



# Looking on the Gender Skull Dimorphism Brighten up by Classical Anatomical – Anthropological Approach



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## Editorial

In preparing the topic, I was guided by the postulates of the actuality of the same, which I can offer from my field of expertise. In that sense, I would like to transfer certain experiences I have in the field of medical anthropology, related to the evaluation of the anatomical and anthropological significance of the skull, primarily gender assessment based on the human skull. Application of classical methodology approach, anthropometric and anthroposcopic gender assessment based on human skeleton is still very actual with no less significant than before, regardless wide use of DNA analyzes. Purposes for qualitative and quantitative skeletal remains analyzes for gender identification may be found in economic prize of DNA analyzes, time duration to complete those analyzes, possibility of collecting samples, specially from places where mass suffering took place and common scaffold were placed.

In that sense classical anthropometric and anthroposcopic human skeletal remains analyzes have their place and application, enriched with the modern methodology approaches of functional analyzes, based on univariate and multivariate analyzes. Gender assessment based on human skeleton has its significance and application in forensic medicine, anatomy, physical anthropology, archaeology. Within medical anthropology, where is based on constitution and standardization assessment its application found skull standardization (skull standardization based on it's a symmetry, skull categorization based on standard categories of its length, width, cephalic index and cranial capacity), as well as skull standardization based on gender. So, while applying classical anatomy- anthropological skeleton analyzes for gender assessment, methodology has two paths:

### Qualitative (osteoscopic-anthroposcopic)

This analyze presents qualitative morphological characteristics assessment either of the skeleton or skeletal parts (exp prominence or non-prominence of parietal and

frontal tuber, obtuse or acute supra-orbital margin, more narrow or wider nose roof, etc.). Qualitative analyze accuracy depends of evaluation's experience and ability, so should be performed by experienced medical forensics, anatomy specialists, anthropologists, for more effective medical- forensic expertise.

### Quantitative (osteometric-anthropometric or classical morphometry)

This analyze is process of measuring individual diameters on human skeleton with prior clearly defined procedures (skeleton position or position of the skeleton part, instrument, metrical unit, anthropometric points). I fall named criteria for quantitative analyze are obtained, we avoid that evaluator is subjective – which is not the case at qualitative analyze. Morphological differences in skeleton structure between male and female develop before birth. Sexual dimorphism in skeleton structure continues to develop during early childhood, childhood and adolescence that lead to increase of accuracy in determination of gender based on human skeleton. In that sense you should keep in mind that females are growing and developing faster than males, so while determining the gender in children, their age should be considered.

Differences between male and female include characteristics that are related to reproduction role, to endocrine (hormonal) system which is very evident after puberty, their physical and physiological characteristics; effects related to behaviour, all those can vary within the single population and between different populations. Within those considerations, it's important to remember the significance of physiological inter-sexuality for anthropology. It is clear that all males are not identical as it is the case with females. So, within the limits of numeric range are present characteristics of gender, while in individual variations are present personal characteristics. Numerous scientific manuscripts, confirm rareness of existence of clearly "male" or "female" skull type. So, we have a male gender classification

from hyperandroid till unandroid and female gender from hyperginoid till unginoid based on number of morphognostic gender signs that have been verified on certain skulls.

So, in large degree of sexual polarization, morphognostic skull characteristics of females may reveal its male polarization (android female type), as in males their female polarization (ginoid male type). Clearly, this type of polarization we do not find just in range of qualitative skull characteristics but it can be found related to shoulder and pelvis width, larynx dimensions and its parts, size and shape of xiphoid process of sternum, redistribution of subcutaneous fat tissue, hair pattern, etc. So, anatomic-anthropological analyzes of intersexuality find their interest in extra-genital sexual characteristics. While determining gender based on human skull, the modern anatomic-anthropological approach should be dynamic, directed in thoughts of sexual constitution that could be opposite polarized.

That is why in many studies have been tried to answer what are the most dominant morphognostic characteristics of male and female skull. As final consideration, I am free to suggest based on my own experience in this area, creating the studies that will valorise the influence of single morphognostic (osteoscopic) characteristics on skull gender determination not only based on their percentage(%) presence but proving their

influence through uni-variant and multi-variant binary logistic regression. That way, just the most significant parameters for gender determination based on human skull analyze, will remain. Those parameters are not necessary the ones with the highest percentage, but in interaction with other factors show the greatest predictive potential.

Even though all skull linear diameters analyzed univariant may show bigger or smaller statistic significance while gender determining based on human skull. Just by using multivariate binary logistic regression some of them stand out with predictive power that allows creating the model for gender predilection. This discourse with respect of population standards and utilization of parallel and combined qualitative and quantitative analyzes is grant for the most effective anthropological provement and as such may be suggested to forensic expertise based on human skull. The boarders are moved further, primarily in area of discriminate functional analyzes and their application. Furthermore, with technology development we do have bigger insight and use of modern software and geometric morphometry. All of it, opened new areas for implementation of previous acknowledges connected with new technologies and possibilities that they offer to alive human, where the sintagm "living anatomy and anthropology" shows in full meaning, and its significance could find in clinical studies as well.



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