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# HUMAN TYPOLOGICAL ASPECTS CONTRIBUTION INTO AUTONOMIC REGULATION ACTIVITY IN NORM AND PATHOLOGY

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**Annotation.** Autonomic regulation is considered to be separate regulation form in human organism. Vegetative-vascular dystony which can be accompanied by any cell damaging represents actual problem of Science various branches and its multifaceted study is performed in different countries that describes ethnic typological aspect. Age and gender belong to rather influencive internal factors that involve gender and age typological aspect separately and in a complex with the ethnic one in autonomic nervous system condition determining both under physiological and pathological conditions. We present both literary review data as well as the own ones illustrating such determination.

**Key words:** autonomic nervous system, autonomic regulation, typological aspects, students.

Autonomic or vegetative nervous system study under physiological and pathological conditions is of crucial importance nowadays because every second-third person on the Earth suffers from vegetative-vascular dystony or dys-function which proper diagnostics and treatment is still unclear due to every cell possibility to get damaged. Both triggering and inhibiting (helping) factors of vegetative dys-balance are in the study focus in various countries. Typological aspects taking into consideration is important at this organism system study as well. There are autonomic nervous system state assessment new aspects as well as new investigative methods.

There was a research set according to which moderate-intensity aerobic exercise regular and continuous performance improved cardiac metasympathetic

nervous system response in part concerning to heart rate variability in young Iranian college men (ethno-gender-age aspect); new Poincare's geometric method was applied for cardiac autonomic nervous system state assessment [1, p.175-188]. Ethno-gender-age aspect: heart rate recovery was observed faster in young men than in middle-aged Iranian men examined after physical loadings [2, p.52-59]; swimming in course of 8 weeks in untrained sedentary Iranian women improved the sympathovagal balance at heart rate decrease as well as sleep quality improvement [3, p.445-448].

Big research block is dedicated to cardio-vascular and respiratory system conjugated reflexes in various countries in part about rhythmic breath holding and its effect on arterial blood pressure similar to hypersympatheticotony in India [4, p.492-498]. One can differentiate the research about such conjugations at various diseases: six week aquatic exercise increased sympathetic activity and peak nasal inspiratory flow in Thai allergic young patients (ethno-age aspect) [5, p.280-286].

Whole-body vibration while the transport driving was found to stimulate both sympathetic and parasympathetic nervous system, mental work loading – the sympathetic one more in Iranian male students that of course imbalanced the sympatho-vagal control (ethno-gender-age typological aspect) [6, p.174-184].

Ethno-gender-age aspect: Holy Quran listening to and reading caused heart rate different variability with positive sympathetictonic effect on it and emotions in 25-40-year-old Iranian examined, males and females, without cardiovascular pathologies [7, p.63-71]. Ethno-gender aspect: in this research performed in Iran southwest in women Quran teaching did not have a significant effect on systolic and diastolic blood pressure [8, p.30-37].

Music influence on heart-vascular system through autonomic regulatory mechanisms assessment is studied with typological aspects taking into account in part in the ethno-age one in Iranian students [9, p.131-152].

Autonomic and immune dysbalance is assessed in ethnic aspect at different diseases and syndrome in part in the Iranian patients suffering from colitis [10, p.32], sympathetic cutaneous response while examining the non-myelinated thin nervous

fibers increased amplitude was found out in Iranian males and females with major depressive disorder [11, p.1087-1098] as well as lower extremities decreased reflex at poliomyelitis in old patients in Iran [12, p.829-831] and sympathetic skin response hyperactivities in Iranian patients with reflex sympathetic dystrophy [13, p.20-24] (ethno-gender-age and ethno-gender typological aspects) testifying to autonomic disturbance. Such data taking into consideration creates new possibilities in these pathological conditions proper diagnostics and treatment.

Hypertonic disease represents world-wide problem and its multi-facetated study with typological aspects taking into consideration represents the researches vast set: for example they were performed in 39-80-aged Moroccans with the conclusion about essentiality of careful assessing the orthostatic blood pressure at primary hypertension [14, p.83-88]. Such gestosis as preeclampsia observed at pregnancy is accompanied by arterial pressure changings and is the study focus by obstetricians-gynecologists and cardiologists in various countries in part in Iran [15, p.129-139].

Medicines influencing on autonomic nervous system place significant positions in Pharmacology and there are works on their multi-facetated study in various areas of the Earth for pathological conditions treatment and prevention: in Iran while assessing the heart rate variability [16, p.10-17], migraine as dysautonomia example [17, p.288-291].

Diabetes mellitus was found to be accompanied by autonomic neuropathy (hyposympatheticotony resulting in orthostatic hypotension) and peripheral sensorimotor polyneuropathy developing by different mechanisms in Iranian patients with comparison to the same number of age and sex-matched control (ethno-gender-age typological aspect) [18, p.439-445].

Ethno-age typological aspect found its presentation in the Egyptian scientists works on thoracoscopic excision of the sympathetic chain as an easy and effective treatment for hyperhidrosis in children [19, p.245-248], cardio regulatory autonomic functions non-invasive assessment in children with epilepsy [20, p.337-384]. Egyptian children with Down syndrome had right ventricular systolic and diastolic dysfunctions by Doppler echocardiography. Children with Down syndrome had

significantly higher pulmonary artery systolic pressure than the children from control group. There was no significant difference in the cardiac functions between children with non-disjunction Down syndrome and those with the translocation type [21, p.174-180]. Ethno-gender typological aspect was described in the following research performed by Egyptian doctors on reflex bradycardia baroreceptor control facilitating with testosterone [22, p.754-763].

**Our own investigations.** We studied vegetative regulation peculiarities in 18 Egyptian girls and 18 guys from all courses both faculties during 2005-2011 academic years.

***Investigative methods:*** assessing the pupillar reactions, reaction to eyes convergence, red and white dermographism, probes of Erben and Abrams.

***The results received and their discussion.*** 6 girls had miosis instead of midriasis at eyes closage with a shield and opened eye gave midriasis instead of miosis, other 12 girls' pupil did not change its lumen (may be due to vegetative-vascular dystony in them). All guys had correct, physiological reaction: midriasis under the shield and miosis in opened eye (sympathetic and parasympathetic reaction correspondingly). All students had tachysphygmy after eye convergence during 15 sec – sympatheticotonic physiological reaction. All girls had white dermographism as a dominant and it was present even for 2 hours that testified about expressed sympatheticotony while all guys possessed expressed red dermographism. Vagotony dominance in the girls was proven by pulse retardation to 15-25 beatings per 1 min while Erben's probe performance. Guys had pulse acceleration at Erben's test performance that testified to sympathicotony. All the students independently on their gender had pulse retardation to 8-12 beatings per 1 min at Abrams' test that testified to physiological norm.

One-digit conclusion about gender influence on vegetative reactivity in Egyptian students is impossible to be done because answer reactions profile was mosaic at various probes performance.

**Conclusion:** autonomic nervous system functioning under physiological and pathological conditions should be assessed with typological aspects taking into

account in part ethnic, ethno-gender, ethno-age and ethno-gender-age by literary sources analysis as well as own experiments results performed.

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