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MATERIAL COMPLEMENTAR

- TORUS SUPRAORBITAL
- PALEOARTE

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SOBRE O TORUS SUPRAORBITAL

THE SUPRAORBITAL TORUS: "A MOST REMARKABLE PECULIARITY" [AND COMMENTS AND REPLIES]

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- The supraorbital torus is found only in some genera of the primate order. Because no muscles of consequence attach directly to it, it has been considered nonfunctional. However, invitro strain-gauge experiments demonstrate that when the anterior teeth are loaded, the supraorbital region acts as a bent beam, pulled downward on each end by masticatory muscle forces and pushed upward centrally by bite force. Clinical and experimental data indicate that in response to repeated dynamic bending stress, adaptive cellular activity reconstructs skeletal material until bending stresses are neutralized. With these facts in mind, the hypothesis that supraorbital development is, in part, a predictable ontogenetic response to in-vivo bending stresses which concentrate over the eyes during anterior tooth loading was tested by means of a biomechanical model. The bent-beam model states that supraorbital bending is a function of the area moment of inertia of the forehead (relative to the direction of the bite force) and of the bending moment. When this model was tested on a series of Australian Aboriginal crania, significant relationships were found between browridge development and measures of forehead area moment and bending moment. It was concluded that the torus functions to resist bending stress concentrated over the eyes during anterior biting and that its development is proportional to the amount of such stress which cannot be resisted by the unadorned frontal bone.

SOBRE A PALEOARTE

Links:

https://www.smithsonianmag.com/science-nature/bringing-human-evolution-life-180951155/

https://www.nhm.ac.uk/discover/bringing-a-neanderthal-to-life-the-making-of-our-model.html