

Purpose/Goal: The goal of this project is to determine alternative options to testing /experimenting on animals for the purpose of scientific, medical, product testing discovery, etc. I plan on showing that animal experimentation is not a necessary practice and one that should be considered obsolete in today's society.

Expected Outcome/Hypothesis:

What I expect to find is that there are many alternatives to using animals for experimentation purposes. I expect that my research will show that for most studies performed on animals there is an equally successful test that could be done without harming a living creature. I expect to find that the cruelty free options are less costly, more accurate and relate more closely with the results the products/tests would have on humans.

Vivisection

I decided to do my science fair project on alternatives to animal testing and I have decided to use this as an introduction to vivisection for those of you who are not familiar with the horrors that animals face all over the world in labs every day. I hope you take away from my report the knowledge needed to make the choice to live a cruelty free life.

Project: Background Knowledge Report

What are some alternatives to animal testing and the benefit/detriment they have on our society?

By Thomas Ponce

In order to find what alternatives there are to animal testing I first set out to find what testing is being done, on what animals and why. I also needed to understand the reasoning behind why the use of animals is needed, the pros and cons to these types of experimentations and the options available to eliminate and or limit such forms of experimentation.

During my research I found that animal testing is conducted for various reasons within the medical, scientific and cosmetic industries. I also learned that animal testing of certain pharmaceuticals and chemicals is mandated by law. One of the other groups using animals for testing purposes is the United States Military. Another piece of information I gathered was that some testing is done purely for the sake of testing/experimentation, as in school projects. There is rarely medical or scientific gain made from the use of animals in school dissection projects or animals used in science fair projects to earn a grade. The subject of animal testing has sparked many an argument as to the ethical obligation we have to all living beings versus the demand for well tested products and procedures that claim to benefit human beings. It is my opinion that these types of actions are cruel and unnecessary and should be eliminated from our society. It should not be promoted or encouraged in any way and especially not in our curriculum in schools, even if the rules of the ISEF governing committee (which incidentally is the only committee in the US that is allowing animal experimentation to be done in school science fairs) says it is allowed. These practices should be replaced with cruelty free practices and teachings, as to raise awareness and promote compassion amongst all living creatures regardless of the species.

The 4 main reasons in the scientific/medical community given as to why animal testing is done are;

- To advance scientific studies.
- As models to study disease.
- To develop and test potential forms of treatment.
- To protect the safety of people, animals and the environment.

The following is the definition of the three R's, the guidelines by which all animal testing is supposed to follow. *Source: GreenFacts based on the Canadian Council on Animal Care, www.greenfacts.org ›*

The Three R's principle was established in the early 1960s by two English biologists, Russel and Burch in their book “The Principle of Humane Experimental Technique”. The 3 R's stand for Replacement, Reduction and Refinement.

Replacement alternatives refer to methods which avoid or replace the use of animals. This includes both absolute replacements (i.e. replacing animals by computer models) and relative replacements (i.e. replacing vertebrates, with animals having a lower potential for pain perception, such as some invertebrates).

Reduction alternatives refer to any strategy that will result in fewer animals being used to obtain sufficient data to answer the research question, or in maximizing the information obtained per animal and thus potentially limiting or avoiding the subsequent use of additional animals, without compromising animal welfare.

Refinement alternatives refer to the modification of husbandry or experimental procedures to minimize pain and distress, and to enhance the welfare of an animal used in science from the time it is born until its death.

The following is a list of the most popular types of animals regularly used in animal testing, in what ways and in what numbers;

Mice and Rats- There are more than 100 million mice and rats that are killed in laboratories in this country every year. They are used and abused in every kind of experimentation imaginable from toxicology tests (in which they are slowly poisoned to death) to painful burn experiments to psychological experiments that prompt terror, anxiety, depression, and helplessness. They are electroshocked in order to perform pain studies, are dissected and mutilated during experimental surgeries, (having holes drilled in their heads for invasive brain experimentation) and are injected with drugs ranging from cocaine to methamphetamines. In some cases they are purposely given cancerous tumors and are then injected with human cells in genetic-manipulation experiments.



Explanation for the use of mice and rats for experimental purposes: Mice and rats are mammals and have a similar make up to human beings. They have a nervous system that scientists feel are similar enough to ours to use comparatively to human beings for test purposes. While through my research I did find that according to scientific and medical research that some similarities do exist in our nervous systems I also found studies that showed other more human similarities between humans and mice and rats. Studies show that they feel pain, fear, loneliness, and happiness just like we do. Just because they can't communicate with humans doesn't mean that they have no communication or language. It's been reported that mice and rats are highly social animals that have a communication system in place where they use high-frequency sounds that are inaudible to the human ear. Male mice have been witnessed wooing their mates with high-pitched love songs and if you tickle a baby rat they make a sound similar to a baby's giggle. It has also been proven that they become emotionally attached to each other, show affection and love to their families, and easily bond with human guardians (which are why pet stores are filled with them for sale as pets). Rats have shown the expression of empathy when another rat or a human they know is in distress or pain. They also have shown self-sacrifice for another in pain or suffering, similar to human beings.

Rabbits: Rabbits are frequently used in animal experiments mainly because they are mild-tempered making them easy to handle and breed. There are over 241,000 rabbits used and abused in laboratories across the country every year. Rabbits are used primarily in the Draize eye irritancy test. This test is administered with the use of cosmetics, dishwashing liquid, and drain cleaner and other substances. The liquids are dripped into the animals' eyes, often causing redness, swelling, discharge, ulceration, hemorrhaging, cloudiness, or blindness. Rabbits are also used to test skin corrosion. The rabbits' backs are shaved and corrosive chemicals are smeared on the rabbit's raw skin and left for up to two weeks to determine the effects the chemical has on the skin, sometimes causing tissue damage. These tests are done to gauge the effects that these products might have on human beings. Rabbits are also used in tests to study cardiovascular disease, skin conditions, and spinal cord injuries. The University of Utah during one such experiment cut deep incisions into the rabbit's backs and surgically inserted implants into their spines. The disfigured rabbits were then observed for a period of 24 weeks and then put to death. The rabbits used in all of these types of experiments are killed after the experimentation period is over. FYI-rabbits are not given any pain relief during these agonizingly painful tests.



Cats: Yes cats too! That's right your cute cuddly kitty's family members are not excluded from animal testing. There are almost 22,000 cats that are used in laboratories across this country every year for invasive brain experiments, vision experiments, auditory studies, stroke experiments and in orthopedic experiments. The cats are subjected to having holes drilled into their skulls and electrodes implanted into their brains in order to measure brainwave activity. They are raised in dark confined areas and have one or both eyes sewn shut, or worse have them removed. They have had their ears cut off and placed in restraint chairs where their brain activity can be monitored when exposed to different sounds. To simulate a stroke the blood flow to the cat's brains or eyes is blocked which brings on a stroke. Cat's spinal cords are demolished causing partial paralysis in order to study back disorders. There are also tens of thousands of cats that are killed and then sold to schools for classroom dissections, experimentations and science fair projects. Sometimes the cats are not killed at the schools until after the experiment is completed; At Michigan State University, experimenters/students cut into cats' faces, crushed their optic nerves, removed their eyes, and then killed them. There are even a small number of universities and hospitals that continue to maim and disfigure cats and kittens for the purpose of intubation training. The cats have rigid plastic tubes continually jammed down their windpipes causing bleeding, swelling, scarring, collapsed lungs, and even death.



Dogs: Man's best friend, obviously not always. There are more than 75,000 dogs, including the thousands of homeless animals from animal shelters that are used in laboratory testing in the U.S. alone every year. Dogs are a popular candidate for toxicology experiments. How these experiments are done is they take large doses of a test product such as an industrial chemical, pesticide, household product/cleaner or pharmaceutical agent and administer it by injection into the dog's body which very slowly poisons them as they note the reactions and effects they have on the dogs. Another form of popular testing being done on dogs is for heart and hormonal disorders. Vivisector George Billman, from the Ohio State University, conducted a study where he forced surgically manipulated dogs to run on a treadmill until they ultimately collapsed from a heart attack and left to die, which was the intention so that the damaged heart tissue could be studied. The abuse I found doesn't stop there though. In a cruel and violent experiment that took place at the University of Pennsylvania, an experiment using puppies was done to study degenerative eye disease that would conclude in blindness. The puppies were bred with the eye disease and at three weeks old had their eyes cut out and studied and then the puppies were killed after the experimentation was completed.



Pigs: There are in excess of 58,598 pigs that are mutilated and killed in surgical training exercises at universities and hospitals across this country. The pigs have holes cut into their throats, needles stabbed into their bones, and the tissue surrounding their hearts and organs is removed. Pigs are used in burn experiments where they have their skin singed off while they are still alive. The U.S. military also uses pigs in their training exercises. The pigs are stabbed, shot, burned and dismembered while being kept alive in some cases for 15 hours while conducting the trauma exercises/experiments.



Primates: Now we get to the most publicized use of animals in experimentation, primates. More than 124,000 primates are used in experimentations in the United States. Primates that are used in experiments are bred in government or commercial facilities, born in laboratories, or captured in the wild in countries such as China, India, or the island of Mauritius where they are torn screaming from their mothers, who are shot and killed in the wild, and permanently separated from them sometimes within three days of birth.



Primate's share many biological and psychological similarities with human beings and because of these attributes they are a major target for experimentation. While held captive in labs and having their basic most fundamental needs and wants disregarded, the primates are used for such experimentations as pharmaceutical tests, vaccine tests, military experimentation and training, maternal deprivation experiments and invasive brain experiments. The primates are subjected to having gavage tubes forced up their nostrils and/or down their throats, so that experimental product can be pumped into their stomachs. They are given a dose of an infectious diseases and then used as a "test monkey" (now you know where that saying came from) to try and find a workable vaccine while suffering from acute weight loss, major organ failure, breathing problems, and neurological disorders before they die horrendously painful deaths or are killed. During military testing primates were exposed to anthrax and infected with botulism and the bubonic plague. Another cruel study, maternal-deprivation, began more than fifty years ago when a man named Harry Harlow pulled baby primates away from their mothers, giving them a rag dolls in its place to study the effects of losing the maternal connection would have on a baby. At the Oregon National Primate Research Center, Wake Forest University, and the University of Washington, a similar study is being conducted. Infant monkeys are taken from their mothers to intentionally cause psychological trauma so that they can examine the harmful results. In recent studies being done, experimenters examined the correlation between maternal deprivation and whether the baby monkeys became right-handed or left-handed (now what impact does that have on society?) or how it affected the animals' alcohol-drinking behavior later on in life. Another popular use for primates is invasive brain experiments. In these experiments monkeys have their skulls drilled with holes, metal restraint devices screwed into their heads, and electrodes inserted into their brains. Some of the primates have parts of their brains destroyed or removed which impair their cognitive functions or can cripple them for life. They then have their bodies placed in restraint chairs and their heads bolted into place as they are forced to perform various behavioral tasks. Their brain activity is then recorded. In order to persuade the monkeys to cooperate with the experiment, they are sometimes deprived of water for up to 24 hours at a time. Upon completion of the experiments most of the animals are destroyed, and their brains are removed and dissected.



A lot of the testing that goes on in the United States falls under the umbrella that there are regulatory agencies that require tests to be performed on animals prior to the release of the product to the public. The agencies require that chemicals, pesticides, pharmaceuticals and many other products must be tested for toxicity. The regulatory agencies in the U.S. include the Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA). Other U.S. agencies that require/conduct animal testing include the Department of Agriculture, the Consumer Product Safety Commission, the National Institute of Environmental Health Sciences, the Department of Transportation, the National Toxicology Program and the military.

According to People for the Ethical Treatment of Animals (PETA) “some government-mandated tests kill more than 2,000 animals every time they are conducted. And not a single one of these animal tests has ever been formally proved to be relevant to or able to accurately predict human health effects.”

PETA has identified five tests on animals that could be ended immediately without any threat to public health and safety. I have placed a link next to the vivisection link on my website to PETA's fact sheet outlining the five tests in their own words.



According to the Humane Society of the United States there are nearly 50 different alternative methods and testing strategies that have been developed, validated and/or accepted by international regulatory authorities. These are a few examples taken from their website http://www.humanesociety.org/issues/cosmetic_testing/facts/alternatives_animal_tests.html#Examples_of_Alternatives :

Using blood from human volunteers to test for the presence of fever-causing contaminants in intravenous medicines can save hundreds of thousands of rabbits each year from traditional "pyrogenic" tests.

EpiSkin™, EpiDerm™ and SkinEthic—each composed of artificial human skin—can save thousands of rabbits each year from painful skin corrosion and irritation tests.

The Bovine Corneal Opacity and Permeability Test and Isolated Chicken Eye Test use eyes from animals slaughtered for the meat industry instead of live rabbits to detect chemicals and products that are severely irritating to the eyes.

The 3T3 Neutral Red Uptake Phototoxicity Test can replace the use of mice

The 3T3 Neutral Red Uptake Phototoxicity Test can replace the use of mice and other animals in the testing of medicines and other products for their potential to cause sunlight induced "photo-toxicity."

The Reduced Local Lymph Node Assay for skin allergy testing makes it possible to reduce animal use by up to 75 percent compared with traditional guinea pig and mouse tests.

When testing to determine chemical concentrations that are deadly to fish and other aquatic life, use of the Fish Threshold Method can reduce the numbers of fish used by at least 70 percent compared with standard test methods.

A complete list of validated and/or accepted alternative methods and testing strategies is available on The Humane Society of United States partner site AltTox.org.

There are many organizations that support these and other alternatives to animal testing, and are fighting daily to implement these practices and do away with the majority of animal experimentation in the world. Some of the groups involved in this movement and have been making scientific strides in the advancement of cruelty-free testing are;

Johns Hopkins Bloomberg School of Public Health whose mission statement as taken from their website <http://caat.jhsph.edu/about/index.html> is “The Johns Hopkins Center for Alternatives to Animal Testing (CAAT) is a small, non-profit center. As part of the Johns Hopkins University Bloomberg School of Public Health, we are dedicated to improving health for both people and animals. (In March 2000, *U.S. News & World Report* ranked Johns Hopkins #1 among all schools of public health.)

We promote humane science by supporting the creation, development, validation, and use of alternatives to animals in research, product safety testing, and education. We seek to effect change by working with scientists in industry, government, and academia to find new ways to replace animals with non-animal methods, reduce the numbers of animals necessary, or refine methods to make them less painful or stressful to the animals involved.”

AAVS— whose objective is “to unequivocally oppose and work to end experimentation on animals and oppose all forms of cruelty to animals”. Taken from their website;
http://www.aavs.org/site/c.bkLTKfOSLhK6E/b.6353579/k.2B2E/Working_to_end_the_use_of_animals_in_science.htm

Animalearn - <http://www.animalearn.org/about.php> whose statement is as follows “to foster an awareness of and a respect for animals used in education. We strive to eliminate the use of animals in education and we are dedicated to assisting educators and students to find the most effective non-animal methods to teach and study science. Animalearn has created The Science Bank, our lending program of new and innovative life science software and educational products that enable educators and students to learn anatomy, physiology, and psychology lessons without harming animals, themselves, or the Earth. Animalearn also provides humane education curricula and materials free of charge for educators and students”.

NEAVS- Founded in 1895, the New England Anti-Vivisection Society (NEAVS) is a Boston-based, national animal advocacy organization dedicated to replacing animal experiments with modern alternatives that are ethically, humanely, and scientifically superior. Through research, outreach, education, legislation, policy change, and legal action, NEAVS advocates for animals in laboratories, product testing, and science classes at all levels. Mission statement taken from <http://www.neavs.org/about/mission> NEAVS states that “Classes involving animal use may have negative psychological effects on students. Furthermore, such classes may not contribute to the proper attitude-building of students, i.e. that animals deserve respect and have an intrinsic value.”

NAVS - NAVS has spent nearly two decades trying to change the rules of the [International Science and Engineering Fair \(ISEF\)](#) to prohibit the use of vertebrate animals for invasive experimentation. **The Intel ISEF competition is the only one that currently permits projects that cause harm to vertebrate animals for the purpose of the competition.** Animals have been routinely used by students enrolled in the ISEF fairs at the local, regional and even the final competition. Despite the fact that some states have enacted laws to prohibit or restrict high school students from performing harmful projects on vertebrate animals, NAVS has documented cases where projects that harm animals are presented and even win at competitions in those states. Enforcement of this provision is lax both on the local and national levels of the competition. Exceptions are often made because the work is done at a laboratory under the supervision of scientists. In addition, students and teachers are often unaware of laws in their state that prohibit vivisection for school projects. I have attached the article this statement was taken directly from. <http://www.navs.org/page.aspx?pid=457>

An article printed in the *British Medical Journal* titled "Where Is the Evidence That Animal Research Benefits Humans?" written by researchers from the Yale School of Medicine and several British universities site how "researchers systematically examined animal studies and concluded that little evidence exists to support the idea that animal experimentation has benefited humans". The NEIC (Nutritional Ecology International Center) site the article as stating "systematic reviews of existing and future research are needed. [...] Ideally, new animal studies should not be conducted until the best use has been made of existing animal studies and until their validity and generalizability to clinical medicine has been assessed." They have also stated that "At present, though, the reality is a lot different from this ideal: when it comes to experimental research related to food and nutrition, animals are heavily involved". I have also included a copy of their findings in my report.

<http://www.nutritionecology.org/panel6/intro.html>

According to an article and study PETA did on count and counterpoint to animal testing, <http://www.peta.org/issues/animals-used-for-experimentation/animal-testing-bad-science.aspx>, human clinical and epidemiological studies, human tissue- and cell-based research methods, cadavers, sophisticated high-fidelity human patient simulators and computational models are more reliable, more precise, less expensive, and more humane than animal experiments. Progressive scientists have used human brain cells to develop a model "micro brain," which can be used to study tumors, as well as artificial skin and bone marrow. We can now test irritancy on protein membranes, produce and test vaccines using human tissues, and perform pregnancy tests using blood samples instead of killing rabbits. Animal experiments don't persist because they are the best science; they persist because of experimenters' personal biases and archaic traditions.

My Conclusion

From all the research I've now done on the subject and my own personal opinions I cannot find enough evidence to support the claim that animal testing/experimentation is our only option. There are an ample amount of alternatives to animal testing available out there, such as tissue and cell testing, reevaluating prior research and tests, digital analysis tools, etc. I have included a list of more alternatives and I'm sure there are many more that I was not able to find. I cannot find evidence that supports the cruel and inhumane treatment of animals for the sake of science, not when there are clearly safer, sounder, cheaper and more reliable and accurate options available that can be used. I personally cannot understand how placing an animal in a stressful situation torturing them and subjecting them to the horrors that take place in laboratories could possibly produce accurate results that would be beneficial to humans. That's a lot of factors to take into account. We are not rats, mice, dogs, cats, pigs or monkeys; regardless of the similarities that we might share we are not the same species. The fact that we are basing our health and safety on tests that are being done on completely different species than ours under conditions that we are not living in is absurd and scary to me. I have not found any conclusive evidence that would lead me to believe that we as human beings would have the same reactions to products, chemicals, procedures, etc. as other species. I have found through my research that reactions to drugs vary tremendously from one species to another, for example; did you know penicillin kills guinea pigs but is inactive in rabbits? Aspirin kills cats and causes birth defects in dogs, rats, mice, guinea pigs, and monkeys; and morphine, which is a depressant in human beings stimulates horses, cats, and goats. How is it that with these contradictions and varying results can we possibly gain enough insight and credibility from these experiments to risk our own health on them? It seems to me that it's just a whole lot of animal cruelty covered up by a myth that these experiments actually apply to us as humans. I don't know why we are continuing with this line of action. Years ago when we didn't know any better and were limited in our resources and knowledge I guess I can understand but in this day and age with all the new resources available and the studies that have already been performed on countless animals how is it that we are still following these outdated unnecessary, unproductive ways.

I believe as a society we have unfairly elevated ourselves above all other creatures and deemed our existence more important than theirs. I believe that because we have communication skills and opposable thumbs that we believe we are the only intelligent beings on the planet and that animals are here to serve our needs. Animals are treated as mindless soulless things to be discarded when our use for them is complete. It is a total disregard for life and is in my opinion detrimental to our society. We are on a superiority kick and it's producing uncaring, abusive cruel people. Animal cruelty in all forms is all over the news; you tube, in articles, etc. It's going on, on factory farms, in our military, in our production industries and yes in our laboratories. If the animals are so beneath us on the evolutionary chain , as insinuated by our actions, than why are we basing our precious health on results taken from experiments done on such a lower level being?

After completing my research and putting together this report, I truly believe that the most important thing that can be learned, and has been proven without a shadow of a doubt, from animal experimentation/testing is that we are wrong for doing it.

The greatness of a nation and its moral progress can be judged by the way in which its animals are treated.

I hold that the more helpless a creature, the more entitled it is to protection by man from the cruelty of man.

I feel that spiritual progress does demand at some stage that we should cease to kill our fellow creatures for the satisfaction of our bodily wants.

30 Reasons why animal testing doesn't work

Sources: ALF, Linda Beane with animalsinprint.org

- 1) Less than 2% of human illnesses (1.16%) are ever seen in animals. Over 98% never affect animals.
- 2) According to the former scientific executive of Huntingdon Life Sciences, animal tests and human results agree "5%-25% of the time."
- 3) Among the hundreds of techniques available instead of animal experiments, cell culture toxicology methods give accuracy rates of 80-85%
- 4) 92% of drugs passed by animal tests immediately fail when first tried on humans because they're useless, dangerous or both.
- 5) The two most common illnesses in the Western world are lung cancer from smoking and heart disease. Neither can be reproduced in lab animals.
- 6) A 2004 survey of doctors in the UK showed that 83% wanted a independent scientific evaluation of whether animal experiments had relevance to human patients. Less than 1 in 4 (21%) had more confidence in animal tests than in non-animal methods.
- 7) Rats are 37% effective in identifying what causes cancer to humans – less use than guessing. The experimenters said: "we would have been better off to have tossed a coin."
- 8) Rodents are the animals almost always used in cancer research. They never get carcinomas, the human form of cancer, which affects membranes (eg lung cancer). Their sarcomas affect bone and connective tissue. The two are completely different.
- 9) The results from animal tests are routinely altered radically by diet, light, noise, temperature, lab staff and bedding. Bedding differences caused cancer rates of over 90% and almost zero in the same strain of mice at different labs.
- 10) Sex differences among lab animals can cause contradictory results. This does not correspond with humans.

- 11) 75% of side effects identified in animals never occur.
- 12) Over half of side effects cannot be detected in lab animals.
- 13) Vioxx was shown to protect the heart of mice, dogs, monkeys_and other lab animals. It was linked to heart attacks and strokes in up to 139,000 humans.
- 14) Genetically modified animals are not like humans. The mdx mouse is supposed to have muscular dystrophy, but the muscles regenerate with no treatment.
- 15) Genetically Modified (GM) animal, the CF- mouse, never gets fluid infections in the lungs – the cause of death for 95% of human cystic fibrosis patients.
- 16) In America, 106,000 deaths a year are attributed to reactions to medical drugs.
- 17) Each year 2.1 million Americans are hospitalized by medical treatment.
- 18) In the UK an estimated 70,000 people are killed or severely disabled every year by unexpected reactions to drugs. All these drugs have passed animal tests.
- 19) In the UKs House Of Lords questions have been asked regarding why unexpected reactions to drugs (which passed animal tests) kill more people than cancer.
- 20) A German doctors' congress concluded that 6% of fatal illnesses and 25% of organic illness are caused by medicines. All have been animal tested.

- 21) According to a thorough study, 88% of stillbirths are caused by drugs which passed animal tests.
- 22) 61% of birth defects were found to have the same cause.
- 23) 70% of drugs which cause human birth defects are safe in pregnant monkeys.
- 24) 78% of fetus-damaging chemicals can be detected by one non-animal test.
- 25) Thousands of safe products cause birth defects in lab animals – including water, several vitamins, vegetable oils, oxygen and drinking waters. Of more than 1000 substances dangerous in lab animals, over 97% are safe in humans.
- 26) One of the most common lifesaving operations (for ectopic pregnancies) was delayed 40 years by vivisection.
- 27) Blood transfusions were delayed 200 years by animal studies.
- 28) The polio vaccine was delayed 40 years by monkey tests.
- 29) 30 HIV vaccines, 33 spinal cord damage drugs, and over 700 treatments for stroke have been developed in animals. None work in humans.
- 30) The Director of Research Defense Society, (which serves only to defend vivisection) was asked if medical progress could have been achieved without animal use. His written reply was “I am sure it could be.”

WE DON'T SMOKE. WE DON'T DRIVE.
WE DON'T WEAR MAKE-UP OR PERFUME.
WE DON'T USE PAINT. WE DON'T DRINK ALCOHOL.
WE DON'T DROP BOMBS. WE DON'T TAKE DRUGS.
JUST BECAUSE YOU DO, WHY SHOULD WE SUFFER?



**If you call it
"medical research,"
you can get away
with murder.**

Experiments on animals: **Switch to a better way.**



Bibliography

- Education of Animal Related Issues, *Group for Alternatives to Animal Testing:or, Alternatives to the use of animals in Research*, <http://www.geari.org/alternatives-to-animal-testing.html>
- NEAVS, *Alternatives in Education*, <http://www.neavs.org/alternatives/in-education>
- About my Planet, *Animal Testing*, <http://www.aboutmyplanet.com/science-technology/animal-testing/>
- ASPCA Kids, *Animal Testing*, <http://www.aspca.org/aspcakids/real-issues/animal-testing.aspx>
- Ethical Science Education, *Campaigns* , <http://www.neavs.org/campaigns/esec>
- NAVS, *Animals in Education*, NAVS Intel ISEF Campaign, <http://www.navs.org/page.aspx?pid=457>
- GreenFacts, *GreenFacts based on the Canadian Council on Animal Care*, www.greenfacts.org › [Home](#) › [Glossary](#) › [TUVCached](#) - [Similar](#)
- PETA.org, *Give Animals 5*, <http://www.peta.org/issues/animals-used-for-experimentation/five-alternatives-to-animal-testing.aspx> ; *Animal Testing in Depth*, <http://www.peta.org/issues/animals-used-for-experimentation/animal-testing-in-depth.aspx> ; *US Government Testing Programs*, <http://www.peta.org/issues/animals-used-for-experimentation/US-government-animal-testing-programs.aspx> ; *Alternatives To Animal Testing*, <http://www.peta.org/issues/animals-used-for-experimentation/alternatives-to-animal-testing.aspx>, <http://www.peta.org/issues/animals-used-for-experimentation/animal-testing-bad-science.aspx>,
- HSUS, *Alternatives To Animal Testing*, [http://www.humanesociety.org/issues/cosmetic_testing/facts/alternatives_animal_tests.html#Examples of Alternative 5](http://www.humanesociety.org/issues/cosmetic_testing/facts/alternatives_animal_tests.html#Examples_of_Alternative_5) :
- Johns Hopkins Schools of Public Health; *About Us: Center for Alternatives to Animal Testing* <http://caat.jhsph.edu/about/index.html>
- AAVS; *About Us*, http://www.aavs.org/site/c.bkLTKfOSLhK6E/b.6353579/k.2B2E/Working_to_end_the_use_of_animals_in_science.htm
- Animalearn; *About Us*, <http://www.animalearn.org/about.php>
- NEAVS; *About Us*, www.Neavs.org
- www.Brainyquotes.com, *Ghandi quotes*
- NEIC; *Animal Testing*, <http://www.nutritionecology.org/panel6/intro.html>
- ISEF, *Rules and Regulations for Vertebrate Animal Use*; <http://www.societyforscience.org/page.aspx?pid=312>