

Anthropological characteristics of a West Rhodope population based on dermatoglyphic data

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Dermatoglyphic studies were carried out in two regions situated in the central part of the West Rhodope Mountains — the West region (Dospat—Devin—Shiroka Luka) and the central one (Smolyan). A total of 570 males and 640 females was investigated. It was established that typologically according to the combinations of the features the Rhodope population under study can be qualified as Europeoid. According to the values of the dermatoglyphic features it belongs to the Southern Europeoids. The Southern Europeoid features are less pronounced in the West region and are considerably more strongly pronounced in the Central Rhodope region.

Key words: anthropology, ethnic dermatoglyphics, Southern Europeoid dermatoglyphic complex, Eastern dermatoglyphic complex.

There are no data about the Bulgarian population in the international handbooks on ethnic dermatoglyphics [7]. Partial studies using the specific methods of ethnic dermatoglyphics were carried out in the south-west part of the Central Rhodopes on the territory of the former Smolyan district. The results from these studies showed a slight shifting of the ordinary Europeoid type in eastern direction displayed by the variations of the eastern complex [3]. These data in the dermatoglyphic characteristics of the population from the mentioned region imposed an extension of the area of the dermatoglyphic investigation in the Rhodopes and the performance of a comparative typological analysis in order to trace the dispersal of the eastern complex.

Material and methods

In the present article are presented the results from a dermatoglyphic study of the population of two territorial groups situated in the central part of the West Rhodopes. One of the groups encompasses the population of the Dospat, Devin and Shiroka Luka region. Their binding into one group Dospat—Devin—Shiroka Luka group is justified by the fact that this population showed the same dermatoglyphic complex [2]. 400 males and 469 women belonging to this group were studied. The second



Fig. 1. Distribution of investigated individuals according to local origins

territorial group — the Smolyan one included the population from the Smolyan, Chepelare and Momchilovtsi region and was called for simplicity the central group. 170 men and 171 women of this group underwent the study (Fig. 1).

The dermatoglyphic imprints were processed after the method of Cummins and Midlo [1] and the proximal palmar triradii were determined after the scheme of A. Sharma [4]. The method of Heet [6] was used in the data analysis. This method allows for obtaining various information out of the material related to: the typological assessment of the combinations of dermatoglyphic features represented by combination polygons; the determining of the total dermatoglyphic distance (DD) between the groups according to sums of features. This distance gives the possibility for establishing the differences between the groups; the determining of the Eastern complex (MC) and the introduction of the Southern complex (SC).

The 5 basic ethnic dermatoglyphic features were analyzed in the paper: viz. pattern intensity index (PII), main line, or Cummins, index (MLI), proximal palmar triradius (t), true hypothenar patterns (Hy), and accessory interdigital triradii (AIT).

Results and Discussion

The results obtained from the processing of the dermatoglyphic imprints are shown in Tables 1-6 and in Fig. 2 and 3. The analysis of the data showed that the population from both groups under study is characterized with an increased percentage of the non-delta pattern, with an increased number of circular patterns and a mean value of the PII in the scale of the Europeoid groups (Table 1). The Cummins index values are low in both groups this tendency being more persistent in the examined ones

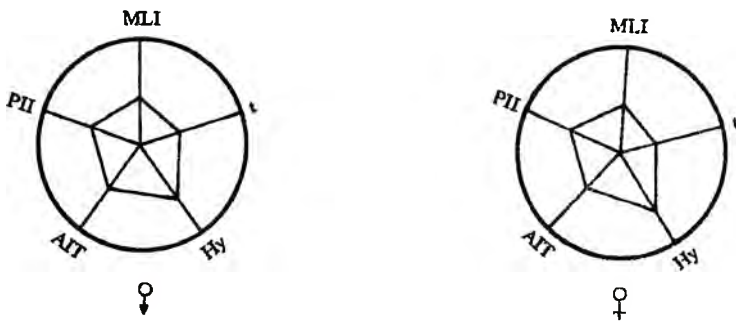


Fig. 2. Polygonic graphs showing the variation of dermatoglyphical features in the West Rhodope region

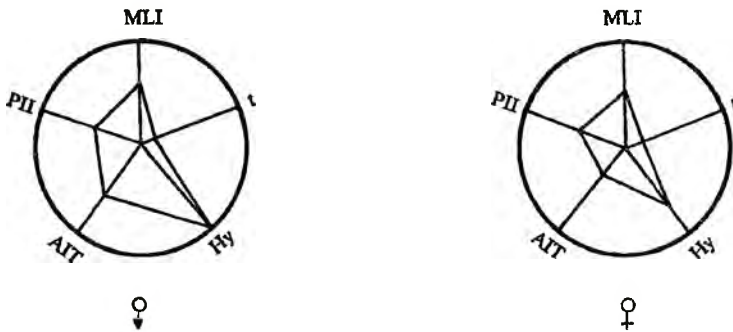


Fig. 3. Polygonic graphs showing the variation of dermatoglyphical features in the Central Rhodope region

from the West region (Tables 2-3). The percent content of the proximal palmar triradius among the population from the central region is considerably lower (45 %) than the one observed in the sample from the West Rhodope region (64 %) (Table 4). According to Heet's investigations, the value size of the proximal palmar triradius in the central group is closer to the minimum value for that feature in the Europeoid groups [6]. In spite of the differences according to this trait between the groups the per cent content of the proximal palmar triradius in the western territorial group is not high either and is within the normal scale for the Europeoid groups. The percentage of the true hypothenar patterns in both groups is high. It is conspicuous that this per cent is much higher in the central group (Table 5). In both Rhodope populations the expression of the Th_1 pattern is of average values (9-10 %). The pattern of the II interdigital pad is weakly pronounced (2-6 %). The frequency of the pattern of the IV interdigital pad is higher than the one of the III in both groups under study. The per cent of the accessory interdigital triradii in both Rhodope groups is of mean values but in the males of the Western group this feature is of lowered frequency (Table 5).

Summing up the data from the individual analysis we have to emphasize that according to the variations of the dermatoglyphic features the two territorial groups under study belong to the Europeoids and according to the values of these features they represent South Europeoids. These results were confirmed by the overall

Table 1. Digital pattern (%) and pattern intensity index (PII) in Rhodope population

Group	Number and sex	A+T	R	U	R+U	W	PII
West Rhodope group	400 men	5,1	2,5	51,5	54,0	40,8	13,57
	469 women	6,3	2,0	55,1	57,0	36,7	13,04
Central Rhodope group	170 men	7,3	2,2	52,5	54,8	37,9	13,06
	171 women	7,0	2,3	56,3	58,6	34,2	12,71

Table 2. Termination of the main line in a Rhodope population (%)

Line A									
Group	Sex	1	2	3	4	5'	5''	6	7
West	men	2,1	0,4	46,9	19,9	29,4	1,3	—	—
	women	1,7	0,6	55,2	16,2	25,5	0,8	—	—
Central	men	1,7	0,8	48,5	13,8	31,9	2,5	—	0,7
	women	1,9	0,7	46,2	18,2	31,5	1,5	—	—

Line B											
Group	Sex	3	4	5'	5''	6	7	8	9	X	O
West	men	0,7	0,9	29,4	26,5	1,0	40,0	0,3	1,0	0,1	0,1
	women	0,6	0,8	21,1	35,2	0,1	40,6	—	1,3	0,1	—
Central	men	—	0,3	15,8	37,4	—	45,0	0,3	1,2	—	—
	women	0,9	—	17,8	36,2	—	43,9	—	0,6	0,6	—

Line C											
Group	Sex	5'	5''	6	7	8	9	10	11	X	O
West	men	1,1	12,9	0,1	23,4	0,2	35,6	0,2	1,2	19,6	5,5
	women	0,4	18,0	0,2	18,4	0,1	28,9	—	1,1	26,0	6,7
Central	men	—	12,9	—	22,3	—	37,1	—	1,2	23,8	2,6
	women	—	16,9	—	21,3	—	30,4	—	0,6	26,0	4,7

Line D							
Group	Sex	7	8	9	10	11	13
West	men	6,2	0,2	37,5	3,0	53,1	—
	women	8,4	—	35,2	0,5	55,9	—
Central	men	5,5	—	33,0	0,9	60,0	0,4
	women	7,7	—	32,9	0,6	58,7	—

Table 3. Types of the main' lines and Cummins index (MLI) in a Rhodope population

Group	Sex	Types of lines A				Types of lines D				MLI
		1	3	5	M _{A1-5}	7	9	11	M _{D7-5}	
West	men	8,0	71,1	20,9	3,26	14,3	45,4	40,3	9,52	7,99
	women	6,8	75,5	17,6	3,21	18,9	39,5	41,6	9,45	7,83
Central	men	7,3	68,5	23,8	3,32	12,9	39,7	47,3	9,68	8,19
	women	7,9	69,3	33,9	3,85	17,5	38,0	44,4	9,53	7,93

Table 4. Proximal palmar triradii in a Rhodope population (%)

Group	Sex	t	t'	t''	tt'	tt''	t't''	tt't''	o	tt	t't'	t''t''	tt't''	t''t''	ttt'	ttt''
West	men	64,4	15,9	5,9	3,4	5,5	1,1	—	0,6	0,8	0,8	0,1	0,3	0,1	—	—
	women	55,3	23,0	5,6	4,6	5,3	1,6	0,2	1,1	1,4	0,6	0,1	0,1	0,1	0,3	0,3
Central	men	45,6	21,8	9,7	6,2	10,0	2,1	0,3	1,5	0,9	0,3	0,6	0,3	0,6	—	—
	women	45,3	23,4	10,8	6,4	8,2	1,5	0,3	0,6	1,2	0,9	0,3	0,3	0,3	0,6	0,3

Table 5. True palmar pattern and accessory interdigital triradii in a Rhodope population (%)

Group	Sex	Palmar pattern					Accessory interdigital triradii			
		Hy	Th ₁	II	III	IV	II	III	IV	II-IV
West	men	31,5	9,4	5,9	21,4	41,5	5,6	1,0	17,5	24,1
	women	39,0	10,2	2,9	22,3	47,6	2,9	1,5	16,1	20,2
Central	men	46,2	9,1	5,9	25,9	47,9	5,9	2,9	20,6	29,7
	women	40,0	10,8	2,0	21,3	37,1	2,0	1,2	11,1	14,3

Table 6. Variations of the main dermatoglyphic features in a Rhodope population

Group	Number and sex	PII	MLI	t	Hy	AIT	Th ₁	SK	MK
West	400 men	13,57	7,99	64,4	31,5	24,1	9,4	54,4	46,7
	469 women	13,04	7,83	55,3	39,0	20,2	10,2	53,9	46,6
Central	170 men	13,06	8,19	45,6	46,2	29,7	9,1	65,2	25,9
	171 women	12,71	7,93	45,3	40,0	14,3	10,8	54,8	43,8

comparison of the dermatoglyphic features in which the Southern and Eastern complexes were determined (Table 6). As an illustration to the overall comparison the combination polygons were used (Figs. 2 and 3). The analysis of the data from the overall comparison showed that according to the degree of expression of the South Europeoid traits the two Rhodope dermatoglyphic complexes are different. These differences are most strongly expressed in the males. Their total dermatoglyphic distance is rated into the category of "very large" (DD = 20,7). In women the total dermatoglyphic distance is rated into the category "small" (DD = 8,5). The analysis of the data was carried out separately for the men and for the women because of the presence of a significant sexual dimorphism in the Europeoids in the skin relief [5]. The higher values of the South Europeoid complex (65,2 %) and the much lower values of the eastern complex (25,9 %) in the men from the central group come as a result from the very low frequency of the proximal palmar triradius and the very high frequency of the true hypothenar patterns as well as because of the elevated values of the accessory interdigital triradii (Fig. 3). In the women from the same group this peculiarity is more clearly expressed with respect to the proximal palmar triradius. Most probably we are encountering a local combination of the features forming the South-Europeoid complex in the dermatoglyphic characteristics of the population from the central-Smolyan group* [2].

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The spread of the eastern complex in its higher values (from 47,1 % to 51,5 %) was traced to the Shiroka Luka region. In this region the highest per cent content of the proximal palmar triradius (71,6 %) was also established. In the Dospat-Devin region the higher values of the eastern complex is the result from the emergence of low values of the pattern intensity index; from the high frequency of the proximal palmar triradius; and from the low values of the true hypothenar patterns; and from the accessory interdigital triradii [2]. That is why the localization of the east-European component represented by the variations of the eastern complex is mainly concentrated in the west Dospat—Devin—Shiroka Luka region.

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