

## THE AURICLE AS AN OBJECT OF MEDICAL-ANTHROPOLOGICAL RECONSTRUCTION AND IDENTIFICATION OF PERSONALITY

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Up to the present, very few studies have been devoted to the investigation of the auricle as an object of medical-anthropological reconstruction and identification of personality. The objective of our study was to investigate intra-group, racial, secular and constitutional variability of sizes of the auricle and to establish biometrical criteria for quantitative assessment. 284 women and 173 men of Russian nationality at the age from 20 to 25 years old were examined. The program included 6 measurements of the auricle (4 supplementary indicators were calculated) along with somatic and cephalometric characteristics (more than 30 dimensions of the head and body). Using standardized photos of the auricle, with the help of special software "Database for auricle parameters registration", values of 12 additional parameters were received for each person, with 9 calculated indicators based on these parameters. Elements of the auricle were described using R.A. Reiss' method: a form of the auricle was evaluated, forms of the contours of tragus and antitragus were determined, and the type of adherence of the ear lobule to the cheek was assessed. For the first time in Russian anthropology, secular changes in the auricle sizes have been analyzed. For the comparison, archival materials of the Department of Medical Forensic Identification were used: namely, the results of measurement of auricle sizes of 231 men and 100 women in Ryazan province (Vorobyov, 1901). For the past 100 years an increase in all sizes of the external ear has been observed in both sexes. Literary data on general sizes of the auricle (length and width of the ear, physiognomic index) in the representatives of three big races were analyzed and borders of variability of these parameters were detected. For sex determination based on the complex of auricle sizes, linear equations of discriminant functions were developed (classification precision 85%). The following parameters appeared to have the highest significance level at sex determination: the length of cartilaginous part of the ear, the length and width of the ear, the length of base and real height of the ear, the length of the ear lobule. The results of factor analysis stable trends of combined variability of sizes of the body, head and auricle: the most informative one was the variability of sizes of the auricle on the scale of micro/ macrocephaly and micro/ macrosomia. The second vector (in terms of its significance) was a scale of lepto/ brachycephalia: brachycephalic people are characterized with relatively small auricles. Multiple regression equations for the prediction of auricle sizes on some somatic and cephalometric parameters were elaborated. Five categories in the variability of auricle sizes were chosen: very small, small, medium, big, very big. This will allow avoiding subjective assessments at description of the auricle and can be used in human morphology, medical forensic examination and criminalistics.

*Key words: sizes and form of the auricle, methods of multivariate statistics, medical-anthropological reconstruction*

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