

# Should funding of research



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Xenotransplants is the donating of living organs from two different species, especially monkeys and pigs to humans. Although xenotransplant is relatively recent, the idea and concept of it dates back to the early 1900 s.

The word xenotransplant comes from Greek. Xeno meaning stranger or foreigner and transplant comes from English. A transplant is replacing or adding an organ from another human. All together it means a transplant from a different species. A graft is the organ from the donor and if it comes from a different species it would be called a xenograft.

The first demonstration of xenotransplantation was seen in 1906, where a French doctor, Alexis Carel, successfully connected a pig s kidney to the circulatory system of a woman. A year later the surgeon did the same to another woman but with a goat s liver. Although neither women survived, his experiments started the idea of using organs from other species to prolong human life.

Large organizations and campaigns such as CRT (Campaign for Responsible Transplantation) have always deeply opposed xenotransplants from the beginning. Companies and pharmacies such as Pestro s Pharmacies and Novartis have invested billions on xenotransplantation research.

Currently, Xenotransplanting is being regulated by the FDA (Food and Drug Administration) over the last several years. FDA has allowed limited clinical experiments, such as the pig s genetic modification and also trials with animal tissues, cells and organs, to act as bridges, while connected to the patients circulatory system.

Numerous attempts to save unhealthy patients were unsuccessful, but there is still much to research.

#### Moral Issues:

I believe that it is wrong to kill monkeys for their organs in order to save humans, although I think it might be acceptable from pigs. I think this because pigs aren't comprehensive and smart while some primates have the intelligence and psychological life of a human. Monkeys would also suffer more, for example, when a primate is removed from its family's habitat, it is likely that he would be missed. Pigs always have and still are slaughtered for meat and leather; therefore, using what's going to be thrown away is not so bad.

We might think that using the leftovers of the pig is not so bad, but once xenotransplantations develop, the number of pigs killed will grow. Once perfected, more and more people will want and need to use it for smaller causes and more pigs would be killed.

Xenotransplants are also dangerous for the humans. Our Immune System, creates antibodies to fight off foreign viruses or diseases. If a pig's organ would be inserted in our bodies, the antibodies would fight it. This means that the pig's organ, which is replacing yours, would probably die. Another danger is diseases. Hundreds of diseases are known that came from animals, including HIV. Scientists are fighting this obstacle in two ways. They are developing a drug that tricks your Immune System to accepting the new body. It is called an immunosuppressive drug. Another way that scientists are trying to trick the immune system and prevent some viruses, is by adding

human genes to the pig. By altering the pigs genetics similar to humans, the Immune System will also believe that it is not a foreigner. So the scientists have decided to create their own type of pigs with human genes.

These special pigs would mature in the control of virologists, and they would try to keep the pigs as much as they can diseases-free to prevent viral infections. I think that that is wrong. First it would not be fair on the pig because it would probably maintain in a cage and would have no freedom. The pig would also be slaughtered once it would reach a certain age. Many pigs already have suffered from painful physical abnormalities due to genetic experimenting. That is not fair on the pig because we are using him to lengthen our lives. The animals should also have their freedom.

Not only would it be unfair on the animal to be confined in a cage or in a small area, but also I think it would be impossible to keep the animal completely free from viruses or diseases because they might be born with it. It is also impossible to maintain a pig completely free from parasites.

Ironically, it is precisely because people eat too many pigs and have unhealthy lifestyles that transplants are needed. Heart, Liver and Kidney transplantations would reduce if people shortened their meat, alcohol and tobacco consumptions. We should ask ourselves if animals should be giving their lives because of our behavior.

Cultural Issues:

I m against xenotransplants based on Cultural Issues. Two of the world s greatest religions, Islam and Judaism, prohibit the eating of meat. They are

also forbidden to kill any animal without a ritual and it must be done with some purpose. If xenotransplant is allowed, the two religions will debate against it. It would be very disrespectful to kill pigs for research, while they don't kill them even for food. The modifying of genes in pigs to fool our Immune System might also oppose religions.

#### Social Issues:

Xenotransplants are extremely risky to be carried out today and I think we could prevent it if we increased the number of human donors. The biggest risk is the possible disease that could be transmitted. A small virus that a nonhuman primate may have, might not affect him at all, while if it is transmitted to a human, it is fatal. Transplanting an organ from an animal allows viruses to pass through our natural barriers (skin and gastrointestinal tract) that prevent infection.

Animals have spread hundreds of fatal infections to us. Including HIV, which evolved into AIDS. The pig alone contains 25 diseases that are harmless on him, and could be harmful or even lethal on us. New pig viruses keep on being discovered. The most recent in October 1998, was discovered in Malaysia and killed over 100 people and forcing humans to massacre over 500, 000 pigs and several horses and dogs.

Since there is no way of accurately monitoring all the possible infections a pig could pass to us, Xenotransplants are too risky. If any disease contaminated a patient, it could be months until they detect it. Not only would it not be months until it would be detected, it could also be

transmitted through a simple sneeze or a cough. A harmless disease on a species could launch a worldwide virus on us.

Xenotransplants are also very expensive. It is estimated a price of 300, 000 dollars, not including the hidden costs of either the immunosuppressive drug or the creation of a germ-free pig. If xenotransplants are accepted, FDA wants to archive tissue samples of both the xenograft recipient and the animal. FDA s officials estimate the archive costing 1 million dollars and an extra of 250, 000 dollars per year. A lot of expensive research is needed to perfect the germ-free pig. Just testing a pig for bacteria would cost from 25, 000 to 100, 000 dollars.

Based upon these estimates, xenotransplantation is not cost-effective.

Novartis, a major company researching Xenotransplanting has already spent 1 billion dollars. This company is greatly denounced and criticized by CRT. Sandoz Alexion, president of Novartis said, The unrecognized potential of xenotransplant is so obvious. By the year 2011, Novartis say they ll have an annual profit of \$6 billion.