

*Pedaling in school kayakers during the technical preparation at the EIDE in  
Guantánamo*  
*El pedaleo en kayakistas escolares durante la preparación técnica en la EIDE de  
Guantánamo*

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**ABSTRACT**

The research responds to the development strategy of the canoeing sport in the province and is part of the process of technical preparation of school kayakers at the EIDE in Guantánamo. The application of research methods showed that there are objective and subjective conditions that limit the apprehension of the motor habit of pedaling during rowing. Coordinated leg-hip work allows mobilizing the greatest number of muscles and improving joint amplitude during the execution of the rowing technique. The author proposes a system of actions to stimulate pedaling in school kayakers during technical preparation.

**Keywords**

Kayaking; Technique; Technical preparation; Action system; To stimulate; Pedaling.

**RESUMEN**

La investigación responde a la estrategia de desarrollo del deporte canotaje en la provincia y se enmarca dentro del proceso de preparación técnica de kayakistas escolares en la EIDE de Guantánamo. La aplicación de métodos de investigación arroja que existen condiciones objetivas y subjetivas que limitan la aprehensión del hábito motor de pedalear durante la remada. El trabajo coordinado pierna y cadera, permite movilizar la mayor cantidad de músculos y mejorar la amplitud articular durante la ejecución de la técnica. El autor propone un sistema de acciones para estimular el pedaleo en kayakistas escolares durante la preparación técnica.

**Palabras clave**

Kayak; Técnica; Preparación técnica; Sistema de acción; Estimular; Pedaleo.

## **INTRODUCTION**

Canoeing in general and kayaking in particular began to be practiced in the province of Guantánamo in the years between the 1980s of the last century. The headquarters for the practice of this sports discipline in the province had several geographical settings. At the end of that decade, the practice was established in the Caimanera municipality, when the former Provincial Academy of Nautical Sports was created.

Only four athletes have been promoted to the national school, all female. In 1996 the first Kayak athlete was promoted to the national canoeing school. Only one athlete remains in the National School since 2019. Therefore, the author of this research considers the promotions throughout more than 20 years of existence of the nautical school insufficient.

Currently, the nautical school located in the Caimanera municipality is an educational-sports extension of the "Rafael Freyre Torres" School of Sports Initiation School (EIDE) in Guantánamo province. Within the school enrollment we find four female Kayak athletes in the 13-15 years old category. The four athletes are included in the study.

In the application of the diagnosis, the author verifies that there are objective and subjective conditions that make it difficult to apprehend the motor habit of pedaling during rowing. There are no sufficiently prepared teachers at the base who pay tribute to the promotion of talents at EIDE. Consequently, direct recruiting is carried out with school athletes who come to the sport without having gone through the first stage of Initiation.

It is evident that the new athletes entering the EIDE reach the Consolidation stage without defeating the objectives of the previous stage. Consequently, the coaches are forced to look for alternatives for a quick apprehension of the paddling technique. The author of this investigation considers that there is a burning of stages that does not favor the apprehension of the motor habit.

Hence the importance of applying a system of actions to stimulate pedaling in school kayakers during the technical preparation at the EIDE in Guantánamo. Therefore, the author declares:

Objective: Design and apply a system of actions to stimulate pedaling in school kayakers during technical preparation at the EIDE in Guantánamo.

Hypothesis: A system of actions containing a biomechanical study that stimulates pedaling will improve the technical performance of school kayakers during technical preparation at the EIDE in Guantánamo.

## **METHODS**

Theoretical Methods:

Analysis - Synthesis: To analyze the Kayak Technical Preparation process in its different moments and forms, thus making it possible to discover the essential relationships and general characteristics.

Induction - Deduction: To state premises according to logic and determine generalizations from which new logical conclusions are deduced that allow them to be related within the Technical Preparation process in the kayak.

Systemic-structural-functional: For the conception and structuring of the system of actions. It guarantees the structural and functional unity between the parts that compose it.

empirical methods

Document analysis: To deepen the knowledge of the bibliographic documents that allowed us the data studied in the investigation.

The phatic observation: From the experience as a methodologist during 4 years of work.

Direct observation: Through an observation guide and conscious perception, it allows knowing about qualitative and quantitative aspects in the performance of pedaling by athletes.

Indirect observation: With the study of videos and photos, the biomechanical analysis that allows knowing about qualitative and quantitative aspects during the performance of pedaling.

Specialist criteria: To determine the relevance of the system of actions and with it, make pertinent corrections.

The Measurement: To know the angular values in the critical posture, both in the technical preparation on land and in water and its relationship with the effectiveness of pedaling during the aquatic phase of the kayak technique.

Survey: It was applied to the investigated athletes of the school category to obtain information on the theoretical knowledge of the kayak technique as well as to assess their criteria before and after the application of the system of actions.

Interview: For the collection of information about the phenomenon investigated through a conversation with questions addressed to active athletes from the national school, ex-athletes of kayaking, glories of this sport and other researchers.

## Methods

### Statistical-Mathematical

Descriptive statistics: for the processing of information obtained from interviews, surveys and scientific observation; in the construction and analysis of tables and graphs. For the statistical analysis of the proposal, the Mode, Mean, Median, Range was used.

Percentage calculation: to compare and establish relationships of proportionality of a part with respect to a total. Total number of times I pedaled and percentage in which it was effective. Percentage of new and continuing athletes.

### Population and/or sample.

To carry out this research, we worked with a Census Population of 4 female athletes of the school category.

## RESULTS

The author of this research verifies that:

- The ineffectiveness of pedaling is a reiterated deficiency in technical-methodological visits to the Training Units.
- Coaches pay more attention to aerial work, trunk and hip movement, ignoring the importance of active work on the lower extremities that favors movement of the coxofemoral joint.
- The terms traction, wing, blade travel, generate confusion in school athletes.
- Non-existence of the patera that limits the correct execution of pedaling.
- Little use of computer technologies based on biomechanical studies of sports technique.

During the technical preparation process, the author verifies that the athletes:

- They do not maintain the recommended angular ranges during knee flexion and extension.
- They do not perform the correct displacement of the hip.
- They do not apply pressure on the footrest or there is no similarity of force.
- They do not consider the use of the lower extremities important in the rowing technique.
- They believe that pedaling reduces the balance and stability of the boat.

The author of this paper considers that knee angles during pedaling can vary according to:

- Each style of paddling.
- It is determined by the level of flexibility of the lower extremities and the trunk.
- It is conditioned by the rhythm or frequency of strokes that the kayaker develops in order to achieve acceleration and increase speed.

- It depends on the correct distance between the support point of the seat and the support point of the feet. (Individual characteristics of each athlete)
- Depends on the type of shovel used. (Wing and Rasmussen are the most modern and used and have modified the technique, instead of pulling and pushing it is leaning and rotating.

The completion of the biomechanical study yielded preliminary data that at this time of the investigation are statistically processed. However, the author verifies that the amplitudes of the angles during knee flexion and extension do not behave within normal values. Observing hyperextension in an athlete and little mobility in the lower extremities during pedaling in the rest of the athletes.

## **DISCUSSION**

The author considers that the 250m Performance Test proposed by the Comprehensive Athlete Preparation Program to assess technical performance is insufficient for this purpose. It only evaluates the time made in the specific distance and at an indicated number of strokes. The recommended angular values in each critical posture are not contemplated, the values of the active work in the footrest are not known.

In a regatta under competitive conditions, it is after 250m that the first symptoms of fatigue begin to appear, due to the depletion of phosphagens. The Alactacid Anaerobic Energy System is predominant during the first seconds of the race, in which the kayaker performs the most explosive movements and with a high intensity of work. The muscles of the lower extremities are larger and generate more energy than those of the upper extremities.

In the kayak the real power to the stroke comes from the lower extremities and the trunk, pushing the boat forward through the active work of the feet in coordination with the movement on the base of the buttocks. Greater work on the lower extremities makes it possible to mobilize the trunk muscles, which are capable of working for long periods of time and generate large amounts of energy. Using only the arms limits the power and resistance in rowing since the muscles of the thighs, legs and feet are not mobilized, which together with the little movement of the trunk, generates less hip movement as a consequence.

It is concluded that a system of actions containing a biomechanical study that stimulates pedaling will improve the technical performance of school kayakers during technical preparation at the EIDE in Guantanamo.

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