Dermatoglyphic Indexes, Menarche and Menopause in Females

M. Pirinska-Apostolu, V. Angelova

Faculty of Biology,Department of Zoology and Anthropology, Sofia University "St. Kliment Ohridski"

The purpose of the present research is to be detected probable correlation between the digital dermatoglyphic features and the occurrence of menarche and menopause in females as well as to be accomplished anthropological characterization of the population by these traits. The examined sample includes women from various age groups. There has been made 437 dermatoglyphic prints out of 217 females. Data about the occurrence of menarche and menopause has been collected from 225 females by the inquiry method. On the basis of the received data it has been established that loops are presented with higher frequencies as fingerprint patterns in the examined population. Correlation between fingerprints and menarche/menopause is not significant.

Key words: females, fingerprints, menarche, menopause, correlation.

Introduction

All the dermatoglyphic traits, as well as the sex maturity are genetically determined features. During the end of the third prenatal month the sexual characteristics have already been developed. By the same time the dermatoglyphic features have been formed too [1]. Maturational timing associated with sex chromosomes as a factor in dermatoglyphic variation has been also suggested [2, 7]. The purpose of the present research is to be detected probable correlation between the digital dermatoglyphic features and the occurrence of menarche and menopause in females as well as to be accomplished anthropological characterization of the population by these traits.

Material and Methods

The research has been undertaken in the territory of the Belogradchik city and the adjacent villages. The examined sample includes women from various age groups. There has been made 437 dermatoglyphic prints out of 217 females. The diagnosis of the fingerprints has been accomplished by the means of the Cummins and Midlo methods [3, 4]. Three basic features have been used: loops-L, whorls-W and

arcs-A. Data about the occurrence of menarche and menopause has been collected from 225 females by the inquiry method. Early or late first menarche and menopause is calculated according to Meier, Meier et al. [5, 6] (Table 2 and 3).

Results and Discussion

*Fingerprints.*Among the digital dermatoglyphic features of Belogradchic females, loops (U+R) have shown the highest concentration (64.03%) and arcs (A+T) the lowest-8.30%. Ulnar loops are more frequent than radial ones for both hands (60.46 and 3.26 respectively). The first are also more frequent on the III and V fingers, especially on the V (82.49%). The lowest concentration of ulnar loops has been found in respect of the II finger (34.10%). The conclusions made on the basis of the data analysis indicates that whorls are more frequent on the I finger for both hands. Arcs have been found to be the most rare fingerprint feature in comparison with loops and whorls.

The most variable fingerprint feature is proved to be ulnar loops. In the examined population this trait varies from 32.74 % (referring to the II finger of the right hand) to 83.40% (referring to the V finger of the same hand) (Table 1).

Menarche. The occurrence of the menarche among the examined females varies from 9 to 14 years old, with a value of 11.60 ±1,17 as a mean. About 62.30% of them belong to the interval between 10.43 and 12,77 years old. 15.7% of the sample has an early maturity [7] (from 9 to 10.43 years old). In addition, late maturity show 21.99% of the sample (between 12.77 and 14 years old) (Table 2). A group of non-mature girls including 34 persons has a mean age of 10.62 years, whereas the limits of its age variation are 10 and 13 respectively. Among the schoolgirls first menarche

Table 1. Frequency of the digital dermatoglyphic features (in %)

Type of feature	Fingers														
	I			II			III			IV			V		
	L	R	L+R	L	R	L+R	L	R	L+R	L	R	L+R	L	R	L+R
A+T	6.45	3.23	4.61	20.74	17.97	19.15	15.67	7.37	11.52	4.15	1.84	3.00	3.23	2.30	2.77
R	0.92	0.92	0.92	14.29	13.82	14.06	0.46	—	0.23	0.46	1.38	0.92	—	0.46	0.23
U	57.14	53.46	55.30	32.72	35.48	34.10	66.82	76.50	71.66	60.83	56.68	58.75	83.40	81.57	82.49
W	35.48	42.40	38.94	32.26	32.72	32.49	17.05	16.13	16.59	34.56	40.09	37.33	11.36	5.67	14.52
L(R+U)	58.06	54.38	56.22	47.01	49.30	48.16	67.28	76.50	71.89	1.29	8.06	59.68	83.40	82.03	82.72

Table 2. Classification of relative maturity defined by age at menarche

Category	N	%	Range of age
Early maturers	30	15.71	9—10.43
Late maturers	42	21.99	12.77—14

Table 3. Classification by age at menopause

Category	N	%	Range of age
Early	11	18.33	39—41.98
Late	10	16.67	50.72—57

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Table 4. Menarche and menopause according to seasons

Groups		Total		Seasons			
				winter	spring	summer	autumn
Schoolgirls under 20 years old		98	n	32	15	23	28
			%	32.65	15.31	23.46	28.57
20 — 40 years old		35	n	6	9	8	12
			%	17.14	25.71	22.86	34.29
Above 40 years old	Menarche	58	n	7	19	11	21
			%	12.07	32.76	18.97	36.21
	Menopause	60	n	16	18	17	9
			%	26.67	30.00	28.33	15.00

Table 5. Correlation between digital dermatoglyphic features and occurrence of menarche/menopause

Spearman's correlation		W	L	A
menarche	Correlation Coefficient	0.055	—0.072	0.053
	Sig.	0.449	0.321	0.466
	N	191	191	191
menopause	Correlation Coefficient	—0.026	0.054	—0.098
	Sig.	0.842	0.0684	0.457
	N	60	60	60

** Correlation is significant at the .01 level (2-tailed).
* Correlation is significant at the .05 level (2-tailed).

occurs in winter more frequently (32.57%) and only rarely in spring (15.31). The groups from 20 to 40 years old and above 40 show higher rates of menarche occurrence in autumn (43.29% and 36.21% respectively). For the representatives of these two groups the lowest percentage values of first menarche have been established in winter (17.14 and 12.07 respectively) (Table 4).

Menopause. In 26.67% of the examined females above 39 years old menopause has already occurred. The estimated mean value of the feature is 46,35 ± 4,37 years, with limits of variation ranged from 39 to 57 years old (table 4). Occurrence of menopause is observed more frequently in spring (30%) in addition with autumn (15%).

Correlation. In order to be found out if digital dermatoglyphic features and occurrence of menarche and menopause are connected, Spearman's correlation coef-

ficient has been calculated. The received data shows that this kind of correlation is statistically insignificant, although from Fig. 1 and Fig. 2 can be established the fact that girls with early menarche have more loops as fingerprint patterns, as well as women with late menopause (Table 5).

Conclusions

On the basis of the received results it has been found out that the Belogradchik female population is characterized by:
— Relatively high frequency of loops as fingerprint features
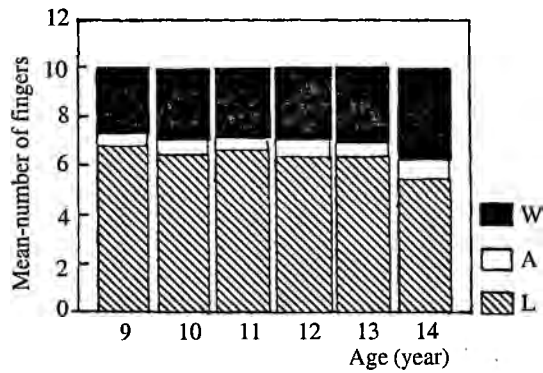— Mean age of first menarche equal to 11.6 ± 1.17 years

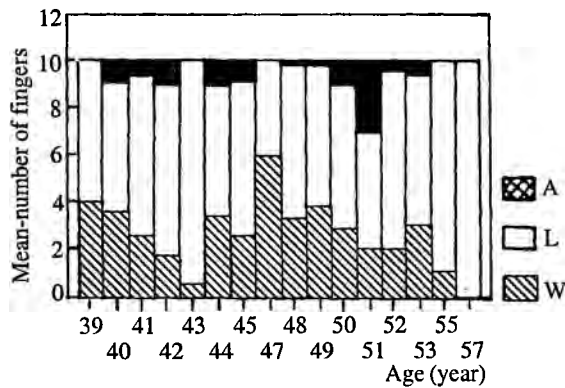Fig. 1. Dependence between 1st menarche and dermatoglyphic patterns of fingers

Fig. 2. Dependence between menarche and dermatoglyphic patterns of fingers

— Mean age of menopause equal to 46.35 ±4.37 years
— Occurrence of menarche and menopause of the various examined age groups set up at different seasons.
— Statistically non-significant correlation between fingerprints and menarche / menopause.

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