AJSIHD
GLOBAL RESEARCH NETWORK

AMERICAN Journal of Science on Integration and Human Development
Volume 3, Issue 3, 2025 ISSN (E): 2993-2750

The Methodology of Developing the Physical Qualities of Alpine Skiers in the Training Group

I. B Jurayev
Independent researcher, Uzbek State University of Physical Education and Sports, Chirchik city, Uzbekistan

Abstract: This article is presented an information on the methodology for developing the physical qualities of alpine skiers in the training group and the use of means and methods aimed at optimizing the types of physical, technical, and tactical training in improving the preparation of alpine skiers.

Keywords: skiing, preparation, coordination, Sky tech, Ski machine, movements, skiers, groups.

Introduction

Alpine skiing is gaining significant importance worldwide not only as a sport but also as a popular recreational and tourism activity. It is one of the main disciplines in the Winter Olympic Games. The competitions organized by the International Ski Federation (ISF), including the World Cup, highlight the global nature of this sport. The relevance of alpine skiing is also growing alongside climate change-related issues. Technologies for artificial snow production, advanced ski equipment, and cutting-edge gear contribute to the global development of the sport. Modern technologies, such as Sky Tech and ski machine simulators for training and improving skiing skills, are taking athletes' preparation to a new level. Many countries are developing national programs aimed at fostering the growth of alpine skiing. This sport continues to expand due to technological advancements, the development of tourism, and the interest of new generations. The international prestige of alpine skiing, its contribution to a healthy lifestyle, its economic significance, and the increasing focus on the physical preparation of alpine skiers make it a highly relevant topic.

In global practice, various components of innovative educational technologies are utilized to enhance the physical and technical preparation, as well as the overall well-being, of alpine skiers. Research efforts in sports biomechanics, physiology, and psychology focus on structuring training processes according to the preparation levels of alpine skiers, monitoring progress, and obtaining optimal results. Studies in sports biomechanics help analyze and optimize athletes' movements. Portable measurement systems used in sports biomechanics assess the movements of alpine skiers, while recommendations have been made for improving the physical fitness of adolescents through sports tourism. However, there remains a need to develop methodologies for enhancing the physical preparation of alpine skiers in the training phase, as well as improving their technical skills through off-season training programs.

In Uzbekistan, special attention is being given to the development and popularization of winter sports, alongside Olympic and other sports disciplines. Comprehensive measures are being implemented, including the identification of talented young athletes in winter sports, the

selection of those capable of competing at the international level, and the professional training of alpine skiers. The increasing demands on technical preparation in modern alpine skiing require specialists, coaches, and athletes to enhance their skills during the off-season through advanced equipment. Finding new, effective training methods to improve technical preparation outside of the competitive season has become a crucial issue.

The purpose It consists of developing proposals and recommendations for improving the specialized physical training of alpine skiers during the training phase.

Research objectives: The training processes of 11-12-year-old alpine skiers from the Republican Higher School of Sports Excellence in winter and complex-technical sports have been analyzed.

It is recommended to focus primarily on basic training in the preparation of alpine skiers. At the same time, the training phase of alpine skiing is a crucial period in an athlete's development, during which they transition from mastering fundamental skills to specialized physical and technical preparation. At this stage, training becomes more intensive and aims to enhance the level of specific endurance, strength, coordination, and technical skills required for performing complex alpine skiing exercises. This phase is particularly significant in ensuring further progress in the sport and achieving high results in competitions.

The sports improvement phase is the next step in the development of alpine skiers, where they acquire sufficient technical and physical preparation to compete in tournaments. At this stage, refining tactical skills, adapting techniques to the specific conditions of the course, and strengthening physical endurance are of great importance. Training sessions during this phase should be competition-oriented, focusing on improving movement speed, control, and precision. This stage is also characterized by the application of specialized training methods, such as speed and speed-strength exercises, which help enhance the athlete's physical condition.

Training sessions were conducted both during the off-season and in real mountainous conditions. Alpine training took place in actual mountainous regions, focusing on refining techniques for handling complex terrains. Additionally, attention was given to developing and maintaining the technical skills of alpine skiers during the off-season. To simulate competition conditions and foster a competitive spirit during training, group games and simulations were utilized.

In conclusion, the use of modern tools and methods in alpine skiing training significantly enhances athletes' technical, physical, and psychological preparation. These technologies play a crucial role in improving sports performance and reducing the risk of injuries. A combination of various tools and methods was recommended to achieve optimal results. During the research process, criteria were selected for assessing the physical preparedness of alpine skiers. A pre-study experiment was conducted, and a control group was analyzed to determine the specific physical preparedness indicators of alpine skiers.

Table 1. Indicators of specific physical fitness of alpine skiers in the experimental and control groups at the beginning of the research (n=12)

№	Control tests	Research group			Control group		
		$\bar{X}$	σ	V, %	$\bar{X}$	σ	V, %
1.	Imitation moves with rollers and flags on the track times	13,5	1,25	9,25	14,1	1,29	9,14
2.	Slalom course (snake track) seconds	55,5	5,27	9,49	53,4	5,12	9,58
3.	"Box" test 30 times	36,3	6,78	18,67	37,2	6,81	18,30
4.	One-legged sit-up “Pistol” (right and left)	8,5	0,45	5,29	7,2	0,32	4,44

Explanation: (1st test: Maximum score of 33 points. 2nd test: 450-500 meters, 60-75 seconds. 3rd test: Number of incorrectly navigated gates, minimum of 10 on a standard course.)

At the beginning of the study, the special physical preparedness indicators of the experimental and control groups of alpine skiers were determined using specific criteria. According to the test results, in the simulation movement test with rollers and flags on the course, the experimental group participants completed an average of 13.5 repetitions, while the control group participants completed an average of 14.1 repetitions. In the slalom course test, the experimental group completed the course in 55.5 seconds, whereas the control group completed it in 53.4 seconds.

In the "Box" test, the experimental group scored 36.3, while the control group scored 37.2. In the single-leg squat ("Pistol squat") test (right and left leg), the experimental group participants performed an average of 8.5 repetitions, while the control group performed 7.2 repetitions. At the start of the study, the special physical preparedness indicators of the experimental and control groups were nearly identical, which provided a solid basis for initiating our research.

We analyzed both foreign and domestic model programs and developed an optimal program. Based on this, we designed a four-year training phase plan with a detailed distribution of training hours. Considering that training sessions are held in mountainous regions in January and February, we allocated training hours for off-season development using Ski Tech and Ski Machine equipment to enhance physical, technical-tactical, and functional preparation.

Psychological preparation is as crucial in alpine skiing as it is in any sport. Our analysis of previous training programs revealed that little to no time was allocated for psychological training. Recognizing the importance of reaction speed at the start, concentration, and visual perception in overcoming obstacles, we incorporated dedicated training hours for psychological preparation.

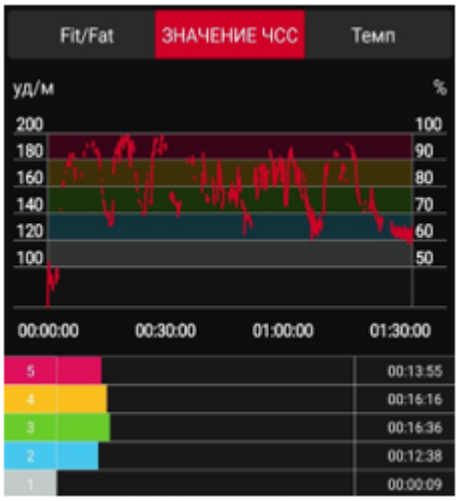
To assess the functional state of alpine skiers in the training group using modern innovative equipment, we utilized the “Polar H10” heart rate monitor strap. Additionally, while analyzing slalom and giant slalom performance in mountainous terrain, we took into account the individual indicators of alpine skiers, particularly in overcoming obstacles.

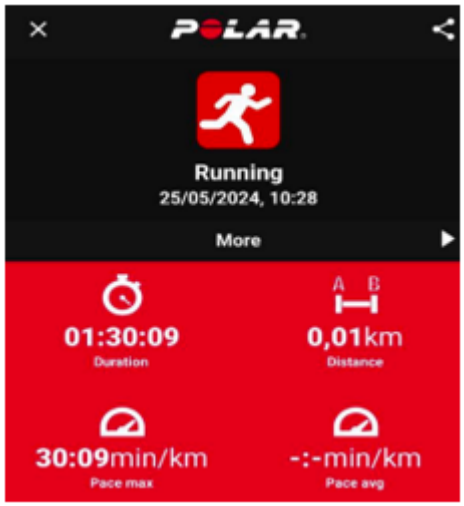
When analyzing the movement activity of the training group skiers based on intensity zones, it was observed that they spent:

- 9 seconds in the low-intensity zone,
- 12.38 minutes in the moderate-intensity zone,
- 16.36 minutes in the high-intensity zone,
- 16.16 minutes in the submaximal-intensity zone,
- 13.55 minutes in the maximal-intensity zone.

Based on these research findings, we can conclude that the functional preparedness of alpine skiers was evaluated as low.

The total duration of the training session was 1 hour, 30 minutes, and 9 seconds. During the training, the maximum pace recorded was 30.09 minutes per kilometer, while the minimum pace was 0.01 minutes per kilometer.





Based on the obtained results, we can conclude that the skiers experienced physical strain due to the given training loads, as observed during the session. Additionally, this was evident from their performance in the **anaerobic intensity zone.

Our research findings confirmed that the functional state of the participants involved in this study was at a moderate level. Considering this, we conducted off-season training sessions using the Sky Tech equipment to enhance their preparedness.

In conclusion, after the research period, to assess the changes in the functional state of alpine skiers in the training group, we continued to measure and analyze their functional indicators. According to the post-research data, the total training duration was recorded as 1 hour, 33 minutes, and 8 seconds.

References:

1. Decree of the President of the Republic of Uzbekistan **Sh. M. Mirziyoyev No. PF-5368 dated June 3, 2017,** "On Measures for the Radical Improvement of the State Management System in the Field of Physical Culture and Sports in Uzbekistan."
2. Letter of the Ministry of Physical Culture and Sports of the Republic of Uzbekistan **No. 03-08-08-508,** "On Proposals for Changing the Structural Organization of the Uzbekistan State University of Physical Culture and Sports," **and the decision of the University Council at its meeting No. 1 on August 29, 2019, ensuring the implementation of tasks regarding the establishment of the** "Department of Winter Sports" **dated August 21, 2019.**
3. Resolution of the President of the Republic of Uzbekistan **No. PQ-303 dated November 3, 2022,** "On the Comprehensive Preparation of Uzbek Athletes for the XXV Winter Olympic Games and XIV Winter Paralympic Games to be Held in Milan and Cortina (Italy) in 2026."
4. Abdullaev A., Khankeldiev Sh. ***Theory and Methods of Physical Education.*** **- Tashkent: UzDGTI, 2005. 231 p.**
5. Absalyamova I.V. ***System of Sports Training in Figure Skating*** **/ I.V. Absalymova // Methodological Developments. - Moscow: GCOLIFK, 1985. 24 p.**
6. Absalyamova I.V. ***Figure Skating: Sample Program for the System of Additional Education for Children: Youth Sports Schools, Specialized Youth Olympic Reserve Schools*** **/ I.V. Absalymova - Moscow: Soviet Sport, 2006. 154 p.**
7. Agadzhanyan N.A. ***Fundamentals of Human Physiology*****, 2nd edition, edited. - Moscow: RUDN, 2001. 408 p.**