

THE TECH INSIDER



Source: The Catania Group

REPLACEMENTS: Scientists and engineers have made tremendous strides to help people like Kionte Storey get back a "normal" life after losing his leg in Afghanistan. A lot of work is being done to duplicate what nature provided or should have provided.

Today, researchers are able to identify some of the DNA building blocks that got out of whack and can eliminate or correct them so future humans won't experience cancer or be robbed of their mental capacities.

Great, isn't it?

But what if parents only want blond-haired, blue-eyed boys or girls? What about physical or mental prowess? Done ... done ... and done!

So much for *surprise!*

Replacements

Humans aren't perfect. People have been born with deformed limbs since before recorded time. The insanity of conflict comes at a terrible cost for our youngest, finest, best. Dedicated re-

searchers have worked to make life better for these people with peg legs, hooks, claws, and artificial limbs. They're good and getting better.

As Will Caster explained, "*You are not being hacked ... You are being helped.*"

In addition to giving individuals the ability to pursue activities they want, really smart people are working on developing replacement limbs that work and look as the natural parts they replaced.

Tens of thousands of people are returning from global conflicts and are finding that losing an arm or leg doesn't define them or limit them.

Moving inside the body, we've historically replaced individuals' diseased or worn out parts—hearts, livers, kidneys, blood vessels with matching parts from the deceased.

It's given the recipients a new lease on life, but let's face it, it's rather a gruesome undertaking ... taking from one human form and planting it into another.

Beneath the surface

But even as we replicate the parts that are visible from the outside, scientists are working to replace internal parts that have problems or have simply worn out.

In 2011, a model of a 3D-printed kidney was heralded at a TED conference, paving the way for bioprinting—building organs that can be transplanted. Succeeding in perfecting kidney "production" is important because this organ is in the highest demand, with more than 120,000 U.S. patients awaiting transplants. Who knows how many

around the globe die every year because transplant technology and parts aren't available.

Researchers are making tremendous strides in using 3D printing technology to use living human cells to build replacement organs. It's a challenging task because kidneys and other organs have tens of thousands of cells per centimeter, but the goal is achievable.

Speaking of cells, micro scientists are working to develop nanobots that can zero-in on specific problems to cure patients as well.

The industry is compressing computing technology (putting more and more circuits into smaller and smaller spaces) so the ultra-, ultra-miniature robots can seek out and neutralize diseased cells. These scientists are also working to develop/program nanobots that can replace the bad cells and even augment/replace organs without invasive surgery.

And that includes brain cells that are screwed up.

Of course, Kurzweil sees the time when the brain nanobots will be connected to the cloud—which frankly, scares the hell outta' me!

Because as Will Caster explained, "*What you're seeing is just a small taste of what we'll achieve.*"

Outer layer

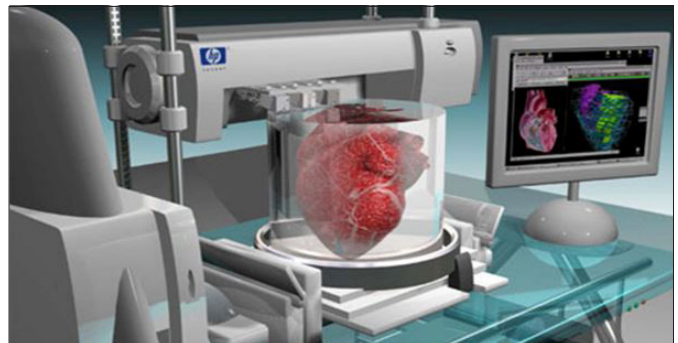
Moving back outside of humans, you have to agree that our covering is pretty impractical. As good as it looks on some folks, it's susceptible to heat/cold, damage. It's really a poor covering for an amazing machine.

Don't worry ... folks are working to remedy the situation.



Source: Mashable

SMALL CHANGES: Today, scientists are able to go into individual chromosomes and correct DNA to wipe out hereditary diseases and make "other" modifications/improvements.



Source: 3ders

UPGRADES: Instead of waiting for people to die to save the lives of others with replacement parts, technologists are using 3D printing to "manufacture" new organs. There are still years of work to be done to perfect the process, but medical researchers/scientists have been making excellent progress.