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Original article

Proposal of methodological actions for the teaching of batting in the sports school of Xalapa, Veracruz

Propuesta de acciones metodológicas para la enseñanza del bateo en la escuela deportiva de Xalapa, Veracruz

Proposta de ações metodológicas para o ensino de rebatidas na escola de esportes de Xalapa, Veracruz

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ABSTRACT

In Mexico, the increasing sedentary lifestyle of the school population is a serious concern for public health and sports institutions. Including baseball as part of extracurricular sports is one of the challenges of the authorities of the morning sports school "Enrique Conrado Rébsamen" in Xalapa, Veracruz. From the preliminary diagnosis, with the application of interviews and surveys to teachers, sport trainers and managers, it was verified the scarce documentation, bibliographies, programs and methodological indications related to the teaching of the basic fundamentals of baseball, and specifically batting. Therefore, the objective is to propose actions for the teaching of batting in the sports school of Xalapa, Veracruz. Theoretical methods such as analytical-synthetic, historical-logical, inductive-deductive, and modeling were used. From the empirical level, observation, interview, survey, document review, the Iadov technique, methodological triangulation and expert criteria were used; in addition, the statistical-mathematical method was used and the Kendall coefficient of concordance (W) was calculated. The result demonstrates the strengths of the actions for the integration of theoretical, practical and methodological knowledge that allows designing a tool for the work of sports teachers.

Keywords: Baseball, batting, teaching, sports school.

RESUMEN

En México, el creciente sedentarismo de la población escolar constituye un serio motivo de preocupación para las instituciones de la salud pública y deportiva. Incluir el béisbol como parte del deporte extraescolar es uno de los retos de las autoridades de la escuela deportiva matutina "Enrique Conrado Rébsamen" de Xalapa, Veracruz. A partir del diagnóstico preliminar, con la aplicación de entrevistas y encuestas a docentes, deportivos y directivos, se constató la escasa documentación, bibliografías, programas e indicaciones metodológicas relacionadas con la enseñanza de los fundamentos básicos del béisbol, y en específico del bateo. Por lo que se plantea como objetivo proponer acciones para la enseñanza del bateo en la escuela deportiva de Xalapa, Veracruz. Se emplearon métodos teóricos como el analítico-sintético, histórico-lógico, inductivo-deductivo y la modelación. Del nivel



empírico se utilizó la observación, la entrevista, la encuesta, la revisión de documentos, la técnica Iadov, la triangulación metodológica y el criterio de expertos; además, se utilizó el método estadístico-matemático y se calculó el coeficiente de concordancia de Kendall (W). El resultado demuestra las fortalezas de las acciones para la integración de conocimientos teóricos, prácticos y metodológicos que permite diseñar una herramienta para el trabajo de los docentes deportivos.

Palabras clave: Béisbol, bateo, enseñanza, escuela deportiva.

RESUMO

No México, o crescente estilo de vida sedentário da população escolar é uma séria preocupação para as instituições de saúde pública e esportivas. A inclusão do beisebol como parte do esporte extracurricular é um dos desafios para as autoridades da escola de esportes matutina "Enrique Conrado Rébsamen" em Xalapa, Veracruz. A partir do diagnóstico preliminar, com a aplicação de entrevistas e pesquisas com professores, esportistas e diretores, foi confirmada a escassez de documentação, bibliografias, programas e indicações metodológicas relacionadas ao ensino dos fundamentos básicos do beisebol e, especificamente, do rebatimento. Portanto, o objetivo foi propor ações para o ensino do rebater na escola de esportes de Xalapa, Veracruz. Foram utilizados métodos teóricos como o analítico-sintético, histórico-lógico, indutivo-dedutivo e modelagem. No nível empírico, foram usados observação, entrevista, pesquisa, revisão de documentos, técnica de Iadov, triangulação metodológica e julgamento de especialistas; além disso, foi usado o método estatístico-matemático e calculado o coeficiente de concordância de Kendall (W). O resultado demonstra os pontos fortes das ações para a integração de conhecimentos teóricos, práticos e metodológicos que permitem a elaboração de uma ferramenta para o trabalho dos professores de esportes.

Palavras-chave: Beisebol, rebatidas, ensino, escola de esportes.



INTRODUCTION

For teachers, the development of physical activity and sports training require special attention in order to improve the teaching process. In the new Mexican school, it is considered that physical education and sports should be the cornerstone of the education of schoolchildren and sports teachers.

In Mexico and particularly in Xalapa, Veracruz, the increasing sedentary lifestyle of the school population constitutes a serious concern for public health and educational institutions that leads to low cognitive development and deficient development of basic motor skills and sports that affect the quality of life of students. That is why prolonged physical inactivity and little sports practice constitute a risk factor, due to the appearance of various non-communicable diseases.

At present, the practice of baseball is a necessary activity in the morning sports school "Enrique Conrado Rébsamen" and is preferred by schoolchildren between the ages of 10-11, a strength that the leaders and federations' members of the Department of Health, Sports and Education of Veracruz, due to the importance it has, to promote baseball as one of the sports to be developed at these ages.

The Study Plan of the morning sports school "Enrique Conrado Rébsamen" has the subject Extracurricular Sports as part of the school curriculum in which activities are planned, based on teamwork, with the exchange and integration of knowledge and methods that involve to the faculty and managers of the entity; however, the expectations of the schoolchildren have not yet been met.

Baseball, recently included at the request of schoolchildren along with volleyball and athletics, belongs to the sports scheduled in Extracurricular Sports and takes place in the afternoon, three times a week. From the inclusion of baseball, new challenges appear for all teachers, such as the search for research references that have addressed different models for their teaching. According to Garcia (2012):



Baseball is a sport of fast and dynamic actions that, like the other disciplines of the confederation, both offensive and defensive tactics play a fundamental role, supported by a high technical level in each of the fundamental elements, as is the case pitching, base running, fielding and hitting.

Molina (2020) specifies "(...) it is a game that due to the behavior of its actions requires a lot of communication, coordination of movement, as well as speed of reaction, agility, flexibility, explosive strength, in addition to having excellent reflexes, among others. characteristics"

Based on the practical experience of the researchers, batting is considered the most difficult technical element of this sport. It is the act of facing the opposing pitcher and trying to produce an offense for the team. Therefore, mastering this technique is essential.

The action of batting is characterized by the capacity of the neuromuscular system to overcome external resistance with a high rate of contraction, it requires a perfect mastery of the variable structure of fast and precise movements that are executed at a determined rhythm and that require coordination. complex motor (García, 2012).

Costa et al. (2012) state that batting is the most difficult motor action that exists, because it is not a free action and in the game of ball it has a fundamental, basic and decisive importance on offense, since to make a score and achieve victories, the batter has to overcome innumerable obstacles to be successful during his execution, such as the presence of the public, the variety and speed of pitches, the pitcher's strike zone, the hitting zone, the field of play, the opponent's defense, the value, concentration, technique, training, the batter's reaction or reflexes, enviable physical conditions, among others.

In the pedagogical field, the planning of actions in the short, medium and long term are not static, they are susceptible to change, modification and adaptation of their scope due to the pedagogical nature of the problems to be solved and have a high degree of generality in accordance with the objectives and pedagogical principles that are assumed; as well as the possibility of being extrapolated to various situations, which allows achieving the rationality of time, resources and efforts. According to Vázquez (2015), hitting is an



offensive, unique and individual art. Each batter has his own unique style within the expectations to follow, in addition, he expresses that by applying different methods or drills, the batter is helped to mature.

In the bibliographical review of research related to cognitive and motor aspects in sports training and in sports games in particular, the study by Díaz López, M. *et al.* (2017) stands out, who highlight the importance of practical knowledge and provide theoretical methodological foundations of interest, favorable to the preparation and planning of sports training; however, their works do not explain how to develop this activity in an integrated manner in the context of the training process of the basic fundamentals of baseball at an early age, so the authors of this work think that this aspect should not be ignored during the teaching-learning process, in a general sense and in particular, of the batting element.

The basic foundation of batting as an object of study of the research assumes the analysis of the criteria of national and international specialists who have developed scientific productions specifically on the action of batting (De la Herrán, 2005).

Díaz (2021) considers publicizing the complete sequence of the batting foundation. This sequence demonstrates the positions, from initial before batting and how the movement progresses from turning the head, putting the foot out, swinging from the bottom up (uppercutting) the distance of step, use of the wrist, the touch and the end that denotes the transfer of body weight to the front leg (Figure 1).

An important reasoning in schoolchildren's teaching of Arronte's (2022) is that they must be able to attack with the rear knee even before turning the rear foot. In general, in observations made by school children before turning, they attack first, propelling themselves with the rear knee and this means that the impact is undoubtedly greater because the inertia is higher and the initial mechanics of movement and the impact with the ball will also improve.



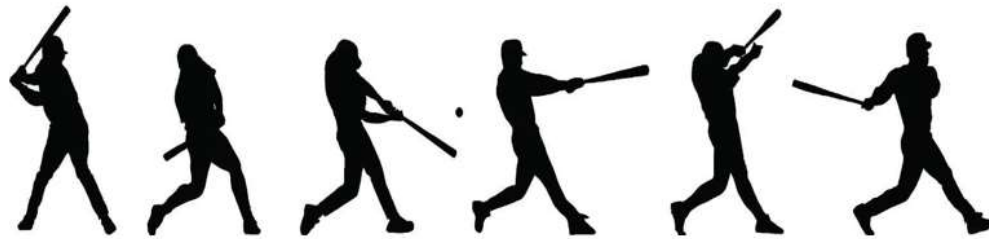


Fig. 1. - Complete sequence of the batting foundation

The author of the work agrees with Mena (2013), when expressing that hitting is an individual skill and that there really is no single way to hit the ball. Díaz (2021) considers that hitting is the most difficult element to master, which is why it is said that good hitters are born and not made. For many of these born hitters, hitting is an art, because they play it more naturally than the average player, but most who play the sport learn it as a science and apply the laws and principles that govern it.

Later, he refers that the batting mechanics is the most complex element in baseball due to the large number of body segments involved in the action, so there must be a balance between the agonistic and antagonistic musculatures where strength plays a fundamental role in the opposition of the same, for a muscular balance that guarantees an adequate motor coordination; therefore, a general, special and adequate preparation is required where the muscles respond with the necessary speed and strength, at the precise moment, and in this way guarantee the excellence of the technique.

There is an agreement with what was expressed by Terry (2012), when declaring that the muscles that play a fundamental role in gripping the bat are the deep common flexor of the fingers, the superficial common flexor of the fingers, the short and long flexor of the thumb and the adductor pollicis; as antagonists, the common extensor of the fingers, the extensor of the index finger, the extensor of the fifth finger, and the short and long extensor of the thumb. The importance of the necessary balance in terms of weight that allows a comfortable position with the minimum possible contraction and that the arrival of the stimulus is achieved at the beginning of the anticipation of the movement to attack with the full batting action is highlighted.



This researcher highlights three large muscle groups associated with the movements that allow assuming the desired position, these are the muscles associated with the pectoral or thoracic girdle, which are the so-called scapular trunks, the trapezius, the rhomboid, the scapular elevators, the pectoralis minor and the greater serratus. Regarding the work of the arms, there are the anterior brachialis and the brachial biceps, which are opposed by the triceps, they are considered the most important to obtain strength and power in hitting; as well as the muscles of the forearms as pronators and supinators and those of the hands as the group of flexions and carpal extensors that provide the final drive.

On the other hand, it is important that the flexors and extensors of the wrists are developed not only to control the direction of the swing, but to deliver the finishing blow with maximum power. Based on the above, these phases are taken as a reference for teaching batting: the batting position, posture, balance and point of contact (Figures 2, 3 and 4).

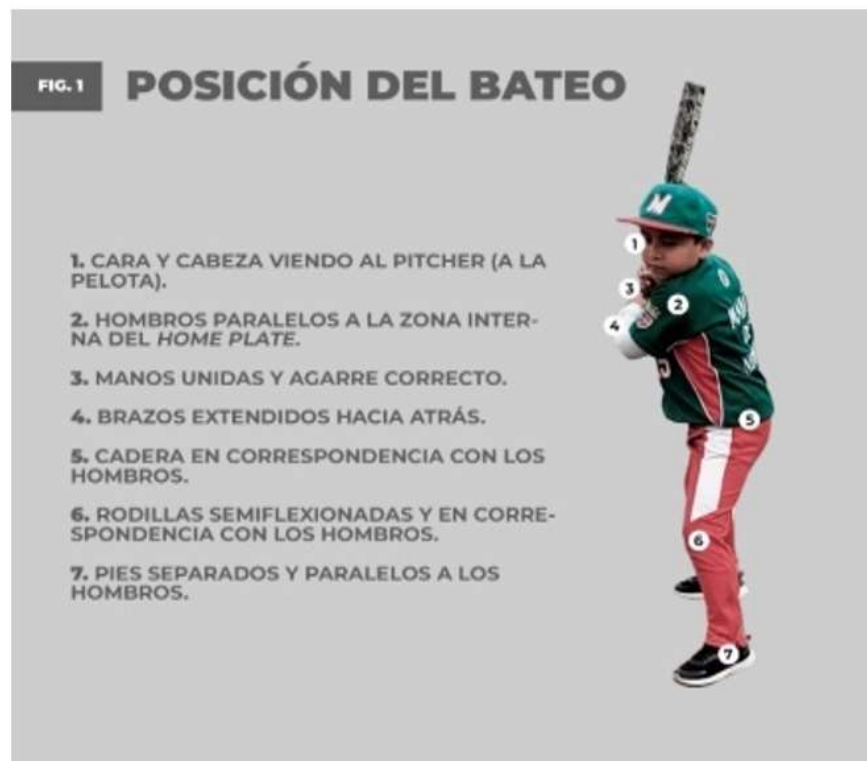


Fig. 2. - Batting position





Fig. 3. - Posture and balance



Fig. 4. - The contact point



As a result of observations of classes, meetings and interviews with sports teachers from the Xalapa sports school, related to the level of knowledge of the basic fundamentals of baseball and its teaching, the following irregularities were detected:

- Methodological deficiencies in teaching the basic fundamentals of baseball and specifically with batting.
- Incorrect execution of the bat by teachers and schoolchildren.
- Few bibliographies, documents, programs with actions and methodological indications related to teaching batting.
- The professional development of sports teachers is considered low.

Therefore, the objective is to propose actions for the teaching of batting in the "Enrique Conrado Rébsamen" primary sports school of Xalapa, in Veracruz.

MATERIALS AND METHODS

The study was carried out at the "Enrique Conrado Rébsamen" primary sports school in Xalapa, in Veracruz, Mexico; it is a public and autonomous sports educational institution founded in 1965. Its founder was a prestigious Mexican educator whose reforms had a decisive influence on the current educational system in Mexico.

The research methods used were the following: analytical-synthetic, inductive-deductive, historical-logical, modeling, and systemic-structural-functional. The empirical ones were, the analysis of documents aimed at assessing the contents of the Comprehensive Athlete Preparation Programs (PIPD) of baseball of the Republic of Cuba for the 2016-2020 cycles, as a bibliographic reference to support our research, as well as the books *El Béisbol* and *Del Béisbol casi todo*. The objective of the Interview was to verify the level of the cognitive dimensions, of theoretical, methodological and practical integration related to the teaching of batting. The survey, observation, the Iadov technique, methodological triangulation and expert criteria also were used.



For the theoretical assessment, the Delphi method was used, for which it was decided to follow a sequence of actions of a methodological nature.

During the study, six sports teachers, representing 100%, were part of the research. The school population investigated was 25, all from 5th grade, 15 males representing 75%, nine of them 10 years old and six 11 years old, and five females representing 25 % all 10 years old.

The criteria for their selection were the following:

- Linked for the first time to the practice of baseball.
- Show disposition.
- Consent of parents or guardians.

RESULTS AND DISCUSSION

Result of the surveys applied to sports teachers (Table 1).

In general, an inclination towards the lower level (I) was observed, which was more marked in the cognitive and methodological dimension. This level of insufficient (I) indicated, on the one hand, an absence of content and little theoretical mastery of the batting phases and, on the other, little methodological work aimed at mastering the methodological indications related to the batting phases and the linking of the objectives, contents, methods, procedures and organizational forms given by the teacher for teaching batting, which affects the quality, dynamics and practice of batting.



Table 1. - Result of the surveys applied to sports teachers

Dimensions	Rating scale						Level	
	Superior S	High TO	Medium			Low B.		Lower I
			High MA	Medium MM	Low MB			
Cognitive							I	
						6		
						6		
Practice							MB	
					6			
				6				
Methodological							I	
						6		
						6		
Total			6	6	12	0	30	I

Results of the observation to classes (Table 2).

The objective of this instrument was to know the way in which the teaching of batting was developed in baseball classes.

Table 2. - Results of the Observations to classes. Legend: S, always; CS, almost always; AV, sometimes; CN, almost never and N, never

Observations	S	CS	av	CN	No.
1 The Professor has planned the content of batting in the baseball class.	2			2	8
	16.6%			16.6%	66.6%
2 Use means and procedures to meet the objective of the class on teaching batting.			4	2	6
			33.3%	16.6%	fifty%
3 He makes use of the linkage of theoretical and practical objectives in the teaching process of the batting				4	8
				33.3%	66.6%
4 He uses the methodological steps for teaching batting.				5	7
				41.7%	58.3%
5 He takes into account the individual characteristics of students.	3			2	7
	25%			16.6%	58.3%

As can be seen, most of the items were on the assessing scale of never for 60%, where the little use of the methodological steps and the lack of attention to the individual characteristics of the students are revealed, which is why it corresponds to the poor planning and compliance with the teaching of batting by teachers. To assess the level of technical-



methodological knowledge of the six teachers during the batting teaching process in schoolchildren, the three phases that appear in the graphs are defined (Table 3):

- Posture and balance (Figure 2).
- The point of contact (Figure 3).

Table. 3. - Evaluation of teachers

No	Posture and balance	Contact point
1	Average	Bad
2	Average	Regular
3	Bad	Regular
4	Average	bad
5	Bad	Bad
6	Average	Bad

The results achieved demonstrate the insufficiencies in the methodological steps for teaching both phases and the detection of technical errors during the teaching process. Individually, they were evaluated with a scale of Good, Average and Bad.

Results of the Iadov technique. The result of the Group Satisfaction Index (ISG) was -0.375, a value that is interpreted as an undefined or contradictory degree of satisfaction of sports teachers in the diagnosis. Two open questions were analyzed, which should be answered by sports teachers with reference to the satisfaction regarding the teaching of batting, in order to delve into the causes that affect this satisfaction. The results are presented below:

Question 1. What do you like most about teaching batting in your classes? The approaches, with textual expressions of the teachers, were the following:

- The class is motivated.
- Let students improve their technique.
- The teacher prepares to teach the classes.
- The content is better acquired by the students, as the teacher is better prepared.
- There is help among the teachers.



The most frequent approaches to teaching batting in extracurricular sports classes were the following:

- That the students improve their technique and that the sports teachers prepare to teach the classes, represented by six teachers, for 100 %.
- That the class is motivated and the content is better acquired by the students as the teacher is with a better preparation, represented by three, for 50 %.
- And less frequently, help between teachers, represented by two teachers, for 33.3 %.

Question 2. What is your least favorite thing about teaching batting in class? The approaches, with textual expressions of the teachers, were the following:

- Few sports means to work in classes.
- Little improvement and updating of the contents to be taught.
- Insufficient knowledge related to the methodological work on batting.
- Little teacher preparation.
- Little link between theory and practice.

The most frequent approaches were the following:

- The insufficient methodological work on batting, little preparation of teachers and little improvement and updating of the contents to be taught, represented by the six teachers, for 100 %.
- Few sports means to work in classes and linking theory with practice by four teachers representing 66.6 %.
- And less frequently, little communication and links between schoolchildren and teachers, represented by three teachers, for 50 %.

Of a total of 40 approaches in both questions, the ones they liked the least prevailed (22 for 55 %).



Results of the methodological triangulation. For the use of this technique, the survey of teachers, the observation of classes, the practical evaluation of two phases of teachers and the Iadov technique were taken into account. The main results were the following:

It was evidenced that in the survey, the level of integration of the dimensions was insufficient (I). On the one hand, the absence of theoretical content, the little theoretical and methodological mastery for the teaching of batting and, on the other hand, the poor mastery of the methodological indications and the linking of the objectives, contents, methods, procedures and organizational forms for the batting teaching, which affected the quality and dynamics of batting practice.

In the results of the surveys, there was a correspondence in 66.6 % with the evaluative criteria of the observations to classes, referring to the fact that sports teachers do not have baseball content planned. The non-use of the means and procedures to meet the objective of the class in 58.3% also had a negative impact.

It was also appreciated, the little link between theory and practice that reached 72.2 % and finally, the non-use of methodological steps for teaching batting, for 86.1%. The practical evaluation corresponded to the level of knowledge of the methodological and theoretical contents, considered insufficient based on the results achieved.

The structures presented by Morales (2015) are taken as a referential basis, where they are configured, based on a logical sequence with the corresponding relationships that they establish among themselves, paying attention to the functions that distinguish them. Together, it serves as a guiding instrument in the preparation of actions, adjusted to the planning and strategic direction of the process. Based on the evaluations made, the proposal that is presented is defined as actions that provide alternative solutions to the limitations found by teachers for teaching batting at the Sports School of Xalapa, Veracruz (Figure 5).



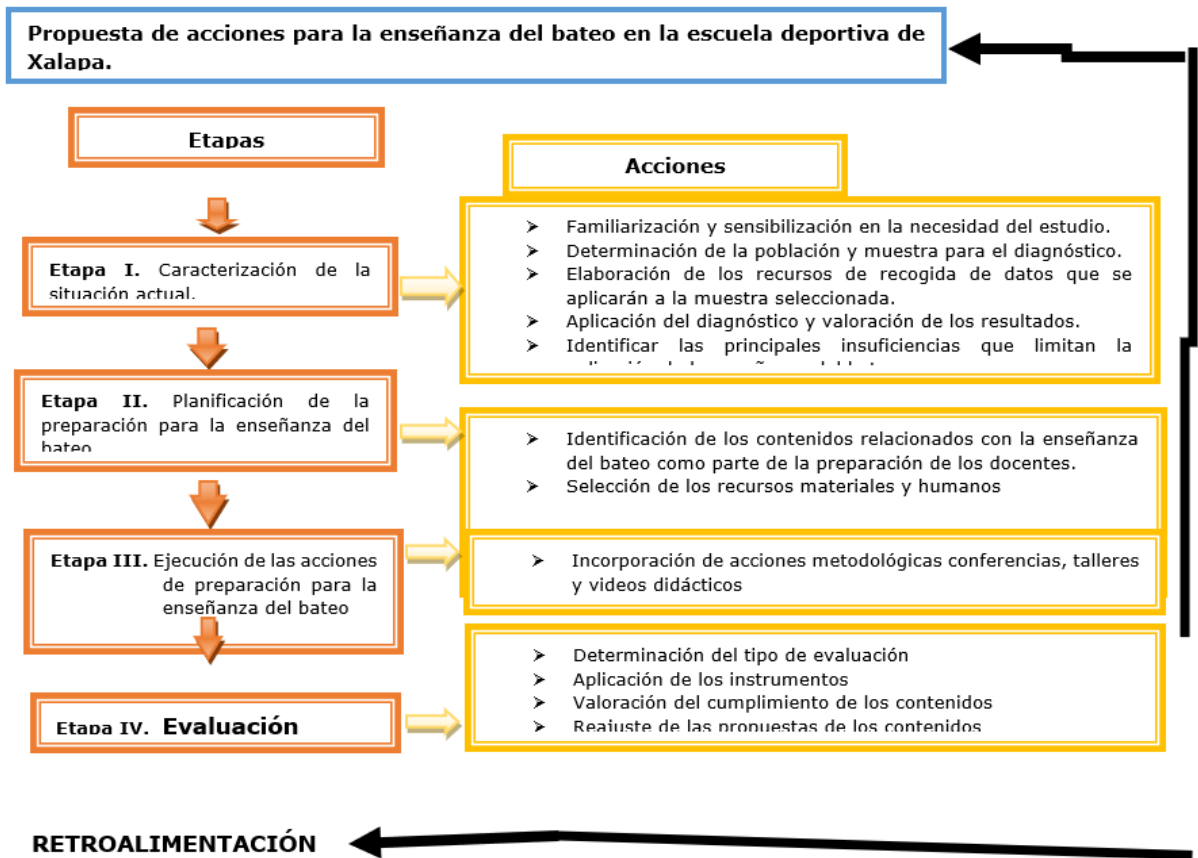


Fig. 5. - Actions for the teaching of batting in the sports school of Xalapa, Veracruz

Aim. Prepare sports teachers on the teaching of batting at the Sports School of Xalapa.

It consists of four stages:

Stage I. Characterization of the current situation

This stage constitutes the starting point from the pedagogical strategy, it is driven by the sports teachers and managers responsible for the preparation of teachers. A diagnosis of the current state of preparation that teachers have about teaching of batting in the extracurricular sport of baseball is made, through the use of different instruments that allow the identification of the main insufficiencies that limit the application of the process.

Aim. Diagnose the current state of the preparation that teachers have about teaching batting.

Main actions



Action 1. Familiarization and sensitization of the study need.

Aim. Familiarize the need for the study.

Procedures. Management on the teaching of batting in extracurricular sports and the preparation of sports teachers at the " Enrique Conrado Rébsamen" school in Xalapa and the realization of the research for the identification of teachers ` pedagogical needs.

To familiarize and sensitize it is taken advantage from the established schedules of extracurricular sports for preparation in the teaching of batting and the incidence in schoolchildren about the importance of physical exercise and in particular baseball for their integral formation.

Participants. Sports teachers.

Responsible. Teacher who leads the activity.

Time. Short term (January 2019).

Action 2. Determination of the population and sample for diagnosis.

Aim. Select the population and sample for the application of diagnostic methods.

Procedures. Twenty 5th grade schoolchildren and six sports teachers were selected.

Participants. Workgroup.

Responsible. Appointed by the working group.

Temporality. Short term (one month, January 2019).

Action 3. Elaboration of the data collection resources that will be applied to the selected sample.

Aim. Propose resources to collect the necessary information and act in order to improve or modify the teaching of batting. (Methods that were exposed and applied in the diagnosis).



Stage II. Planning preparation for teaching batting

Aim. Design a planning that allows sports teachers the correct teaching of batting.

Action 1. Identification of the contents related to the teaching of batting as part of the preparation of teachers.

Methods. Joint work

Procedures. Identification of the contents for the preparation of sports teachers.

Participants. Workgroup.

Responsible. Appointed by the working group.

Temporality. Short term (two months, June and July 2019).

Based on the diagnosis, theoretical, practical and methodological contents are selected that allowed teachers to acquire the necessary knowledge for teaching batting.

Action 2. Selection of material and human resources for the implementation of the pedagogical strategy.

Method Joint work.

Procedures. Management of material and human resources for the development of the preparation of sports teachers.

Participants. Collaborators and teachers.

Responsible. Research participants and collaborators.

Temporality. Short term (two months, June and July 2019)

Action 3. Planning the execution of pedagogical actions.

Method. Joint production.

Procedures. Training of sports teachers in teaching batting in schoolchildren.



Participants. Research collaborators and participants.

Responsible. Research participants and designated facilitators.

Temporality. Medium term

It is assumed the procedures, suggestions of Guerrero (2012), where activities are planned based on the determination of the contents and results of the diagnosis on the teaching of batting.

Within the activities, reflection workshops are structured on the technical foundation of batting at school ages.

Workshops that are aimed at theoretical, practical and methodological content.

Aim. Encourage theoretical knowledge related to teaching batting.

First workshop. It allows sports teachers to discuss the rules, phases and planning of the hitting technique.

Second workshop. Related to the technical execution of the batting in which didactic means will be used, with the objective of showing the practical knowledge of the batting technique.

Third workshop. Methodological preparation for sports teachers on the teaching of batting with emphasis on the methodological steps, theoretical, practical and methodological contents.

Stage III. Execution of the pedagogical preparation actions for the teaching of batting

Aim. Propitiate spaces of exchange for the update of the theoretical, practical and methodological knowledge of sports teachers in teaching batting.

Action 1. Presentation of didactic videos with the contents of the rules, phases and planning of teaching batting.

Procedure. Presentation of educational videos with the contents of the rules, phases and planning of teaching batting for facilitating the debate.



Participants. Sports teachers.

Responsible. Designated facilitators.

Time. Permanent.

Action 2. Workshop development.

Methods. Presentation, through group techniques and independent work.

Procedures- Presentation of didactic videos for sharing between participants.

Participants. Sports teachers.

Responsible. Designated facilitators.

Time. Medium term (September, October and November 2019).

Action 3. Implementation of the preparation course "Batting as a basic element of baseball".

Methods. Presentation and independent work

Procedures. Execution of the planned activities to develop the course: "Batting as a basic element of baseball".

Participants. Sports teachers.

Responsible. Research participants.

Time. Short term (December 2019 and January 2020).

Teacher staff. MSc. Maurilio Diaz Lopez. Academic title: Graduate in Physical education.

Stage IV. Assessment

Aim. Evaluate the fulfillment of the objective of the pedagogical actions.

- Assessment of the level of theoretical, practical and methodological knowledge acquired by sports teachers.



- Indications and recommendations that serve as a basis to continue teaching other baseball units in extracurricular sports.
- Comprehensive analysis of class visits and teacher satisfaction, working group work session.

Participants. Workgroup

Responsible. Appointed by the working group.

Temporality. Short term (three months).

For the theoretical assessment, the Delphi method was used, which involved consulting a non-probabilistic sample of individuals with a good level of knowledge on the subject under study, applied to assess the effectiveness of the proposed pedagogical actions, in terms of their quality. structural and utility. It was carried out through a system of organized, logical and statistical-mathematical procedures aimed at obtaining and processing the data and information from the most competent experts and their subsequent analysis, with the aim of making reliable decisions, for which it was decided to follow a sequence of methodological actions.

The Kendall coefficient of concordance (W) was calculated to determine if there is a consensus on the criteria issued by them, on the actions proposed as a solution to the problem posed. The value obtained was $W=0.631$.

By establishing a comparative state of the research with Menas (2013) it is concluded that there are coincidences with the batting phases that are declared for teaching, but in the posture, balance and point of contact phases an analysis is made of the methodological steps that led to more precise and objective methodological actions. The actions to prepare teachers to teach batting go beyond the few studies carried out in Xalapa, Veracruz in relation to other sports schools.



CONCLUSIONS

The result demonstrates the strengths of the actions for the integration of theoretical, practical and methodological knowledge of the teachers of the Sports School of Xalapa that allow the design of a tool for the work of sports teachers.

Based on the theoretical and methodological study, the proposal of actions is supported in four stages that provide alternative solutions to the limitations found for the preparation of sports teachers on the teaching of batting at the "Enrique Conrado Rébsamen" sports school in Xalapa, Veracruz.

REFERENCES

- García M (2012) La acción de batear, una tarea motora extremadamente coordinada EFDeportes.com, Revista Digital. Buenos Aires, 16(165). <https://www.efdeportes.com/efd165/la-accion-de-batear-extremadamente-coordinada.htm>
- Molina, G. P., Molina, G. A. y Gentry, J. (2020). El Learning y la evolución en la enseñanza y aprendizaje de la educación superior. Dominio de las Ciencias, 6 (5), pp. 491-500. <https://dialnet.unirioja.es/descarga/articulo/8385962.pdf>
- Costa, Charles y Valdez (2012). Alternativa metodológica de ejercicios para el mejoramiento de la técnica de batear de los jugadores de béisbol de la categoría 15-16 años de la EIDE 'Osmaní Arenado Llonch' de Pinar del Río EFDeportes.com, Revista Digital. Buenos Aires, 15, (166). <https://efdeportes.com/efd166/mejoramiento-de-la-tecnica-de-batear-de-beisbol.htm>
- Díaz López, M., Monteagudo Soler, J. F., & Valdés Pedroso, M. (2017). El proceso de enseñanza-aprendizaje del bateo en la Escuela Podium. Revista de Ciencia y Tecnología en la Cultura Física 17(2). <https://podium.upr.edu.cu/index.php/podium/article/view/1270/pdf>



- De la Herrán, A. (2005). Conjunto de acciones para la preparación técnico-táctica. Editorial. Deporte. <https://efdeportes.com/efd184/preparacion-tecnico-tactica-de-los-jardineros.htm>
- Díaz, M. (2021). Los fundamentos básicos del béisbol. Segundo Simposio Académico Virtual de los Juegos Deportivos Escolares. Nivel Primaria, 22-26 marzo 2021. Xalapa. Veracruz.
- Terry P. (2012). Clasificación de los músculos más importantes que intervienen en cada una de las fases del bateo en béisbol, atendiendo a su condición de agonista o antagonista. *EFDeportes.com, Revista Digital*. Buenos Aires, 1, (175). <https://www.efdeportes.com/efd175/musculos-de-las-fases-del-bateo-en-beisbol.htm>
- Mena. C. (2013). El bateo. Su técnica y metodología. *EFDeportes.com, Revista Digital*. Buenos Aires. 17(178). <https://www.efdeportes.com/efd178/el-bateo-su-tecnica-y-metodologia.htm>
- Morales, A., & Álvarez (2015). Principios para la individualización del desentrenamiento deportivo: profundización y acercamiento a sus fundamentos. *Revista Ciencia y Actividad Física*, 2(1). <http://revistaciaf.uclv.edu.cu/index.php/CIAF/article/download/50/50/>
- Reynaldo, B. (2006) Del Béisbol casi todo. Editorial Deportes, La Habana. https://books.google.com/books/about/Del_b%C3%A9isbol_casi_todo.html?id=rstEzQEACAAJ&source=kp_book_description
- Mesa, M., Fleitas, I.M. y Vidaurreta, R. R. (2015). Sobre el tratamiento estadístico a los datos provenientes de las opiniones de los expertos en las investigaciones de la Cultura Física. *EFDeportes.com, Revista Digital*. Buenos Aires, 20, (210). <https://www.efdeportes.com/efd210/tratamiento-estadistico-opiniones-de-expertos.htm>



Conflict of interests:

The authors declare not to have any interest conflicts.

Authors' contribution:

The authors have participated in the writing of the work and analysis of the documents



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