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Original article

STUDY REGARDING THE DEVELOPMENT OF GENERAL AND SPECIFIC MOTOR SKILLS IN ALPINE SKIING CATEGORY U10

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Abstract*

Aim. The purpose of this study is to draw attention on the development, involvement and evaluation of general and specific motor skills, during the basic training in preparing children for performance.

Methods. This study was conducted in September - October 2015, the number of sessions being five/week. The physical training programs elaborated and implemented want to develop and train the general and specific motor qualities. Initially, athletes were tested at the beginning of September 2015 through four tests: long jump from standstill, jumping box jump, balance board, Illinois Agility followed by the final testing took place in October 2015.

Results. After the interpretation of results from the four tests we observe the following. The analysis of averages of the Long jump from standstill test, suggests that between the two evaluations there is a significant difference ($t = 3.571$, $p < 0.01$); at the second test Box Jump the analysis of averages suggests that between the two assessments, there is a significant statistical difference ($t = 6.66$, $p < 0.01$); in the 3rd test Box Jump, the analysis of averages suggests that between the two moments of testing there is a significant difference ($t = 5{,}175$, $p < 0{,}01$); at Agility Illinois test the results show there is no significant difference ($t = 1.598$, $p > 0.05$).

Conclusions. From the conducted study we can say that a complex physical training offers in the training process, a solid level of fitness, providing coaches important data about a possible progress in sport performance from the youngest ages, taking into account the particularities of age, level of training and previous motor purchases.

Keywords: alpine skiing, children, physical training, motor skills, evaluation tests.

Introduction

Contemporary alpine skiing is a complex sport that requires a wide range of motor and psychomotor qualities such as: speed, skill, endurance, strength, mobility, coordination, balance, laterality, ambidextry, pace, adaptability, anticipation, being considered key factors in increasing athletic performance (White, Johnson, 1993).

Physical preparation is the component that has a particularly important role in the process of sports training, representing the crucial element for other training factors.

The multilateral training is achieved through the process of training through motor and dynamic exercise structures as well as some equipment and modern materials designed to attract children in a sporting activity performance.

Thus, in the groups of children levels it is necessary to develop all motor skills as well as the ones specific to the tests that are related to alpine ski. All these are important for training a solid foundation of acquisitions, skills and motor abilities through the variety of complementary sports, such as acrobatic gymnastics, basketball, football, swimming, handball, roller balding, roller skates, children being able to develop a repertoire of varied movements and motor gestures (Cigrovski, Matković and Vučetić, 2010).

Each training session which is carried out unsystematically, without knowing the health of the athletes, without a correct dosage of the tasks of training and a proper monitoring for any changes, leads to poor results and unintended consequences. This causes a responsible approach of experts in planning, programming, algorithmization and process control training by age and levels of provision (Živanović, Savić, Milojević, Milutinović, 2003).

The scientific and practical solutions to current issues related to training children in alpine skiing, are possible through an analysis in which planning and programming the training process of skiers is seen as a complex process of adaptation, development and improvement of physical characteristics in strict compliance with biodynamic and kinematic structure of the sport (Željaskov, 2003).

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From the physiological point of view, athletic performance is influenced by a number of factors such as the energy produced in the body by aerobic and anaerobic processes, health status, functional status, neuro-muscular condition workout shape, genetic factors that lead to adaptive changes, the quality of the training process (psycho-physiological request of the body, volume, intensity, complexity of effort, adaptation to exercise and recovery) (Matei, 1988, p.164).

Thus, a good physical preparation and increased fitness influences the speed of acquiring technique and reduce the risk of injury during training and competitions (Koehle, Lloyd-Smith., Taunton, 2002).

The purpose of this study is to draw attention on the development, involvement and evaluation of general and specific motor skills, during the basic training in preparing children for performance.

Methods

The subjects of the research were children who practiced for three years recreational alpine skiing, wanting to practice this sport discipline in an organized way in a private sports club in Brasov. Subjects were 10 in number, fourth grade students, the composition of the group being coincidental and random, their parents requesting registration in the club.

The study itself was conducted between September-October 2015, children doing a number of five training sessions / week. These physical training sessions include various themes from general and specific mortor qualities, specifically: agility - coordination - balance; force under strength, plyometry - combination of different contractions modes, specific strength, balance, coordination, stability. The training was carried out in accordance with the annual plan of preparation for category U10 years.

For a more accurate assessment of the athletes were chosen four tests that are part of the Fitness battery tests for the preparation of skiers (Rascher, Kroll, 2001; Takahashi, Yoneyama, 2001). The tests performed in the study were: long jump, box jump, balance board and Illinois Agility.

Athletes were tested initially in early September 2015 and the final testing took place in October 2015 after the implementation of the developed training program.

The research methods used in the study are: bibliographic study method; direct observation method; test method; the experimental method; statistical and mathematical method.

Results

Thus, after applying initial and final testing we performed a comparative analysis, where the following statistics indicators were calculated: the arithmetic mean; standard deviation; coefficient of variation and bilateral t-test.

Tables 1 and 2 show the results achieved by subjected submitted to the research at the long jump from standstill test. Regarding the results there is a significant increase between the two times of testing.

Table 1. Statistical indicators registered by the subjects of the research at the long jump test

	M	**SD**	**Cv**
Evaluation moment	**(n=10)**	**(n=10)**	**(n=10)**
I.T.	1,468	0,031	2,11
F.T.	1,521	0,037	2,43

M, mean, SD, standard deviation, Cv, variability coefficient, I.T., initial testing, F.T., final testing, n, number of subjects.

The determined standard deviations are acceptable, they suggest a modest scattering of individual data around the average, at the initial assessment as well as the final moment of testing. Concerning the sample group of athletes is characterized by homogeneity both at the beginning of the experiment (Cv = 2.11%) and at its completion (CV = 2.43%) averages being representative for the group.

Table 2. Statistical indicators registered by the subjects of the research at the long jump test

	I.T.	F.T.	t-test
Test	(n=10)	(n=10)	
LJS	1,468	1,521	3,571*

*difference between tests p <0,01

I.T., initial testing, F.T., final testing, LJS, long jump from standing, n, number of subjects.

The analysis of averages suggests that between the two evaluations there is a statistically significant difference (t = 3.571 to p <0.01). These results allow us to state that subjects achieved a much higher performance when final testing comparative with the results recorded at the initial evaluation at the long jump from standstill test.

Tables 3 and 4 show the performance achieved by the subjects at the Box Jump test and can be seen a significant increase recorded at the final testing moment.

Table 3. Statistical indicators registered by the subjects of the research at Box Jump

	M	SD	Cv
Evaluation moment	(n=10)	(n=10)	(n=10)
I.T.	22,4	1,505	6,71%
F.T.	26,8	1,475	5,5%

M, mean, SD, standard deviation, Cv, variability coefficient, I.T., initial testing, F.T., final testing, n, number of subjects.

The values of the standard deviations are acceptable, they suggest a modest scattering of individual data around the average both at initial assessment and final assessment. Concerning the sample group of athletes it is characterized by homogeneity both at the beginning of the experiment (Cv = 6.71%) and at the end (CV = 5.5%) average values being representative for the group

Table 4. Statistical indicators registered by the subjects of the research at Box Jump

	I.T.	F.T.	t-test
Test	(n=10)	(n=10)	
BJ	22,4	26,8	6,66*

*difference between tests p <0,01

I.T., initial testing, F.T., final testing, BJ, Box jump, n, number of subjects.

Analysis of average values suggests that between the two evaluations there is a statistically significant difference (t = 6.66 p <0.01). These results allow us to state that subjects have obtained a much higher performance at the final testing at Jump Box test.Tables 5 and 6 show the results achieved at balance board test during the two times of testing.

Table 5. Statistical indicators registered by the subjects of the research at balance board test

Evaluation moment	M (n=10)	SD (n=10)	Cv (n=10)
I.T.	10,9	1,791	16,43
F.T.	7,5	1,84	25,50

M, mean, SD, standard deviation, Cv, variability coefficient, I.T., initial testing, F.T., final testing, n, number of subjects.

The values of the standard deviations are acceptable, they suggest a modest scattering of individual data around the averageboth at initial assessment and final assessment. Concerning the sample group of athletes is characterized by homogeneityboth at the beginning of the experiment (Cv = 16.43%) and its completion (CV = 25.50%

Table 6. Statistical indicators registered by the subjects of the research at balance board test

Test	I.T. (n=10)	F.T. (n=10)	t-test
BB	10,09	7,5	5,175*

*difference between tests p <0,01

I.T., initial testing, F.T., final testing, BB, balance board, n, number of subjects.

Analysis of average values suggests that between the two evaluations there is a statistically significant difference (t = 5.175 to p <0.01). These results allow us to state that subjects obtained a much higher performance, at the final testing in board balance test.

Tables 7 and 8 show the performances recorded by the 10 subjects submitted to the research at Illinois Agility

Table 7. Statistical indicators registered by the subjects of the research at Illinois Agility test

Evaluation moment	M (n=10)	SD (n=10)	Cv (n=10)
I.T.	21,43	2,102	9,8%
F.T.	19,912	2,262	11,38%

M, mean, SD, standard deviation, Cv, variability coefficient, I.T., initial testing, F.T., final testing, n, number of subjects.

The standard deviation values are acceptable, they suggest a modest scattering of individual data around the averageboth at initial and final assessment. The sample group of athletes is characterized by homogeneityboth at the beginning of the experiment (Cv = 9.8%) and its completion (CV = 11.38%) averages being representative for the group

Table 8. Statistical indicators registered by the subjects of the research at Illinois Agility test

Test	I.T. (n=10)	F.T. (n=10)	t-test
IAT	21,43	19,912	1,598*

*difference between tests p > 0,05

I.T., initial testing, F.T., final testing, IAT, Illinois Agility Test, n, number of subjects.

Analysis of the average values suggests that between the two evaluations there is a statistically insignificant difference (t = 1.598 p> 0.05).

Discussions

Unfortunately, training programs for beginners devotes insufficient importance to developing fundamental motor skills. Thus, this type of long-term weakness will affect specific requirements of alpine skiing performance.

Appropriate age necessary to form a fundamental base of motor and psychomotor skills is between 7-11 years and should offer a wide range of exercises, dynamic games, working on different workshops on rollers, bicycles, skateboards, which once acquired, increase athletic performance.

Developing motor capacity at children is possible through proper training, aiming a wide range of exercises, dynamic games, run applications on different workshops with role of influencing specific motor skills for practicing alpine skiing.

For good physical fitness, skiers must develop agility, strength, endurance, strength in the lower limbs, mobility, balance, coordination, which can influence the technical execution of the athletes.

Underdevelopment of certain abilities and skills at the level of children groups can affect the whole process of training.

Some experts say that while performing exercises rollerblading the body makes the same movements that are specific to alpine skiing, resulting in significant components such as balance, coordination as well as technical execution of turns in training on ground (Roman, Miranda Martinez, Viciana, 2009).

Conclusions

The results obtained in this research after experiencing the independent variable (training programs with various contents) have found a significant improvement at the final testing results compared to initial testing.

After taking the control tests is recorded significant statistical differences in the first three of the four tests used in the research.

Thus, the results obtained at Illinois Agility test present insignificant differences, which leads us to formulate the following conclusions: athletes present specific features of growth and development, various motric acquisitions, a different adaptation to specific tasks required during training and not finally the training period being relatively short can have negative impact upon execution times.

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References

Cigrovski V, Matković B, Vučetić V, 2010, Speed, agility and explosive strength – Important motor skills among young alpine skiers. In: Jukić, I., Gregov, C., Šalaj, S., Milanović, L., Trošt-Bobić T. (Eds.), 8. godišnjamеđunarodnakonferencija "Kondicijskapripremasportaša 2010 – Treningbrzine, agilnostiieksplozivnosti'', Proceedings, pp. 204-208. Zagreb: University of Zagreb, Faculty of Kinesiology and Association of Croatian Fitness Trainers. In Croatian.

Koehle MS, Loyd-Smith R, Taunton E, 2002, Alpine ski injuries and their prevention. Sports Med, 32(12), 785–793. doi: 10.2165/ 00007256-200232120-00003; PMid: 12238941.

Matei I, 1988, Schialpin modern Editura Sport – Turism, Bucureşti, p. 164.

Rascher Ch, Kroll L, 2001, Bateria de teste motricepentrueleviInstitutulpentruŞtiinţaSportului al Universităţii Innsbruck, Traducere

Roman B, Miranda MT, Martinez M, Viciana J, 2009, Transfer from inline-skating to alpine skiing learning in physical education. In E. Műller, S. Lindinger, and T. Stoggl (Eds.), Science

and skiing IV (pp. 430–438). Oxford, UK: Meyer and Meyer Sport.

Takahashi Yoneyama, 2001, Good fitness preparation influences the speed of skiing technique acquiring and minimizes the risk of possible injuries while skiing.In E. Műller, S. Lindinger, and T. Stoggl (Eds.), Science and skiing IV (pp. 307–321). Hamburg, DE: Verlag Dr. Kovač.

White AT, Johnson SC, 1993, Physiological aspects and injury in elite alpine skiers, Sports Med 15 (3):170-178.

Željaskov C, 2003, Osnovefizičkepripremevrhunskihsportaša - teorija, metodikaipraksa (The basic physical preparations of elite athletes - theory, methodology, practice). In: Milanović, D., &Jukić, I. (Eds.), International Scientifically-Professionally Conference „Conditional Preparation of Athletes", Proceedings, pp. 20-25. University of Zagreb: Faculty of Kinesiology. In Croatian.

Živanović N, Savić Z, Milojević A, Milutinović D, 2003, Alpskoskijanje – tehnika, metodikaipsihofizičkapriprema (Alpine skiing – Technique, methodology and psycho-physical preparation). Niš: Panoptikum. In Serbian