

RESEARCH

Did you know that 92 percent of drugs tested as safe and effective in animals fail when tested on humans? Of the remaining 8 percent of the drugs that reach the public, more than half are relabeled or withdrawn because of the toxic effects that were not predicted in animal experiments. The reverse is also true: drugs that work in humans don't necessarily work in animals. Did you know that penicillin tested lethal in guinea pigs and aspirin caused birth defects in all seven of the species it was tested on?

Despite the above statistics, 90,000 to 100,000 dogs and cats are used in research and testing in the U.S. annually. The estimated number of animals (including cats, dogs, mice, rats, rabbits, guinea pigs, ferrets, nonhuman primates and others) killed in the U.S. for research and testing annually is 100 million.

More reliable and less expensive alternatives to animal testing have been available and widely used in Europe for years. For example, European validation studies found that five alternative, *in vitro* methods to detect potential fever-inducing substances called pyrogens worked much better than animal tests. One alternative, for instance, scored a detection rate of 96 percent, while the animal test's detection rate was only 58 percent. In addition, non-animal methods are much less time-consuming so more effective, less costly drugs get on the market sooner.

Some of the other alternative methods include: microdosing, epidemiological studies, human tissue testing, computer databases and simulators, genetic assays and imaging techniques. Europe has a law stating that animal tests cannot be used when validated alternatives exist. In the U.S., the FDA needs to endorse alternatives, and our elected officials need to pass legislation that confirms the FDA has the authority to mandate them.



PRODUCT SAFETY TESTING

Millions of living animals including dogs are used in the U.S. annually to test the safety of personal care products, cosmetics, household cleaners, pesticides, industrial chemicals and other materials. Product safety tests measure the levels of eye and skin irritancy as well as oral toxicity associated with a particular product.

A variety of non-animal safety tests exist today. Some examples are computer models and databases, clinical studies and *in vitro* methods involving cell cultures and tissue equivalents. These methods are superior to animal tests in a number of ways. An *in vitro* test called Corrositex, for example, can provide corrosivity determinations in three minutes to four hours while animal testing typically takes two to six weeks. Corrositex costs approximately \$200 while an animal test costs approximately \$1,200 to 1,800. Ultimately, consumers benefit since the cost savings from non-animal tests can be passed on to them through lower product prices.

Regulatory agencies such as the FDA and EPA accept animal tests but will only accept non-animal tests if they have been validated by a U.S. government agency called the Interagency Coordinating Committee for the Validation of Alternative Methods (ICCVAM). The ICCVAM has approved only 13 methods while its European counterpart called the ECVAM has approved more than 25 methods. The ICCVAM needs to approve more non-animal methods, regulators need to endorse them, and our legislators need to confirm that regulators have the authority to mandate them.

Health food grocery stores such as Whole Foods Market carry cosmetics, personal care and cleaning products that have not been tested on animals. Note that a label indicating that the finished product has not been tested on animals does not necessarily mean that the product's ingredients have not been tested on animals. See the Apply Kindness page of ChooseKindness.com for a link to a list of companies that ensure that their product ingredients as well as their finished products have not been tested on animals. Consumers have a lot of power to influence industry testing methods by purchasing only products that have not been tested on animals.

EDUCATION

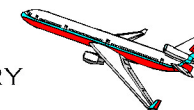
Over six million vertebrates are dissected in U.S. high schools annually. Cats are one of the species frequently dissected. Fourteen states such as Illinois allow students to refrain from dissection and other exercises that harm animals, however.

More than three dozen comparative studies from the Journal of Medical Education, American Biology Teacher and other publications indicate that students learn as well and often better through modern alternatives as they do from dissecting animals. In addition, the cost of using computerized dissection programs is less than the cost to dissect animals. The Teach Kindness page of ChooseKindness.com contains links to libraries of dissection alternatives that can be obtained on a free loan basis.

Of the 159 medical schools in the U.S., 151 of them no longer use live animals to teach students. A variety of alternative methods are used instead including computer-based learning, standardized patient exams, echocardiography and programmable human patient simulators. Simulators, for example, cost much less than animal methods and provide anatomy that is identical to a patient.



SUMMARY



Because of the open-mindedness and ingenuity of human beings, alternatives to the use of animals in research, product safety testing and education have been developed. These alternatives are highly successful—they are quicker, more effective and less expensive than animal-based methods. Regulators and school officials need to endorse and mandate them, however, so researchers, toxicologists and educators will use them.

The transportation industry's progression from horse-drawn wagons to more comfortable and much faster trains, cars, airplanes and jets has changed our world dramatically. Similarly, the replacement of outdated animal methods in research, product testing and education with more sophisticated non-animal ones will enable those fields to advance rapidly and to improve and save more lives.

CATS



- ◆ Cats see six times better at night than humans.
- ◆ Cats can run at speeds of 30 mph.
- ◆ Cats have more sensitive hearing than humans and dogs.
- ◆ Cats have the largest eyes of any mammal.



DOGS

- ◆ Dogs can sense odors at concentrations nearly 100 million times lower than humans can.
- ◆ Some dogs have the ability to warn epileptics of oncoming seizures, to detect cancer or to find and rescue disaster victims.



RODENTS

- ◆ Mice can enter a structure from a hole as small as 1/4 inch in diameter.
- ◆ Mice and rats communicate by touch, smell and sound at frequencies that humans cannot hear.
- ◆ Rats possess metacognition, a mental ability previously only found in humans and some primates.



PRIMATES

- ◆ A gorilla named Koko understands 2,000 words of spoken English and can respond to them through a modified form of American Sign Language.
- ◆ Young chimpanzees have outperformed human college students in tasks requiring remembering numbers.

ABOUT CHOOSEKINDNESS.COM

ChooseKindness.com is a compilation of resources for alternatives to the use of animals in research, product safety testing, education and other fields. It includes information on alternatives and their manufacturers as well as career descriptions written by individuals working in these fields.

"A human being is a part of the whole called by us universe. Our task must be to widen our circle of compassion to embrace all living creatures and the whole of nature in its beauty."

--Albert Einstein

ABOUT THE AUTHOR

Gretchen Chlebowski has a Bachelor of Science degree in Ecology, Ethology (animal behavior) and Evolution as well as Psychology from the University of Illinois at Urbana-Champaign. She has worked or volunteered for entities involved with animals or animal alternatives for over twenty years.

Many thanks to the organizations and individuals who created the lists and other information referenced on the ChooseKindness.com website. 1/10

Alternatives to the Use of Animals in Science

What You,
Your Dog
and Your Cat
Should Know

