Maxillar dimensions change in Croatia from 6th century till today

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Objectives: It is well documented that the changes in the lifestyle, primarily nutrition influenced evolutionary changes of the size of human jaw. This research presented herein aims at identifying the possible changes in the size of the maxilla within the population inhabiting the area of today's Croatia. Methods: We studied archeological remains of populations from antique period (AP, 6th - 7th century, Štrbinci, Osijek), early Middle Ages (EMA, 10th – 11th century, Bijelo Brdo), late Middle Ages (LMA, 18th – 19th century, Požega), and the recent population (RP, 20th century, Zagreb). Anterior and posterior upper dental arch widths and the palatal height were measured on 106 upper jaw archeological samples and 48 dental casts of contemporary population. Results: Whereas the differences in anterior upper width between the samples were negligible, the differences in posterior upper widths (PUW) were significant. PUW of RP (51.33±2.69 mm) was found to be significantly higher then that of both Middle Ages samples, whilst that of the LMA sample (48.88±3.53 mm) was significantly higher then the one from the EMA (47.18±2.32 mm). The AP sample had significantly larger PUW (50.26±2.96 mm) than those from the EMA. The palatal height was significantly higher in the RP (18.88±2.00 mm) than in medieval samples, whereas the Antiquity sample was higher than the EMA sample (16.19±2.52 mm). Conclusion: The deviation within the Antiquity sample could be caused by the mixing of different populations - Romans who inhabited the location until the 7th century when Croats (South Slavs) permanently displaced them. Our findings indicate that both posterior upper width as well as palatal height of the jaw increased in the analyzed population. Whether it is result of different genetic expression of one population or interbreeding of different nations on area of today's Croatia, still needs to be researched.