U.S. MEDICAL SCHOOLS WHICH USE NO ANIMALS TO TRAIN MEDICAL STUDENTS[5]

New York University, New York, NY

Ohio State University, Columbus, OH

Michigan State University, East Lansing, MI

University of Michigan, Ann Arbor, MI

University of Washington, Seattle, WA

SUNY–Stony Brook, Stony Brook, NY

Hahnemann University, Philadelphia, PA

Louisiana State University, Shreveport, LA

Mercer University, Macon, GA

University of Maryland, Baltimore, MD

Howard University, Washington DC

Hahnemann University, Philadelphia.

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quicker and cheaper than conventional class experiments with animal tissues, but achieves a *better* standard of learning performance.[4]

Ultimately, whatever "alternatives" are chosen, medical students will acquire the most relevant information through supervised clinical experience. Indeed, the fact that many US medical schools have now rejected dog labs shows that animal classes cannot be "essential." Furthermore, at nearly all medical schools which still use animals, participation is optional, with students allowed to choose an alternative. This is supported by the American Medical Student Association which adopted a resolution in 1986 supporting the student's right to choose an alternative activity and to be free from any penalties or faculty intimidation.[5]

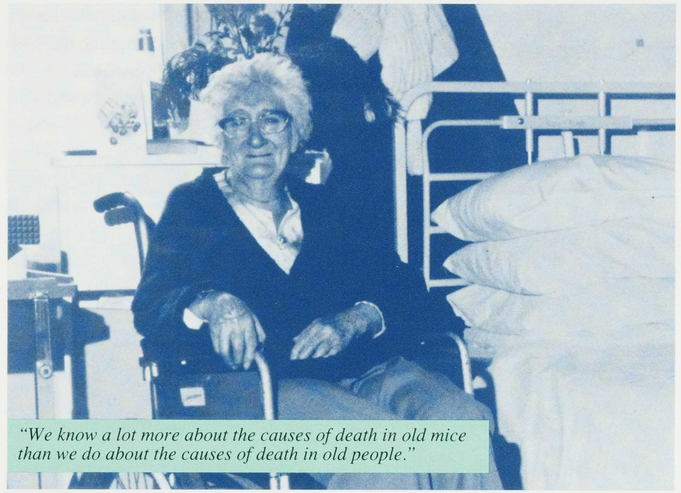
Dr Charles Branch of Auburn University, Alabama, is developing interactive videodisc simulations for cardiovascular and respiratory physiology, clinical neurology and toxicology. This involves computer animations of complex processes not demonstrable in traditional animal-based teaching laboratories, together with the ability to re-examine each example as often as desired.

(project funded by AAVS)

Dr. Karl Kraus of Tufts University School of Veterinary Medicine in Massachusetts uses computer-assisted design software and tomographic equipment to create elegant 3-dimensional computer anatomical demonstrations that allow students to practice routine medical procedures, without the use of laboratory animals.

(project funded by AAVS)

THE FUTURE.....



"We know a lot more about the causes of death in old mice than we do about the causes of death in old people."

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The impressive achievements of clinical and epidemiological research should come as no surprise. Unlike experiments on animals, there is little risk of misleading predictions and results are directly relevant to people. Even so, human-based research seems underrated and underfunded. The National Institutes of Health, for instance, spends about twice as much on animal research as it does on projects involving human subjects.[1] Indeed, Anthony DeMaria, President of the American College of Cardiology, has described clinical research in the US as a "threatened activity" because of the progressive reduction in funding by the NIH.[2]

Clinical investigators are also voicing alarm over the declining number of autopsies, a procedure critical to the understanding of disease. So serious has the situation become that Robert Anderson, chairman of the pathology department at the University of New Mexico School of Medicine, insists that[3]

"we know a lot more about the causes of death in old mice than we do about the causes of death in old people."

Work with human tissues is also widely neglected. At a Humane Research Trust conference in 1987, Professor Bayliss of London's Kennedy Institute of Rheumatology, described how human articular cartilage and intervertebral disc could be used to study osteoarthritis and low back pain without resort to animal models. Nevertheless, Bayliss noted that despite species differences,

"very few attempts have been made to use human cartilage as an alternative to animals."

The same is true in pharmacology, where scientists study precisely how medicines and naturally occurring body substances exert their effects on the tissues. An understanding of the chemical processes involved can be valuable in providing a more rational basis for the design of new drug treatments. But as Dr Müller-Schweinitzer of the pharmaceutical company Sandoz recently reported,[4]

"Despite the limited relevance for human pharmacology of most of the animal tissues, the use of human material in pharmacological studies is still the exception rather than the rule."

On the other hand, there seems no shortage of funds for experiments on animals. A striking example is alcohol research. Despite the well-known effects of alcohol and the availability of human tissues to supplement further clinical observations, animal research continues unabated. A report by the National Research Information Center, compiled by Murry Cohen, MD and Constance Young, found that the government funded 284 alcohol research projects involving animals during 1986, costing nearly $24 million. Even more damning is that published reports of animal experiments are riddled with contradictory results. In fact Cohen and Young conclude that

"animal research has had no significant effect on our knowledge regarding treatment of alcohol-use disorders."

It is true that compared with animals, which scientists regard as disposable,