

# [Mending is a worldwide activity (refer to figure](https://assignbuster.com/mending-is-a-worldwide-activity-refer-to-figure/)

Mending a Broken Heart Essay Heart is the most important organ ofthe body and the key of blood circulation. It is located beneath the sternum(breastbone) and is about the size of our fist.

The heart beats average seventybeats per minute and pumps about 5 liters of blood per minute, in another termtotal volume of blood in the human body each minute. Humans are not able to survive withouthearts and many scientists have been focusing on technologies to mend a broken, damaged, heart.  There are four heart replacementtechnologies that are most well-known to modern scientists: ‘ Human HeartDonation’, ‘ Xenotransplantation’, ‘ Tissue Engineering’, and ‘ Artificial Heart’. Each method has rescued many lives who suffered or could die from themalfunction heart.  To begin with, I would like to describeabout ‘ Human Heart Donation’. This method, as the name suggests, is a worldwideactivity (refer to Figure 1.

) whichis an act of replacing the malfunction heart with healthy donor’s heart whichis donated from charity or possibly individual volunteers. “ Donation is key tosaving the life of a patient who is waiting for a heart transplant as theseverity of the weakened heart is critical.” (Donors1.

org, 2018)Figure1. Global rates of kidney transplantation from living and deceased donors. “ Reproducedfrom Global Observatory on Donation and Transplantation (GODT) by permission ofWHO.

“(Who. int, 2018)As such, the situations applying thismethod, can be when other treatments for heart damage have not worked, whichcan lead to heart failure in the future. When the operation of hearttransportation is done, people will be able to recover in just a few weeksalthough they will be weak at the beginning. It is also very crucial to havesimple activities to strengthen their body and health; “ pushing, pulling orheavy lifting until your breastbone is fully healed.” (Bhf. org. uk, 2018) Second heart replacement technology is’Xenotransplantation’. As the prefix, ‘ Xeno-‘ means alien, strange, and guest, this technology, unlike from ‘ Human Heart Donation’, is “ any procedure thatinvolves the transplantation, implantation or infusion into a human recipientof either live cells, tissues, or organs from a nonhuman animal source.

” (Fda. gov, 2018) This technology wasdeveloped by the fact that the need for the human organs far exceeds thecurrent low supply. Figure 2. is a statistic that shows thousands of people are waiting for organs.

Figure2. A quarterly statistic of transplant waiting list in United Kingdom(Organ Donation – English, 2018)To elaboration on, there areadvantages of ‘ Xenotransplantation’, not only increasing the supply of source butalso the therapeutic use. The technology can play a huge role in certaindiseases such as diabetes and neurodegenerative disorders, in situation wherehuman materials are not usually available.  Third of all, there is a technologycalled, ‘ Tissue Engineering’. The heart muscle disease has been recognized atipping point for progression to heart failure.

National statics from UnitedStates indicates that there are over five million people damaged by heartfailure each year and about three hundred thousand deaths. Furthermore, the fully-grownheart muscle cells cannot divide into injured cells. The scar tissues resultinto area of damaged myocardium. Thus, the best approach to solve this issue isto avoid such scar formation or simply replace the formed scar tissue withfunctioning cardiac muscle tissue. On the contrary, there are limitations dueto short length of cell life and poor cellular integration with receiving theheart tissue. The final technology is replacing theuseless heart with ‘ Artificial Heart’. An artificial heart, indicated in Figure 3. is a “ prosthetic device thatis implanted into the body to replace the original biological heart.

” (ScienceDaily, 2018) Figure3. A picture of a man with the ‘ Artificial Heart’ (Baptist-health. com, 2018)As I have mentioned above regarding’Xenotransplantation’, there is a short supply of human organs, thus there isan obvious credit which would lower the demand for heart transplants when usingthe artificial heart. Moreover, due to components of artificial heart aremetals and plastics, the components are not rejected by our body’s immunesystem. On the contrary, patients have to take special drugs to thin the bloodcell in order to prevent from strokes. The situations can be serious when theyare hurt in some accidents where they bleed a lot. In this regard, I would like toexplain about ‘ Xenotransplantation’ in detail. To briefly summarize and outline someemphasis of the previous points, I would like to discuss about its pros andcons and, later on, about its ethical issues.

To begin with, heart transplants can savethousands or more lives every year, however there is insufficient number ofhuman organs donated. The shortage has led to attempts todevelop animal organs that can be transplanted into humans. Such developments hadresulted recuing lives more than expectations. Furthermore, it decreased the opportunitiesof organ trading on the black market. The sale of human organs on the blackmarket has been a huge issue. Some had kidnapped children to sell their organsfor huge amount of money and people died from diseased organs purchased in theblack-market.

With this in our head, transplanting with organs from animals, instead of using the organs from human, can tremendously reduce this type oftrade. (ConnectUS, 2018) On the contrary, there are some cons, disadvantages, regarding ‘ Xenotransplantation’. Recipients might be infected byunrecognized infectious agents and tremendous spread of infection through theirclose contacts or into the huge human population. Referring to the document from the FDA, they commentedthat “ Moreover, infectious agents may not be readily identifiable with currenttechniques.” (Fda. gov, 2018) In addition, there are higher risks of’Xenotransplantation’ due to shorter life length of animal organs.

Massive portionof animal’s population have much shorter life length of humans, in anotherterm, means that even though there are high success rate of transplant, therewould still be a greater risk of the organs wearing out or dying quickly. Thus, a person would need to have several operations for organ transplants over hisor her life as the animal’s organs can easily wear out. Furthermore, there is another considerationregarding ethical issues. In current state, it is widely known that manyanimals for the ‘ Xenotransplantation’ are also susceptible to pain andsuffering similar to humans. Some who supports ‘ Xenotransplantation’ insistthat there aren’t any logical evidences to differentiate the pain or sufferingfelt by animals from those felt by humans. Pain is pain wherever and towhenever it is caused. I strongly believe that it is wrong to weight thesuffering less heavily that those of animals to humans. We are all similar livingorganisms and we all have rights to live and to choose freely.

In this regard, when evaluating the acceptability of using the organs of animals for’Xenotransplantation’, a judgment must be made regarding whether the pain andsuffering to animals is justified by the benefits for the humans. (Nuffield Bioethics, 2018) Therefore, one of the four heartreplacement technology, ‘ Xenotransplantation’ should be considered more beforeusing them for humans as animals also feel the same of amount of pain likehumans do. Also, each of the four replacement technologies need to be developedby future scientists in order to save more than millions of lives who arecurrently suffering greatly from broken heart.