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COMMON-BIOLOGICAL PHENOMENON ASYMMETRY IN TYPOLOGICAL ASPECTS

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The article deals to asymmetry role discussing under physiological and some pathological conditions while emphasizing the facts that sinistrality represents its populational–species level and that their expression is the mostly often present and should be studied not separately but together with typological aspects.
Key words: asymmetry, sinistrality, typological aspects, students.

Typological approach finds its reflection also during discussing the asymmetry. Asymmetry represents a common-biological law characteristic for alive and non-alive nature phenomena wide spectrum and realizing at alive matter all organizational levels. Asymmetry is in study both under physiological and pathological conditions. Asymmetry is studied in typological aspects.

Ethnic typological aspect can be mentioned as the first one among them. Various peoples, cultures prefer “facial expression own level” [1, p.31313-3117; 2, p.611-625]. It is considered that faces recognition differ in own and side race [3, p.1065-1085].

Asymmetry development is considered to be as integrity of the genetic, environmental and epigenetic by scientists from many countries: Canada, South Africa, Germany [4, p.69-89; 5, p.982]. Hearing changes were assessed by Iranian scientists taking into account right-left sensory auditory asymmetry in part [6, p.24-25]. Also Iranian neuro-biologists established brain asymmetry individual variation in

cingulated gyrus caudal and rostral parts, VIP gene significant expression determining such a variation of brain normal asymmetry [7, p.236]. The Iranians paid their attention to the various answers at ear monoaural and binaural stimulation without speech elements presentation significant asymmetry at stem level [8, p.543-549]. Belgian scientists consider that similar brain areas get involved into various languages managing but bigger right-sided lateralization is necessary for managing the languages people start speak later [9, p.2181-2196]. Brain demonstrates various images at multilingualism dependently on foreign language, languages amount, the examined age and sex and so on and these data were received with fMRI in different countries. Face expression recognizing cross-cultural investigations demonstrate that major or basal emotions (anger, fear, happiness, sadness, disgust, surprise) are expressed and are recognized in equal extent in the societies with different cultures and traditions [10, p.1-752]. Even under the conditions making the observation more difficult for example over big distance emotions recognizing mechanism universal character gets expressed. It proves that major emotions facial expression is determined by inheritant neuronal patterns but not the acquired ones. Facial emotional images assessment coinciding percentage is almost equal to 80% among various nationalities though it is less a bit in the Japanese (65%). More patients with face abundant asymmetries are among the Asians than in people from the West [11, p.341-351].

Ethnic-age aspect can be illustrated by following scientific works. Iranian 10-11-yeared school students had bigger transition force from left hand to the right one than in opposite direction at valuable differences absence in transition velocity from the right to the left and from the left to the right [12, p.266-277].

Age typological aspect is described in following. It is interesting that all facial muscles essential for emotions expression get formed in the fetus till the 15^{th}-18^{th} week of life. Embryo till the 20^{th} week of his life can express mimic reactions. Emotions maturating mechanism gets maturated till the baby birth and can be applied while his communicating. Mimics similarity in blind and non-blind children testify also to its inheritant character. But facial muscles reactivity gets weakened while

aging in the babies who were born blind [13, p.1-144]. Scientists try to realize critical age for difference on face asymmetry. They know exactly that 6-8-monthed infants prefer looking onto beautiful faces while specializing the hemisphere responsible for faces recognition starts in 4-9 months [14, p.1192-1205].

Left-handedness is in very tight connections with asymmetry because it represents its populational-species level and the asymmetry most visible sign, comfortable for assessment. It is thought that right hemisphere is connected with negative emotions (and that is why is in bigger development in left-handers) while left hemisphere – with the positive ones (right-handers are optimists more) [15, p.1-480; 16, p.1-496]. Face asymmetry was assessed in right- and left-handed men and women (gender aspect plus interhemispherical asymmetry individual profile) [17, p.147-159].

Gender and gender-age typological aspect: females have less asymmetry than males by any age. That is why right-handers percentage is less among females. There exists an opinion that more symmetric women possess increased fertility [18, p.390-400].

Recent data demonstrate that index and ring finger length correlation is oppositely proportional to prenatal testosterone level and directly proportional to postnatal estrogen concentration. This correlation is oppositely proportional to face asymmetries in guys students and directly proportional in girls [19, p.125-132]. Given work describes face asymmetry study gender-age aspect, because students are considered to be as the separate age group. Other works reflecting gender aspect in facial asymmetries assessing show that partner search is realized even not by masculinity level but guy (man) face asymmetry [20, p.601-613; 21, p.172-175], insects and birds females prefer “symmetric” partners [22, p.626-628; 23, p.165-166], face attractiveness signalize “quality” different aspects in men and women [24, p.93-112]. Trust was in correlation with female face attractiveness in bigger extent than with smile while it was neither with attractiveness nor with smile by male faces [25, p.225-232]. Ability to detect face asymmetry varies dependently on menstrual cycle phase [26, p.136-145].

Ethno-gender-age aspect is also in connection to asymmetry study. There are studies of face asymmetries in Turkish boys and girls [27, p.436-444], Caucasian men [28, p.137-143].

New methods are used for assessing the face asymmetries and are based on computer technologies (photos, radiography, 2CD and 3CD) [29, p.1-10], while demonstrating the valuable varieties in men and women particularly [30, p.39-45], in the young with new processing statistic methods usage [31, p.663-669].

People telling about themselves that they are extraverts possess more symmetrical faces (thus, there is connection between asymmetry and human temperament because as it is well-known cholerics and sanguinics represent extraverted temperaments types) [32, p.1572-1582].

Ukrainian medical stomatological academy had its contribution into asymmetry study: of blood [33, p.217] in part of erythrocytes hemostasis [34, p.204]. The right-left differences were found in dexters, real sinisters, hidden and non-real sinisters on erythrocytes morpho-functional features [35, p.153]. Saliva asymmetry on its hemostatic features in the students was also the investigations subject [36, p.34-35; 37, p.236].

As it has been stated before, sinistrality represents asymmetry populational-species level the mostly comfortable for its study. UMSA paid its attention to sinistrality study in part with ethno-age typological aspect in foreign students from different countries (students belong to separate age category) taking into account their temperament type and gender: the ones from Iran [38, p.237], Egypt and Iraq [39, p.30-32], Sudan [40, p.31-35]. Also the connections between sinistrality and personality cognitive styles were found in the foreign students [41, p.78-81; 42, p.248-257]. Sinistrality study applied significance was and is the scientific works topic as well taking into account sinisters specific weight significant increase in the human population, “left diseases”, other diseases course peculiarities in left-handers comparatively to right-handers, “left-hander syndrome” [43, p.129-133].

Rather big works amount was dedicated to asymmetry in maxillary-facial area: face asymmetry in foreign students from Iraq and Turkmenistan (together with leading

extremity and gender taking into account) [44, p.71-74], in prosthetic dentistry [45, p.134-136] and in surgical dentistry [46, p.77-81].

We can conclude that asymmetry study indeed is rather important in different branches of Science and its assessment has not only big theoretical but rather significant applied role. Asymmetry study populational-species level is sinistrality the attention to which grows nowadays because of the reasons mentioned above. Both asymmetry and sinistrality itself are not present separately but are studied together with human typological aspects such as ethnic, gender, age, based on temperament type, control locus (external and internal), behavioral strategies (coping and avoiding) in complex.

LITERATURE LIST

1. Little A. C., Apicella C.L., Marlowe F.W. Preferences for symmetry in human faces in two cultures: data from the uk and the hadza, an isolated group of hunter-gatherers // Proc. R Soc. B.-2007.-N.274.-P.3113–3117.

2. Rhodes G., Yoshikawa S., Clark A., Lee K., McKay R., Akamatsu S. Attractiveness of facial averageness and symmetry in non-western cultures: in search of biologically based standards of beauty // Perception.-2001.-N.30.-P.611-625.

3. Mondloch C. J., Elms N., Maurer D., Rhodes G., Hayward W.G., Tanaka J., Zhou G. Processes underlying the cross-race effect: An investigation of holistic, featural, and relational processing of own-race versus other-race faces // Perception.-2010.-Vol.39, N.8, P.1065-1085.

4. Schmitz J., Metz G.A.S., Güntürkün O., Ocklenburg S. Beyond the genome – Towards an epigenetic understanding of handedness ontogenesis //Prog Neurobiol.-2017 Dec.-N.159.-P.69-89.

5. Schmitz J., Güntürkün O., Ocklenburg S. Building an Asymmetrical Brain: The Molecular Perspective //Front Psychol.-2019 Apr.-N.10.-P.982.

6. Ghasem Ahmad Z., Farahani S., Mahmoudian S. The study of the relationship between laterality of tinnitus and thresholds of ASSR in patients with subjective

idiopathic tinnitus //Iranian Journal of othorhinolaryngology.-November 2010.-N.12th International Congress of Iranian Society.-P.24-25.

7. Tadayon S.H., Vaziri-Pashkam M., Kahali P., Ansari Dezfouli M., Abbassian A. Common Genetic Variant in VIT Is Associated with Human Brain //Front Hum Neurosci.-2016 May.-N.10.-P.236.

8. Ahadi M., Pourbakht A., Jafari A.H., Jalaie S. Effects of stimulus presentation mode and subcortical laterality in speech-evoked auditory brainstem responses //Int J Audiol.-2014 Apr.-Vol.53, N.4.-P.543-549.

9. Vingerhoets G., Van Borsel J., Tesink C., van den Noort M., Deblaere K., Seurinck R., Vandemaele P., Achten E. Multilingualism: an fMRI study // Neuroimage.-2003 Dec.-Vol.20, N.4.-P.2181-2196.

10. Ильин Е.П. Эмоции и чувства.-СПб,-2002.-752с.

11. You-Wei C., Lun-Jou Lo. Facial Asymmetry: Etiology, Evaluation, and Management //Chang Gung Med J.-2011.-N.34.-P.341-351.

12. Abdoli B., Farsi A., Teymuri Kheravi M., Shoja O. Laterality in asymmetric transfer of strength and velocity in children considering brain hemispheres //Journal of Research in Rehabilitation Sciences.-June-July 2013.-Vol.9, N.2.-P.266-277.

13. Дубровинская Н.В., Фарбер Д.А., Безруких М.М. Психофизиология ребёнка: Психофизиологические основы детской валеологии: Учеб.пособие для студ.высш.учеб.заведений.-М.:Гуманит.изд.центр ВЛАДОС, -2000.-144с.

14. de Schonen S., Mathivet E. Hemispheric asymmetry in a face discrimination task in infants //Child development.-1990.-N.61.-P.1192-1205.

15. Данилова Н.Н., Крылова А.Л. Физиология высшей нервной деятельности.-Ростов-на-Дону: Феникс,-2002.-480с.

16. Психофизиология: Учебник для вузов /Под ред. Ю.И. Александрова.-СПб: Питер,-2001.-496с.

17. Keleş P., Dívarbakiri S., Tan M., Tan U. Facial asymmetry in right- and left-handed men and women //Int J Neurosci.-1997 Oct.-Vol.91, N.3-4.-P.147-159.

18. Jasienska G., Lipson S.F., Ellison P.T., Thune I., Ziomkiewicz A. Symmetrical women have higher potential fertility //Evolution and Human Behavior.-2006.-N.27.-P.390–400.

19. Fink B., Manning J.T., Neave N., Grammer K. Second to fourth digit ratio and facial asymmetry //Evolution and Human Behavior.-2004.-N.25.-P.125-132.

20. Burriss R. P., Roberts S. C., Welling L. L. M., Puts D. A., Little A. C. Heterosexual romantic couples mate assortatively for facial symmetry, but not masculinity //Personality and Social Psychology Bulletin.- 2011.-N.37.-P.601–613.

21. Johnstone R.A. Female preference for symmetrical males as a by-product of selection for mate recognition //Nature.-1994.-N.372.-P.172–175.

22. Radesaater T., Halldorsdottir H. Fluctuating asymmetry and forceps size in earwigs, Forficula auricuaria // Animal Behaviour.-1993.-N.45-P.626–628

23. Swaddle J.P., Cuthill I.C. Preference for symmetric males by Zebra finches //Nature.-1994.-N.367.-P.165–166.

24. Hume D. K., Montgomerie R. Facial attractiveness signals different aspects of “quality” in women and men // Evol Hum. Behav.-2001.-N.22.-P.93–112.

25. Zaidel D.W., Bava S., Reis V.A. Relationship between facial asymmetry and judging trustworthiness in faces //Laterality.-2003.-Vol.8, N.3.-P.225-232.

26. Oinonen K. A., Mazmanian D. Facial symmetry detection ability changes across the menstrual cycle // Biological Psychology.-2007.-Vol.75, N.2.-P.136–145.

27. O.Zener B., Fink B. Facial symmetry in young girls and boys from a slum and a control area of Ankara // Turkey Evolution and Human Behavior.-2010.-Iss.31.-P.436-441.

28. Burt D.M., Perrett D.I. Perception of age in adult Caucasian male faces: computer graphic manipulation of shape and colour information // Proceedings of the Royal Society of London Series B-Biological Sciences.-1995, Iss.259.-P.137-143.

29. Roberts M., Oh T., Pacheco E., Mohankumar R., Cootes T., Adams J. Semi-automatic determination of detailed vertebral shape from lumbar radiographs using active appearance models // Osteoporosis International.-2011.-P.1–10.

30. Hakim S.G., Aschoff H.H., Jacobsen H.C., Sieg P. Unilateral cleft lip/nose repair using an equal bows /straight line advancement technique – a preliminary report and postoperative symmetry based anthropometry // J Craniomaxillofac Surg.-2014.-N.42.-P.39-45.

31. Ercan I., Ozdemir S., Etoz A., Sigirli D., Tubbs R.S., Loukas M. Facial asymmetry in young healthy subjects evaluated by statistical shape analysis // J. Anat.-2008.-Iss.213.-P.663-669.

32. Pound N., Penton-Voak I. S., Brown W. M. Facial symmetry is positively associated with self-reported extraversion // Personality and Individual Differences.-2007.-N.43.-P.1572–1582.

33. Ярошенко Р., Ткаченко Е.. Асимметрия системы крови: новые подходы к изучению, теоретические и практические аспекты //Збірка тез 7-го Міжнародного медичного конгреса студентів та молодих учених: 21-23 травня 2003.-Тернопіль, 2003.-С.217.

34. Моргун С., Ярошенко Р., Ткаченко Е., Марченко К., Кулик О. Асимметрия морфо-функциональных свойств эритроцитов крови, полученной из правой и левой кубитальных вен у людей //Збірка тез 7-го Міжнародного медичного конгреса студентів та молодих учених: 21-23 травня 2003.-Тернопіль, 2003.-С.204.

35. Ткаченко О.В., Великоіваненко О.Г., Сухих О.В., Кулик О.В., Фролов М.В., Моргун С.О. Порівняння морфо-функціональних властивостей еритроцитів у правшів та істинних, приховано-істинних та несправжніх лівшів справа і зліва //Матеріали VIII Міжнародного медичного конгресу студентів і молодих учених, приуроченого до 150-ліття від дня народження І.Я.Горбачевського: 10-12 травня 2004 р.-Тернопіль, 2004.-С.153.

36. Shafghat P., Tkachenko E. Saliva hemostatic features in the UMSA students with different individual asymmetry interhemispherical profile //Materials of ISIC: 13-14 April 2011, Kharkiv: Kharkiv National Medical University, 2011.-P.34-35.

37. Shafghat P., Tkachenko E. Saliva hemostatic features in the UMSA students with individual asymmetry different interhemispherical profile //Материалы 83-й

Международной научно-практической конференции студентов и молодых учёных «Теоретические и практические аспекты современной медицины»: 26-29 апреля 2011.-Симферополь: Крымский государственный медицинский университет им. С.И.Георгиевского.-С.236.
38. Tkachenko E. Distribution of cholerics with melancholism and melancholics with cholerism among the Iranian students dependently on gender and dominant extremity //Материалы 83-й Международной научно-практической конференции студентов и молодых учёных «Теоретические и практические аспекты современной медицины»: 26-29 апреля 2011.-Симферополь: Крымский государственный медицинский университет им. С.И.Георгиевского.-С.237.
39. Tkachenko E.V., Ghalwash Y., Almagri A., Al-Rubaye T. Face asymmetries study and comparison in the students from Egypt and Iraq dependently on their leading extremity and gender // «Фармацевтичні та медичні науки: актуальні питання»: Збірник матеріалів науково-практичної конференції (м.Дніпропетровськ, 10-11 квітня 2015 р.).-Дніпропетровськ: Організація наукових медичних досліджень «Salutem», 2015.-С.30-32.
40. Sartipi H.N., Tkachenko E.V., Ardalan H., Ardalan M., Abdelrahim M., Almagri A. Sinistrality study in the students from Iran, Sudan and Iraq //"Медицина XXI століття: перспективні та пріоритетні напрями наукових досліджень»: Збірник матеріалів міжнародної науково-практичної конференції (м.Дніпропетровськ, 24-25 липня 2015р.).-Дніпропетровськ: Організація наукових медичних досліджень «Salutem", 2015.-С.31-35.
41. Ткаченко Е.В., Сартипи Х.Н., Махммуди А.М., Шадфард А. Оценка параметров когнитивного стиля личности у иранских студентов УМСА в зависимости от профиля их межполушарной асимметрии // Вісник Української медичної стоматологічної академії «Актуальні проблеми сучасної медицини», 2011.-Т.11, вип.3(35).-С.78-81.
42. Ткаченко Е.В. Влияние индивидуального профиля межполушарной асимметрии на когнитивные параметры личности у студентов ВГУЗУ «УМСА»

из Ирака //Вісник Харківського Національного Педагогічного Університету ім. Г.С.Сковороди. Психологія, Вип.50.-Х.: ХНПУ, 2015.-С.248-257.

43. Tkachenko E.V., Ghalwash Y., Almagri A. Sinistrality study importance //Зб.тез наукових робіт «Здоров'я людини у сучасному світі: питання медичної науки та практики (м.Одеса, 22-23 травня).-Одеса: ГО «Південна фундація медицини».-С.129-133.

44. Ткаченко Е.В., Алмагри А., Аль-Рубайе Т. Асимметрии лица у студентов из Ирака и Туркменистана в зависимости от ведущей конечности и гендера //Зб.матеріалів Міжнародної науково-практичної конференції «Нове та традиційне у дослідженнях сучасних представників медичної науки» (Львов, 27-28 лютого 2015 р.).-Львів, 2015.-С.71-74.

45. Tkachenko E.V., Abdelfattah M.M.M., Ghalwash Y., Almagri A. Physiological and pathological bites types in HSEEU "UMSA" Iraqi students dependently on leading extremity and gender //Зб.тез Міжнародної науково-практичної конференції «Актуальні питання розвитку медичних наук в XXI ст.» (Львів, 29-30 травня 2015).-Львів, 2015.-С.134-136.

46. Tkachenko E.V., Ghalwash Y., Sartipi H. N., Almagri A. Human typologies concerning surgical dental pathology //«Сучасна медицина: актуальні проблеми, шляхи вирішення та перспективи розвитку»: Матеріали міжнародної науково-практичної конференції (м.Одеса, 7-8 серпня 2015 року).-Одеса: ГО «Південна фундація медицини», 2015.-С.77-81.