Contribution ID: **40** Type: **Poster Presentations**

Fossorial adaptations of the functional morphology and internal structure of the forelimb of the Early Triassic cynodont Thrinaxodon liorhinus.

Tuesday, 17 November 2015 18:18 (2 minutes)

Therapsids were severely affected by the Permian-Triassic mass extinction event and only a few lineages were able to survive. One of the main behavioural responses that may have aided in Therapsid survival across the extinction was fossorialism. Several fossilized skeletons of the non-mammaliaform cynodont, Thrinaxodon were found in curled up position and assumed to have died in a burrow, leading to the idea that this taxon was perhaps a digger. To date, limb morphology of Thrinaxodon has not been systematically compared to extant burrowing specialists. Besides exhibiting potential burrowing adaptations, the limbs of Thrinaxodon have been described as exhibiting a transitional phase between classic sprawled limbs of reptiles and mammalian parasagittal postures. The present research investigates the internal and external morphology of Thrinaxodon liorhinus in comparison to a fossorial mammal and reptiles that exhibit different behavioural patterns. The study uses Geometric Morphometric analyses, forelimb indices, torsion and cortical thickness in order to determine the extent to which Thrinaxodon forelimb illustrates modifications due to gait versus a fossorial lifestyle. This indicates that Thrinaxodon retained the reptilian skeletal configuration and began adaptation to resemble a parasagittal gait. These results advance present understanding of Thrinaxodon limb structure, mobility, habitat and ecological preference.

Primary author: Ms IQBAL, Safiyyah (University of the Witwatersrand, Evolutionary Studies Institue)

Co-author: Dr CARLSON, Kristian (Institute for Human Evolution, University of the Witwatersrand)

Presenter: Ms IQBAL, Safiyyah (University of the Witwatersrand, Evolutionary Studies Institue)

Session Classification: Poster Session

Track Classification: Main