

### **The Role of the human mandible in identification of human skeletal remains**

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#### **Introduction**

Identification of skeletal remains is traditionally based on bone size, bone density, muscular attachment markings, curvature and angulations. Forensic medicine specialists, anatomists and physical anthropologists are often consulted when skeletal remains are discovered or in legal cases where identification of gender and age estimation is required. The pelvic bone has been the most commonly used bone in identification of human remains because of its clear gender discriminating features (Richard S. Snell; Clinical Anatomy for Medical Student pg. 322). However the mandible could be useful when the pelvic bone is missing and/or a good addition in the process of identification of skeleton remains because it is one of the hardest bones with a high chance of survival in adverse conditions. The mandible has been shown to be valuable in age estimation especially in males where rounding of the mandible is an adult sex linked male feature (Loth SR et al 1998).

Simple observation of the mandibles show clear differences in size, the height and rounding of the ramus, sympheseal height and markings caused by muscular attachments. Since the mandible has not been used professionally for identification of skeletal remains this study is aimed at earmarking parameters, which could be significant in discriminating between the female and male mandible within a homogenous ethnic group.

In order to arrive at a conclusion measurements were taken at specific regions and see if we could come up with parameters that could be reliable and significantly discriminating. We included the following parameters: angle of the mandible, height and rounding of the ramus, sympheseal height and width of the body of the mandible. Other parameters include bicondylar width and height of the body of the mandible.

The results show that in all parameters the male had higher values with significant differences. Height from the mental foramen to the edge of the mandible was the only parameter that did not show a significant difference between the male and female. On the other hand, there was a significant difference in the values for height from the lower border to the mental foramen. Moreover, when the total height of the body was measured there was a significant difference with males showing higher values. Rounding of the mandible was found to be a male feature, which is absent in females. Generally the male mandibles displayed more

pronounced muscular attachments when compared to the female mandibles.

The results show that metric parameters combined with the morphological feature are a valuable addition in identification of human skeletal remains.

### **Dental Treatment Demands and Pattern of Service Utilization in a Zanzibar Population.**

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This study aimed at assessing the dental treatment demands and patterns of service utilization among a population visiting a dental clinic. A total of 120 dental patients attending a dental clinic at Mnazi Mmoja Hospital, Zanzibar were interviewed using a questionnaire and investigated through record forms. 66.6% of the patients sought treatment for pain. Dental caries was the main cause of pain (45.8%). The proportion of patients who sought treatment were 9.2%, 2.5%, 3.3%, 2.5% for periodontal diseases, sensitivity, recall visit and orthodontics/malocclusions respectively. Other demands were for aesthetics (1.7%), prosthetics (0.8%), check up (2.5%). More females than males presented themselves for treatment. About 55% of service utilization consisted primarily of extractions. In addition, services for chemotherapy (17.5%), oral surgical treatment (11.7%) and conservations (2.5%) were provided. 11.6% of the patients were referred to private clinics for orthodontics, periodontics and prosthetics treatment because this Government Hospital could not offer these services. There is need to increase awareness among the population and to institute services other than the provided emergency care through provision of facilities, human resources and materials.

### **Mechanism of dentine sensitivity and hypertension**

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The only sensation perceived in response to natural stimuli applied on exposed dentine is pain. Although nerve fibres exist only in the inner 1-2mm of dentine it is known that even the peripheral uninnervated part is sensitive. The underlying mechanisms of dentine sensitivity are complex and not easily explained with respect to its structure and innervation. Three theories which attempt to explain some of the underlying factors involved in dentine sensitivity have been proposed. These are the intratubular innervation theory, the odontoblast-nerve synapses theory and the hydrodynamic theory. The available experimental and clinical evidence favours the hydrodynamic theory. Accordingly, the movement of dentinal fluid distorts