

Paddle. A systematic review of the TESEO database (Spanish Ministry of Education)

El pádel. Revisión sistemática de la base de datos TESEO (Ministerio de Educación Español)

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The research leading to the development of this article has been funded by the PAIDI Research Group, HUM653, Didactic Innovation in Physical Activity (IDAF) attached to the University of Jaén.

Editorial Schedule: Article received: 18/10/2016 Accepted: 07/02/2017 Published: 01/05/2017

DOI: <http://dx.doi.org/10.17979/sportis.2017.3.2.1837>

Abstract

Paddle is a sport of recent practice in Spain. The interest and the large number of sport necessitate research from different areas of science. This paper presents a literature review of the TESEO database in order to analyze in depth the doctoral thesis accepted as valid by the Spanish university community in the field of paddle is presented. Information about the physiological characteristics, technical, tactical, psychological and sociological as well as the specific demands in the development of the activity is collected. The systematic review as a method used in this study is mainly based on the search strategy in the database of the Ministry of Education, Culture and Sports. We reviewed four doctoral theses related to the paddle. Finally, in conclusion a summary of the information gathered in this work is provided.

Keywords

Paddle; Systematic review; TESEO.

Resumen

El pádel es un deporte de reciente práctica en España. Su interés y gran afluencia social hacen necesaria la investigación desde diferentes áreas de la ciencia. En este trabajo se presenta una revisión bibliográfica de la base de datos TESEO con el objetivo de analizar en profundidad las tesis doctorales aceptadas como válidas por la comunidad universitaria española en el ámbito del pádel. Se recopila información y se analizan las características fisiológicas, técnicas, tácticas, psicológicas y sociológicas, así como las demandas específicas en el desarrollo de esta actividad. La revisión sistemática como método utilizado en este estudio se basa principalmente en la estrategia de búsqueda en la base de datos del Ministerio de Educación, Cultura y Deporte, en el que se han encontrado y revisado cuatro tesis doctorales relacionadas con este deporte. Como conclusión se aporta una síntesis de la información recopilada.

Palabras clave

Pádel; revisión sistemática; TESEO.

1. Introduction

At the end of the s. XX appears a new sport discipline: the paddle, an activity that begins to develop in the Middle Ages in France (Almonacid-Cruz, 2011) and whose antecedents are common to the rest of the racket sports that have more tradition (Lasaga, 2010) . It is an implement activity (shovel) within racquet sports, so it can be located between tennis and squash. The paddle has its own peculiarities: the court is small (20 x 10 m), the walls are part of the game, and a shovel is used instead of a racket to hit the ball (Ramón-Llin, 2013).

The paddle, as it is known today, was born in Mexico in 1969 by Enrique Concuera and, a decade later, was introduced in Spain by Alfonso de Hogenlohe (Ramón-Llin, 2013). This same author (p.13) states that "paddle is an accepted term for all languages", however we have verified that in English it is written "paddel".

The paddle enjoys great fervor in Spain, it is young both in its practice and in its investigation, hence the importance of influencing its knowledge since the studies on the same are scarce (Castro, Cachón, Valdivia, Castellar, & Pradas, 2015). At present, the paddle is among the ten most practiced sports in Spain, specifically the seventh (Villena-Serrano, Castro-López, Lara-Sánchez, & Cachón-Zagalaz, 2016). For its social interest, this study has

PaFor cite this article you must use this reference: Villena-Serrano, M.; Zagalaz-Sánchez, M.L.; Castro-López, R.; Cachón-Zagalaz, J. (2017). El pádel. Paddle. A systematic review of the TESEO database (SPANISH MINISTRY OF EDUCATION). *Sportis Sci J*, 3 (2), 375-387.

DOI:<http://dx.doi.org/10.17979/sportis.2017.3.2.1837>

<http://revistas.udc.es/>

been carried out, whose purpose is to analyze the literature published in the TESEO database and place it in this systematic review, which completes the one published in the few scientific publications. The main objective is to compile the information published on the padel in that database that collects information from the majority of the doctoral theses read and considered apt in the Spanish Universities.

1.1 Origin of the paddle

The paddle, a new sport discipline that develops in the last decades of the twentieth century. According to the Royal Spanish Academy (RAE) of the Language, it is a "ball game between 4 walls, in which the one is struck with a short-handled shovel." It is a sport with characteristics similar to tennis and squash and with the same background, which enjoys its own peculiarities, the court is smaller than tennis (20 x 10 m), the walls are part of the game, giving the possibility of being Returned later and a shovel is used to hit the ball (Almonacid-Cruz, 2011).

The origin of the paddle has mainly two slopes, one dating from the late s. XIII when practiced in France the "jeu de paume", or "game of palm" which consisted of striking with the hand a ball and making it bounce against a wall; This game presented two modalities: far paume (open spaces) and courte paume (closed spaces) (Almonacid-Cruz, 2011); The second, originates from the Platform Tennis, from which comes more directly the paddle that is played today, the result of adaptations made by Enrique Corcuera in Acapulco (Mexico) in 1969, already cited (Almonacid-Cruz, 2011, p. 44), for whom quoting Vazquez-Montalbán (2004), "... We must banish the belief that historical and social facts arise by spontaneous generation of an earlier tabula rasa. Any scientific discovery is based on previous ones. "

Its introduction in Spain in the late seventies of the s. XX in the Marbella Club, thanks to the initiative of Alfonso de Hohenlohe has made that has been related to the highest social classes, a fact that is considered beneficial to promote their practice (Lasaga, 2010). In 1987 the Spanish Association of Paddle was created, with the main objective of organizing and promoting this sport in the country, having become with the discourse of the years in the sport-recreational activity of greater social repercussion and potential of growth in recent times (Almonacid-Cruz, 2011), as Castillo-Rodríguez (2012) indicates that this sport has

experienced a strong increase in its international practice in the last years, with more than 4.5 million people practicing it, according to Data collected from the American Paddle Association (APA).

At present the paddle is a sport totally settled in the Hispanic-American society, that counts on million of practitioners and continues to grow so much for the fans as for the number of clubs and sports facilities.

2. Material and method

1. Design: the documentary source TESEO, a database of the Ministry of Education, Culture and Sport (MECD), was used to locate the bibliographic documents, a basic material of this work, trying to obtain a synthesis of the scientific knowledge contributed to the field Of the paddle, in the doctoral theses approved by the Spanish university community. The bibliographic search was carried out in November of 2015, with the descriptor: "pádel".

2. Inclusion and Exclusion Criteria: For inclusion, the papers that answered affirmatively were considered for the following reasons: a) Does the study deal with the theme of paddle as a sport? (Title and summary); B) Was the study published in Spanish, Portuguese, English or French? (content); C) Is the study a doctoral thesis accepted by the Spanish scientific community? A total of 4 theses with the paddle descriptor have been compiled, which fulfill the 3 inclusion premises, so that no work has been excluded from those found in the TESEO database.

From the total of 4 records obtained in the database, in chronological order, they deal with a social study on the perception of the tennis players and technicians (Lasaga, 2010, University of Seville), the game profile of the high level paddle (Almonacid-Cruz, 2011, University of Jaén), physiological, physical and psychological responses (Castillo-Rodríguez, 2012, University of Málaga) and, finally, the analysis of distance traveled and speed of movement (Ramón-Llin , 2013, University of Valencia). Three studies carried out in Andalusian universities and the fourth in an absolutely Mediterranean.

The method consisted of firstly defining the problem and establishing inclusion and exclusion criteria. Next, the database to be used was defined, since this work intends to compile the information published in the doctoral theses that deal with the paddle. Of the 4 documents

found on the page, the inclusion criteria were applied based on the title and the abstract. These four theses, which were found in the TESEO database, have been previously approved in different Spanish universities and therefore these works meet the criteria of quality, reliability and validity necessary for inclusion in this study. The access to the document was made requesting to the authors, who provided them except for the one of Castillo-Rodríguez (2012) that has been analyzed by the articles developed as a result of that report, since they more than reflect the content of the work, They on the physiological and morphological aspects of the paddle player. Finally, the theses were analyzed in depth, compiling the most relevant results to be exposed in the review.

3. Analysis and results

In this section we analyze and issue the results of each of the four papers cited, starting from their particular objectives and ending with the main contributions to the field of science as results, appearing in chronological order.

3.1. Thesis 1: Social and methodological study of the paddle from the perception of technicians and players: an educational bet (Lasaga, 2010)

This thesis defended in the University of Seville, gives to know a series of sociological characteristics referring to the technicians and players of pádel. Its importance lies in its impact on initial training and its professionalization, being a great help for the approach in the training of technicians. Mainly seeks to understand the user and the technician who works in the paddle sports centers.

Therefore, its main objectives are: to carry out a study to know the sociological profile of the Sevillian player of Padel, to establish the reasons for beginning and follow the paddle practice of these players, to know the sociological profile of the coach of Padel Sevillano and to perform a Methodological study to know the form of teaching and analyze the similarities and differences in the perceptions of the trainers in relation to the methods used.

Beginning with the sociological study, in relation to the Sevillian player of paddle, in the reasons of beginning to the sport practice, Lasaga (2010) mainly refers to the women, since in the organized classes of pádel, there are in greater proportion men , Which may be one of the

reasons why males are the ones who practice the sport the most; Secondly, the adherence to the practice of the paddle of these players is produced by having leisure time and wanting to maintain the form, personal interest, the existence of clues close to housing and practice with friends. Therefore, most practitioners find the paddle as a form of fun. As far as the paddle coach is concerned, the sociological profile of the paddle tennis coach from Seville is made up of men aged between 26 and 50 who work in private facilities and work in another profession. There is a shortage of technicians with a higher education level, they usually have some degree of Paddle Monitor and most have developed the work of tennis technician.

Regarding the methodological study, it is observed that the teaching is mainly based on a multi-methodological approach using the analytical method and subsequently global, the form of communication is simultaneous in the verbal and visual channel (demonstration). The organization of the session varies according to the content and the treatment of the participants: constantly encourage them, pose activities that pose challenges for the student and, in the beginning, the least used is that they play by themselves and organization in rows. In the analysis of the similarities and differences in coaches' perceptions regarding the methodology used, Lasaga (2010) concludes that the most used teaching method is the pure global one, followed by the analytic and the adaptation of the learner level by the monitor.

With this study, the author aims to present scientific aspects from two different approaches, a sociological one, where technicians and paddle players are analyzed and another methodological about the way of teaching it. In the educational-recreational context, we understand that this is the most opportune study for didactic interests that can be transferred to training courses for trainers both in Faculties of Sport Sciences and the Federation or other sports organizations.

3.2 Thesis 2: Profile of high level paddle game (Almonacid-Cruz, 2011)

This doctoral thesis, defended at the University of Jaén, analyzes the factors that determine the profile of the high level player's game, for which he carefully studies the differences between this activity between men and women, quantifies the participation of each player. With respect to the pair, analyzes the factors of success of a set and evaluates the most executed blows, as well as the temporary parameters that contribute to the in-depth

knowledge of the sport, thanks to which it can have a greater transference to the training and the competition .

For the analysis of the indicated factors uses an observational methodology where the investigator does not interfere trying to avoid the alteration of the results.

As a conclusion, Almonacid-Cruz (2011) presents that the profile of game is clearly different between men and women, although during the game both players spend the same time defending as attacking. In the profile of men's game it is found that one out of four hits is a balloon and the definition hits reach a low percentage. On the other hand, women use a greater number of defensive actions, and they use more the balloon and the elements of the environment like aid than the men. The beating that women use mostly is the volley both right and wrong.

In reference to the player's participation within the couple, the percentages are very compensated with a participation with values close to 50% of each. But if the defense and attack actions are analyzed separately, there is a tendency towards the less powerful player in attack.

On the determinants in the set, Almonacid-Cruz (2011, p.354) concludes that "the set mainly wins the binomial that says fewer unforced errors in the course of the set." And taking into account the female category, the percentage of balloons (better minus balloons) and the number of impacts per set (greater number of impacts) should be added as determinants.

Following with the typology of the blows, in the male category there is a greater amount of blows of backhand in defense as in attack, and next they appear in great percentage the blows of volleys of right and tray. On the other hand, women play less offensive than men and there is less presence on the net. In the bottom of the track prevails the blows of reverse and in the line of attack appear like main blows the volley of right, of reverse and the tray, being this last the one more used.

Finally, in terms of playing times, according to Almonacid-Cruz (2011) the pause time and duration of a point are similar, ie there are no differences.

With this work the author aims to reveal the factors that determine the high level game of paddle so that they influence in an improvement of the development of the training and thus in the performance of the real competition.

3.3 Thesis 3: The competition paddle. Analysis of physiological, physical and psychological responses (Castillo-Rodríguez, 2012)

Defended at the University of Málaga, in this thesis Castillo-Rodríguez (2012) inquires about the physiological, physical and psychological responses of the paddle player, in order to know what are the conditioning factors in the elite game.

In the resulting articles analyzed, we start with the morphology of the elite paddle player and compare it with the profile of other racket sports (Castillo-Rodríguez, Hernández-Mendo, & Alvero-Cruz, 2014). The main objective of this article was to describe the anthropometric somatotype of 48 elite paddle players. As main results, it was obtained that the dominant somatotype of the players is meso-endomorphic, both in men (3.6 - 6.9 - 1.9) and in women (4.1 - 5.4 - 3.0).

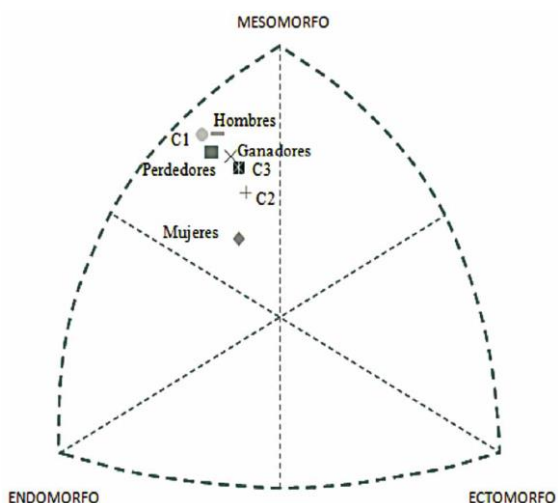


Fig. 1. Somatotype of the paddle players, by categories, sex and result (Castillo-Rodríguez et al., 2014).

Likewise, the results of body weight and height in paddle players differ with those found in other racket sports. As for the women, the data are similar to the badminton players, but with respect to the tennis players, it is observed that these have a weight and size inferior to those of paddle.

With regard to the somatotype results, the paddle players obtained results similar to other racket sports since these data correspond to the meso-endomorphic profile.

In the second revised work by Castillo-Rodríguez (2011a), which aims to make a physiological evaluation through the method of integral training in paddle athletes of 2nd national category, the main objective is to analyze, after eight weeks of training, the evolution of the Explosive strength and lactic anaerobic resistance. For this purpose the jump test and the Wingate test have been used. As main results after the work of integral training improved the maximum heart rate and vertical jump height, however, the differences are not significant. In conclusion, the authors suggest that this method of integral training should be taken with caution when applied to paddle players.

Finally, Castillo-Rodríguez (2011b), analyzes the effect of environmental temperature on the VO₂ during the race in paddle sports. The development of this work was carried out in a treadmill controlling the temperatures, an ambient of 22° and an experimental one of 32° and the consumption of VO₂ with spirometers was measured. The main results reveal that there are significant differences in the maximum VO₂ depending on the existing thermal conditions.

As a conclusion on the work of Castillo-Rodríguez (2012) it can be said that in the high level paddle, as in other racket sports such as tennis, badminton, or table tennis, players and more specifically the winners, They develop a physiological, physical and psychological inferior and inferior internal charge to obtain a greater efficiency in the game than the adversaries.

3.4 Thesis 4: Analysis of distance traveled and speed of movement in paddle (Ramón-Llin, 2013)

In the different sports modalities, it is crucial to know all the indicators that determine the performance and success for each level, as well as the specific aspects of each player according to their role or their specific position in the field. All these cues are key to the coaches' work and better planning. In this doctoral thesis, defended at the University of Valencia, Ramón-Llin (2013) raises as a main objective to analyze the indicators that determine the performance in paddle to provide the keys of a better planning of the coaches.

The objective of this paper is to quantify the physical load of competition in paddle tennis and to analyze it between 3 levels of play (high, medium and low), to study the differences in

physical load volume between winners and losers and, finally, Examine the differences in physical load volume according to the role of the player and the position on the track. The variables of interest for the development of the general objectives were: distance traveled, speed of movement, relationship between playing time and rest time, match time (total play, active and passive), level of play Game (high, medium and low), the result (winner and loser) and role (player who takes out, his partner, subtractor and his partner).

The main results of the study, referring to the first of the objectives, on quantifying the magnitude of the physical competition load in paddle, showed that the rest time is greater than the play time. In addition, the paddle players of the three levels of game analyzed (high, medium and low) walked on average 2,900 m in 59 min of match length.

In relation to the second objective, which studies the differences in physical load volume between winners and losers, analyzing the distance traveled at a match point, indicates that the losers run significantly more than the players who earn the point.

And following the last objective that examines the volume differences depending on the role of the player, the most relevant result indicates that the distance traveled at a match point, the player who travels the most distance is the one that executes the service, followed by the subtractor . Finally, depending on the position of the player and if they are right-handed or left-handed there are significant differences in the distance of each, the advantage player runs more than the deuce player, if both are right-handed, but the opposite occurs when the player Deuce is left-handed.

All the analyzed values are significant both for the planning of the paddle training and for the physical preparation of the players depending on the level of play of each one of them.

4. Discussion and conclusions

Every day there are more authors who analyze aspects related to the paddle, reason why the knowledge of this sport is increasing. However, it is still possible to maintain that the paddle is young, in its practice and in its study and analysis, since as it has been verified, there are only four doctoral theses presented on this sport in Spain. All this differs from the current scenario that is being experienced in our country, where it currently ranks as the 7th most practiced sport in the country according to the CIS (2014) survey. This is complemented by

the contributions of authors who have analyzed and classified paddle players in specific anthropometric and physiological characteristics and whose technique has been studied making a division of beatings according to a logical progression (Villena et al., 2016).

It should be noted that the four authors of the theses analyzed are university professors, although not all of them are in the field of sports education (Grade of primary education and of Physical Activity and Sport Sciences). In addition three of them reside in the geographical south of the country (Andalusia) and another in Levante, which could be a sign of the sport's relationship with good weather although it can be carried out in closed courts. The four authors are also semi-professional players, this reflects the interest of the players to influence the knowledge of this sport, especially those who play their teaching role in the university field, whose motivation towards the paddle leads them to combine it with Academic and scientific.

In a schematic form, Lasaga (2010), although the study is carried out from the perspective of technicians and players, covers the educational context and makes a didactic proposal. Almonacid-Cruz (2011), poses a general study on the profile of game in high level paddle. Castillo-Rodríguez (2012), studies the competition from the physiological, physical and psychological aspects it analyzes. Ramón-Llin (2013) deals with physical preparation and training (distance traveled and speed applied). Therefore, only one of the works focuses on educational aspects (Lasaga, 2010), the others consider competition and training indexes.

As conclusions can be affirmed that there are few doctoral theses that exist around this sport. Therefore, as indicated above, as a young field in its analysis or research, it is necessary to deepen scientific knowledge if it is desired to obtain more conclusive results in this regard.

It should be noted that the results found in these doctoral theses are of great importance for the support of scientific knowledge and for the field development of this sport, being useful results for the programming of the training of athletes.

Likewise the areas of analysis of the paddle in these theses are mainly the physiological, physical, psychological and game analysis aspects, being insufficient in other areas of science.

Therefore, the state of the art about the doctoral theses in paddle is very limited with respect to the rest of the racket sports where we can find in the TESEO database a total of 38 records for tennis.

As future prospects it is proposed to deepen the study of the paddle and to specify its scientific bases, as well as to influence in the development of scientific works that analyze parameters not yet studied in the doctoral theses of paddle as the psychological field of the sportsman of paddle.

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