



**NATIONAL SPORTS ACADEMY "VASIL LEVSKI"
SOFIA**

DEPARTMENT OF "SNOW SPORTS"

MILENA NIKOLOVA ZDRAVCHEVA

**SOCIAL-PSYCHOLOGICAL AND PHYSIOLOGICAL FACTORS IN
TRAINING STUDENTS IN "SNOW SPORTS" COURSES**

ABSTRACT

Sofia, 2019

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ABSTRACT

of the dissertation for the award of the educational and scientific degree
"Doctor" in the scientific specialty "Theory and methodology of sports science",
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The dissertation contains a volume of 125 standard pages. It is illustrated with 18 tables and 46 figures. The bibliography includes 71 literature sources, 52 of which are in Cyrillic, 19 in Latin and 9 on the Internet.

The dissertation is approved, discussed and directed for official defense at a meeting of the Snow Sports Department at the Vasil Levski National Sports Academy.

The public defense of the dissertation is scheduled for 07/01/2020 at 13.30 in hall A3 of NSA "V. Levski".

Protective materials are available to those interested in the NSA library "V. Levski".

INTRODUCTION

Snow Sports training courses play an important role in the curriculum of the NSA "Vasil Levski". With their long tradition, they have always been an up-to-date educational concept that enables the formation of purposeful components in the construction of future sports educators.

This vision stands out as early as the first academic year of 1942, since the establishment of the Higher School of Physical Education, where the practical subject of Skiing in the form of the Ski Course is compulsory for all students. This is further compounded by the fact that the creators of the ski training system are the best in their time experts in leading training systems around the world.

In today's technological advancement and the dynamically changing educational environment, it is very often necessary to undergo certification of each sphere and its constituent elements, including the educational one, in order to predict the expected results. In modern society, education is seen as a social reality because it is directly tied to the interests of the community and strongly motivates educational institutions to provide quality educational services to people.

With regard to the link between the current relevance of the educational profile of Snow Sports training courses and the global trends in this aspect, sufficient arguments can be made in the direction of social, psychological, physiological, health and other studies to block the development of snow sports. this kind of concept. The lack of this type of research is considered to be of a research and innovative nature, especially since the entry level of students at NSA "Vasil Levski" is changing. As a result of the research activities, the following **working hypothesis** is formulated:

On the basis of preliminary studies and analysis, a scientific project is generated related to the educational process of the Snow Sports courses as a contemporary form of the educational system of NSA "Vasil Levski" in the formation of socially important knowledge, skills and habits.

In this direction, monitoring the dynamics and analysis of the social psychological and physiological factors would serve to optimize the curriculum of the Snow Sports course or to confirm the effectiveness of the existing academic format of the course.

PURPOSE, TASKS, METHODS AND ORGANIZATION OF THE RESEARCH

Purpose of the study

Identification of socio-psychological and physiological factors that have an effective influence on the education of students in Snow Sports courses.

Tasks of the study

1. To determine the stages of educational impact in the different indicators of the Snow Sports course.
2. Output of specific sports-pedagogical educational factors related to the educational format of the Snow Sports course.
3. Conducting and analyzing a social-psychological study to discover the opinion and attitude of students in the courses in "Snow sports"
4. Research and analysis of situational anxiety, situations and factors that influence student activity. Determination of stress factors.
5. To track the dynamics of the morpho-functional development and the condition of the students participating in the course.

SUBJECT MATTER, OBJECT AND SUBJECT OF THE RESEARCH

The subject of the study are socio-psychological and physiological factors that influence the training of students in the courses in "Snow sports"

The object of the study is the situational anxiety, stress factors and dynamics of the morpho-functional development and the condition of the students participating in the course.

The subject of the study are the students participating in the Snow Sports training courses.

METHODOLOGY AND RESEARCH METHODOLOGY

A complex methodology was used to solve the specific tasks and achieve the purpose of the study, which included:

- 1. Method of theoretical analysis and synthesis.*
- 2. Historiographic research methods.*

3. Socio-psychological study to discover the opinion and attitude of students in the courses in "Snow sports" (Appendix 1).

The purpose of social-psychological research is to get feedback on the quality of the course, to reveal the opinion of the students about their training during its time, in order to look for opportunities for its optimization. The questions are grouped according to the key criteria for the course: social and educational.

4. Psychological tests for anxiety:

✓ **Spielber's Situational Anxiety Test**, an adapted version by Paspalanov, Stettinsky (Appendix 2). The test is based on the theoretical concept of anxiety. Differentiation of personality and situational anxiety determines two forms for their assessment of STAY-Y-1 (for assessment of situational anxiety-S) and STAY-Y-II (for assessment of personality anxiety-T). Each form contains 20 statements and a 4-point "Likert-type" scale to evaluate the intensity of expression. The range of grades is from 20 to 80. The increase in the score is in the direction of the increase in "anxiety" [Cretti, 1978]. For current labor purposes, the Situational Anxiety Survey Form was used (Table 2):

Table 2

Anxiety rates

Level of anxiety	Norm
low	under 30 т.
on average	31–44 т.
high	over 45 т.

✓ **A test to determine the situations and factors affecting students' activities.**
Stress factors.

The questionnaire framework is based on C. Spielberger's anxiety test and adapted by the graduate student and the research advisor specifically for the purpose of the study. It consists of two parts: positive factors and situations and negative factors and situations affecting the learning activity (Appendix 3).

Based on an expert analysis of the specifics of the Snow Sports course, positive and negative factors were selected, from which questions for both categories - positive and negative - were formulated.

The subjects evaluated the degree of influence of each factor, using a 4-point scale for assessing the influence of the factor: from "1" does not affect me at all to "4" - a high degree of influence. The questionnaire contains 40 verses forming 4 major scales:

- Factors of external uncertainty

- Internal uncertainty factors
- Factors of external importance
- Factors of intrinsic importance

A number from 1 to 4 should be assigned to each factor, each of which expresses the degree to which the respective factor of influence (Table 3).

1- It doesn't affect me at all

2 - low grade

3 - medium grade

4 - high grade

Table 3

Norms of stress

Level of stress	Range
low	20 - 39
on average	40 - 59
high	60 - 80

5. Diagnosis of physical development, capacity and functional capacity of students at the beginning and end of the course (Appendix 4).

✓ **measurement of physical development by caliperometry and anthropometric indicators.**

For a more comprehensive characterization of the morphological status of students, we use the somatotype methodology, created in the 1940s by English scientist Dr. William Sheldon, who classified three major body types called somatypes - ***ectomorphs, mesomorphs, and endomorphs.***

Endomorphic somatotype - the anterior-posterior and transverse diameters, neck, trunk, and limbs are approximately equal. The volume of the abdomen exceeds that of the chest. Body shapes are rounded, muscle relief is not visible.

Mesomorphic somatotype - transverse diameters larger than anterior-posterior. The extremities are massive, especially in the distal parts. The corpse is large.

Ectomorphic somatotype - characterized by elongated fragile body, short corpse, thin convex ribs, acute bone-diaphragmatic angle, narrow shoulders, flat abdomen, relatively long limbs with strongly emphasized distal parts. Estimates (3-4-5) are given sequentially (endomorph-mesomorph-ectomorph).

To determine the somatotype of the students participating in the Snow Sports courses, the following characteristics were measured using a caliper, standard medical weight

meter and tape (centimeter) at the beginning and end of the course: height; weight; a skin fold at the lower corner of a scapula; triceps skin fold; skin fold on inner side of thigh: skin fold on upper thigh; armpit and forearm circumference; hip and hip tour; biopicondylar diameter of the shoulder bone; femoral diameter of the femur.

The selection of the interviewed persons was made on a random basis.

Based on the data body length and body weight, **BMI** *body mass index* was calculated using the formula $\text{BMI} = \frac{W}{h^2}$ where: W is the weight in kilograms; h height - in meters. The index score is determined according to World Health Organization standards (Table 5):

Table 5

Body Mass Index Rating Table

Rating	BMI
Severe obesity	over 40,0
Obesity	by 30,0 to 39,9
Overweight	by 25,0 to 29,9
Normal body weight	by 19,0 to 24,9
Weight below normal	by 15,0 to 18,9
Weight Loss	under 15,0

✓ **Standard Unmeasured Physical Exercise Test - Ruffier Sample** - was performed at the beginning and at the end of each test shift.

Methodology - The investigated person is calm, lying down. Repeatedly measure the pulse rate for 15 seconds, taking the lowest value (HR₀). The tester then made 30 clicks in 45 seconds and lay down again. The heart rate is measured during the first 15 seconds (HR₁) and the last 15 seconds (HR₂) in the first minute of recovery. Pulse frequencies are recalculated in min⁻¹.

Methodological requirements: the squats should be full, arms should be extended forward at shoulder height. The tempo is set with a metronome set to 80⁻¹, with the squat in two strokes. The calculations are:

$$\text{HR}_0 \dots \text{y.d.} / \text{min}^{-1} \quad \text{HR}_1 \dots \text{y.d.} / \text{min}^{-1} \quad \text{HR}_2 \dots \text{y.d.} / \text{min}^{-1}$$

$$\text{Index} = \frac{(\text{HR}_0 + \text{HR}_1 + \text{HR}_2) - 200}{10}$$

The ratings is in accordance with the norms given by Rufier (Table 6). This sample is suitable for use by a wide range of athletes. It begins in a supine position, measuring the pulse rate per minute after 5 minutes of rest.

Table 6

Functional status assessment with a Ruffie sample

Index	Functional status
Under 0	Very good
0,1 - 5	good
5,1 - 10	satisfactory
10,1 - 15	unsatisfactory
over 15	extremely unsatisfactory

6. Comparative analysis of the data obtained.

7. Mathematical-statistical methods.

ORGANIZATION OF THE RESEARCH

The study was conducted during the winter courses in Snow Sports, in the period 2017-2019. In different stages of the work, a total of 945 students from the NSA "Vasil Levski" from the two faculties, who took part in the courses with a duration of fourteen days, were covered (Table 7):

Table 7

Persons surveyed

Type of study	men	women	total
Morpho-functional status of students	72	62	134
Socio-psychological research	-	-	267
Stress factors	-	-	265
Anxiety	208	71	279

Stage One - academic season 2016/2017 Study the relevance of the problem by conducting observations, interviews and interviews with expert participants in the training courses over the years.

- ❖ Retrospective and theoretical analysis of snow sports training courses.
- ❖ Approval of appropriate tests for the research part of the dissertation:

- Social-psychological study for revealing the opinion and attitude of the students to the Snow Sports course;
- C. Spielberger's anxiety test;
- diagnostics of physical development, legal capacity and functional working capacity of students;

Second Stage - academic season 2017/2018

- ❖ Analysis of the collected data from the conducted anxiety test, Social-psychological research and data on the physical development of the students studied.

Stage Three - academic season 2018/2019

- ❖ Further inclusion of a test of the situations and factors that influence student activity. Stress factors.

RESULTS

IDENTIFYING EDUCATIONAL IMPACT STAGES IN THE VARIOUS SNOW SPORTS COURSE INDICATORS

Based on our study of our many years of experience in conducting Snow Sports courses and the program, we have tried to distinguish the stages of impact on students in the Snow Sports course. Each stage covers the following factors of influence: social, psychological, physiological, mastering the technique of snow sports, as well as safety rules during the practice of winter sports.

With the study hike, on the first day of the course program, tasks are set related to one of its goals, namely the safety of mountain crossings in winter. The course is preceded by an informational educational lecture, at which students are informed about the preliminary preparation for the upcoming event. During the course, they were told that rested, fed, equipped, important conditions for the successful course should come.

On the very day after the actual weather information and snow conditions on the route have been taken, a routine inspection of the participants is carried out immediately before the start of the study tour, including: inspection of equipment, health and momentary condition, recent illness information and more.

Instructions are given on the route, the nature of the route, the distribution of the effort on the route, the organization of the route, information about the environmental behavior in the protected areas of the mountain, the technique and tactics of the route, as well as ongoing communication during the hike to the current state to students.

Instructions for mutual assistance are obtained, and participants are allocated according to the current snow situation along the route, for example if there is a new snow cover in front, a group of instructors and students with good physical and mountain skills are placed. They are then positioned poorly prepared, which must take into account the intensity of movement of the whole group along the route. Instructors and teachers are allocated along the course of the training course, by sub-group. Finally, a team (rescue) is put on the column, which prevents the groups from breaking, in which the course doctor is also a team.

Students have become direct participants in all this preparation since the beginning of the hike.

The holidays are tailored to the distance of the route, the status of each participant in the hike and the intensity of movement. The number of breaks and the duration take into

account the meteorological conditions at different stages of the route, the students' physical capacity is also a factor in the choice of the duration of the breaks.

The intensity of movement is controlled according to the relief of the route, the individual metabolism of the participants, the mechanisms of energy security.

All of these rules, principles and behavior are emphasized throughout the hike in order to understand the students and the importance of proper technical and tactical conduct to successfully complete the study hike. There are also situational factors in the dynamic change of meteorological conditions (wind, temperature, humidity), which also influence the character in tactical movement along the route.

The basic rules that are taken into consideration during the hike are that the group is not allowed to break up, the intensity is tailored to the participants who are lagging behind and more difficult to cope with their technical, tactical, psychological and other skills. The duration of the hike is about two hours, depending on the students' preparedness.

Upon arrival at the base, there are organizational arrangements including accommodation, equipment distribution, payment of course fees, familiarization with the base, activities that test the physical and mental qualities of students: familiarization with the internal order, arrangement of the training base, daily schedule, household conditions, distribution by study groups.

We will conditionally divide the course into three main stages that describe key periods in terms of social, psychological, physiological impact on cold and technical-theoretical aspects.

We formulated them as: adaptive, basic, conclusive. The systematization of the stages was done by interviewing experts with many years of experience in the courses and specific observation of the traits studied.

The first - stage covers the first days of the course (1st - 4th day), where students get to know each other, the social impact is influenced by the way the ski groups are organized (serving during meals, practicing snow sports, staying in bedrooms). In terms of practicing snow sports, this stage is characterized by the fact that students go through a difficulty getting used to ski equipment. This is expressed in discomfort in the region of the feet, fatigue in the lower limbs caused by mastering basic skills in alpine technique. During this period, during the ascent to the training grounds, the movement is made without climbing facilities.

In connection with the social factor, the first stage is characterized by the fact that a large part of the students find it difficult to get used to the daily schedule, the density of the school schedules, and the rest time. With respect to the psychological state factor, the stage by

stage is characterized by the intense influence of stress factors provoked by adverse meteorological conditions. During this stage, prerequisites for the presence of conflicts are the unknown colleagues, the inability of the students to accept the ongoing information security related to the rules on the safety on the track, for the observance of the internal order, delays for various events. This phase, in terms of the technical-theoretical factor, refers to getting used to equipment, downhill skills, changing directions and stopping, shifting weights. In a physiological aspect, the first days are associated with a phase of primary reactions - a phase of false adaptation stability from a few hours to 2-3 days. It is characterized by a general positive emotional arousal and increased functional activity.

Second stage - runs between days 4 and 8 and is characterized by the fact that in terms of mastering skills, students get used to the equipment, as well as to a certain terrain, relief, mode of movement. During this stage, students begin using climbing facilities. They overcome the fear of going down the track, controlling speed and stopping. The skiing is fully skied during the ascent and descent. With regard to the sociological factor - there is an awareness of the formations, the beginning of a team spirit in the educational ski groups is formed, at this stage the beginning of increased activity on the part of the students in the social aspect is noticed. During this stage, the skills of cross-country skiing are mastered, where the transfer of skills from alpine skiing equipment to cross-country skiing takes place. Fun nights begin to be organized, in which the students themselves are an active party. Psychologically, minimization of negative stress factors is observed. This is the stage where students begin integrating into snow sports, winter and mountain conditions, and begin to manage their time more effectively under the dictation of daytime mode, which translates into timely attendance at school activities. This is the time during which the initially accumulated fatigue is overcome, and the semi-educational day given to them at the beginning of this stage also contributes to this. An initial level of developed orientation for compliance with the safety rules is established. With their behavior they minimize the degree of risk when practicing snow sports, there is a friendly atmosphere among students not only in the study ski groups, but generally in the course. Communication and relations with the other part of the course (teachers, staff) is at a good level. In relation to practical activities, density and intensity are increasing. More difficult tracks (training grounds) are being used. The stage of consolidation and refinement of skills is coming. In a physiological aspect, the acute adaptation (acclimatization) phase is going on these days. A significant decrease in VO_{2max} is observed, the pulse rate is increased. The body fights hypoxia, resulting in a longer recovery time after exercise. Clear fatigue appears. In terms of technical and theoretical

factors, the alpine skiing skills that students acquire are: relief, facilitated targeting, alpine posture, progressive finishing and pressure.

Third stage - after 8 days until the end of the course, in which stage in terms of the social factor of a person are friendly relationships, mutual assistance. During this stage, the cohesive effect stands out to the fullest. Students spend more and more time in mutual communication, fun activities take place, students develop the ability to concentrate their attention for a long time in both practical and theoretical activities. During this time, they supplement their terminology and sports vocabulary, and tend to be proactive. They appreciate more and more positively the effect of their residence in this type of living conditions.

In mastering the skills they feel confident, willing to increase the duration of the practical activities, understand and observe the safety rules. In their spare time, they are interested in snow sports. The educational climate is favorable in person. They are motivated to perform well in the practical exam in skiing. They are interested in providing an opportunity to improve their skills in snow sports and to acquire a qualification for teaching in the initial engagement in skiing, snowboarding and other snow sports. From a physiological point of view, during this period a phase of transient adaptation is observed, characterized by relatively stable structural and functional changes.

Athletes' performance is gradually increasing. Negative phenomena gradually decrease and the body normalizes its functions. This is the phase that is most strongly influenced by the athlete's individual tolerance for hypoxic stress, as well as by his or her experience related to height training. With regard to the technical-theoretical factor, the third stage acquires the skills of directing and managing parallel skis, control of edges and pressures, skills for performing connected turns, turns of different radius, as well as driving on a training track.

External factors such as good or bad weather, wind, snow cover, in one way or another, affect the successful realization of students during the practical classes is a course that is their main purpose.

The curriculum, course schedule, and other educational activities are tailored to and adapted to these stages in terms of volume and intensity, complexity of mastering the course material.

STUDY OPINION OF STUDENTS ON THE SNOW SPORTS COURSE

Due to the social factor, it is very difficult for many students to accept and get used to the new conditions: the daily schedule due to the unusual and dense school schedules, the lack of time to rest and recover from the difficulties and the problematic arrival at the hut. In addition, the intense influence of stress factors provoked by bad weather conditions, unfamiliar colleagues, the constant information load regarding safety rules, internal order compliance, delays and other new activities. There are unexpected difficulties with getting used to training and equipment, downhill slopes with change of direction and stopping, difficulties with "*shifting weight*". The new technical-theoretical requirements threaten and in many there is a violation of the stability of their social status. The emotional arousal of the conditions and requirements for high functional activity impairs the ability and willingness to fulfill **the social role of the students** they aspired to.

In view of these disruptions of socialization, the undertaken socio-psychological study aims to obtain feedback on the course, to reveal the students' opinion about their education, in order to seek opportunities for its optimization. A total of 267 students from the 3 faculties (FS - 196, FP - 61, OHHCT - 10) participated in the study, 1st, 2nd, 3rd and 4th year as well as semester graduates. The consultation contains 21 closed-ended questions. The survey was conducted during the course shifts - at the end of each shift. The percentages of data received are rounded.

The first question reveals the attitude of the students to the course, formed on the basis of preliminary information received from friends, colleagues who have already taken it. The majority of respondents (70%) indicated that they came to the course *with pleasure*; for a significantly smaller proportion (15%), enrollment is *an annoying obligation*; almost the same number (12%) had different fears (*fear of the unknown*).

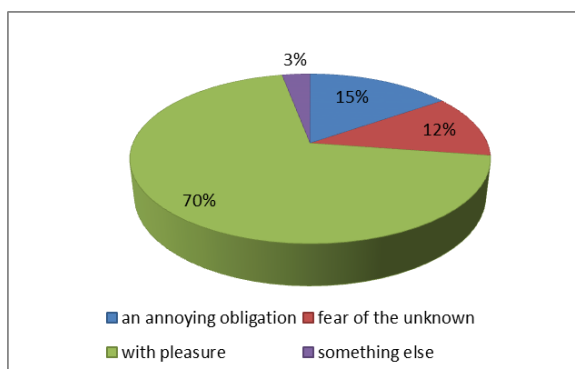


Fig. 3 "Preliminary Attitudes for the Snow Sports Course"

As indicated by the data, the positive attitude of most students (70%) was undoubtedly a positive factor in their adaptation to the new working conditions (Fig. 3); Initial socialization is difficult for less than one third of those surveyed (27%): for a small part, the upcoming course is perceived as an *annoying obligation* (15%); almost the same number arrive on the course with *fear of the unknown* (12%).

The next question (Fig. 4) gives an idea of the level of workload in individual activities - high or within the norms. Almost all students (94%) rate workload as a tolerable and enriching social role for trainees; only a small proportion (6%) feel threatened and overwhelmed by the unusual winter conditions and difficulty in mastering a stranger about their ski sport.

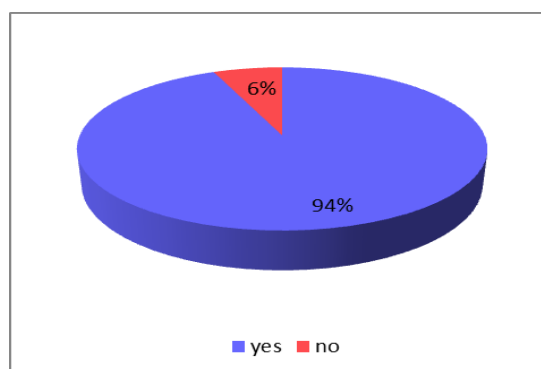


Fig. 4 "Is the load bearable for you or not?"

The next group of questions provokes students' opinions about evaluating the competencies and skills of teachers and instructors. The answers received reveal the academic level of the course, which is rated highly by a high degree. This is natural, as the courses are taught by academics with sporting success; one of the most important factors is that they all have years of experience in snow sports training. Part-time teachers who are former specialists of the Snow Sports Department also take part in the course - many of them are certified ski instructors.

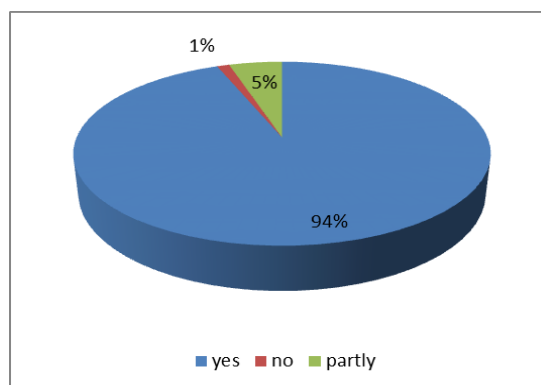


Fig. 5 "Do you think that teachers have the necessary knowledge?"

Students' grades were given to both teachers (94%) and instructors (87%). The data show that students highly value the knowledge and experience of both teachers and instructors (Fig. 5, Fig. 6).

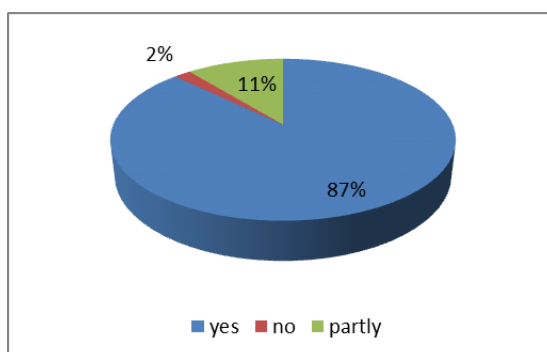


Fig. 6 “Do instructors have the necessary knowledge and experience? ”

The answers of the students concerning the relationship with the teachers are logical (Fig. 7): the majority (80%) report that they are satisfied with the attitude of their teachers; for a small number (16%) the answer was "partly", while "no" was emphasized by a few (4%). The attitude of the instructors towards them (Fig. 8) was similarly evaluated: 90% were satisfied, 9% - partly and only 1% were not satisfied.

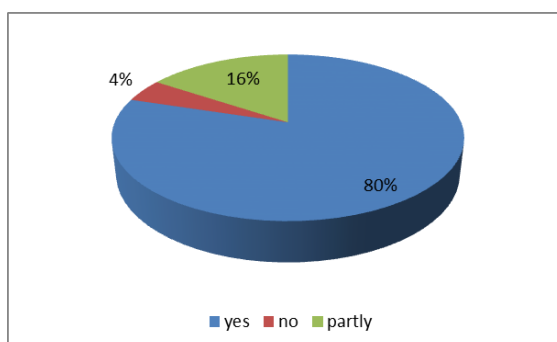


Fig. 7 “Are you satisfied with the attitude of the teachers towards you?”

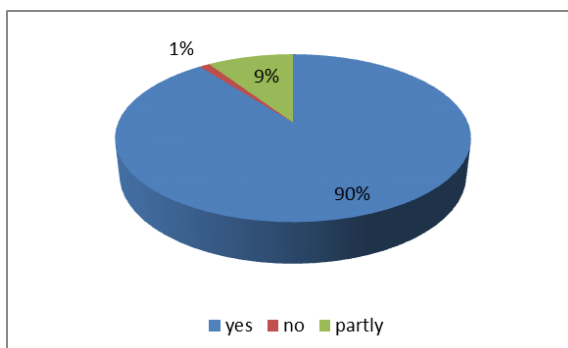


Fig. 8 "Are you satisfied with the attitude of the instructors towards you?"

The high percentage of them are satisfied with the attitude they have received from their teachers and their instructors because they have felt - under unusual training conditions - the trusting responsiveness, assistance and understanding of the leaders, who have felt that they are the key to their successful participation in ski course.

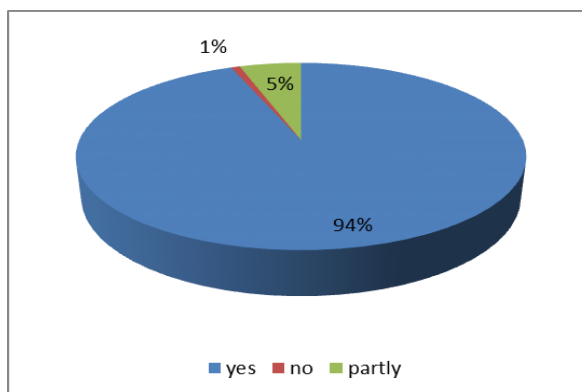


Fig. 9 “Degree of confidence in the instructor”

The emphasized trust in the instructors is due to the fact that most of them are peers of the course participants, their colleagues, the specialists of the Snow Sports Department, who are also in the process of training and improvement. This assessment is essential because it indicates the good professional orientation of future sports educators as ski professionals. The psychic qualities of respect (from question 3 to question 8) are formed: calmness, modesty, social acceptance, understanding, tolerance, gratitude, unification, team building, etc.

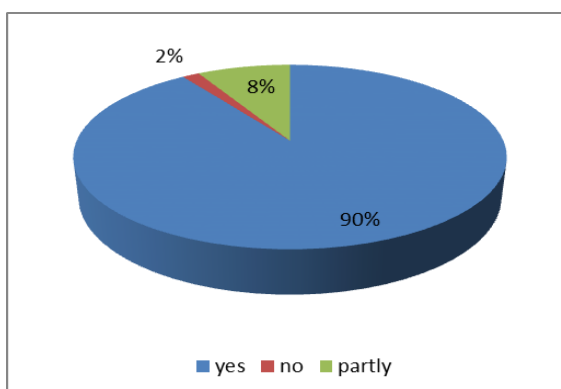


Fig. 10 “Degree of approval of the knowledge acquired”

When asked if the exercises and knowledge in the lecture course were sufficient (Figure 10), again most students (90%) answered "YES". This picture is natural: the curriculum has been established over the years; Teachers participate each year in scientific symposia and congresses in order to "update" the exercises and knowledge of the disciplines.

This, of course, does not save students and they are familiar with the innovations in ski training.

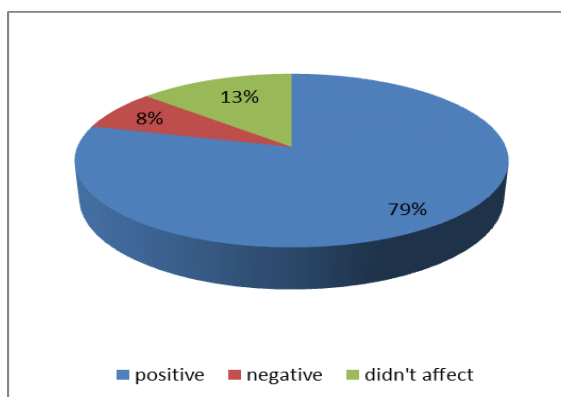


Fig. 11 “Influence of the course on emotional state”

To the extent that training in a ski course causes a strong positive attitude in students because of the importance of its successful completion, students experience strong emotions, stifle their physics and improve their physical condition. Therefore, students' responses (Fig. 11) reflect the high degree (79%) of the positive influence of the course on the emotional state of the students: the majority of the respondents (79%) report the positive influence of the course on their emotional state. These results indicate the high emotional charge of the course as a whole.

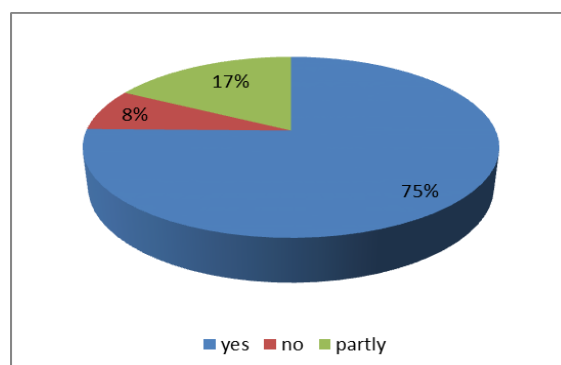


Fig. 12 “Course Influence on General Physical Condition ”

As a benefit, students take into account the impact of the course on their overall physical condition (Figure 12): most answered "Yes" (75%); for some students, the general physical condition was influenced "partly" (17%) due to the workload of the program. Apparently, physical qualities have unleashed their potential during training in the majority (75%), while in others (17%) it is minimal.

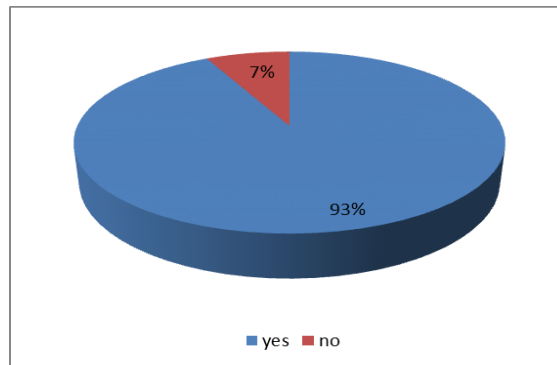


Fig. 13 “Accepting the location based on the training course”

On the question of location assessment on the basis of conducting the training course as appropriate (Fig. 13), almost all respondents (93%) expressed approval for the place. And this is no coincidence - the idea of constructing the hut was chosen in an inaccessible place for educational purposes, far from the familiar everyday life and with a focus on ski training; An additional factor is the ecological one, which enriches the consciousness with new impressions and presents about the nature in the winter mountain and getting to know the native land. At the same time, for some of the respondents (7%), this inaccessibility, detachment of their location in the high mountains, is probably the reason for their negative response, since the training takes place in difficult conditions.

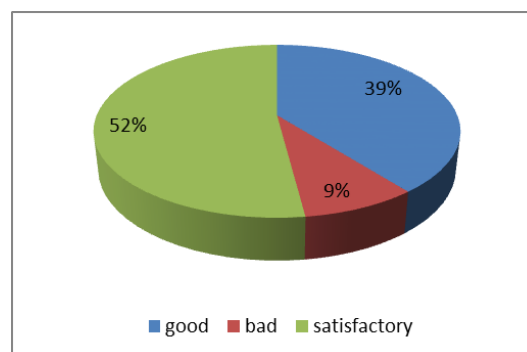


Fig. 14 “Assessment of social and living conditions”

Over the last few years, significant resources have been invested and invested to improve and modernize the facility. More than half of the students (53%) consider the social and living conditions to be “satisfactory” (Figure 14); for just over a third (39%), they are "good"; for at least (9%) they are "bad". In addition to the unpreparedness and the difficult adaptability of this small part of the students, these answers are also influenced by the fact that the building is a "Hut" type and with the full capacity of the study shifts in the rooms it is

sometimes necessary to coexist for 10 people. Despite their constant renewal, this fact has always been a "flaw" in the social and living conditions of the course.

Before taking the course, each student had a preliminary idea of what he or she was expecting, based on the prior information from friends, fellow students who participated in it. In more than half (57%), the expected met reality; expectations match "Partly" by one-third (30%); for the smallest part (13%) the expectations do not match (Fig. 15). The data suggest that, despite the positive success of the course, there is still sufficient room for improvement in the overall performance of the course.

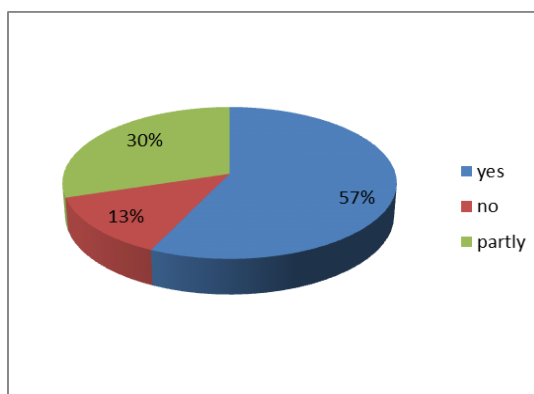


Fig. 15 "Matching expectations with reality in the course"

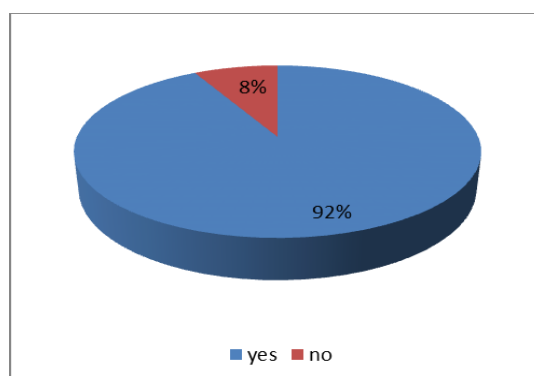


Fig. 16 "Degree of integration with course conditions"

The results related to the integration of students in the course reveal a number of socio-psychological characteristics of their personality (Fig. 16). For the vast majority of respondents (92%) it was easy to integrate in the new conditions and in contacts with colleagues in the course. In our view, these are models of the cultural civilization model in which socialization is manifested at the level of environment-individual and, despite the difficult conditions in the winter mountain and some unfavorable socio-everyday factors, easily accept the requirements for observing the established daily a schedule that imposes an early wakeup routine, heavy training loads during the day, and early room pickup.

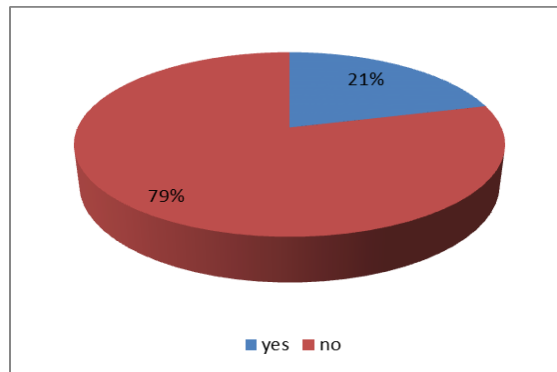


Fig. 17 “Difficulty in adapting to social conditions in the course”

This is confirmed by the results obtained from the question *"Was it difficult for you to adapt to the social regime of the course?"* (Fig. 17): for most of two thirds of the students (79%), adapting to the daily regime was not a problem - they have adopted the lifestyles, requirements for fulfilling specific social roles, interacting with others to absorb new knowledge and technique of skiing.

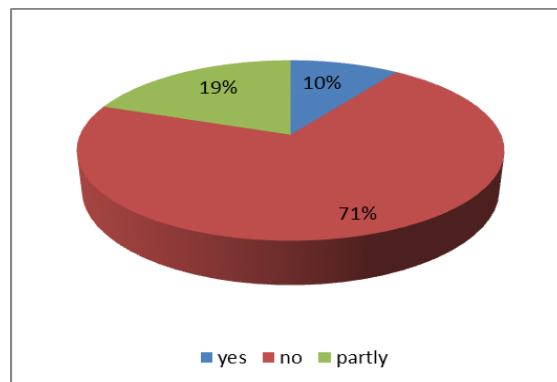


Fig. 18 "Have your personal rights been violated during the course?"

The following personal questions are intended to provide an indication of whether students have been affected - positively or negatively - by the form of the course. A high percentage (71%) of those who believe that their personal rights have not been violated is expected. These data speak of secondary socialization, accomplished by changing attitudes and attitudes, goals, rules, values and moral standards. For those who respond positively, socialization will undoubtedly lead to an enrichment of professional, emotional and whole life behavior.

It is surprising, however, the fact that almost one-third of students (29%) think they were harmed "Partly" (19%) and a similar but final answer "Yes" gives as much as 10%. In them, there is no resocialization that occurs throughout the life of the individual.

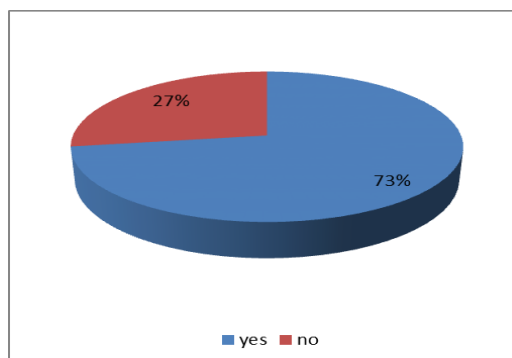


Fig. 19 “The course shapes quality responsibility”

The educational side of the course has an impact on the students, and this is understood by the answers of almost the same students (73%) who say that the course has made them more responsible (Fig. 19). Moreover - through the requirements of the course the main sports-pedagogical, social-psychological and other factors that make sense of the training and upbringing realized in the course were sought and formed.

The last questions (20th and 21st) aim to reveal the students' opinion about skiing (Figs. 20 and 21), as well as their personal prospects for pursuing it in the future. For most students (84%) the course had a positive influence on the formation of a positive attitude towards skiing (Fig. 20);

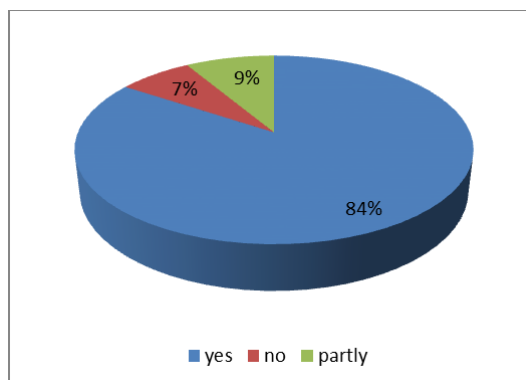


Fig. 20 “Opinion on the impact of the course on forming a positive attitude towards skiing”

An even greater proportion of those surveyed (90%) would be amateur in the sport later, after completing the course (Fig. 21). These facts are gratifying and indicative of the effect of training, especially since a very large number of students who come to the course have never practiced skiing, and this is the first time they have touched the sport and it shows that they were won by the delights associated with snow sports.

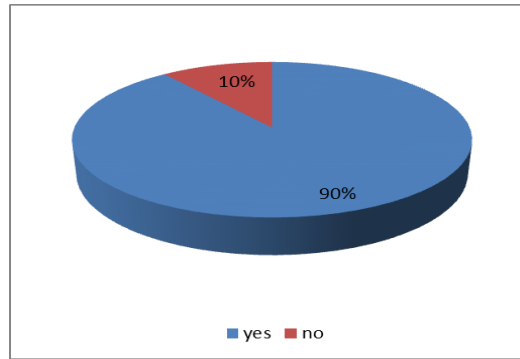


Fig. 21 “Prospects for future skiing activities”

It is also significant that most of the persons surveyed (78%) were awarded for the ski - they would re-attend the ski course if given the opportunity, while a significantly smaller proportion (22%) of the whole sample did not intend to do so. (Fig. 22).

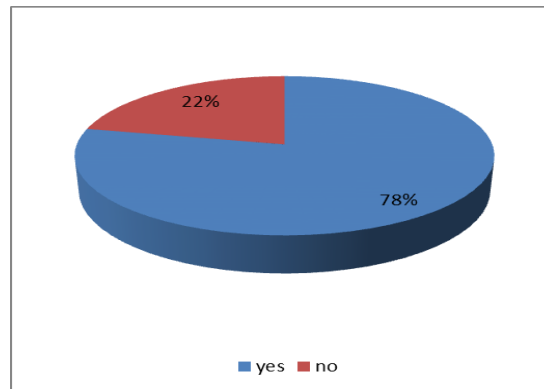


Fig. 22 “Intention for future inclusion in the Snow Sports course”

The survey ends with a question aimed at revealing the students' opinion about the duration of the course. Most respondents (62%) felt that the duration of the course was sufficient to master the skiing technique; for less (26%) it should be shorter; only 12% would like the course to be longer.

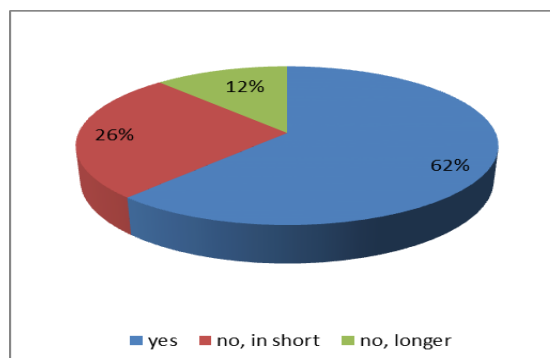


Fig. 23 “Are you satisfied with the duration of the course”

DATA FROM ANXIETY LEVEL TESTS

Analysis of students' situational anxiety indicators

The results for all surveyed persons were obtained using the methodological tool for working with the Bulgarian form of C. Spielberger's questionnaire for anxiety assessment.

The data obtained were categorized for all 279 subjects (71 women and 208 men) by gender and study periods.

Table 8

Values of the variables in the 1st and 2nd study

	women 1st	Women 2nd	Men's 1st	Men's 2nd	total 1st	2 in total
average	36,31	32,86	34,52	33,29	34,98	33,18
STDV	8,60	7,89	7,73	8,08	7,98	8,02
min	23	20	20	20	20	20
max	69	58	66	65	69	65
R	46	38	46	45	49	45
V	23,68	24,02	22,38	24,28	22,81	24,18

Looking at the average results reported by STAY-S in the first study, it was found that women's data at the beginning of the study fell below the average anxiety level of 36.31 points, which is 5.185% higher than that of men - 34.52 t. The men's anxiety range also falls below the average. The standard deviation for the first study in women was 8.60 and in men 7.73. The values of the coefficient of variability for women and men are close (23.68 and 22.38, respectively).

Most publications in the scientific literature indicate that women are at risk of developing high levels of anxiety [Moerman et al., 1996; Nijkamp et al. 2004], which is explained by fluctuations in estrogen and progesterone levels - hormones involved in changes affecting anxiety and mood [Weinstock, 1999], so that the result obtained is in the direction of our previous expectations.

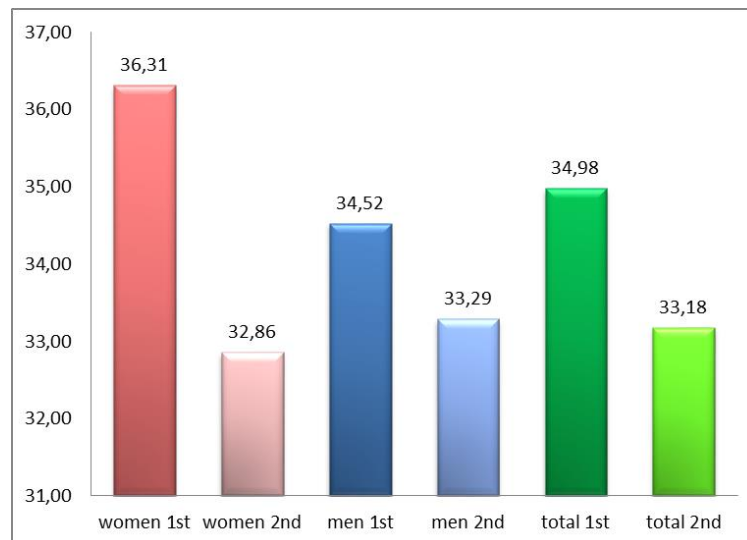


Fig. 24 Gender test average and total across all study subjects at the beginning and end of the course

The analysis of the results obtained at the end of training, however, shows differences in the data for S-anxiety in women - 32.86 points (Fig. 24) or a decrease in anxiety by 10.50%, which could be interpreted as a projection of subjective experience related to the emotional side of the course.

In men, the results showed a slight change of 33.29 points (Figure 24) or a decrease in anxiety of 3.69%. The slight difference could be due to emotional factors related to non-compliance with the established order in the form, which would lead to deserved sanctions and corrective remarks that leave a negative feeling.

The data reported for all the subjects surveyed in the first survey resulted in 34.98 t. The data show a decrease in the outcome of the study by 5.43% - 33.18 points, which falls below the average level of average anxiety level (Fig. 24) - regardless of the daily stress caused by factors such as speed, slope of the terrain, risky situations, use of ski-lift, intensity and density of activities and accumulation of fatigue.

The analysis of the percentage distribution of S anxiety in students at the beginning and at the end of the study revealed a low level of anxiety in almost half of the students surveyed (40.50%); the average is more than half of the subjects surveyed (50.18%) and low - in a small part of those surveyed (9.32%).

Table 9

Percentage of S-Score results for anxiety by periods

	norm	total people 1st	Percentage distribution 1st	2 people in total	Percentage distribution 2nd
low	under 30 p.	87	31,18%	113	40,50%
on average	31-44 p.	161	57,71%	140	50,18%
high	over 45 p.	31	11,11%	26	9,32%

In Fig. 25 showed the differences (in percentages) for all subjects who showed some degree of anxiety in both studies.

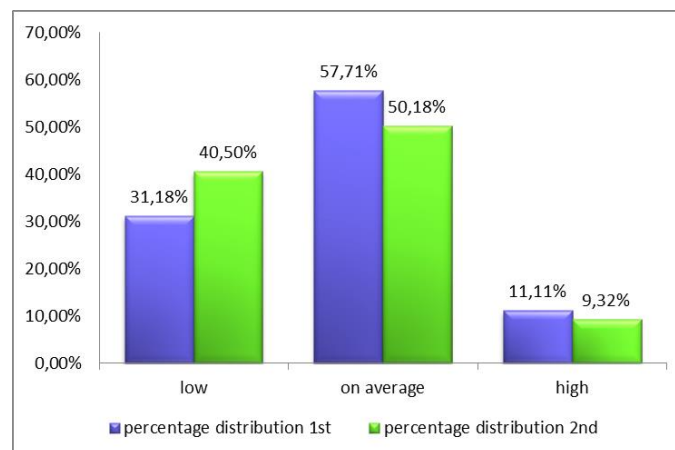


Fig. 25 Percentage of S-Score results for anxiety by periods

The graph shows that students, at the beginning of the study, responded predominantly to the average range of situational anxiety: as a percentage ratio in the average range, 57.71% of the total number of subjects studied, with low S-anxiety were 31.18%, and with high - 11.11%. Therefore, the dominant part of the surveyed individuals demonstrate good social adaptation and are resilient to environmental stressors.

When comparing the percentage distribution of results by period, we find a decrease in the average rate of 15.00% (50.18%) and an increase in the low level of anxiety by 29.89% (40.50%). The high level of anxiety decreased by 19.21% and is 9.32% of the total percentage distribution for all subjects surveyed.

In the first test, 11 of the women showed a high level of anxiety (over 45 tons) (15.49% of all women tested), and in the second test - 8 women (11.27% of all women tested). Twenty men fell into the high anxiety range of the first test (9.62% of all men), and at the end of the course, 18 decreased slightly (8.65% of all men). This is also consistent with the gender data presented above.

Analysis of the stressors affecting the student learning process in the “Snow Sports” course

Environmental stress factors developed by the Snow Sports course have been developed and outlined in the methodology and organization of the study.

The study was completed at the end of each of the 14 daily shifts, involving a total of 265 students.

Conceptually, the data are grouped (Table 10) as follows: stress level, range cutting out the scale into which the responses according to the degree of influence fall. The next 2 columns reflect the number of students who fall into different ranges of negative and positive stress factors.

Table 10

Degree of influence at different levels of stress

index	range	negative	positive
low	20 - 39	166	5
on average	40 - 59	94	82
high	60 - 80	5	178

The statistics characterizing the variables for the negative and positive stress factors are presented in Figs. 26 and 27:

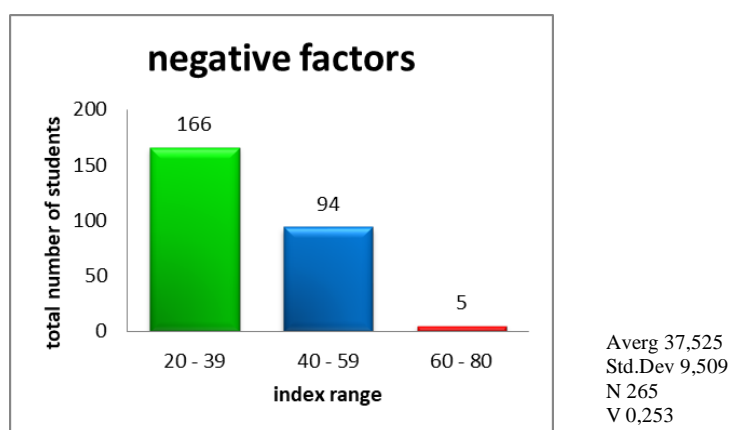


Fig. 26. Negative influencing factors

In the case of negative stressors, the percentage of students who participated in the study indicates that 166 people - 63% showed low levels of stress according to the questionnaire, 94 people - 35% were in the middle range, only 5 people (2%) were in the high level. The average score (averg) of the stress study for all students is 37,525 tons, the standard

deviation (Std.Dev) is 9,509, and the coefficient of variability (V) is 25.34 for a roughly uniform sample.

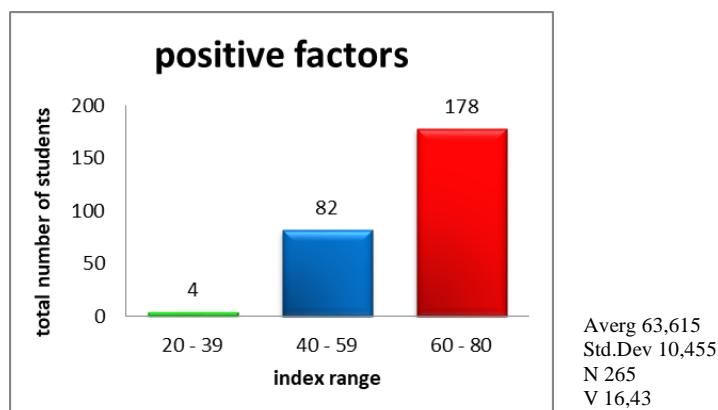


Fig. 27. Positive influencing factors

The evaluation of the results for the positive stressors is done through the same table, but the result is of the opposite importance ie the higher the result, the more the stress factor has a positive effect, presumably having a positive effect on the results achieved with the negative stress factors.

The analysis of the reported data shows that 178 people (67%) fall in the high index, 82 people (31%) in the average and in 4 people (2%) the positive factors are not affected. The average score for all persons is 63,615 points falling in the high index, with a standard deviation of 10,455 and a coefficient of variability of 16.43%.

Obviously, such a concept for analyzing the positive and negative stressors and their relationship requires a deeper study of the problem, which is a new perspective for future research.

FOLLOW-UP OF THE DYNAMICS OF THE MORPHO-FUNCTIONAL INDICATORS ON THE STATE AND DEVELOPMENT OF STUDENTS PARTICIPATING IN THE SNOW SPORTS COURSE

Dynamics of morphological changes of students at the beginning and at the end of the course

Using the methodology described in the chapter "Research Methodology and Methodology", we have identified the somatotypic characteristics of the students in the "Snow Sports" course.

In the table. Figure 11 presents statistical values: for women, we identify the following components at the beginning of each shift (**2.39 - 3.46 - 2.74**). This combination shows *a central somatotype*. The three components do not differ by more than one unit and have values from 2 to 4.

From the available data, it is clear that the female students are: low to high in height, athletic in structure and a moderate percentage of subcutaneous fat, revealing the back, chest muscles, arm muscles and to some extent the muscles in the hips. Usually, the problematic fat is in the abdomen and thighs, along with greater buttock muscles.

Table 11

Statistical values characterizing students' physical development

GENDER	Height		Weight		BMI		Endo morphine	Mezo morphine	Ekto morphine
	Av	Sav	Av	Sav	Av	Sav			
women n = 62	<u>165,81</u>	<u>6,13</u>	<u>59,46</u>	<u>9,85</u>	<u>21,59</u>	<u>3,14</u>	<u>2,39</u>	<u>3,46</u>	<u>2,74</u>
	165,81	6,13	58,24	9,39	21,15	<u>2,97</u>	2,00	3,36	2,75
men n = 72	<u>179,58</u>	<u>7,12</u>	<u>75,15</u>	<u>9,24</u>	<u>23,31</u>	<u>2,64</u>	<u>1,27</u>	<u>4,83</u>	<u>2,69</u>
	179,58	7,12	73,88	8,87	22,92	2,58	0,94	4,71	2,69

Note: the numerators represent the data at the beginning of the course, and in the denominator - the measurement at the end of the course.

Variation analysis in women (Table 12) is considered from the point of view of the estimation of the normal and extra-normal distribution based on the values of the coefficient of variation (Var), which should be lower than 30% at normal and exceeding 30% - for abnormal distribution. For all indicators, data are available that indicate a significant increase shown in Table. 12, with a guarantee probability greater than 95%. Thus, with complete confidence we find that the null hypothesis can be rejected and the alternative for significant changes occurring after the skiing course, as a result of the students' functional load during the Snow Sports training, can be accepted.

Table 12

Dynamics in the development of the physical state

Women indicators	I research	II research	increment d	d %	t	Pt	Var
BMI	21,58	21,15	0,44	2,0	9,033	100,0	15%
Endo	2,39	2,00	0,38	16,0	8,977	100,0	47%
Mezo	3,46	3,36	0,10	2,9	3,262	99,8	35%
Ekto	2,74	2,75	-0,01	-0,4	-2,151	96,5	42%

The distribution characteristics of the endo, meso and ecto-somatotype variables at the beginning and at the end of each shift are graphically presented in the histograms (Figs. 28, 29, 30, 31, 32, 33):

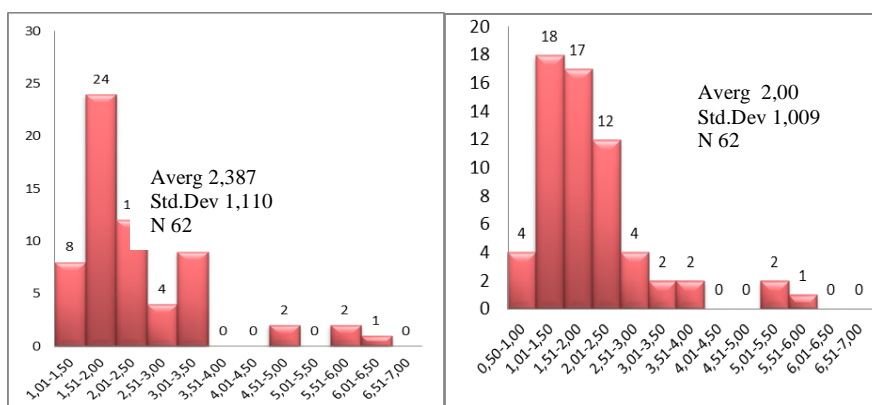


Fig. 28. Initial endomorphic state **Fig. 29 Changes in endomorphic women**

An **endomorphic distribution** histogram shows a set of units in the range of 1.00 to 2.50. It is averaged 2.4 (2.387) and a standard deviation of 1.110. The **mesomorphic** histogram shows a normal distribution of units, with a standard deviation of 1.219.

At the end of the course, the reported data (**2.00 - 3.36 - 2.75**) reveal a positive effect on the activity - **the endomorphic index** is decreased (by 0.39), which indicates a decrease in subcutaneous fat even with this 14-day load.

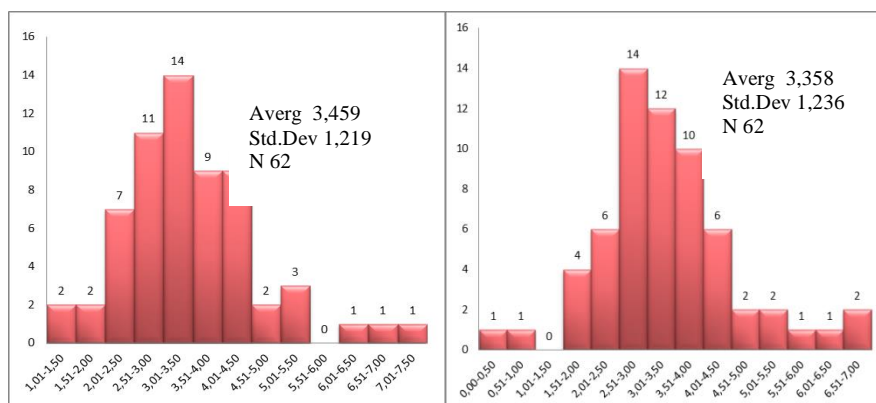


Fig. 30. Source mesomorph

Fig. 31. Endomorph change

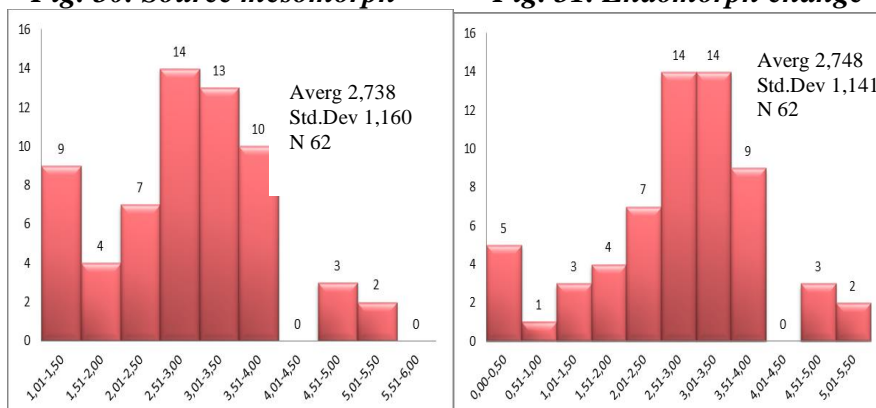


Fig. 32. Output ectomorph

Fig. 33. Change in ectomorph

Significant values are found for students for BMI, Endo and Mezo. For these of them, the null hypothesis can be rejected with absolute certainty and the alternative for a significant increase due to the beneficial effect of the activities in the ski course can be considered valid (Table 13).

Table 13

Statistical indicators for men

Indicators men	I research	II research	Increment d	d %	t	Pt	Var
BMI	23,31	22,92	0,39	1,7	7,61	100,0	11%
Endo	1,27	0,94	0,33	25,8	7,23	100,0	74%
Mezo	4,83	4,71	0,12	2,4	2,28	97,4	25%
Ekto	2,69	2,69	0,00	0,0	-0,37	29,1	45%

In males (Table 11), we establish mean components (**1.27 - 4.83 - 2.69**) - This combination reveals an *ectomorphic mesomorph*. In general, they are of high structure and more muscle mass than true ectomorphs, but still less than true mesomorphs or meso-ectomorphs. Typical features are: small volume and structure of bones, ability to build more muscle tissue, flat-looking muscles, medium shoulder width, relatively fast metabolism.

The distribution characteristics of the endo, meso and ecto somatotype variables are presented graphically in the histograms (Figs. 34, 35, 36, 37, 38, 39). The data outline the endomorphism with an average (1.27) and a standard deviation of 0.95 (Fig. 34). A low value determines a small amount of subcutaneous fat. The distribution is normal for the already determined somatotype type. The histogram shows that at its highest point were 52 students (72.22%) of the sample of all men studied.

The distribution of **mesomorphy** (Fig. 36) is also statistically characterized by means (4.83) and standard deviation (1.22). The histogram has a symmetrical, normal distribution with a slight increase on the left, but generally the units are concentrated near the center.

Ectomorphs (Fig. 38) are determined by an average of 2.69 and a standard deviation of 1.20. The low value determines the small linearity of the body and the large amount of relative mass measured at a certain height.

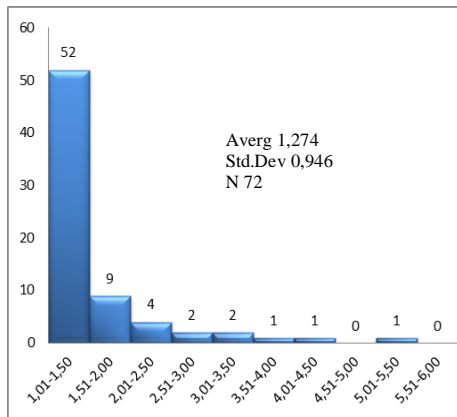


Fig. 34. Male endomorph

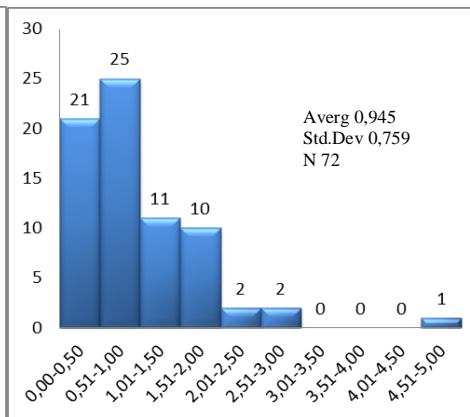


Fig. 35. Change of endomorph

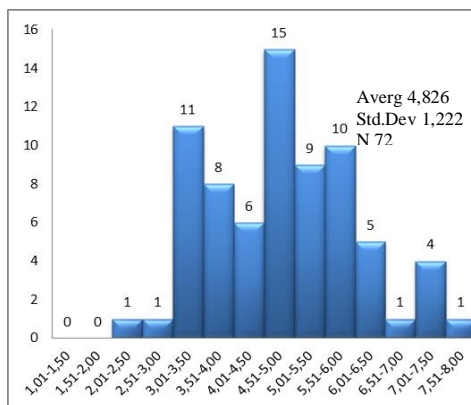


Fig. 36. Mesomorph - Men in the beginning

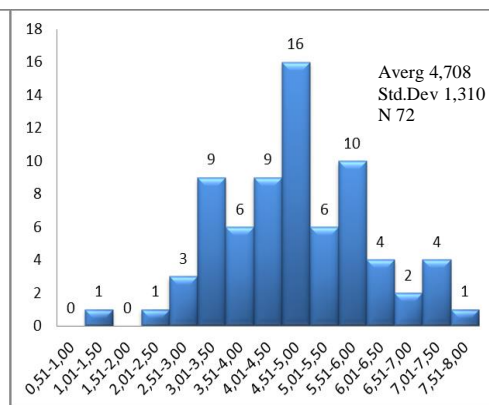


Fig. 37. Modification of the mesomorph

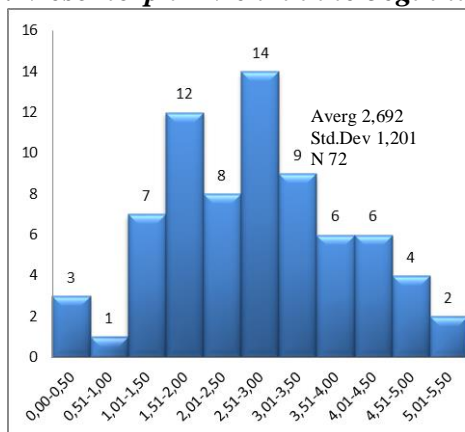


Fig. 38. Ectomorph – Men

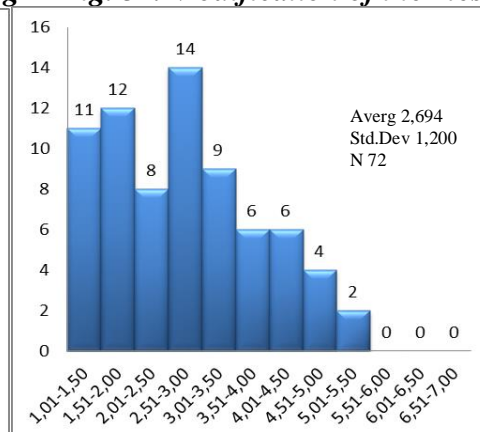


Fig. 39. Changes in ectomorphs

The characteristics of the end-of-course somatotype indices in men are respectively **0.94 - 4.71 - 2.69**. The same pattern is observed in women - the endomorphic is decreased by 0.33 and the mesomorphic by 0.12.

In the methodological plan of the study, we planned to monitor the dynamics of the BMI, taking into account that it correlates significantly with the somatotype of the athletes, especially with their functional state, which is examined using the Rufier test.

Table 14 summarizes the statistics for women. At the beginning of the study, the body mass index averaged 21.59, which is estimated to be *normal body weight*. In the end-of-course study, the mean was slightly optimized (21.15).

Table 14

Physical development women

№	indicator	n	Statistical characteristics					
			X min	X max	R	Av	Sav	V %
1.	high	62	150	179	29	165,81	6,13	3,70
2.	Weight at the beginning	62	43	88	45	59,46	9,85	16,57
3.	Weight at the end	62	42	85	43	58,24	9,39	16,12
4.	BMI in the beginning	62	17,24	32,72	15,46	21,59	3,14	14,55
5.	BMI at the end	62	16,90	31,60	14,71	21,15	2,97	14,06

Note:

X min - minimum value

X max - maximum value

R is the range (interval). difference between maximum and minimum value

Av - arithmetic mean

Sav - standard deviation

V% - coefficient of variability

In the table. Fig. 15 shows the quantitative statistical information on BMI in men and the graphical expression of the histograms (Figs. 42 and Fig. 43). According to WHO estimates (Table 15), men also fall under the *normal body mass index*.

The comparative analysis of BMI values in men is similar to the results in women. Also, many students have reduced their body mass index. The average BMI in the first study was 23.31, and at the end of the course - 22.92 - the decrease was 1.71% or 0.39.

Table 15

Physical development – men

№	indicator	n	Statistical characteristics					
			X min	X max	R	Av	Sav	V %
1.	high	72	162	200	38	179,58	7,12	3,96
2.	Weight at the beginning	72	60	97	37	75,15	9,24	12,30
3.	Weight at the end	72	58	94	36	73,88	8,87	12,01
4.	BMI in the beginning	72	18,11	32,69	14,58	23,31	2,64	11,33
5.	BMI at the end	72	18,42	31,96	13,54	22,92	2,58	11,27

Dynamics of students' functional status at the beginning and end of the course

We are aware that a major criterion for functional work capacity is the response of the cardiovascular system as assessed by heart rate (HR). The analysis of the impact of functional load during the course "Snow Sports" is made on the basis of changes in the assessment of the pulse rate, by a sample of Rufie. The statistical indicators are presented in Table. 16.

The mean of the index for women is 13.46, with a standard deviation of 4.20, so they fall in the column with *poor functional status*. Measurements at the end of the course indicate an improvement in the functional status of students by 26.08% and an index of 9.95, which according to the assessment table corresponds to the characteristics for *satisfactory functional status* of the subjects.

Table 16

Results of the Ruffier sample

	Index at the beginning of the course Men	End of Course Index Men	Index at the beginning of the course women	End-of-course index women	Index at the beginning of the course for all students	End-of-course index of all students
average	12,41	9,26	13,46	9,95	12,90	9,58
STDEV	3,96	3,36	4,20	3,97	4,09	3,65
min	0,8	0,9	3	2,2	0,8	0,9
max	20	17,2	23	18	23	18
R	19,20	16,30	20,00	15,80	22,20	17,1
V	31,87%	36,26%	30,92%	39,54%	31,69%	38,15%
Percentage difference		25,38%		26,08%		25,74%

Data (Table 16) reported, at the beginning of the course, an average male index of 12.41, with a standard deviation of 3.96; for women, the indicator is 13.46 and a standard deviation of 4.20, which is evaluated as an expression of *poor functional status*. At the end of the course, the average for men was 9.26, for women - (9.95) and a standard deviation of 3.97. According to the rating scale, men's functional status is improved by 25.38%, women's by 26.08, which reflects *satisfactory functional status* in both sexes.

The general functional status of students at the beginning of the course was with an index of 12.9, and at the end of 9.58 - a significant improvement (by 25.74%) was observed. The considered changes in the index values presented in Figs. 44, show almost identical values for both sexes, with slight deviations.

The distribution of the variables in the evaluation of the data according to the sample of Rufier, common to all students - at the beginning and at the end of the ski course is illustrated by the histograms of the table. 45 and 46.

The reactivity of the cardiovascular system can be determined by the pulse values measured immediately after completion of the HR1 sample (within the first 15 seconds). In women, the average value at the beginning of the course was 136.23 bpm /, and at the end - 122.39 bpm / min. The minimum heart rate at the beginning is 112 beats / min and 80 beats / min at the end; maximum values were established at the beginning (190 bpm) and at the end of the study - 160 bpm.

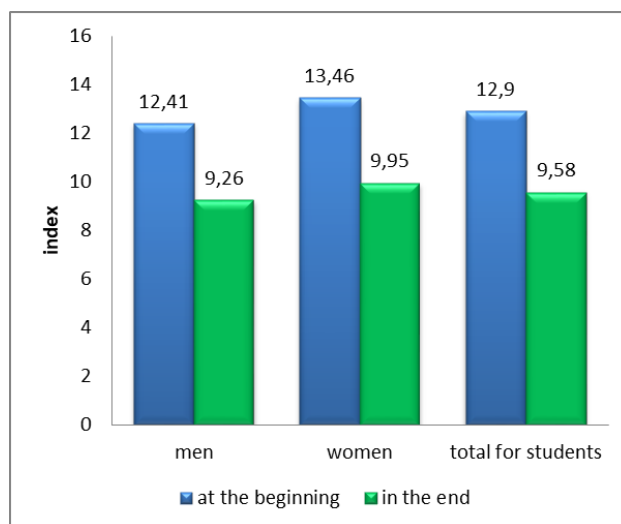


Fig. 44. Functional status (according to Ruffier test)

The coefficient of variance at the beginning was 12.31% and at the end of the course - 13.56% (Table 17).

Functionally related to the morpho-physiological features of the cardiovascular system in women is their reaction after functional tests: in the same type and dosage tests, women usually respond with greater pulse rate acceleration, with less increase in systolic arterial blood pressure, with a longer recovery period after tests [by Bichev, 2006: 147].

In men, the mean values were 132.03 bpm at the beginning and 119 bpm at the end, respectively. The minimum value of the pulse after the sample is 88 beats / min at the beginning and at the end of the course the value is the same. The maximum heart rate for the first sample was 180 beats / minute and 148 beats / min at the end. We observe values of coefficient of variance respectively 13.13% at the beginning and 10.99% at the end of the course (Table 17).

It is noteworthy that the measured mean values of HR1 for both sexes, immediately after the sample is carried out both at the beginning and at the end, are very close, which is to say that the possibilities for adaptation of the cardiovascular system to physical activity are gender independent of students.

Table 17

Mean values of HR1

	Hr1 at the beginning of the course Men	Hr1 c end of course Men	Hr1 at the beginning of the course women	Hr1 at the end of the women's course	Hr1 at the beginning of the course for all students	Hr1 at the end of the course for all students
average	132, 03 bpm	119, 00 bpm	136, 23 bpm	122, 39 bpm	133, 97 bpm	12,57 bpm.
STDEV	17,33	13,08	16,77	16,60	17,14	14,85
min	88	88	112	80	88	80
max	180	148	190	160	190	160
R	92	60	78,00	80,00	102	80
V	13,13%	10,99%	12,31%	13,56%	12,79	12,32

Interesting information is the data presented in Table. 18: resting heart rate, measured at the beginning of the course, average for all students is 88.33 beats per minute, and at the end - 80.11 beats / min, or improvement in HR by 10.26%.

According to K. Bichev (1998) resting heart rate can be normal - normocardia (60-90 beats / min), fast (more than 90 beats / min), etc., tachycardia and slow (more less than 60 beats / min) - bradycardia.

The pulse rate is labile and can be influenced by a number of factors. Of note, conducting the first sample is on the day of arrival at the base, immediately after the completion of the dark and slippery terrain of nearly 4.5 km, with a slope of the profile of the terrain. The minimum measured resting heart rate at the beginning of the course is 50 beats per minute, the maximum is 132 beats per minute; at the end of the course the data is with a minimum value (50 beats / minute and maximum - 114 beats / min.

Table 18

Heart rate averages

	Hr 0 at the beginning of the course total	Hr 0 at the end of the course total	Hr1 at the beginning of the course total	Hr1 at the end of the course total	Hr2 at the beginning of the course total	Hr2 at the end of the course total
average	88,33 bpm	80,11 bpm	133,97 bpm	120,57 bpm	106,67 bpm	95,09 bpm
STDEV	15,36	13,53	17,14	14,85	19,69	17,34
min	50,00	50,00	88,00	80,00	56,00	52,00
max	132,00	114,00	190,00	160,00	158,00	136,00
R	82	64	102	80	102	84
V	17,39%	16,89%	12,79%	12,32%	18,46%	18,24%

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. The main key stages of training during the course by period - *adaptive, basic, final* - in which changes in the educational direction occur.
2. Significant factors have been identified that have an impact on training in the "snow sports" course, directly related to sports-pedagogical activity.
3. The course has a positive impact on the students' socio-psychological and physical condition. More than two-thirds of those surveyed indicated they were satisfied with the overall format of the course.
4. The designed organization of the course organization, together with the modern teaching methods included in the teaching material, correspond to the current training systems and are in line with the recognized high quality of training at the NSA.
5. There is a clear tendency to reduce the situational anxiety in the course of the study due to the basic needs with the applied ski course format.
6. The stressful atmosphere during the course is adequately tolerated by the students, which is a reason for achieving good results during its course.
7. The changes in the somatotype confirm in practice the theoretical foundations of the applied method, which results in positive changes in one of the components monitored.
8. The high trend of the pulse rate - between the beginning and the end of the course - is related to the low physical fitness of the students. Its improvement at the end of the course can be explained by the high density of snow sports practice, the altitude affecting loading and recovery.
9. The average HR1 values found in students of both genders immediately after the sample - at the beginning and at the end - are very close, revealing the equilibrium possibilities of the cardiovascular system to adapt to the physical load in men and women, ie. ., gender independent.

RECOMMENDATIONS

1. The obtained results give reason to recommend the periodic conducting of this type of research in order to obtain up-to-date information on the status of students in NSA students in social and psychological aspect.
2. It is necessary to organize and carry out (carry out) systematic, in-depth and detailed research both during each ski course and immediately after its completion.

3. In spite of the established reduced anxiety at the end of the study, during the course of the ski course, it is necessary to ensure a lasting minimization of the factors contributing to its increase.

SCIENTIFIC AND PRACTICAL APPLICATIONS

1. The lack of specific studies and published data on the impact of the ski course on the students of NSA "Vasil Levski" gives reason to believe that this first study on the problems raised in this topic needs to be continued.

2. The results of the study are of immediate practical value both for the optimization of the educational process with the students of NSA in the course in "Snow sports", as well as for further and additional scientific researches on the topic.

3. The study is a certificate of the positive impact of participation in the Snow Sports course for enhancing students' ability to participate effectively in this educational format.

PUBLICATIONS ON THE TOPIC OF THE DISSERTATION WORK

1. **Zdravcheva, M., Zgurovski, K.**, Study of situational anxiety in snow sports courses, International Scientific Congress "Applied Sports Sciences" Sofia, 2017, (411-416)
2. **Zdravcheva, M.**, Analysis of the Functional Condition of Students Participated in the Snow Sports Course, Sport and Science, Issue 3/4 S., 2019 9 (52-59)
3. **Zdravcheva, M., Zgurovski, K., Pavlov, D.**, Follow the current morphological development and state of students participating in "snow sports" course, International Scientific Congress "Applied Sports Sciences" Sofia, 2019 (307-311)