

Biomedical engineering

Profession



Biomedical engineering is the study of medical systems and the products used to treat patients. This is used in hospitals and labs by bioreactors. Scientists use this type of engineering to develop fake skin cells for people who have been in a fire, had a deep cut, or an amputation. To maximize the chance of a safe, clean, and bacteria-free cut. Scientists have made a pair of socks that control and monitor diabetic feet and prevent amputations for the patient. It helps cleanse the wound and alcohol is placed in the sock.

Fake human tissue is made in labs and some people have it to cover up burns or deep wounds. This fake tissue is 3D printed and it replicates someone's cells and produces them. This replaces stem cells in the body and also helps the body heal faster and more properly. Patients who have had a side of their body burned have to stay in the hospital for up to six months sometimes even longer depends on the degree of the burn.

The fake skin was made for people to help them heal faster and it has saved people from getting amputations. This synthetic skin breathes, operates blood flow and heals just like normal skin. They are made out of salt water and organic fibers, some prosthetics even have this synthetic skin on them to blend in with someone like it's their real arm. This skin helps in research as well, scientists inject diseases into it to see the reactions to tell if it's safe for humans. It can replace tumor cells once it's out, the skin can be placed in the spot to help heal. Regulating protein count and fibers in the body and seeks signs of cancer.

Artificial organs are being made in labs to help people who will die without a transplant and who doesn't have time to wait on doctors to find a donor.

Organs-on-a-chip are used to test drugs and help researchers understand how the organ works. The tubes have a vacuum chamber which goes inside the organ and stretches the membrane and expands which can collect up to 50, 000 cells. These organs are man-made and people who need transplants can go with the artificial organs instead of waiting for the plane to get there.

It's used to pump blood through the body to keep all the cells alive, it decreases the impeller axis shift to help blood flow to the brain. If the organs takes too long, it can lead to infections then it will most likely spread throughout the body to other organs. The other organs would need a transplant as well unless the proper treatment is available at the time.

Prosthetics are being made more efficient than ever. Biomedical engineers have made many life enhancing technologies for people who don't have their limbs anymore. There are more prosthetics a than arms and legs, there are fingers, racing blade leg, and even eyes. Approximately 1, 000, 000 people are deaf in the United States. There are now ears made out of the fake tissue cells and natural rubber that matches the patient's skin tone.

They look just like a real ear and it has a hearing aid in the center of it to help the patient hear. It helps as a appearance and aesthetics just like a fake eye, it's hard to tell that the ear is fake. Implants are available as well, the prosthetic is made from a silicone mold of the patient's ear to fit them just right. A very small amount of spirit gum is applied at the base and the middle of the ear to get it to stay attached to the patients face.

Farmers use pesticides to keep bugs and animals away that might eat their crops. If an animal eats a part of the crops then the farmer just lost that

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profit. Farmers want to do everything they can to keep their crops from bugs. Some pesticides are illegal in the U. S, they are toxic and sometimes they can release toxic fumes into the air that we breathe. Pesticides do more than harm pests, they can be dangerous for the human who consumes them.

The symptoms of pesticides are nausea, vomiting, stomach cramps, headaches, dizziness, and even death if the poison is in your bloodstream for too long. They also damage the richness of the soil, so by farmers using pesticides on their crops they are hurting their sales in the long run. The soil will lose its nutrients from the poisoning and then water erosion happens which washes away the soil particles making it just plain dirt. Adding more soil to the dirt will not help out the nutrients, it can't compensate for the loss of nutrients in the topsoil.

Farmers using GMOs to help their farm animals grow larger so they can sell more product is not illegal. Many farmers use them and GMOs allow them to place unnatural chemicals that make the food taste better so consumers will buy more of their product. Farmers are altering genetic material to produce artificial organisms. GMOs can be used in plants just like animals, in plants it helps them grow faster to produce more to sell.

It helps the food the plants make taste better by altering its DNA. The DNA is extracted from sweet alyssum which plant grows the fastest. Scientist take that trait and create GMOs for their plants so they can grow faster. GMOs aren't dangerous to humans unless there are pesticides used on the plants to keep the bugs away. Scientists cross-breed these organisms in labs with bacteria and virus genes. A bonus to genetically altered food is longer shelf

life, they are better for the consumer, and it takes less land to grow more food.

Biomedical technology helps scientists find cure for diseases like smallpox, rinderpest, polio, yaws, and malaria. Biomedical engineering helps scientists understand how to cure diseases and create a cure for a disease unknown to mankind faster. Biomedical engineers are now closer than ever before to finding a cure for cancer, reporters say it will take about another five to ten years before they actually finish and perfect the cure.

They are trying to use heat radiation to kill the cancerous cell through the body without Chemo or an incision. Another widespread disease that affected a lot of people across the world is malaria. Malaria is a plasmodium parasite transmitted by the bite of a mosquito. This disease started from Sub-Saharan countries in Africa, it's hot there so the bugs are abundant. Mosquitoes traveled from that area to all across the world carrying the disease.

The cure was developed by Charles Louis Lavern on November 6, 1880. Back then, there wasn't many cures for disease just medicine to help control it. That was a long time ago and thanks to biomedical engineering, scientists can develop cures much faster and efficient such as someone taken the cure will most likely never get that disease again.

Biomedical engineering helps healthcare. It produces more accurate equipment used in hospitals and on animals. Healthcare is so much more advanced now than it used to be, when babies or animals get their shots there didn't used to be any back then. They would just have to go without
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them and that's why disease was so rapidly growing, because there wasn't many cures but now everything is different.

Even simple procedures like getting a cut or a burn required special attention and days of preparation to get better. Now they just give out stitches and anti-bacterial cream to clean it. All of us as a nation have come so far and within time, scientists will discover more and more treatments and cures.

There are cures now using antimicrobials to kill microorganisms to stop their growth and to stop the spreading throughout the body. They are injecting good organisms into the body to kill off bad organisms that make someone sick. The earliest type of microorganisms were Penicillin, Salvarsan, and Prontosil and they were one of the biggest scientific advantages of all time.

This was a new level of medical care, Pharmacists could only progress and discover more medicines. There are now antimicrobials in hand soaps and Hand Sanitizers which is available on the go. Agents such as bacteria, mildew, and mold that are used to make the organisms in the medicine.

The helpful microbes come into contact with the surface and penetrate the cell blocking the harmful microbe to kill off and to limit the cell from growing and spreading from another part of the body. Anti Microorganisms work in the way similar of insecticides and fungicides because of how they disinfect, sanitize, and protect against infections.

Peptidoglycan layers act as a spine to a cell and it allows in nutrients to enter the cell like acids and sugars. Vitamins can not enter the cell so the bacteria

trapped in the cell must make its own. Cell manipulation is alter genetic human cells