

Morphological sex estimation

■ sexual dimorphism:

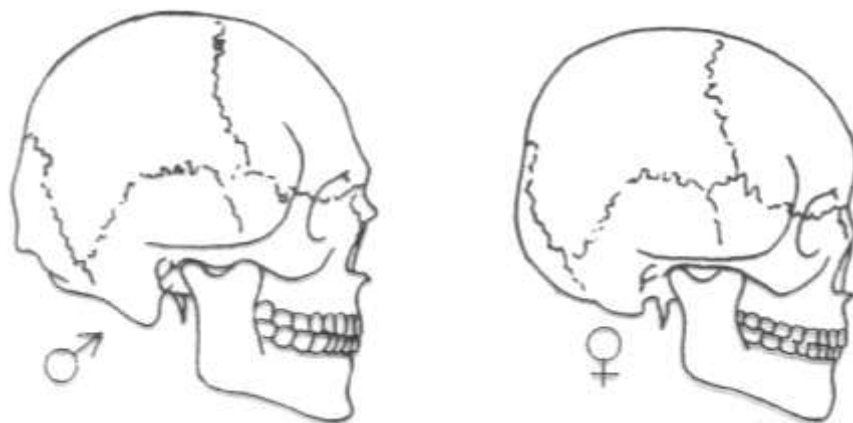
- differences between men and women include all the features related to reproductive role, the endocrine (hormonal) systems and their physical, psychological and behavioral effects
- hormonally controlled
- evident in adults (the level of sex hormones increase around the time of puberty)
- varies within a population and between populations
- the evaluation of sexual dimorphism in skeleton is generally based on two factors:
 1. Size difference: males usually have bigger body dimensions
 2. Function related differences: childbirth, robusticity, muscularity

■ morphological sex estimation

- methods that involve the visual observation of sexual traits on bones that exhibit sexual dimorphism
- the development of sex differences in the skeleton reflects hormonal differences between males and females
- metric and non-metric traits as well as the composition of the bones can be used for sex estimation
- the reliability of sex estimation depends on the completeness of the remains
- the most commonly used bones are found in the skull and pelvis
- the methods can produce valuable results and are ideal for quick and preliminary assessments
- methods can be used only from juvenile period

■ method of Éry, Kralovánszky and Nemeskéri (1963):

- a five-point scale of sexual dimorphism for the selected features, traits of the bones:
 - -2 hyperfeminine
 - -1 feminine
 - 0 indifferent
 - +1 masculine
 - +2 hypermasculine



■ traits on the skull for morphological sex estimation:

tuber frontale et parietale: - the frontal bone (forehead) of males tends to be slanted back and on females it tends to be more rounded, - the parietal bone also more rounded in females

- less pronounced – female; more pronounced – male

glabella and arcus superciliaris: not or barely developed – female; well developed – male

processus mastoideus: smaller and smooth surface – female; bigger and rough surface – male

protuberantia occ. externa: smaller or missing – female; more prominent, hook-shaped – male

squama occipitalis: smooth surface or mild linea nuchae-s – female; rough surface with strong, well prominent linea nuchae-s – male

margo supraorbitalis et orbita: sharp margo and round-shaped orbita – female; rounded margo and angular orbita – male

arcus zygomaticus: narrower – female; wider – male

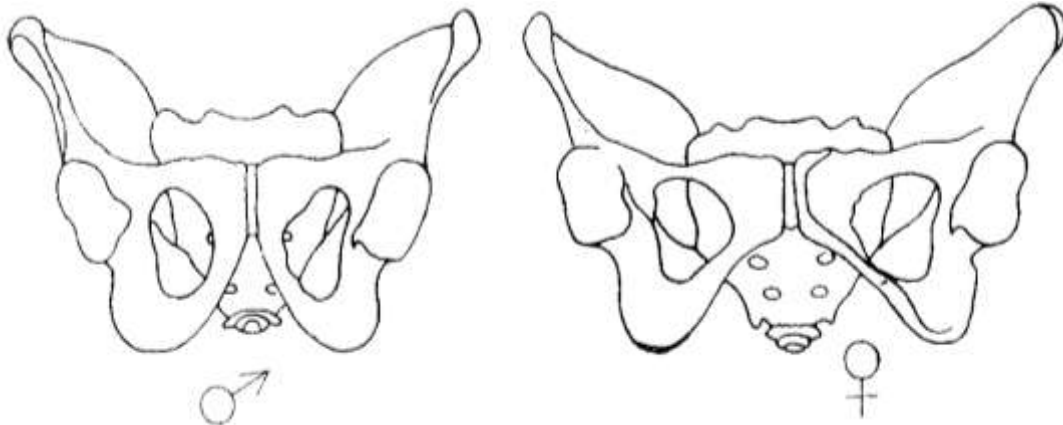
facies malaris: smooth surface and low – female; rough surface and high – male

corpus mandibulae: narrow – female; wide – male

angulus mandib.: smooth surface with obtuse angle – female; rough surface with right angle – male

protuberantia mentalis: rounded-shape and not articulated – female; articulated, dealt – male

■ **traits on the pelvis for morphological sex estimation:**



pelvis major: low, spreading, wide – female; high, steep, narrow – male

pelvis minor: wide, ovale – female; narrow, heart-shaped – male

angulus pubis: inverted U shape, wide – female; inverted V shape, narrow – male

foramen obturatum: triangular, sharp – female; rounded, oval – male

incisura ischiadica major: triangular, sharp – female; rounded, oval – male

sulcus praeauricularis: is presented, deep, – female; missing or slight sulcus – male

sacrum: shorter and wider, directed more obliquely backward, curved – female; relative longer, narrower, straighter – male

caput femoris (vertical diameter): smaller – female (<40 mm); bigger – male (>48 mm)

■ **Process of morphological sex estimation**

- other morphological traits that can be used (e.g.: cranial cavity, thickness of cranial wall, size of scapula and clavicle, robusticity of bones, estimated body height)
- estimation of degree of sexuality for all the available traits
- calculation of weighted means of these degrees
- this mean can vary between -2 and +2