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**POPULATIONAL DIFFERENCES IN HORMONE LEVELS OF  
ADRENAL AND SEX GLANDS IN BLOOD SERUM AND THEIR  
INTERRELATION WITH NEUROTICISM AND PHYSICAL  
AGGRESSION**

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Aggression is characteristic for both animals and human. In normal ranges it is necessary for providing individual survival, but excessive aggression is dangerous for both individuals and society. The research of aggression formation mechanisms is very important to understand excessive aggression manifestations. According to some literature data, both high impulsive and premeditated aggressions are associated with high neuroticism. It is shown that testosterone (through aromatization into estradiol) in the perinatal period is involved in the formation of neural networks expressed by aggressive behavior in adults. Catecholamines and glucocorticoids are involved in stress reaction and influence the neurobehavioral functions in different brain areas.

We studied testosterone, estradiol, norepinephrine, epinephrine, cortisol levels in blood serum of Ukrainian and Indian young men and interrelations between those parameters, neuroticism and physical aggression. The study involved 32 young men of Ukrainian and Indian populations aged 18 to 22 years. Neuroticism and physical aggression were estimated using Eysenck Personality Inventory and Buss-Durkee Hostility Inventory. Hormone levels in blood serum were determined by Testosterone, Estradiol, Cortisol ELISA kits (Italy), Norepinephrine and Epinephrine ELISA kits (China). Higher norepinephrine and estradiol levels were revealed in Indian population men as compared with Ukrainian ones. Both in total group of participants and men of every population no interrelation between investigated parameters and neuroticism was found, but in Indian men the strong negative correlation between norepinephrine and physical aggression was observed. After division of all participants into 3 subgroups depending on neuroticism level, in persons with high neuroticism the significant positive correlation between neuroticism and cortisol level and significant negative correlations between norepinephrine level and neuroticism and physical aggression were observed. In individuals with middle neuroticism level the strong positive correlations between estradiol and neuroticism and between testosterone and physical aggression were found. Correlation analysis between investigated parameters in persons with low neuroticism was not carried out because of few such individuals. Obtained results indicate the different contribution of cortisol and estradiol to formation of high and middle neuroticism levels. We believe that increased level of norepinephrine in men of Indian population provides the potent control of neuroticism and physical aggression expression.