„BABEȘ-BOLYAI” UNIVERSITY CLUJ-NAPOCA

FACULTY OF PHYSICAL EDUCATION AND SPORT

DOCTORAL SCHOOL OF PHYSICAL EDUCATION AND SPORT

PHD THESIS SUMMARY:

PhD supervisor:

PROF. UNIV. DR. EMILIA FLORINA GROSU

PhD student:

ANDREEA CARLETTA (CĂS. TOMA) IRING

2023

„BABEȘ-BOLYAI” UNIVERSITY CLUJ-NAPOCA

FACULTY OF PHYSICAL EDUCATION AND SPORT

DOCTORAL SCHOOL OF PHYSICAL EDUCATION AND SPORT

OPTIMIZING THE PERFORMANCE BEHAVIOR OF JUNIOR SKIERS THROUGH PSYCHOMOTRICAL, MOTIVATIONAL PARAMETERS AND NUTRITIONAL ASPECTS

PHD THESIS SUMMARY

PhD supervisor:

PROF. UNIV. DR. EMILIA FLORINA GROSU

PhD student:

ANDREEA CARLETTA (CĂS. TOMA) IRING

2023

KEY-WORDS

skiing, motivational techniques, performance behavior, psychomotor parameters, training, sports nutrition

Thanks,

Finalizing my doctoral thesis is a key moment in my biographical journey, which closes an essential stage in my professional development, but opens another, new, but equally valuable one. Once this stage of my scientific career is finished, I want to address a few words of appreciation and gratitude to those who directed my steps and gave me the confidence and support necessary for all the elaborations of these works.

First of all, I would like to thank **Prof. Univ. Dr. Emilia Florina Grosu**, the scientific coordinator of the thesis, for guidance, patience and generosity, as well as for the understanding, competent advice and professionalism offered throughout the period of realization of the doctoral works. I express my special gratitude to the guidance committee made up **of Prof. Univ. dr. Iosif Sandor,** university **professor Dr. Iacob Hanțiu**, associate **professor Dr. Dan Monea**, **university professor Dr. Alina Rusu, head of work. Dr. Vlad Grosu** and to the other members of the Cluj academic community, who guided me throughout this scientific process. I thank them for their valuable time, for their patience in reviewing this thesis, and for their competent evaluation to improve various aspects of the research stages and the selection of library sources.
Adrian Petrovan from the Technical University of Cluj-Napoca, Northern University Center in Baia Mare, was of real help to me for recommendations regarding the preparation of statistical data, which I am grateful for his support and involvement.

I thank, in particular, my family who has been by my side unconditionally and supported me throughout my professional development, showing patience and understanding during all my research and finalization.

Toma Andreea Carletta

"The essence of sport is to go to your own limits and see if you are able to go beyond them."

(Pascal Bruckner)

LIST OF PUBLISHED ORIGINAL WORKS

1.The influence of diet on sport perfromance in junior skiers 15-17 years old, Toma Andreea Carletta[1a], Grosu Vlad Teodor [2b], Grosu Emilia Florina [3c], Bulletin of the *Transilvania* University of Braşov, Series IX: Sciences of Human Kinetics • Vol. 15(64) No. 1 – 2022, https://webbut.unitbv.ro/index.php/Series_IX/article/view/1757 Vol. 15(64) No. 1 (2022)

2. Optimizing the performance behavior of junior skiers through motivational techniques, Grosu ,V., T., Toma A., C., Ordean, M.,N., Grosu, E., F.,* ICU Conference 2021, The 7th International Conference of the Universitaria Consortium in Physical Education, Sport and Physiotherapy, November 12-13, 2021 Iasi, Romania, Editors : Abalasei Beatrice, Onose Raluca-Mihaela, Onose Ionut, https://www.researchgate.net/publication/361903007_Optimizing_The_Performance_Behavior_Of_Junior_Skiers_Through_Motivational_Techniques

3. Intuitive methods of teaching mobility elements in skiing – school sport club, Toma Andreea Carletta[1], Raica Silviu Vasile[2], Grosu Vlad Teodor[3], Ciocan Maria[4], Grosu Emilia Florina[5], International Scientific Conference "EDUCATION, SPORT AND HEALTH", Editura Universității din București, 2020, ISSN:2601–4998; ISSN-L: 2601-4971, https://editura-unibuc.ro/en/international-scientific-conference-education-sport-and-health-bucharest-may-8-2020/

4. Self-esteem in Junior performance skiers, Toma, A. C.[1], Grosu, V.T[2]., Haisan, P.L[3]., Innovation, Enytrrprenourship and Society Conference, second Eduition, 15 thy pf July, 2021, Cluj - Napoca, Romania, Babes - Bolyai University, *Connecting Innovation, Education and Economics*, editors Lorina Culic, Ioan Hosu, Presa universitară, http: //www.editura.ubbcluj.ro/clujeană, 2022, pg.151-156, http://www.editura.ubbcluj.ro/bd/ebooks/pdf/3453.pdf

5. Study on Perception Speed (VP), Motor Coordination (CMC) and Self-Regulation (AR) in junior alpine skiing in sports clubs, Toma, A., C., Grosu, V., T., Rozsnyai, R., A., Zadic*, A., Ardelean, V., P., Grosu, E., F*. Peter Lang Publishing House, Special Section: Physical Education, Sport and Physiotherapy, within the international conference: Theories of Change in Digital Wellbeing, pg 289-299, https://www.peterlang.com/document/1326422#document-details-anchor https://mail.google.com/mail/u/0/#inbox/FMfcgzGrcjVmhRRjdxRcPNbvkCBCPVrL

CONTENTS

INTRODUCTION AND ARGUMENTATION OF THE TOPIC

Defining the problem to be studied and motivating the choice of topic

Skiing is an instructive, fascinating field, which is the object of study not only by the technicians involved in the performance activity, but also by other specialists from various fields. The approach to training for high performance in all its complexity is achieved by studying the relationships that manifest both between specialized training, as well as physical and mental condition and psychomotor parameters.

As the title of the paper reveals **(Optimization of performance behavior of junior skiers through psychomotor, motivational parameters and nutritional aspects**), issues related mainly to the practical activity of those involved in the sport of skiing were addressed and optimized, assimilating and integrating theories and concepts from complementary fields such as: sociology, psychology, statistics, nutrition, for the holistic approach of individual training.

The unlimited number of elements that can lead to the optimization of the performance behavior of skiers (juniors, in our case) required a good organization and some principles around which to structure it. From the field of psychology, the major elements such as motivation, self-esteem, and from the field of physiology - the issue of nutrition were thus imposed, due to their importance.

A physical - technical and tactical training is correct only in correlation with psychological training. Only in this way can a skier achieve some special performances, according to the requirements of current competitions.

The athlete's motivation, nutrition and mental state (Birkenhead and Slater, 2015) are among the factors that influence their performance. The spectacular evolution of performances highlighted the sacrifices that lovers of performance sports make in order to obtain material benefits and to recognize their value (Bonal et al., 2020). The value jumps accumulated in the training process stimulate the growth of their confidence in their own strength, as well as their self-esteem.

Purpose of the study and its importance

Through the present research we want to support young people who want to overcome their limits, improve their performance and experience success.

Given that the three components of sports performance: physical training, nutrition, the athlete's psychological state are interdependent, we wanted to find out how these factors influence skiing performance.

The purpose of the research was to create an intervention plan through the application of which the performance of ski athletes can be increased, to contribute to the improvement of the physical, technical and psychological training process of athletes in order to successfully participate in official competitions organized by the Romanian Ski Federation and Biathlon (FRSB) and the International Ski Federation (FIS).

The obtained results were tested and analyzed, after which the conclusions were presented to the coaches and to all those interested in the efficiency and updating of sports training methods and techniques in junior skiing. For the experimental research, the degree of development of the subjects from a psycho-physical-motor point of view was identified, the verification of the progress registered by the athletes due to the intervention program implemented.

Achieving performance goals is not possible without the athlete's awareness and permanent motivation. Achieving the performance goals must start from the physical, mental, intellectual qualities, attitudes, will, feelings, in close connection with the achievement of the goals.

The experiment carried out contributes with an addition of novelty and originality, it is useful for athletes and active adults interested in the guidance of sports professionals, in order to improve their performances.

Research hypothesis

It is assumed that by improving physical, nutritional, psychological training, increasing self-esteem, motivation, and by applying specific technical elements during training for junior skiers aged 15-17, the performance of junior skiers improves.

Research objectives

This research is applied, as it looks at psychomotor and psychological changes, in order to increase performance in skiers by:

- Proposing and implementing a program to increase sports performance by improving the indicators of the psychomotor components, improving the mental state, correcting the diet and carrying out personalized training, clarifying as follows:

– Identification of sports training elements for the intervention plan;

– Establishing assessment methods and evidence;

– Identification of tests and instruments used in the evaluation of subjects;

– Organization of the necessary logistics in order to carry out the study;

– Training monitoring;

– Collecting and analyzing the data obtained;

- Formulating final conclusions and proposing practical solutions that can be implemented in the process of training athletes.

The theoretical and epistemological basis of the research is focused on the concepts regarding: principles, theories, concepts, norms, ideas about sports performance, for junior skiers aged 15-17 in alpine skiing, The study led us to identify some techniques and procedures, as well as tools or quantification scales defined as essential, already attested by recent studies in which we have discovered similar themes consisting in the identification and exposition of methods, techniques and instruments established as representative and validated in recent research, with themes close to the one proposed in the present work.

The scientific originality is determined by the adaptation and application of a program to increase the sports performance by improving the indicators of the components of psychomotricity, of the mental state, correcting the diet and carrying out some personalized training, for 15-17-year-old junior skiers. This research is applicative as it looks at psychomotor and psychological changes in order to increase performance in skiers. The objectification of the research results is carried out both from a physiological and psychological point of view. The analysis is carried out both quantitatively through statistical analyzes of the applied tests, and qualitatively through the analysis of the sports results from the competitions of the skiers participating in the experiment.

The applicative value of the work is characterized by the development of an experimental model for the implementation of a program to increase sports performance by improving physical and psychological training, increasing self-esteem, motivation, diet; achieving all the technical requirements and perfecting the technique when descending from alpine skiing, in sports competitions, in both legs.

Implementation of research results. It is desired that the beneficiaries of the research project be the two ministries, the Ministry of Education, the Ministry of Youth and Sports, responsible for the development of sport and the achievement of performance, but also the higher forums of sports clubs, the research representing a good starting point for the development of further initiatives. The experiment carried out contributes with more novelty and originality,

also, the experiment can be useful to athletes and active adults interested in the guidance of sports professionals, to improve their performances.

PART I. CONCEPTUAL - THEORETICAL FOUNDATION OF THE WORK

CHAPTER I. SKIING, A WAY TOWARDS DISEASE PREVENTION AND SUPPORTING A HEALTHY LIFE

1.1. Physical activity

A safe way to prevent diseases and support a healthy life could be sports integrated in self-care, if it could be administered in the form of a pill (Ratey, Hagerman, 2013). Awareness of what a healthy lifestyle means, which includes, in addition to the attention paid to nutrition, programs and physical exercise activities, is the task of many specialists both in the field of nutrition and sports (Bigard, Guezennec, 2017).

Lack of physical exercise is society's major health problem. The costs of diseases caused by this inactivity are increasing and threaten to endanger health protection systems: hospital activity, health insurance, etc. Thus, a real branch of psychology was reached, which came up with a number of cognitive-behavioral theories, Kendall (1993).

All these theoretical efforts are aimed at increasing their motivation for physical activity and exercise. A general cognitive-behavioral theory has not yet been fixed in the wider framework of the science of psychology, the problems have however been somewhat narrowed and organized into several theoretical classes: that of self-determination; the one based on control; another, based on belief-attitude; finally, the latter would be competence-based.

1.2. The disadvantages of a sports career

Embracing a performance sports career can have its drawbacks, some of which have extremely negative consequences for the rest of your life. Those who dedicate themselves to performance sports must be aware of these shortcomings from the very beginning, act with knowledge of the cause, because practicing sports can have many disadvantages. Many of these are not obvious at first. They affect both children and adults, amateur athletes, but also professional athletes (Lupu, 2010).

Physical injuries are some of the most obvious drawbacks of sports. The expense involved in sports activity is one of the impediments that arise in front of those who want to achieve performance. The intense pressure that competition puts on the performance athlete can have a negative effect, being generated by the fear of disappointing those who have placed their hopes in him. When good results are delayed or stopped, low self-esteem can result. The

development of a disproportionate Ego can happen when the big results come.. Broken relationships can also be with family, friends, which the athlete with augmented Ego projects into his psyche as part of his competitive life. Illusions about the future usually come from beginners (but not only them).

1.3. The benefits of skiing

a) Skiing helps with weight control. Obesity is a disease of modern humanity. Thanks to social and health advances, modern societies can boast of largely eliminating malnutrition and, of course, the many human disadvantages it causes. But as nature always balances itself, one of the consequences of this offensive to free man from hunger and its shortcomings, was that they ended up facing an unexpected consequence: obesity - today one of the most visible public health problems - which it can no longer be neglected. Paradoxically coexisting with undernutrition, this new global epidemic – excessive weight gain – affects many parts of the world.

b) Skiing tones the core muscles and improves balance. The muscles that are needed to help with balance (including the abdominal muscles and pelvic floor muscles) are essential stabilizers and get a great workout while skiing. Strengthening the pelvic muscles supports the internal organs and is beneficial for the whole body (Galinier-Warrain, 2021).

c) To strengthen the bones and joints, skiing is an exercise where the knees and joints work to bear the strain, the bones becoming stronger by bearing the impact of the weight on the legs, helping to counteract osteoporosis.

d) The mental health benefits of skiing are also to be considered. Practicing skiing brings an increased intake of vitamin D. It thus combats depression and mood disorders, by increasing endorphins and adrenaline. Outdoor skiing improves mood spectacularly, it is a proven fact (Avram, 2011).

The opinions of the previously mentioned authors, together with the experience of years of training, demonstrate to us the efficiency and importance of practicing alpine skiing, of preparing athletes for performance and great performance, within school sports clubs, benefits also demonstrated by the athletes registered at CSS Baia Sprie along years (Figure 2), quantified by the results obtained, also displayed on the F.R.S.B. website. (https://frschibiatlon.ro/category/alpin/alpin-rezultate/).

CHAPTER II.
SKIING — COMPLEX SPORTS DISCIPLINE

2.1. Aspects of the history of skiing

Skiing, as a sport, has become increasingly popular in our country, and the age at which it is practiced can start from early, preschool or early school age. An important aspect of this sport is the fact that, due to the environmental factors and the environment in which skiing is practiced, it helps to harden the body, to strengthen it, thus strengthening health.

When skiing is viewed from the perspective of sports performance, knowing as much as possible about it is a must. And even a knowledge of the history of skiing can help a lot, so that it shows the scope of this activity in the history of mankind and this horizon opening has a great significance when one of the capital problems of the competitive activity is asked: Motivation. This is best supported by the ideas of continuity and the idea of belonging to a human experience whose significance the history of skiing bears witness to, as part of the larger history of humanity (Grosu, 2015).

If the giant slalom and downhill became Olympic events in 1952, the super giant slalom became an Olympic event starting in 1988. Currently, there are thousands of enthusiasts all over the world of skiing being the most popular winter sport. The long history of skiing has left us as a legacy a sport that you can practice and enjoy all your life, an efficient and practical method of keeping a healthy mind in a healthy body. There are only a few data that, known, show the beginner skier an evolution that will motivate him to belong to these human activities that will appear to him ever larger, ever more professional and ever more important.

2.2. Skiing and sports performance

It is important that, in the context of sports performance, skiing is practiced in various conditions, for adaptability: various terrains with lower or higher slopes, perfectly level or not, etc., so that skiers improve their technical side. In order for skiing to take place in complete safety, it is important that the equipment is appropriate, thus providing the skier with the security he needs.

For learning alpine skiing, the researcher Ion Matei highlights three methods that can be practiced in the world, but, taking into account the particularities of the students: the indirect method of Austrian origin, the direct method, of French origin, the natural method, which involves wide tracks (parallels) also French origin (Matei, 1977).

To practice this sport and perform well, any skier needs to know all the factors that influence it. Researchers Gilgien, Mattias, Kröll, Josef, Spörri, Jőrg, Crivelli, Philip, Üller, Erich,

in 2018, in the study Application of dGNSS in Alpine Ski Racing: Basis for Evaluating Physical Demands and Safety mention the fact that the athletes' bodies are acted upon by the forces external forces such as ground reaction force or air drag, a fact that determines certain demands specific to the sport, with an impact on their physical abilities (Gilgien, 2018). As a result, knowledge of these external forces is necessary to be able to determine which are the most appropriate physical conditioning regimens that help athletes prepare for the loads and physical demands specific to the sport they practice.

2.3. Skiing techniques

Skiing techniques were presented, which vary depending on the type of skiing approached: cross-country skiing, alpine skiing, etc., Pellegrini, B., Leonhard Th. and Holmberg H.-Ch. (2018) who described the evolution of major changes in cross-country (XC) skiing over the past decades, as well as those to come. They showed that XC skiing has been around since the first Winter Games in Chamonix, France in 1924, and that in recent decades there have been developments in skiing techniques, line preparation and improvements to athletes' equipment. , decisive factors that contributed to increasing the speed of skiing. (Pellegrini, 2018).

Skiing techniques vary depending on the type of skiing tackled: alpine skiing, cross-country skiing, biathlon, etc. For example, in alpine skiing the learning stages include the following techniques: settling into the skis, poles and sliding, falling and picking up from a fall, learning to walk, changes of direction and turns, 180 degree or fan turns, change of direction by jumping , climbing the slope, learning the descent, changing direction by steps, natural stop, plow, go-around by braking in half-plough, skids, garland, U-turn, go-arounds.

Regardless of the type of skiing practiced, skiers must acquire their skiing techniques correctly in order to be able to perform, an aspect emphasized by numerous researchers "The mastery of the basic technique is decisive. Deficiencies in this direction slow down progress, lead to ceiling" (Matei, 1977). In learning this sport, an important factor is the changing processes, especially at the age of puberty.

2.4. Ski disciplines (classification)

A classification of the skiing disciplines, which was desired as wide as possible, was made further, presenting, as far as the current study allowed, alpine skiing with its styles (Downhill); Slalom (Grand Slalom; Super Giant Slalom (super large), or Super-G), as well as the so-called Extreme Skiing, then Nordic Skiing (cross-country, ski jumping, biathlon, combined skiing and Telemark Skiing).

The Olympic events are alpine skiing, cross-country skiing, ski jumping, biathlon and Nordic combined. The FIS Nordic World Ski Championships host these sports (along with Telemark skiing) at championship level in the winter of every odd-numbered year.

CHAPTER III. ADOLESCENCE, PERSONAL DEVELOPMENT, SPORTS PERFORMANCE

3.1. Preadolescence, the substage of adolescence

Preadolescence is perceived by many researchers as a substage of adolescence, even if it manifests multiple physical and mental changes.

Etymologically, puberty comes from the Latin pubertus, which means maturity, manhood. Despite the fact that this stage is not unanimously accepted worldwide as an independent stage in human development - Western specialized literature integrating preadolescence of early schooling and middle childhood, puberty represents a significant stage, being a link between childhood and adolescence.

From the point of view of localization in the ensemble, the stadiality of the development indicates its overlap with middle schooling, which coincides with the secondary school cycle. It marks the beginning of the process of growth and physiological and psychological maturation that will culminate with the period of adolescence.

As for the sports activity, it follows the same development lines, the preadolescent's activities move away from the game and approach the sports adventure (Drăgan, 2002), and Piaget long ago discovered the importance of psychophysical exercises on learning. There were 134 studies that all led to the same result, namely that, in the long term, cognitive performance improves due to physical exercises (Piaget, 2005).

3.2. Physical development in adolescence

Physical development in adolescence is explosive. At this age they get tired quite quickly or can get bored easily, they don't have the patience to bear listening to extensive explanations and try to stand out through harmful reckless actions. They like to be dynamic, achieve quick results and are attracted to actions that stimulate their personality, "The high excitability and mobility of nervous activity explains the rapidity of motor reactions, but the balance of nervous processes is unstable" Matei (1982). At this age, the bone system also improves, being more resistant to pressure, traction, etc. Consequently, the train of skiers must be chosen very carefully, and the quality of the snow must be high, Adams, (2009).

Given the fact that the ligaments are still poorly developed, sprains, dislocations or ligament tears often occur, "Reaction speed and repetition are satisfactorily developed, but strength and endurance are far behind the adult" (ibidem) . The aspect has been evaluated by numerous researchers, and among the reference studies in this field we mention the one by Björklund G., Alricsson M. and Svantensson U. (2017), who carried it out with the aim of evaluating the symmetry of anthropometry, muscle function in cross-country skiers and their association with vertical jump power, Björklund, (2017).

3.3. The adolescent, aspects of psychic development

It was considered by Jean-Jacques Rousseau, as early as 1762, in Émile or about education (pedagogical novel) (Rousseau, 1923), a second coming into the world, or a significant stage in the psychic development of the individual (Lehalle, Apud Crețu , 2009:270). Relevant for this stage are the several dominant aspects, which can determine the position of adolescence, in becoming human: superior mental advance, overcoming the stage of identification with parents, leaving family guardianship and school, inclusion in the life of society, sharpening self-awareness and "the search for identity of oneself" (Erikson, 1963), of singularity and one's own originality, flying over the previous phase and acquiring independence and freedom of action, autonomy, after passing the tense phase (Allport, 1981), (Debesse, 1970), (Lehalle, 1988), the emergence of consciousness regarding belonging to the generation, the construction of new components of the personality, which can mediate effective adaptations to various situations (Crețu, 2009:270). Eric Erickson notes the defining aspect of age, marked by conflict: identity vs. identity confusion, her virtues are: Fidelity, Maldevelopment, Repudiation. In this stage of development, the adolescent evaluates, according to his own sensitivity, his previous experiences, society's expectations and aspirations to establish values and "find himself".

3.4. Adolescent cognitive development

Jean Piaget's famous theory of cognitive development was presented, relating to the period of puberty which defines a new level of thinking, namely operational-formal thinking (Piaget, 2005) and which refers to the ability to "reason abstractly and systematically test propositions without referring to concrete objects' (Birch, 2000:262). The contribution of Karl G. Garrison was also mentioned, who established that the main tasks of development during adolescence are: "the development of emotional independence from parents, understanding and acceptance of self, understanding of sex roles, satisfactory performance of all new roles, development of conscience social" (Garrison, apud Crețu, 2009: 271).

The presentation of graphic figures was insisted on and used, on the particularizing aspects of the adolescent's psychological development, on the adolescent's cognitive development; on language in preadolescence and adolescence. Cognitive transformation in adolescence differs both from one young person to another and between girls and boys, each of the teenagers having their own outlook on life. Due to the flexibility of thinking, at this age metamorphoses take place in terms of self, scholastic and intellectual skills, but also in terms of relationships with others.

3.5. Language in preadolescence / adolescence

The language of preadolescents is determined by school activity, reading, the influence of the mass media, but also by communication with the elderly. Thus, by around the age of 14, an amplification of the passive vocabulary can be observed from 10,000 to 14,000 words, which implies more extensive linguistic development, in this way, pre-adolescents can understand various messages and can choose more sources of information. "The meanings of the words are more precise and are often based on the corresponding scientific notions, they are also new possibilities for understanding the meanings from the subtext of what is read or communicated by others and for discovering the poetic aspects of the language and their original use" (Crețu, 2016). As for active vocabulary, which is the basis of language performance, it can be different from one student to another, as the environment from which the student comes is very important, be it a stimulating environment or one that is culturally weak.

In the current generations, we often encounter a vocabulary that includes many technical terms, especially from the field of computer science, and which, often, parents do not understand. The speech of the teenager is much different from that of the student in the primary classes, as it has a flow quite similar to that of the mature person and superior fluency. Also, sentences are more complex and the ideas communicated are better organized, especially after the age of 11-12. During this period of preadolescence, school jargon makes its presence felt, but also the frequent use of superlatives in discussions with those close to you, the dialogue also being different depending on the context and interlocutor (Condrea, 2018).

Accepting the problems within the adolescent, giving up the attitude of considering the young person as a child, is an essential condition of this transitional age.

CHAPTER IV. THE MOTIVATION

4.1. Motivation – support for increasing sports performance

In chapter IV, the definition of motivation and highlighting its special importance was achieved. Motivation manifests itself through an intense state of mental tension, focused on the correlation between perception and thinking. In addition, motivation is the one that initiates and starts the concentration of attention and will, supports through the psychic component the efforts of preparation and participation in competitions. In addition, competitors show interest and are motivated by the coach's public recognition and reward of progressive value jumps acquired throughout training.

Motivation is an element that contributes to sports performance over which you have control. The main goal of sports training is to increase the performance level of own athletes, compared to the reference level in the sports branch of the performance sports subsystem, which involves continuous measurement and comparison. Motivation has a lot to do with the big chapter that psychology, but especially philosophy, deals with: vocation. The idea, increasingly generalized, of the true relationship between coaches and motivation as an internal, individual factor of the athlete was presented.

4.2. The coach and the athlete's motivation

It should be emphasized that performance, victory, is not strictly the prerogative of the athlete, success belongs equally to the coach, and success is a collective work. Motivation helps the athlete to become a champion, through a realistic approach to the three essential coordinates of success: passion, performance and purpose.

CHAPTER V. SELF-ESTEEM, IN THE CONTEXT OF SPORTS PERFORMANCE

5.1. Self-esteem

In Chapter V, self-esteem was defined. Thus, Morris Rosenberg delimits high or positive self-esteem from low (negative) self-esteem (Rosenberg, 1979). Another researcher, Vygotsky, however, mentions the following aspect in 1985: "We know ourselves because we are aware of others and ourselves, and this awareness derives from what others have about us" (Vîgotski apud Muntean, 2006:213) . The contributions of researchers such as Petru Iluț, Ana Muntean, Adams and Bezonsky or Humphreys were presented.

Most researchers categorize self-esteem as an evaluation of one's own worth or the satisfaction one feels with oneself. (Harter, 1998). Rosenberg (1979) characterizes self-esteem as "a complex cognitive and affective synthesis" (apud Macarie et al, 2007), considering that it is able to dictate a person's attitude towards himself, while Baumeister defines it in terms synonyms such as: egoism, narcissism, pride, arrogance, superiority (Baumeister, 1996).

5.2. Self-esteem and self-image

The self encompasses three components that help to catalog this concept: – self-ideal – self-image – self-respect. Children with high self-esteem show greater confidence in – self-expression – giving and receiving love – developing judgment and acquiring critical cognitive skills. A child's lack of self-esteem has negative effects on one's health, leading to - anxiety - depression - alcoholism or even drug use. – decision-making (people with low self-esteem generally make bad or unwise decisions due to lack of confidence). By discussing the contributions of researchers such as: Coopersmith, Piers, Haris, Boubion Broye, Sordes-Ader, Leveque, Oubrayrie and Safont-Mottay, the 5 sub-dimensions of self-esteem could be structured. The emotional self, which refers to a person's representation of control over his emotions and impulsivity, the image he creates of self-control, important in organizing activities and planning them. The social self considers the way of representing interactions with other people (including from a sentimental point of view), as well as social recognition. The professional self refers to the person's “representations, behaviors, and performance in the workplace or school context. The perception of one's own competence is embedded in the image that the person constructs of himself' (Macarie et al, 2007). The physical self refers to the person's body image, as well as the perception of the opinions of those around them about their physical appearance. The anticipatory self is the way in which a person relates to the future and his attitude towards what this future can offer him.

CHAPTER VI. NUTRITION IN SPORTS

6.1. Nutrition, influencing factor of sports performance 6.2. Diet and sports performance

6.3. Macronutrient groups

6.4. Types of nutrition of the performance athlete

6.5. Hydration

6.6. The role of supplements in sports nutrition

6.7. Nutritional needs in the case of sports performed in special environmental conditions

In this chapter, the role of nutrition and diet as an influencing factor of sports performance was addressed: the groups of macronutrients, the types of food of the performance athlete, hydration, the role of supplements in sports nutrition, nutritional needs in the case of sports performed in special environmental conditions as well as consequences of an inappropriate diet.

According to the investigated authors, supplements can benefit the athlete if used appropriately, and others can be harmful not only to health, but also to the athlete's performance, livelihood or reputation (if anti-doping violations result).

The appearance of this extremely important activity, which leads to the achievement of performance, namely the contribution of the sports dietitian, was discussed.

Without the intervention and contribution of this new discipline - sports nutrition - and the sports dietician, there is no sports performance. Athletes and active adults seek guidance from sports professionals to improve their athletic performance. Athlete nutritionists are employed more and more to develop nutrition and fluid programs for team athletes, as well as individual athletes.

CHAPTER VII. DETERMINING THE LEVEL OF PSYCHOMOTRICAL DEVELOPMENT THROUGH TESTING

7.1. Testing, method of evaluating psychomotor abilities

Chapter VII, inventories the psychomotor parameters by appealing to theoretical and experimental studies regarding emotionality and psychomotricity. Thus, Professor Cornel Havârneanu initiates a suite of computerized tests, able to lead to the X-ray proof of these aspects. The samples are supported by cognitive psychology research, and the experimental model aims to analyze emotionality in relation to the motor reactions of the subjects. We thus distinguish computer tests for the diagnosis of psychomotor reactions and emotionality, such as: subjective assessment of movement speed without visual control, in two variants, with and without feedback, study of reaction decision, decision time TD and reaction time TR, reactivity test in stressful situations. In terms of behavior, stress can have unexpected consequences on performances, often diminishing them, double appearance and tense emotional manifestations.

PART II PRELIMINARY STUDY

CHAPTER VIII. PRELIMINARY STUDY ON THE INFLUENCE OF DIET ON SPORTS PERFORMANCE IN JUNIOR SKIERS

8.1. The premises of the researched theme

Alpine skiing, practiced continuously and systematically by young people, increases the mass base of the selection for performance sports. They, only by improving the quality of the training process, within the thousands of hours of training, use the most complex methods that lead to the argumentation of the competitive level, by ensuring an adequate competitive program, obtaining special performances.

As in all other sports, in alpine skiing you cannot reach the top positions in the competitive ranking without a sustained training, without a constant psychological preparation that requires countless hours of training. One of the balance factors of the body is a rational diet that ensures a normal metabolism and a perfect state of health. In order to ensure a good functioning of the body and the nervous system, the diet is a fundamental condition, its application in the case of athletes largely ensures the achievement of valuable performances.

A rational diet, mainly composed of healthy fats, proteins and a low level of carbohydrates, will positively influence the sports performance of skiers. Olive oil, for example, has important nutritional values (Shulman, 2013).

Because the subjects are junior, growing children, our goal was to correct their nutritionally unhealthy habits. Initially, we wanted to use the ketogenic diet, but for the previously stated reasons, we only focused on correcting unhealthy habits. Also, we have both boys and girls and the growth rate is different. Girls grow a lot until the onset of puberty and then only a few centimeters until the age of full ossification. In boys this process is different, they grow a lot after the onset of puberty. In addition, there are growth spurts, which manifest themselves at different times, both in the same gender and in different genders (girls vs. girls, girls vs. boys).

Therefore, these are the reasons why we chose this nutritional way to increase performance. Through such a diet, we want to improve motor, psychological, anthropometric parameters (BMI, Weight, Fat percentage and muscle mass), as well as blood biochemical parameters (glycemia, cholesterol fractions, proteinemia, transaminases).

8.2. Working hypothesis

Studies on the enhancement of ski performance related to nutrition are few and non-specific. This is why we set out to look at what it means to specifically correct unhealthy habits or behaviors by replacing foods known to have negative health effects with healthy foods.

We assume, therefore, that these physical, psychomotor and psychological improvements (in addition to the training in force) will help to increase the sports performance of junior skiers aged 15-17 years (Teodorescu, 2000).

Most of the specialized studies focused on:

– Fluid consumption before sports exercise in alpine skiing, a more theoretical approach to integration (Gilgien et al., 2018);

– Effects of different training intensity training distances among alpine skiers (Schmith et al., 2018);

– Exploring motivation and psychological barriers to physical activity among alpine skiing athletes (Kimberly et al., 2018).

8.3. The purpose and objectives of the preliminary research

Through this research we wanted to find out how correcting unhealthy eating habits influences some psychomotor, psychological and nutritional factors in alpine skiing performance.

The aforementioned goal can be achieved by overseeing the following objectives:

- correction of unhealthy eating habits and their impact on some psychomotor and physiological parameters in performance skiers;

- by proposing a diet mainly composed of healthy fats, proteins and a low level of carbohydrates, it will positively influence the sports performance of skiers.

Regarding the type of research, it is applied, as it looks at psychomotor and psychologic and nutritional changes to increase performance in junior skiers preparing for performance sports.

8.4. Research methods

a) Method of studying the specialized bibliography (documentation method)

It is an essential procedure for our study, which involves studying the specialized literature related to skiing, as well as from other complementary fields. This method, of bibliographic study, documentation and specialized publications, gives us the opportunity to amplify the informative baggage that aims at the researched topic and not only, to be able to

contact specialists with similar concerns, which will allow us to deepen the topic under analysis later (Hanţiu, 2013) .

In this documentation stage, we researched specialized studies by local and foreign authors who addressed our topic, but also from other related fields, such as: psychology, physiology and statistical-mathematics.

b) Observation method

It is a method used to get to know athletes and identify their performance level in training. Observation in scientific literature is used in several meanings, namely: anthropological, meaning direct observation; experimental observation, which is congruent with "laboratory" observation and field observation, the equivalent of "field work" apud Patricia and Peter Adler (1994), cited by Stănilescu Elisabeta (2005, 2006).

There are several characteristics of observation: to be effective, it must be "continuous, objective, systematic, and the data thus obtained are recorded, classified, processed and contribute to the formulation of conclusions" (Dungaciu, 1967).

c) The experimental method

The didactic experiment of the ascertainative-formative type is the one used in this research. With the help of the experiment method, an objective basis was created, with the support of which the answers to the formulated hypotheses could be argued from a scientific point of view.

In order to verify the established hypotheses, we used the verification experiment, structured on the organization, direction and development of the experimental activity, because it represents the best-known forms of experiment in the methodology of scientific research.

d) Test method:

- Presupposes the application of physical and psychological tests and the measurement of results with the equipment and software provided:

- Motivational persistence scale (S.P.M) through which the following factors were tested: motivational persistence (P.M); long-term pursuit of goals (L.T.P.P – Long Term Purposes Pursuing); following current tasks (C.C.P – Current Purposes Pursuing); recurrence of unattained purposes (R.U.P – Recurrence of unattained purposes);

- The PSI test which tested: speed of perception (VP), motor coordination (CMC), Autoregulation (AR).

e) The questionnaire method considers the use of food, nutritional and physical activity questionnaires, applied to the participants:

- The food questionnaire includes: athletes' data; general state of health; the food book in which everything consumed was written down, by day. Their purpose, being the assessment of energy costs (Appendix 3);

- Questionnaire regarding occupations in daily life and their duration during the week;

- The physical activities questionnaire for one week;

- The self-depreciation questionnaire (A.S.S.I) which measured: self-depreciation (A), normal self-esteem (S.N.), infatuation (I).

f) The statistical-mathematical method involves the processing and interpretation of data, their statistical analysis by calculating some elements from descriptive statistics, the analysis and interpretation of the results obtained;

- The Wilcoxon test by which the elements of body composition, such as fat mass (fat) and non-fat mass (bones, muscles, water) were measured at 6-month intervals, for each respondent within each sample, the purpose being to correct habits nutritionally unhealthy.

The test applied to athletes is, par excellence, statistical, body composition elements such as fat mass (fat) and non-fat mass (bones, muscles, water) were quantified with the support of ordinal scales, at 6-month intervals.

The analysis of the anthropometric data was carried out using the principle of AIB (Analysis of Bioelectrical Impedance). The measured values were transmitted wirelessly, and the PC program attached to the Easy fit device was used for monitoring.

8.5. Research stages of the pilot study

The preliminary study was carried out with the athletes of the two targeted clubs: CSS Baia Sprie Experiment Lot, respectively CS Alpina Baia Mare – Control Lot, was carried out over a period of 6 months, starting from October 1, 2018 to March 30, 2019.

Initial and final tests were carried out, correcting unhealthy habits from a nutritional point of view, applying a specific diet, on groups of subjects from the two sports clubs, with the aim of testing, correcting or modifying possible errors, thus analyzing anthropometric parameters: BMI, Weight, Fat and muscle percentage, body mass.

The preparation for the experimental research was carried out through a statistical analysis of the obtained data, the application of the Wilcoxon test and the formulation of conclusions.

The Wilcoxon test was used to identify the statistical significance of differences in variables from dependent samples (repeated measurements of the same respondents) and measured using ordinal scales, as well as body composition elements, fat mass (fat), non-fat mass (bones, muscles , water) for each respondent in each sample.

8.6. Research subjects

The research subjects were monitored in two distinct groups:

– the experimental group: composed of 10 junior athletes from the CSS Baia Sprie sports club;

– the control group: composed of 10 junior athletes from the Alpina Baia Mare sports club.

8.7. Organization of research

The pilot research studied the effects over a period of 6 months, with the object of correcting unhealthy eating habits and their impact on some motor, psychological and anthropometric parameters in performance skiers. The pilot study consisted of 10 randomly chosen athletes from both the experimental and control groups.

Parameters studied in the research were of several types:

– motor parameters;

– psychological parameters;

– anthropometric parameters (BMI, Weight, Fat percentage and muscle mass).

8.8. Modes of effort orientation

Directing the effort is obviously influenced by the capacities that will be developed. Among them we mention: availability of aerobic or anaerobic endurance, speed, strength, motor skills. This imposes a firm calendar of the training process, the workouts being divided into microcycles, mesocycles and macrocycles.

Effort orientation can be done selectively only if it is directed at a functional (resistance, strength, speed) and complex system. Then the engagement of several systems is considered (complex skills, skill, combined qualities, coordination). Obviously, the progressive, cumulative effect of each physical exercise cannot be eluded from the effort orientation process. However, they can be turned into a priority task during the instruction in the programming process, by directing.

8.9. Correcting healthy habits

It has been tried, even though there is currently a real debate on the topic of healthy vs. unhealthy fatty acids, to advise athletes to consume as many healthy fats as possible. Foods rich in trans fats, industrially obtained (such as fats used to make biscuits, pastries, margarines, spreads) have been replaced by foods rich in saturated fatty acids and especially unsaturated fatty acids. In addition, subjects were suggested to replace low-fat dairy products with whole milk.

8.10. The intervention plan from the preliminary study

Our intervention plan, both in the pilot study and in the experimental research, consisted of correcting the eating habits of the athletes. Following the application of nutritional and physical activity questionnaires, we tried to find out how the children eat in their daily life. From the subjects' answers we could conclude that their diet is not suitable for their lifestyle and is not healthy for a growing and developing body (Opopol, Obreja, & Ciobanu, 2008).

Following these results with the indications of a nutritionist, we were able to offer healthy eating recommendations, alternatives for daily food choices. Dietary recommendations were provided nominally, personalized for each individual athlete, depending on their diet, lifestyle and particular preferences (Beck, 2015).

Each athlete pledged to follow the nutritionist's healthy recommendations and to give up harmful or unhealthy foods for the duration of the 6-month study. The proposed diet mainly consisted of healthy fats, proteins and a low level of carbohydrates, by replacing unhealthy foods with the alternatives recommended by the nutritionist.

8.11. Research tools and techniques

The methods used to record the motor indices (coordination, attention, reaction speed) in the investigated athletes (the pilot group and the two groups of the actual research: control and experimental) were embodied in the performance of psychological tests established in the field of psychology, with numerous applications, as well as measuring devices (associated with software), for the period of the research and the brief description of the methodology related to each study (pilot, initial research and final research). regarding the objectification of mental training through psychomotor tests to measure coordination. By applying the PSITEST tests through the computerized system for assessment in transport psychology in order to check resistance to stress and fatigue, aspects regarding perception (speed and accuracy), operational efficiency of thinking are evaluated.

8.12. Applied tests (scales, questionnaires).

The SPM (Motivational Persistence Scale) (Wise, 1996, cited by Constantin et al., 2011) evaluates motivational persistence, a term that diagnoses the predisposition of an employee to persist motivationally in the effort directed towards achieving an assumed goal, by identifying the required personal resources (which which can also mean re-feeding motivation), in order to overcome obstacles and develop resilience to routine, stress, fatigue and other factors that disrupt the achievement of the goal. The instrument for its quantification is represented by a

questionnaire with items grouped in the identification of three factors: the long-term pursuit of goals (LTPP – Long Term Purposes Pursuing); the pursuit of current tasks (CPP - Current Purposes Pursuing) and the recurrence of unattained purposes (RUP - Recurrence of Unattained Purposes).

The ASSI Questionnaire (Self-Deprecation, Self-Esteem, Infatuation) is a standardized test for assessing self-esteem as an individual trait. If there is evidence, a "normal self" can be established (with lower or higher values), the dimensions: self-deprecation and infatuation can be emphasized and defined. The ASSI questionnaire, as it appears in other researchers (Macarie, 2008), through its 45 items, radiographs both normal ("healthy") self-esteem and its extreme values: self-deprecation and infatuation.

The factors radiographed with the support of the ASSI Questionnaire are: "normal" self-esteem, self-deprecation and infatuation (Nechifor, 2019).

8.13. Effects of social networks

Importance of social interaction sites like Facebook, Twitter, LinkedIn, Google etc. have increased recently with the advancement of technology. Even though it has many special effects on society, but its positive side cannot be ignored. Technology therefore has a significant role in bringing people closer and as a source of communication. Social media sites are changing the way young people think. It influences their style and life along with the change and progress of the whole society. Often social networks, popular sources of communication for the younger generation, provide unrealistic standards of what is considered beautiful in today's society. The dangerousness of this sub-culture can neither be exaggerated nor ignored (Schifirneț, 2016).

CHAPTER IX. STATISTICAL PROCESSING OF THE RESULTS PRELIMINARY STUDY

9.1. Self-Esteem Questionnaire (ASSI)

This research aimed to investigate, based on personality assessment questionnaires, the characteristic of the self-esteem of the athletes of the two targeted clubs (CSS Baia Sprie, respectively CS Alpina Baia Mare). The pilot study carried out (2018 and 2019) was carried out on the basis of two theoretical models Rosenberg (Rosenberg, 1979), respectively Owens (Owens, 1993), integrating three defining factors of self-esteem: Self-esteem (normal), Self-depreciation, Infatuation. The questionnaire centered on these factors was applied to groups of subjects from the two sports clubs, CSS Baia Sprie and CS Alpina Baia Mare in October 2018 and March 2019 respectively.

To verify the concurrent validity of the questionnaire, the first stage of the examination was to analyze the correlations between the three factors.

9.2. The Motivational Persistence Questionnaire

The questionnaire was applied to the subjects of the two sports clubs, CSS Baia Sprie and CS Alpina Baia Mare. To evaluate the results, we resorted to analyzing the correlations of the three mentioned factors and the motivational persistence of the subjects.

An observation common to both clubs is that subjects who hold a good opinion of themselves (an aspect categorized, obviously, as infatuation) tend to have high scores on factors such as motivational persistence, long-term pursuit of goals, pursuit of current tasks, and recurrence of unachieved goals.

Qualities such as achieving goals, ambition, organization and perseverance tend to give predominantly positive answers, even if in certain situations certain negative correlations are observable, slightly significant, indicating trends rather than definite links, according to the interpretation of the questionnaires applied to the two groups of athletes.

9.3. Anthropometric parameters (BMI, Weight, Percentage of fat and muscle mass)

One of the body's balance factors is a rational diet that ensures a normal metabolism and perfect health. In order to strengthen the proper functioning of the body and the nervous system, nutrition is a fundamental condition, its application in the case of athletes ensures, to a large extent, the achievement of valuable performances, as well as the correction of unhealthy habits from a nutritional point of view. A healthier diet, mainly composed of healthy fats, proteins and a low level of carbohydrates, will positively influence the sports performance of skiers (Shulman, 2013), the purpose of the preliminary study was to correct their unhealthy nutritional habits.

Athletes were recommended a healthy, alternative diet for daily food choices. Dietary recommendations were provided nominally, customized for each athlete based on their diet, lifestyle and special preferences. Each athlete agreed to follow the nutritionist's suggestions and will abstain from harmful or unhealthy foods for the 6 months of the study.

Considering the specificity of the pilot study carried out on the two samples equal in size, we applied the Wilcoxon test for data analysis. This test is used to assess the statistical significance of disjunctions discovered for fluctuating values from dependent samples (successive measurements with identical respondents), which are quantified with the support of ordinal scales.

Thus, for each respondent within each sample, body composition elements such as fat mass (fat) and non-fat mass (bone mass, muscle, water) were measured at 6-month intervals.

Having specified the two hypotheses, the Wilcoxon test highlights whether the values considered differ significantly (H1), or if there are no significant differences between them (H0). As can be seen from the two tables, the differences between the two batches are not statistically significant in terms of the preliminary study.

After correcting unhealthy habits, a statistically significant reduction in fat percentage is observed. This is somewhat normal, because refined carbohydrates are responsible for the long-term increase of this parameter.

9.4. Results and discussion

The first measure applied to the athletes' eating behavior was to replace foods containing refined carbohydrates (cakes, chocolate, candies, pastries) with foods rich in complex carbohydrates (called good carbohydrates). The second measure was to replace foods rich in industrially obtained trans fats (such as fats used in the manufacture of biscuits, pastries, margarines, spreads) with foods rich in saturated fatty acids and especially unsaturated fatty acids. In addition, we suggested that athletes replace skim milk products with whole milk products.

Athletes were recommended a healthy, alternative diet for daily food choices. Dietary recommendations were provided nominally, customized for each athlete based on their diet, lifestyle and special preferences. Each athlete agreed to follow the nutritionist's suggestions and will abstain from harmful or unhealthy foods for the 6 months of the study.

Considering the specificity of the pilot study carried out on the two samples equal in size, we applied the Wilcoxon test for data analysis. This test is used to assess the statistical significance of disjunctions discovered for fluctuating values from dependent samples (successive measurements with identical respondents), which are quantified with the support of ordinal scales.

Thus, for each respondent within each sample, body composition elements such as fat mass (fat) and non-fat mass (bone mass, muscle, water) were measured at 6-month intervals.

The differences between the two groups are not statistically significant in the preliminary study.

After correcting unhealthy habits, a statistically significant reduction in fat percentage is observed. This is somewhat normal, because refined carbohydrates are responsible for the long-term increase of this parameter.

9.15. Conclusions of the preliminary study

Following the interpretation of the data from the preliminary study, we can underline the following conclusions:

 Through the applied nutrition, a significant decrease in the amount of fat and a major increase in muscle mass was noted in the studied sample;

 Foods rich in industrially obtained trans fats (such as fats used for the manufacture of biscuits, pastries, margarines, spreads) have been replaced by foods rich in saturated fatty acids and, above all, unsaturated fatty acids,

 Skimmed milk products were replaced with whole milk products;

 A healthier diet, composed mainly of healthy fats, proteins and a low level of carbohydrates, positively influenced the sports performances of the skiers, observable through the results obtained in the competitions they participated in, official results visible on the websites of the clubs participating in the experiment and of the Federation, FRSB;

 Based on the application of personality assessment questionnaires, the diagnosis made between the elements that influence motivational persistence and those that characterize the building of self-esteem, predominantly positive answers were given, regarding qualities such as achieving goals, ambition, organization and perseverance;

PART III. EXPERIMENTAL RESEARCH

CHAPTER X. PERSONAL RESEARCH ON THE DEVELOPMENT OF THE PSYCHOMOTRICAL SKILLS OF ATHLETES FOR THE IMPROVEMENT OF SPORTS PERFORMANCE

10.1. The purpose of experimental research

The purpose of our research is to follow the development of the psychomotor skills of the athletes and to create an intervention plan through the application of which we will succeed in increasing the performance of the athletes in skiing.

Following the interpretation of the data obtained after the completion of the research, we will formulate conclusions that will argue the advantages or disadvantages of using an intervention program similar to the one proposed by us. At the same time, these data will allow us to present the possible improvements that could be implemented to update the training program of athletes up to the age of 17.

10.2. Research hypotheses

Starting from the premise that improving psychomotor indicators, through training, will help increase sports performance in junior skiers aged 15-17.

Our hypothesis assumes that through the implementation of a well-structured intervention program, results will be obtained to increase sports performance, as well as to improve psychological, technical and nutritional aspects. This program will consist of:

1. Increasing sports performance by correcting the diet, applying a personalized diet;

2. Targeting specific technical training by applying the training plan and increasing sports performance through specific training both on land and on snow;

3. Improving the mental state, motivational exercises;

If these hypotheses are confirmed, we will be able to propose a more holistic approach in order to increase sports performance.

10.3. Research objectives and tasks

Considering the results obtained in the preliminary study, we chose to continue the experimental research with a more elaborate intervention plan, in order to achieve the desired results.

The objectives proposed in the experimental research:

– Building an intervention program focused on achieving the proposed goals, namely: increasing sports performance by correcting the diet, improving the mental state. This program is part of the athletes' annual training plan.

- Obtaining improved results following the implementation of the intervention plan, the results will allow us to formulate more effective alternatives for the components of the sports training program for skiers.

The tasks of the research were the following:

– Identification of sports training elements for the intervention plan;

– Establishing assessment methods and evidence;

– Identifying the tests and instruments used in the evaluation of the subjects by determining objective methods of measuring the results;

– Organization of the necessary logistics in order to carry out the study;

– Training monitoring;

– Collecting and analyzing the data obtained;

- Formulating final conclusions and proposing practical solutions that can be implemented in the professional training process of athletes.

10.4. Organization and research methods

The experimental research was carried out over a period of 12 months, April 2019 – March 2020 and consisted of:

– Implementation of the intervention program;

– The initial and final measurements of physical tests and the application of psychological questionnaires;

– Supervision of trainings in compliance with the requirements of the intervention plan;

– Monitoring of physical or moral changes and reactions from athletes along the way;

– Data collection and interpretation;

– Formulation of conclusions;

The research methods in this experimental study are roughly the same methods we used in the preliminary study, namely:

- studying specialized literature;

– the observation method;

– the experiment method;

– method of graphic representation;

– statistical-mathematical method;

– the questionnaire method (for the psychological study).

10.5. Psychomotor, psychological tests and measurement tools used in experimental research. Measuring technology (devices).

10.6. Psychological tests applied in experimental research

The tests were applied: PSI (PSITEST Cabinet); ACRM test (concentrated attention with manual reaction); the psychological test SPM (Motivational Persistence Scale).

PSI (PSITEST Cabinet) is a psychoinformatics system designed to optimize the activity of psychological examination cabinets. The method evaluates interactively (by examining in front of the monitor) essential psychological elements in the assessment of psycho-cognitive and motor skills: perception (speed, accuracy), attention (concentration and distributiveness), operational efficiency of thinking. These parameters are useful in highlighting the following aspects: motor learning capacity, actual coordination, appropriateness and synchronization of movements, reactivity and speed of reaction, reorganization of responses, retroactive inhibition. The reaction time is evaluated for all these parameters.

ACRM Test (Attention Sustaining Manual Response)

Performance specifications: It gives us data about the ability to sustain attention. These are particularly pursued in paced training and kinetic field of observation. The mode of administration was individual with a duration of approx. 15 minutes.

Psychological tests applied in experimental research - The SPM psychological evaluation consists of three elements: the pursuit of objectives over a long period of time (LTPP – Long Term Purposes Pursuing); the pursuit of current tasks (CPP - Current Purposes Pursuing), along with the recurrence of unattained purposes (RUP - recurrence of unattained purposes). Two of the three proposed factors are set over a time interval, one of them regarding distant goals – long-term goal pursuit (LTPP) and the other relating to the “here and now” – current goal pursuit (CPP) ; the third factor, recurrence of unachieved goals (ORGs), addresses past, present engagements while reflecting the subjective consequence of the interaction between distinct actions.

10.7. Study subjects

The research subjects are constituted in two groups, aged between 15-17 years, which are to be carefully monitored. Their composition is as follows:

– the experimental group: made up of 17 junior athletes, belonging to the CSS Baia Sprie sports club;

– the control group: composed of 17 junior athletes from the Alpina Baia Mare sports club.

10.8. Organization of research

The experimental group will be composed of the athletes of the CSS Baia Sprie Club, and the control group, of the athletes of the Alpina Baia Mare Club.

One of the major advantages of experimental research is the use of the control group, which is designed to ensure that the effect of the experiment is clearly and unequivocally caused by the independent variable, and not by other variables (Creswell, 2003). Classic experiments include a control group and an experimental group.

10.9. The intervention plan within the experimental research

From the point of view of the method used in our approach, we undertook a longitudinal study. The experimental research took place over a period of 1 year.

Considering the characteristics of the optimal profile of the skier up to 17 years old (<17), his needs and, last but not least, his physical and mental limitations, we tried to choose the elements of the intervention plan, in such a way that it folds on these needs, but, at the same time, to present a challenge, especially from the point of view of the development of coordination.

The objective of achieving performance in alpine skiing is aimed at developing the appropriate indices of speed, strength, skill, endurance, and specific motor skills. I led the process of physical and tactical training of athletes from the experimental group during the research period, by:

 improving certain skiing techniques applied in the training of junior athletes in the Alpine Slalom and Giant Slalom skiing events;

 the application of physical training programs, which mainly aim at training motor skills to improve sports performance;

 establishing the content and structure of the experimental program of physical training of junior skiers, both on land - the summer season, and on snow.

 the development, as the author, in collaboration with the scientific leader, as well as other experts in the field, of specific technical and physical training programs;

 the introduction of special technical and physical training programs in the training of athletes in the experimental group to demonstrate that by increasing the concentration of attention and manual reaction, perception speed (PV), motor coordination (MCC) and self-regulation (AR) will improve ;

 evaluation of sports training by participating in organized competitions, the results obtained by athletes from the experimental group confirming the hypothesis of increased sports performance.

10.10. Working hypothesis

The experimental group followed the training based on the improvement of the descent technique, while the control group practiced the classical training. The verification of sports training, as well as the increase in sports performances, can be demonstrated by the results obtained by participating in the organized competitions, from the period of the experimental study.

Working hypothesis:

1. Increasing the speed in the Slalom and Giant Slalom events by improving the technique;

2. Increase concentration and manual reaction, perception speed (PV), motor coordination (MCC) and self-regulation (AR) will improve;

3. Organization of specific technical training by applying the training plan;

4. Establishing motivational exercises to improve the necessary and psychomotor qualities;

5. Participation in competitions, to verify the applied techniques.

On the one hand, motivation is important in achieving physical training, in all its aspects, and, on the other hand, in the need to use, in training, informational means and modern technology, with the aim of objectifying the development of technique in alpine skiing .

10.11. Personal research on the individualization of training in juniors

Physical training represents the level of development of the motor possibilities of the individual, obtained in the process of systematic repetition of physical exercises. This includes two components: general and specific; general physical training has the task of ensuring a good working capacity of the body under the conditions of physical effort. The specific physical training aims to train and educate the motor skills required by alpine skiing, for each individual athlete. This activity took place in conditions as close as possible to the effort required in skiing.

Physical training includes two sides: general (multilateral) physical training, which has the task of ensuring a good working capacity of the body under conditions of physical effort, and specific physical training, which aims to train and educate the motor skills required by modern alpine skiing.

Achieving great performances, starting from the level of beginner skiers up to the advanced level, is possible by creating the conditions for specialized training both in training and in competitions. The method of evaluating the stage of specialized sports training is the competition, it represents that form of competition and live comparison of the achieved performance (Todea, 2000).

The experimental batch participated in local, national and international competitions as a form of verification of the athletes' specialized training. Ensuring the sports training process was carried out according to the performance objectives established by the competition calendar for the whole year, by ensuring an optimal volume of competitions so that the preparation and verification from the competitions is systematically objective and motivating.

Among the titles obtained in competitions by the experimental group, athlete J.R. managed to impose herself in the giant slalom and special slalom events, obtaining two gold medals at the FIS - Children Trophy 2020, being the best of the Romanian delegation, an important success for Romanian alpine skiing.

10.12. Targeting sports training on land

Depending on the phasing of the training program for the 2019-2020 season, we made the periodization and the annual training plan for the experimental group, the general training objective being the basic preparation for the competition.

In the stage of perfecting the competition technique, the following objectives were established:

- increasing specific motor capacity indices, on the basis of general physical training;
- the technical-tactical improvement of athletes;
- participation of athletes in a regular, systematic, rigorous, methodical training;
- sportsmen's participation in national and international competitive activity;

Personal contribution: the realization of a program for the development of dynamic balance was pursued. This is very important because the skier must constantly overcome forces: gravitational force, centrifugal force, centripetal force, frictional force and ground reaction. The balance ensures the stability of the skier's position, the orientation of the movements on the space coordinates and allows the restoration of the body's position in various imbalance movements. The didactic materials used to carry out the balance and motor skills improvement program were: balance board, disc, gymnastic bench, and modular ladder.

The means of action were used during the physical training in order to develop dynamic and static balance.

Physical development is the qualitative level of the athlete's somatic indices, the cumulative result of hereditary and natural environmental factors, in which the practice of physical exercises has a significant role. The number of training hours of the experimental group during the experimental research period (04.2019-03.2020), is presented according to the established plans, a total of 504 hours.

10.13. Targeting snow sports training

Preparation for performance in alpine skiing is the result of systematic, specific preparation, being necessary, each time, to find the best methods of preparation, each test requiring a specific technique and specific equipment. Specific winter physical training is the continuation of training on land, based on the high parameters of physical support, which is maintained through training for the development of basic motor qualities and motor skills specific to alpine skiing (speed, endurance, strength, dynamic balance, relaxation, muscle and joint elasticity, exercise capacity, etc.).

The training objectives aimed at perfecting the cornering technique, learning the procedures in the bypassing technique and participating in school competitions. We proceeded to improve the position on the skis in order to have the best possible glide, to acquire and improve more possibilities for triggering detours, to improve the balance of the skis through the correct positioning of the body; practicing the technique of the characteristic elements of the competition (Balint, 2005).

The planning of the microcycle was done for the period of specific preparation on snow, the exemplification being for a week, during which the execution of turns on skis was practiced and corrected, up to the most advanced techniques of bypassing, racing and traversing different types of slopes. Characteristic of all events in alpine skiing is the fact that the skiers must travel a marked route through a series of gates. The tests are differentiated by the length of the route, the time allotted for its completion, as well as by the specific motor interpretation. In giant slalom and slalom events, the preparation and release mechanisms are similar, these turns are executed with parallel skis and on an open slope.

The experimental batch participated in local, national and international competitions as a form of verification of the athletes' specialized training. Ensuring the sports training process was carried out according to the performance objectives established by the competition calendar for the whole year, by ensuring an optimal volume of competitions so that the preparation and verification from the competitions is systematically objective and motivating.

Depending on the phasing of the training program for the 2019-2020 season, we made the periodization and the annual training plan for the experimental group, the general training objective being the basic preparation for the competition.

The annual physical training plan of the experimental group includes training objectives and reference objectives.

In the stage of perfecting the competition technique, the following objectives were established:

 increasing specific motor capacity indices, on the basis of general physical training;

 technical-tactical improvement of athletes;

 participation of athletes in a regular, systematic, rigorous, methodical training;

 the participation of athletes in national and international competitive activity;

The exercises proposed to the athletes from the experimental group to perform were: adapting the movements to the terrain, to the travel speed, to the evasion phases:

Figure 1 Experimaental Lot Bypass Phases (personal archive)

Through the exercises proposed to the athletes, they insisted on driving the turns, maintaining the highest possible speed, reducing the sources of braking as much as possible (Figure 2).

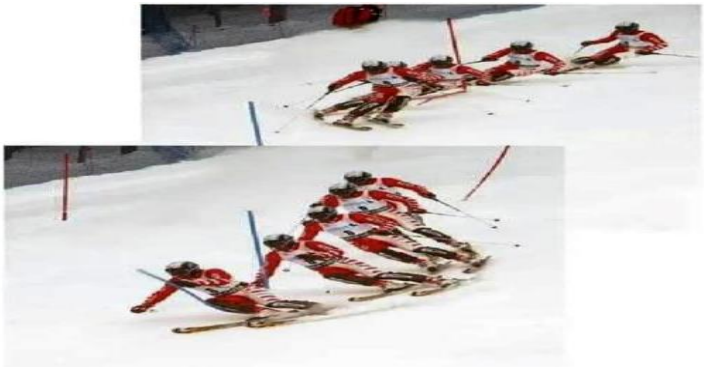

Figure 2. Slalom corner driving test (personal archive)

There are differences between skiers from a technical point of view, which denotes the style of each athlete, but also differences between groups of skiers, the common aspects remaining dominant: they slide more and more on both skis in all phases of the turn; the trunk is sober and relatively tall, and the arms "box" the articulated pennants; the position is low and the lower limbs are very robust; the vertical swing and arching of the trunk over the pelvis take on different forms; the skis are very short, compared to the athletes' waist - slalom:

Figure 3. Slalom Trial (Screenshot)

Technical training should not be understood in isolation, because it is conditioned by the development of coordinative and conditional capacities, being in close relation with tactics, psychological and theoretical training.

The athletes in the experimental group were proposed to practice the short turn technique by:

- executing a short turn with extension and rotation; adapting the short turn in different situations; driving phases and change of direction, rhythm, flexion of the calves with the grip of the edges of the skis and the simultaneous engagement of the inner arm, the initiation of the turn with extension-tilt-rotation, flexion-counter-rotation preceding the preparation of the next turn:

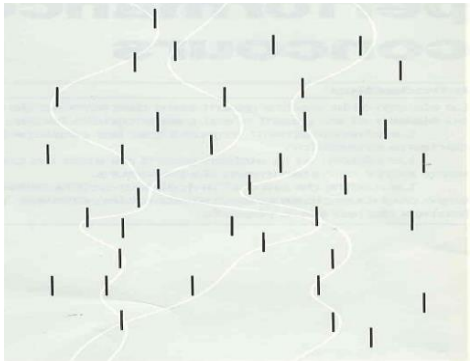

Figure 4.Practicing the Short Turn Technique (personal archive)

In the Slalom tests, the following aspects were noted: Reaction speed is highly developed; Motor speed; The passages are very closed, they ski on the inside ski, without passing the center of gravity outside the gate; The socket of the cants, in general, is short and vigorous; Directional changes are always made with parallel skis; The use of the fist to remove the marker (boxing) has an important role (the shin that actually enters the flag):

Figure 5.Sportsman from the experimental group – Boxing technique

(personal archive)

The methodical-theoretical preparation for the protection of the athletes was done by improving the knowledge regarding their safety, applying a system of specialized knowledge such as:

the alpine skiing equipment for each competition test according to FIS regulations; clothing suitable for weather conditions; terrain, snow condition and preparation conditions; individual and collective protection rules in training areas.

The demands of athletes in training, in competitions, make alpine skiing a particularly important sport, through which athletes can overcome their limits and even exceed them. Pursuing this objective, an imagination exercise was implemented, proven to be very effective: each training ended with 3 minutes of meditation, during which the children were asked to sit in a position as comfortable as possible. The only rule imposed was to sit for 3 minutes, quietly, with eyes closed, still, without straining. The children were advised to listen to their breathing and heartbeat, to listen to the surrounding sounds (birds, wind, water), but without reacting to them. Relaxation is a commonly used method in the literature and can be used effectively in training classes to reduce cognitive and somatic anxiety (Hardy, Jones & Gould, 1996).

Another practical technique in the applied intervention was controlled imaginative visualization. Before any competition or training, the athletes were asked to take a few minutes to rehearse, on a mental level, everything they were going to do, how to perform the various exercises or tasks, as well as the emotion with which they attended. they will engage in motor action during training, but especially in competitions. This mental exercise can positively change the attitude towards competitive situations, thus increasing the chance of better personal performance (Hardy et al., 1996).

Visualization and mental rehearsal of tasks is beneficial for the individual who wants to improve their athletic performance, as it facilitates familiarity with the task to be performed and also provides positive feedback regarding the imagined performance (Crăciun, 2008).

10.14 Evaluation of motor and psychomotor indicators of athletes

The CSS Baia Sprie experimental group applied the program proposed by us for training on land as well as training on snow.

Initial physical assessment tests of the athletes were applied at the beginning of the specialized training in 2019 and final tests in 2020, according to the schedule of tests and tests.

The physical evaluation tests of the athletes were carried out individually, for each athlete in the experimental group, the best time achieved from two attempts, carried out in collaboration with the FRSB, displayed on the official page of the Romanian Ski Biathlon Federation in the control samples section, was recorded, 2019, 2020 (https://frschibiatlon.ro/probe-si-norme-de-control-schi-alpin/):

1. Drive 30 meters for speed evaluation;
2. Speed 300-400 m, speed evaluation in endurance mode;
3. Abdominal musculature strength by performing abdominal exercises on the trellis with straight knees, to evaluate the strength of the abdominal musculature at speed;
4. Standing long jump to assess explosive power;
5. Speedy jump for evaluation of jumping coordination and reactive speed;
6. Counter Movement Jump - free arms for evaluation of elastic explosive force;
7. Plyometric jump for the evaluation of strength in leg resistance mode;
8. Speedy jump for evaluation of jumping coordination and reactive speed.

The physical evaluation tests of the athletes were carried out individually, for each athlete in the experimental group, the best time obtained from two attempts, carried out in collaboration with the FRSB, displayed on the official page of the Romanian Ski Biathlon Federation, section control tests, was noted 2019, 2020 (https://frschibiatlon.ro/probe-si-norme-de-control-schi-alpin/).

As a result of the sports training and the participation in the official competitions listed in the FRSB Calendar, the improvement of the physical training capacity, especially of the speed in the resistance mode, the evaluation of the coordination and the evaluation of the strength of the abdominal muscles in the speed mode is noted.

Evaluation of sports training through competitions:

The CSS Baia Sprie experimental group applied the program proposed by us, by consolidating and perfecting the main technical elements. The CS Alpină Baia Mare control group applied the classic sports training program. Subjects from both the experimental and control groups were tested to record the following data: training duration, distance covered on skis, average speed on skis, time achieved in number of descents. 17 athletes from the control

group and 17 athletes from the experimental group participated, each athlete completing two legs in the giant slalom event and two legs in the slalom event. The technical data as well as the results of the participating athletes were recorded by a timing system with photocells and electronic display.

The competition was held according to the official regulations for organizing competitions, the results of the experimental group being superior to the control group.

CHAPTER XI. STATISTICAL PROCESSING OF EXPERIMENTAL RESEARCH RESULTS

11.1. Interpretation of training results on land and snow

Technical data on speed and time achieved were recorded on the official competition results lists for each participating athlete, displayed on the FRSB website, Sports Results section.

From the analysis of the results obtained, following the evaluation of the subjects, we can conclude that the techniques proposed to the experimental group for physical training on land and on snow contributed to the improvement of sports performance. The results of the experimental group, also displayed on the FRSB website (https://frschibiatlon.ro/category/alpin/page/3/), are confirmed by the good places obtained in local, national and international competitions.

The objective and means of training determine the content of the training as a form of request to obtain performance. Through the participation of the athletes from the experimental group in the competitions registered in Clendar, it was possible to check the theoretical knowledge, psycho-motor skills and technical-tactical skills.

The results of the athletes' participation in the competitions: Cups, National Championships, International Competitions, are displayed on the website of the educational unit and the Sports Federation, to mention two Gold Medals obtained by a female athlete from the experimental group, at an international FIS 2020 competition.

11.2. Quantifying motivational persistence

The Motivational Persistence Scale is a measurement tool that favors the quantification of motivational persistence by calling on an objective assessment tool, response items, using an ascending scale for checking motivational persistence, in 5 steps (number 1 - denotes the phrase "to a very small extent" , while the item at the antipode, 5 – translates as "to a very large extent".

The items aim to focus on three factors: L.T.P.P.:

 long-term pursuit of goals (LTPP - Long Term Purposes Pursuing);

 C.C.P.: following current tasks (CPP - Current Purposes Pursuing);

 R.U.P: recurrence of unattained purposes (RUP - recurrence of unattained purposes

The combined scores of the three components that quantify the evaluation of motivational persistence facilitate its evaluation, individually and globally; revealing the possibility of an individual to persevere from a motivational and behaviorist point of view, with the aim of succeeding in reaching the fulfillment of ambitious goals.

At the same time, the x-ray of his willingness to persist, to convert energy, effort and time, not to miss the fulfillment of expectations and not to abandon his expected objectives, is highlighted.

These factor-centered questions were addressed to athletes from the two sports clubs, CSS Baia Sprie and CS Alpina Baia Mare. Both the first and final assessments were taken into account. Examining the correlations between the three previously indicated parameters and the participants' motivational persistence served as the basis for evaluating the questionnaire data.

CS Alpina Baia Mare: the decrease between the factor of motivational persistence and the factor of long-term pursuit of goals can lead to decreases in sports performance, in that, following an increase in motivational persistence, one can easily find a sharp decrease in the factor of long-term pursuit of goals, i.e. achieving a total lack of motivation, inconsistency and self-sufficiency.

CSS Baia Sprie: there was an increase in the mean for each of these factors, as well as a decrease in the standard deviation, indicating that the behavior of the evaluated subject became more uniform. Results show that the group also significantly improved the Current Task Tracking (CCP) component (a median increase from 5.23 to 7.24), with the PM score also increasing from 4.35 to 5.94.

Based on the overall results of these changes, we can say that the CSS Baia Sprie team is approaching a psychological comfort zone where they can actively perform their current tasks with constant attention and effort to achieve their ambitious goals.

11.3. Administering the PSI Test (Psychological Screening Inventory

By administering the PSI (Psychological Screening Inventory) test, we sought to study the essential psychological components in order to evaluate the motor and psycho-cognitive abilities of the athletes and, possibly, their evolution after submitting to the intervention program within the preliminary study. The results of the PSI test at the CSS Baia Sprie and CS ALPINA Baia Mare batches are revealed in Table 62, by highlighting the progress between the initial and final testing, the average between them, the standard deviation and the median, as well as the grades awarded.

The obtained results emphasize the importance of using psychological tests to detect the level of stress, in order to decrease its intensity, to increase awareness of a state of well-being and to obtain high sports performances. This aspect is obviously favorable to the CSS Baia Sprie group and unfavorable to the CS ALPINA Baia Mare group. The reduced duration between the application of mental training techniques and testing, had immediate effects, which reveals the importance of strengthening psychological preparation around essential training, especially when we face pre-competitive periods.

At an interval of 2 hours after the end of demanding training, under conditions similar to those of competition, the quantification of attention, concentration, motor coordination, reaction speed, experienced improvements. It is a favorable result for the effectiveness of relaxation methods and neurophysiological regulation, applied to athletes. The statistical exploratory analysis (factorial and correlative) of the tests has the relevant fact that the items of the subscales are convergent with the theoretical model.

All the scales and measuring devices used in the study reflected valid, reliable and faithful data regarding the psychometric, emotional and personality dimensions of the subjects in the two groups.

11.4. Anthropometric parameters (BMI, Weight, Percentage of fat and muscle mass)

Results of anthropometric measurements

We specify that the Beurrer BF 100 bioimpedance scale was used in all anthropometric measurements.

For the CS ALPINA Baia Mare control lot, the result of the Wilkoxon Test:

• A significant increase in the weight of the athletes participating in the experiment can be noted, a predominant increase in fat (15 subjects), compared to a maintenance of the muscle and bone mass of the athletes (10 and 11 subjects, respectively);

• A slight increase in the athletes' hydration is highlighted;

• For 11 athletes participating in the experiment, there is a slight increase in Body Mass Index (BMI), an aspect that must be kept under observation, in order to keep BMI values within normal development limits.

For the CSS Baia Sprie experimental group, the result of the Wilkoxon Test: There is a significant increase in the weight of the athletes participating in the experiment, a predominant increase in bone mass (15 subjects) and muscle growth (11 subjects);

• In 16 athletes out of 17, a significant decrease in the amount of fat in the body is revealed;

• A slight dehydration of the athletes is highlighted;

• For 10 athletes participating in the experiment, a low increase in the Body Mass Index (BMI) was found, an aspect that must be kept under observation in order to keep the BMI values within normal limits of development.

In the **CONCLUSIONS** section, it is demonstrated that all the questionnaires that were used gave the opportunity to reveal essential data, especially regarding certain components of the athletes' personality, along with the way in which they feel and understand the relationships with the coaches, both within the contests , as well as in an educational or psychological context. Both a physical training program on dry land of the athletes in the experimental group, in which the factors for the development of strength, resistance and coordination, according to the microcycle of each mesocycle, were followed, and a training program on snow were carried out.

As a result of the passing of the control samples by the selected samples, as well as as a result of the experimentation of the independent variable on the experimental sample, a major improvement in performance can be found, without a doubt. Thus, considering the statistical and experimental results, we believe that the hypotheses of our study have been realized and validated.

From the analysis of the results obtained, following the evaluation of the subjects, we can conclude that the techniques proposed to the experimental group for physical training on land and on snow contributed to the improvement of sports performance. The results of the experimental group, also displayed on the FRSB website (https://frschibiatlon.ro/category/alpin/page/3/), are confirmed by the good places obtained in local, national and international competitions.

Personal contribution - I pursued the realization of a program for the development of dynamic balance. This is very important because the skier must constantly overcome forces: gravitational force, centrifugal force, centripetal force, frictional force and ground reaction. The balance ensures the stability of the skier's position, the orientation of the movements on the coordinates of the space and allows the restoration of the body's position in various movements of imbalance. The means of operation were used during the physical training in order to develop the balance, as follows: Dynamic balance, Static balance, Games and dexterity exercises.

1. Athletes' performance is conditioned by factors that can be analyzed on several levels. A first level is the individual level, which focuses on the integrity and proper functioning of all sensory, perceptive, motor, cognitive and regulatory systems, psychomotor skills, emotional regulation, but also the superordinate systems in which it is organized and through which the personality as a whole functions (Nechifor , 2019).

2. Diet can significantly influence athletic performance, but recent research has substantially changed our understanding of sports and nutrition. Athletes adopt various nutritional strategies in training and competition in pursuit of success. The purpose of training is to promote changes in the structure and function of muscle and other tissues by selectively modulating protein synthesis and breakdown in response to the training stimulus. A healthy diet is a decisive factor in achieving peak performance.

3. As part of our research**, questionnaires were applied to assess the self-esteem of the athletes** of the two targeted clubs - CSS Baia Sprie, respectively CS Alpina Baia Mare based on two theoretical models (Rosenberg & Rosenberg, 1978) respectively (Owens, 1993). It started from the premise that psychological improvements, in addition to the training in force, will help to increase the sports performance of junior skiers aged 15-17. In the questionnaire applied to subjects from the two sports clubs, the correlations between the three defining factors of self-esteem were analyzed. An observation common to both clubs is that athletes who hold a superlative self-view (infatuation) tend to score high on the factors of motivational persistence, qualities such as goal achievement, ambition, organization and perseverance tend to give predominantly positive responses. The collection and interpretation of the data led to the formulation of the following conclusions: increasing performance through exercises to improve psychological aspects, increasing self-esteem leads to positive results by incorporating them into the annual training plan of the athletes; they will have to be alternated and combined in different ways, cyclically, weekly, according to the competitive periods and according to the professional considerations of the coach.

4. Questionnaires were also applied to evaluate the motivation of the athletes of the two targeted clubs (CSS Baia Sprie, respectively CS Alpina Baia Mare), considering two evaluations, one initial and the other final. The evaluation of the results of the questionnaires was based on the analysis of the correlations of the three factors PM - Motivational persistence, LTPP - long-term pursuit of goals, CCP - pursuit of current tasks, RUP - the recurrence of unachieved goals and the motivational persistence of subjects through psychological tests to detect the level of stress , in order to decrease its intensity, to realize a state of well-being and to obtain high sports performances.

Through the tests applied and analyzed, it was found that the CSS Baia Sprie group is approaching the motivational comfort zone through which they can fuel their ambition to achieve ambitious goals through a careful follow-up of current tasks that require dedication and/or constant effort. On the other hand, in the athletes of the CS Alpina Baia Mare team, a decrease in the factor of motivational persistence and the factor of long-term pursuit of goals was found, i.e. reaching a total lack of motivation, inconsistency and self-sufficiency.

5. By administering the PSI (Psychological Screening Inventory) test, the psychomotor components were studied in order to evaluate the motor and psycho-cognitive abilities of the athletes and their evolution. The obtained results underline the importance of using psychological tests to detect the level of stress, in order to decrease its intensity, create awareness of a state of well-being and achieve high sports performances. This aspect is obviously favorable to the CSS Baia Sprie group and unfavorable to the CS ALPINA Baia Mare group.

For a proper preparation in accordance with the modern requirements of our athletes, a judicious, rational and objective planning of the activity was based. (annual, stage and mini-stage cycles, weekly structures and training plans).

The CSS Baia Sprie experimental group applied the program proposed by us, by consolidating and perfecting the main technical elements. The CS Alpină Baia Mare control group applied the classic sports training program. Subjects in both groups were tested to record the following data: duration of training, distance covered on skis, average speed on skis, time achieved in number of descents. Testing of the proposed program took place on Pârtia de la Suior, Maramureș, through the competition organized by CSS Baia Sprie. 17 athletes from the control group and 17 athletes from the experimental group participated, each athlete completing two legs in the giant slalom event and two legs in the slalom event.

At the goal achievement test for each group, we evaluated the technique of bypassing on skis, the definers of each training level. After collecting and interpreting the data from the monitoring period of the two groups, we noted the following aspects: applying the proposed technique, the athletes in the experimental group recorded higher values than those in the control group; the average speed and the time of movement on skis were superior for the experimental group, the techniques used increased the progress on the slope as well as the motor qualities.

From the analysis of the results obtained after the evaluation of the subjects, we can conclude that the technique proposed to the experimental group contributes to the increase of sports performance. The results of the experimental group are confirmed by the good places obtained in the 2020 competitions, local, national, national champion titles and participation in international competitions. The combination of all the components of modern training that characterizes the specific effort, determines the essential and decisive element in guiding the training and choosing the appropriate means to obtain special performances.

Thus, considering the statistical, experimental results, I believe that the hypotheses of the study they have materialized and validated.

IMPLEMENTATION PROPOSALS

The study was intended to be an x-ray and a synthesis of motivational techniques, psychomotor factors and nutritional aspects with a significant role in optimizing the performance of junior skiers. At the same time, the elucidation of important psychomotor aspects in the practice of performance sports was pursued. The restrictions present in athletes' nutrition, general and motor sagacity are revealed. At the same time, the attempt to quantify the place and the way in which motivational strategies, psycho-motor parameters and nutritional aspects can be capitalized, along with the role held by them, is increasing. Skiing is one of the sports that favors harmonious body development, engaging numerous muscles, an aspect that facilitates the growth of the body's vital functions. This is due to improved energy, economy, adaptive and metabolic lability and availability. Adequate training, in accordance with contemporary demands, cannot be taken into account without having gone through a sustained training process, a permanent psychological training, which requires countless hours of hard work, doubled by a suitable dietary strategy.

There is a growing recognition of the role of diet in obtaining sports performances, various nutritional strategies for athletes being proposed, used to obtain benefits, the experiment carried out contributing with more novelty and originality.

The overall conclusion is to increase skier performance. Through the applied nutrition, the athletes will increase their explosive force, the force in speed mode and, implicitly, the sports performance will also increase. The data were scientifically exploited through articles and it was proposed to create a guide for skiers with the help of the Federation and the Ministry of Youth and Sports, considering that currently there is no such edited volume. We have also organized numerous seminars or conferences where we have disseminated the results of our study. Sports specialists, psychologists and nutritionists met with children and their parents to explain to them how important it is for an athlete to choose a healthy lifestyle that becomes a modus vivendi and leads to increased performance physical. They gave them concrete examples to persuade them.

Figure 6. Athletes from the CSS Baia Sprie experimental group (personal archive)

SELECTIVE BIBLIOGRAPHY

Adams, G.-B., Michael, D. (2009). *Psihologia adolescenței. Manualul blackwell,* traducere de G. Oancea, A. Hrab, D. Nistor, M. Andriescu. Iași: Editura Polirom.

Alexe, N. (1992). *Planificarea antrenamentului sportiv.* Bucureşti: Editura Ministerul Tineretului şi Sportului.

Allport, G.W. (1981) *Structura și dezvoltarea personalității*. Bucureşti: Editura Didactică și Pedagogică, Colecția Pedagogia Secolului XX.

Baumeister, R. *et. al* (1996). *Relation of Threatened Egotism to Violence and Aggression: The Dark Side of High Self-Esteem. Psychological Review,* Nr. 2, February, 1996.

Beck, K.L., Thomson, J.S., Swift, R.J., & von Hurst, P.R. (2015). *Role of nutrition in performance enhancement and postexercise recovery. Journal of sports medicine,* 6, pp. 259–267.

Birkenhead, K.L. & Slater, G. (2015). *A Review of Factors Influencing Athletes' Food Choices. Sports medicine*, Auckland, New Zeeland, 45 (11), pp. 1511-1522.

Bolognini, M., Prêteur, Y., Bariaud, F. (1998). *Estime de soi. Perspectives developpementales,* Paris: Delachaux et Niestlé.

Branden, N. (1994). *Six Pillars of Self-Esteem*. New York: Bantam Books.

Burke, L.M., Meyer, N.L., Pearce, J. (2013). *National nutritional programs for the 2012 London Olympic Games: A systematic approach by three different countries*. In: van Loon LJC, Meeusen R, editors. *Limits of Human Endurance*. Vol. 76. Vevey, Switzerland: Nestle Nutrition Institute Workshop Series, Nestlec Ltd. pp., 103-120.

Ceylan, B. and Santos, L. *Fluid intake, hydration status and body mass changes in U-15 judo athletes during a training day, Acta Scientiarum. Health Sciences*, v. 44, e57233, 2022

Chithranjan, N., Heinemann, Th., McGee, M., Seidman, C.E., Samuel, P. and Breslow, J.L. (1998). *U-shape relationship between change in dietary cholesterol absorption and plasma lipoprotein responsiveness and evidence for extreme interindividual variation in dietary cholesterol absorption in humans. Journal of Lipid Research*, Volume 39, 2415-2422.

Ciobanu, E., Croitoru, C., David, A. (2018). *Le mangement de l'etat nutritionnel*. Chișinău:Universitatea de Stat de Medicină și Farmacie „Nicolae Testemițanu", pp. 5-11.

Crețu, T. (2009). *Psihologia Vârstelor*. Ediția a III-a revăzută și adăugită. Iași: Editura Polirom,.

Danthiir, V., Robert, R.D., Schulze, R., Wilhelm, O. (2005). *Mental speed: On frameworks, paradigms, and a platform for the future.* In: Oliver Wilhelm & Randall W. Engle (Eds.), *Handbook of understanding and measuring intelligence:* Sage Publications, Inc., Washinton D.C., pp. 27-46.

Debesse, M. (1970). *Psihologia copilului de la naștere la adolescență*. Bucureşti: Editura Didactică și Pedagogică.

Dragnea, A. (1996). *Antrenamentul sportiv*. Bucureşti: Editura Didactică şi Pedagogică., pp. 61-68.

Druță, M.-E., Cace, C., Diaconu, M. *et ali.* (2008). *Psihologia educației – Portofoliul seminariilor.* Ediția a II-a revăzută. București: Editura ASE, p. 63.

Epuran, M. (1992). *Metodologia cercetării activităţilor corporale.* Vol. I-II. Bucureşti: Editura A.N.E.F.S., p. 202-230, Vol. I; pp. 35-52, Vol. II.

Epuran, M., Holdevici, I., Toniţa, F. (2008). *Psihologia sportului de performanţă. Teorie şi practică.* Bucureşti: FEST Publishing House, pp. 110-135.

Gilgien, M., Kröll, J., Spörri, J., Crivelli, Ph., Üller, E. (2018). *Application of dGNSS in Alpine Ski Racing: Basis for Evaluating Physical Demands and Safety*. Lausane, Elveția, *Frontiers in physiology*, 9, p. 145.

Gleeson, M. (2016). *Immunological aspects of sport nutrition. Immunology and Cell Biology*, University of Adelaide, Australia, February, Nr. 94 (2), pp. 117-23.

Hales, S. (1989). *Valuing the Self: Understanding the Nature and Dynamics of Selfv Esteem*, in *Perspectives.* San Francisco: Saybrook Institute.

Iluț, P. (2001). *Sinele și cunoașterea lui – Teme actuale de psihosociologie.* Iași: Editura Polirom.

Ives, J.C., Neese, K., Downs, N., Root, H., Finnerty, T. (2020). *The Effects of Competitive Orientation on Performance in Competition. The Sport Journal*, Vol. 41 (2), pp. 2-7.

Lehalle, H. (1988). *Psychologie des adolescents.* Paris: Presses Universitaire de France.

Lewicki, P. (1983). *Self-image bias in person perception, Journal of Personality and Social Psychology.* Washington, Nr. 45, pp. 384-393.

Macarie, A., Constantin, T., Iliescu, M., Fodorea, A., Prepeliță, G. (2007): *Stima de sine – între normalitate și trăsătură accentuată*. In: *Psihologie și societate: Noutăți în psihologia aplicată* (Aurel Stan coord.). Iași: Editura Performantica.

McSwiney, F.T.; Wardrop, B.; Parker, N.; Lafountain, R.A.; Volek, J.S.; Doyle, L. (2017). *Keto-adaptation enhances exercise performance and body composition responses to training in endurance athletes. Metabolism clinica land experimental.* New York: Grune & Stratton, Nr. 81, pp. 25-34.

Muntean, A. (2006). *Psihologia dezvoltării umane*, Ediția a II-a revăzută și adăugită. Iași: Editura Polirom.

Negrișanu, G. (2005). *Tratat de Nutriție*. Timișoara: Editura Brumar.

Nordic nutrition recommendations. Integrating nutrition and physical activity (2004). Copenhagen: Nordic Council of Ministers, pp. 13-23.

Pânișoară, G., Pânișoară, I.O. (2005). *Motivarea eficientă.* Iași: Editura Polirom.

Popescu-Neveanu, P. (1978). *Dicționar de psihologie.* București: Editura Enciclopedică.

Popovici, M., Jalbă, U., Ivanov, V. (2001). *Ghidul alimentației sănătoase*. Chișinău: Biblioteca Științifică.

Rawson, E.S., Miles, M.P., Larson-Meyer, D.E. (2018). *Dietary supplements for health, adaptation, and recovery in athletes. International Journal of Sport Nutrition and Exercice Metabolisme.* nr. 28 (2), pp. 188-199.

Rosenberg, Fl. & M., McCord, J. (1978). *Self-Esteem and Deliquency*. *Journal of Youth and Adolescence*, Nr. 7 (3), pp. 279-294.

Rosenberg, M. (1979): *Conceiving the Self*. New York: Basic Books.

Schmitt, L., Willis, S.J., Coulmy, N. & Millet, G.P. (2018). *Effects of Different Training Intensity Distributions Between Elite Cross-Country Skiers and Nordic-Combined Athletes doi. During Live High-Train Low. Frontiers in physiology*, Nr. 9, p. 932.

Șchiopu, U. coord. (1997). *Dicționar de psihologie.* București: Editura Babel.

Teodorescu, S. (1972). *Psihologia conduitei.* București: Editura Științifică.

Thompson, C., Wylie L.J., Fulford J. et al. (2015). *Dietary nitrate improves sprint performance and cognitive function during prolonged intermittent exercise. European Journal of Applied Physiology*, nr. 115, 07 Avril.

Ticu, C. (2008). *Determinanți ai motivației în muncă: de la teorie la analiza realității Organizaționale.* Iași: Editura Universității „Alexandru Ioan Cuza".

Tipton, K.D. (2015). *Nutritional support for exercise-induced injuries*. *Sports Medicine*, Nov; 45 Suppl 1, pp. 93-104, Aukland, N.Z.

Valnet, J. (2001). *La santé par les fruits, les légumes et les céréales*. Paris: Vigot.

Van Proeyen, K., Szlufcik, K., Nielens, H., Ramaekers, M., Hespel, P. (2011). *Beneficial metabolic adaptations due to endurance exercise training in the fasted state. Journal of Applied Physiology*, Jan. Nr. 110 (1), pp. 236-45.

Wise, L.L. (1996). *A persistence model of motivation and test performance. Paper presented at the Annual meeting of the American Educational Research Association*, New York.

Zlate, M. (2000). *Fundamentele psihologiei.* București: Pro Humanitate.

INTERNET LINKS

https://thesportjournal.org/article/the-effects-of-competitive-orientation-on-performance-in-competition/

http://ses-ski.com/romanian-ski-biatthlon-federation/

https://journals.sagepub.com/doi/10.1177/0146621606286206

https://pubmed.ncbi.nlm.nih.gov/21446352/

https://www.lanutrition.fr/la-rhodiole-une-plante-pour-lutter-contre-le-burn-out

https://www.frsb.ro