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DERMATOGLYPHIC CHARACTERIZATION OF BULGARIA POPULATION FROM SOME REGIONS OF MIDDLE WESTERN THRACE

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Summary: 760 finger and palm patterns of 90 men and 90 women from the regions of Panagurishte and of 100 men and 100 women from Strelcha were studied. The investigation was done by Cummins and Midlo's method (1961). It was established that the studied population from both regions is too homogenous by the investigated dermatoglyphic traits. Besides, it was found out a bimanual asimetry, statisticaly significant, in the population from the region of Panagurishte in both sexes only according to the trait - dermatoglyphic patterns of III interdigital pad.

It was fixed, as well, a sexual dimorphism in the population from the region of Strelcha, statisticaly significant on right hands, according to two traits - dermatoglyphic patterns of II interdigital pad and the trait - additional interdigital triradii.

Key words: Dermatoglyphic traits, bimanual asimetry, sexual dimophism.

Introduction

The dermatoglyphic traits are genetic determined and in order with other anthropological traits, like somatical, odontological, blood group features, they are using in ethnogenetic and race-genetic investigations. They are using in anthropological investigations of different populations from all parts of the world. (Gladkova, Toth, 1981, 1982, 1983, 1985, Luna, Pons, 1987, Minkov, Angelova, Apostolou, 2003, Pons, 1985). Dermatoglyphical investigations of Bulgarian populations are carried out as well (Марков, 1945; Минков, 1979, 1982; Минков Димитрова, 1993; Минков, Маркова, 1993; Хить, 1983; Карев, 1979; Kavgazova, 1997, 2004; Kavgazova, Stoev, Mitova, 1999; Kavgazova, Stoev, 2000).

Material and methods

It were examined palm and fingers prints of 90 men and 90 women from the region of Panagurishte and 100 men and 100 women from the region of Strelcha, commonly 380 individuals of both sexes. The whole processing, analysis and the interpretation of the obtained data were doing according to method of Cummins and Midlo (1961). The obtained dermatoglyphic data were processed by the method of t-criterium as well, according to the formule of Weber (1961) in order to establish if the

differences between the separate dermatoglyphic traits in the population, from the studied two regions, are significant or insignificant.

Results and discussion

Finger patterns

The distribution of finger patterns on the hands of the examined population from Panagurishte and Strelcha is presented on Table 1. As it is seen from Table 1, the loops distinguish by largest frequency in men and women from both studied groups. The frequency of the loops, nevertheless, is a little, higher in the population from Strelcha in comparison with this one from Panagurishte. Besides, the percentage frequency of this trait is comparatively higher in women than in men at both studied groups. The frequency of the spirals is higher in the population from Panagurishte in men and women. The Delta index is nearly with equal values in the population from the examined two regions in men and women.

Table 1. Finger pattern frequencies and index in the populations from Panagurishte and Strelcha, %

Traits	Panagurishte			Strelcha		
	men	women	average	men	women	average
A+T	4.05.	3.08	3.56	2.4	3.6	3.0
R	4.55	2.8	3.27	4.4	1.7	3.05
U	56.4	58.7	57.55	51.8	62.5	57.15
L=R+U	60.9	61.55	61.22	63.2	66.5	64.85
W	38.3	34.5	36.4	34.4	29.9	32.15
DL10	13.1	13.2	13.05	12.12	12.63	12.37
W/Lx100	78.4	83.1	80.75	61.3	50.3	55.8
A/Lx100	8.31	7.0	7.65	4.0	5.9	4.95
A/Wx100	17.55	12.5	15.02	8.2	13.4	10.8

Main palm lines

The frequency of termination of the main palm lines ABCD and their basc types are given on Table 2. Type 5, of line A meets more frequently in the group from Strelcha in men and in women, while type 1 (+2) and type 3 (+4) distinguish with bigger concentration in the population from Panagurishte.

Type 7 and type 11 of line D are with higher concentration in the population from the region of Panagurishte as well.

The frequency of type 9 is higher in men from Strelcha, while in women is observed the opposite picture - it is higher in these one from Panagurishte.

The index of Cummins, like sum of finishing of the lines A and D, in the examined population from Panagurishte (men and women together) is with higher values than these one of the population from Strelcha.

The ulnar type of line C meets more frequently in the population from Panagurishte (both sexes taken together), and the radial type is with higher concentration in the population from Strelcha, but in men only.

Table 2. Types of the main palm lines and index of Cummins in the populations from Panagurishte and Strelcha, %.

Traits	Panagurishte						Strelcha					
	men			women			men			women		
	left	right	average	left	right	average	left	right	average	left	right	average
Line A												
1(+2)	31.1	6.7	18.9	31.1	12.2	21.7	19	3	11	23	9	16
3(+4)	52.2	65.6	58.9	67.8	61.2	64.5	63	52	57.5	54	55	54.5
5'(+5"+6+7)	16.7	27.8	22.3	10	26.7	18.4	18	45	31.5	23	36	39.5
Line D												
7(+8+x+0)	18.9	12.2	15.55	17.8	7.8	12.8	9	6	7.5	16	5	10.5
9(+10)	53.3	37.8	45.55	53.3	38.8	46.1	62	32	47	44	39	41.5
11(+12+13)	38.9	60	49.5	28.9	53.3	41.1	29	62	45.5	39	55	47
Index of Cummins	8.33	9.65	8.99	8.30	9.61	8.96	7.88	7.85	7.87	7.97	8.96	8.47
Line C												
(4+5'+5"+6+7)	41.4	31.1	36.1	45.6	33.3	39.5	41	24	32.5	48	29	19
9(+10+11+12)	36.7	55.5	46.1	32.2	56.7	44.5	36	62	49	24	51	37.5
(8+x)	14.4	10	12.2	12.2	3.3	7.8	17	10	13.5	24	14	19
0	7.8	3.3	5.6	10	6.7	8.4	6	4	5	4	6	5
Line B												
(6+7+8+9)	37.8	57.8	38.4	35.6	56.6	46.1	39	64	51.5	43	58	50.5
(3+4+5'+5")	62.3	42.2	52.3	64.4	43.3	53.9	62	35	48.5	55	42	48.5
0	0	0	0	0	0	0	0	0	0	2	0	1

The distal type of line B is with higher frequency in the studied group from Strelcha (both sexes together), while the ulnar type meets more frequently in the studied population from Panagurishte.

Palm patterns

The palm patterns in the studied population are found the most frequently on IV interdigital pad and on Hy in men and women of both examined groups. Besides, we have to notice as well, that the frequency of the palm patterns on IV interdigital pad is higher in the population from the region of Panagurishte, than in this one from Strelcha in men and women.

The palm patterns on Th/I interdigital pad are with higher concentration in the population from Panagurishte in comparison with that in Strelcha.

We have to notice, that the palm patterns meets more frequently on IV interdigital pad, than on III in the examined population from both regions, in men and women (Table 3). According to Gladkova (1966) at all populations in the World, as a rule, with a higher frequency of palm patterns distinguishes IV interdigital pad than III end rarely observe the opposite corelations (Table 3).

The additional triradii in the population from Strelcha are more frequently, than in Panagurishte in both sexes. Besides, the percentage frequency of this trait is higher in men in comparison with the women in the population from both regions (table 3).

Table 3. Axial triradii, palm patterns and accessorial triradii in the populations from Panagurishte and Srelcha, %.

Traits	Panagurishte						Srelcha					
	men			women			men			women		
	left	right	average	left	right	average	left	right	average	left	right	average
T	57.8	57.8	57.8	57.8	62.2	60	61	66	63.5	62	60	61
T'	17.8	18.9	18.45	20	17.8	18.9	18	12	15	17	14	15.5
T"	4.4	3.3	3.9	3.3	1.1	2.2	4	7	5.5	5	5	5
Tt'	8.9	4.4	6.7	10	6.7	8.4	8	5	6.5	6	1	3.5
Tt"	0	3.3	1.7	3.3	2.2	2.8	7	6	6.5	7	6	6.5
t't"	2.2	0	1.1	0	1.1	0.55	0	0	0	0	0	0
0	0	0	0	0	0	0	2	3	2.5	3	4	3.5
Hy	43.3	34.4	38.9	44.3	33.3	38.1	39	33	36	45	40	42.5
Th/I	12.2	5.6	8.9	11.1	4.4	7.8	6	4	5	7	7	7
II	1.1	10	5.5	1.1	3.3	2.2	3	5	4	0	0	0
III	16.7	43.3	30	17.8	42.2	30	11	38	24.5	3	30	16.5
IV	51.1	40	45.6	44.4	38.8	41.6	29	28	28.5	29	29	29
AIT	18.9	23.3	21.1	14.4	15.5	15	12	19	15.5	9	6	7.5

From the axial triradii, with the most frequency, distinguishes the carpal triradius-t in the examined population from both regions. Besides, the concentration of this trait is bigger in the population from Strelcha. A lack of axial triradii observed more frequently in the population from Panagurishte. The presence of two triradii (tt' tt"), simultaneously, observes in both studied groups, but the frequency of tt' is higher in the group of Panagurishte, and the frequency of tt" is bigger in the population from Strelcha. It is established that this trait (existence of two or three axial triradii simultaneously) is typical for the europoid population, while it is rarely found in mongoloids (Gladkova, Ramazanov, 1977) (Table 3).

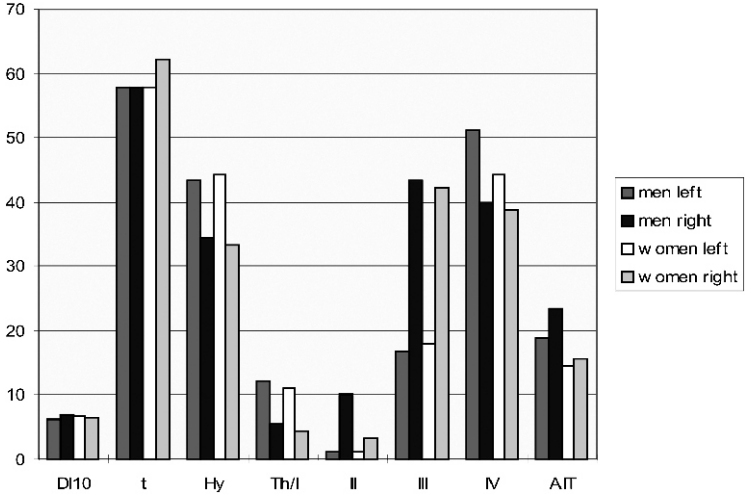
By means of the method t-criterium (Gladkova, 1966), it was realized a comparison among 8 dermatoglyphic traits - Dl_{10}, t, Hy, Th/I, II, III, IV and additional interdigital triradius - AIT of the examined two groups from Panagurishte and Strelcha commonly four extracts - men and women) with a purpose to be established if the differences among them are significant or insignificant (Table 4; Graph. 1 and 2). At comparison of the traits by sex by means of t-criterium in the group of Panagurishte was established, that the differences among them are insignificant. At comparison of the traits by sex by means of t-criterium in the group from Strelcha was established, that exist significant differences only by the trait III interdigital pad at P 0.01 and by the trait AIT at p - 0.001.

At comparison of the dermatoglyphic traits by means of t-criterium of left and right hands in men from the group of Panagurishte, it was established a significant difference, according to two traits - II interdigital of pad at P 0.01 and III interdigital pad at P 0.001, while in women a significant difference was established only by traits III interdigital pad at P 0.001. At comparison of left and right hands in the studied population from Strelcha in both sexes, a significant differences are observed by the trait III interdigital pad only at P 0.001. At comparison by means of t-criterium of the examined dermatoglyphic traits of the men and women from both studied regions, it was not

established significant differences according to not a one of these traits, which shows that the explored population is too homogenous by these features.

Table 4. Comparison of the traits according to t-criterion in the populations from Panagurishte and Strelcha

Traits	Panagurishte				Strelcha				Panagurishte and Strelcha	
	men	women	lefts	rights	men	women	lefts	rights	men	women
	lefts and rights	lefts and rights	men and women	men and women	lefts and rights	lefts and rights	men and women	men and women	Panaguri shte and Strelcha	Panaguri shte and Strelcha
DL10	0.1	0.05	0.1	0.3	0.29	0.01	0.03	0.13	0.04	0.1
T	0	0.6	0	0.6	0.7	0.3	0.15	0.88	0.12	0.09
Hy	1.2	1.5	0.14	0.2	0.88	0.72	0.86	1.03	0.15	0.11
Th/I	1.6	1.7	0.2	0.4	0.65	0	0.29	0.9	0.13	0.05
II	**2.62**	1.01	0	1.8	0.7	0	1.7	2.3	0.08	1.19
III	**3.9**	**3.6**	0.2	0.15	**4.4**	**5.2**	**2.2**	1.2	1.01	2.2
IV	1.5	0.8	0.9	0.2	0.2	0	0	0.2	0.9	1.1
AIT	0.7	0.2	0.8	1.3	1.4	0.8	0.7	**2.8**	1.28	2.01

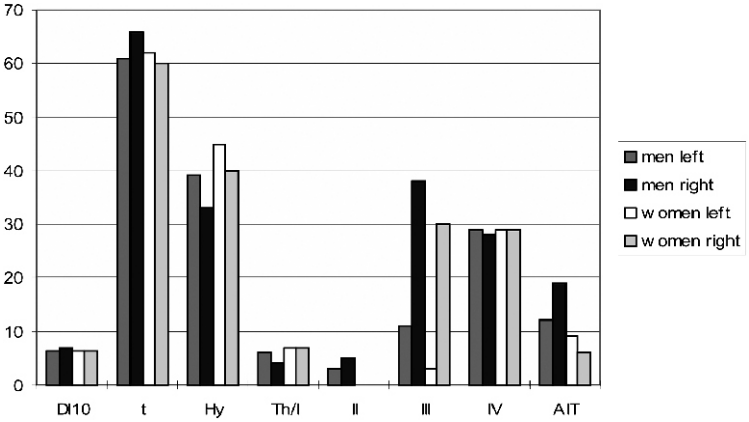


Graph. 1. Panagurishte

On the basis of the percentage frequency of the examined dermatoglyphic traits in the studied population from Panagurishte and Strelcha, it was accomplished a racediagnostic analysis. The percentage frequency of the separate dermatoglyphic traits, like the concentration of the arcs, loops, spirals and Delta index are in the limits, characteristic for the europoid populations.

The same concerns for the percentage frequency of finishing of the lines C and D as well, which are in the limits of the europoid populations. An exception makes the examined population from Panagurishte, in which the ulnar type of line B has a higher

frequency (53.1%) in comparison with the distal type, that is characteristic for the mongoloid populations.



Graph. 2. Strelcha

Conclusions

On the basis of the obtained data and their analysis, by the complex of dermatoglyphic traits, the examined population from the regions of Panagurishte and Strelcha is in the limits of the europoid populations with a weak presence of "eastern" admixture.

By the dermatoglyphic traits the studied population from both regions is too homogenous. It was established a sexual dimorphism only in the studied group from Strelcha according to the traits, dermatoglyphic patterns on III interdigital pad and AIT.

It was established a bimanual asymetry by the trait III interdigital pad in the examined population from both regions in men and women. Besides, a bimanual asymetry was established in the population from Panagurishte according to dermatoglyphic patterns on II interdigital pad only in men.

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DERMATOGLIFSKE KARAKTERISTIKE POPULACIJE BUGARA IZ NEKIH REGIONA SREDNJE-ZAPADNE TRAKIJE

Izvod

Proučeno je 760 uzoraka prstiju i dlanova 90 muškaraca i 90 žena iz regiona Panagurishte i 100 muškaraca i 100 žena iz regiona Strelcha. Istraživanje je sprovedeno po metodu Cummin i Midlo (1961). Utvrđeno je da je izučavana populacija iz oba regiona suviše homogena u pogledu istraživanih dermatoglifskih osobina. Osim toga, uočena je bimanualna asimetrija, statistički značajna, u populaciji iz regiona Panagurishte kod oba pola i to jedino u pogledu osobine-dermatoglifski uzorci III interdigitalnog jastučića.

Takođe je utvrđen polni dimorfizam u populaciji iz regiona Strelcha, statistički značajan kod desne ruke, prema dve osobine – dermatoglifski uzorci II interdigitalnog jastučića i dodatni intradigitalni triradiusi.

Ključne reči: Dermatoglifičke osobine, bimanualna asimetrija, polni dimorfizam