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ETHNIC AND SEX CHARACTERISTICS OF THE STRUCTURE AND LOCATION OF THE HYOID BONE

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The hyoid bone is a unique anatomical structure that does not directly articulate with other bones but plays a critical role in vital functions such as swallowing, speech, respiration, and head stabilization. Its complex three-dimensional shape, stabilized by muscles and ligaments, makes it a key marker of the functional status of the craniocervical region [1].

Modern imaging technologies, particularly computed tomography (CT) combined with three-dimensional reconstruction, provide high-precision assessment of the hyoid bone's morphometric and spatial parameters. This enables detailed investigation of variations related to sex, age, and ethnicity [2].

A systematic review of recent scientific literature reveals pronounced sexual dimorphism in the hyoid bone, with males exhibiting significantly larger dimensions of the bone body and horns compared to females. In addition, substantial ethnic differences exist in both absolute morphometric values and proportional relationships within the bone's structure. These variations hold significant clinical relevance, particularly in the diagnosis and management of obstructive sleep apnea, dysphagia

(especially post-oncological treatment), temporomandibular joint dysfunction, and related postural abnormalities in the cervical spine [3].

The position of the hyoid bone has been shown to correlate with upper airway patency, breathing type (nasal versus oral), and musculoskeletal conditions, emphasizing its role in comprehensive patient assessment [4]. Moreover, morphometric data of the hyoid bone are critical for forensic anthropology, especially for sex estimation and individual identification [5]. However, inter-population differences underline the necessity of developing region-specific normative databases to improve the accuracy of clinical and forensic interpretations.

In conclusion, detailed morphometric and spatial analysis of the hyoid bone is essential for advancing clinical diagnostics, anthropological research, and forensic science. The establishment of standardized, population-specific reference data will enhance the precision and reliability of these applications across diverse demographic groups.

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