



### A161 Craniofacial Anthropometric Analysis Between the Nose and Nasal Aperture Utilizing 3D Computed Tomography (CT) Scanned Images From Korean Subjects

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**Learning Overview:** After attending this presentation, attendees will understand the correlation between the nose and nasal aperture of the human face and skull and its practical use for craniofacial reconstruction/approximation.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by providing the data of the nose and nasal aperture sizes and its correlation in the Korean skull and face. Since all the data set has been collected from the contemporary Korean population subjects, it should be valuable to predict the nose morphology of the modern Korean faces from the unidentified skulls. Also, by the comparison of other ethnicity group data sets, it could provide the anthropological features of Korean faces and skulls.

This study sought to investigate the correlation of morphology and location between the nose and nasal aperture employing major craniofacial landmarks on the human skull and face for the application of a Korean craniofacial reconstruction/approximation. For the study, 100 subjects were selected from the Korean male and female corpus aged between 19 and 49 years whose the bodies arrived in the National Forensic Service (NFS) Seoul Institute for a series of autopsies within 48 hours of their expirations. Postmortem Computed Tomography (PMCT) was employed to acquire 3D head images of the subjects. A total of 32 landmarks were placed on the nose and nasal aperture of each 3D facial and skull image from each subject, and 76 measurements derived from the landmarks were measured in 3D image analysis software (Materialise Mimics).

In frontal, the position values of some bony landmarks on the nasal aperture were related to the position values of some other landmarks on the nose vertically to the transverse plane. In profile, also the position values of some bony landmarks were related to the position values of facial tissue landmarks horizontally to the coronal plane. In 35 out of 76 measurements, the mean values of males were higher than females. In pronasale, subnasal, and right and left alar curvature inferiors, the mean values of 40s of the subjects were higher than 20s of the subjects in both sexes. Overall, 26 out of the 76 measurements showed statistically significant correlations between the corresponding landmarks on the nose and nasal aperture. Simple regression equations were produced from the results.

In conclusion, this study may suggest that the nose and nasal aperture are significantly related with each other in terms of their morphology and location in Korean subjects. The prediction guideline produced as a regression formula could be applicable to the craniofacial reconstruction/ approximation from Korean skulls.

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**Craniofacial Reconstruction, Craniofacial Landmarks, Nasal Morphology**