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What is the function of a Narwhal's tusk?

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By Pierre Richard What is the function of that very unique tusk on these amazing creatures? Recently, many online sites have picked up on a story put forward by the Harvard Medical Office to explain the function of this enlarged tooth. Proposed by a dentist, the story goes that narwhal have an unusually sensitive tusk, which is correct. It then goes on to say that the function of this organ is to sense "salinity" and "water particles characteristic of the fish that constitute their diet".



To me, this is a patent case where a spectacular hypothesis became advertised as a discovery before

science had had a chance to test its likelihood and disprove other hypotheses. There is a principle in logic that should always govern scientific studies. It is termed Occam's razor ... a principle of parsimony, economy, or succinctness used in logic and problem-solving. It states that among competing hypotheses, the hypothesis with the fewest assumptions should be selected" (http://en.wikipedia.org/wiki/Occam's_razor). Before this Harvard study, the dominant hypothesis was that the male narwhal's tusk was a secondary sexual character. In other words, males use them to display their social status as mature males and occasionally fight with them when the status difference goes unresolved, such as equal sized and tusked males. This explanation is parsimonious and economical because one can find lots of analogies in nature. Dominant mammals, mostly males have tusks, horns or antlers, with which they display and occasionally fight other males! Dominant males get more access to available females during the mating season than the subordinate ones. Similar secondary sexual characters can be found in other taxonomic groups and have the same function. Think of a rooster's ornate plumage and its sharp spurs, or the spawning salmons' flashy colour and their hooked beaks. Darwin has a lot to say about these male competition characteristics. If the tusk indeed is a sensory organ, why would all but a few narwhals with tusks be males? A small proportion of mature females have a small slender tusk but that is relatively rare. Too much testosterone in those ladies...!? There is no doubt that the narwhal's tusk is sensitive. I have seen male narwhals react defensively when their tusk was touched. But the reason for this sensitivity may lie elsewhere. Perhaps the tusk is sensitive to touch, salinity, etc, simply to avoid breakage of this enormous appendage in the whale's icy environment ...!? Science does not have all the answers. The fact that the narwhal tusk may not function a sensory organ, as claimed, does not make this whale any less unique or interesting. What's your best chance to see these fascinating creatures and draw your own conclusions about the function of narwhal tusks? Cam has had excellent success observing them on the Baffin Island Floe Edge tour and I have had seen them in Bellot Strait on the Northwest Passage Cruises. Pierre has guided for Eagle-Eye Tours and is a retired narwhal scientist from the Department of Fisheries and Oceans.