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EFFECTS OF TRAINING AND AGE RELATED DIFFERENCES IN BASIC AND SPECIFIC MOTOR ABILITIES IN BASKETBALL STUDENTS AT THE SPORTS ACADEMY -SKOPJE

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Introduction

Before the start of each academic year, expert teams formed by the sports federations and the Sports Academy, perform the selection of young talented athletes for each sport respectively. The final list is verified by the relevant sports federation, the Sports Academy and the Agency for Youth and Sports. During the course of academic year, student-athletes are obliged to regularly follow the theoretical part of the curriculum and actively participate in every training session. Student-athletes have two training sessions every day of the week, and during the break between training sessions, they attend theoretical classes. On Saturdays or Sundays, they have matches with the teams they are drafted for. During their schooling, they actively participate in all sports activities organized by the Sports Academy. Every student basketball player is tested for motor and specific motor abilities at the beginning and at the end of the school year. The selected students are educated and trained according to curriculums and training sessions prepared in advance and carried out by professional staff for each sport respectively. All this necessitates the need to monitor the development of young athletes in each sport. The training system and methods should be defined, planned, programmed and implemented in an appropriate way, so that their effect can be aimed at adequately transforming the abilities that are important for the aforementioned sports.

The differences in the motor skills among basketball players from different age groups are already documented in the literature (Gonzalo-Skok et al. 2017; Karalejic & Jakovljevic 2009; Macha-Triguero et al. 2021). However, due to the scarcity of research studies of this kind in our country the purpose of the research is aimed at determining the effects of the programmed training process in the studied sample of respondents, as well as the intergroup differences in motor and specific motor abilities among first, second and third year basketball students from the Sports Academy in Skopje.

Methods

The research was conducted at the Faculty of Physical Education, Sports and Health, at the University "St. Cyril and Methodius" from Skopje, Republic of North Macedonia. Motor and specific motor skills tests were carried out in the halls and sport fields where the athletes perform the training sessions.

Sample of subjects

The research was carried out on a sample of 79 respondents and it was divided into three subsamples (basketball players) at the Sports Academy in Skopje. The first subsample consists of

29 first-year basketball players aged 14 years, the second subsample consists of 27 second-year basketball players aged 15 years, and the third subsample consists of 23 third-year basketball players aged 16 years. Each subgroup performed the same tests, which assessed their motor and specific motor abilities. Measurements in all three age groups were carried out by trained professionals (professors of physical education, sports and health). Due to the age of the respondents, parental consent was required prior to enrolment in the research study.

Sample of variables

A total of 16 variables have been used in the research, 7 for assessment of the basic motor skills and 9 for assessment of the specific motor abilities. The tests used to evaluate the specific motor skills of basketball students are as follows: 1. Two-handed passing speed /sec/ (THPS) - 4 passes against the wall at 2.5m distance; 2**.** Passing speed with one and the other hand alternately /sec/(PSOHA) - 4 alternating cycles of driving the ball with the left and right hand, followed by shooting against the wall at 2.5m distance; 3.Running between racks /sec/(RBR) - 5 racks in a straight line, the first rack was placed 1m from the starting line, while the distance between the remaining racks was 1.5m; 4. Driving the ball between the posts /sec/ (DBBP) - 5 posts in a straight line, the first post was placed 1 m from the starting line, while the distance between the remaining posts was 1.5m; 5. Fast lead to the middle of the field and back with the weaker hand /sec/(FLMFBWNH), 6. Fast lead to the middle of the court and back with the stronger (dominant) hand /sec/(FLMFBWDH), 7. Dribbling from the side and through the legs with the right and left hand within 30sec/n/(DSTLRLH),8. 10 (ten) consecutive shots at the basket from the free throw line /n/(10FT), 9. Shot from 4 meters then from 6 meters and again the same, starting from the right corner and moving clockwise direction with a displacement of 45° (0°, 45° ,90°, 135°, 180°) and then in the opposite direction until the end of the time of 1 min /n/(4MS6MS1M), Shot from 4 meters then from 6 meters and again the same, starting from the right corner and moving clockwise direction with a displacement of 45° (0°, 45°, 90°, 135°, 180°) and then in the opposite direction until the end of the time of 2 min**.** /n/(4MS6MS2M), Shot from 4 meters then from 6 meters and again the same, starting from the right corner and moving clockwise direction with a displacement of 45° (0°, 45°, 90°, 135°, 180°) and then in the opposite direction until the end of the time of 3 min**.** /n/(4MS6MS) To assess the basic motor abilities of all students the following tests were conducted: 1. Beep test (Leger's test) /levels/ (BEEP), 2. Illinois agility test /sec/ (IA), 3. Push-ups /n/(PU), 4. Sit and reach /cm/(SR), 5. Long jump from standing /cm/(LGS), 6. 20 meters running /sec/(20MR), 7. Trunk lift in 30 seconds /n/(TL30S). (Metikosh, D.,et al. 1982; Karalejic, M & Jakovljevic, S. 1998).

Data collection

The testing was conducted within two days. On the first day, the basic motor skills were assessed in the following order: (SR), (LGS), (20MR), (IA), (PU), (TL30S), (BEEP). On the second day, specific motor ability tests were carried out in the following order: (10FT), (THPS), (PSOHA), (RBR), (DBBP), (FLMFBWNH), (FLMFBWDH), (DSTLRLH), (4MS6MS1M), (4MS6MS2M), (4MS6MS3M). Each test was repeated twice apart from the last three specific motor ability tests, which were performed only once and the best result was considered in the further analysis. Leger's test was also conducted only once. Time interval measurement was carried out using UnoLux

photocell system, which was placed at hip level. During the assessment the respondents were constantly motivated to give their best performance.

Data processing methods

In accordance with the research objectives, the obtained data were processed with the appropriate statistical methods. The following basic descriptive data were calculated for all applied variables: arithmetic mean (X), the standard deviation (SD**)** and Kolmogorov-Smirnov test (KS). Preliminary analysis confirmed normal distribution of the results. The significance of the differences between the arithmetic means of the initial and final measurements was determined by applying the Student's t-test for small dependent samples. An analysis of variance was used to determine intergroup differences between the initial and final measurements.

Results

Table 1. Presents the results of the t-test for first-year basketball students. It can be noted that out of 15 studied variables, only 8 had statistically significant differences between the average values of the initial and final measurements. Statistically significant differences were identified in the following motor variables: Illinois test with a percentage improvement of 6.5%, long jump with a percentage increase of 6.3% and Running for 20 metres with a percentage increase of 11%. Although no statistically significant difference was determined between the arithmetic means of the initial and final measurements, the percentage increase was noticeable in the motor variables Sit and reach with 19.1% and Push-ups with 13.5%. The remaining motor variables showed insignificant improvements. This indicates that the curriculum had not achieved the intended results among the first year basketball students. However, such results should be taken with reservations as the students are going through puberty, which due to the disproportions between the development of the muscles and growth of the bones, often reduces their motor skills. Among the specific motor variables, statistically significant differences between the arithmetic means from the initial and final measurement were identified for the following variables: Two-handed passing speed, with an improvement in the result by 22.1%, Passing speed with one and the other hand alternately, with an improvement in the result by 12.3%, Running between racks, with a deterioration of the result by 25%, Driving the ball between the posts, with a deterioration by 26.3% and Dribbling from the side and through the legs with the right and left hand (spider drill), with deterioration by 11.5%. Also worth noting is the extremely poor result of the final measurement in the variables related to agility and ball manipulation. The students were expected to achieve better results after a six -month training process.

Table 2. shows the results of the t-test for second-year basketball students. As shown, out of a total of 15 studied variables, 6 of them have statistically significant differences between the average values from the initial and final measurements. Statistically significant differences were found in the following motor variables: running for 20 meters, with a percentage increase of 19.7% and trunk lift for 30 seconds, with a percentage increase of 12%.

Table 1. T-tests for the studied variables in first-year basketball students

Variables	Initial		Final		r	T-test	%	sig
	Mean	SD	Mean	SD				
BEEP	8,90	1,03	9,29	1,56	0,59	-1,13	4,4	,277
IA	17,49	0,84	16,36	0,81	0,51	4,59	-6,5	**,001**
PU	20,18	9,87	22,91	8,03	0,85	-1,75	13,5	,110
SR	6,18	4,14	7,36	5,55	0,75	-1,06	19,1	,312
LJS	222,27	20,64	236,36	21,57	0,88	-4,53	6,3	**,001**
20MR	3,27	0,26	3,63	0,24	0,81	-7,68	11,0	**,000**
TL30S	25,91	2,98	26,18	3,66	0,67	-0,33	1,0	,750
THPS	3,21	0,27	2,50	0,26	0,77	15,75	-22,1	**,000**
PSOHA	5,05	0,65	4,43	0,71	0,52	3,68	-12,3	**,002**
RBR	6,12	0,41	7,65	0,52	0,75	-17,73	25,0	**,000**
DBBP	6,54	0,42	8,26	0,48	0,76	-21,53	26,3	**,000**
FLMFBWNH	6,35	0,30	6,25	0,34	0,70	1,56	-1,6	,140
FLMFBWDH	6,39	0,30	6,25	0,34	0,60	1,91	-2,2	,075
DSTLRLH	16,81	1,87	18,75	1,81	0,79	-6,56	11,5	**,000**
10FT	7,06	1,44	7,81	1,11	-0,16	-1,54	10,6	,145
4MS6MS1M	3,56	2,06	3,63	1,54	0,24	-0,11	2,0	,914
4MS6MS2M	3,31	1,82	3,94	1,73	0,01	-1,00	19,0	,333
4MS6MS3M	3,13	1,67	2,69	1,62	-0,30	0,66	-14,1	,520

Although no statistically significant difference was determined between the arithmetic means of the initial and final measurements, the percentage increase is most noticeable in the motor variable Push-ups, with a percentage increase of 100%. Among the specific motor variables, statistically significant differences between the arithmetic means from the initial and final measurements were determined for the following variables: Two-handed passing speed Two-handed passing speed, with an improvement in the result by 22.2%, Running between racks, with a deterioration of the result by 24.5%, Driving the ball between the posts, with a deterioration of the result by 24% and Shot at the basket from the free throw line, with the deterioration of the result by 20.9%. Although the results of the t-test are not statistically significant, an adverse trend in the results is also observed for the A test to measure specific basketball endurance and accuracy variable, where a decrease in accuracy is observed in the first minute by 15.8% and in the third minute by 14.3%. The extremely poor results of the final measurement in the variables related to agility, ball manipulation and precision when performing shots from different positions are also worth noting. The expectation was that after a six-month training process, the student basketball players would achieve better results. The explanation for the poor performance could potentially be found in the impaired coordination, which is a result of the acceleration that occurs in this developmental period, or the insufficient engagement of the respondents during the performance of the test. Ball handling techniques demand special attention in the ongoing training process, as large proportion of basketball students showed unsatisfactory level of performance. Considering that these students were selected as the most talented individuals in our country, the obtained results don't seem to confirm their quality. Therefore, the professional teams carrying out the selection process are advised to sharpen the selection criteria for the future student basketball candidates at the Sports Academy.

Table 2. T-tests for the studied variables in second-year basketball students

Variables	Initial		Final		r	T-test	%	sig
	Mean	SD	Mean	SD				
BEEP	8,97	0,93	9,97	2,80	-0,93	-0,88	11,1	,470
IA	17,89	0,86	17,50	0,71	1,00	3,55	-2,2	,175
PU	10,00	7,07	20,00	14,14	1,00	-2,00	100,0	,295
SR	6,50	2,12	7,00	1,41	1,00	-1,00	7,7	,500
LJS	224,50	45,96	245,0	35,36	1,00	-2,73	9,1	,223
20MR	3,20	0,28	3,83	0,24	1,00	-21,00	19,7	**,030**
TL30S	25,00	5,66	28,00	5,66	0,36	6,16	12,0	**,004**
THPS	3,11	0,11	2,45	0,26	0,36	6,16	-21,2	**,004**
PSOHA	5,27	1,06	5,10	1,09	0,78	0,54	-3,2	,616
RBR	6,41	0,62	7,98	0,54	0,85	-10,60	24,5	**,000**
DBBP	6,74	0,59	8,36	0,40	0,75	-9,38	24,0	**,001**
FLMFBWNH	6,11	0,24	6,30	0,27	0,37	-1,46	3,1	,218
FLMFBWDH	6,12	0,50	6,30	0,27	0,94	-1,58	2,9	,189
DSTLRLH	17,00	4,12	18,00	3,81	0,94	-1,58	5,9	,189
10FT	8,60	0,55	6,80	0,45	0,61	9,00	-20,9	**,001**
4MS6MS1M	3,80	0,84	3,20	2,17	0,30	0,65	-15,8	,553
4MS6MS2M	3,60	1,82	3,80	1,48	0,80	-0,41	5,6	,704
4MS6MS3M	4,20	2,17	3,60	1,67	0,23	0,56	-14,3	,607

Table 3. presents the results of the t-test for third-year basketball students. The results show that out of a total of 15 studied variables, statistically significant differences between the average values from the initial and final measurements were identified in 9 of them. The following motor variables showed statistically significant differences: Illinois test, where the performance time was improved by 6.3%; 20-meter Running, where the time improved by 9.8% and Trunk lift for 30 seconds, with a percentage increase in the average value of 7.8%. Although no statistically significant difference has been found between the arithmetic means of the initial and final measurements, there is a noticeable deterioration in the results for the Sit and reach variable, which is 49.9%. Among the specific motor variables, statistically significant differences between the arithmetic means of the initial and final measurement were determined for the following variables: Two-handed passing speed, with an improvement of the result by 6.8% and Passing speed with one and the other hand alternately, with an improvement of the result by 5.1%; The remaining variables showed negative trends: Running between racks and Driving the ball between the posts, with declining results by 26.6% and 26.9% respectively. The same applies to the Fast lead to the middle of the court and back with the stronger hand and Dribbling from the side and through the legs with the right and left hand9 (spider drill)variables, showing declining results by 4.3% and 10.7%, respectively. Although the results of the t-test are not statistically significant, there is a noticeable improvement in the results for the A test to measure specific basketball endurance and accuracy variable, showing an increase in accuracy in the first minute by 27.6%, improvement of the results in the second minute by 9.8%, but deterioration of the results by 3.5% in the third minute.

Table 4. presents the results of the analysis of variance, showing which of the applied tests found statistically significant differences among the student basketball players from all three years.

Table 3. T-tests for the studied variables among third-year basketball students.

Variables	Initial		Final		r	T-test	%	sig
	Mean	SD	Mean	SD				
BEEP	9,72	0,79	9,66	1,29	0,40	0,15	-0,6	,885
IA	16,98	0,51	15,91	0,83	0,59	5,31	-6,3	**,000**
PU	29,18	7,69	32,64	4,08	-0,63	-1,07	11,9	,311
SR	7,27	6,33	3,64	11,94	0,18	0,97	-49,9	,355
LJS	230,91	16,40	224,77	75,28	0,03	0,27	-2,7	,796
20MR	3,17	0,10	3,48	0,19	-0,06	-4,64	9,8	,001
TL30S	27,91	4,06	30,09	3,59	0,80	-2,91	7,8	**,015**
THPS	2,93	0,22	2,73	0,19	0,20	2,67	-6,8	**,022**
PSOHA	4,71	0,55	4,47	0,44	0,58	1,78	-5,1	,103
RBR	6,10	0,45	7,72	0,39	0,04	-9,59	26,6	**,000**
DBBP	6,47	0,74	8,21	0,38	0,01	-7,24	26,9	**,000**
FLMFBWNH	6,02	0,42	6,03	0,17	0,35	-0,09	0,2	,931
FLMFBWDH	5,78	0,24	6,03	0,17	0,69	-4,78	4,3	**,001**
DSTLRLH	18,67	2,19	20,67	2,19	0,73	-4,34	10,7	**,001**
10FT	8,08	1,24	8,00	1,65	0,27	0,16	-1,0	,874
4MS6MS1M	3,92	2,02	5,00	2,70	0,58	-1,68	27,6	,121
4MS6MS2M	4,17	1,64	4,58	1,08	-0,16	-0,68	9,8	,508
4MS6MS3M	4,92	1,56	4,75	1,66	0,34	0,31	-3,5	,761

The results show that statistically significant differences between the arithmetic means in the initial measurement were found for the following variables: Leger's test - the best results are achieved by first-year basketball students; Push-ups – the best results are achieved by third-year basketball students; Among the specific motor variables of the initial measurement, statistically significant differences were determined in the variables: Two-handed passing speed – the best results were achieved by third-year basketball players; Fast lead to the middle of the field and back with the weaker hand and Fast lead to the middle of the court and back with the stronger hand – the best results were achieved by the third-year basketball players. The final measurement showed statistically significant differences between student basketball players from different years in the following variables: Leger's test - the best results were achieved by first-year basketball players; Push-ups – the best results were achieved by third-year basketball players; Running 20 meters - the best results were achieved by third-year basketball players; Trunk lift in 30 seconds - the best results were achieved by third-year basketball players. The final measurement of the specific motor variables showed statistically significant differences in the variables: Two-handed passing speed – the best results were achieved by second-year basketball players; Dribbling from the side and through the legs with the right and left hand (spider drill) - the best results were achieved by second-year basketball players and A test to measure specific basketball endurance and accuracy - in the third minute, the best results were achieved by third-year basketball players.

Table 4. Analysis of variance for the studied variables among student basketball players from all three years

Variables	Year I		Year II		Year III		F	Sig.
	Mean	SD	Mean	SD	Mean	SD		
INITIAL MEASUREMENT								
BEEP	8,95	1,02	9,82	1,43	9,84	0,94	3,20	**0,05**
IT	17,52	0,81	17,59	0,81	16,95	0,50	2,50	**0,10**
PU	20,50	9,47	8,00	6,08	28,00	8,40	6,81	**0,01**
SR	5,75	4,22	6,00	4,69	8,17	6,78	0,62	0,55
LJS	223,58	20,2	232,25	32,4	230,83	15,6	0,49	0,62
20MR	3,26	0,25	3,25	0,19	3,18	0,10	0,50	0,61
TL30S	25,83	2,86	26,50	3,79	27,58	4,03	0,74	0,49
THPS	3,21	0,27	3,10	0,19	2,93	0,21	5,39	**0,01**
PSOHA	5,12	0,73	4,66	1,66	4,67	0,55	1,09	0,35
RBR	6,20	0,51	6,34	0,50	6,09	0,44	0,76	0,47
DBBP	6,64	0,60	6,71	0,51	6,44	0,72	0,64	0,53
FLMFBWNH	6,45	0,49	6,07	0,25	6,01	0,40	5,26	**0,01**
FLMFBWDH	6,40	0,49	6,05	0,40	5,77	0,24	9,37	**0,00**
DSTLRLH	16,68	2,67	15,50	5,89	18,62	2,10	2,30	0,11
10FT	7,11	1,37	8,10	0,88	8,15	1,21	3,66	**0,04**
4MS6MS1M	3,47	1,98	4,20	1,03	4,31	2,39	0,85	0,43
4MS6MS2M	3,32	1,83	3,30	1,83	4,15	1,57	1,04	0,36
4MS6MS3M	3,11	1,94	3,50	2,01	4,92	1,50	3,92	**0,03**
FINAL MEASUREMENT								
BEEP	9,49	1,57	24,72	29,3	9,66	1,29	4,03	**0,03**
IT	16,75	1,00	15,83	1,47	15,42	1,88	3,06	0,06
PU	22,44	7,76	24,33	10,5	31,75	4,96	5,52	**0,01**
SR	7,25	5,54	10,33	5,39	4,83	12,1	0,87	0,43
LJS	231,25	22,77	242,50	18,10	227,70	72,50	0,21	0,82
20MR	3,68	0,23	3,70	0,16	3,48	0,18	4,00	**0,03**
TL30M	26,38	3,14	27,83	3,43	29,83	3,54	3,69	**0,04**
THPS	2,50	0,26	2,43	0,23	2,73	0,19	4,52	**0,02**
PSOHA	4,43	0,71	5,17	0,99	4,47	0,44	2,75	0,08
RBR	7,65	0,52	7,93	0,49	7,72	0,39	0,80	0,46
DBBP	8,26	0,48	8,38	0,36	8,21	0,38	0,32	0,73
FLMFBWNH	6,36	0,31	6,23	0,23	6,13	0,21	2,43	0,11
FLMFBWDH	6,25	0,34	6,28	0,25	6,03	0,17	2,81	0,08
DSTLRLH	18,75	1,81	18,00	3,41	20,67	2,19	3,63	**0,04**
10FT	7,81	1,11	7,17	0,98	8,00	1,65	0,83	0,45
4MS6MS1M	3,63	1,54	3,00	2,00	5,00	2,70	2,31	0,12
4MS6MS2M	3,94	1,73	3,67	1,37	4,58	1,08	1,00	0,38
4MS6MS3M	2,69	1,62	3,33	1,63	4,75	1,66	5,50	**0,01**

Discussion

Among year I basketball students, the one-year training process had a positive effect on the following motor abilities: agility, explosive power of the lower limbs and starting speed, however no significant improvements were observed in the repetitive strength of the upper limbs, flexibility of the trunk and repetitive strength of the abdominal muscles. Although not statistically significant, the sit and reach motor variable showed the greatest percentage improvement by 19.1%. The training process had a positive effect on the students' ability to successfully perform the majority of

the technical elements with or without ball, however, when it came to performing the more complex motor structures with or without ball, particularly when performing jump shots- the results were significantly worse. The fact that the shooting accuracy from the free throw line has not improved is surprising. What is also surprising is that the respondents achieved better results in the initial measurement of the tests: running between racks and walking between racks. This can be explained by the acceleration that is present at this stage of development and the impairment of students' motor skills. After one year of training sessions, no significant improvement was observed in the fast ball passing with left and right hand. Additionally, the results of these two tests showed no differences, which means that the respondents drive the ball similarly with both hands. Among the year II basketball students, the one-year training process caused positive changes in the following motor abilities: running for 20 meters and trunk lift in 30 seconds, but it showed no sufficient improvement in endurance, agility, repetitive strength of the upper limbs, flexibility of the trunk and the explosive strength of the lower limbs. Although not statistically significant, the greatest percentage improvement was achieved in the motor variable: push-ups, with 100%. At the initial measurement, the average value for this variable was 10 push-ups, and at the final measurement it was 20 push-ups. The training process caused positive changes in students' abilities to successfully perform the majority of technical elements with and without ball, but they achieved significantly weaker results when performing more complex motor structures with and without ball, especially while performing jump shots where specific basketball endurance is required . As was the case with the year I students, the year II students achieved better results in the initial measurement, when performing the following tests: running between the racks and driving between racks. This can be explained by the acceleration characteristic for this period of development and the impairment of students' motor skills. No significant improvement was determined after one year of training process in fast ball passing with left and right hand, but also no difference was observed between the results of these two tests, which means that the respondents drive similarly with both hands. It was expected that after a two-year training process, students would achieve better results in all tests. As for the year III basketball students, the one-year training process caused positive changes in flexibility and repetitive strength of the abdominal muscles. The largest negative percentage reduction was observed in the motor variable - sit and reach, with -49.9%. The training process caused positive changes in the students' ability to successfully perform the majority of technical elements with and without ball, but they achieved significantly weaker results when jump shot. The fact that shooting accuracy from the free throw line has not improved is surprising. It is also surprising that the respondents achieved better results during the initial measurement of the performance of the tests: running between racks and walking between racks. This can be explained by the acceleration present at this stage of development and the impairment of students' motor skills. The one-year training process showed no significant improvement in fast ball passing with right hand only. Based on the overall analysis of the obtained results for the basketball students from all three years, the following conclusions were drawn: Leger test - the best results were achieved by basketball students from year I, as for the Push-ups variable - the best results were achieved by the basketball students from year III. Regarding the specific motor variables, the initial measurement showed that: Two-handed passing speed – the best results were achieved by basketball players from year III; Fast lead to the middle of the court and back with the stronger hand and Fast lead to the middle of the court and back with the stronger

hand – the best results were achieved by basketball students from year III. It could be stated that, based on the initial measurement, the best results were achieved by students in year III. The final measurement showed statistically significant differences among students from different years in the following variables: Leger test - the best results were achieved by basketball players from year I; Push-ups - best results were achieved by year III students; Running for 20 metres - best results achieved by year III students; Trunk lift in 30 seconds - best results achieved by year III students. The final measurement of the specific motor variables revealed statistically significant differences in the following variables: Two-handed passing speed - best results were achieved by year II players; Dribbling from the side and through the legs with the right and left hand (spider drill) - best results achieved by year II students; A test to measure specific basketball endurance and accuracy - in the third minute, the best results were achieved by year III students. It was surprising that for the Leger test, the best results in both the initial and final measurements were achieved by year I students. Greater motivation of this group seems to be only explanation for this result.

Conclusion

The results and conclusions obtained in this project will primarily help the athletes - students in the sports academy. The main beneficiaries will be the experts from the Sports Academy, who actively participate in the educational and training process. Among other things, these findings could enable a more efficient programming and implementation of their teaching and sports activities. The results obtained from this research could also be used for assessment, monitoring, control and comparison of the condition and further development of the motor and specific motor area . The obtained results will help in creating norms and criteria that will improve the quality of the selection process.

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