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## A STUDY OF ARTERIAL BLOOD PRESSURE IN HIGHLANDERS FROM THE DEČANI REGION

**ABSTRACT.** — *The Dečani highlanders of Kosovo show mild hypotension in the 21–40 years old individuals. This is in the line with the earlier published observation (Gavrilović, 1966) that hypotension is characteristic of the Herzegovina highlanders, while hypertension is distinctive of the plain-dwellers of the Vojvodina region.*

In our earlier study we observed that hypotension is characteristic of the highlanders in Herzegovina and hypertension is distinctive for the plain-dwellers in Vojvodina (Gavrilović, 1966). The object of this study is to record the blood pressure in the Dečani Region highlanders and to check the variations in their blood pressure.

### MATERIAL AND METHODS

The study included 624 individuals, that is 500 males and 124 females, 12–85 years old, natives of the Dečani Region. The study was conducted in July and August 1974. The blood pressure, systolic and diastolic, was registered by the auscultatory method using the standardized mercury manometer in the sitting position after a 10–15 minute rest. The pulse rate was noted per minute.

The whole material was divided into age groups by sex. The mean values, standard deviations and coefficients of variability were calculated. The maximum and minimum values for the systolic and diastolic blood pressures and the pulse rate were reported.

### RESULTS

Table 1 presents the data about the sample of the observed population by sex.

From the table it is seen that considerably more males (500) than females (124) were tested. According to the age, individuals between 21 and 40 years dominated. The number of persons above 60 years of age was relatively small.

TABLE 1. *Distribution of the examined persons by age and sex*

Age groups	Males	Females	Total
11–20	83	38	121
21–30	135	20	155
31–40	127	32	159
41–50	84	17	101
51–60	40	11	51
61–70	23	4	27
71–80	8	1	9
81–90	—	1	1
Total	500	124	624

TABLE 2. Systolic blood pressure in eight age groups in 500 males and 124 females from Dečani

Age groups	MALES				FEMALES			
	$\bar{X}$	SD	KV	Min—Max	$\bar{X}$	SD	KV	Min—Max
11—20	108.05	12.45	11.52	85—155	110.95	10.65	9.05	90—135
21—30	122.75	12.95	10.50	90—160	114.00	10.70	9.38	90—130
31—40	121.25	12.15	10.02	90—150	126.00	20.75	18.18	100—210
41—50	124.90	14.65	11.72	90—155	139.95	25.45	16.37	110—220
51—60	128.50	17.55	13.65	90—160	137.00	25.75	18.79	95—180
61—70	—	22.35	16.93	100—165	162.00	12.20	7.53	150—180
71—80	147.00	16.35	11.12	120—170	180.00	—	—	180—180
81—90	—	—	—	—	200.00	—	—	200—200

TABLE 3. Diastolic blood pressure in the eight age groups in 500 males and 124 females from Dečani

Age groups	MALES				FEMALES			
	$\bar{X}$	SD	KV	Min—Max	$\bar{X}$	SD	KV	Min—Max
11—20	60.05	8.85	14.73	50—100	61.65	6.60	10.70	50—70
21—30	67.65	10.20	15.07	50—95	66.00	6.80	10.30	50—80
31—40	70.55	9.75	13.81	50—90	76.25	13.25	17.37	60—120
41—50	74.40	11.20	15.05	50—95	78.80	14.05	17.82	60—120
51—60	78.10	12.90	16.51	50—100	82.90	18.10	21.83	50—110
61—70	84.65	14.30	16.80	55—100	92.00	16.80	18.26	80—100
71—80	92.65	17.05	18.40	70—120	100.00	—	—	100—100
81—90	—	—	—	—	120.00	—	—	120—120

TABLE 4. Pulse frequency in the eight age groups in 500 males and 124 females from Dečani

Age groups	MALES				FEMALES			
	$\bar{X}$	SD	KV	Min—Max	$\bar{X}$	SD	KV	Min—Max
11—20	74.70	9.40	12.58	56—114	82.55	9.90	11.99	60—114
21—30	75.20	10.00	13.29	54—108	78.50	10.90	13.88	60—102
31—40	72.65	8.56	11.78	54—95	78.75	8.95	11.36	60—104
41—50	76.30	9.05	11.86	50—94	80.25	12.50	15.57	58—108
51—60	77.75	11.10	14.27	60—108	78.85	13.50	17.12	60—102
61—70	80.50	9.65	11.98	68—106	85.75	11.10	12.94	70—98
71—80	76.40	11.45	14.98	60—94	100.00	—	—	100—100
81—90	—	—	—	—	66.00	—	—	66—66

Table 2 contains data on systolic blood pressure according to sex and age groups.

From the table we can see that the mean systolic blood pressure values were higher in females than in males in all age groups but the differences were not statistically significant. In the persons above 60 years the systolic pressure increased in both sexes.

While the youngest persons had the lowest systolic blood pressure, its highest value was characteristic of the oldest. The systolic blood pressure did not increase parallelly with the age. In persons above 30 years of age the maximum systolic blood pressure values were noted to be higher in females. In that age there was bigger variability in systolic blood pressure. The data indicate that mild hypo-

tension is typical of the studied population of both sexes.

The data on the diastolic blood pressure according to sex and age groups are illustrated in table 3.

It follows from the table that the mean diastolic blood pressure values increased gradually with the age of the observed population reaching the peak values in the oldest age groups. In most cases the differences related to sex were not statistically significant.

Table 4 presents the data on the frequency of the observed individuals.

It is striking that the mean pulse rates varied from 72.65—80.50 in males and from 66.00—85.75 in females and they did not show any irregularity

with the age of the observed population. On average they were smaller in males than in females in all age groups. The variability in this parameter was relatively high in both sexes.

## DISCUSSION

The present study indicates that hypotension is distinctive in persons of either sex from Dečani, as it is usual in the population of Herzegovina. The systolic blood pressure shows more regular changes with the age compared to the diastolic pressure. The pulse rate is in line with the age of the observed population.

We hold, as already pointed out by Puncer (1961), that the normal blood pressure cannot be taken as the measure when related to the age.

Indisputably, blood pressure manifests changes with the age but they all are the reflection of hormonal, neurogenic and other alterations.

## CONCLUSION

On the basis of our results the following conclusions can be drawn for the Dečani highlander population in Kosovo:

1. Both the systolic and diastolic blood pressure tend to increase with the age in both sexes.
2. Mild hypotension is characteristic of 21—40 year old individuals.
3. The pulse rate does not change parallelly with the age in either sex.

## REFERENCES

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