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Original article

Organization of the introduction of scientific results in sport

Organización de la introducción de resultados científicos en el deporte

Organizar a introdução de descobertas científicas no esporte

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ABSTRACT

Contemporary sport requires the effective integration of scientific findings to transform its practical reality. In this sense, the use of organizational structures in the science, technology, and innovation process aims to contribute effectively to its development. However, despite the numerous research carried out in this area, a low percentage of scientific findings have been implemented in practice in the Holguín region. Accordingly, the authors questioned how to contribute to the organization of the science, technology, and innovation process in sport. This study aimed to present the results of an implementation strategy for organizing

the integration of scientific findings into sport in the Holguín province. An experiment was conducted using a pre-experimental design to evaluate its feasibility and observe whether significant changes occurred as a result of the proposed approach. The analysis and interpretation of the results demonstrated the feasibility of the strategy, recognizing that the proposal was effective for implementation in the investigated context.

Keywords: innovation, integration of scientific findings, organization

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RESUMEN

El deporte contemporáneo precisa de una efectiva introducción de los resultados científicos para la transformación de su realidad práctica; en este sentido, el empleo de formas organizativas en el proceso de ciencia, tecnología e innovación persigue contribuir de forma efectiva al desarrollo del mismo. Sin embargo, a pesar de las múltiples investigaciones que se realizan en esta esfera se apreció un bajo por ciento de resultados científicos introducidos en la práctica en el territorio holguinero. En consonancia, los autores se cuestionaron ¿cómo contribuir a la organización del proceso de ciencia, tecnología e innovación en el deporte? El estudio tuvo como objetivo exponer los resultados de una estrategia de implementación para la organización de la introducción de resultados científicos en el deporte de la provincia Holguín para lo cual se realizó un experimento a través de un diseño prexperimental, evaluar su factibilidad y observar si se producen cambios significativos o no, a partir de la aplicación de la propuesta. El análisis e interpretación de los resultados evidenció la factibilidad de la estrategia, al reconocer que la propuesta fue efectiva para ser implementada en el contexto investigado.

Palabras clave: innovación, introducción de resultados científicos, organización

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RESUMO

O esporte contemporâneo exige a integração efetiva de descobertas científicas para transformar sua realidade prática. Nesse sentido, o uso de estruturas organizacionais no processo de ciência, tecnologia e inovação visa contribuir efetivamente para o seu desenvolvimento. No entanto, apesar das inúmeras pesquisas realizadas nessa área, uma

baixa porcentagem de descobertas científicas tem sido implementada na prática na região de Holguín. Assim, os autores questionaram como contribuir para a organização do processo de ciência, tecnologia e inovação no esporte. Este estudo teve como objetivo apresentar os resultados de uma estratégia de implementação para organizar a integração de descobertas científicas no esporte na província de Holguín. Para tanto, foi realizado um experimento utilizando um delineamento pré-experimental para avaliar sua viabilidade e observar se ocorreram mudanças significativas como resultado da abordagem proposta. A análise e interpretação dos resultados demonstraram a viabilidade da estratégia, reconhecendo que a proposta foi eficaz para implementação no contexto investigado.

Palavras-chave: inovação, integração de descobertas científicas, organização

INTRODUCTION

Science is organized worldwide into national innovation systems. In Cuba, this is called the Science, Technology, and Innovation System (SCTI in Spanish), and it is considered invaluable for the nation's development, integrating the generation and application of all scientific knowledge in the natural, technical, and social sciences, required for the multifaceted development of society.

The SCTI organized in Cuba, both before and after the reorganization of the country's economic and social policy, underscores the importance of innovation for national development. This is evidenced by the fact that in December 2025, the National Assembly approved the draft General Law on Science, Technology, and Innovation.

In Cuba, it is institutionalized to carry out all social work through science, and currently, the government management model oriented towards innovation, proposed in the research by Díaz-Canel (2020), is being implemented. This model states that innovation is not truly realized until the results are put into practice. Among the most important elements of the organization of the SCTI in sport, it is necessary to maintain and improve them in contemporary economic and social conditions, based on the improvement of scientific work with a multidisciplinary approach and the integration of the entire scientific-technical

community of the National Institute of Sports, Physical Education and Recreation (Inder in Spanish) and of the university in the name of the Faculty of Physical Culture

In this regard, the National Institute of Sports, Physical Education and Recreation organized its Science, Technology, and Innovation System in the late 1990s, emphasizing the importance of implementing organizational structures for its management that would allow for the continuous improvement of processes. More contemporary management elements were incorporated, such as strategic planning, process management, and a values-based approach—aspects that continue to be refined today.

Currently, the new transformations regulated by Decree Law 7/2021 are being implemented, which highlights the importance of new requirements for organizational management that enable the continuous improvement of processes.

The application of an appropriate organizational structure for this purpose involves establishing models in the development of sports science. The conceptual basis for the introduction of results, which has as its common denominator the development of new knowledge processes, is taken into consideration.

Several authors have referred to the introduction of scientific results, including Morales (2023); Ponce de León et al. (2021); Rojas et al. (2025); and Santos (2022). Vázquez and Pérez (2021) have enriched the theoretical foundations of methodological work and the introduction of scientific results in the educational process for the preparation of professionals and have contributed practical experiences for its development; supports that serve as support for the present research, in which a tool is provided that facilitates how to achieve the organization of the introduction of scientific results in sport, with the intervention of the research group

In this research, the organization of the introduction of scientific results is understood as a "process through which the reality of sport is transformed, through scientific results, dissemination, and application of knowledge to achieve innovation in sport, starting from research groups" (Llanes, et al., 2022, p. 4). Numerous authors refer to organization as a management function, including Gómez and Del Val (2019) and Indacochea et al. (2018), who identify commonalities with which we agree: to organize, one must consider all the

functions of the management cycle; organization is the most visible aspect of the management process; it involves establishing relationships of coordination, collaboration, and subordination among those carrying out the activity; assigning functions to guarantee order and achieve objectives; and ensuring that the system functions as a whole and that its internal and external interactions materialize, among other things.

In Holguín province, research in sports has increased over the last decade due to timely research projects, the main outcome of which has been doctoral, master's, and specialist theses, yielding valuable scientific results. However, not all of these results are being applied, due in part to a lack of theoretical and methodological foundations related to organizing their integration into sports practice.

The factors presented create the appropriate scientific conditions to reveal that, although there is a high level of scientific output in sports, the implementation of these results is insufficient. This hinders the achievement of sporting successes in Holguín. Therefore, it is necessary to organize the process, for which an implementation strategy based on a theoretical model is being developed.

The authors consider the organization of the introduction of scientific findings into sport as the tool that enables the application of science, technology, and innovation to improve the quality of athletic performance. This is organized through physical culture research groups that serve as spaces for practice and learning, establishing relationships that foster the development of sport within a dynamic subordinate to the priorities and indicators of the organization and the country.

Therefore, for the organization to succeed, it is essential that leaders embrace the role of the process of introducing scientific findings as the path to achieving sporting success. This requires consciously providing scientific and technical services, preparing themselves to guide the processes that lead to transformations, and making timely decisions, rather than accepting an imposition based on indicators established by the central organization.

Based on the discussion, it is considered that the organization of this process must take into account necessary elements such as diagnosis, objective limitations, dissemination, socialization, systematization, and the methodological treatment of the scientific result that is introduced into practice.

Diagnosis is an essential phase in any organizational process that influences the different stages. As a starting point or reference, it is an open instrument in constant feedback, and its fundamental objective is to provide all the necessary inputs for analysis and decision-making.

On the other hand, socialization is the process by which human beings learn from their environment, norms of coexistence, modes of communication, and the use of symbols in order to integrate into society and relate effectively. It is understood as a process through which individuals interact, learn ways of perceiving the reality of the environment in which they develop, and involves recording how it was done, when, with whom, and what conclusions were reached

According to Imamura et al. (2020), there are four forms of knowledge conversion: socialization, externalization, combination, and internalization. These authors highlight socialization as the process of sharing experiences that are linked to scientific results.

Likewise, in organizing the process of introducing scientific results, the importance of systematizing practice is emphasized as a fundamental part of the knowledge socialization processes and the knowledge produced before, during, and after the development of practices.

Consequently, it is the establishment of a system or order that aims to obtain the best possible results according to the goal to be achieved. It can be applied in scientific and academic fields, but there are also many everyday situations that involve some degree of systematization to achieve a specific objective. In the systematization process, there is a transformative intentionality, creating social reality and encouraging its implementation as part of a broader process. The transformative factor is not systematization itself, but the people who, by systematizing, strengthen their capacity to promote transformative practices as a scientific result that leads to the transformation of those who carry it out

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Numerous authors, such as Jara (2018) and Pérez de Maza (2017), have referred to systematization, agreeing that it is a process of critical reflection aimed at organizing practice and learning from it, in order to extract and share lessons learned. The purpose is to foster learning processes and reflect on what has been done, why it was done one way and not another, what the results were, and for whom and what purpose those results served.

It is important to note, for the purposes of this research, that all systematization is preceded by practice, since without the lived experience of a situation, a systematization process is not possible (Leonard, 2015). For this researcher, systematization is a method that proposes a participatory dynamic. This implies the creation of a workspace to share, compare, and discuss opinions based on the trust of the participants. This judgment is agreed with, considering the existence of a socialization space within sport in which all those involved participate in this process, which includes an organizational exercise with a logical order of events and experience. Systematization is the critical interpretation of one or more experiences that, through their organization and reconstruction, discovers or explains the logic of the lived process, the factors that have intervened in said process, how they have related to each other, and why they have done so in that way (Jara, 2018, p. 61).

For these purposes, the process of organizing the introduction of scientific results into sport is an interpretation characterized by discovering the logic with which the process is carried out, what factors intervene in it, and the relationships between them. This creates a space for these interpretations to be discussed, shared, and compare.

The proposed model reflects the process of organizing the introduction of scientific findings into sport, with the fundamental objective of transforming the sporting landscape in a planned, organized, and systemic manner through a series of stages. It guides coaches, managers, and officials to put new knowledge into practice for the development and transformation of sporting performance in the province. Consequently, the implementation strategy is the practical application of the model for organizing the introduction of scientific findings into sport. It materializes innovation in practice through the introduction of scientific findings into sport, originating from research groups. In accordance with the

model's subsystems and components, stages, strategic objectives, and actions are established.

When developing an implementation strategy, the concept of strategic management is used, as defined by ISO 9001:2015 as a set of coordinated activities to direct and control an organization in relation to its strategy—in this case, the strategy of sport. The implementation strategy is developed to optimize and make sporting practice more effective through the organized introduction of scientific findings. In this way, management is used to direct and follow strategies that go through the entire structure of the organization

The diversity of existing strategies focuses attention on aspects such as pedagogical, didactic, and management strategies, and contextualizes actions toward sports professionals. Among these, the contributions of Calle (2019) and Gallardo et al. (2023) stand out, as they focus on implementation strategies, proposing stages of diagnosis, planning, implementation, and evaluation, as well as strategic actions for achieving their objectives. The implementation strategy is essentially the planning, execution, and evaluation of the organizational process for introducing scientific results into sports, based on the functions of the management cycle.

The strategy analyzes the different stages through which the process of introducing scientific results into Holguín sports must pass, with the planned and controlled use of scientific potential through sports research groups. Through the efficient management of scientific and technical information, the dissemination and recognition of scientific results, organized into research projects that allow for the completion of the entire research cycle, the effective transformation of sports through innovation can be achieved.

The study aimed to present the results of an implementation strategy for organizing the introduction of scientific findings into sports in the province of Holguín.

MATERIALS AND METHODS

The criteria established in research experiences on the science, technology, and innovation process regarding the introduction of scientific results in sports were confirmed through a study conducted in the province of Holguín between December 2019 and February 2020.

The study was carried out in two phases: the first focused on characterizing the organization of the introduction of scientific results within the science, technology, and innovation process; and the second on understanding the current state of the introduction of scientific results in Holguín sports.

The working hypothesis: if a strategy for organizing the introduction of scientific results through research groups is implemented in practice, it will contribute to the development of sports through innovation.

The dependent variable was the organization of the introduction of scientific results in the area of sports. The independent variable was the implementation strategy to promote the introduction of scientific results from physical culture research groups, encompassing the dimensions of planning, execution, and evaluation of the introduction of scientific.

The controlled extraneous variables were the knowledge of sports managers and coaches regarding the process of introducing scientific results from research groups and their knowledge of working in sports research groups. Different training activities were carried out for both variables due to their influence on the results.

To assess the behavior of the different components before and after applying the implementation strategy, a guide developed for this purpose was used. This guide allowed each component to be categorized as low, medium, or high. It was applied by five evaluators with adequate training. In addition, the results of surveys, interviews, and observations based on the dimensions, indicators, and evaluable parameters of the techniques used were taken into account.

The sample of 30 researchers was selected intentionally, according to the research interests. A non-probabilistic design was used. The criteria for sample selection considered were:

- The scientific results were the product of doctoral, master's, and specialist theses carried out in the province of Holguín in the last five years.
- Researchers involved in the implementation of scientific results as members of research groups .-
- Results that contributed to the sport.

The following methodological steps were established in the initial diagnosis:

- Determination of the dimensions and indicators to be measured in the managers, officials, and coaches of the sport.
- Selection of the instruments, techniques, and methods for gathering relevant information on the state of the problem.
- Application of the initial diagnosis, processing of the information obtained, integration, and interpretation of the result.

When conducting the diagnosis, the indicators used since the recurring diagnosis were taken into account. These indicators were refined through scientific methods until they were reduced to nine: diagnosis, limitations, awareness, socialization, systematization, events and publications, methodological treatment, introduction of results, and practical transformation.

The research adopted the dialectical materialist method as its premise, manifested in the combined use of theoretical, empirical, and statistical methods for obtaining, processing, and evaluating information.

Empirical methods such as scientific observation, interviews, and surveys were used.

Interviews were conducted with provincial sports methodologists in Holguín; observations were made of the science, technology, and innovation process in sports and of the methodologist for scientific activities at the provincial INDER (National Institute of Sports, Physical Education and Recreation). There was a consensus that the necessary integration of the key actors in the process for the introduction of scientific results had not been achieved, and a lack of knowledge, skills, and attitudes was observed among territorial sports officials in this area.

An experiment was conducted using a pre-experimental design to evaluate the feasibility of an implementation strategy and determine whether significant changes occurred after its application. Concurrent triangulation was used to process the data, as this was a mixed-methods study. Descriptive and inferential statistics were employed to analyze the data, allowing for the description and comparison of variables and the validation of the research

tests. A Likert scale was used to systematically gather the intuitive judgment of a group of 15 specialists to reach a consensus of informed opinions on the model's relevance and its relationship to the implementation strategy. McNemar Bowquer's scale was used to assess the impact of the partial implementation strategy before and after the experiment.

The study employed a survey of 30 sports coaches, distributed as follows: 15 coaches from the EIDE (School for Sports Initiation); 4 from the boxing academy; 4 from the baseball academy; and 7 from sports teams. The results were analyzed to assess the level of satisfaction with the science, technology, and innovation process, the responsiveness to the demands of sports research, and the integration of scientific findings into their respective sports.

RESULTS AND DISCUSSION

Once the results of the different methods, techniques, and sources of information were triangulated, the following shortcomings were identified:

- Limited training activities provided to sports professionals and managers to develop the technological innovation process through the introduction of scientific results.
- Insufficient integration of the main actors in the science, technology, and innovation process to promote the introduction of scientific results in sports.
- Limited commitment from sports managers in the province to the application of science and technological innovation in sports.
- Lack of specific methods for introducing scientific results into sports.
- Insufficient management of sports research groups for the introduction of scientific results.

It was found that of 14 doctoral research results, 8 (57.14%) were implemented in practice; of 45 specialist theses, 24 (53.3%) were applied; Of the 150 master's degree results in sports, 74 were implemented, representing 49.3%. Overall, a total of 209 scientific results in sports were generated in the province over the last five years, of which 106 were put into practice, representing 50.7%. These findings corroborated the need to organize the process of introducing scientific results into Holguín's sports sector. As part of the diagnostic

assessment, Table 1 presents the results of the first measurement of the dimensions of the implementation strategy for organizing the introduction of scientific results.

Table 1. *Absolute Frequency and Percentage by Category and Dimensions*

Primera dimensión. Frecuencia absoluta y por ciento por categoría y dimensiones						
Dimensiones	Bajo	%	Medio	%	Alto	%
Planificación	10	66,7	3	20,0	2	13,3
Ejecución	11	73,3	2	13,3	2	13,3
Evaluación	8	53,3	5	33,3	2	13,3

All categories (low, medium, and high) showed similar behavior across the different dimensions (vertically). However, this was not the case when analyzing the dimensions concentrated in both absolute and relative value within the low and medium level categories. In the case of the high level category, the absolute values and percentages were smaller.

In the 21st century, addressing the phenomenon of innovation in pursuit of stable and flexible sports development—one that objectively unleashes the mechanisms of its internal and external dynamics—contributes to the presence of concepts and theories that, under a scientific approach, transform reality. These theories offer alternatives to make the sports process more efficient and achieve better results, as well as providing models for the appropriate use of strategies. This enables managers to organize, select, and ultimately make decisions that are favorable to their area of operation.

Within the pre-experimental typology, a pre-test/post-test design with a single group was used: G O1 X O2, where G denotes the group; O1, the application of the pre-test; X, the application of the treatment (implementation strategy based on the organizational model); and O2, the post-test. The objective of the pre-experimental study was to evaluate the feasibility of the implementation strategy for introducing scientific results, based on the model, through its dimensions and indicators. The pre-experiment was based on the theoretical and methodological foundations for organizing the introduction of scientific

findings into sports and its implementation strategy, which demonstrated the need for its practical application and the objective possibility of realizing it.

The theory of experimental design was adopted, defining an experiment as a method of scientific research for obtaining new knowledge, discovering objective laws, and validating theories through the deliberate manipulation of one of the independent variables to observe changes in the dependent variable in a strictly controlled situation or context.

In this direction, the phenomenon under study was isolated to minimize the influence of other non-essential processes, allowing for its pure study. The process was reproduced under specific conditions and rigorous control. Modifications were also planned and combined under these conditions to ultimately obtain the desired result. A basic requirement for developing a pre-experiment was the use of an appropriate design to address the research problem.

In the case of this research, an implementation strategy was used to organize the introduction of scientific results into practice, including its theories, dimensions, objectives, actions, and control mechanisms to ensure the success of the pre-experiment. The unit of analysis focused on the influence of the implementation strategy on the process of organizing the introduction of scientific results. The pre-experiment was based on the situation presented in the introduction of scientific results related to sports in Holguín. The application of the implementation strategy, in a model for the organization of the introduction of scientific results in sport and finally, verifying in practice the level achieved in the research groups of physical culture as an organizational structure of the operational level.

A simple random statistical design was applied, based on the procedure of using a table of random numbers, typical of elementary descriptive statistics. The sample was random; 15 of the 30 researchers in the initial sample were selected. This group or sample was chosen using a table of random numbers, as direct selection was not possible and all initial sample elements had the same probability of being selected.

In the pre-experiment, components were identified and controlled throughout. To assess their behavior before and after applying the implementation strategy, a guide developed for

this purpose was used. This guide allowed each component to be categorized as low, medium, or high. The assessment was carried out by five appropriately trained evaluators, and the results of surveys, interviews, and observations were considered, all based on the dimensions, indicators, and parameters evaluated in the techniques used.

According to the selected pre-experimental design, the process was developed in three stages:

I. Initial assessment (pre-test) of the current state of the process for organizing the introduction of scientific results from sports research groups.

II. Implementation of the strategy to facilitate the process of organizing the introduction of scientific results from sports research groups.

III. Final evaluation (post-test) of the process for organizing the introduction of scientific results from sports research groups.

I. Initial Assessment (Pre-test) of the Process for Organizing the Introduction of Scientific Results from Sports Research Groups

To conduct the diagnostic assessment using the selected sample, the primary methods employed were surveys (of professors, researchers, and those introducing scientific results in sports), interviews (of managers and officials), and participant observation. Four working sessions of sports research groups and two meetings of heads of sports research groups were observed. The survey assessed the level achieved in introducing scientific results in sports from the research groups before and after the implementation strategy.

II. Implementation of the Strategy for Organizing the Introduction of Scientific Results in Holguín Sports

One of the objectives of this research was to provide sports with a strategy for introducing scientific results obtained for its development, through research groups, with the direct involvement of the university and oversight from INDER as the requesting body.

General objective of the strategy: to implement in the territorial sports system a model for the organization of the introduction of scientific results in sport, based on its practical

application, an implementation strategy, with its dimensions, strategic objectives and actions that allows strengthening scientific work with the participation of all those involved in the process of science, technology and innovation, where research groups intervene as a space for practice and permanent learning, both in training and in research

The objectives and actions of the implementation strategy for introducing scientific findings into Holguín's sports were expressed in the interrelation of its three dimensions: planning, execution, and evaluation. These included the components of the model (determination of the scientific outcome, dissemination of the scientific outcome, and implementation of the scientific outcome). In this second stage, the projection of the findings to be introduced was carried out. A diagnostic assessment was initiated in each sport discipline, prioritizing the findings and determining the scientific outcome to be introduced. Additionally, a study of the necessary conditions for introducing the scientific findings was conducted.

III. Final evaluation (post-test) of the process for organizing the introduction of scientific results from sports research groups

The second measurement was applied to the sample selected for the pre-experiment. This included surveys, interviews with management personnel in the area, and observations, based on the dimensions, indicators, and parameters. The information gathered through these different methods was then triangulated. To ascertain the level of significance of the dimensions of the implementation strategy before and after its application, the Mc Nemar-Bowker test was used, table 2.

Table 2. *Behavior of the planning dimension of the process of organizing the introduction of scientific results before and after applying the implementation strategy*

Tabla de contingencia PLANIFICACIÓN * PLANIFICACIÓN DESPUÉS					
		PLANIFICACIÓN DESPUÉS			TOTAL
		BAJO	MEDIO	ALTO	
PLANIFICACIÓN ANTES	BAJO	1	6	3	10
	MEDIO	0	1	2	3
	ALTO	0	0	2	2
Total		1	7	7	15

Analyzing the results shown in Table 2, it was observed that in the planning dimension, there was a strong concentration of values in the low category, with 10 cases decreasing to

one after the implementation strategy was applied. Similarly, only two cases classified in the high category increased to seven. These figures indicated a very positive trend in favor of the strategy, as all changes were upward. Only four cases remained unchanged: one stayed low, one medium, and two high, while 11 increased.

Applying the McNemar Bowker hypothesis test with the information from Table 2 yielded the results shown in Table 3, with an asymptotic significance of 0.012, which is lower than the error value of 0.025. This probability fell within the rejection region for the null hypothesis, leading to the conclusion that there was a significant difference in the observed growth in the planning dimension for the introduction of the scientific results.

***Table 3**. Statistical value and probability of significance in the process planning dimension*

Pruebas de chi-cuadrado			
	Valor	gl	Sig. Asintótica (Bilateral)
Prueba de Mc Nemar-Bowquer	9,000	3	,012
N de casos válidos	15		

***Table 4.** Behavior of the execution dimension of the introduction of scientific results before and after applying the implementation strategy*

Tabla de contingencia EJECUCIÓN ANTES * EJECUCIÓN DESPUÉS					
		EJECUCIÓN DESPUÉS			
		BAJO	MEDIO	ALTO	Total
EJECUCIÓN ANTES	BAJO	2	3	6	11
	MEDIO	0	1	1	2
	ALTO	0	0	2	2
Total		2	4	9	15

In the second dimension of the implementation strategy: execution, according to the results shown in Table 4, the number of cases in the "low" category decreased from 11 initially to two after applying the strategy. Similarly, the number of cases in the "high" category increased from only two in the first evaluation to nine in the second. In this dimension, five criteria remained unchanged (two at the low level, one at the medium level, and two at the high level), which is favorable for the implementation strategy. Ten criteria increased from the first evaluation to the second.

Table 5 presents the results of the McNemar-Bowker hypothesis test. Based on the information in Table 4, an asymptotic significance of 0.019 was obtained, which is lower than the critical value of 0.025. This probability fell within the rejection region for the null hypothesis, leading to the conclusion that there was a significant difference in the observed growth in the execution dimension for the implementation of the scientific results.

Table 5. *Statistic and probability of significance in the execution dimension of the process of organizing the introduction of scientific result*

Pruebas de chi-cuadrado			
	Valor	gl	Sig. Asintótica (Bilateral)
Prueba de Mc Nemar-Bowker	10,000	3	,019
N de casos válidos	15		

Table 6. *Behavior of the process evaluation dimension before and after applying the implementation strategy*

Tabla de contingencia EVALUACIÓN ANTES * EVALUACIÓN DESPUÉS					
		EVALUACIÓN DESPUÉS			TOTAL
		BAJO	MEDIO	ALTO	
EVALUACIÓN ANTES	BAJO	1	2	5	8
	MEDIO	0	2	3	5
	ALTO	0	0	2	2
TOTAL		1	4	10	15

In the implementation strategy dimension: evaluation, the results shown in Table 6 indicate that the number of cases initially classified as "low" decreased from eight to one after the strategy was applied. Conversely, the number of cases classified as "high" increased from two to ten in the second measurement. In this dimension, only five criteria remained unchanged (one at the low level, two at the medium level, and two at the high level). These findings are highly favorable for the implementation strategy, which saw an increase of ten criteria from the first evaluation to the second.

Table 7 presents the results of the McNemar-Bowker hypothesis test, based on the information in Table 6. The asymptotic significance of 0.019 was obtained, which is lower

than the critical value of 0.025. This probability fell within the rejection region for the null hypothesis. It was concluded that there was a significant difference in the observed growth in the evaluation dimension for the introduction of the scientific results.

Table 7. *Statistic and probability of significance in the evaluation dimension of the process of introducing scientific results*

Pruebas de chi-cuadrado			
	Valor	gl	Sig. Asintótica (Bilateral)
Prueba de Mc Nemar-Bowker	10,000	3	,019
N de casos válidos	15		

The results showed that in all dimensions there was an increase in positive ranges and no negative ranges were observed after the partial application of the strategy.

In general, the comprehensive evaluation demonstrated that all three dimensions exhibited positive behavior, and their dialectical interaction supported the validity of introducing scientific results into practice within sports research groups, thus confirming the feasibility of the implementation strategy.

After conducting various assessments of the behavior of the dimensions of the implementation strategy, applying the McNemar Bowquer hypothesis test, and verifying the level of significance at three points in time, several elements were identified in the qualitative order of the pre-experimental results. These elements allowed to affirm the novelty of the concept for organizing the introduction of scientific results from sports research groups.

The basic assumption of the research lies in the idea that the introduction of scientific results can be organized in sports from research groups to achieve innovation, taking into account the contributions of Díaz Canel (2020); Ponce de León (2021) who maintain that innovation is not realized until the scientific result is introduced.

Numerous contributions have been made by innovation researchers in the sports field, such as León (2022), who proposes a methodology for evaluating the science and

innovation system that fosters integration among all actors within the system; González (2023) contributes an innovation strategy that allows for the identification of initiatives that drive change from a cultural, creative, and innovative perspective.

The research by Pérez et al. (2023) proposes the introduction of innovation through scientific and technical services, considering a new perspective and a set of categories, systematically and continuously designed and implemented, based on principles that support innovation; meanwhile, Heredia (2024) employs the introduction of scientific results in athlete training; and Monguillot (2025) discusses innovation in sports science degrees. The common generality among these contributions lies in the importance they place on innovation for the development of sport, which is realized when results are put into practice. However, they do not propose specific ways of introducing scientific results with the depth required; they consider the importance of innovation, science, and management, but their object of study responds more to the management of research in general and not focused on the treatment of the scientific result and how to implement it

CONCLUSIONS

In general, the implementation strategy contributed to organizing the introduction of scientific findings into Holguín's sports scene. This was achieved through increased theoretical awareness and sensitivity regarding the role of the process of introducing scientific findings into sports; the application of methodological alternatives; the role of the research group as a space for practice and learning through the development of actions to address scientific problems in sports; and the creation of a space for the socialization of sports, thus diversifying options for exchange and scientific activity. This research differs from previous contributions by incorporating a tool aimed at sports professionals and managers. This tool established a systemic relationship between its stages, dimensions, and actions, leveraging the potential of the research group as an interface between the various actors in the process of organizing the introduction of scientific findings into sports, ultimately leading to innovation

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