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## *A System of Technical-Tactical Training to Enhance the Bilateral Execution of Tokui-Waza*

*[Sistema de preparación técnico-táctica para mejorar la ejecución bilateral de los Tokui-Waza]*

*[Sistema de preparação técnico-tática para melhorar a execução bilateral de Tokui-Waza]*

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### **ABSTRACT**

**Introduction:** Improvements in the technical and tactical quality of judo competitions, along with an increase in athlete activities and variety, make training more demanding and comprehensive. One element to consider as part of the training is the execution of technical-tactical actions with the possibility of executing themselves on both sides of the body, depending on the situation faced and the opponent's conditions, with a great competitive arsenal by the athletes.



**Aim:** To design a technical-practical training system that improves bilateral execution of Tokui-Waza, based on the experiences of pedagogic practice, and psychophysiological aspects that influence laterality as a training process.

**Method:** The proposal was presented to a group of specialists who offered their assessment for further implementation. Methods and techniques like analysis-synthesis, induction-deduction, documentary analysis, measurements, observation, interview, systemic approach, and expert opinion were used.

**Results:** The diagnostic of the population selected revealed the existence of issues in relation to the knowledge of aspects related to the bilateral execution of Tokui-Waza and their importance as a technical-tactical resource.

**Conclusions:** The technical-tactical training in judo, particularly when executing the Tokui-Waza, is an essential element for good results.

**Keywords:** Training Technical-tactical, Tokui-Waza, and two-way.

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## *RESUMEN*

**Introducción:** el mejoramiento de la calidad técnica y táctica de las competiciones de judo, así como el aumento de la cantidad de competidores y su variedad, hace que el nivel de preparación sea más exigente e integral. Un elemento a tener en cuenta dentro de esta preparación, es la ejecución de las acciones técnico tácticas, permitiendo la posibilidad de ejecutar las mismas por ambos lados del cuerpo, de acuerdo a la situación presentada y las condiciones del contrario, permitiendo un mayor arsenal competitivo al atleta.

**Objetivo:** diseñar un sistema de preparación técnico-táctica para mejorar la ejecución bilateral de los Tokui-Waza, teniendo como antecedentes las experiencias en la práctica pedagógica y sustentado en aspectos psicofisiológicos que influyen en la lateralidad desde el punto de vista del proceso de entrenamiento.

**Métodos:** la propuesta, se dio a conocer a un grupo de especialistas, los que brindaron su valoración, para su posterior aplicación. Para ello se emplean métodos y técnicas tales como: análisis y síntesis, inducción y deducción, análisis documental, medición, observación, entrevista, enfoque sistémico y el criterio de especialistas.



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**Resultado:** el diagnóstico realizado a la población seleccionada, reveló insuficiencias en los conocimientos de los aspectos relacionados con la ejecución bilateral de los Tokui-Waza y su importancia como recurso técnico-táctico.

**Conclusiones:** la preparación técnico-táctica en el judo, específicamente la ejecución de los Tokui-Waza, constituye un elemento esencial para la obtención de buenos resultados.

**Palabras clave:** preparación técnico-táctica, Tokui-Waza y bilateralidad.

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## **RESUMO**

**Introdução:** a melhoria da qualidade técnica e tática das competições de judô, bem como o aumento do número de competidores e sua variedade, torna o nível de preparação mais exigente e abrangente. Um elemento a ter em conta dentro desta preparação é a execução de ações técnico-táticas, permitindo a possibilidade de as executar em ambos os lados do corpo, de acordo com a situação apresentada e as condições do adversário, permitindo um maior arsenal competitivo. O atleta.

**Objetivo:** desenhar um sistema de preparação técnico-tática para melhorar a execução bilateral de Tokui-Waza, tendo como pano de fundo as experiências na prática pedagógica e apoiado em aspectos psicofisiológicos que influenciam a lateralidade do ponto de vista do processo de treinamento.

**Métodos:** a proposta foi dada a conhecer a um grupo de especialistas, que forneceram a sua avaliação, para posterior aplicação. Para isso, são utilizados métodos e técnicas como: análise e síntese, indução e dedução, análise documental, mensuração, observação, entrevista, abordagem sistêmica e critérios especializados.

**Resultado:** o diagnóstico feito à população selecionada revelou insuficiências no conhecimento de aspectos relacionados à execução bilateral do Tokui-Waza e sua importância como recurso técnico-tático.

**Conclusões:** a preparação técnico-tática no judô, especificamente a execução do Tokui-Waza, constitui um elemento essencial para a obtenção de bons resultados. Palavras-chave: preparação técnico-tática, Tokui-Waza e bilateralidade.



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**Palavras-chave:** preparação técnico-tática, Tokui-Waza e bilateralidade.

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## *INTRODUCTION*

Projections in judo require a high motor and intramuscular coordination directly proportional to the development of the central nervous system. This aspect cannot develop until there is a proper development of coordinating skills (León, L., de la Paz-Ávila, J., Siles, R. 2019).

This research relies on the need to optimize the technical-tactical training of judo athletes in the 13-14-year-old category, in Camaguey province, especially in the bilateral execution for Tokui-Waza, known as a technical-tactical action that greatly depends on such motor coordination.

Concerning the development of lateral actions, several studies have been conducted in various settings, particularly during the early life stages of children of different ages. In that sense, various authors have presented their findings, including Bilbao (2000), Pérez A.; Sánchez A.; Templado, M., and Verdejo, A. (2003), coinciding with the importance of their development for humans.

A study done by Méndez (2010), deals with homogeneous unilateral actions, related to the utilization of the dominating hand and eye (left or right), as well as crossed laterality, when the dominating hand and eye are opposites.

Bejarano and Naranjo (2014), think that unilateral actions may be completed using the feet, eyes, ears, hands, and even the shoulders and one hip. They also claim that, in general terms, foot and hand unilaterality is the most looked at.

One-sidedness is understood as the vital capacity of human development, to perform physical activities and cognitive, intellectual, and social development. (Orellana, A., Pomfrett, C. and Peña, D. 2020).



In combat sports, various studies have favored the analysis of unilateral behavior; hence it is important to assess, depending on the competitive outcomes, the unilaterality associated with the shoulders and hips, which are critical for turning, and refer to the dynamic or "clever leg", and support strength, which are key for fencing attacks and leaps (Sánchez, C., Ríos, A., Nuevo, O., Lastres, A., and Mesa, A., 2021).

However, still, the treatment of unilaterality and particularly bilaterality in judo is one of the issues to be addressed. Empirical studies have found practical manifestations associated with,

- Tokui waza execution, especially on the dominating side.
- Poor results in Tokui-Waza execution on the non-dominating side.
- Poor results in Tokui-Waza execution on the non-dominating side.
- From a methodological perspective, there is little implementation of methods for the analysis of elements that make up Tokui-Waza, including unilateral actions.
- Poor planning and execution of special exercises that tackle the bilateral execution of Tokui-Waza.

Accordingly, the aim of this paper is to design a technical-tactical training system to improve the bilateral execution of Tokui-Waza.

## ***MATERIALS AND METHODS***

A descriptive study was done comprising 15 athletes of the 13-14-year-old category (six female and nine male), after an intentional selection based on their participation in the provincial championship representing the municipality of Camaguey, in 2019. The sample also included 15 provincial coaches who work in this age category.

The technical-tactical training process was studied as well, stressing the bilateral execution of Tokui-Waza, particularly in the Tashi-Waza position. The technical-tactical training and bilateral execution of Tokui-Waza were also performed. The ruling documents containing the actions, methods, procedures, and methodological indications



for the technical-tactical training were reviewed. The analysis showed that the Athlete's Training Program has a limited methodological approach to technical-tactical training, as to Tokui Waza execution, only focusing on the importance of using the two sides.

A technical test analyzed the bilateral execution of Tokui-Waza in the Tashi-Waza position, representing technical-tactical situations, as presented in the reality of combat. Consequently, several shortcomings were observed during the execution of this movement on the non-dominating side, evidenced by the loss of grip, unstable balance preservation, and lack of movement coordination, in addition to the insecurity observed in most subjects.

An observation guide was useful to assess the bilateral execution of Tokui-Waza directly in the training combats. In that case, the observation revealed the lack of security when attacking on the non-dominating side, which led to poor execution of these technical elements on the less habitual side of the attack.

To determine the level of knowledge about the methodology of the bilateral execution of Tokui-Waza, the coaches responded to a survey that reflected several theoretical and methodological aspects necessary for the development of technical-tactical training stressing the bilateral execution of Tokui-Waza. Overall, there is little knowledge of teachers on how to deal with this issue during the training sessions. Moreover, in many cases, they do not know the terminology used to achieve that end, and the methodological aspects for the planning and orientation of the technical-tactical elements with a bilateral approach.

The training system's components and structure to improve the bilateral execution of Tokui-Waza in Tashi-Waza was designed.

The previously selected specialists assessed the training system, its components, and practical unity, in keeping with the objectives of this age category.



The training system was designed as a methodological tool for the 13-14 age category athletes' training process, particularly the technical-tactical training. It aims to enhance the execution of bilateral Tokui-Waza in the Tashi-Waza position, which is based on the technical-tactical objectives for the category and the psychophysical aspects involved in the development of bilaterality, for which objectives, activities, dosage, and methodological indications are laid out simulating the technical-tactical situations in real combat.

The training system included the principles of judo, as the main pillars of the sport. Optimum energy use (maximum combined efficiency at minimum effort). Reciprocal assistance and advantage (Tori and Uke), the principle of forwarding or effectiveness improvements (adjustment of sports mastery). The system also shows the principles of managing levels with higher goals in terms of systematicity, awareness, and activity, and the principle of the unity between the affective and cognitive.

The technical-tactical training system, relies on the structural-functional systemic method, based on the analysis of the objective presented and the interdependence relations established between subsystems and their components, which make a structured unit the basis for the development of the process in the 13-14-year-old category.

The following subsystems can be named from a systemic perspective:

*Subsystem: It is the study of the technical-tactical fundamentals that back up the bilateral execution of Tokui-Waza in the Tashi-Waza position*

This subsystem constitutes the entry to the technical-tactical training, whose main role is the analysis of the technical-tactical fundamentals that take part in the bilateral execution of Tokui-Waza in the Tokui-Waza position, as part of the aspects of technical-tactical training. Some of the most outstanding are the bilateral execution as a technical-tactical resource, Tokui Waza, its relevance, and possible execution alternatives depending on the different tactical situations presented in combat.





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*Component creation of the cognitive and motor bases of technical-tactical actions involved in the bilateral execution of Tokui-Waza:*

It looks to create the theoretical bases that help understand the aspects involved in the two-sided execution of Tokui-Waza through concepts, opinions, and criteria about the characteristics of this technical-tactical action from which projection techniques are executed.

Subsystem: Bilateral execution of Tokui-Waza in the Tashi-Waza position. The conception of the system includes the technical tactical training for the bilateral execution of Tokui-Waza in the Tashi-Waza position.

Technical component: This component shows the development of factors involved in the bilateral execution of Tokui-Waza, following the structural phases of the movement.

Tactical component: This component shows the possible tactical situations observed in combat, which are considered suitable for the bilateral execution of Tokui-Waza in the Tashi-Waza position, understood as a direct, combined attack, or counterattack.

These components can be observed in the differentiation stage and technical acquisition, with a progressive integration into the different tactical situations, until a combined attack simulating real combat, takes place.

*Possible tactical situations to be considered for the design of the technical-practical training system*

Direct attack (Uke position)

- Near Uke, back on the Jogai, and near against the Jogai.
- Uke movements: When the movement starts, during the movement, and upon finishing the movement.
- Depending on the posture adopted in Ike: High (left or right), mid (defensive) (right or left), or low (extremely defensive) (left or right).
- Depending on the grip. Defensive or offensive



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## Combined attack

Depending on the initial attack, the grappling technique, and the breaking technique.

## Counterattack technique

- Depending on the counterattack: legs, hip, arms, and sacrifice.
- Depending on the action performed that characterizes the technical move.
- Turning technique and both supporting points, no turning and one supporting point, and sacrifice techniques with free falling.

Subsystem: didactic procedure: It defined the role of the person in charge of the athlete's training process together with the main facilitator.

So that judo athletes execute the Tokui-Waza using both sides, the teacher must pay special attention to the technical action, with clear language, depending on the characteristics of these students. Assuming that the demonstration should have no errors and be conducted without errors, cleanly and elegantly. The same can be applied during error correction, based on incentives for good performances, without stressing the negative aspects.

Component determination of objectives: It shows the planning of objectives depending on the need for bilateral execution in Tokui-Waza, following the process's logic, enabling the analysis of fulfillment and permitting correction.

Component selection, planning, and application of special means: It relies on the utilization of special means offered by judo for technical-tactical training of judo athletes, according to the conception of execution presented in different situations of real combat. It must be executed with both sides of the body, regardless of the dominating side. It will require methods that favor the execution of the technical elements correctly.



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## *RESULTS AND DISCUSSION*

Several athletes were surveyed to know the value given by them to Tokui-Waza, the level of preference as to the techniques to be used, such as Tokui-Waza, and self-assessment of bilateral execution of this technical-tactical resource, acknowledging the importance of this type of technical execution for successful combat. Like Tokui-Waza, most refer to the use of Ushi-Mata, Harai-Goshi, Seoi-Nage, and Osoto Gari, which entails greater preference over hip and leg techniques, necessary for bilateral execution, since these techniques involve turning in some cases or staying on one-foot support, in others.

The coaches surveyed expressed that there are misconceptions as to the mastery of special exercises that encourage athletes to perform bilateral execution of Tokui-Waza, while in the Tokui-Waza position, only on the dominating side, leaving the option of the other side open. Besides, exercise planning does not include its design based on tactical situations that might be presented in combat, which need mastery of execution on both sides of the athletes.

Some of the findings in the tests were loss of balance when starting, during, and at the end of the attack, as well as grip loosening when finishing the movements. Slow and unsure movement execution in the Tokui-Waza position, as part of combined attacks, with flaws upon concluding the actions.

A total of 64 combats were observed during the team's training, which helped define 92 positive actions (direct and combined attacks, and counterattacks), that represented points in favor of the athletes. Moreover, in the combats in which Kenka-Yotsu (left-handed vs right-handed) positions were used by the athletes, the technical executions became deficient due to crossed grips that hindered correct movement execution, particularly turns over the non-dominating side.



These results were part of the opinions dealt with by Prado and González (2017) when referring to laterality in concert with the other two concepts. They are evidenced in the previously described results:

- The preferred dominance is evidenced by the use of a segment or body organ compared to the symmetry.
- Laterality is a process through which the child will use the dominant side of their bodies, thus defining their laterality.

Barcelay (2020) designed a methodology to improve the effectiveness of Ashi-Waza, which includes a set of well-structured actions. However, this methodology does not show the marked intention of bilateral work, though the authors include work using the two feet. These Ashi-Waza techniques (legs) are, on many occasions, technical elements regarded as Tokui-Waza, so the athlete develops the ability to use both sides in his actions.

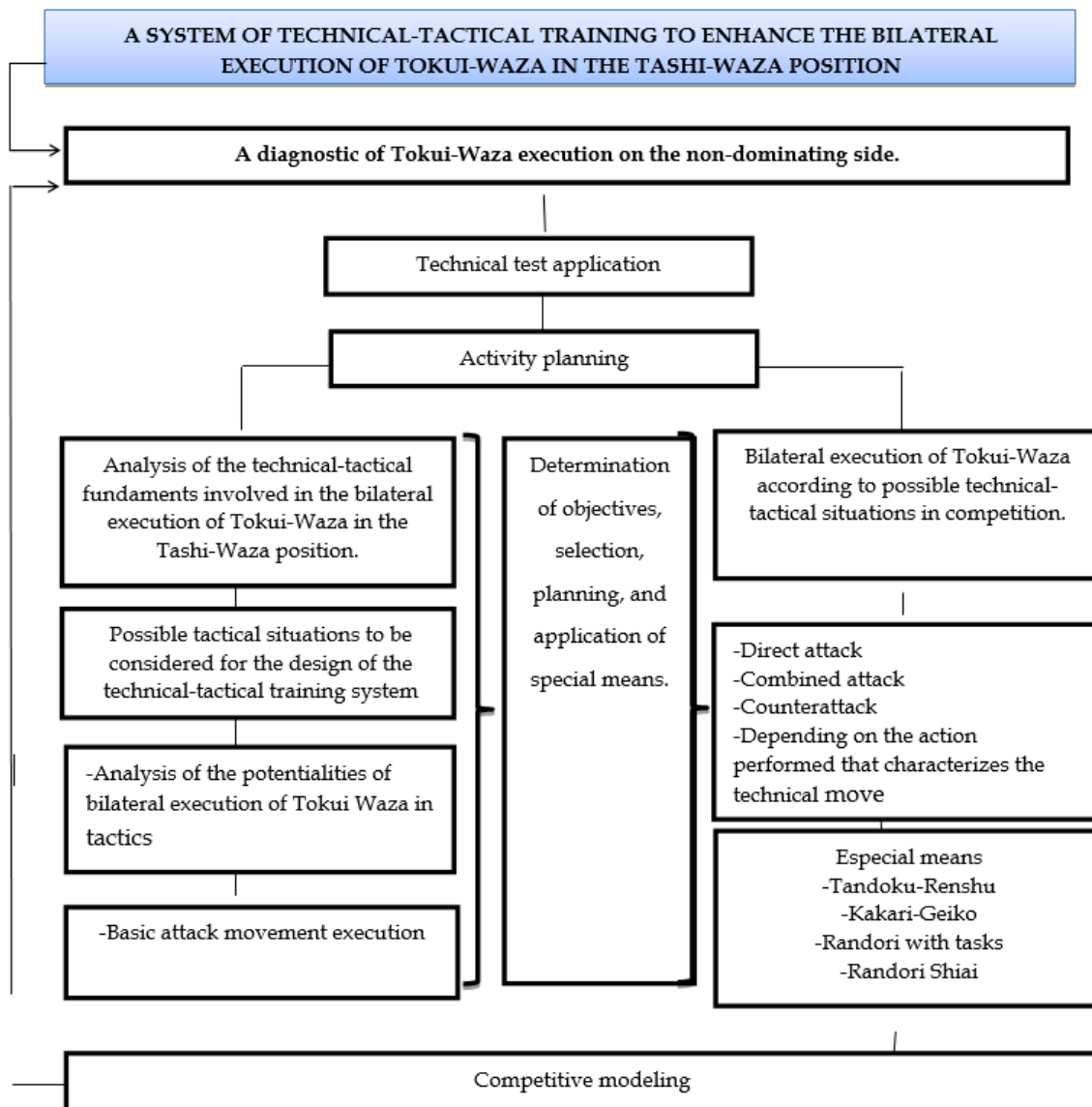
Following the previous logic, the training system designed considers the opinion of Sánchez, A., Tipan, J., Alomoto, A. and Romero, E. (2021) who recognized laterality within the spatial component, confirming that laterality can be developed through the grips (Kumikata).

#### *Theoretical assessment of the training system using expert opinion*

A total of 16 specialists were selected for the theoretical assessment of the training system, each one with over 10 years of experience, and a second dan back belt, minimum. Five categories were used to evaluate the aspects of the system: very appropriate, quite appropriate, appropriate, little appropriate, and inappropriate. The Delphi method was used in a single round, based on the results from the opinions in the survey, with a high level of satisfaction. It corroborated the considerations of specialists according to their assessment of the training system (very appropriate) and garnered the conditions for implementation.



The Kendall W concordance coefficient was calculated as well to measure the level of concordance of the specialists' responses. It can be said that there was concordance between the responses and the evaluation indicators, since W reached 0.9, with a  $0.00 < 0.01$  significance, ensuring that concordance did not occur by chance. The training system designed to enhance the bilateral execution of Tokui-Waza in Tashi-Waza, is valid for implementation (Figure 1).



*Fig. 1. - A system of technical-tactical training to improve the bilateral execution of Tokui-Waza in the Tashi-Waza position*

**Legend:** P: Average; N-P: General less specific average of every aspect.



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## *CONCLUSIONS*

The analysis of the theoretical rationales led to the conclusion that technical-tactical training in judo, particularly when executing the Tokui-Waza, is an essential element for good results.

The diagnostic of the population selected revealed the existence of issues in relation to the knowledge of aspects related to the bilateral execution of Tokui-Waza and their importance as a technical-tactical resource.

The design of the training system included aspects that distinguished current sports training, the characteristics of contemporary sports teaching, the particularities of judo competitions today, and the psychophysical aspects involved in bilaterality.

The review of the literature offered new assessing criteria for the training system, which was considered very appropriate, according to the objectives set.

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*Conflict of interest statement:*

The authors declare having competing interests.

*Author contribution statement:*

The authors have participated in the redaction of the manuscript and the documentary review.



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