

# [Scientific advancements in medical technology](https://assignbuster.com/scientific-advancements-in-medical-technology/)

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Scientific advancements

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| Scientific advancements | Pros | Cons | Ethics and morals |
| Cardiac MRI  This is new technology created to give still and moving pictures of your heart and the major blood vessels that go in and out of your heart. It gets pictures of the heart beating to see the structure of the heart and how it is functioning. Cardiac MRI is used to diagnose and assess lots of diseases including coronary heart disease, heart valve problems and cardiac tumours. The cardiac MRI can also help to explain results of others tests like X-Rays. | * Being able see things inside the body that normal MRI or any other form of technology can see. * Cardiac MRI is a safe and non-invasive test and can be used instead of invasive tests like Radiation. * This can reduce the number of diagnostic procedures they would have to go through. * The tests are just as precise in detail as looking at the actually tissues. * The test can show the soft tissue structures in the body. | * The machines that carry out this test are very expensive and this will result in limited numbers of the machines. * If people are claustrophobic, this machine would be very frightening as you are placed in an enclosed space. * MRI images can become distorted if there is issues with the machine resulting in misdiagnosis to a patient. * MRI scanners are affected by movement, can’t be used to investigate things in the mouth because if you sneeze this will alter the picture. | Anyone with claustrophobia can’t use this machine due to the machine being a very small tube which the person lies in this would result in reacting badly and not being able to get the scan picture because they need to be pulled out as they can’t deal with being in a small space.  Another ethical issue is that anyone that has a tattoo cannot have a MRI scan because there could be metal in the tattoo resulting in severe pain around the tattoos.  Another ethical issue of the Cardiac MRI is that if there is anyone that is obese. Then there is bigger MRI machines for them but the bigger machines have a weaker magnetic fields. |
| 3D Printers  Cornell Scientists created an articical ear that they created in a lab. This ear looks and works like the real thing. They have also printed blood vessels, and printed skin cells directly to a wound. | * They can print anything that can help with research in labs for anything. * The printers can customize anything that they want printing. * This is the cheapest way to produce several items. * 3D printing can produce a product within several hours. | * Certain body parts might not work when they are in the body causing that patient to become infected or even die from not having the right body part that works. * The 3D printers at the moment can only create items of a certain size and anything over that size cannot be made. | The cost of these printers means that anything to do with medicine like personalising the medicine to a person, will be affect by how much money the patient has and whether they can afford to have the medicine made, this result to the poorer people to not get the effective treatment.  Another ethical issue is whether the printers are safe. This also is very important when the printers are being used in medicine and developing organs, or anything that has to go into the body and to make sure that this is safe and it will work and won’t go wrong inside the body and kill the person that has the certain body part. |
| Gene therapy this is where a person’s genes are taken out of the ear and changed before being put back into the body this helps to fight disease. This has been effective in treating patients that has leukaemia or other different blood cancers. | * It can eliminate and prevent any hereditary diseases. * Genetic disease can be cure by replacing genes with another one. * Gene therapy can quieten a gene e. g. someone that has HIV but it hasn’t developed into AIDS, scientists could save the person pain by using gene therapy to quieten the disease before it gets worse. * It can erase diseases in a person and their future offspring so it doesn’t also help one generation it helps all succeeding generations. | * There is side effects to gene therapy for the patients. * Any multigene that a person has such as heart disease or high blood pressure these are caused by different effects of variations in many genes. These genes are difficult to treat effectively using the gene therapy. * The gene therapy is very short this means that the patients may have to undergo many rounds of gene therapy. * The immune systems response to the gene therapy will have an effect that reduces the gene therapy’s effectiveness and this could be a potential risk. | Gene therapy costs a lot of money to get this could result in only the wealthy and this could result in not effective treatment for the poor as they won’t have enough money to be able to do this.  Another ethical issue with gene therapy is that people will use the gene therapy to enhance the human traits such has height and intelligence to how ever much they want, this can be used for the person to get a higher social status and probably more money as they will get a good job and get more money. |

3D printers are used for many things including medicine to guns and other illegal items. Scientists have created a new 3D printer inspired by terminator 2. This means that it will work 100 times faster than the normal 3D printer and can make items in minutes rather than hours. Many people are happy because technology is being advanced. “ Freaking awesome tech. This will also allow shapes to be designed and built that are impossible with current methods.” Said by Funcrew on the guardian website. This shows that many of the public are having positive thoughts about the new technology that is being produce and how it is shaping the world and how we are using the technology in everyday life, it also shows how this new technology will allow us to do things we couldn’t before. 3D printing is used in many different ways and one is being a part of the dental industry and being used by dentists so that they can poke and prod and them and to show the patients what is going on in their own mouth and explain procedures that they may go through. Many people are not understanding why we need a more expensive models just to show patients procedures. “ Do they need a new, presumably more expensive, model just for the purpose of explaining procedures to patients?” said by Pollik. This shows that although many people have positive thoughts the other half of the public have negative thoughts and don’t understand why the technology is being used and the technology we use now is just as good and is not as expensive as the new technology coming onto the market. These negative attitudes make people jump onto these attitudes and start to criticise the technology and result in the technology not getting brought, however the positive attitudes may make celebrities and other famous people to accept these technologies resulting in a lot of people wanting this new technology and making the sales go very high up. The debate about 3D printers at the moment in who actually buys these as if it is criminals who buys these to make guns and other illegal items, this could mean in the criminals running wild and being able to make many, many items in just a week, this could cause a lot of problems throughout the world. Whether as the 3D printers that are used for medical advancements or in certain business industries are useful and therefore there is no debate on using 3D printers in these terms, it is just when the 3D printers are not used for good things, this then results in the society not looking the new technology when it is being used for bad things. These issues that the public has about the 3D printers are not important enough to stop any development of the 3D printers. This is because the 3D printers are more or less being used for the health and wellbeing of the public in the NHS with medical issues and dentistry issues and also in the different industries of business, and are only ever rarely used by criminals for illegal ideas. 3D printers are used a lot to help people and explain to people things that they can’t see themselves. People’s perception of 3D printers can be improved by the government and businesses taking the 3D printers of the market to the public and just letting businesses or the NHS being able to buy these this would result in criminals not getting a hold of the 3D printers and the public can stop worrying about what they will do with them. People’s perception would also change about 3D printers if they cost a bit less to buy as they k now that the NHS and other businesses will be buying these things for experiments and the public know that buying expensive equipment in the NHS means that they won’t have money to do other things as they don’t have money as it is.

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