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SPECIFIC PHYSICAL TRAINING IN THE GAME OF WOMEN`S RUGBY 7

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The doctoral thesis and the summary can be consulted at the Library of the State University of Physical Education and Sports and on the ANACEC website.

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CONCEPTUAL LANDMARKS OF THE RESEARCH

The actuality and importance of the topic addressed. Sport in general, and rugby in particular, has had a rapid evolution, thanks to the involvement of science, which is increasingly making its mark through the number of researches carried out on all sports disciplines. Rugby 7 is part of this discipline, where motor qualities make their mark the most. Players are subject to motor, physical and behavioral changes.

The evolution of performances in sports in general, and in sports games in particular, has made a good part of specialists find that physical training occupies an important place in training performance athletes [1, 7, 16, 17, 26].

Established authors such as Badea D., Constantin V., Matveev L.P. and Novicov A.D. have found that one of the essential aspects of the training of rugby players of any level is the methodologically correct application of all specific means in order to improve their sports training [5, 10, 11, 22, 23].

I chose this topic because in Romanian literature it is rarely encountered, the emphasis most of the time is on the technical-tactical training part and not on the physical training of rugby players. We consider this sport to be a complex one, all the more so as the physical training is decisive, being a limiting factor of performance.

On the other hand, we consider a decisive factor in physical training, training with means specific to rugby according to the level of each athlete. Through the personal experience gained as a player at the club team and at the National Team, but also through the experience gained as coach of the Politehnica Iasi team, we have come to the conclusion that only a higher level of physical training can support the effort and the technical-tactical systems in rugby 7.

Without a doubt, scientific research rarely conducted in this discipline has led to a regression of performance in all age categories. Analyzing at the national level, most of the time the methods and means used in training are not adapted to the game of rugby 7, having repercussions on the expression of the players physically, technically and tactically.

All the aforementioned aspects have often led not only to the involution of the players but also to their exposure to injuries. The content of the present research wants to provide specialists in the field with support in the training of rugby players 7 by presenting the specific training.

The aim of the research consists in the elaboration and experimental argumentation of the efficiency of using specific means in the physical training of rugby players 7.

Objectives of the work:

1. Literature analysis on the physical component in the training of rugby players 7.
2. Assessment of the level of physical training of rugby players 7.
3. Develop the training plan on the specific physical training of 7 rugby players in an annual training cycle.
4. Experimental argumentation of the effectiveness of the applied curriculum on the physical training specific to the game of rugby 7.

The hypothesis of the research. We assume that the implementation of a physical training program with specific means that develops the combinations of qualities prioritized by the individual peculiarities of rugby players 7, leads to the improvement of effort and performance capabilities.

The scientific novelty and originality of the research consists in the scientific argumentation of the effectiveness of the training curriculum specific to the game of rugby 7, oriented to the exigencies of the current game.

The important scientific problem solved in the field is to increase the level of specific physical training in the game of rugby 7 by using specific means in the training process, which will lead to an improvement in the efficiency of the game.

The theoretical significance of the research results lies in the formation of a wide spectrum of knowledge on the improvement of the system of training of rugby players 7 and the improvement of their sporting mastery.

The applicative value of the research can be an important benchmark for shaping the content and how to plan the process of preparing 7 rugby players in all age categories.

Implementation of scientific results. The results of the research were implemented in the process of training 7 rugby players from sports clubs in Romania, Poland, Bulgaria and the Republic of Moldova.

Framing the results of the research into practice. The experimental program proposed in this paper was approved and implemented in the process of preparing the rugby team 7 C.S. Politehnica Iași.

The results of the research on the approached topic have been published in various national and international scientific sessions of the specialty. The scientific papers were published at international scientific conferences in: Galați (2021), Constanța (2021), Bucharest (2021), Iasi (2021), Riga (2022) as well as in specialized journals in Chisinau (2021), Constanta (2021), Bucharest (2021), Iasi (2020, 2021), Riga (2022).

Summary of the thesis compartments

In *the Introduction* we focused on the actuality of the topic addressed and the importance of the researched problem. We have specified the purpose and objectives of the research, the scientific novelty and originality, the theoretical importance, the applicative value of the work and the approval of the research results.

In *Chapter 1* of the thesis: *"Theoretical foundations regarding physical training"* includes 4 subchapters, in which the opinions of the authors from the specialized literature were studied, regarding the physical training of performance athletes, their exercise capacity and their performance capacity.

In *Chapter 2* of the thesis: *"Shaping the physical training of rugby players in 7"* includes 5 subchapters.

In *Chapter 3* of the thesis: *"Experimental argumentation regarding the specific physical training in the women's rugby game 7"* are presented 5 subchapters that include the structure and content of the pedagogical experiment, which took place with the athletes of the C.S. Politehnica Iași team, a team participating in the National Rugby 7 Championship in Romania.

The thesis of Doctor of Education Sciences ends with *General Conclusions and Recommendations, Annexes* and *Acts of Implementation of* research results in practice.

THEORETICAL FOUNDATIONS REGARDING PHYSICAL TRAINING

(basic content of Chapter 1)

Rugby is a team sport, in which physical contact with the opponent is direct. It is practiced by both women and men, being part of the category of mixed games. One can play with both hand and foot, also points can be scored by essay with the hand, and by conversion with the foot [4, 18, 19, 20, 25].

A fundamental feature of modern rugby indicates total physical engagement with the opponent, emphasizing the contact struggle that takes place in both individual and collective confrontation, physical training being essential [18].

Specialists in the field state that physical training has the following mental content:

(a) aptitude background: psychomotor aptitudes, general and segmental coordination, quinesthesia, body scheme, laterality, static and dynamic equilibrium, speed of reaction, repetition and execution, orientation and perception of movements in space, perceptual-motor coordination, ideomotricity and high motor skills (speed, resistance, force and mobility);

b) self-assessment capacity;

c) confidence in one's own forces;

d) the capacity of voluntary regulation of actions and the capacity for voluntary effort, perseverance, pain support, etc." [13, 14].

Physical training is considered to be one of the basic factors of sports training, this providing support for carrying out technical and tactical actions within the game, determining the performance in trainings and competitions, being the key element for the other components of sports training. [2, 8, 9, 15, 21, 24, 26].

General physical training ensures the optimization of basic motor skills and biological potential of the organism, basic motor skills and abilities and ensures the harmonious physical development of the organism.

Depending on the experience of the athlete, general physical training has different weights in training. For example, in the case of beginners, general physical training has a much more important place and is allocated more time in the training process, compared to established athletes, where physical training is a specialized one.

In rugby game 7, where the physical commitment is total [3, 20], players need very good physical training to cope with the demands of the game. It is systematized into three stages: general, multilateral physical training and specific physical training [7, 12].

In the game of rugby 7, in general physical training, general methods and means are used, but also specific, for the specialization and individualization of athletes.

In any physical training found in a macrocycle, general physical training is found at the beginning of the preparatory period. Its purpose is to optimally develop the motor capacity of athletes. The duration of this period differs depending on the level of athletes and may be shorter for advanced athletes, 2 – 4 weeks, and longer for beginner athletes.

As for the multilateral physical training, it is carried out differently, the means used are selected according to the somato-functional and motor peculiarities of athletes [15].

Multilateral physical training has two forms: standardized training, determined by the motor, physical and mental structure of the rugby player, and the non-standard one, respectively, which is determined by the shortcomings of each individual player, both of which have an important role. Standardized selective training has an important role in achieving physical training for the entire team, and non-standard training has the role of specifying the objectives of individual physical training for each player.

The specific physical training is carried out according to the specific effort of each sports branch and the level of competition, being engaged in effort the great functions of the organism. [20,21,24,30,61,62,98] It is carried out with the help of the means and methods specific to each sports branch, being specifically situated at the end of the training stages in the pre-competitive and competitive period.

General physical training and specific physical training condition each other and determine the performance of athletes. This methodically made link is an important element in the orientation of sports training, a good training representing the support for the development of the technical-tactical and physical performances of the athletes.

SHAPING THE PHYSICAL TRAINING OF RUGBY PLAYERS IN 7
(basic content of Chapter 2)

In order to achieve the proposed objectives, the following methods have been applied:

- Analysis of the specialized scientific-methodical literature;
- Pedagogical observation;
- Test method;
- Pedagogical experiment;
- Statistical-mathematical methods of data processing and interpretation.

According to the way of organizing the research activity, the present investigation is one of finding and training.

The research took place at the rugby team 7 at senior level C.S. POLITEHNICA Iasi, during 2016-2019, the players being also components of the National Team of Romania.

We mention that the research was carried out on a sample of 14 sportswomen aged between 18 and 32 years. The investigation was done with the consent of the club and the sportswomen.

The CS Politehnica women's rugby team operates at the "Tepro" Stadium in Tatarasi and at the "Body Line" gym in Iasi.

Our research was carried out in three stages:

In the first stage of the study, the period September 2016 – May 2017, had as main objectives the investigation and study of the specialized literature; the elaboration of the methodological picture of the study.

In the second stage of the study, the period May 2017 – December 2018 consisted in establishing the theoretical aspects that will be the basis for organizing and conducting the experimental research.

The third stage of the study, January – December 2019, consisted of completing the experiment by conducting the final tests and control rules and evaluating the performance during the trainings. The basic pedagogical experiment was carried out during an annual training cycle (round trip) according to the research plan drawn up. It followed the processing and interpretation of the data obtained from the research, the formulation of conclusions and methodical recommendations.

According to specialized resources, the level of performance is determined in the game of rugby 7 by the level of motor training of the players. This game requires great efforts from the player, given that its specificity lies in hand-to-hand combat, the ability to accelerate and run to the maximum level.

One of the objectives of the research was the evaluation of the aspects related to the physical level of the rugby players 7 seniors from the Politehnica Sports Club of Iasi, for which the ascertaining experiment was carried out. For this, the athletes were subjected to a series of measurements and control tests, sketching the overall picture of the stage of the moment in which they are located.

The National Rugby Championship 7 in Romania takes place in spring - autumn, so it is divided into round and return, having two periods of preparation.

In the framework of our ascertaining research, our evaluation protocol, was carried out in the championship tour, where the athletes were tested at the beginning of the training period and during

the transition period. It should be noted that in the planning of the physical training program were used conventional means.

According to the data presented in Table 2.1, the results obtained at the initial and final somatic evaluation of the athletes in the tour are similar, significant differences being noted only in the case of the BMI, where p=0.013.

Table 2.1. Comparative analysis of the initial and final indicators of the somatic evaluation in the tour

Somatic indices	Initial testing			Final test			Statistics
	MA		AS	MA		AS	p
Height (cm)	164.14	±	5.96	164.14	±	5.96	
Body weight (kg)	58.78	±	5.43	59.83	±	5.30	0.091
BMI (kg/m^2)	21.86	±	1.40	22.55	±	1.89	**0.013**
Fat mass (kg)	27.89	±	3.63	28.93	±	3.98	0.092
Muscle mass (kg)	31.01	±	1.76	30.87	±	1.61	0.660

Note: MA= arithmetic mean; AS= standard deviation; P – 0.05; 0,01; 0,001.

Regarding the motor evaluation of the athletes, we note in Table 2.2, between the initial and final testing, statistically significant differences were revealed in most of the samples, the p value being less than 0.005. Thus, significant differences are noted in terms of the results obtained in the speed and agility evaluation tests (p=0.001), in the tests for assessing the explosive force of the lower limbs (SJ, CMJ and FJ) and the reactivity of the limbs on the ground (J4), but also in the case of the maximum force (p=0.001), the maximum aerobic speed and the maximum oxygen consumption (p=0.001).

Table 2.2. Comparative analysis of the initial and final indices of the assessment of the motor capacity in the lap

Motor indices	Initial testing			Final testing			*Statistics*
	MA		AS	MA		AS	p
Speed 10m (s)	1.99	±	0.03	1.96	±	0.05	**0.001**
Speed 50m (s)	7.44	±	0.28	7.38	±	0.27	**0.001**
SJ (cm)	35.11	±	4.79	36.67	±	4.33	**0.001**
CMJ (cm)	37.12	±	4.36	38.93	±	4.58	**0.012**
FJ (cm)	41.22	±	5.07	43.12	±	4.89	**0.014**
J4 (m)	1.65	±	0.20	1.82	±	0.20	**0.001**
Illinois agility (s)	17.34	±	0.31	17.16	±	0.33	**0.001**
8x10+10 m (s)	32.04	±	1.02	31.74	±	0.96	**0.001**
The percentage difference between the last and first travel time (%)	5.93	±	1.62	6.06	±	1.72	0.837
Fatigue factor (s)	0.56	±	0.22	0.47	±	0.19	0.217
Semi-genuflexion with dumbbell (kg)	92.50	±	12.67	96.79	±	12.34	**0.001**
Pushed lying down with dumbbell (kg)	40.71	±	7.56	45.36	±	6.64	**0.001**
Maximum aerobic commute speed (km/h)	11.97	±	0.48	12.34	±	0.50	**0.001**
Maximum aerobic speed (km/h)	13.38	±	0.71	14.46	±	0.71	**0.001**
Vo2Max (ml/kg/min)	48.57	±	2.48	50.63	±	2.47	**0.001**

Note: n=14, MA= artimetic mean; AS= standard deviation; P – 0.05; 0,01; 0,001.

In the ***10 m*** running distance, the average time decreased by 0.03 sec from 1.99 to 1.96 sec. The difference in the averages is in the confidence interval (-0.04; -0.02). The results are

homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t-test revealed a difference in statistically significant averages, $p<0.001<0.05$.

According to Table 2.3, the results obtained at the initial and final somatic evaluation of the athletes on the positions in the tour is significant, differences being noted only in the case of the BMI, where all the posts had progress.

Table 2.3. Comparative analysis of the somatic indices of the initial and final evaluation by posts

Somatic indices		**Prop**	**Hooker**	**Scrum-half**	**Fly-half**	**Centre**	**Wing**
Height (cm)		168	163	158.5	161.5	160.00	170
Body weight (kg)	**Initially**	64.40	56.55	56.15	55.15	57.05	57.75
	Final	65.35	57.60	55.55	57.55	59.10	58.30
	Diff. averages	0.95	1.05	-0.60	2.40	2.05	0.55
BMI (kg/m^2)	**Initially**	22.66	21.19	22.49	20.98	21.15	21.90
	Final	24.11	21.31	22.53	22.01	21.83	21.98
	Diff. averages	1.45	0.12	0.04	1.03	0.68	0.08
Fat mass (kg)	**Initially**	29.15	24.40	30.80	28.60	28.00	25.10
	Final	30.65	24.85	29.00	29.40	29.85	28.10
	Diff. averages	1.50	045	-1.80	0.80	1.85	3.00
Muscle mass (kg)	**Initially**	30.95	32.90	29.60	29.70	30.55	32.40
	Final	30.78	32.70	30.90	29.95	29.85	31.15
	Diff. averages	-0.18	-0.20	1.30	0.25	-0.70	-1.25

With regard to the motor evaluation of athletes on posts, we note in Table 2.4., between the initial and final testing, statistically significant differences were revealed in most of the samples.

Table 2.4. Comparative analysis of the initial and final indices of the evaluation of the motor capacity by stations, lap

Motor indices		**Prop**	**Hooker**	**Scrum-half**	**Fly-half**	**Centre**	**Wing**
Speed 10 m (s)	**Initially**	2.00	1.98	2.01	2.01	1.95	1.95
	Final	1.98	1.94	1.98	1.99	1.94	1.91
	Diff. averages	-0.02	-0.04	-0.03	-0.02	-0.01	-0.04
Speed 50 m (s)	**Initially**	7.50	7.36	7.65	7.64	7.36	7.06
	Final	7.40	7.33	7.55	7.60	7.33	7.02
	Diff. averages	-0.10	-0.03	-0.10	-0.05	-0.03	-0.04
SJ (cm)	**Initially**	37.09	36.04	30.15	30.15	34.31	40.92
	Final	37.54	38.18	33.07	32.04	35.73	42.59
	Diff. averages	0.45	2.14	2.92	1.89	1.14	1.67
CMJ (cm)	**Initially**	36.59	37.15	35.26	33.15	37.03	44.04
	Final	38.53	39.09	35.62	36.04	39.04	45.70
	Diff. averages	1.93	1.94	0.36	2.89	2.02	1.67
FJ (cm)	**Initially**	40.20	42.37	38.81	36.93	42.93	47.14
	Final	42.42	43.75	40.84	39.81	44.24	48.71

	Diff. averages	2.22	1.38	2.03	2.89	1.31	1.57
J4 (m)	**Initially**	1.69	1.71	1.67	1.58	1.47	1.72
	Final	1.84	1.88	1.86	1.80	1.67	1.85
	Diff. averages	0.15	0.17	0.20	0.22	0.20	0.13
Illionos agility (s)	**Initially**	17.46	17.04	17.69	17.49	16.92	17.35
	Final	17.27	16.74	17.48	17.31	16.84	17.20
	Diff. averages	-0.19	-0.31	-0.21	-0.18	-0.09	-0.15
8X10+10 m 140 m by 20 m round trip (s)	**Initially**	32.04	31.37	33.04	33.08	31.33	31.40
	Final	31.70	31.19	32.73	32.62	31.08	31.16
	Diff. averages	-0.34	-0.18	-0.31	-0.46	-0.25	-0.23
The percentage difference between the last and first scroll time (%)	**Initially**	5.46	6.31	5.68	7.08	4.97	6.55
	Final	5.26	7.68	6.43	6.84	6.83	4.15
	Diff. averages	-0.21	1.37	0.75	-0.24	1.86	-2.40
Fatigue factor (s)	**Initially**	0.43	0.64	0.60	0.72	0.44	0.67
	Final	0.33	0.46	0.58	0.74	0.61	0.25
	Diff. averages	-0.10	-0.18	-0.03	0.02	0.17	-0.42
Semi-genuflexion with dumbbell (kg)	**Initially**	101.25	92.50	90.00	87.50	87.50	87.50
	Final	105.00	95.00	95.00	92.50	92.50	92.50
	Diff. averages	3.75	2.50	5.00	5.00	5.00	5.00
Pushed lying down with dumbbell (kg)	**Initially**	47.50	42.50	35.00	37.50	40.00	35.00
	Final	51.25	47.50	40.00	42.50	45.00	40.00
	Diff. averages	3.75	5.00	5.00	5.00	5.00	5.00
Maximum aerobic commute speed (km/h)	**Initially**	12.25	11.97	12.05	11.51	11.99	11.76
	Final	12.60	12.31	12.45	11.87	12.30	12.25
	Diff. averages	0.36	0.35	0.40	0.37	0.32	0.48
Maximum aerobic speed (km/h)	**Initially**	14.34	13.67	13.82	13.32	13.89	13.76
	Final	14.82	14.32	14.71	13.81	14.36	14.42
	Diff. averages	0.48	0.66	0.89	0.48	0.47	0.66
Vo2Max (ml/kg/min)	**Initially**	50.19	47.83	48.37	46.62	48.62	48.16
	Final	51.88	50.13	51.48	48.32	50.25	50.48
	Diff. averages	1.69	2.30	3.11	1.69	1.63	2.32

EXPERIMENTAL ARGUMENTATION REGARDING THE SPECIFIC PHYSICAL TRAINING IN THE GAME OF RUGBY 7S WOMEN

(basic content of Chapter 3)

The pedagogical experiment took place during the 2019 competition year, and is based on the verification of the working hypothesis regarding the improvement of effort and performance capabilities by implementing a physical training program with specific means that develop the priority quality combinations determined by the individual peculiarities of rugby players 7.

The trainings were carried out as planned in the return of the championship (the second part of training), focusing on the use of specific means of developing the motor qualities specific to the game of rugby 7.

Depending on the competition calendar, the annual plan was drawn up, with the following objectives of this study.

The complexity of the game of rugby 7 requires the development of training programs at the highest level and during this time requires increasing the adaptation of the body to the effort of the athletes.

The most important step in the elaboration of planning documents is the setting of performance targets by the coach according to the results previously obtained by the athletes.

The physical training of rugby players 7 must take into account the following general objectives:

- the development of general physical training;
- development of motor skills specific to the game of rugby 7;
- the development of mobility and flexibility being considerations of performance throughout the year;
- general and specific development of aerobic power;
- general and specific development of anaerobic power;
- the correct development of linear and lateral running mechanics;
- development of maximum force and development of force components (Speed - Force, Force - Speed)

From the annual plan were exemplified training mesocycles and microcycles.

The mesocycle is the planning of sports training for a duration from 3 to 6 weeks.

Mesocycles represent the stages of preparation:

- Mesocycle of the accommodation and preparatory period (basic stage)
- Mesocycle of the preparatory period (pre-competitive stage)
- The mesocycle of the competitive period (competition stage)
- Transitional period mesocycle (recovery phase)

For the mesocycle of the general preparatory period, the following physical training objectives have been set:

- the overall development of aerobic capacity by specific means;
- carrying out the means of anatomical adaptation through balloon circuits;
- development of muscle endurance and the transition to hypertrophy.

Table 3.1. Model of the experimental mesocycle basic stage, duration 6 weeks

M1	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Assessment Th	Evaluation of the travel speed with photo-electric cells	Assessment Th	Aerobic capacity assessment	Test DETENTE		
M2	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Aerobic capacity assessment	Evaluation of the force 1 RM	Training by playing on low ground	Anatomical adaptation training	Aerobic aerobic training conducted on thematic balloon workshops		
M3	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Anatomical adaptation	Collective game 2 x 10 min.	Anatomical adaptation	Aerobic running training conducted on balloon themed workshops	Contact training on anaerobic request workshops		
M4	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**

Training theme	Hypertrophy training	Anaerobic threshold running training interspersed with game halves 3 min.	Hypertrophy training	Collective game 3x 8 min.	Aerobic aerobic training conducted on thematic balloon workshops		
M5	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Hypertrophy training	Training attack defense 4 x 6 min.	Hypertrophy training	School game with contact 3 x 2 x 7 min.	Balloon speed development training		
M6	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Hypertrophy training	Anaerobic threshold running workout interspersed with 5 min play halves.	Hypertrophy training	Collective game 3x 10 min.	Aerobic aerobic training conducted on thematic balloon workshops		

In the specific preparatory phase, the physical training objectives were:

- development of aerobic power by balloon means;
- performing the means of maximum force;
- development of maximum force with conversion to power.

Table 3.2. Experimental mesocycle model pre-competitive stage, duration 4 weeks

M1	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Workout Vo2max through defence-themed workshops	Maximum force	Speed training interspersed in attack-themed workshops.	Maximum force	Bilateral game aimed at the development of Vo2max 4 x 8 min.		
M2	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Workout Vo2max through defence-themed workshops	Maximum force	Speed training interspersed in attack-themed workshops.	Maximum force	Bilateral game aimed at the development of Vo2max 4 x 8 min.		
M3	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Running workout in the area that leads us to the accumulation of lactic acid	Maximum force	Speed training interspersed in attack-themed workshops.	Training with running circuits at low intensity.	Bilateral game aimed at the development of Vo2max 4 x 8 min.		
M4	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**

Training theme	Workout Vo2max through defence-themed workshops	Maximum force	Speed training interspersed in attack-themed workshops.	Running workout in the area that leads us to the accumulation of lactic acid	Training with running circuits at low intensity.		

For the mesocycle of the competitive phase, the following objectives have been established:

- maintenance of aerobic power by specific means with the balloon;
- maintaining muscle strength and strength;
- carrying out the means of regeneration.

Table 3.3. Model experimental mesocycle competition phase, duration 8 weeks

M1	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Strength Maintenance Training	Game modeling with an emphasis on aerobic power	Strength Maintenance Training	Tournament away	Acclimatization Balloon-themed plyometric training Captain's Training	National Championship Tournament	
M2	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Regeneration training – complementary games	Strength Maintenance Training	Balloon circuit training aimed at lactic acid production	Strength Maintenance Training	Speed training interspersed in attack-themed workshops.		
M3	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Strength Maintenance Training	Game modeling with an emphasis on aerobic power	Strength Maintenance Training	Tournament away	Acclimatization Balloon-themed plyometric training Captain's Training	National Championship Tournament	
M4	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Regeneration training – complementary games	Strength Maintenance Training	Balloon circuit training aimed at lactic acid production	Strength Maintenance Training	Speed training interspersed in attack-themed workshops.		
M5	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Strength Maintenance Training	Game modeling with an emphasis on aerobic power	Strength Maintenance Training	Tournament away	Acclimatization Balloon-themed plyometric training Captain's Training	National Championship Tournament	
M6	**M**	**T**	**W**	**Th**	**F**	**Sa**	**Su**
Training theme	Regeneration training – complementary games	Strength Maintenance Training	Balloon circuit training aimed at lactic acid production	Strength Maintenance Training	Speed training interspersed in attack-themed workshops.		

M7	M	T	W	Th	F	Sa
Training theme	Regeneration training	Game modeling with an emphasis on aerobic power	Maximum force strength conversion strength training	Tournament away	Acclimatization Balloon-themed plyometric training Captain's Training	National Championship Tournament
M8	**M**	**T**	**W**	**Th**	**F**	**Sa**
Training theme	End of the return competition period, entry into the transition period. Solving medical problems, regeneration trainings of athletes involved in the competition.					

During the transition period, the final testing of motor skills was carried out and trainings from complementary sports disciplines were carried out in the number of 6 over a period of 2 weeks. Also, the athletes had aquatic activities and the recovery of the body after the competitive period.

In Table 3.4 is the share of means and the objectives of each of them having as a priority the development of motor skills specific to the game of rugby 7.

Table 3.4. The share of motor capacities for the 2019 competition year

Total TOUR 22 weeks %	
Aerobic capacity	27.27273
Aerobic power	54.54545
Maintaining CA+PA	45.45455
Anaerobic capacity	54.54545
Speed capacity	81.81818
Force – Anatomical adaptation	27.27273
Maximum force	18.18182
Keep	36.36364
Injury prevention	18.18182
Return total 26 weeks %	
Maintaining aerobic capacity	23.07692
Development of general aerobic power	15.38462
Development – maintaining specific aerobic power	46.15385
Speed capacity	84.61538
Force – Anatomical adaptation	23.07692
Maximum force	15.38462
Keep	46.15385
Injury prevention	15.38462

We can see from the table above that the share of motor skills is different in the two parts of training, round and return, of the players in the 2019 competitive year.

In the case of the proposed experiment and depending on the competitive calendar, microcycles with a duration of 7 days were used for the preparation, competition and recovery stage, consisting of lesson systems (trainings). As an example we present a training model for each stage of training.

One of the essential components in the preparation of rugby players 7 is the correct application, from a theoretical-methodical point of view, of all the specific means in order to improve their level of training.

The fact that the game of rugby 7 has become an Olympic test has led the specialists in the field to look for new ways to optimize the process of sports training of rugby players 7, especially

the specific motor training.

The following are presented in Table 3.5, Table 3.6 and Table 3.7 operational models extracted from the programme proposed by us, respectively from the annual plan.

Table 3.5. Operational model 1 for the return preparatory period

Part of the lesson	Content
Heating	• 8 min muscle activation with mini band • 8 min exercises from the school of ball running all over the field
The fundamental part	• 2 x 8 min bilateral game with maintaining possession P 4 min • 3 x 3 min game with ball movement P 1.30 min
Return	• 10 min **e**limination of tension points with foam rollers

In the elaboration of the operational models, the morphofunctional peculiarities of the sportswomen included in the research were taken into account.

Table 3.6. Operational model 2 for the pre-competitive period in return

Part of the lesson	Content
Heating	• 8 min muscle activation with mini band • 8 min exercises from the school of ball running all over the field
The fundamental part	• 5 min specific agility exercises P: 2 min • 8 min 3 x 2 (15"/1'30') • 10 min 4 X 2 + 1 (30"/2') • 12 min 3 x 3 (1'/3') • 3 x 3 min low field game
Return	• 10 min **e**limination of tension points with foam rollers

Table 3.7. Operational model 3 for the competition period in the return

Part of the lesson	Content
Heating	• 8 min muscle activation with mini band • 8 min exercises from the school of ball running all over the field
The fundamental part	• 15 min agility and plyometric exercises P: 2 min • 3 X 7' Bilateral full-field play without fixed phases P: 3' • 10 min departures from fixed phases with completion
Return	• 10 min elimination of tension points with foam rollers

The specific demands of rugby 7 require that in the pre-competitive and competitive period special attention be paid to the combined motor qualities, in particular the force-speed motor qualities.

Rugby 7 is a modern, dynamic sport, characterized by very well-developed motor skills: reaction speed, speed of movement, speed of execution, explosive force, endurance in force and coordination mode.

Starting from the training curriculum developed by us for the development of physical preparations specific to the game of rugby 7 in the return of the championship, specific means of

developing the quality combinations were applied to the priority of rugby 7. It should be noted that in the tour used conventional means presented in the second chapter of the work.

After a year of preparation, the athletes were subjected to measurements and tests specific to the game of rugby 7, at the beginning and end of the championship round, respectively of the championship return. The tests applied were the same as in the championship round.

Regarding the results obtained by the athletes at the somatic evaluation in return, we note in Table 3.8. that statistically significant differences between initial and final testing are noted only in the case of BMI (p=0.024) and fat mass (p=0.009).

The average weight dropped by 0.67 kg from 60.06 to 59.39 kg. The difference in 95% averages is within the confidence interval (-2.30; 0.94). The results are homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t-test revealed a statistically insignificant difference in averages, P=0.381>0.05.

Table 3.8. Comparative analysis of the initial and final indicators of the somatic assessment in retur

Somatic indices	Initial testing			Final testing			*Statistics*
	MA		AS	MA		AS	p
Height (cm)	164.14	±	5.96	164.14	±	5.96	
Body weight (kg)	60.06	±	5.33	59.39	±	6.53	0.381
BMI (kg/m^2)	22.63	±	1.80	21.92	±	1.90	**0.024**
Fat mass (kg)	28.98	±	4.64	25.54	±	3.61	**0.009**
Muscle mass (kg)	30.95	±	2.25	32.91	±	3.03	0.051

Note: MA= artimetic mean; AS= standard deviation; P – 0.05; 0,01; 0,001.

The average body mass index decreased by 0.71 kg/m2 from 22.63 to 21.92 kg/m2. The difference in 95% averages is within the confidence interval (-1.30; -0.11). The results are homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t-test revealed a difference in statistically significant averages, P=0.024<0.05. The null hypothesis is rejected.

Average body fat, expressed as a percentage, decreased by 3.44 % from 28.98 to 25.54 %. The difference in 95% averages is within the confidence interval (-5.86; -1.03). The dispersion of the results around the mean is relatively homogeneous in the initial test and homogeneous in the final test. The verification of the statistical significance with the bilateral t-test revealed a difference in statistically significant averages, P=0.009<0.05.

The average muscle mass, expressed as a percentage, increased by 1.96% from 30.95 to 32.91%. The difference in 95% averages is within the confidence interval (-0.01; 3.93). Scattering the results around the mean in both tests is homogeneous. The verification of the statistical significance with the bilateral t-test revealed a statistically insignificant difference in averages, p=0.051>0.05.

In the case of the motor evaluation of athletes, statistically significant differences are revealed in all samples, p<0.05, according to Table 3.9. between the initial and final testing. Thus, significant differences are noted in terms of the results obtained in the speed and agility evaluation tests (p=0.001), in the tests for assessing the explosive force of the lower limbs (SJ, CMJ and FJ) and the reactivity of the limbs on the ground (J4), but also in the case of the maximum force (p=0.001), the maximum aerobic speed and the maximum oxygen consumption (p=0.001).

Table 3.9. Comparative analysis of the initial and final indices of the return motor capacity

assessment

Motor indices	Initial testing			Final testing			*Statistics*
	MA		AS	MA		AS	p
Speed 10m (s)	1.95	±	0.05	1.86	±	0.09	**0.001**
Speed 50m (s)	7.32	±	0.28	7.04	±	0.19	**0.001**
SJ (cm)	36.43	±	4.51	39.75	±	4.16	**0.001**
CMJ (cm)	38.29	±	4.29	41.39	±	4.81	**0.001**
FJ (cm)	42.49	±	4.84	46.27	±	4.01	**0.001**
J4 (m)	1.79	±	0.19	2.27	±	0.16	**0.001**
Illinois agility (s)	17.16	±	0.32	16.55	±	0.36	**0.001**
8x10+10 m 140 m by 20 m round trip (s)	31.69	±	1.04	30.84	±	1.23	**0.001**
The percentage difference between the last and first travel time (%)	6.23	±	1.61	5.34	±	2.14	0.146
Fatigue factor (s)	0.61	±	0.18	0.44	±	0.21	**0.030**
Semi-genuflexion with dumbbell (kg)	97.14	±	12.04	110.00	±	11.77	**0.001**
Pushed lying down with dumbbell (kg)	46.07	±	7.12	54.64	±	9.30	**0.001**
Maximum aerobic commute speed (km/h)	12.16	±	0.46	12.99	±	0.62	**0.001**
Maximum aerobic speed (km/h)	14.21	±	0.63	15.39	±	0.86	**0.001**
Vo2Max (ml/kg/min)	49.90	±	2.20	53.85	±	3.02	**0.001**

Note: n=14, MA= artimetic mean; AS= standard deviation; P – 0.05; 0,01; 0,001.

In the **10 m** distance running test, the average time decreased by 0.09 sec from 1.95 to 1.86 sec. The difference in averages is in the confidence interval (-0.11; -0.06). The results are homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t-test revealed a difference in the statistically significant averages, P<0.001<0.05.

In the **50 m** running distance, the average time decreased by 0.28 sec from 7.32 to 7.04 sec. The difference of the averages in a proportion of 95% is included in the confidence interval (-0.37; -0.19). The dispersion of the results shall be homogeneous for the two tests. The verification of the statistical significance with the bilateral t test revealed a difference in statistically significant averages, p<0.001<0.05.

According to Table 3.9. the average execution time of the **Illionois** test decreased by 0.61 sec from 17.16 to 16.55 sec. The difference of the averages in the proportion of 95% is included in the confidence interval (-0.75; -0.47). Scattering the results around the average in both tests is homogeneous. The results of the t-test show that the difference in averages has reached the threshold of statistical significance, P<0.001<0.05. It is apparent from Table 3.9 that the null hypothesis is rejected.

The average squat jump has increased by 3.32 cm from 36.43 to 39.75 cm. The difference in averages of 95% is within the confidence range (2.31; 4.33). The results are homogeneously dispersed in both tests. The results of the t-test show that the difference in the averages has reached the threshold of statistical significance, P<0.001<0.05.

The average expansion ***of the jump in the opposite direction of movement*** (counter movement jump) increased by 3.10 cm from 38.29 to 41.39 cm. The difference of the averages in the proportion of 95% is included in the confidence range (1.78; 4.40). The dispersion of the results is homogeneous for the two tests. The results of the t-test show that the difference in averages has

reached the threshold of statistical significance, P<0.001<0.05.

The average free **jump** increased by 3.78 cm from 42.49 cm to 46.27 cm. The difference of the averages in the proportion of 95% is included in the confidence interval (2.61; 4.94). The scattering of the results around the mean in both tests is homogeneous. The results of the t-test show that the difference in the averages has reached the threshold of statistical significance, P<0.001<0.05.

The distance covered in **4 jumps** increased by 0.48 m from 1.79 to 2.27 m. The difference in averages of 95% is included in the confidence interval (0.35; 0.62). The results are homogeneously dispersed in both tests. The results of the t-test show that the difference in averages has reached the threshold of statistical significance, P<0.001<0.05. The null hypothesis is rejected.

The average high weight in the ***weightlifting semi-kneeling*** test increased by 12.86 kg from 97.14 to 110.00 kg. The difference in 95% averages is within the confidence interval (10.67; 15.04). The results are homogeneously dispersed in both tests. The results of the t-test show that the difference in averages has reached the threshold of statistical significance, P<0.001<0.05. The null hypothesis is rejected.

The average weight pushed in the ***pushing test lying with the dumbbell*** increased by 8.57 kg from 46.07 to 54.64 kg. The difference in 95% averages is within the confidence interval (5.93; 11.21). In the two tests the dispersion of the results around the mean is relatively homogeneous. The results of the t-test show that the difference in averages has reached the threshold of statistical significance, P<0.001<0.05. The null hypothesis is rejected.

In the ***140m per 20m round trip***, the average time dropped by 0.85 sec from 31.69 to 30.84 sec. The difference in the averages in a proportion of 95% is included in the confidence interval (-1.18; -0.52). Scattering the results around the average in both tests is homogeneous.

The verification of the statistical significance with the bilateral t-test revealed a difference in statistically significant averages, P<0.001<0.05.

The average percentage difference between the last and first time of 10+10m, in the 8x10+10m test decreased by 0.89% from 6.23 to 5.34%. The difference in 95% averages is within the confidence interval (-2.13; 0.35). The dispersion of the results around the mean is relatively homogeneous in the initial test and inhomogeneous in the final test. The verification of the statistical significance with the bilateral t-test revealed a statistically insignificant difference in averages, P=0.146>0.05. The null hypothesis is accepted.

The average fatigue factor of the 8x10+10m test, in the 8x10+10m test decreased by 0.17 sec from 0.61 to 0.44 sec. The difference in the averages in a proportion of 95% is included in the confidence interval (-0.32; -0.02). The dispersion of the results around the mean is inhomogeneous in the two tests. The verification of the statistical significance with the bilateral t test revealed a difference in statistically significant averages, P=0.030<0.05.

The average maximum aerobic speed for running on the track increased by 1.18 km/h from 14.21 to 15.39 km/h. The difference in averages of 95% is within the confidence range (0.93; 1.41. The results are homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t-test revealed a difference in statistically significant averages, P<0.001<0.05. The null hypothesis is rejected.

The average maximum aerobic speed for commuting increased by 0.83 km/h from 12.16 to 12.99 km/h. The difference in averages of 95% is within the confidence range (0.65; 1.00). Scattering the results around the average in both tests is homogeneous. Checking the statistical significance with the bilateral t-test revealed a statistically significant difference in averages, p<0.001<0.05. The null hypothesis is rejected.

The average ***VO2max*** coefficient increased by 4.05 ml/kg/min from 49.80 to 53.85 ml/kg/min. The difference in 95% averages is within the confidence range (3.23; 4.87). The dispersion of the results shall be homogeneous for the two tests. Checking the statistical significance with the bilateral t-test revealed a statistically significant difference in averages, $p<0.001<0.05$. The null hypothesis is rejected.

According to Table 3.10, the results obtained at the initial and final somatic assessment of the athletes on the positions in return is significant, where all the positions had progress.

The average body mass per post, in return, increased to 3 posts and decreased to 3 posts. The post with the largest average difference is the Fly-half, the increase being 0.75 kg and the post with the smallest average difference is the Scrum -half, the decrease being equal to 4.15 kg.

Table 3.10. Comparative analysis of the somatic indices of the initial and final evaluation by posts

Somatic indices		**Prop**	**Hooker**	**Scrum-half**	**Fly-half**	**Centre**	**Wing**
Height (cm)		168	163	158.5	161.5	160.00	170
Body weight (kg)	**Initially**	65.89	58.40	57.40	55.35	57.65	58.05
	Final	65.55	59.00	53.25	56.10	59.55	58.60
	Diff. averages	-0.30	0.69	-4.15	075	-1.90	0.55
BMI (kg/m^2)	**Initially**	24.39	21.78	23.10	20.71	22.00	22.02
	Final	23.66	21.84	21.31	20.17	21.35	21.46
	Diff. averages	-0.73	0.07	-1.79	-0.54	-0.65	-0.56
Fat mass (kg)	**Initially**	31.75	24.15	29.54	27.40	30.45	27.85
	Final	25.43	25.20	26.70	26.80	23.60	25.60
	Diff. averages	-6.33	1.05	-2.84	-0.60	-6.85	-2.25
Muscle mass (kg)	**Initially**	30.25	33.40	30.92	30.45	29.50	31.90
	Final	34.78	32.90	31.50	30.50	33.60	32.35
	Diff. averages	4.53	-0.50	0.59	0.05	4.10	0.45

The average body mass index, in return, increased to 1 post and dropped to 5 posts. The post with the largest average difference is Hooker, the increase being 0.07 kg/m2 and the post with the smallest average difference is Scrum -half, the decrease being equal to 1.79 kg/m2. The minimum results in the two tests are for Hooker, 19.55 in the initial test and 19.33 kg/m2 in the final test.

The percentage of body fat increased to 1 post and dropped to 5 posts. The post with the largest average difference is Hooker, the increase being 1.05% and the post with the smallest average difference is Centre, the decrease being equal to 6.85%. The minimum results in the two tests are 15.80 in the initial testing for hooker and 18.60% for Prop in final testing.

IN return, the ***average percentage of muscle mass*** increased to 5 posts and decreased to 1 post. The post with the largest average difference is Prop, the increase being of 4.53% and the post with the smallest average difference is Hooker, the decrease being equal to 0.50%. The minimum results of the two tests are 29.00 in the initial testing for fly-half and 30.20% for Scrum-half in the final test.

With regard to the motor evaluation of athletes on posts, we note in Table 3.11., between the initial and final testing, statistically significant differences were revealed in all the samples.

Table 3.11. Comparative analysis of the initial and final indices of the assessment of the motor capacity on the posts

Motor indices		Prop	Hooker	Scrum-half	Fly-half	Centre	Wing
Speed 10m (s)	Initially	1.98	1.93	1.96	1.98	1.93	1.89
	Final	1.90	1.83	1.86	1.90	1.87	1.78
	Diff. averages	-0.08	-0.10	-0.10	-0.08	-0.05	-0.11
Speed 50m (s)	Initially	7.36	7.28	7.51	7.50	7.21	6.99
	Final	7.10	6.97	7.11	7.09	7.09	6.81
	Diff. averages	-0.26	-0.31	-0.40	-0.42	-0.12	-0.19
SJ (cm)	Initially	37.35	37.95	32.38	31.15	36.82	42.03
	Final	39.87	42.15	35.93	37.26	38.48	44.70
	Diff. averages	2.52	4.20	3.55	6.11	1.67	2.68
CMJ (cm)	Initially	38.29	39.31	35.61	33.93	39.04	43.59
	Final	41.26	43.59	37.48	38.71	41.15	46.26
	Diff. averages	2.97	4.29	1.87	4.78	2.11	2.67
FJ (cm)	Initially	42.28	43.64	38.82	39.15	43.77	47.55
	Final	46.20	46.70	42.70	45.57	46.48	50.04
	Diff. averages	3.93	3.06	3.89	6.42	2.71	2.49
J4 (m)	Initially	1.82	1.84	1.79	1.73	1.67	1.85
	Final	2.37	2.33	2.09	2.11	2.25	2.40
	Diff. averages	0.55	0.49	0.30	0.38	0.58	0.56
Illinois agility (s)	Initially	17.29	16.78	17.46	17.32	16.79	17.19
	Final	16.57	16.41	16.78	16.80	16.21	16.50
	Diff. averages	-0.72	-0.37	-0.67	-0.52	-0.59	-0.69
8x10+10 m 140 m by 20 m round trip (s)	Initially	31.64	31.27	32.32	32.75	31.12	31.10
	Final	30.93	30.06	31.35	31.53	30.85	30.23
	Diff. averages	-0.71	-1.21	-0.96	-1.22	-0.28	-0.87
The percentage difference between the last and first time of the walk (%)	Initially	5.62	5.15	7.29	7.52	6.51	5.95
	Final	3.72	6.63	8.80	6.37	4.77	3.41
	Diff. averages	-1.89	1.48	1.51	-1.15	-1.74	-2.54
Fatigue factor (s)	Initially	0.59	0.49	0.73	0.72	0.60	0.52
	Final	0.35	0.57	0.82	0.35	0.32	0.32
	Diff. averages	-0.24	0.08	0.09	-0.37	-0.28	-0.21
Semi-genuflexion with dumbbell (kg)	Initially	105.00	97.50	92.50	92.50	95.00	92.50
	Final	118.75	115.00	102.50	102.50	107.50	105.00
	Diff. averages	13.75	17.50	10.00	10.00	12.50	12.50
Pushed lying down with dumbbell (kg)	Initially	52.50	47.50	42.50	42.50	45.00	40.00
	Final	62.50	57.50	47.50	50.00	52.50	50.00
	Diff. averages	10.00	10.00	5.00	7.50	7.50	10.00
Maximum aerobic commute speed (km/h)	Initially	12.38	12.06	12.32	11.74	12.07	12.19
	Final	13.30	12.57	13.17	12.44	12.89	13.24
	Diff. averages	0.92	0.51	0.85	0.70	0.82	1.05
Maximum aerobic speed (km/h)	Initially	14.56	14.10	14.39	13.57	14.16	14.18
	Final	15.91	14.87	15.65	14.54	15.21	15.62
	Diff. averages	1.35	0.77	1.26	0.97	1.06	1.45
Vo2Max (ml/kg/min)	Initially	51.13	49.35	50.35	47.50	49.55	49.62
	Final	55.68	52.06	54.75	50.89	53.24	54.67

	Diff. averages	4.55	2.72	4.40	3.39	3.69	5.05

In the return, the average travel time per **10 m**, departing from the spot, decreased to all 6 positions. The post with the smallest average difference is the Centre, the decrease being 0.05 sec., and the post with the largest average difference is the Wing, the decrease being equal to 0.11 sec.

The minimum results in the two tests are for Hooker, 1.89 in the initial test and 1.78 sec in the final test.

The average travel time of **the 50 m** travel distance, departing from the place, decreased in return to all 6 positions. The post with the smallest average difference is Center, the decrease being 0.12 sec., and the post with the largest average difference is Fly-half, the decrease being equal to 0.42 sec.

The minimum results in the two tests are 6.90 in the initial testing for Hooker respectively 6.64 sec for the Wing in the final test. The highest results are 7.77 on initial testing, for Pilier and 7.23 sec respectively in final testing, for Hooker.

In return, the average time to perform the ***Illinois*** test decreased at all 6 posts. The post with the smallest average difference is Hooker, the decrease being 0.37 sec and the post with the largest average difference is Prop, the decrease being equal to 0.72 sec. Minimum results in the two tests are for Hooker (16.48 in the initial test and 16.15 sec in the final test. The highest results are 17.65 in initial testing, for Prop respectively 17.08 sec in final testing, for Scrum-half.

The isometric explosive force of the lower limbs ***(SJ),*** in return, increased to all 6 posts. The station with the largest average difference is Fly-half, the increase being 6.11 cm and the post with the smallest average difference is Center, the increase being equal to 1.67 cm. Minimum results in the two tests are 30.82 in the initial testing for Fly-half and 32.82 cm for Scrum-half in the final test. The highest results are for the Wing, 47.90 in the initial test and 49.70 cm in the final test.

In ***the CMJ*** test, the elastic explosive force of the lower limbs increased to all 6 posts. The station with the largest average difference is Fly-half, the increase being 4.78 cm and the station with the smallest average difference is Scrum-half, the increase being equal to 1.87 cm. Minimum results in the two tests are 32.82 at the initial testing for Fly-half and 35.04 cm for Scrum-half at the final test. The highest results are for the Wing, 48.59 for the initial test and 51.70 cm for the final test.

The elastic explosive force of the lower limbs, in return, in the ***FJ*** test increased to all 6 posts. The post with the largest average difference is Fly-half, the increase being 6.42 cm and the post with the smallest average difference is the Wing, the increase being equal to 2.49 cm. Minimum results in the two tests are for Scrum-half, 35.48 in the initial test and 39.92 cm in the final test. The highest results are for the Wing, 54.59 for the initial test and 55.48 cm for the final test

After performing ***4 jumps***, the explosive power factor of the lower limbs, increased to all 6 posts. The post with the largest average difference is Center, the increase being 0.58 and the post with the smallest average difference is Scrum-half, the increase being equal to 0.30. The minimum results in the two tests are 1.53 in the initial testing for the Wing and 2.07 for the Scrum-half in the final test.

Anaerobic-lacquer acid capacity and force increased in return, as the travel time of ***140m per 20m round trip*** decreased at all 6 posts. The post with the smallest average difference is the Center, the decrease being 0.28 sec and the post with the largest average difference is Fly-half, the decrease being equal to 1.22 sec.

The minimum results in the two tests are 30.30 in the initial testing for Prop and 29.06 sec

for the Wing in the final test. The highest results are for Scrum-half, 33.90 in initial testing and 33.35 sec in final testing.

In return, the average anaerobic-lactamide capacity increased at batch level, ***the percentage difference between the last and first time of 10+10m,*** in the 8x10+10m test increased to 2 posts and decreased to 4 posts.

The post with the largest average difference is Scrum-half, the increase being 1.51% and the post with the smallest average difference is Wing, the decrease being equal to 2.54%. The minimum results in the two tests are 3.70 in the initial test for Prop and 2.63 % for wing in the final test.

The average fatigue factor of the test 8x10+10m, decreased at the level of the batch. It rose to 2 posts and dropped to 4 posts. The post with the largest average difference is Scrum-half, the increase being 0.09 sec and the post with the smallest average difference is Fly-half, the decrease being equal to 0.37 sec.

The minimum results in the two tests are 0.33 in the initial testing for wing and 0.21 sec for Pilier in the final test. The highest results are for Scrum-half, 1.00 in initial testing and 0.98 sec in final testing.

In the ***semi-machinuction test with the 1RM dumbbell***, the average force in the return increased to all 6 positions. The post with the largest average difference is Hooker, the increase being 17.50 kg and the post with the smallest average difference is Scrum-half, the increase being equal to 10.00 kg.

In the return, in the test ***pushed the dumbbell from lying down 1RM***, the average force increased to all 6 posts. The post with the largest average difference is the Prop, the increase being 10.00 kg and the post with the smallest average difference is Scrum-half, the increase being equal to 5.00 kg.

In the VMA-race test, ***the average maximum aerobic speed for running on the track*** - REAL, in return, increased to all 6 positions. The station with the largest average difference is the Wing, the increase being 1.45 km/h and the station with the smallest average difference is Hooker, the increase being equal to 0.77 km/h.

The average ***maximum aerobic speed for running on the track*** - REAL, in the VMA-shuttle test increased to all 6 posts. The station with the largest average difference is the Wing, the increase being 1.05 km/h and the station with the smallest average difference is Hooker, the increase being equal to 0.51 km/h.

The minimum results in the two tests are 11.72 in the initial test for the Fly-half and 12.13 km/h for hooker in the final test.

Maximum oxygen consumption - extrapolated increased to all 6 posts. The post with the largest average difference is the Wing, the increase being 5.05 ml/kg/min and the post with the smallest average difference is Hooker, the increase being equal to 2.72 ml/kg/min.

Rezultatele obținute au fost prelucrate statistic, fiind efectuată analiza comparativă a datelor întregistrate în turul și returul campionatului pe echipă și în funcție de posturile de joc.

As we can see the results from the tables described below, both in the championship round and in its return there was a positive dynamic of the motor indices, but with a greater weight in the return of the championship. As a result, the method proposed by us, based on the development of combined qualities by specific means, is effective the game of rugby 7.

In Table 3.12. the differences in the somatic evaluation of the athletes in the first leg and in the second leg are highlighted. Thus, we note that in the case of fat mass and muscle mass, statistically significant differences are noted between the two tests, where $p<0.05$.

This may be due to the applied training program, which had positive effects on the body

analysis of athletes.

Table 3.12. Comparative analysis of the final tour and final retur indicators of the somatic assessment

Somatic indices	Final tour			Final retur			*Statistica*
	MA		AS	MA		AS	p
Height (cm)	164.14	±	5.96	164.14	±	5.96	
Body weight (kg)	59.83	±	5.30	59.38	±	6.53	0.585
BMI (kg/m^2)	22.55	±	1.89	21.92	±	1.90	0.127
Fat mass (kg)	28.93	±	3.98	25.54	±	3.61	**0.006**
Muscle mass (kg)	30.87	±	1.61	32.91	±	3.03	**0.028**

Note: MA= artimetic mean; AS= standard deviation; P – 0.05; 0,01; 0,001.

With regard to the motor evaluation of sportsmen, in Table 3.13 the results obtained by them in the round and return are presented, highlighting the differences between the two tests. Thus, we note that in all the tests for the evaluation of motor skills, statistically significant differences were revealed, p <0.05.

This aspect can be explained by the effects of applying the training program to which the athletes have been subjected during this training period. We can say that the results obtained by the players show improvements in all the tests, which can argue the need to apply specific training programs, covering all these aspects.

Table 3.13. Comparative analysis of the final tour and final retur indicators of the motor capacity assessment

Motor indices	Final tour			Final retur			*Statistics*
	MA		AS	MA		AS	p
Speed 10m (s)	1.96	±	0.05	1.86	±	0.09	**0.001**
Speed 50m (s)	7.38	±	0.27	7.04	±	0.19	**0.001**
SJ (cm)	36.67	±	4.33	39.75	±	4.16	**0.001**
CMJ (cm)	38.93	±	4.58	41.39	±	4.81	**0.001**
FJ (cm)	43.17	±	4.89	46.27	±	4.01	**0.002**
J4 (m)	1.82	±	0.20	2.27	±	0.16	**0.001**
Illinois agility (s)	17.16	±	0.33	16.55	±	0.36	**0.001**
8x10+10 m 140 m by 20 m round trip (s)	31.74	±	0.96	30.84	±	1.23	**0.001**
The percentage difference between the last and first travel time (%)	6.06	±	1.72	5.34	±	2.14	0.173
Fatigue factor (s)	0.47	±	0.19	0.44	±	0.21	0.667
Semi-genuflexion with dumbbell (kg)	96.79	±	12.34	110.0	±	11.77	**0.001**
Pushed lying down with dumbbell (kg)	45.36	±	6.64	54.64	±	9.30	**0.001**
Maximum aerobic commute speed (km/h)	12.34	±	0.50	12.99	±	0.62	**0.001**
Maximum aerobic speed (km/h)	14.46	±	0.71	15.39	±	0.86	**0.001**
Vo2Max (ml/kg/min)	50.63	±	2.47	53.85	±	3.02	**0.001**

Note: n=14, MA= artimetic mean; AS= standard deviation; P – 0.05; 0,01; 0,001.

In the ***10 m*** distance running, the average time in the final return test is 0.10 sec lower than the average from the final lap test, the averages being 1.96 in the lap and 1.86 sec in the return. The difference in the averages lies in the confidence interval (-0.13;-0.07). The results are homogeneously dispersed in both tests. The verification of the statistical significance with the

bilateral t-test revealed a difference in statistically significant averages, p<0.001<0.05

In the final return test, the average time in the ***50 m*** distance running test is 0.34 sec lower than the average from the final lap test, the averages being 7.38 in the lap and 7.04 sec in the return. The difference in averages is in the confidence interval (-0.43; -0.25). The dispersion of the results is homogeneous for the two tests. When checking the statistical hypothesis with the bilateral t-test, it was observed that the difference in the averages reached the threshold of statistical significance, p<0.001<0.05.

In the final return test, the average execution time of the ***Illionois*** test is 0.61 sec lower than the average from the final lap test, the averages being 17.16 in the lap and 16.55 sec in return. The difference in the average is in the confidence interval (-0.75 ; -0.47). In both tests the results are homogeneously scattered around the average. When checking the statistical hypothesis with the bilateral t-test, it was observed that the difference in the averages reached the threshold of statistical significance, p<0.001<0.05 for t=9.23 and 13 degrees of freedom. The null hypothesis is rejected.

In the final return test, ***the*** average squat jump detenta is 3.08 cm higher than the average from the final lap test, the averages being 36.67 in the lap and 39.75 cm in the return. The difference in the averages is in the confidence interval (2.17; 4.00). The results are homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t-test revealed a difference in statistically significant averages, p<0.001<0.05

In the final return test, ***the average detenta of the jump in the opposite direction of the movement*** (counter movement jump) is higher by 2.46 cm than the average from the final lap test, the averages being 38.93 in the lap and 41.39 cm in the return. The difference in averages is in the confidence interval (1.64; 3.27). The dispersion of the results is homogeneous for the two tests. When verifying the statistical hypothesis with the bilateral t-test, it was observed that the difference in the averages reached the threshold of statistical significance, p<0.001<0.05

In the final return test, ***the*** average free jump is 3.10 cm higher than the average from the final lap test, the averages being 43.17 in the lap and 46.27 cm in the return. The difference in averages is in the confidence interval (1.38 ; 4.83). In both tests the results are homogeneously scattered around the average. The verification of the statistical significance with the bilateral t test revealed a difference in statistically significant averages, p=0.002<0.05

In the final return test, the average distance traveled in ***4 high jumps*** by 0.45 m than the average from the final test lap, the averages being 1.82 in the lap and 2.27 m in the return. The difference in averages is in the confidence interval (0.31 ; 0.60). The results are homogeneously dispersed in both tests. When checking the statistical hypothesis with the bilateral t test, it was observed that the difference in the averages reached the threshold of statistical significance, p<0.001<0.05.

In the final return test, the average weight lifted in the ***semi-kneeling test with the high weightlifter*** by 13.21 kg than the average from the final lap test, the averages being 96.79 in the lap and 110.00 kg in the return. The difference in averages is in the confidence interval (10.53 ; 15.90). The results are homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t test revealed a difference in statistically significant averages, p<0.001<0.0.

In the final return test, the average weight pushed to the ***pushing test lying with the dumbbell*** is 9.28 kg higher than the average from the final lap test, the averages being 45.36 in the lap and 54.64 kg in the return. The difference in averages is in the confidence interval (6.79 ; 11.78). The dispersion of the results around the mean is homogeneous at the turn and relatively homogeneous at the return. The verification of the statistical significance with the bilateral t test revealed a difference in statistically significant averages, p<0.001<0.05.

In the ***140m per 20m round trip***, the average return test time is 0.90 sec lower than the average from the final lap test, the averages being 31.74 on the lap and 30.84 sec in return. The difference in averages is in the confidence interval (-1.27; -0.54). In both tests the results are homogeneously scattered around the average. When verifying the statistical hypothesis with the bilateral t-test, it was observed that the difference in the averages reached the threshold of statistical significance, $p<0.001<0.05$.

The average percentage difference between the last and first time of 10+10m in the 8x10+10m test in the final return test is 0.72% lower than the average from the final lap test, the averages being 6.06 in the round and 5.34% in the return. The difference in the averages lies in the confidence interval (-1.79 ; 0.36). The dispersion of the results around the mean is relatively homogeneous at the turn and inhomogeneous at the return. The verification of the statistical significance with the bilateral t-test revealed a statistically insignificant difference in averages, $p=0.173>0.05$.

The average fatigue factor in the 8x10+10m test in the final return test is 0.03 sec lower than the average from the final lap test, the averages being 0.47 in the lap and 0.44 sec in return. The difference in averages is in the confidence interval (-0.19 ; 0.13). The dispersion of the results around the average is inhomogeneous at the turn and return. When verifying the statistical hypothesis with the bilateral t test, it was observed that the difference in the averages did not reach the threshold of statistical significance, $p=0.667>0.05$.

The average maximum aerobic speed for running on the track in the final return test is 0.93 km/h higher than the average from the final lap test, the averages being 14.46 on the lap and 15.39 km/h in the return. The difference in averages is in the confidence interval (0.72 ; 1.12). In both tests the results are homogeneously scattered around the mean. When verifying the statistical hypothesis with the bilateral t-test, it was observed that the difference in the averages reached the threshold of statistical significance, $p<0.001<0.05$.

The average maximum aerobic speed for commuting in the final return test is 0.65 km/h higher than the average from the final lap test, the averages being 12.34 on the lap and 12.99 km/h in the return. The difference in averages is in the confidence interval (0.48 ; 0.81). The results are homogeneously dispersed in both tests. The verification of the statistical significance with the bilateral t-test revealed a difference in statistically significant averages, $p<0.001<0.05$.

The average ***VO2max*** coefficient in the final return test is higher by 3.22 ml/kg/min than the average from the final round test, the averages being 50.63 in the round and 53.85 ml/kg/min in return. The difference in averages is in the confidence interval (2.52 ; 3.93). The results are homogeneously dispersed in both tests. When checking the statistical hypothesis with the bilateral t test, it was observed that the difference in the averages reached the threshold of statistical significance, $p<0.001<0.05$.

According to Table 3.14. the results obtained at the somatic comparative assessment of the final return round of the athletes on the posts is significant, where all the posts had progress.

Table 3.14. Comparative analysis of the final tour-retur somatic indices, by positions

Somatic indices		**Prop**	**Hooker**	**Scrum-half**	**Fly-half**	**Centre**	**Wing**
Height (cm)		168	163	158.5	161.5	160	170
Body weight (kg)	**Tour**	61.58	61.45	57.35	54.05	57.50	65.30
	Retur	63,83	58.95	59.05	52.60	54.25	63.20
	Diff. averages	2.25	-2.50	1.70	-1.45	-3.25	-2.10
BMI (kg/m^2)	**Tour**	22.65	23.24	22.62	21.05	22.56	23.12
	Retur	22.67	20.89	23.51	20.68	21.47	21.56

	Diff. averages	0.02	-2.35	0.89	-0.36	-1.09	-1.56
Fat mass (kg)	**Tour**	28.13	31.40	28.55	26.40	30.55	29.35
	Retur	27.33	25.40	28.00	25.70	20.90	24.10
	Diff. averages	-0.80	-6.00	-0.55	-0.70	-9.65	-5.25
Muscle mass (kg)	**Tour**	31.45	29.75	31.25	31.35	29.80	31.05
	Retur	31.70	32.10	32.20	31.60	37.85	33.25
	Diff. averages	0.25	2.35	0.95	0.25	8.05	2.20

The average body mass per post increased to 2 posts and decreased to 4 posts. The post with the highest average growth is Prop, the increase being 2.25 kg and the post with the smallest average difference is Center, the decrease being 3.25 kg.

The average body mass index increased to 2 posts and dropped to 4 posts. The post with the highest average growth is Scrum-half, the increase being 0.89 kg/m2 and the post with the smallest average difference is Hooker, the decrease being 2.35 kg/m2.

The average percentage of ***body fat*** decreased in return to all 6 posts. The post with the smallest average decrease is Scrum-half, the decrease being of 0.55% and the post with the highest average decrease is Center, the decrease being of 9.65%.

The average percentage of ***muscle mass*** increased in return at all 6 posts. The station with the highest average growth is the Center, the progress being of 8.05% and the post with the lowest average growth is Prop, the progress being of 0.25%.

As regards the motor evaluation of sportswomen, in Table 3. 15 are presented the results obtained by them in the round and return on the posts, being highlighted the differences between the two tests. Thus, we note that in all the tests for the evaluation of motor skills, sportswomen were revealed statistically significant differences.

Table 3.15. Comparative analysis of the tour-retur final indices of the assessment of the motor capacity on the posts

Motor indices		**Prop**	**Hooker**	**Scrum-half**	**Fly-half**	**Centre**	**Wing**
Speed 10m (s)	**Tour**	1.98	1.94	1.98	1.99	1.94	1.91
	Retur	1.90	1.83	1.86	1.90	1.87	1.78
	Diff. averages	-0.08	-0.11	-0.12	-0.09	-0.07	-0.13
Speed 50m (s)	**Tour**	7.40	7.33	7.55	7.60	7.33	7.02
	Retur	7.10	6.97	7.11	7.09	7.09	6.81
	Diff. averages	-0.30	-0.36	-0.44	-0.53	-0.24	-0.21
SJ (cm)	**Tour**	37.54	38.18	33.07	32.04	35.73	42.59
	Retur	39.87	42.15	35.93	37.26	38.48	44.70
	Diff. averages	2.33	3.97	2.86	5.22	2.75	2.11
CMJ (cm)	**Tour**	38.53	39.09	35.62	36.04	39.04	45.70
	Retur	41.26	43.59	37.48	38.71	41.15	46.26
	Diff. averages	2.73	4.50	1.86	2.67	2.11	0.56
FJ (cm)	**Tour**	42.42	43.75	40.84	39.81	44.24	48.71
	Retur	46.20	46.70	42.70	45.57	46.48	50.04
	Diff. averages	3.78	2.95	1.86	5.76	2.24	1.33
J4_3 (m)	**Tour**	1.84	1.88	1.86	1.80	1.67	1.85
	Retur	2.37	2.33	2.09	2.11	2.25	2.40
	Diff. averages	0.53	0.45	0.23	0.31	0.58	0.55
Illinois agility (s)	**Tour**	17.27	16.74	17.48	17.31	16.84	17.20
	Retur	16.57	16.41	16.78	16.80	16.21	16.50
	Diff. averages	-0.70	-0.33	-0.70	-0.51	-0.63	-0.70
8X10+10 m 140 m by 20 m round trip (s)	**Tour**	31.70	31.19	32.73	32.62	31.08	31.16
	Retur	30.93	30.06	31.35	31.53	30.85	30.23
	Diff. averages	-0.77	-1.13	-1.38	-1.09	-0.23	-0.93
The percentage	**Tour**	5.26	7.68	6.43	6.84	6.83	4.15

difference between the last and first time of the walk (%)	**Retur**	3.72	6.63	8.80	6.37	4.77	3.41
	Diff. averages	-1.54	-1.05	2.37	-0.47	-2.06	-0.74
Fatigue factor (s)	**Tour**	0.33	0.46	0.58	0.74	0.61	0.25
	Retur	0.35	0.57	0.82	0.35	0.32	0.32
	Diff. averages	0.02	0.11	0.24	-0.39	-0.29	0.07
Semi-genuflexion with dumbbell (kg)	**Tour**	105.00	95.00	95.00	92.50	92.50	92.50
	Retur	118.75	115.00	102.50	102.50	107.50	105.00
	Diff. averages	13.75	20.00	7.50	10.00	15.00	12.50
Pushed lying down with dumbbell (kg)	**Tour**	51.25	47.50	40.00	42.50	45.00	40.00
	Retur	62.50	57.50	47.50	50.00	52.50	50.00
	Diff. averages	11.25	10.00	7.50	12.50	7.50	10.00
Maximum aerobic commute speed (km/h)	**Tour**	12.60	12.31	12.45	11.87	12.30	12.25
	Retur	13.30	12.57	13.17	12.44	12.89	13.24
	Diff. averages	0.70	0.26	0.72	0.57	0.59	0.99
Maximum aerobic speed (km/h)	**Tour**	14.82	14.32	14.71	13.81	14.36	14.42
	Retur	15.91	14.87	15.65	14.54	15.21	15.62
	Diff. averages	1.09	0.55	0.94	0.73	0.85	1.20
Vo2Max (ml/kg/min)	**Tour**	51.88	50.13	51.48	48.32	50.25	50.48
	Retur	55.68	52.06	54.75	50.89	53.24	54.67
	Diff. averages	3.80	1.93	3.27	2.57	2.99	4.19

Note: n=14, MA= artimetic mean; AS= standard deviation; P – 0.05; 0,01; 0,001.

The graphical presentation of the results recorded at the 10 m running test gives us the opportunity to observe the dynamics of the indices from the lap to the return test. The average time achieved over this distance decreased at all 6 posts. The post with the smallest average difference is Prop, the progress being 0.08 sec., and the post with the largest average difference is the Wing, the progress being 0.13 sec.

The average time, in round-trip, when covering the distance of travel on ***50 m***, departing from the place has decreased to all 6 positions. The post with the smallest average difference is Wing, progress is 0.21 sec and the post with the largest average difference is Fly-half, the progress being 0.53 sec.

The average time to perform the ***Illinois*** test decreased in round-trip at all 6 positions. The post with the smallest average difference is the Hooker, the progress being 0.33 sec and the post with the highest average difference is the Prop and the Wing, the progress being 0.70 sec.

In the ***SJ sample,*** the isometric explosive force of the lower limbs increased in round-trip at all 6 posts. The post with the largest average difference is Fly-Half, the progress is 5.22 cm, and the post with the smallest average difference is the Wing, the progress being 2.11 cm.

In the ***CMJ*** test, the elastic explosive force of the lower limbs increased in round-trip at all 6 posts. The post with the largest average difference is the Hooker, the progress being 4.50 cm and the post with the smallest average difference is the Wing, the progress being 0.56 cm.

In the ***FJ*** test, the average elastic explosive force of the lower limbs in the free jump race increased in the round-trip to all 6 posts. The station with the largest average difference is Fly-half, the progress being 5.76 cm and the post with the smallest average difference is the Wing, the progress being 1.33 cm.

The average explosive power factor of the lower limbs, after performing ***4 jumps***, increased in round-trip at all 6 posts. The station with the largest average difference is Center, the progress being 0.58 m, and the post with the smallest average difference is Scrum-half, the progress being 0.23m.

In the ***squat race with the 1RM weightlifting***, the average force increased in round-trip at all 6 positions. The post with the largest average difference is Hooker, the progress is 20 kg and the post with the smallest average difference is Scrum-half, the progress being 7.5 kg.

In the test ***pushed the dumbbell out of lying down 1RM,*** the average force increased in round-trip at all 6 posts. The station with the largest average difference is Fly-half, the progress being 12.50 kg., and the post with the smallest average difference is Scrum-half and the Centre, the progress being 7.50 kg.

On average, anaerobic-lactacid capacity and strength increased, as the journey time of ***140m per 20m round trip*** decreased in round-trip at all 6 posts. The post with the smallest average difference is the Center, the progress being 0.23 sec and the post with the largest average difference is Scrum-half, the progress being 1.38 sec.

Anaerobic-lactacid capacity increased at batch level, ***the percentage difference between the last and first time of 10+10m,*** in the 8x10+10 m test increased to 2 posts and decreased to 4 posts.

The post with the highest average growth is wing, the increase being 0.74 sec., and the post with the smallest average difference is Scrum-half, the decrease being 2.37 sec.

The average fatigue factor in the 8x10+10m test decreased in return at the batch level. The posts increased to 3 posts and dropped to 3 posts.

The post with the highest average growth is Scrum-half, the increase being 0.15 sec and the post with the smallest average difference is the Hooker, the decrease being 0.33 sec.

The average value for ***the maximum aerobic speed when running on the track, in the running-shuttle test***, increased in return at all 6 positions.

The station with the largest average difference is the Wing, the progress being 0.99 km/h and the station with the smallest average difference is the Hooker, the progress being 0.26 km/h.

The average ***maximum aerobic-race speed for running on the track*** - REAL has increased in the round-trip to all 6 positions.

The station with the largest average difference is the Wing, the progress being 1.20 km/h, and the station with the smallest average difference is the Hooker, the progress being 0.55 km/h.

The average value ***of maximum oxygen consumption - extrapolated*** increased in round-trip to all 6 posts. The station with the largest average difference is Wing, the progress being of 4.19 ml/kg/min and the post with the smallest average difference is the Hooker, the progress being of 1.99 ml/kg/min.

Analyzing the results we have obtained, we conclude by stating that the proposed program for the development of physical preparations specific to the game of rugby 7 by specific means contributes to greater progress compared to conventional means, which is demonstrated by statistical-mathematical calculations.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

1. In the first theoretical part, we aimed to bring new information to the world regarding the specific physical training of rugby players 7, the areas of effort required in physical training and aspects related to the somato-functional characteristics of rugby players. We intend to update the methodology of physical training for rugby 7, in order to help physical training specialists and rugby coaches.

2. Rugby 7 is a game that imposes a high intensity of the phases interspersed with power and technical executions, where the dominant energy system (alactic anaerobic, lactic and aerobic) is used during the game in different proportions, and from the point of view of the motor qualities, of vital importance is the speed in all its forms of manifestation, torque force - power, endurance and endurance both in terms of capacity and power.

3. On the differences between international and national players, between the players in the forward compartment and the three-quarter line, in terms of the physical characteristics of rugby

players in 7. As part of our ascertaining research, the evaluation protocol, was carried out in the championship tour, where the athletes were tested at the beginning of the training period and during the transition period. It should be noted that in the planning of the physical training program, conventional means were used.

4. The results obtained at the initial and final somatic evaluation of the athletes in the tour are similar, significant differences being noted only in the case of the BMI, where p=0.013, and in terms of the motor evaluation of the athletes, we observe between the initial and the final testing, statistically significant differences were revealed in most of the samples, the p value being less than 0.005.

5. From the annual plan, the mesocycles and training microcycles were exemplified, we can see that the share of motor skills is different in the two parts of training, round trip respectively return, of the players in the competitive year 2019.

It was also noted that the maintenance of aerobic capacity is lower in return by around 4%, the development of motor quality speed is 3 % higher in return, and the maintenance period is approximately 10 % longer in return.

6. In the elaboration of the operational models, the morpho functional peculiarities of the sportswomen included in the research were taken into account. Starting from the training curriculum developed by us for the development of physical preparations specific to the game of rugby 7 in the return of the championship, specific means of developing the quality combinations were applied to the priority of rugby 7. It should be noted that in the tour, nonconventional means presented in the second chapter of the work were used.

7. As regards the results obtained by the athletes at the somatic evaluation in return, we note in Table 3.8. that statistically significant differences between initial and final testing are noted only in the case of BMI (p=0.024) and fat mass (p=0.009).

With regard to the motor evaluation on positions of athletes, we note, between the initial and final testing, statistically significant differences were revealed in all the tests.

8. The results, recorded both in the championship round and in its return, showed us a positive dynamic of the motor indices, but with a higher weight in the return of the championship.

As a result, the method proposed by us, based on the development of combined qualities by specific means, is effective in the game of rugby 7, and the hypothesis of the proposed research has been confirmed.

***

The higher the frequency of special physical exercises and the total value of the load, the more careful the control over their cumulative effect should be, and the more important is the skillful regulation of the tasks in relation to the level of training, the coping capabilities and individually, the characteristics of those involved.

When determining the volume and intensity of tasks that provide the optimal training effect, it is necessary to rationally combine intense (developing) tasks with those of low intensity. This road is a real reserve and far from exhausted for the growth of sporting achievements in almost all sports.

At the alternation of anaerobic and aerobic energy supply, taking into account the orientation of tasks on the improvement of physiological mechanisms, one of the main tasks is solved - the preparation of athletes to perform a competitive task.

It is necessary to promote an increase in the overall level of functional and adaptive capabilities of a growing organism in relation to the characteristics of a particular stage of ontogenesis during sensitive periods.

When performing these special exercise complexes, training and improvement of the set of

motor skills and abilities that are part of the versatile basic "motor education" is provided.

To improve special strength and speed-force training, it is necessary to use all of the above means and methods in combination, while maintaining this sequence of their application in accordance with the principles of succession and continuity of courses.

A high level of special physical training allows you to master more complex elements of technology in a shorter period of training, excluding injuries and injuries to the musculoskeletal system.

It was made the analysis of the content of the physical training in the literary sources we have. Analyzing the scientific and methodological literature, it was revealed that the problem of developing physical fitness is extremely complex both in general theoretical and methodological terms, since the different qualities are less interconnected and depend primarily on the functionality of the motor area of the central nervous system, a system that requires application for the improvement of various methodological methods and techniques.

A method of special physical training for rugby players was developed, based on the consistent combined use of special physical and technical training of young rugby players, which contributed to the development of the speed-force level and the formation of special skills in rugby technique and tactics.

It has been established that the developed method of building special physical training in consistent association with the development of basic techniques during each training session gives positive results regarding the level of special training of young rugby players. This is also evidenced by the mathematical and statistical data obtained.

The body can produce energy to perform movements using 3 energy systems:

1. Main system (ATP - CF).
2. Secondary system (anaerobic).
3. Tertiary system (aerobic).

A detailed explanation of the physiological basis of how these systems work is not necessary, but it should be taken into account when examining the requirements of the game.

Some sports depend heavily on a single energy system, but the nature of rugby involves stops and starts and varying intensity, which means that all three systems are often used during a game.

When a side sprints at full speed after perfect interception, it uses its main power system, since the sprint requires a lot of energy, which is produced at high speed. The main power system can produce energy very quickly, but for a short period of time (only about 10 seconds). For this reason, players cannot maintain the maximum speed for a long time.

The players that form the mole - are a good example in which the secondary system assumes the main role of providing energy, since the maulers push as hard as possible for a long period of time (20-40 seconds). This system maintains a high intensity for more than 10 seconds.

During low-intensity efforts such as jogging, the tertiary system prevails, it cannot produce energy quickly, but it can produce a lot of energy over a long period of time. During low-intensity efforts (where players have time to produce energy more slowly than otherwise), this energy system is dominant. Since much of the time in the game is spent on low-intensity work, this system is an important source of energy.

Since rugby requires the application of all three energy systems, it can be concluded that high-intensity efforts often determine the outcome of the game, and therefore are more important. This could mean that primary and secondary systems are more important for development, however, a well-developed tertiary power supply system increases the rate of recovery after high-intensity stretches. Therefore, it also remains an important system for development.

A basic understanding of energy systems gives us the knowledge of the energy systems that we are trying to improve through our training, and also determines the specifics of the training.

Movement analysis describes the main physical activities and the most common movements that occur during the game, the analysis of movement cannot describe the degree of physical strength that is applied during contacts made with players. For example, motion analysis cannot take into account an impact that is made to catch or make contact, nor can it take into account the impact of the force that is produced during other physical activities, such as working in the pile, rucks and mole.

The classification of movements during the game is divided into special categories, allowing us to identify what players do most often on the field and that can significantly affect the training process.

BIBLIOGRAFIE

1. ALEXE, N. *Antrenamentul sportiv modern.* București: Editis, 1993, 230-281 p.
2. BADEA, D*. Rugby, strategia formativă a jucătorului de rugby.* Bucureşti: F.E.S.T., 2004.
3. BADEA, D. *Evoluţia indicatorilor de efort specifici modelului competiţional în jocul de rugby*. Sesiunea de Comunicări Ştiinţifice, Bucureşti: A.N.E.F.S., 1997.
4. BADEA, D. *Rugby, fundamente teoretice şi metodice*. Bucureşti: F.E.S.T., 2001.
5. BADEA,D. *Rugby–Strategia formativă a jucătorului.* Bucureşti: F.E.S.T., 2003.
6. BADIU, T. *Teoria educației fizice și sportului.* Galați: Moganbit, 2002.
7. BOMPA, T. *Teoria şi metodologia antrenamentului. Periodizarea*. Bucureşti: C.N.F.P.A., 2001.
8. CÂRSTEA, G. *Teoria și metodica educației fizice școlare.* București: Universul, 1993. 100 p.
9. CÂRSTEA, G. *Teoria și metodica educației fizice și sportului.* București: AN-DA, 2000. 198 p.
10. CONSTANTIN, V. *Rugby – Specializarea posturilor.* Bucureşti: F.E.S.T., 2002. 187 p.
11. CONSTANTIN, V. *Rugby – Tehnică şi tactică.* Bucureşti: F.E.S.T., 2004. 351 p.
12. DRAGNEA, A. *Teoria sportului.* București: FEST, 2002. 280p.
13. EPURAN,M. *Psihologia educatiei fizice*. București:I.E.F.S.1986.
14. EPURAN,M. *Psihologia și sportul contemporan.* București: Stadion, 1974. 100 p.
15. GEORGESCU, M. *Antrenamentul sportiv modern.* București: Editis, 1993, p. 35-50.
16. HIRTZ, P., SASS, H. *Practicarea jocurilor sportive și perfecționarea calităților de coordonare.* București: Atlantis, 1988, p 41-67.
17. IACOB, I., PĂCURARU, A. Volei. *Dezvoltarea calităților motrice*. Iași: Chemarea, 1999, p. 50-54.

18. **LEPCIUC, G.** Aspects of the analysis of motor capacity according to positions in the game of rugby seven's female. *SPORT AND SOCIETY Interdisciplinary Journal of Physical Education and Sports*. 2021, Volume 21, Issue 2 , https://doi.org/10.36836/2021/2/37

19. **LEPCIUC, G.,** DORGAN, V., POPESCU, V. Effects of the plyometric training programme on the sprint and the agility of rugby 7 feminine players.*Science, Movement and Health.* 2021, Vol. XXI, ISSUE 2 Supplement, 21 (2): 331 - 336

20. **LEPCIUC, G.,** DORGAN, V., POPESCU, V.Influence of plyometric training on the explosive power of senior rugby sevens players.*Book of Proceedings of the 11th International Congress of Education, Health and Human Movement.* 2021 https://doi.org/10.51267/icehhm2021bp08

21. MANOLACHI, V. *Sporturi de luptă- teorie și metodică.* Chișinău: I.N.E.F.S., 2003, p. 134-170.

22. MATVEEV, L.P. *Antrenamentul și organizarea acestuia.* București: Sportul de Performanță, 1991. 15-30 p.

23. MATVEEV,L.P.,NOVICOV,A.D. *Teoria și metodica educației fizice*. București: Sport-Turism; 1980. 600 p.

24. PLATONOV, N.V. *Teoria antrenamentului sportiv.* Moscova, 1984, p. 30-60.

25. ROSS, A., GILL, N.D., CRONIN, J.B. Match analysis and player characteristics in rugby sevens. *Sports Medicine.* 2014, 44:357–367

26. TĂBÎRȚĂ, V. *Rugby, pregătire de forță-viteză. Monografie.* Chișinău: Valinex, 2015. 128 p.

ADNOTARE

Lepciuc Gabriela, „Pregătirea fizică specifică în jocul de rugby 7 feminin”: Teză de doctor în științe ale educației, specialitatea 533.04. Educație fizică și sport, kinetoterapie și recreație. Chișinău, 2022.

Structura tezei : introducere,3 capitole, concluzii generale și recomandări, bibliografie (din 238 surse), 123 de pagini text de bază, 7 anexe, 84 figuri, 24 tabele. Rezultatele obținute sunt publicate în 8 lucrări științifice.

Cuvinte cheie: rugby 7, antrenament sportiv, sportive de performanță, pregătire fizică specifică, modelare.

Scopul lucrării constă în elaborarea și argumentarea experimentală a eficienței folosirii mijloacelor specifice în pregătirea fizică a jucătoarelor de rugby 7.

Obiectivele cercetării:

1. Analiza literaturii de specialitate privind componenta fizică în antrenamentul jucătoarelor de rugby7.

2. Evaluarea nivelului pregătirii fizice a jucătoarelor de rugby7.

3. Elaborarea planului de antrenament privind pregătirea fizică specifică a jucătoarelor de rugby 7 într-un ciclu anual de pregătire.

4. Argumentarea experimentală a eficienței programei aplicate privind pregătirea fizică specifică jocului de rugby 7.

Noutatea și originalitatea științifică a cercetării constă în argumentarea științifică a

eficacității programei de pregătire specifică jocului de rugby 7, orientată spre exigențele jocului actual.

Problema științifică importantă soluționată în domeniu constă în creșterea nivelului de pregătire fizică specifică în jocul de rugby 7 prin folosirea mijloacelor specifice în procesul de antrenament, fapt ce va conduce la îmbunătățirea randamentului de joc.

Semnificația teoretică a rezultatelor cercetării constă în formarea unui spectrum larg de cunoștințe privind perfecționarea sistemului de pregătire a jucătoarelor de rugby7 și perfecționarea măiestriei sportive a acestora.

Valoarea aplicativă a cercetării poate fi un reper important pentru modelarea conținutului și a modului de planificare a procesului de pregătire a jucătoarelor de rugby 7 la toate categoriile de vârstă.

Implementarea rezultatelor științifice. Rezultatele cercetării au fost implementate în procesul de pregătire a jucătoarelor de rugby 7 din cadrul cluburilor sportive din România, Polonia, Bulgaria și Republica Moldova.

ANNOTATION

Lepciuc Gabriela, „Specific physical training in the game of women`s rugby 7 ": PhD Thesis of education sciences, specialty 533.04. Physical education, sport, kinetotherapy and recreation. Chisinau, 2022.

Thesis structure: introduction, 3 chapters, general conclusions and recommendations, bibliography (238 sources), 123 pages of basic text, 7 annexes, 84 figures, 24 tables. The obtained results are published in 8 scientific papers.

Keywords: rugby 7, sports training, performance sports, specific physical training, modeling.

The aim of the thesis consists in the elaboration and experimental argumentation of the efficiency of using specific means in the physical training of women`s rugby 7.

Research objectives:

1. Analysis of the literature on the physical component in the training of women`s rugby 7.
2. Assessment of the level of physical training of rugby players 7.
3. Elaboration of the training plan regarding the specific physical training of women`s rugby 7 in an annual training cycle.
4. Experimental argumentation of the effectiveness of the applied curriculum on the physical training specific to the game of rugby 7.

The scientific novelty and originality of the research consists in the scientific

argumentation of the effectiveness of the training curriculum specific to the game of rugby 7, oriented towards the exigencies of the current game.

The important scientific problem solved in the field consists in increasing the level of specific physical training in the game of rugby 7 by using specific means in the training process, which will lead to the improvement of the game performance.

The theoretical significance of the research results lies in the formation of a wide spectrum of knowledge regarding the improvement of the system of training of women`s rugby 7 and the improvement of their sporting mastery.

The applicative value of the research can be an important benchmark for shaping the content and how to plan the process of training women`s rugby 7 in all age categories.

Implementation of scientific results. The results of the research were implemented in the process of training women`s rugby 7 from sports clubs in Romania, Poland, Bulgaria and the Republic of Moldova.

АННОТАЦИЯ

Лепчук Габриела, «Специальная физическая подготовка в женском регби 7»: диссертация на соискание степени доктора педагогических наук, специальность 533.04. Физическое воспитание, спорт, кинетотерапия и рекреация. Кишинэу, 2022.

Структура диссертации: введение, 3 главы, общие выводы и рекомендации, библиография (238 источников), 123 страницы основного текста, 7 приложений, 84 рисунка, 24 таблицы. Полученные результаты опубликованы в 8 научных работах.

Ключевые слова: регби 7, спортивная подготовка, спортивные состязания, специфическая физическая подготовка, моделирование.

Цель диссертации заключается в разработке и экспериментальной аргументации эффективности использования специфических средств в физической подготовке регбисток 7.

Задачи исследования:

1. Анализ литературы по физической составляющей в подготовке регбисток 7.
2. Оценка уровня физической подготовки регбисток 7.
3. Разработка тренировочного плана по специфической физической подготовке регбисток 7 в годовом тренировочном цикле.
4. Экспериментальная аргументация эффективности прикладной учебной программы по физической подготовке, специфичной для игры в регби 7.

Научная новизна и оригинальность исследования заключается в научной аргументации эффективности учебной программы, специфичной для игры в регби 7, ориентированной на остроту текущей игры.

Важной научной задачей, решаемой в данной области, является повышение уровня специфической физической подготовки в игре регби 7 за счет использования специфических средств в тренировочном процессе, что приведет к повышению эффективности игры.

Теоретическая значимость результатов исследования заключается в формировании широкого спектра знаний относительно совершенствования системы подготовки регбисток 7 и их спортивного мастерства.

Практическое значение исследования может стать важным ориентиром для формирования и планирования процесса подготовки регбисток 7 лет во всех возрастных категориях.

Внедрение научных результатов. Результаты исследования были внедрены в процесс подготовки 7 регбисток из спортивных клубов Румынии, Польши, Болгарии и Республики Молдова.

LEPCIUC Gabriela

SPECIFIC PHYSICAL TRAINING IN THE GAME OF WOMEN`S RUGBY 7

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