

For Creative Minds

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How to Help Horseshoe Crabs

Horseshoe crabs' long hard tails (telsons) are not weapons! Telsons help steer the crabs and flip them over. On beaches, the crabs thrust their tails into the sand, raising up the back end of their bodies (opisthosoma). Then they push to one side until some of their 10 legs touch the ground and/or their shell flops over.

Flipping over is not always easy for horseshoe crabs. Sometimes the ground is not firm enough to push on, or maybe some of a crab's shell is too stuck in the sand or mud to move. In cases like those, a horseshoe crab might need help turning upright.

Thousands of horseshoe crabs die each year during spawning season when they become stranded on beaches. People can help stranded crabs by returning them to their proper side.

To help a horseshoe crab:

- Hold crabs by their sides, not their tails. Remember, horseshoe crabs don't bite, sting, or pinch.
- Gently place crabs on their feet pointing toward the water. They'll usually crawl back in.
- Leave crabs where you find them. Do not remove live or dead crabs from the beach.
- Do not disturb shorebirds. Give them space so they can feed.



Horseshoe Crab Blood

Is blood red? It depends. Humans' blood is red because it contains hemoglobin, a protein containing iron that turns red when supplied with oxygen (oxygenated). For lunged creatures, the lungs constantly transfer oxygen from the air into their blood. The hemoglobin in human blood carries oxygen as blood travels to organs and tissues.

In some creatures, like horseshoe crabs, the protein in their blood that carries oxygen is made of copper, not iron. When this copper-based protein, hemocyanin, becomes oxygenated, it turns blue! Spiders, octopuses, and snails are some other creatures with blue blood.

There are different blood-carrying proteins found in a few other sea creatures that make their blood purple.



Why do companies use horseshoe crab blood?

Although several other species possess blue blood, horseshoe crabs have become famous for theirs. In 1956, Dr. Frederick Bang discovered that horseshoe crab blood forms a protective wall, or clot, when it meets pathogens. Dr. Bang helped develop a test, the Limulus Amoebocyte Lysate (L.A.L.) test, which uses horseshoe crab blood to find even small amounts of pathogens. Since the 1970s, companies have been required to use this test on injectable medicines and implants to protect humans against dangerous infections — the same way horseshoe crabs have protected themselves for hundreds of thousands of years!

Unfortunately, getting horseshoe crab blood requires draining it from captured crabs. While most crabs survive this process, many do not.

In 1997, professors at the National University of Singapore created a scientific imitation of horseshoe crab blood, known as Recombinant Factor C, or rFC. This human-created, or synthetic, version of horseshoe crab blood also clots when it finds pathogens. Many countries and companies are beginning to use rFC instead of horseshoe crab blood to test for pathogens. This saves both human and horseshoe crab lives!

The next time you get a shot, thank a horseshoe crab for making sure it's safe!

