These animals can regrow lost body parts perfectly.

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Did you know that some organisms are capable of regenerating their body parts? Humans can't, but some organisms can regenerate limbs, tails, or even their brains!

Sometimes, animals even intentionally cut off parts of their bodies when they feel threatened, and they can regenerate them afterward — this is called self-amputation.

It would be amazing if we could regenerate a lost limb or a damaged organ. Imagine never having to wear dentures because you could grow new teeth throughout your life! While these abilities may seem like something out of a futuristic science fiction movie, they do exist in the animal kingdom. While most animals don't possess these capabilities, a select few do. However, these few creatures may offer us insight into how body parts can be regenerated.

Let's take a look at some animals that possess this amazing ability!

Lizard

Salamanders are amphibians with short tails and legs. There are over 700 species of salamanders. While all salamanders have a certain degree of regeneration, some species are more regenerative than others. Some salamander species can regrow their tails within a few weeks, after the old tail is cut off to distract predators. The new appendage is fully functional as the original.

Lizards are a prime example; generally, they are famous for their unique escape technique: they detach their tails to distract and mislead predators before swiftly fleeing at incredible speed. The detached tail can regrow completely within 3 to 4 months. However, during this time, the lizard is more vulnerable.

Starfish

Most starfish have five arms, corresponding to the five points of a star that give them their name. However, some species of starfish can possess up to 40 such arms. Besides their unique appearance, another fascinating characteristic of starfish is their ability to regenerate an entire body from a severed limb, as most of their vital organs are located in these arms.

flatworms

The remarkable regenerative abilities of flatworms have fascinated scientists for hundreds of years. Most species of flatworms can regrow all body parts, including the head, through a stem cell process. These asexual organisms reproduce by tearing themselves in half, and it takes only about a week for the two pieces to become two completely different new worms.

Conch

Abalone are slow-moving gastropods that live on the seabed. When observing an abalone moving, you may notice that its eyes protrude significantly, like two sticks. Remarkably, abalone eyes can regrow after being lost. Compared to other gastropods, the eye regeneration process in abalone is quite rapid – taking only a few weeks.

Deer

Antlers are the only organ in a deer's body that can completely regenerate, and this happens annually. This antler regeneration process, initiated and sustained by stem cells derived from the deer's neural crest, is being used by scientists to study and model organ regeneration in other mammals.

Male deer regenerate their antlers year after year to compete for mates with other males and to find food in the snow. The rate of antler growth is extremely fast—about 0.6 cm per day.

Green prawn

Shrimp can regrow their claws, just like other arthropods. The process of regenerating the claw usually takes one molt to complete. However, this process can happen faster if the shrimp are young, in a warm environment, and well-fed.

In particular, studies on the brains of the giant freshwater prawn have uncovered even more interesting findings. Scientists have discovered a link between the immune system and nerve cell regeneration in giant freshwater prawns. This process is similar to the production of white blood cells, which contribute to the human immune system.

Zebra

Zebrafish can regenerate the stripes on their bodies and tails. If a fish's tail fin is bitten off, for example by another hungry fish, it can grow a new tail in about 2 to 4 weeks. Because zebrafish are experts at regeneration, researchers have used them as models in many studies on complex tissue regeneration.

Axolotl

The axolotl, also known as the 'six-horned dinosaur' or 'Mexican salamander', has become a highly popular aquatic animal in recent years. Besides its bizarre appearance, this aquatic salamander is renowned for its ability to regenerate not only limbs but also spinal cord, heart, eyes, and parts of the brain.

Unlike other vertebrates, the axolotl can continuously regenerate body parts throughout its life. By sequencing the axolotl genome, scientists hope to discover how this species uses stem cells to regenerate tissue.

Currently, the axolotl is critically endangered in the wild.

human fingertips

After millions of years of evolution, while many animal species have achieved success in regenerating lost body parts, this function in humans remains in an extremely rudimentary stage.

Nevertheless, there have been successes in fingertip regeneration, particularly in children. Studies on mice have shown that those that retained a small portion of the nail after amputation were able to successfully regrow the remaining part. In a study conducted in the 1970s, scientists discovered a link between human fingernails and stem cells, which helps explain why amputated fingertips have a much better chance of regrowing if at least a portion of the nail or epidermis remains intact.

To put it simply, the fingertip may regrow if the cut hasn't reached the nail, especially in children. However, if the finger is amputated lower down, it's almost impossible for it to regrow.

We already know that nails and hair can regrow even after being cut short. This is because both require a continuous supply of cells to regenerate their hard structures. Therefore, scientists believe that nail stem cells may play a special role in activating the regeneration process of this organ, including nerves and bones.

Human fingertips contain a quantity of stem cells that can transform into any other cell type if given the right signal, but this usually only occurs in young children. The reason adults cannot regrow fingertips may stem from factors such as insufficient stem cells, unsuitable environmental conditions, or a lack of the signal to initiate the regeneration process. More in-depth research will be needed to reach a definitive conclusion.

1. Why can bats survive despite harboring so many viruses?

Spider

Spiders don't have a skeleton like humans. Their skeleton is located externally. It's called an exoskeleton.

The exoskeleton does not grow. Therefore, spiders will create a new, larger exoskeleton as they develop. They shed the old exoskeleton in a process called molting. They must do this many times until they are fully grown.

During this molting process, they may regrow a lost leg! The new leg will usually be slightly smaller than the other seven legs.