

Research Highlights

Biomechanics: Seahorses benefit from square tails



Michael M. Porter/Clemson Univ.

The unusual square tails of seahorses both help the animals' grasping ability and increase their toughness.

Seahorses use their bone-armour-plated tails to grip the corals and plants in which they hide, but, unlike most animal tails, the cross-section of theirs is square rather than circular. Michael Porter at Clemson University, South Carolina, and his team printed 3D articulated models of both square and circular tails and tested them under various conditions. Although the twisting ability of the cylindrical model was greater, the square prism structure provided the tail with more contact area for gripping objects and assisted the tail in relaxation, which could reduce the amount of energy a seahorse expends on grasping.

The square tail was also three times stiffer and four times stronger when compressed.

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