Improve Skiing Race Competencies / Actual Aspects of preparation

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Abstract

"Junior slalom skiing is about to be a big disaster because the juniors only focus on attacking the pennant and deflecting it. In general, I believe in a logical, basic approach to ski racing, and I integrate the speed of a competitor because of the interaction between two essential components: the verticality of the slope and the approach to the turns. The competitor who gets the tightest line throughout the course will have the fastest speed, therefore, all technical elements of ski racing, including flag attack technique, should be oriented towards the race trajectory" (H. Nagler, ex-coach of Ingeman Stenmark, TV show)

Technological progress (recorded in the superior quality of ski materials and equipment) has imposed significant changes recorded both in the competition technique and in the regulations for the conduct of ski competitions. (Canadian Ski Instructors Alliance, 2006))

The appearance of pennants/articulated/tilting gates induced important changes in the technique and trajectory of the competition. Due to the reduced impact force, skiers are less concerned with the consequences of contact with the pole, the main objective being to achieve a tighter race line. The technique of approaching articulated pennants has undergone numerous changes and is a current priority of technical and tactical training. The formation of the correct "attack" skill of the pennant is an essential aspect of preparing children for the competition, at this level the profile of the future high-performance competitor is formed. (Hirano, 2002)

The present work aims to synthesize some current theoretical-methodological concepts related to the issue of optimizing the technical-tactical compartment at the level of 10-13-year-old children. The study also aims at validating the manner of effective optimization of the flag attack by inserting means and methods focused on the use of operational structures based on the use of roller skates and roller skis during the extra-season.

***Keywords**: performance, alpine skiing, 12-13 years performers.*

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1. Specific aspects of alpine skiing

A. Motricity specific aspects: sliding sport - acquired unnatural mechanisms, the group of high-speed skill sports, maximum intensity efforts in a short time, extreme stress on the nervous system, the psychological factor - special role, skiing is a sport of adaptation to environmental variables.

B. Technical-tactical specifics: complexity, skiing is the prototype of the improvisation sport, composition technique means precision, effectiveness, preparation priorities represented by acceleration (skidding elimination, turning radius reduction).

C. On a technical-material level: the quality of the material and its preparation directly influence the performance, the presence of the risk factor imprints a particular behavior (Pelin, 2007)

The characterization of motor positions and gestures requires the automatic integration of the skis into the body scheme of the subject (constitution of the system, of the skier-ski ensemble), a fact that requires giving increased importance to the specific material.

Basic technique of alpine skiing represents a set of motor skills with a deeply specific character, which allows movement on snow-covered terrain, for different purposes: formative, utilitarian, recreational.

Racing technique derives from the basic one, it focuses on obtaining an increased speed, demanding the physical and mental possibilities of the skier to the limit. (Matijevec, 2003)

Skiers' technique is the primary limiting factor and stems from the skier's ability to effectively steer their skis and body down the glide direction relative to the current pattern. (Wormwood, 2007)

1.1. Aspects of competition technique

The skiing technique is based on complex motor skills (cyclic and acyclic), different from the skills formed in other sports activities, requiring a high coordination in conditions of dynamic balance and a strength in resistance mode of the whole body, especially of the limbs lower. Toth Z.

(2009) has the opinion that additions can be made to the technique of alpine skiing by optimizing aspects of a mechanical, biomechanical, dynamic, psychophysiological, anatomic-physiological, neurophysiological, kinematic nature...

Competitive alpine skiing has five distinct events: slalom, giant slalom, super-giant slalom, downhill and alpine combined (slalom and downhill).

1.2. Slalom race

The principle of slalom is to ski, as fast as possible, through an imposed route, 55-75 men's gates, 40-60 women's, two legs, both the distance and their placement being established by FIS rules. According to the regulations, a slalom gate consists of two pennants, consecutive gates alternately blue, red. (width of 4 - 6 meters; distance between successive gates 6-13 meters (rule valid for all categories). Exceptions are competitions for categories U16–U14: between 7-11 meters. Combinations of gates, doubles and vertical wires must be positioned in straight line. The "banana" combination must be 12 - 18 m (for the U16 and U14 categories 15 meters) from the bypassing flag to the next bypassing flag. (FIS/ICR/2018)

1.3. Changes induced by the appearance of the sliding pennant.

The appearance of pennants/hinged/tilting gates brought important changes to the competition routes. Because of the reduced impact force, skiers were less concerned about the aftermath of pole contact. A pennant boxing style was later implemented (with numerous variations optimized by the grand champions) to achieve a tighter race line. Although the new design of the modern pennant significantly dissipates the shock of contact, additional protective, tibial, palmar, facial protective equipment is required. Correct interaction of the competitor with the directional gate has an important role in maintaining speed, obtaining the optimal race trajectory, preventing injuries implicitly the associated psychological factors. Depending on the type of lift, the mass of the skier and the method of approach, a substantial amount of kinetic energy (momentum) can be lost, which influences the achievement of a superior lap time. (Schwartz, Trost, & Wervey, 2004)

1.4. Problems of the initiation process of boxing articulated pennants

a. Moment of impact with the pennant - exaggerated twisting of the body towards the pennant, incorrect alignment, the skier is focused on hitting the gate not on correct sliding.

b. Lack of lean/side projection skills / poor fore/aft balance: minimal ski lean, inability to initiate turn over gate, weight dominance on outer side of turn arc, narrow glide base (reduced ski opening) to allow angulation Maxim

c. Fear: intimidated by contact with the flag, which induces a static, passive skiing manner (waiting for the gate)

1.5. Methodical indications

Pronounced edge bevel /adequate glide base/ski independence

- obtained by free skiing with an emphasis on independent work of the skis / separation
- flexed inside the foot (90% pressure on the outer ski)
- the legs must work together (windshield wiper principle)

Open routes / high vertical to train the early attack reflex

Contact with the pennant at calf level, ankles / knees / skis facing the new gate, upper body remains vertical

Effective stick positioningKeeping the head inside the turning arc (Ștefănescu 2019)

Slalom technique has changed dramatically in the last five years. The new short skis with large sidecuts allowed competitors to ski faster and cut trails more cleanly as they became more technical).

The horizontal gap of the gates has increased considerably, making the slalom more complex, this requires from the competitor a great lateral balance and lateral inclination (angulation). At the same time, modern equipment allows the simultaneous/independent use of the legs during all phases of the turn (both during the trigger and during the transition phase). The vertical and anteroposterior sway has greatly decreased in intensity. the pennant attack technique approached that used in GS. Understanding this

technique and the correct approach to teaching it still plays an important (if not the most important) role in the training of slalom skiers. (Hirano, 2002))

Related to the technique of approaching the pennants, the questions arise which technique is faster, the transverse block (attacking the pennant with the outer arm) or the internal block (attack/contact with the inner arm.? …when the listed options are effective ? …at what age should children be introduced to the boxing technique? …What are the consequences of its premature introduction?

Cross-block is not always the best tactic for young competitors. The last competitive decade has confirmed that at the level of children's competitions the main concern must be sliding, approaching an optimal race trajectory and not boxing the pennant. (Hirano, 2002)

2. The purpose, hypothesis and tasks of the research

The purpose of the paper is to determine the extent to which the technical profile of children involved in performance alpine skiing can be developed (we are referring here to the optimization of the ability to approach the tipping pennant), by integrating the application circuits and the thematic game both in the off-season training (on land) as well as in snow training. The theoretical support, from the theoretical substantiation part, supports this approach in terms of information. At the same time, it aims to argue the need to diversify the means used in the sports training lesson, in order to increase its attractiveness, respectively its efficiency.

Summarizing, I want to demonstrate the fact that the optimization of the attack at the sliding pennant can be achieved under conditions of efficiency by using unconventional means and methods, including during the training period on land. These means refer to the large-scale integration during the training period on land of some operational structures based on the use of roller skates, roller skis.

2.1. Specific assumptions

– if new, interactive, innovative actuation systems (based on inline rollers, balance boards, applicative routes, games and relays) are

introduced systematically and continuously in the training lesson, technical parameters specific to the pennant attack will improve;
- if it is practiced within the circuits (in a timed manner and permanently modified in terms of complexity), the quality of the strength is implicitly improved;
- if the exercises chosen for each component workshop of the circuit are diverse and attractive, students are more involved in movement activities;
- if the exercises selected for each workshop of the circuit are of interest to the students, they will approach an active and proactive behavior;
- if the circuits are organized against time, or in the form of a competition, the students' involvement in the activity will increase considerably, stimulating emulation;
- if practicing within the circuit involves working in teams, groups or pairs, collaborative relationships can be developed, helping to show the spirit of fair play.

2.2. Research objectives

a. Carrying out a conclusive experimental study, aimed at validating the working hypotheses;

b. The development and application of the operational training programs within the physical education lessons by including the non-conventional work methodology as methods dedicated to the optimization of the pennant attack at the mentioned work level;

c. The processing and interpretation of the results obtained through the experimental argumentation of the effectiveness of the application of specific training programs;

d. Validation of working hypotheses by applying research elements;

e. Dissemination of research results.

3. Organizing the research

In order to organize the intervention within the research program, we created specific circuits on in-line rollers (if we refer to the preparation on

land), respectively on skis (on snow), in view of the aforementioned objective of increasing the performance capacity through optimization of the flag attack (considered to be effective in this approach). The content of the circuits respects the methodological provisions specific to age, gender and training level.

The testing includes two tests, one on dry land and one on snow, complying with the requirements of the F.I.S. regulation for the categories of children.. The slope on which the tests took place is located in Toplița, The following circuits were applied:

a. Circuit 1. / with inline rollers, on dry land

Skating in a straight line on horizontal ground over a distance of 10 meters, from the starting line to the starting line of the circuit, starting from the start, at the sound signal / whistle. (sticks help to start)

Completing a route consisting of 15 milestones positioned in a 5 m wide lane, spaced approximately 4 m apart (the milestones are similar to the official ones and positioned so that they tip over)

Skating in a straight line on horizontal ground for a distance of 10m to the finish line

Timing

b. Circuit 2./ with skis, on snow

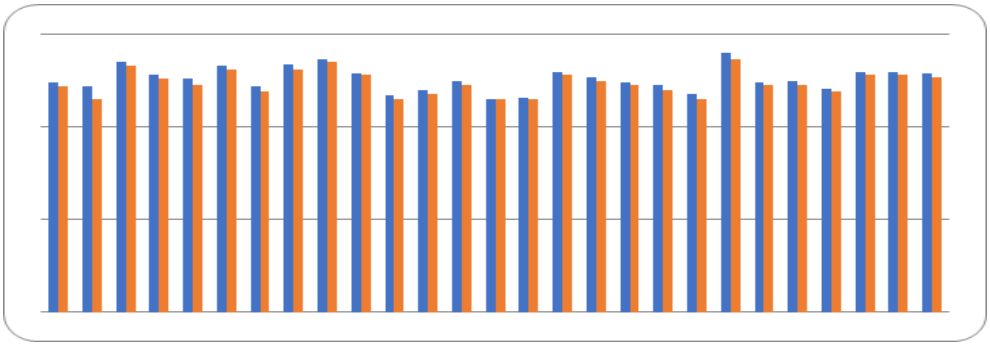
Start at the sound signal (with the triggering of the timing bar), traveling a pre-marked route of 20 rhythmically distributed gates (at a distance of 5m)

Timing: each athlete covered the proposed circuit twice, recording the best time.

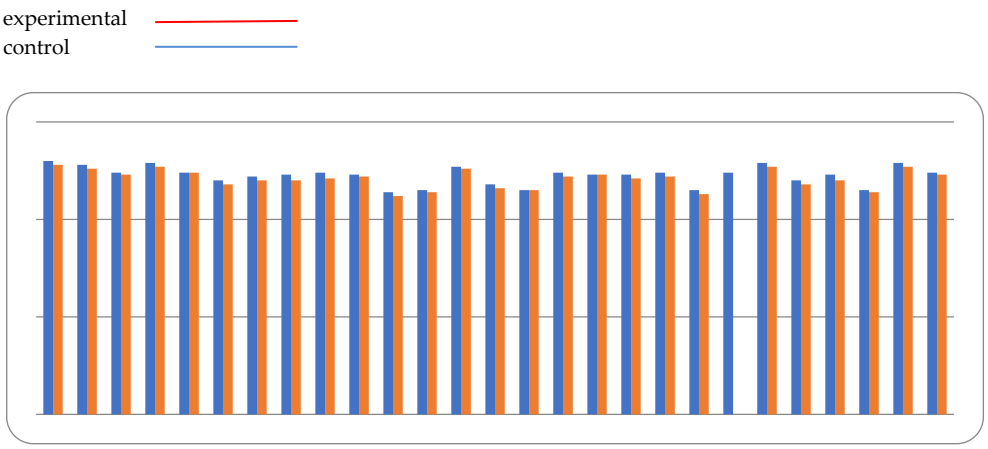
During this initial testing period, we also performed anthropometric measurements - weight, height, span and length of the upper and lower limbs.

4. Results and interpretation

The results obtained from the two tests are presented graphically, using the comparison method.



Graph 1. Representation, comparative, final test - circuit 1



Graph 2. Representation, final test - circuit 2

5. Research limits

Although the experimental approach of the entire research took place according to the pre-established program, a series of limiting factors could be observed that qualitatively influenced the recorded results. These factors observed during the lessons, are:

A. Emotional, motivational factors:

- the lack of involvement of some children in the proposed activities;
- emotional, stressful states before the two tests;
- lack of motivation to carry out motor tasks;
- shyness;
- the fear of making a mistake, of not registering a poor result.

B. Factors regarding the students' state of health:

– colds, seasonal flu;
– muscle soreness.

C. Organizational and pedagogical factors:

– the organization of the initial and final tests required too much time, each student performing the circuits twice, at different times.

6. Conclusions

6.1. Conclusions regarding the general theme

The content of the training lesson must include updated contents according to practice trends, especially in children who are willing to try challenges, who are looking for the new, activities out of the classic patterns. The introduction of unconventional motor structures, associated with games, circuits...etc in the sports training lessons aimed at developing the technical parameters of 10-13 year old skiers, represents a qualitative plus, noting a special motor density. The mentioned age category presents the morphological and physiological peculiarities necessary to support these efforts, a fact that justifies their involvement in the running of the experiment. From discussions with them, we concluded that they prefer the organization of circuits because they bring more variety and place the training content outside the routine.

From the discussions with the experimental team, we found the general interest in optimizing the technical profile, respectively the attack to the pennant (an element that is essential in the current competition in alpine skiing).

6.2. Conclusions related to the research

The results recorded after the application of the two circuit variants confirm the hypothesis, even if the differences obtained between the two tests are not spectacular. However, we must consider a number of external variables as a limiting factor in conducting research

- the situation imposed by the health crisis that left its mark on sports training;

- modification of the competition calendar;
- changing the school year;
- restrictions related to access to training bases, ski slopes...etc.;
- reluctance registered among parents in relation to children's participation in training and competition.

It was found that:

– the level of technical ability (related to the efficiency of approaching the pennants) on land and snow was low during the initial tests, the students performing the proposed imposed motor structures with difficulty;
– the children were more concerned with completing the circuit than performing the specific movements correctly;
– most of the children from both experimental groups showed interest in the proposed tasks and got involved accordingly, realizing their participation in the pedagogical experiment;
– the students in the control group showed apathy tendencies in the activities with specific strength development exercises, considering them cumbersome and untraining;
– the students from the experimental group practiced these exercises in some circuits, most of the time against a timer or a competition with a maximum number of repetitions, being much more motivated;

Synthesizing and analyzing the obtained results, the following conclusions can be issued: the integration of in-line rollers and ski-rollers in training on land essentially optimizes the improvement of the pennant attack technique.

– crossblock and clearblock technigue can be learned, perfected by using roller skis during training.

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