

PODIUM

Journal of Science and Technology in Physical Culture

Volume 19
Issue 3

2024

University of Pinar del Río "Hermanos Saíz Montes de Oca"



Original article

Basque pelota technical preparation program, specializing in leather fronton paddle

Programa de preparación técnica de pelota vasca, en la especialidad paleta cuero frontón

Programa de Preparação Técnica da Pelota Basca, de acordo com as características da atividade competitiva da especialidade do frontão Paleta Cuero

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Received: 22/02/2024

Approved: 28/06/2024

ABSTRACT

In the practice of Basque pelota and its different modalities in the Cuban national team, certain inconsistencies were observed as a trend; a diagnosis pointed out the limitation that the Comprehensive Athlete Preparation Program up to the time of the research only covers up to modalities of the Cuban fronton. The above motivated the authors to direct the



research in this sense, with the purpose of designing a Basque Pelota technical preparation program, according to the characteristics of the competitive activity of the Paleta Cuero fronton specialty. To do this, empirical methods such as, documentary review, interview, specialist criteria, measurement, scientific observation and percentage calculation as a statistical procedure were used. A sample of the Cuban national team was used. The research explains the fundamental characteristics of the competitive actions of the Paleta Cuero frontón specialty according to several performance indicators. In this way, it contributes to the updating and completion of the Comprehensive Athlete Preparation Program in its international competition modalities. On the other hand, coaches and managers of this sport are provided with a technical preparation program based on scientific research, which in its application promotes the improvement of the pedagogical process of the preparation of pelota players.

Keywords: frontón; leather paddle; pelotari; Basque pelota.

RESUMEN

En la práctica de la pelota vasca y sus diferentes modalidades en la selección nacional de Cuba, se observaron como tendencia ciertas incongruencias. Un diagnóstico aplicado señaló la limitante de que el Programa Integral de Preparación del Deportista, hasta el momento de la investigación, solo abarca las modalidades del frontón cubano. Lo planteado motivó a los autores a dirigir la investigación en este sentido, con el propósito de diseñar un programa de preparación técnica de pelota vasca, según las características de la actividad competitiva de la especialidad paleta cuero frontón. Para ello, se aplicaron los métodos empíricos revisión documental, entrevista, criterio de especialista, medición, observación científica y el cálculo porcentual como procedimiento estadístico. Se utilizó una muestra del equipo nacional de Cuba. La investigación explicó las características fundamentales de las acciones competitivas de la especialidad paleta cuero frontón, según varios indicadores de rendimiento; de modo que se contribuyó a la actualización y completamiento del Programa Integral de Preparación del Deportista en sus modalidades de competición internacional. Por otro lado, brindó a entrenadores y directivos de este deporte un programa de



preparación técnica fundamentado sobre la base de la investigación científica que propició con su aplicación el perfeccionamiento del proceso pedagógico de la preparación de los pelotaris.

Palabras clave: frontón, paleta cuero, pelotari, pelota vasca

RESUMO

Na prática da Pelota Basca e suas diferentes modalidades na seleção cubana, foram observadas certas inconsistências como tendência que um diagnóstico apontou a limitação de que o Programa Integral de Preparação de Atletas até o momento da investigação abrange apenas até as modalidades da Pelota Basca; Frontão cubano. O exposto motivou os autores a direcionar a pesquisa neste sentido, com o propósito de desenhar um Programa de Preparação Técnica da Pelota Basca, de acordo com as características da atividade competitiva da especialidade do frontão Paleta Cuero. Para isso, foram aplicados métodos empíricos: revisão documental, entrevista, critérios especializados, medição, observação científica e cálculo percentual como procedimento estatístico. Foi utilizada a amostra da seleção cubana, esta pesquisa explica as características fundamentais das ações competitivas da especialidade Paleta Cuero frontón segundo diversos indicadores de desempenho. Desta forma, contribui para a atualização e conclusão do Programa Integral de Preparação de Atletas nas suas modalidades de competição internacional. Por outro lado, os treinadores e dirigentes, desta modalidade dispõem de um programa de preparação técnica baseado em investigação científica, que na sua aplicação promove a melhoria do processo pedagógico de preparação dos jogadores de pelota.

Palavras-chave: frontão, remo de couro, pelotari, pelota basca.

INTRODUCTION

Historically, it is known the importance of the organization of the sports preparation process and the detailed description of the competition scenario, which according to Frías (2021) are



the actions of the competitors and the characteristics of the physical environment of performance. For their part, Bompa and Buchelli (2019) emphasize that training is the process of adaptation of the practitioner to the demanding conditions of sports competition, with the aim of obtaining significant achievements that also imply the need for a description of the competition in question.

In Cuba, the technical preparation of pelotaris in the national team is concentrated and organized in one year, between the ages of 17 and 18. Once their training in the Cuban fronton is completed, pelotaris are subjected to the competitive demands of the international scene, which until then responds to the national demands as a general prior basis before assuming their specialty in the national team. In this way, Cuban pelotaris compete during their basic training in a different way than they do internationally (Valdés, 2023). Consequently, the preparation differs from the long-term preparation of other countries, which specialize early (13-15 years).

The most complex thing for pelotaris who move up to national high performance in the under-22 category is not only the change between the distances of the frontons, which is already notable, but according to García *et al.* (1996), it is the little time they have to achieve the principle of transfer of movements (positive). In the case of Cuban pelotaris, they have only one year of preparation for the first international competition, and in other countries, specialization is achieved at about 15 years of age.

Technical preparation, since its definition, has been the subject of various scientific studies that assume as a basis the multifactorial complexity of this long-term process in obtaining sports results. Its definition is broader than what is usually known, as it presents several factors that influence an athlete's performance capacity (Cordero *et al.*, 2023).

In high-performance sports, adequate technical preparation is essential for achieving satisfactory results; Basque pelota is not exempt from this, as it requires the integration of individual and group technical actions, achieved in the technical preparation stage and concretized in the competition period (Oberto, 2022).



In Cuba, since the beginning of Basque pelota, the under-22 pelotaris of the paddle leather frontón specialty come from the 20-meter modality or the so-called Cuban fronton . This path continues to this day, choosing those who form the national team, who are national champions and those who show aptitude to begin practicing one of the official modalities of international competition (Valdés, 2023).

Therefore, teaching in the national pre-selection begins late, between 17 and 18 years of age. From here on, the teaching-learning process is based fundamentally on empirical evidence, since there is not enough specialized literature or reference materials available, as occurs in other sports that have Comprehensive Programs for the Preparation of Athletes; since the Basque pelota program only covers the Cuban fronton modalities.

The case of the leather paddle specialty, which is played in the 36-meter-long fronton, is a specialty with notable differences compared to the Cuban fronton. The dimensions of the facility and the implements are different, it is played with a 600-gram semi-hard wooden paddle and a 50-gram leather-covered ball (as hard as a baseball); the latter, due to the high speed it reaches, exceeding 100 kilometers/hour, requires the use of protective equipment such as glasses and helmets to avoid accidents (Brotóns *et al.*, 2007).

In Cuba, sports results have been obtained that are ranked among the top internationally, although due to the technical-methodological conditions mentioned, the sustainability of these results over time or the rationality in the preparation of the sports reserve towards high performance cannot be guaranteed (Valdés, 2013).

Currently, there is a lack of programs that contribute to systematic and short-term pedagogical training, so the objective of this research was to propose a technical preparation program for Basque pelota, according to the characteristics of the competitive activity of the specialty paddle leather fronton.

MATERIALS AND METHODS

The application of empirical methods was taken into account, a documentary review was carried out that allowed the study, analysis and interpretation of official documents of this



sport such as the Comprehensive Athlete Preparation Program (PIPD, 2020-2024), as well as the existing scientific bibliography regarding its theory, which had to be complemented with the bibliographic analysis on the characteristics of the competitive activity.

In the documentary review, several available programs were consulted:

- Comprehensive Preparation Program for Basque Pelota Athletes (PIPD) (2020-2024).
- Programs of the National Institute of Sports, Physical Education and Recreation (INDER) technical methodological department (2020).
- Technical Preparation Program for the Xare Pelotaris of Basque Pelota under-22 category (2013).

Specifically, the PIPD for Basque pelota did not take into account the specialties practiced by the national team, but only included the Cuban fronton modalities, which reduces the training process in a sport that competes differently in national and international events; this results in the need to expand the PIPD with programs adjusted in stages to the changes in international competitive actions, which guarantee short-term training.

Observations and measurements were also made in 40 matches with the main objective of describing the competitive exercise of the leather fronton paddle, based on defining the indicators that characterize it as a sport, according to Echavarría (2007).

The sample was taken from the four pelotaris of the national leather paddle selection with an average age of 32 years, and average height of 1.75 cm, with experience in sports practice, all with more than 10 years in high performance, relevant sports results, participation in international events, world and Pan American medalists, two of them forwards and two defenders. Measurements were also taken to the pelotaris at the Cuban Sports Research Center, to assess their physical condition, according to a cardiorespiratory stress test.

The main indicators evaluated were: playing time (overall, real and pause), number of forehand and backhand hits, predominant energy systems and number of meters moved in various directions; to carry out this last aspect, the entire playing court had to be marked in



two-meter quadrants, to know the distances traveled and, in addition, the total distance traveled was verified with a specialized GPS.

The interview was carried out in a predetermined order and a uniform procedure was followed for all subjects. For its application, the indispensable organizational conditions were created that made it possible to compartmentalize the answers and the methodological guidelines for the opening or beginning, the central part or development and the end or closure were taken into account. The objective pursued with the interview was to find out the current situation of the technical preparation of the pelotari leather paddle fronton, category under-22; which allowed the taking of decisions regarding the determination of the contents of the program. For this, 10 highly competent specialists were interviewed.

The measurement was used to specify the results obtained with the application of interviews with coaches and experts, as well as to assess the results of the indicators evaluated in the practical verification of the program in the pelotaris considered as cases in this study.

Viability is related to applicability, but it is more precise, because it depends on whether or not the current circumstances allow it to be applied. Thus, the proposal may be applicable and very satisfactory results may be obtained, but under the current development conditions of the executors or for economic reasons, its application may not be viable.

A questionnaire was used to collect the criteria, which was developed based on the conceptual definition of feasibility, so first the applicability of the proposal was determined (as proposed, partially or with modifications) and then the feasibility of its application was specified. For the selection of the specialists, aspects such as belonging to the Basque pelota technical commission, being an international judge and having an academic qualification or scientific degree were taken into account.

Two filming cameras from the Cuban Sports Research Center (CIDP) were used as measuring tools and instruments, as well as a mat for the analysis of cardiorespiratory stress tests, computers, stopwatches and video playback file software.



RESULTS AND DISCUSSION

As a result of the application of the documentary review, and as part of the diagnosis regarding the analysis and interpretation of official documents that govern this sport, it was found that in the INDER programs there are coincidences regarding the structure, and the objectives and contents marked the differentiation for each type of sport; the contents are described in each of its stages or categories. These programs satisfy the sporting needs in a general way, although they do not achieve the objectives to be applied in the context of the national teams.

The PIPD for Basque pelota has been a reference for many years, as it has well-defined objectives for the training of pelotaris in the Cuban fronton. Its structure guarantees the training that goes through the pioneer, school and under-19 youth pyramids; however, it does not include the specificities required for the training of pelotaris in modalities practiced by the national team.

Xare specialty of Basque pelota is detailed. This author describes each of the technical plays (offensive and defensive) and sets out the stages that the pelotaris of the national team of this sport must go through.

The analysis process of the programs found that, although they meet the proposed objectives, they do not satisfy the needs of technical preparation for pelotaris of the national team, specifically for the specialty of paddle leather fronton. Hence, the relevance of the proposal by Valdés (2013), who explains in his program considerations for technical preparation.

In summary, it can be stated that the result of the documentary review revealed limitations in the PIPD of Basque pelota, since it only covers the 20-meter Cuban fronton modality, so there are no technical preparation programs for pelotaris in the leather paddle fronton discipline.



As a result of the application of the interview, and as part of the diagnosis about the level of knowledge on the current state of the technical preparation process of the under-22 category fronton leather paddle players, it was possible to verify:

- The interviewees agreed that the technical preparation for pelotaris in the fronton requires a comprehensive approach planned in stages. They even addressed the need to allow for adjustments in preparation in just one year, in accordance with the new specificities that the novice pelotaris in the national team face, in order to achieve (positive) transfers of movements from the Cuban fronton modality (from which they come), to the specialty of pelotaris in the 36-meter fronton.
- In relation to the preparation stages, they stated that they had used the frontons of different lengths through which the pelotari moves gradually (the moments of change have varied in practice according to the particularities of the pelotari), to facilitate adaptation to the specialty of leather fronton paddle.
- All those interviewed emphasized the importance of unifying the various aspects of technical preparation that have been incorporated indiscriminately in an empirical way in the work with the pelotaris. They considered that these adjustments should be contemplated in a program that allows systematizing and homogenizing the work (necessary link between theory and practice), with which they have contributed to a satisfactory result in the competitions.

The Cuban Sports Research Center, in close collaboration with the Institute of Sports Medicine, has carried out numerous functional tests on high-performance athletes in the area of cardiorespiratory control; in Basque pelota, cardiopulmonary ergometric tests were carried out in the laboratory, and the protocols were adjusted to the special needs according to individual characteristics, depending on their modality.

Cardiorespiratory stress tests are a useful scientific tool in sports medicine. Redesigning ergometric protocols allows for a better functional assessment of the athlete and provides adequate scientific support for individual training. Cardiopulmonary ergometry is an instrument available to evaluate, recover and improve the functional and sporting capacities of high-performance athletes.



Results of the cardiorespiratory stress test on the four pelotaris that made up the sample. This test was carried out in collaboration with the Cuban Sports Research Center (CIDP).

Table 1. Results of cardiorespiratory stress test

Pelotaris	T for exercise	FCM	MVO2	R. Energy	Assessment
Case 1	8	189(104.4%)	44.7	12.8	Regular
Case 2	8	200(109%)	47.4	12.8	Regular
Case 3	9.25	188(95.9)	52.4	15	Good
Case 4	10	194(99%)	49.9	14.2	Good

Legend

T for exercise: Minutes

MHR: Maximum heart rate (lpm)

MVO2: Maximum oxygen consumption (ml/kg/ mint)

R. Energetic: (METS)

METS MVO2KG/3.5

- MB from 16 to 20 meters
- B from 14 to 15 meters
- R from 12 to 13 meters
- M 11 meters or less

	FCR	FCR1	FCR3	FCR5	FCR10	
Pelotaris	Ipm	Ipm	%	Ipm	%	Assessment
Case 1	106	189	0	162	32.5	Fair
Case 2	62	192	5.8	167	23.9	Poor
Case 3		189		158	106	Satisfying
Case 4		195		183	162	Poor



Values to expect: If the pulse at 5 minutes is:

1. Minute 20-30% 130 beats /min or more Poor
2. Minute 30-40 % 130-120 beats /min Enough
3. Minute 40-50% 115-105 beats /min Satisfactory
4. Minute 50-60% 105-100 beats /min Very Good
5. Minute + 65% Less than 100 beats /min Excellent

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5. Minute + 65% Less than 100 beats /min Excellent

Cardiorespiratory stress test results

Case 1: completed the protocol in 7.59 minutes, at 104% of his estimated FMC, obtained a low O₂ consumption value, while the HR recovery after five minutes was very good.

Case 2: completed the entire programmed protocol and despite exceeding the estimated MHR by 109%, did not achieve a true MVO₂ value, tolerated a regular METS value. Heart rate recovery for the minutes studied was always below the expected values.

Case 3: reached 9.24 minutes of the programmed protocol, repeated due to MI fatigue, reaching 95% of the estimated MHR. An MVO₂ value was obtained in accordance with the test but not optimal. A METS value was tolerated, categorized as good. Regarding the recovery of the HR after five minutes, it was satisfactory.

Case 4: He completed the entire 10-minute protocol, reaching 99% of the estimated MHR and with 49.9 ml/kg/min of MVO₂ and a good value of tolerated METS. While the recovery of his HR was very poor.



Based on the results of the observation and measuring it was proceeded to the analysis of the indicators for the characterization of leather fronton paddle specialty and the following results were obtained:

Table 2. Overall playing time, real time and time lost due to pause or unplayed time

OVERALL GAME TIME, REAL TIME AND PAUSES	
Real game times	
20 minutes	
Break time per match	
27 minutes	
Average time played per point in dispute	
15 seconds	
Overall playing time	
47 minutes	

As in many of the Basque pelota modalities, in the leather paddle discipline, the time for pause or non-playing time will be less than the actual playing time; the reason for this is due to the constant exchange of hits by the pelotaris. The variation in non-playing time is approximately 20 minutes and the actual playing time is 27 minutes. It must be taken into account that these times may vary; each set of 15 points usually lasts 20 to 25 minutes and the third set of 10 points lasts approximately 10 to 15 minutes. The average per point in dispute can be obtained by the variability of time. This average ranges from two to three seconds and can last up to three minutes.

Table 3. Number of hits per point played, both backhand and forehand

Number of hits (frequency, percentages and total hits)			
Hit frequency and percentages per game			
Reverse		Right	
Frequency	%	Frequency	%
180	72	70	28
250			
Laterals 60%, below the shoulder 25% and above 15%			



In this sample, both athletes hit with a backhand, which is why this type of shot was used more. It had greater strength, technique and skill compared to the right. If the results are analyzed, the frequency with which the forehand was used was 36 times throughout the match, of course, this figure was lower than the backhand, which was 89 times. This total percentage of shots was distributed throughout a match as follows: lateral 60%, below the shoulder 25% and above 15%, the lateral shot was the most used, whether backhand or forehand, as it managed to give more force to the ball.

Table 4. Distances covered per game, including movements in three directions: forward, lateral, backward:

Total match displacements (average)	
Total displacements	Distances in meters
F	513
L	320
B	316
Total	1,149 meters

One of the aspects of the study of the biomechanical characteristics of this sport is the movements, which inform about the number of meters that a pelotari travels in a match, which enables the correct implementation of the loads in the types of resistance to achieve greater efficiency. The largest number of movements corresponded to the frontal ones with a total of 513 meters, then the lateral ones with a total of 320 meters and the last place corresponds to the backward movements, with 316 meters, for a total of 1,149 meters. To determine the distances, the court was divided into 2-meter quadrants and a total of 12 elimination control matches were signed.

Predominant energy systems

According to studies carried out by the Institute of Sports Medicine, in sports games the variability of actions and the duration of the matches are taken into account, the energy systems appear in all their forms. The anaerobic alactic system, for short duration actions of



thousandths to 10/30 seconds. The anaerobic lactic system, in actions ranging from 35/60 seconds. The aerobic system, for generalized actions during the game, which can range from one minute to hours, in the leather fronton paddle the anaerobic alactic system predominates.

Table 5. Predominant muscle fibers in the Leather Fronton Paddle

White alactacid fibers	White lactic acid fibers	Aerobic red fibers
Up to 8 seconds of time, at maximum intensity. 100%	In these modalities, a real displacement, in a match, with maximum intensity, can vary between 9 and 20 seconds.	Of the working time, at a low intensity, between 60 - 70%, with maximum oxygen consumption.
Lactate; 4 mmol.	4 mmol.	4 mmol.
	Complex of combined exercises.	Trotting, movements on stage.
Hits.	Displacements.	Races with backward movements.
Explosive displacements, 5-20 meters.	Hits.	Work circuits.
Sudden changes in rhythm.	Everything between 80 and 90% intensity.	Warm up.

From the results of the indicators that allow determining the characteristics of the competitive activity, it was possible to infer that the leather paddle matches, due to their duration in real time and by pause, the number of movements in various directions, variability of the hits in both profiles and the nature of the efforts described in the characterization, required that the pelotaris have a development of the aerobic capacity. It was recognized that the aerobic anaerobic alactic energy systems were predominant during the execution of competitive actions.



Based on the results of the indicators that allowed determining the characteristics of the competitive activity of the leather paddle specialty in the duration of the matches, the types of movements, as well as the nature of the efforts described, it was inferred that it is a specialty where an aerobic capacity is needed that allows adjusting to the required specificities, to obtain an efficient recovery and to be able to face the competitive exercise.

According to Frías and Ramos (2021), the approximate duration and nature of the efforts described in the characterization of competitive activity require a great development of aerobic endurance, specifically in power, to be able to meet the demands of the duration of game times. Aerobic capacity is also necessary for the duration of the event, to ensure a more efficient recovery.

Due to the number of accumulated hits from both profiles (forehand and backhand), high percentages of effectiveness and precision are required for the practice of this specialty to perform the technical elements in complex game situations, with a predominance of resistance to rapid force. Valdés *et al.* (2023) propose a technical preparation program that includes several stages to improve the effectiveness of the technical elements of both profiles, with evaluations through pretest and posttest.

Table 6. Behavior of the effectiveness of the serve in the pretest, intermediate and posttest measurements

Test	Average	Standard deviation	CV	Minimum	Maximum
Serve pretest	6.00	,816	13.60	5	7
Serve 2 months	9.25	,957	10.35	8	10
Serve 5 months	11.00	,816	7.42	10	12
Service 8 months	12.75	,957	7.51	12	14
Post- test serve	15,00	,000	0.00	15	15



On the other hand, through the analysis of the nature of the efforts, the classification of the actions, the effectiveness, as well as the spatial and temporal limitations, the functional structure of the actions and the predominant type of stimulus, the great importance that high intensity and short duration actions with insufficient oxygen have during the matches is clearly evident, that is, anaerobic actions of the alactic type, both those of anaerobic alactic power and capacity, take the main responsibility for the development of the speed of action, reaction and of equal impact the magnitudes of explosive force and rapid force (Broussal & Ganneau, 2018; Fox & Rompolski, 2019; Grgic *et al.*, 2020; Laursen, 2019).

Once the initial situation was diagnosed, the research allowed to establish, as a scientific contribution, the viability of the Basque pelota technical preparation program, according to the characteristics of the competitive activity. In general, the program presents:

Introduction

The technical preparation program is aimed at players in the under-22 category of the Basque national pelota pre-selection, who begin the stage of deep specialization in the specialty of leather paddle fronton, which in Cuba is the earliest age at which they can begin to learn it. The program is designed so that players can move through three frontons of 20, 30 and 36 meters. The latter is where they compete internationally.

General objective of the program: to develop the technical preparation of pelotaris of leather paddle fronton, under-22 category, based on the sports motor skills that allow the transfer of movements from the 20-meter modality to the 36-meter modality.

Specific objectives of the program:

- Master the essential knowledge and technical characteristics in the development of the leather paddle game.
- Master the grip of the implement and its placement within the pediment.
- Perform the basic elements of the technique of fundamental hits (serve, reception, rebound, forehand and backhand crosses) and complementary hits (two walls, tops of plates, etc.)



- Develop technical-tactical aspects during the game, of different levels of complexity.

Program structure

To develop the program, the structure proposed by the Technical Methodological Department (DTM) of the High-Performance Directorate (DAR) in the 2020-2024 cycle was adopted. With it, the PIPD of all sports were restructured, updated from the development strategies of each one of them, and based on the context of contemporary sport development in Cuba. In this case, the content was organized in three phases within the initiation stage (as proposed for the rest of the short-term preparation stages):

1st phase: Teaching (20-meter fronton)

2nd phase: Consolidation (30-meter fronton)

3rd phase: Improvement (36-metre fronton)

Thus, the phases included:

1st phase: Teaching (20-meter fronton)

Objective of the phase: to familiarize the pelotari with the practice of basic technical-sports skills with a leather paddle.

It should be noted that young pelotaris from the Cuban fronton modality and practitioners of the paddle and racket with tennis ball specialties can be incorporated into the program; it is considered preferable that new pelota leather practitioners have played the Cuban paddle specialty in pairs at an elementary level, since it saves time in teaching.

In this phase, the initial form or primitive coordination of movement is acquired, tasks are solved to master the bases of a rational sports technique with the correct structure of motor action; excessive tensions are eliminated, the most exact representation of the motor action of the technical and tactical element must be achieved and self-control and self-regulation mechanisms must be established.



In order to familiarize the pelotari, the tennis ball is used as a medium in this phase, and the official playing tool (leather paddle) is introduced, with which the player competes internationally; this combination is fundamental in teaching, since mastering the tennis ball with the paddle allows extraordinary progress in technical skills and allows adaptation to new grips (forehand and backhand) that contribute to modifying the hits from different areas and angles of the court.

It is essential that the pelotaris synchronize their hits well (below the shoulder-lateral and above the shoulder) and air balls. This system of play is key in this phase. General data of this phase:

- Duration: two months (depending on the pelotari's assimilation).
- Frequency: five days a week.
- Intensity: 120- 140 blow/min.
- Duration of technical sessions: between 1:00 and 1:30 hours; this can be increased to three hours four or five weeks after starting the program.

2nd phase: Consolidation (30-meter fronton)

Objective of the phase: improve technical-sports skills (it is brought to relative perfection).

In this phase, the pelotaris move on to the 30-metre fronton, which allows them to interact with a court similar to the 36-metre one, where they compete internationally. The tennis ball is kept and alternated with soft leather balls (with little bounce) plus the official tool (leather paddle), and the helmet and protective glasses are introduced as essential components in the practice of this specialty.

In the 30-meter fronton, it is beginning to be observed that the pelotaris' movements are more harmonious, the shots last longer; therefore, this phase is the first approximation in terms of the number of hits, movements and visualization of game systems to the 36-meter specialty. Here the pelotaris must dominate the crosses (forehand and backhand) towards the back of the court, the air hit is what predominates as well as the impact zones from the middle of the front onwards.



At the end of this stage, the technical gestures and technical thinking are in line with the characteristics of the competitive actions of the specialty in which they compete internationally. In this sense, there is a positive transfer from the 20 meters to the 30 meters, the pelotaris are brought closer without causing sudden impacts on their preparation and the principles of sports training are respected.

General data of this phase:

- **Duration:** three months (depending on the player's assimilation)
- **Frequency:** five days a week
- **Intensity:** 140-160 bpm
- **Duration of sessions:** three hours

Necessary clarification: the duration of the first two phases is five months, taking into account that new pelotaris have a hard time learning to continuously coordinate the difficult technical gestures that this specialty requires, and it is assumed that just to serve it can take two months. The serve is a lob type on quadrant number four of the front wall.

3rd phase: Improvement (36-meter fronton)

Objective of the phase: to perfect the technical condition achieved with maximum effectiveness.

This last phase begins five months after starting the program. It is in the 36-meter modality, specializing in leather paddle, where the pelotaris experience the official playing field for the first time. They have to transfer all the movements learned and consolidated on the 20 and 30-meter courts. This is where the art of the coach lies in order to be able to demonstrate the work carried out in the previous five months.

According to the author's experience as a coach in this field, at this stage, the pelotaris, through the procedures mentioned above, manage to execute the technical elements with a degree of effectiveness appropriate for the short time they have been practicing. The most



important thing is that the new pelotaris better understand the technical thinking of the game and this leads to sporting results, which is what is most expected in high performance.

General information on the improvement stage:

- Duration: seven months, to move on to the general athletic training stage
- Frequency: six times a week
- Intensity: 160-170 bpm
- Skills to maintain: Serve, receive, rebounds, forehand crosses, backhand volley, two walls and top of the plate inside and outside
- Duration of the exercise session: three to four hours

CONCLUSIONS

The characteristics of the competitive activity of the fronton leather paddle were determined, through the contents of the indicators that allowed to address the observations to the preparation matches, as well as the review of regulatory documents.

It was possible to verify, from the development of these indicators, based on the various authors studied, that the competitive activity of the fronton leather paddle, due to its specific characteristics, shares certain aspects with the technical preparation of other sports and has specificities that require a particularized study for its development; therefore, it was essential and extremely useful to delve into the different technical elements and physical capacities of the pelotaris in their practice, which, in addition, does not compete in the same way at the national and international levels.

Several indicators were used to generate practical solutions to understand the determining actions of the game and ensured the description of the competitive scenario. For example, the increase in hits and playing times and the predominance of the mixed nature of efforts were highlighted, among other actions that enabled a detailed analysis of those indicators under study, to form an adequate and operational PIPD, in response to the demands of this specialty in high-performance sports.



The program design was based on a concept whose theoretical methodological core was the technical preparation process. The program was structured in the foundation, objectives, phases and general methodological indications for its implementation.

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Conflict of interest statement:

The author declares that there are no conflicts of interest.

Author's contribution:

The author is responsible for writing the work and analyzing the documents.



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