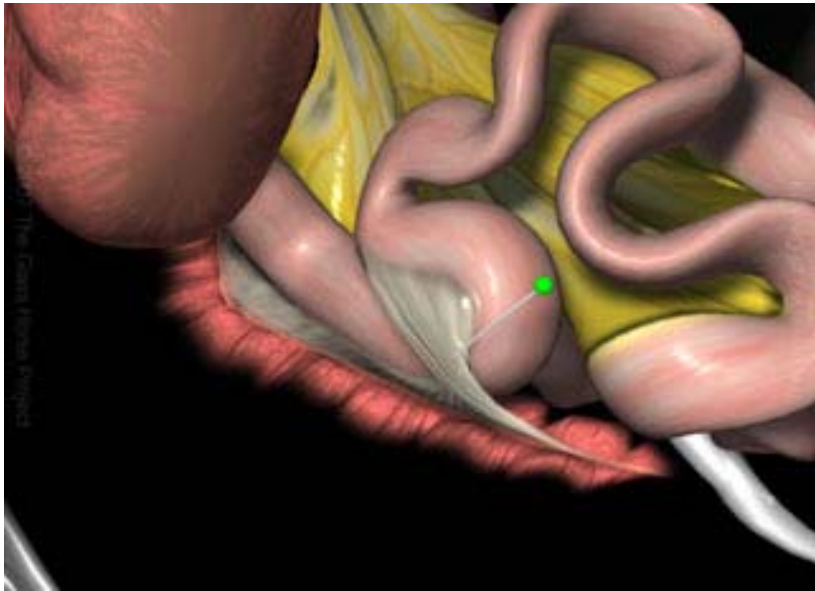
Multimedia computer simulation



Types of alternatives



Multimedia computer simulation



Types of alternative



Multimedia computer simulation & VR



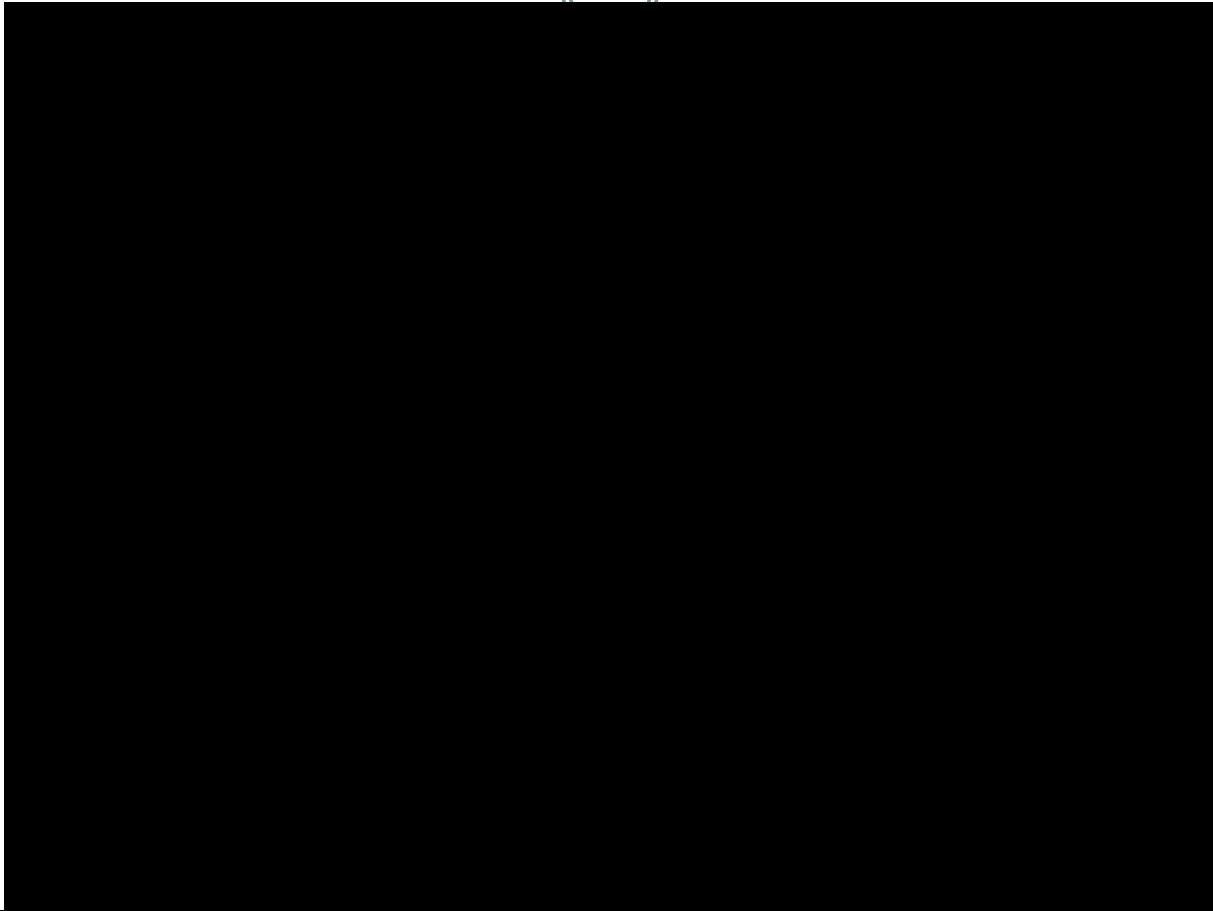
Types of alternative



Multimedia computer simulation & VR



Types of alternative



Types of alternative



Ethically sourced animal cadavers,
organs & tissue

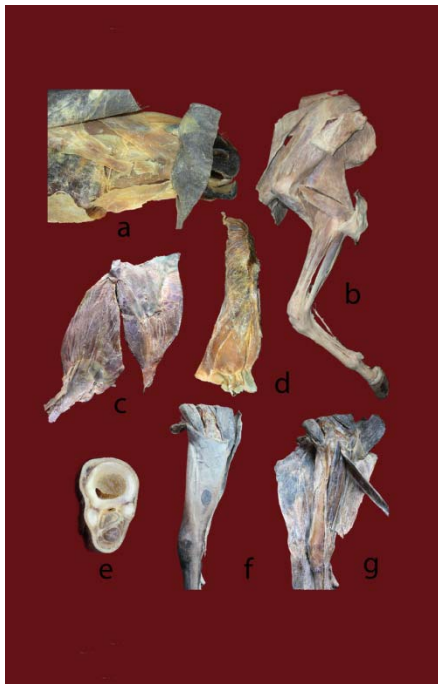
Body donation programs



Types of alternative



Preservation, perfusion, pulsation



Types of alternative



Preservation, perfusion, pulsation



Types of alternative

Clinical work with patients

*Case based: realistic,
experiential training*

*Clinics, mobile projects,
spay/neuter, wildlife*

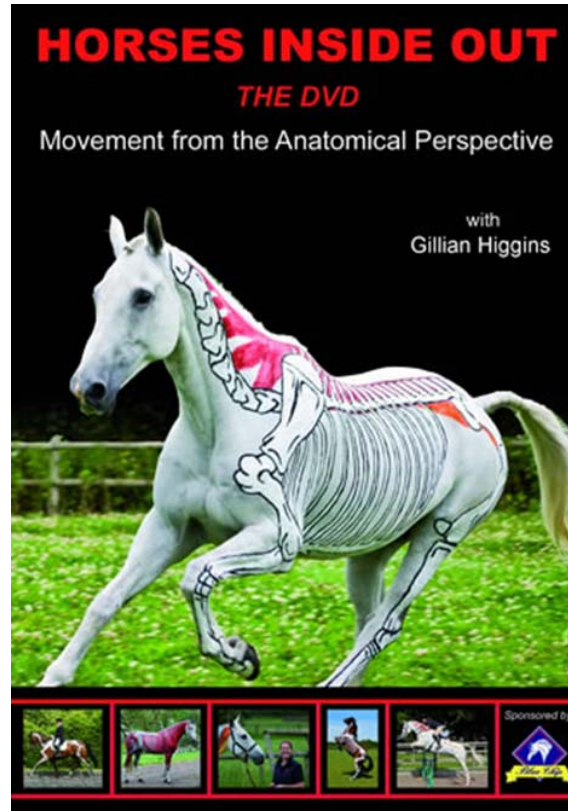
Care as a clinical skill



Types of alternative



Animal volunteers



Types of alternatives



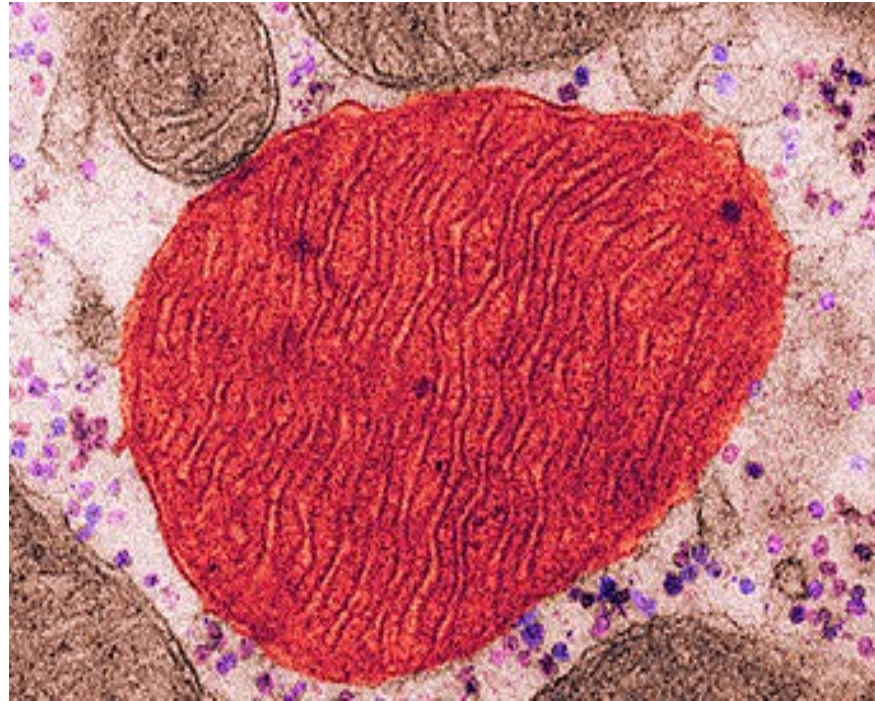
Student self-experimentation



Types of alternative



In vitro labs



Types of alternative



Ethical field studies



Teaching objectives and educational aims



Standard teaching objectives

Auditing courses

Acquisition of knowledge, skills and attitudes

Published studies

Technological literacy

Teaching objectives and educational aims



And more

Hidden curriculum

Life science philosophy

Emotional and ethical literacy

Accessibility and inclusivity

Freedom of conscience and civil liberties

Multiple positive impact of alternatives



Animal freedom

Environmental impact

Social impact incl health care

Economic benefits

Legislation

InterNICHE provision of resources, support and training



Information resources (incl vet film, case studies book)

Website and databases: www.interniche.org

Alternative Loan Systems

Small grants and freeware

Support for conscientious objectors

Conferences, outreach tours and training

Other resources



Other online alternatives eg www.virtual-physiology.com

DIY incl collaborative & interdisciplinary

Lush Prize (>£2m distributed since 2012) at www.lushprize.org

Conclusion



Alternatives are superior to harmful animal use

100% replacement of harmful animal use is possible

Diverse range of tools and approaches, alternatives exist for all practical classes

Growing momentum and successes, 'alternatives' as the norm

Alternatives provide win-win solutions: multiple positive impact for sustainable development



Demo of alternatives and discussion tonight!

7.30pm, conference room (next to dining room), Caleb Hotel



InterNICHE



Thank you for your attention



InterNICHE



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