

Consent Issues of Human Bodies Used for Medical Research in the Future

CELL RESEARCH ANATOMY TEACHING MEDICAL DEVICES

As you have explored so far, the issue of human bodies in medical research is a complex issue. Now we look at where medical research is going in the future.

The main reason to move away from using humans in medical research is due to the ethical implications. As we have already seen, the ethics of using human tissue has shifted and evolved through history, and we must expect this to continue to shift as our society and research evolves. Can you think of any other reasons?

Whilst there are many motivations that would cause researchers to not use human tissue in their research, every use of human bodies requires different methods to replace the bodies. There is no solution that will fit everything. Here are some examples of how we could replace bodies with alternatives.



Artificial microRNA scaffold

Condé, João
Date 2015

For cell research, a potential future option is to artificially create cells. Currently researchers can create aspects of cells, such as this artificial mRNA. MRNA's are short genetic sequences that control the proper function and growth of cells, they can be used as a therapy to slow cancer progression.



SEM of meshed skin graft over a burn

David Gregory & Debbie Marshall
Date Unknown

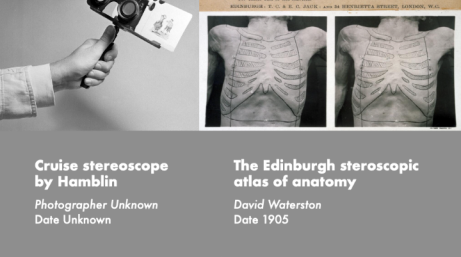
There is ongoing research into creating entire cells, as well as growing artificial organs and tissues. This has already been shown to be successful in the regrowth of skin for burn victims, as shown in this image of a skin graft. Some other examples of ways that this could be used for research include the testing of new medicines.



Institut für Geschichte der Medizin, Vienna: anatomical wax models from the Josephinum prepared for display

Universität Wien. Institut für Geschichte der Medizin
Date 1964

One main area that human bodies are used in medical settings is for anatomy teaching to new doctors and researchers. Currently human bodies are used because they give the best education of what to expect in real people. However, through history different types of models have been used such as these wax models which were used in 1964.



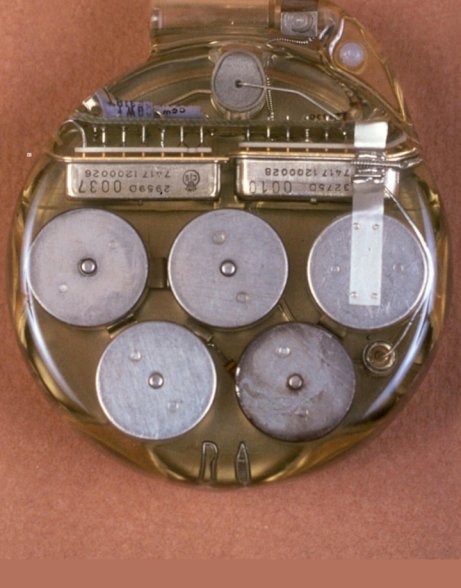
Cruise stereoscope by Hamblin

Photographer Unknown
Date Unknown

The Edinburgh stereoscopic atlas of anatomy

David Waterston
Date 1905

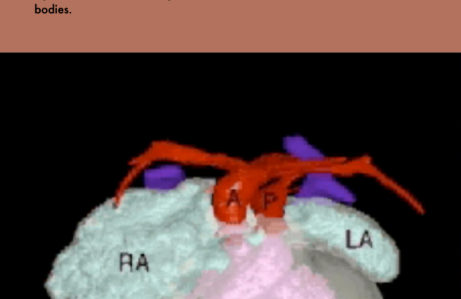
These wax models were not very effective at educating people on anatomy, but in the future new models made with computer scans or Virtual Reality technology may be an option to use fewer human bodies. An early example of using Visual models instead of bodies was the Stereoscope, shown below. This is a handheld eyepiece, very similar to modern VR headsets, that allowed slides such as this one of the thorax to be viewed.



Pacemaker, early

Photographer Unknown
Date Unknown

The research to develop medical devices, such as blood sugar monitors for people with diabetes, or pacemakers for people with heart disorders, currently use human remains. The early pacemaker in this image has been replaced by updated models that help keep people healthier for longer. Updated models are only available due to medical research on human bodies.



Movie: 16 dpc mouse heart

NIMR, Francis Crick Institute
Date Unknown

This is another area where computer modelling could replace human tissue studies. Mathematically calculating whether new devices would be more effective than current ones, without needing bodies to test on. This computer model of a mouse brain shows how detailed the computer models we may be able to create of entire bodies in the future could be.

● A look towards the future

Having seen some of the ways research in the future may use human bodies in medical research, it is worth remembering that all we have discussed about the future is speculative, and we do not truly know where medical research may go next. What do you think researchers should be looking to do next?

We have looked at the gruesome past of grave robbing, the impact of Henrietta Lacks' and WI-38 cell line's on major medical breakthroughs, and to wonder at the future with Virtual Reality, Artificial cells, and computer modelling. Through all this, the issue of consent, or lack of it, is key. Does this lack of consent remove the humanity of the person? What other issues does it raise? There isn't exactly one answer that can fix the problems around using human bodies, but when we acknowledge these problems, it's a step in the right direction, wherever that may be.