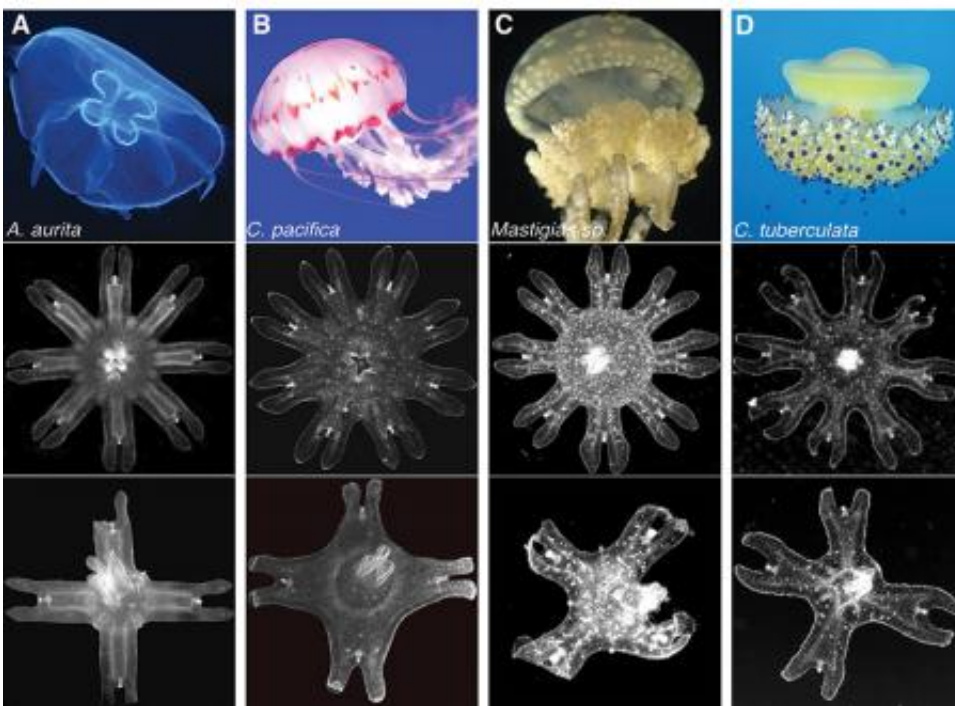


Moon jelly found able to rearrange remaining arms after one is lost to restore balance

June 16 2015, by Bob Yirka



More species than just Aurelia displayed symmetrization: four species of the Scyphozoan jellyfish—the moon jellyfish *Aurelia aurita* (shown in column A); the sea nettle *Chrysaora pacifica* (shown in column b); the lagoon jellyfish *Mastigias* sp (shown in column c); and the Mediterranean jellyfish *Cotylorhiza tuberculata* (show in column d). For each column, row 1 shows the adult medusa, row 2 shows uncut eight arm ephyrae, and row 3 shows the ephyrae that have reorganized themselves with four arms. Credit: Aurelia photograph attributed to Hans Hillewaert/CC-BY-SA-3.0. Chrysaora photograph used with permission from Sofi Quinodoz. Mastigas photograph attributed to Captmondo/CC-BY-SA-3.0. Cotylorhiza photograph attributed to Antonio Sontuoso/CC-BY-SA-2.0.

(Phys.org)—A small team of researchers with members from the U.S. the U.K. and China has found that moon jellyfish are able to [physically rearrange](#) the anatomical structure of their remaining arms after a limb is lost. As the team describes in their paper published in *Proceedings of the National Academy of Sciences*, the rearranging process, which they call symmetrization, is the first ever seen in any animal.

Many animals have been found able to grow new limbs, and others have been found to develop techniques for dealing with a lost [limb](#), wolves for instance (and dogs) eventually learn to get around using just three legs. But until now, no instance of an animal physically rearranging its limbs has been documented in response to [limb loss](#).

As the team describes in their paper, their discovery came about by accident—they were actually studying a different species of jelly, and just happened to be watching what came about over several days after a moon jelly lost one of its limbs. The creature caused its remaining arms to change where they were located on its body so that they would once again be evenly spaced—a necessity, the team points out, for locomotion and food capture.

Further study revealed that it was not just arms that were moved, it was also the hanging pendulum-like mouth structure and some of its muscles. Curious as to how the creature achieved such a feat, the researchers tested its muscles, first by giving several specimens a muscle relaxant before removing a limb, and watching what happened, and then a muscle stimulant. The first made it so the jelly could not rearrange itself and the second caused it to do so much quicker. That the team concluded, meant that the jelly simply pushed its limbs to where it wanted them to go to restore balance. They note also that development of such an ability has likely been crucial to survival of the jelly as losing a limb is a common

occurrence and add further that studying such an ability may lead to new kinds of biomaterials that learn to change themselves when damaged, rather than attempt regeneration.

More information: Self-repairing symmetry in jellyfish through mechanically driven reorganization, Michael J. Abrams, [DOI: 10.1073/pnas.1502497112](https://doi.org/10.1073/pnas.1502497112)

© 2015 Phys.org

Citation: Moon jelly found able to rearrange remaining arms after one is lost to restore balance (2015, June 16) retrieved 25 April 2024 from <https://phys.org/news/2015-06-moon-jelly-rearrange-arms-lost.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.