

The Importance Of Selection And The Influence Of An Assisted Training Program On The Development Of Motor Skills In Children A Comparative Study

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Abstract

The multiple aspects related to the importance of selection in the sports field are one of the fundamental requirements and, at the same time, the premises for successful results in the long term. The objectives of this study were to achieve a rigorous selection, adapted to the specifics of athletic events, considering a variety of parameters that, integrated, outline the general sports profile of the children included in the research.

The methods used included the initial and final testing of the students remaining in the study group, in order to obtain a more objective and precise assessment of the individual motor skills. Before deciding on the inclusion of children in the specialized training process, it is recommended that they follow a unitary basic training program, lasting between 1 and 3 months, to balance the initial level of motor development.

The results obtained highlight significant differences between the two analysed groups. The final mean values support the hypothesis that the students in group A (experimental), who benefited from an additional assisted sports training program, structured according to a SWOT analysis, obtained superior results compared to the control group. This demonstrates the

effectiveness of the proposed intervention and the relevance of a well-founded selection, followed by a period of preparation adapted to the specific needs of each child.

Keywords: sports performance, athletics, effort, motor skills, rigorous selection

Introduction

The age for starting the optimal training of children and juniors for practicing performance sports depends mainly on the specifics of each branch of sport, namely on the degree and directions of request of the body for this specificity (Bompa & Haff, 2009; Malina, Bouchard, & Bar-Or, 2004). In all branches of sports there is today a tendency to decrease the age at which the selection and the start of the training activity should be made (Rowland, 2005). Based on the data provided by the literature, the optimal age for primary selection and the beginning of practical training in athletics is 9–10 years (Vaeyens et al., 2008). The particularities of motor selection are determined by the age at which the selection is made (Williams & Reilly, 2000).

From a psychological point of view, the age of 9–10 years falls into the early school period (from 6 to 10–11 years), called the third childhood and the beginning of puberty and adolescence (10–14 years) (Schiopu & Verza, 1981; Papalia, Olds, & Feldman, 2009). This period between the child's entry into school and the end of the elementary cycle is described as a kind of end of childhood with age particularities similar to preschool ones, either as the primary onset stage of adolescence or, finally, as a distinct stage of childhood (Eccles, 1999).

The general psychic development during the early school period presents important characteristics and advances in development because the learning process becomes conscious (Erikson, 1963; Piaget, 1972). Learning becomes the fundamental type of activity (Vygotsky, 1978). During the period of the third childhood, the psychic transformations are made in an apparently slow, unspectacular way (Inhelder & Piaget, 1958). The direct effects of mental development are seconded by numerous indirect effects of school life (Bronfenbrenner, 1979). The school offers knowledge and skills the child could not acquire on their own and organizes peer interactions in a competitive and structured environment (Slavin, 2006).

The development of permanent dentition and intensification of calcium metabolism, as well as ossification in the chest, clavicles, spine, and pelvis, reflect key somatic transformations (Malina et al., 2004; Beunen & Malina, 1996). The strengthening of joints and muscle volume, particularly the fine muscles of the hand, supports improvements in skill and coordination (Payne & Isaacs, 2012). Ambidexterity, as well as a distinction between left- and right-handedness, becomes more defined (Gallagher, 2013).

Mentally, young schoolchildren exhibit a change in general orientation and preferences (Cole & Cole, 2001). Rule-based group games become central, helping children navigate collective dynamics and adapt socially (Harter, 1999; Berk, 2013).

Intellectual development increases markedly between 9–10 years old, characterized by growth in evaluative thinking and critical capacity (Kuhn, 2000). Children gain greater insight into their own and peers' cognitive contributions during lessons (Flavell, 1985). Training improves perceptual capacity, and logical thought becomes more flexible (Case, 1992).

Knowledge expansion and conceptual refinement allow children to discern between real and imaginary more clearly (Siegler, 2006). Creativity emerges, framed by rules and structured concept use, and can flourish in practical activities (Runco, 2004). Fantasy finds structured expression through schoolwork and games (Sawyer, 2012).

Learning capacity intensifies in this phase, with memory evolving into a conscious, fundamental tool (Baddeley, 2000). Repetition solidifies retention and reinforces knowledge (Schunk, 2012). Repeated success boosts confidence and enhances the learning process (Bandura, 1997).

The social environment shapes personality development in two major ways: social interaction and internalization of new roles and norms (Erikson, 1963; Bronfenbrenner, 1979). Family dynamics and school exposure to different lifestyles allow children to compare and reflect on their own background (Eccles & Roeser, 2009).

By age 10, children gain greater self-awareness and acquire the dual identity of student and family member, creating a broader social perspective (Paunescu, 2011). They complete the major cycles of childhood and transition toward adolescence (Papalia et al., 2009).

The athlete's lifestyle, understood as an orderly program of activity and rest, underlies long-term performance (Bompa & Haff, 2009). High performance demands scientific and sustained training, which requires strict adherence to a correct lifestyle (Martens, 2004). Health, fitness, and longevity in sports depend on routine and discipline (Reilly, 2007).

Lifestyle must be individualized, considering sport type, athlete personality, and career phase (Issurin, 2008). Though universal rules exist, adaptation to personal and contextual needs remains key (Weinberg & Gould, 2014).

Materials and Methods

The research was carried out during the 2022-2023 school year on the occasion of the selection for the training of the fifth grade, held at the Vinga Technological High School.

Some initial tests (T.I.) a number of 58 students, with the help of the following tests: 50 meters, long jump without momentum, 600 meters and the Ruffier test, which was chosen to check the body's adaptability to effort.

We performed the recording of somatic and motor data, data processing, statistical and mathematical methods. We used the swot analysis, in order to be able to draw the main conclusions related to the efficiency of the selection, the success of the selection, to see the strengths, weaknesses, opportunities and threats that may arise, the effectiveness of the means used, the need to approach the selection from another perspective.

Following the results obtained, a number of 24 students were retained. Along with the medical visit, we aimed to ensure that the students of the fifth-grade athletics who were selected did not present physical deficiencies, proportional ratio between waist and weight, between body segments, respectively between the trunk and the lower limbs, speech, hearing, vision defects, to have a high level of motor skills specific to athletics.

The 18 students were subjected to anthropometric measurements such as: the length of the lower limbs, the span of the arms, the thoracic circumference, the waist of the future adult, using several estimation methods.

These initial investigations proved average indices known to the good age only the level of knowledge, skills, and poor motor skills.

Following the analysis of the initial tests, the 24 students were divided as follows: the children with the best results in the T.I. (initial testing) will form group A (experimental group), the others making up group B (control group).

Subsequently, out of the 24 students, 6 children withdrew or were eliminated, leaving only 18 students in the study.

At the end of the training period, all students will take the final test (TF) by going through the same sports tests.

During the school year in our study, all students participated in the practical sports training classes (8 hours/week) and group A (experimental) also went through the training program within the additional sports education of three days a week.

The training program used for polyvalent training in supplementary sports education for category I and junior children included three stages:

- Stage A - preparatory period (September - December)
- Stage B - part II of this period (January - March)
- Stage C - the third part of athletic training (April - June)

They must complete and achieve at least 440 points in the eight tests of the general physical training test: 50m, standing length, endurance, sheep, hanging with bent arms or pull-ups, commuting, abdomen in 30 seconds, coxofemoral mobility in the anterior plane.

Speed running - 50 meters –

Is performed with a standing start, timed at the first movement. Shoes with spikes are not used. Two attempts are awarded with breaks between them. The results are recorded in seconds and tenths.

Long jump from the spot - only one pendulum of the arms is allowed for the momentum. Two attempts are given, measured from the tip to the heel. Jumping barefoot or in shoes. The result is recorded in centimeters.

Endurance running

Up to 12 years old both girls and boys run 600 meters, from 12 years old girls 800 meters, and boys 1000 meters. It is run only once. Walking is considered abandonment. The result is recorded in minutes and seconds.

Ruffier Test

It was used to check the body's adaptability to effort. The Ruffier test is one of the most affordable tests with good results for school activity as well. It consists of taking the pulse of a subject in repau, then after performing thirty squats in 45 seconds, immediately after the effort and one minute after the effort. The last measurements are taken for 15 seconds and reported to the minute then they are entered into the following formula:

$$\text{indice Ruffier} = \frac{P + P1 + P2 - 200}{10}$$

The obtained index is assessed as follows:

1... -5 -excellent

5, 1... -10 -medium

10, 1... -15 -weak

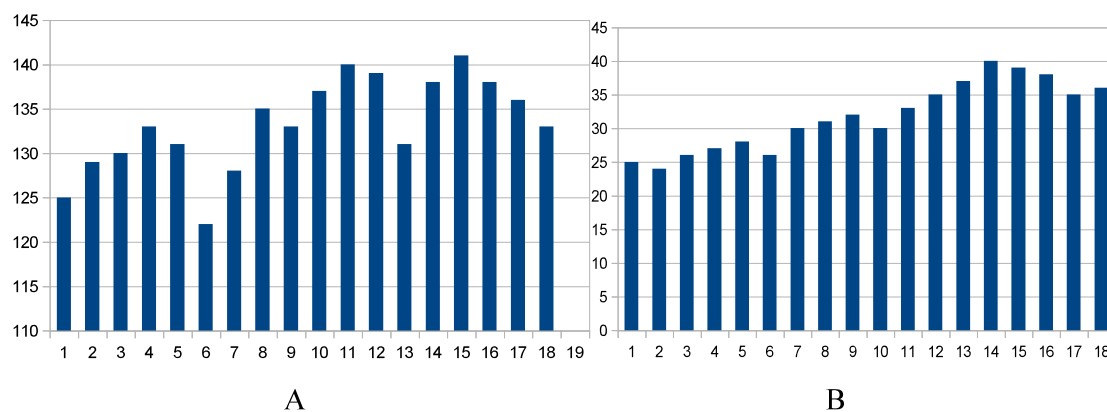
over 15, 1 ...-insufficient.

Results

The subjects in the study group had the following parameters: they have a waist between 123 cm and 140 cm, with a body weight between 25 kg and 41 kg, none of the participants had physical deficiencies in the upper limbs, lower limbs or spine, which reflects a harmonious physical development and a general state of health corresponding to their age.

Figure 1.

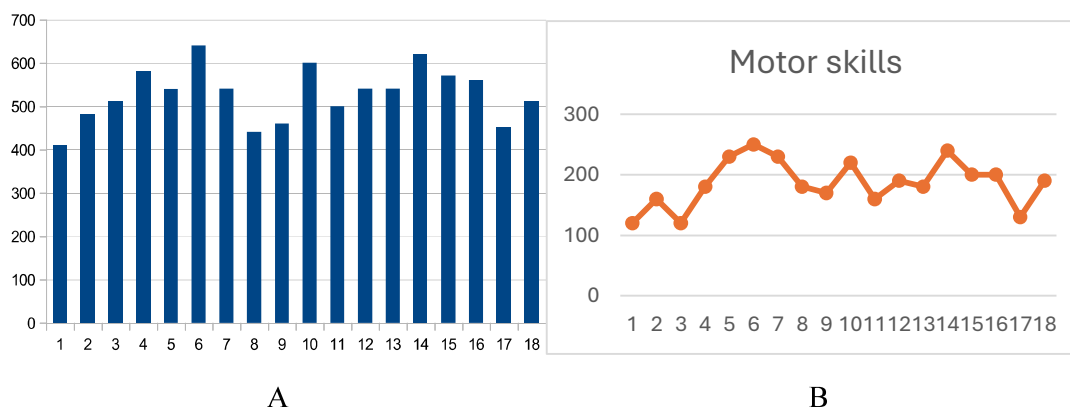
Graphic representation of the height of pupils/no. students (a) and body weight /no. Students(B)



The results obtained from the test had an equivalent in points, adding up the points from each test we obtained a final score. After the motor skills selection tests, 18 children who met the requirements of the scoring system were admitted, after which the level of motor skills specific to athletics was checked.

Figure 2.

Graphic representation of the score at T.I/no. students (a) and motor skills at T.I./no. Students(B)



By summing the individual scores, a final score was determined for each child at the initial test. Following this evaluation stage, a number of 18 children were admitted, as they met the requirements of the adopted scoring system. Subsequently, for these selected children, an additional check was carried out at the final test of the level of motor skills specific to the athletics branch, in order to assess the degree of preparation and potential for this sports discipline.

The results obtained after the final testing of the students in the two groups (A - experimental and B - control) had an equivalent in points, according to the score tables presented, adding the points from each test we obtained a final score.

Table 1.

Results recorded at the level of motor development and the score awarded, group A (experimental);

Arithmetic mean	216.67	236.67
Standard deviation	22.36	20.77
Coefficient of variability	500.00	431.25

Table 2.

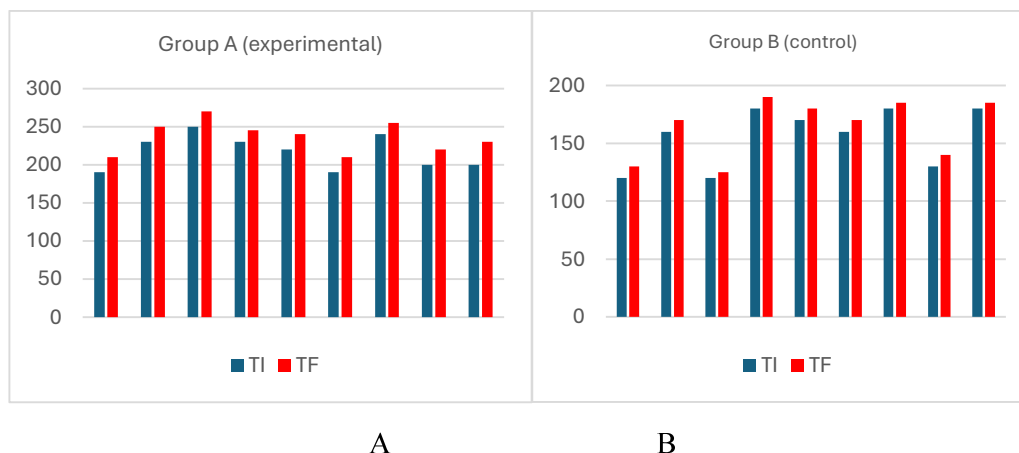
Results recorded at the level of motor development and the score awarded, group B (control)

Arithmetic mean	155.56	163.89
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Standard deviation	25.55	25.34
Coefficient of variability	652.78	642.36

Figure 3

Graphic representation of the score obtained at T.I/T.F/no. students (a) and motor skills at T.I./T.F/no. Students(B)



Following the score obtained at T.I/T.F/no. students and motor skills we can say that in group A (experimental) we have:

- Arithmetic average 236.67 points, with a progress of 9.2% compared to the initial tests
- Standard deviation 20.77 down by approx. 2 points compared to the initial tests
- The coefficient of variability 431.25, decreasing compared to the initial tests, which denotes a uniformity and homogenization of the performances at the level of the group.

And again, in group B (control):

- Arithmetic average 163.89 points, with a progress of 5.3% compared to the initial tests
- Standard deviation 25.34 down from baseline tests
- The coefficient of variability 642.36, decreasing compared to the initial tests.

Conclusions

The data obtained indicate that the intervention applied to the experimental group had a more significant impact on the motor progress and homogenization of the group, compared to the control group. The decrease in the coefficient of variability and the increase in the arithmetic mean in group A reflect an increased efficiency of the implemented program.

After a year of specific training, children must master the basic motor skills, specific to athletics.

In order for the selection process to benefit from chances of success, it is recommended:

- those who make the selection should know very well what kind of qualities and skills the respective sport requires.
- those subject to selection must possess those qualities and aptitudes, in relation to their age, at the highest possible level.
- to know the range of qualities that can be less perfected, usually those genetically programmed, where the initial requirements must also be more severe.

The improvement of qualities is inextricably linked to the maturation of their morphological and functional substrate and psychic development, processes that have their own dynamics, differentiated in relation to age.

Because of this, it is never possible to speak of a single age of selection valid for all sports. For example, the substrate of stable motor qualities matures before the end of puberty, and the longitudinal somatic dimensions, with the end of bodily growth and development, while the substrate of labile motor qualities evolves also in the mature period, being also influenced by the training process.

Selection is accepted as a system that can be divided, in the first instance, into the following main components: sports selection, biomedical selection, psychological selection.

In the future, for a successful selection, a greater propaganda is required in the schools in the county, which can be carried out through the local media, through a selection program developed by the specialized department, the organization of competitions, discussions with physical education teachers in schools, discussions with parents, leaflets and posters distributed in schools.

The selection activity must be a permanent activity; the primary selection is the basis of great sports performance.

An important role in the selection is also played by attracting material and financial funds, through sponsorships, financing projects, in order to motivate and support the children's activity.

The most effective means for selection must be found, which will highlight the children's qualities.

However, the child's talent or genetic potential remains the main source of selection. This involves an ample conceptual and organizational action of evaluation on different levels (anamnesis, diagnosis of health status, level of growth and physical and functional development, mental availability, etc.) of large communities of children and juniors. For the selection to take place, you need a model and a personalized or standardized system. Personally, I opt for the personalized mode because in the degree of selection I use my own opinion.

As in other sports disciplines, the selection process in athletics must meet some conditions.

Selection, by its application, ensures the achievement of high performances; can substantially reduce the duration of training by favoring the application of efforts in accordance with the particularities of the modern concept of training. It also detects capped athletes; it avoids an unnecessary volume of work and material investments that cannot be used and gives the possibility of recruiting young elements, expanding the possibilities of affirmation at international level.

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