**Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH**
Vol. XI, ISSUE 2 Supplement, 2011, Romania
The JOURNAL is nationally acknowledged by C.N.C.S.I.S., being included in the B+ category publications, 2008-2011.
**The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning**

# STUDY ON USE ALGORITHMS IN TEHNICAL TRAINING OF STUDENTS FROM FACULTY PROFILE

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**Abstract**
The work was intended to find the most effective methods and procedures of acquiring the evidence athletic technique, based on algorithms, given that the number of hours granted athletics discipline in the curriculum has diminished considerably in recent years.
The **purpose of research** is finding the most effective processes to acquire and enhance technique in as short a time using the algorithm process.
The following **hypothesis** was the basis for the draw up of this work: When applying a strategy of training the students based on algorithms, this will help to optimize properties and enhance athletic events techniques.
**Used methods of research:** *Method of Bibliographic Study, Method of Observation, Experimental Method, Method of Testing, Statistical-mathematical method.* Used test of the research were speed running, relays, long jump from stand, hurdles and oina ball throwing.
**Conclusions.** By analyzing the final test data obtained by the students of both groups compared to baseline, we make the following findings: each component of the groups considered separately we have a tangible progress in all chapters and in all indicators. The most visible progress is noted in technique chapter.
**Key words:** algorithms, process, training

**Introduction**

The algorithm process consists of a process of developing different types of algorithms: specific algorithm content of the training process, the teacher or coach specific algorithm, algorithm specific to the subject.

Algorithm involves a sequence of operations, moments, which deal with situations (typical problems), standardized. In our field are clear issues specific content targeting algorithms training process. This type of algorithm consists of the most effective exercises, arranged in a well established succession, logical, well quantified (the effort) and in all methodological and organizational rules that required the application of inheritance to solve a standard situation (example: the long jump, regardless of techniques used, involves the approach, take-off, flight and landing) (G. Carstea, 1993).

Using the algorithm in the learning process involves carrying out operations in close succession, without changes in the order of operations. Algorithm should be composed of standardized measures, elementary, which depend on the readiness and capabilities of the subject.

The process of acquiring the athletic exercises is not conducted uniformly, with equal effectiveness throughout the entire period of training. This process is influenced by the degree of general and special education students/athletes,

which is always changing, by the particular exercises to learn, by the specifics of working methods chosen and the complexity of the various stages of acquiring technical exercises on the road that leads to its gradual improvement (F. Neder, 2010).

All actions and processes of movement, which by their specific form and content provide a certain sports, may be practiced in accordance with statutory provisions in force that make up the sports technique (I. Siclovan, 1988).

Technique consists of precise movement and actions structure established, highly efficient, embodied in the elements and techniques. In athletics, for example, long jump and high jump are elements of technique and long jump with one and half step, high jump with dorsal reversal, are techniques (D. Garleanu, 1996).

The **purpose of research** is finding the most effective processes to acquire and enhance technique in as short a time using the algorithm process.

The following **hypothesis** was the basis for the draw up of this work: When applying a strategy of training the students based on algorithms, this will help to optimize properties and enhance athletic events techniques.

In this work we established a series of **tasks**, as follows:

- Optimize training through application exercises, knowledge and athletic rules.
- Development of fundamental motor skill involved in learning and reinforcing evidence athletic technique.
- Acquiring and strengthening the theoretical knowledge.

**Used methods of research:** *Method of Bibliographic Study, Method of Observation, Experimental Method, Method of Testing, Statistical-mathematical method.* Used test of the research were speed running, relays, long jump, hurdles and oina ball throwing. Degree of



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Received 22.04.2011 / Accepted 21.06.2011

assimilation of technique has been tested and appreciated by marks.

For running tests each student was entitled to 2 tries, marking the best of them. Long jump was performed with approach and with process 1 and 1 / 2 steps. In throwing the oina ball appreciated the art of throwing 4 preliminary steps and momentum. 2 attempts were allowed for each student, both on throw and jump.

The experiment was conducted in the second semester of the academic year 2008-2009 and took place in the stadium complex number 2 of "Lia Manoliu. The experiment was conducted with 30 female and 60 male of first year students of the Faculty of Physical Education and Sport of the Ecological University of Bucharest. Dividing the experimental and control groups was based on initial test results recorded as follows: groups with somewhat better results (although insignificant) were the experimental groups, and other groups to set up control groups.

Experimental groups using algorithms process study course material, both proper training and athletic skill development motor qualities. In this way each exercise was measured both in volume and intensity and effort by students could be directed and adjusted judiciously. Control groups have gone through traditional learning material.

Mention that both experimental groups and the control were approximately the same amount of work (number of lessons and hours of training, number of repetitions, distance running).

**Analysis and interpretation of results**

The results obtained were recorded separately for each group separately for each sex, then were centralized, processed and interpreted as evolution from initial to final testing.

Analyzing the initial test data found that: the overall level of training is observed near the two groups, small differences are observed are insignificant.

In preparing the plan presents an additional technical superiority two groups of experimental evidence "less technical" (running speed and the relay). Instead, the evidence of a greater tech (running the hurdles and throwing oina ball) groups appear balanced in value.

In the final moment of research the girls obtained the following results (Table no 1-2, Figures no. 1-5):

Arithmetic average of the experimental group at running speed is about 4 points higher then control group. Standard deviation has a value that characterizes good groups. Coefficient of variation is very small in both times tested, indicating high homogeneity of the groups.

In running the relay final grade improved by 5 points and standard deviation have values close to both tests. Coefficient of variation indicates a high homogeneity of the group in both tests (1.84 in T1 and 0.78 in T2).

Arithmetic average of the long jump in the experimental group is 4 points higher than the control group. Coefficient of variability has values between 0-10%, indicating the great homogeneity of the groups.

In hurdles, both groups initially had the same arithmetic mean, but in the end testing the experimental group had an average increase of more than 5 points compared to only 3 of the control group. Coefficient of variation shows a high homogeneity of the groups in both times tested.

Oina ball throw is about the same arithmetic mean in both groups, but in the final moment the experimental group obtained a higher score 6 points given of the control, which manages just 4 extra points. Standard deviation values are similar in the two test times for both groups. Coefficient of variation shows a high homogeneity of the groups in both tests.

In the final moment of research the boys obtained the following results (Table no 3-4, Figures no. 6-10):

Arithmetic average of the speed running increases in the final with 4 points in both groups tested. Coefficient of variation is very small values, which show a great homogeneity of the group.

On relay testing, arithmetic average is improved by 6 points in the experimental group and only 5 in the control. Coefficient of variation indicates high homogeneity of the groups in both tests.

Arithmetic averages are almost identical in long jump in the initial moment, but in the final the experimental group has increased by nearly 4 points given only 3 of the control group.

Arithmetic averages of the hurdles are very close in the initial moment, but in the final, experimental group has increased by 5 points compared to only 4 of the control group. Standard deviation values are approximately the same in both tests in both groups tested.

Throwing the oina ball, also initial values are similar at the beginning of research, and finally succeed in an experimental group arithmetic average improvement of 5 points from only 4 of the control group.

Conclusions:

1. Each student made progress in almost all athletic tests.
2. For control groups were necessary 4-5 lessons learning tasks, while the experimental groups needed only 2-3 lessons.
3. In assimilation of the athletic techniques events, arithmetic averages made by experimental group's components are superior to those obtained from control groups.

4. Learning using algorithms contributed greatly to the development executant's interest towards learning tasks that have been proposed.
5. By analyzing the final test data obtained by the students of both groups compared to baseline, we make the following findings: each component of the groups considered separately we have a tangible progress in all chapters and in all indicators. The most visible progress is noted in technique chapter, it explained primarily due to the low level at which bowed in second place, rhythmicity with which to work in this regard, especially tests.

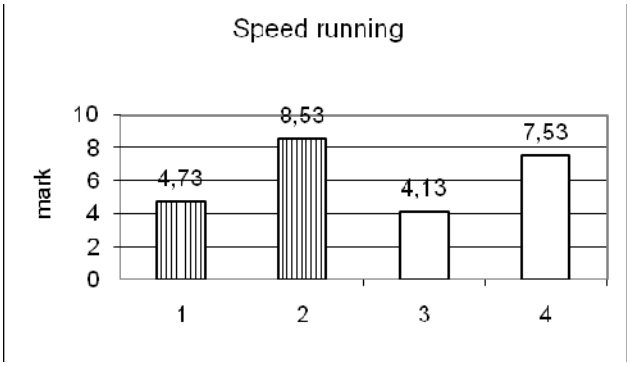
**Table no 1.** Experimental group for girls - technique level in both moments tested

| No. | Indicators | Speed running | | Relay | | Long jump | | Hurdles | | Oina ball throwing | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| 1. | Arithmetical means | 4.73 | 8.53 | 4.2 | 9.4 | 4.86 | 8.86 | 3 | 8.33 | 3.4 | 9.33 |
| 2. | Standard deviation | ±7.99 | ±11.18 | ±7.74 | ±7.36 | ±5.05 | ±12.32 | ±7.55 | ±8.17 | ±7.55 | ±8.17 |
| 3. | Coefficient of variability | 1.70 | 1.31 | 1.84 | 0.78 | 1.05 | 1.40 | 1.86 | 0.87 | 2.51 | 0.87 |

**Table no 2.** Control group for girls - technique level in both moments tested

| No. | Indicators | Speed running | | Relay | | Long jump | | Hurdles | | Oina ball throwing | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| 1. | Arithmetical means | 4.13 | 7.53 | 3.8 | 7.86 | 4.8 | 8.53 | 3 | 6.86 | 3.33 | 7.73 |
| 2. | Standard deviation | ±3.53 | ±15.05 | ±6.76 | ±15.07 | ±6.76 | ±14.57 | ±0 | ±11.27 | ±6.18 | ±15.80 |
| 3. | Coefficient of variability | 0.86 | 2 | 1.77 | 1.93 | 1.40 | 1.71 | 0 | 1.6 | 1.87 | 2.05 |

**Figure no. 1**




1 - Experimental group for girls' initial moment
2 - Experimental group for girls' final moment
3 – Control group for girls' initial moment
4 - Control group for girls' final moment

**Figure no. 2**

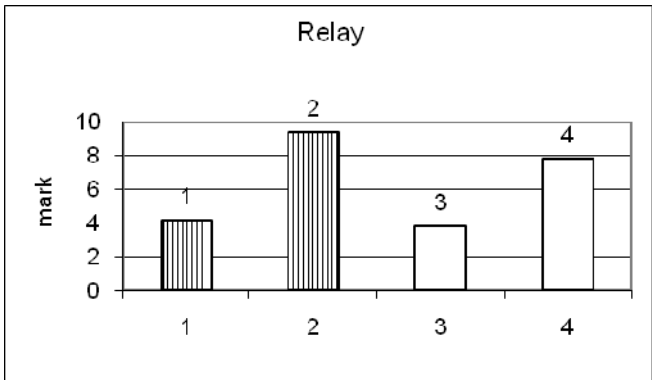



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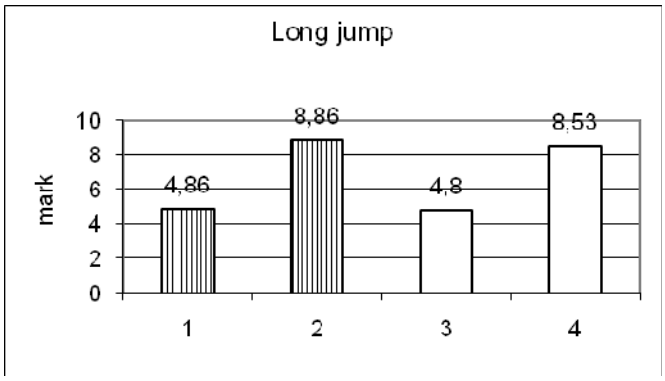
**Figure no. 3**

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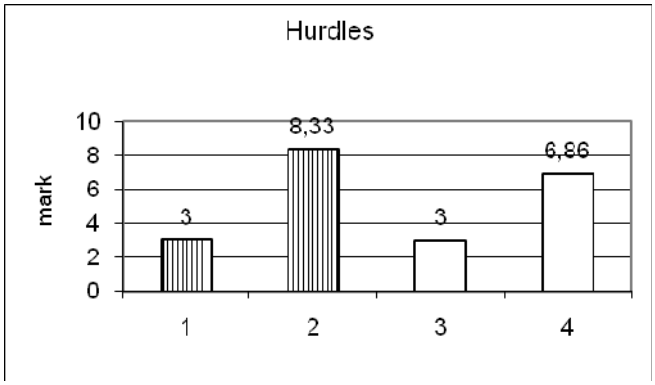
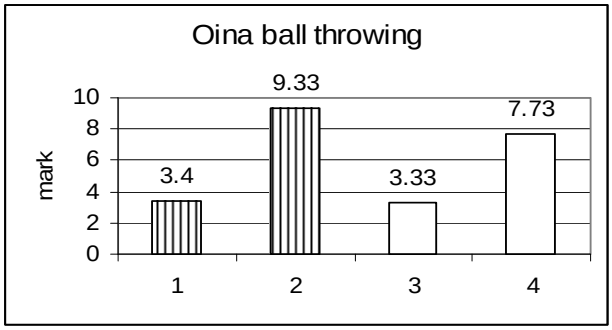
2 - Experimental group for girls' final moment
3 – Control group for girls' initial moment
4 - Control group for girls' final moment

**Figure no. 4**




1 - Experimental group for girls' initial moment
2 - Experimental group for girls' final moment
3 – Control group for girls' initial moment
4 - Control group for girls' final moment

**Figure no. 5**




1 - Experimental group for girls' initial moment
2 - Experimental group for girls' final moment
3 – Control group for girls' initial moment
4 - Control group for girls' final moment

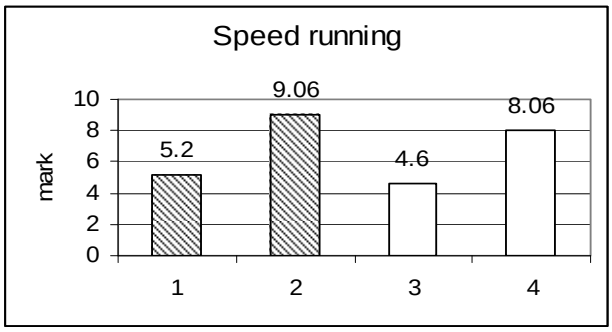
**Table no 3.** Experimental group for boys - technique level in initial moment tested

| No. | Indicators | Speed running | | Relay | | Long jump | | Hurdles | | Oina ball throwing | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| 1. | Arithmetical means | 5.2 | 9.06 | 3.93 | 8.93 | 4.8 | 8.26 | 3.26 | 8.4 | 3.33 | 8.66 |
| 2. | Standard deviation | ±13.53 | ±8.86 | ±5.94 | ±8.84 | ±8.61 | ±11.64 | ±13.36 | ±11.21 | ±13.19 | ±12.92 |
| 3. | Coefficient of variability | 2.56 | 0.97 | 1.52 | 0.99 | 1.79 | 1.40 | 4.14 | 1.33 | 3.99 | 1.50 |

**Table no 4.** Control group for boys - technique level in final moment tested

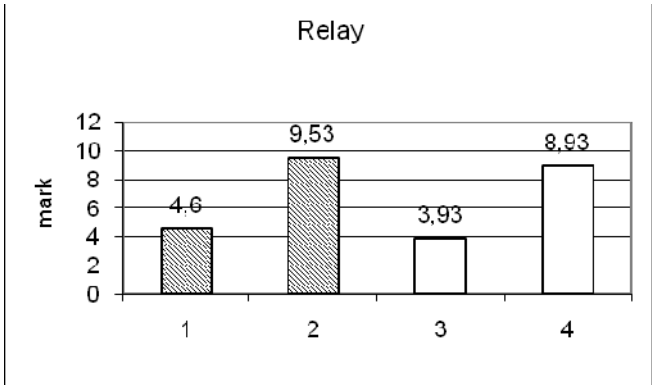
| No. | Indicators | Speed running | | Relay | | Long jump | | Hurdles | | Oina ball throwing | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 | T1 | T2 |
| 1. | Arithmetical means | 4.6 | 8.06 | 4.6 | 9.53 | 4.73 | 7.6 | 3.33 | 7.93 | 3.4 | 7.93 |
| 2. | Standard deviation | ±8.19 | ±12.24 | ±9.85 | ±7.44 | ±5.94 | ±15.16 | ±12.91 | ±13.50 | ±12.91 | ±16.67 |
| 3. | Coefficient of variability | 1.7 | 1.53 | 2.14 | 0.78 | 1.26 | 1.99 | 3.9 | 1.71 | 3.9 | 2.11 |

**Figure no. 6**



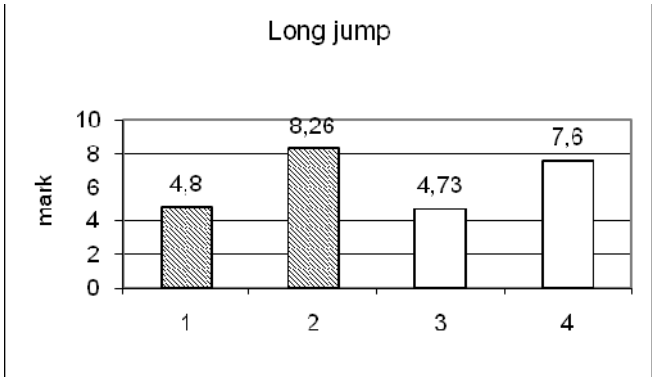

1 - Experimental group for boys' initial moment
2 - Experimental group for boys' final moment
3 – Control group for boys' initial moment
4 - Control group for boys' final moment

**Figure no. 7**



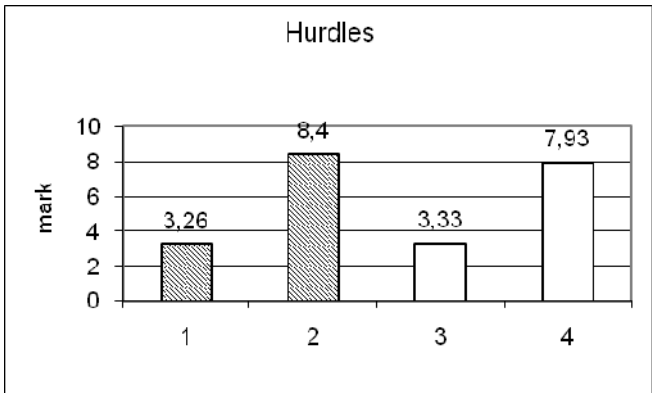

1 - Experimental group for boys' initial moment
2 - Experimental group for boys' final moment
3 – Control group for boys' initial moment
4 - Control group for boys' final moment

**Figure no. 8**



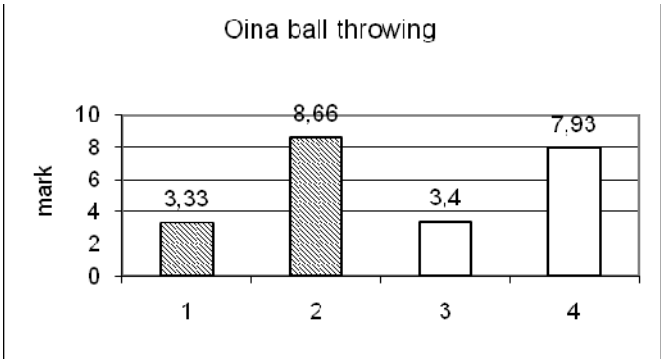

1 - Experimental group for boys' initial moment
2 - Experimental group for boys' final moment
3 – Control group for boys' initial moment
4 - Control group for boys' final moment

**Figure no. 9**




1 - Experimental group for boys' initial moment
2 - Experimental group for boys' final moment
3 – Control group for boys' initial moment
4 - Control group for boys' final moment

**Figure no. 10**




1 - Experimental group for boys' initial moment
2 - Experimental group for boys' final moment
3 – Control group for boys' initial moment
4 - Control group for boys' final moment

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