

HOW TO STAND OUT: ARTIFICIAL SKULL DEFORMITIES IN VARIOUS POPULATIONS – A SYSTEMATIC REVIEW

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Background: The consequences of artificial cranial modification extend beyond aesthetic and social dimensions, encompassing significant biological effects. Intentional cranial deformation leads to measurable alterations in cranial morphology and vascular architecture.

Objective: The aim of the present study was to evaluate structural and morphological changes resulting from altered cranial growth patterns, as well as their potential impact on the proper functioning of the organism.

Subjects and methods: A systematic search of three databases (PubMed, Web of Science, Cochrane) identified 1,335 articles, of which 52 were included after screening and eligibility assessment. The included studies comprised anthropometric analyses, 3D morphometry, radiological examinations, and qualitative descriptions. Data were analysed qualitatively by identifying recurring patterns of structural and morphological changes within the neurocranium and viscerocranium, depending on the type of deformation.

Results: Tabular cranial deformation, in its various subtypes, predominated among the observed forms. Most studies reported the presence of structural changes in the cranial bones associated with prolonged mechanical pressure were identified. These differences included bone thinning as well as localized reductions in bone density. Within the venous system, modifications in vascular trajectory and vessel thinning were observed. The deformations primarily involved redirection of neurocranial growth and compensator adaptation of the craniofacial complex. Despite these morphological alterations, no functional disturbances were identified in most cases.

Conclusions: Artificial deformations influenced the shape of the cranial vault. However, regardless of their type, intracranial volume remained unchanged. The observed changes indicate the presence of adaptive mechanisms of a morphological nature as a response to prolonged pressure. Differences in the structure of the craniofacial suggest interrelationship between its development and altered growth of the cranium. Despite pronounced modifications in bone and vascular structures, the majority of studies do not report functionally significant impairments.

Keywords: Artificial cranial deformation; Ancient populations; Human skull.