Enigmatic sea urchin structure catalogued

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Pictured is the sea urchin, *Strongylocentrotus purpuratus*. Credit: Ziegler et al., Frontiers in Zoology

A comprehensive investigation into the axial complex of sea urchins (*Echinoidea*), an internal structure with unknown function, has shown that within that group of marine invertebrates there exists a structural evolutionary interdependence of various internal organs. The research, published in BioMed Central's open access journal *Frontiers in Zoology*, demonstrates that the approach of combining all structural data available on a given organ in combination with a broad taxonomic coverage can yield novel insights into the evolution of internal organ systems.

Alexander Ziegler, from Charité-Universitätsmedizin Berlin, led a team of researchers who used a high-resolution non-invasive imaging technique (magnetic resonance imaging) to compare the structure of the

axial complex of specimens from almost all sea urchin orders. These data were extended with invasive techniques such as dissection, histology and transmission electron microscopy. Based on the available data, a re-evaluation of published studies spanning almost two centuries became possible. In their combined review/original article type manuscript, Ziegler and co-workers point out, "This kind of study is very powerful in elucidating interdependent anatomical relationships that are not obvious when the analysis is carried out only with a few species".

As well as presenting their exhaustive analysis of the architecture of the echinoid axial complex, Ziegler and his colleagues suggest a list of definitions and provide a multilingual compilation for echinoid axial complex components. According to the researchers, "This should limit the confusion caused by the bewildering range of terminology applied by different authors and in different languages to the same anatomical entities".

Source: BioMed Central (news : web)