

FINDING STUDY ON THE CORRELATION BETWEEN THE INDICES OF PHYSICAL DEVELOPMENT OF PRIMARY SCHOOL STUDENTS

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Abstract

Sustained research into the morphological and functional growth and development of children is one of the tasks of great responsibility of parents, doctors and teachers. Knowing the changes that occur in the body by age and sex, we can see if the evolution of a community is within normal limits or exceeds these limits.

Introduction

A topic of permanent topicality, the motor and somato-functional potential of man has preoccupied and continues to concern specialists in the field of physical education and school sports, pre-university, sports medicine, public health and other fields. From the point of view of the biomotor potential, the specialists unanimously agree that the state of health is conditioned by the biological, motor resources of the individual. [7] The so-called "physical fitness" (motor capacity) creates a healthy, balanced "internal environment", a state of physical and mental well-being. [6] The criteria and methods of knowing these evolutions as well as the appreciation of the changes that take place in different phases of the growth and development of the body are very varied. [8]. By evaluating the biomotor potential we obtain valuable information about the physical development of the individual, about the existence of possible deficient attitudes of the musculoskeletal system, as well as information about the physical condition (characterized by indications of strength, coordination, balance, speed under different forms, suppleness) which is, from my point of view, the platform for the manifestation of other forms of health, with major influences in integration into the social environment. [9]

Material-method

It is assumed that following the application of differentiated training programs for different categories of students we can obtain very

good results in improving the ratio between indicators of physical development and those of motor ability. [2] It is assumed that the use of exercise structures and methodical procedures appropriate to poor material conditions, can lead to harmonious physical development and efficient development of motor skills. [3]

The purpose of choosing this topic: characterizing the somatic, functional and motor potential of the students from the primary cycle of the school and identifying / establishing the level of manifestation of the components and the interrelationships between them, in this development cycle.

Class I girls

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
1,224	1,22	1,22	0,03	1,29	1,17	0,12	2,4%	44,48% / 55,52%

Conclusion: The average of the results obtained in the subjects when measuring the height is 1,224 m, 44.48% of which are above average. The most common value is 1.22 m, it is repeated in 22.22% of cases. The results vary between 1.17m and 1.29m, the amplitude being equal to 0.12m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.03 m and a coefficient of variation of 2.4%. [5]

Body height (kg)

Mediate (kg)	Median (kg)	Module (kg)	Standard deviation (kg)	Maxim (kg)	Minim (kg)	Amplitu- de (kg)	Coef. of variability (%)	over/onder mean (%)
23,27	22	22	3,13	29	19	10	13,45	44,48% / 55,52%

Conclusion: The average results obtained in subjects to measure weight is 23.27 kg, 44.48% of which are above average. The most common value is 22kg, it is repeated in 22.22% of cases. The results vary between 19kg and 29kg, the amplitude being equal to 10kg. The dispersion has a relatively homogeneous structure, with a standard deviation from the average of 3.13 kg and a coefficient of variation of 13.45%.

Amplitude (cm)

Mediate (cm)	Median (cm)	Module (cm)	Standard deviation (cm)	Maxim (cm)	Minim (cm)	Amplitu- de (cm)	Coef. of variability (%)	over/onder mean (%)
122,05	122	122	5,51	132	111	21	4,51	33,33% / 66,66%

Conclusion: The average of the results obtained in the subjects when measuring the wingspan is 122.05 cm, 33.33% of which are above average. The most common value is 122 cm, it is repeated in 33.33% of cases. The results vary between 111cm and 132cm, the amplitude being equal to 21cm. The dispersion has a relatively homogeneous structure, with a standard deviation from the average of 5.51 cm and a coefficient of variation of 4.51%. [5]

Class I boys

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
1,24	126	126	0,07	1,36	1,14	0,22	2,22	55,5%/ 44,5%

Conclusion: The average of the results obtained in the subjects when measuring the height is 1.24 m, 55.5% of them are above average. The most common value is 1.26 m, it is repeated in 22.22% of cases. The results vary between 1.14m and 1.36m, the amplitude being equal to 0.22m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.07 m and a coefficient of variation of 2.22%. [5]

Body height (kg)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
25,11	25	25	3,23	30	19	11	12,8	44,48% / 55,52%

Conclusion: The average results obtained in subjects when measuring body weight is 25.11 kg, 44.48% of which are above average. The most common value is 25 kg, it is repeated in 22.22% of cases. The results vary between 19kg and 30kg, the amplitude being equal to 11kg. The dispersion has a relatively homogeneous structure, with a standard deviation from the average of 3.13 kg and a coefficient of variation of 12.8%. [5]

Amplitude (cm)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
121,16	122	130	6,59	130	110	20	5,43	55,5%/ 44,5%

Conclusion: The average of the results obtained in the subjects when measuring the wingspan is 121.16 cm, 55.5% of which are above

average. The most common value is 130cm, it is repeated in 22.22% of cases. The results vary between 110cm and 130cm, the amplitude being equal to 20cm. The dispersion has a homogeneous structure, with a standard deviation from the average of 6.59 cm and a coefficient of variation of 5.43%. [5]

Class II girls

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
1,29	1,29	1,26	0,05	1,41	1,22	0,19	3,8	42,8%/ 57,2%

Conclusion: The average value of the results obtained by the subjects when measuring the height is equal to 1.29 m, 42.8% of the results are above average. The most common result is 1.29 m, which is repeated in 28.57% of cases. The results obtained by the subjects vary between 1.22m and 1.41m, the amplitude being equal to 0.19m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.05 m and a coefficient of variation of 3.8%. [5]

Body height (kg)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
28,2	25	23	7,62	44	20	24	26,8	42,85%/ 57,15%

Conclusion: The average value of the results obtained by the subjects when measuring body weight is equal to 28.2 kg, 42.85% of the results are above average. The most common result is 23 kg, which is repeated in 28.57% of cases. The results obtained by the subjects vary between 20kg and 44kg, the amplitude being equal to 24kg. The value of the coefficient of variation is 26.8% which means that the data spread is medium, the average being still sufficiently representative. [5]

Amplitude (cm)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
127,57	126	126	3,78	135	122	13	2,97	42,85%/ 57,15%

Conclusion: The average value of the results obtained by the subjects when measuring the wingspan is equal to 127.57 cm, 42.85% of the results are above average. The most common result is 126 cm, which is

repeated in 42.85% of cases. The results obtained by the subjects vary between 122cm and 135cm, the amplitude being equal to 13cm. The value of the coefficient of variation is 2.97% which means that the data distribution is very small, the average is representative and the measured sample is homogeneous from this point of view.[5]

Class II boys

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
1,302	1,3	1,3	0,02	1,34	1.25	0,09	1,98	40%/ 60%

Conclusion: The average value of the results obtained by the subjects when measuring the height is equal to 1,302m, 40% of the results are above average. The most common result is 1.3 m, which is repeated in 30% of cases. The results obtained by the subjects vary between 1.25 m and 1.34 m, the amplitude being equal to 0.09 m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.02 m and a coefficient of variation of 1.98%. [5]

Body height (kg)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
28,55	28	28	4	36	23	13	14,01	30%/ 70%

Conclusion: The average value of the results obtained by the subjects when measuring body weight is equal to 28.55 kg, 30% of the results are above average. The most common result is 28 kg, which is repeated in 20% of cases. The results obtained by the subjects vary between 23kg and 36kg, the amplitude being equal to 13kg. The value of the coefficient of variation is 14.01% which means that the data spread is relatively small, the average being still sufficiently representative, the sample can be considered homogeneous from this point of view. [5]

Amplitude (cm)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
132,3	134	135	4,58	138	124	14	3,46	70%/ 30%

Conclusion: The average value of the results obtained by the subjects when measuring the span is equal to 132.3 cm, 70% of the results are above average. The most common result is 135 cm, which is repeated in 30% of cases. The results obtained by the subjects vary between 124cm and 138cm, the amplitude being equal to 14cm. The value of the

coefficient of variation is 3.46% which means that the data spread is very small, the average is representative and the measured sample is homogeneous from this point of view. [5]

Class III girls

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
1,36	1,38	1,38	0,05	1,49	1,29	0,20	3,89	55,5%/ 44,5%

Conclusion: When measuring the average height of the results is equal to 1.36 m, 55.5% of them are above average. The most common value is 1.38 m, this represents 44.44% of the results obtained by the subjects, results that vary between 1.29 m and 1.49 m, the amplitude being equal to 0.2 m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.05 m and a coefficient of variation of 3.89%. [5]

Body height (kg)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
36,55	35	35	12,24	70	27	43	33,49	22,22%/ 77,78%

Conclusion: When measuring body weight, the average result is equal to 36.55 kg, 22.22% of which are above average. The most common value is 35, this represents 33.33% of the results obtained by the subjects, results that vary between 27kg and 70kg, the amplitude being equal to 43kg. The dispersion has an inhomogeneous structure, with a standard deviation from the average of 12.24 kg and a coefficient of variation of 33.49%. [5]

Amplitude (cm)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
139,11	140	140	7,77	157	129	28	5,59	55,5% 44,5%

Conclusion: The average value of the results obtained by the subjects when measuring the span is equal to 139.11 cm, 55.55% of the results are above average. The most common result is 140 cm, which is repeated in 33.33% of cases. The results obtained by the subjects vary between 129cm and 157cm, the amplitude being equal to 28cm. The value of the coefficient of variation is 5.59% which means that the data

spread is very small, the average is representative and the measured sample is homogeneous from this point of view. [5]

Class III boys

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
1,371	1,36	1,36	0,09	1,475	1,29	0,185	6,69	30%/ 70%

Conclusion: When measuring the average height of the results is equal to 1.371m, 30% of them are above average. The most common value is 1.36 m, this represents 20% of the results obtained by the subjects, results that vary between 1.29 m and 1.475 m, the amplitude being equal to 0.185 m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.09 m and a coefficient of variation of 6.69%. [5]

Body height (kg)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
39	33,5	28	9,83	57	28	29	25,21	40%/ 60%

Conclusion: When measuring body weight, the average result is equal to 39 kg, 40% of them are above average. The most common value is 28, this represents 20% of the results obtained by the subjects, results that vary between 28kg and 57kg, the amplitude being equal to 29kg. The dispersion shows a standard deviation from the average of 9.83 and a coefficient of variation of 25.21%, which means that the data spread is medium, the average being sufficiently representative. [5]

Amplitude (cm)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
139	140	142	6,16	150	130	20	4,43	50%/ 50%

Conclusion: The average value of the results obtained by the subjects when measuring the magnitude is equal to 139, cm, 50% of the results are above average. The most common result is 142 cm, which is repeated in 30% of cases. The results obtained by the subjects vary between 130cm and 150cm, the amplitude being equal to 20cm. The value of the coefficient of variation is 4.43% which means that the data spread is very

small, the average is representative and the measured sample is homogeneous from this point of view. [5]

Class IV girls

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
1,39	1,40	1,42	0,05	1,465	1,32	0,145	3,70	50%/ 50%

Conclusion: When measuring the average height of the results is equal to 1.39m, 50% of them are above average. The most frequent value is 1.42m, this represents 33.33% of the results obtained by the subjects, results that vary between 1.32m and 1.465m, the amplitude being equal to 0.145m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.05 m and a coefficient of variation of 3.70%. [5]

Body height (kg)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
31,66	30	30	5,67	43	26	17	17,92	33,33%/ 66,66%

Conclusion: When measuring body weight, the average result is equal to 31.66 kg, 33.33% of which are above average. The most common value is 30kg, this represents 33.33% of the results obtained by the subjects, results that vary between 26kg and 43kg, the amplitude being equal to 17kg. The dispersion has a standard deviation from the average of 5.67 kg and a coefficient of variation of 17.92%, which means that the data spread is medium, the average being sufficiently representative. [5]

Amplitude (cm)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu-de (m)	Coef. of variability (%)	over/onder mean (%)
142	145	145	7,7	150	130	20	5,42	66,66%/ 33,33%

Conclusion: The average value of the results obtained by the subjects when measuring the magnitude is equal to 142, cm, 66.66% of the results are above average. The most common result is 145 cm, which is repeated in 33.33% of cases. The results obtained by the subjects vary between 130cm and 150cm, the amplitude being equal to 20cm. The value of the coefficient of variation is 5.42% which means that the data

spread is very small, the average is representative and the measured sample is homogeneous from this point of view. [5]

Class IV boys

Height (m)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
1,38	1,40	1,42	0,049	1,465	1,325	0,14	3,56	60%/ 40%

Conclusion: When measuring the average height of the results is equal to 1.38m, 60% of them are above average. The most common value is 1.42m, this represents 30% of the results obtained by the subjects, results that vary between 1.325m and 1.465m, the amplitude being equal to 0.14m. The dispersion has a homogeneous structure, with a standard deviation from the mean of 0.049m and a coefficient of variation of 3.56%. [5]

Body height (kg)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
36,2	35	32	3,87	42	32	10	10,7	40%/ 60%

Conclusion: The average value of the results obtained by the subjects when measuring body weight is equal to 36.2 kg, 40% of the results are above average. The most common result is 32 kg, which is repeated in 30% of cases. The results obtained by the subjects vary between 32kg and 42kg, the amplitude being equal to 10kg. The value of the coefficient of variation is 10.7% and the standard deviation is 3.87 kg which means that the data scatter is relatively small, the average being sufficiently representative, the sample can be considered homogeneous from this point of view. [5]

Amplitude (cm)

Mediate (m)	Median (m)	Module (m)	Standard deviation (m)	Maxim (m)	Minim (m)	Amplitu- de (m)	Coef. of variability (%)	over/onder mean (%)
140,05	142	143	4,16	145	132	13	2,97	70%/ 30%

Conclusion: The average value of the results obtained by the subjects when measuring the magnitude is equal to 140.05, cm, 70% of the results are above average. The most common result is 143 cm, which is repeated in 30% of cases. The results obtained by the subjects vary between 132cm and 145cm, the amplitude being equal to 13cm. The value of the coefficient of variation is 2.97%, the standard deviation is 4.16 cm, which means that the data scattering is very small, the average is representative, the measured sample being homogeneous from this point of view. [5]

Conclusions

It is found that from an anthropometric point of view the classes of students are homogeneous (except for the third grade for both girls and boys, in the weight indicator $V > 15\%$ data scattering is average and the average is quite representative) standard deviation (S) and the coefficient of variation (V) falling between the following values:

- For height:- girls S = 0,03 – 0,05m; V = 2,4 – 3,89%
- boys S = 0,02 – 0,09m; V = 2,22 – 6,69%
- For body height : - girlsS = 3,13 – 12,24kg; V = 13,45 – 33,49%
- boys S = 3,23 – 9,83kg; V = 10,7 – 25,21
- For amplitude: - girls S = 3,78 – 7,77cm; V = 2,97 – 5,59%
- boys S = 4,16 – 6,16cm; V = 2,97 – 5,43%.

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