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COMPARATIVE ANALYSIS OF THE ANTHROPOMETRIC CHARACTERISTICS OF THE BODIES OF PREMATURE CHILDREN OBTAINED BY REGRESSION EQUATIONS

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In the Republic of Moldova, anthropometric standards for children born prematurely have not yet been developed. For the purpose of designing dimensionally appropriate clothing, anthropometric measurements of this category of children were performed in the "Gheorghe Paladi" Municipal Clinical Hospital in the city of Chisinau, Republic of Moldova. The measurement program included 18 anthropometric parameters. The study carried out on a sample of 51 subjects born in the Republic of Moldova aimed at verifying estimates of the frequency of variants as close as possible to the frequencies found in children born prematurely in other parts of the world. The results of the measurements were statistically processed and regression equations were obtained on the basis of which the sizes of the typical bodies were determined. Based on these data, functional clothing products for preterm infants will be designed.

Key words: *regression equations, anthropometric data, premature children, clothing products*

INTRODUCTION

In order to increase the quality of life and provide families with prematurely born children with dimensionally appropriate clothing for babies, anthropometric measurements were taken on a sample of 51 subjects. The measurement program included 18 anthropometric characteristics shown in Table 1. These anthropometric parameters are necessary for the design of functional clothing products that will allow proper care of preterm infants and increase the possibility of their survival in the first months of life. In order to verify and validate the values of anthropometric parameters of typical bodies of preterm infants calculated according to the regression equations, a comparative analysis with the values of typical bodies of infants from the Alvanon anthropometric standards [1] for different geographical areas: Asia, USA and North America was performed.

In addition to the dimensional indicators present in the Alvanon anthropometric standards, four further anthropometric parameters were retrieved

and statistically processed: lateral length from waist to knee, the outer length of the lower limb, the length of the sole of the foot and perimeter of hand joint.

RESULTS AND DISCUSSION

The results of the comparative study are presented in Table 1.

Table 1

Comparative analysis of the anthropometric characteristics of the bodies of premature children obtained by regression equations and those presented in the Alvanon anthropometric standards

No. crt.	Anthropometric characteristic	ASIA Standard (Alvanon)	US ASTM Standard (Alvanon)	North American Standard (Alvanon)	According to regression equation
1	2	3	4	5	6
1.	**Body length**	44	44,5	43,2	43,90
2.	Waist length in front	10,75	11,25	10,2	10,64
3.	Back to waist length	11,75	12,25	11,7	11,61
4.	Upper limb length	22	23	23,2	21,46
5.	Side length from waist to knee	-	-	-	6,05
6.	Lower body arch	17,5	19,5	19,4	19,06
7.	The outer length of the lower limb	-	-	-	17,86
8.	Inside length of the lower limb member	15	13	14,6	15,28
9.	The length of the sole of the foot	-	-	-	7,07
10.	**Chest perimeter**	31,75	35	33,3	32,60
11.	Head perimeter	33	35	30,8	30,80
12.	Abdomen perimeter	31,75	35,5	34,3	29,50
13.	Hip perimeter	30	35,5	32,1	29,50
14.	Neck perimeter	17,25	18,25	18,7	19,11
1	2	3	4	5	6

15.	Back width (shoulder points)	13,75	15	15,2	14,84
16.	Hand joint perimeter	-	-	-	10,94
17.	Arm perimeter (biceps)	10,5	10,25	10,8	10,39
18.	Thigh perimeter	17	19,5	19,4	18,15

From the data presented in Table 1 it can be seen that the dimensional parameters of the typical bodies of children born prematurely in the Republic of Moldova fall within the range of data for premature children in Asia, USA and North America. The closest to the dimensional characteristics of the bodies of Asian children are the following six anthropometric parameters: body length, waist length in front, upper limb length, inner length of lower limb, abdomen perimeter and hip perimeter. With the anthropometric parameters of North American children's bodies, the following six dimensional characteristics are more similar: back to waist length, lower body arch, chest perimeter, head perimeter, neck perimeter and thigh perimeter. With the dimensional characteristics of children's bodies in the USA are the following two anthropometric parameters: Back width (shoulder points) and axillary arm (biceps) perimeter.

CONCLUSIONS

Following the results obtained, through the statistical analysis of the data, the following aspects can be highlighted: the obtained values of the anthropometric indicators used can serve as initial data in the design of the proposed clothing products required for children born prematurely. The comparative analysis of the data presented in various standards, with the data obtained by the authors, according to the established regression equations, serve as an argument that the dimensional parameters of the examined children fall within the world trends. The identification of the dimensional parameters for this category of carriers and the functional design of the clothing products will ensure their correspondence with the prematurity groups and their requirements.

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