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Original article

Proposal of indicators for the selection of athletes in poomsae for high performance. Practical validation

*Propuesta de indicadores para la selección de atletas en poomsae para el alto rendimiento.
Validación práctica*

*Proposta de indicadores para seleção de atletas em poomsae de alto rendimento. Validação
prática*

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ABSTRACT

The proposed research, in the area of talent selection in high performance, specifically in the poomsae modality in its free style event, represents a strategic study, since limitations were found in the selection process in said sporting modality. Therefore, this work presented the objective of evaluating the technical indicators for the selection of athletes with respect to the poomsae modality in its free style event. This selection is made in accordance with the current competitive regulatory requirements, applied by the World Federation of this sport. Theoretical level methods like inductive-deductive, analytical-synthetic and historical were used and from the empirical level, documentary review and measurement, and the angles of the proposed indicators were measured through the Kinovea biomechanical software. The statistical technique used was the SPSS 20 statistical processor. There were defined and evaluated in a practical way the indicators of flexibility (central, left lateral, right lateral splits) with an average of 10.25 points; kicking techniques (basic kicks, holding, kicks with spin in the air) with average results of 2.5; 1.9 and 1.87 points; acrobatic jumps (stride jumps, left split jumps , right split jumps) and acrobatic elements with average results of 8.69 and 2.21 points, for the selection process of school sports initiation schools in the poomsae modality in their free style event .

Keywords: free style, indicators, poomsae, talent selection.

RESUMEN

La investigación propuesta, en el área de selección de talentos en el alto rendimiento, específicamente en la modalidad de poomsae, en su evento free style, representa un estudio estratégico, pues se encontraron limitaciones en el proceso de selección en dicha modalidad deportiva. Por lo que este trabajo presentó como objetivo evaluar los indicadores técnicos para la selección de atletas con respecto a la modalidad de poomsae en su evento free style. Esta selección se realiza acorde con las exigencias reglamentarias competitivas actuales, aplicadas por la Federación Mundial de este deporte. Se utilizaron métodos de nivel teórico inductivo-deductivo, analítico-sintético, así como histórico y del nivel empírico, la revisión documental y la medición. Se midieron los ángulos de los indicadores propuestos, a través



del software biomecánico Kinovea. La técnica estadística utilizada fue el procesador estadístico SPSS 20. Se definieron y evaluaron de forma práctica los indicadores flexibilidad (splits central, lateral izquierdo, lateral derecho) con una media de 10.25 puntos; técnicas de pateo (pateos básicos, mantención, pateos con giro en el aire) con resultados de media de 2.5; 1,9 y 1.87 puntos; saltos acrobáticos (saltos en horcajadas, saltos en splits izquierdo, saltos en splits derecho) y los elementos acrobáticos con resultados de media de 8.69 y 2.21 puntos, para el proceso de selección de las escuelas de iniciación deportiva escolar en la modalidad de poomsae en su evento free style.

Palabras clave: free style, indicadores, poomsae, selección de talentos.

RESUMO

A pesquisa proposta, na área de seleção de talentos no alto rendimento, especificamente na modalidade poomsae, em sua prova de estilo livre, representa um estudo estratégico, uma vez que foram encontradas limitações no processo de seleção na referida modalidade esportiva. Portanto, este trabalho apresentou o objetivo de avaliar os indicadores técnicos para seleção de atletas no que diz respeito à modalidade poomsae em sua prova de estilo livre. Esta seleção é feita de acordo com os requisitos regulamentares competitivos em vigor, aplicados pela Federação Mundial desta modalidade. Foram utilizados métodos de nível teórico indutivo-dedutivo, analítico-sintético, bem como de nível histórico e empírico, revisão documental e mensuração. Os ângulos dos indicadores propostos foram medidos através do software biomecânico Kinovea. A técnica estatística utilizada foi o processador estatístico SPSS 20. Os indicadores de flexibilidade (abertura central, lateral esquerda, lateral direita) foram definidos e avaliados de forma prática com média de 10,25 pontos; técnicas de chutes (chutes básicos, segurar, chutes com giro no ar) com resultados médios de 2,5; 1,9 e 1,87 pontos; saltos acrobáticos (saltos de passada, saltos divididos à esquerda, saltos divididos à direita) e elementos acrobáticos com resultados médios de 8,69 e 2,21 pontos, para o processo seletivo das escolas de iniciação esportiva escolar na modalidade poomsae em sua prova de estilo livre.



Palabras-chave: estilo libre, indicadores, poomsae, selección de talentos.

INTRODUCTION

Cuba is considered by the International Taekwondo Federation (WT) as one of the countries with the greatest development and progress achieved in a short period of time, after the introduction in the country of this sport, which has become an art. martial. This progress is reflected in the results obtained internationally.

According to Jiménez et al. (2021), the most notable competitive results of this sport in Cuba are the 5 Olympic medals (1 title), the 15 world medals (4 titles), the 43 Pan American medals (16 titles) and the 45 Central American medals (21 titles); which places the country among the first in Latin America.

Taekwondo as a sports martial art is made up of three training modalities: kyukpa (art of breaking), kyorugi (combat art) and poomsae in its traditional event and its free style event. Traditionally, k yukpa does not compete in multidisciplinary games, but it does compete in kyorugi and poomsae in its two events, in the world championships, Central American Games, Pan American Games and Olympic Games.

According to Fernández (as cited in Cisneros, 2019):

(...) Freestyle Poomsae is a really dangerous modality that, by converting it into a competition, becomes even more risky for the competitor; High sports performance promotes the demands of the taekwondo player `s body to the maximum of possibilities. Therefore, their teaching and training must be directed with careful education and instruction, that is, pedagogically. (p.6)

Free style poomsae is a choreography with instrumental music based on taekwondo techniques, namely kicking, blocking, positions and acrobatic elements linked to kicking. From a sporting point of view, it is classified as a competitive art sport, its score and sporting result depend on the value given by the judges for the technical level demonstrated during the choreography (Arias, 2019; Cisneros, 2019; Fernández, 2016 and Jiménez, *et al.*, 2021).



For Arias (2019), the free style poomsae, in its choreographic composition the yeon -mu line, must be the competitor's choice. With a certain number of poomsae, each performance must be composed of 20 to 24 poomsae (the composition of a poomsae must not be more than 5 techniques).

This variant is made up of attack and defense techniques, 60% leg techniques and 40% arm techniques. The movements must be executed and distributed between all parts of the body, between left and right, between the foot and the hand, front and back, the poomsae directions performed must be within the limits of taekwondo.

The definition of taekwondo techniques is determined by the WT poomsae committee when the competitor presents the free style poomsae action plan, the music and choreography are the competitor's choice (excluding political content, social or religious content).

The competition area has a measurement of (10m x 10m, for the individual and pair free style competition) and (12m x 12m for the free style team competitions) on a flat surface without any type of projection that hinders the movements, according to (Arias, 2019).

In the category for couples or mixed duos, there will be two competitors (man-woman) from 12 to 17 years old and over 18 years old. In the team category over 12 years old, 5 competitors (2 men and 3 women or 3 men and 2 women). This type of poomsae has a duration between 90 and 100 seconds (Arias, 2019).

The total score has a value of 10 points that correspond to the sum of the points of the indicators: precision and technical skills (6 points), level of difficulty of leg techniques (5 points), precision of movements and degree of fulfillment of poomsae (1 point), presentation (4 points) demonstrated in creativity, harmony, expression of energy, music and choreography.

Technical skills include the level of difficulty of the foot techniques, the height of the jump in the same position and the assisted jump, the number of jump kicks, gradients of turns in a spin shot based on the turn (more than 360^o, more than 540^o and more than 720^o and up to 900^o) and the number of consecutive kicks connected, limited to five.



In acrobatic performances, the technical difficulty of all actions performed in acrobatic gymnastics, the precision in the basic movements and designated technical movements of taekwondo, the degree of performance of the poomsae, the connection between attacks and defenses in Perfect harmony that is evaluated on the overall performance of the freestyle poomsae and the creativity of the actions and components of poomsae.

Likewise, it is taken into account the harmony between the different components of the poomsae (music, choreography and clothing, for example) and, in the case of a team and couple, the expression of energy, music and choreography and whether they go well with each other in the general performance of poomsae are also evaluated, all in accordance with the International Poomase Regulations.

Other indicators of performance in free style poomsae are the conditioning and determining physical capacities. Among the conditions are short-term endurance, strength endurance, frequency speed, passive and active flexibility, and sustained active flexibility. As determinants, explosive strength, endurance, strength, frequency speed, passive and active flexibility, maintained active flexibility and active reactive flexibility (Fernández, 2019).

Based on the delimitation of these indicators of competitive performance in free style poomsae, and due to the strategic importance of the modality, in 2017, the National Taekwondo Technical Commission took on the task of forming a national team.

At the 2018 Central American Games in Colombia, Barranquilla, this modality was called in its two events (traditional poomsae and free style) and only two exponents participated in the traditional poomsae modality, which did not advance to the podium. This national team was made up of kyorugi athletes, who had theoretical and practical knowledge of poomsae.

However, in the Comprehensive Taekwondo Athlete Preparation Program, which is the technical methodological document that governs preparation throughout the country, it was confirmed the lack of indicators for the selection of athletes in this sport that are in accordance with the requirements of competitive performance (Capote, 2022).

The National Technical Commission outlined the strategy of defining indicators for the selection of high-performance athletes in the poomsae modality and emphasized in its free



style event, because this modality was called by the WT and the Pan American Union, to classify in the Multidisciplinary Games of the 2020-2024 Cycle.

Therefore, the objective of the research was to evaluate the technical indicators for the selection of athletes with respect to the poomsae modality in their free style event. This selection is made in accordance with the current competitive regulatory requirements, applied by the WT.

MATERIALS AND METHODS

The study carried out was descriptive, prospective, with multiple cases. The non-probabilistic sample, intentionally selected, constituted by the athletes that make up the Cuban National Poomsae Team, a total of six athletes (three female and three male) and four athletes with immediate perspectives (three male and one female).

The sample has a mean chronological age \pm 18 years, a sporting experience of eight years and a higher martial level of 1st red-black belt poom and 1st Dan black belt.

The research used methods at a theoretical level such as inductive-deductive, analytical-synthetic and historical, and from the empirical level, documentary review and measurement. The angles of the proposed indicators were measured.

This measurement was carried out through the indirect observation technique with a Sony camera, subsequently the videos taken were analyzed through the biomechanical software, the amplitudes of the muscle movements were determined in the measurement unit of degrees and, depending on the level cancellation, the elements were evaluated from a qualitative and quantitative point of view.

The statistical technique used was the SPSS 20 statistical processor, for statistical processing the following indicators were used: mean (X), standard deviation (S), the sum (+), maximum (Max.) and minimum (Min.).



Flexibility:

1. Evaluation of the flexibility indicator (left split, right split and central splits).

In this indicator, the three splits were performed: front split, left lateral split and right lateral split. A gymnastic mattress measuring 20 centimeters on each side was taken as a support base and it was measured from the symphysis of the pelvis to the floor.

The maximum bonus to be awarded for each split performed was 5 points, computing 15 points in total for the three splits. This maximum sum was divided by three, and the final value of the flexibility of the lower limbs' indicator was obtained: five points, which had a qualitative assessment of very good (Table 1).

Composition of the lower limb flexibility indicator table (left split, right split and central splits).

Table 1. - Evaluation criterion of the flexibility indicator

Splits measurement in (cm)		
Qualitative analysis	quantitative	Description
Very good (MB)	5	20 or more cm. Pelvis glued to the floor.
Good B)	4	17-19cm. Slight separation of the pelvis
Fair (R)	3	13-16cm. Straight line between the legs
Bad (M)	2	9-12cm. Tilting the pelvis upwards.
Very Bad (MM)	1	1-9cm. Above the obstacle.

Source: Taken from Regalado and Jiménez (2021).

2. Evaluation of the maintenance indicator of the left lateral leg, right lateral leg and front leg in tuio technical execution ap chagui.

In this indicator the execution of tuio was carried out ap chagui, which is the extension of the leg to the head area, hitting with the metatarsal and maintaining the kicking technique for 10 seconds. The score was in accordance with the degree of amplitude of the technique, through indirect observation, recording of the technique, its analysis and measurement in degrees of movement using the Kinovea biomechanical software.



The maximum bonus to be granted for each technique, tuio ap chagui left lateral, right lateral and frontal performed was five points, adding a total of 15 which was divided by three and it was obtained the final value of the tuio ap chagui leg technique maintenance indicator: five points, with a qualitative assessment of very good (Table 2).

Table composition of the indicator maintenance of the left lateral leg, right lateral leg and front leg in tuio ap chagui technical execution.

Qualitative and quantitative evaluation:

Table 2. - Evaluation criteria for leg hold maintenance in tuio ap chagui technique

Analysis qualitative	Analysis quantitative	Front leg- Side leg	kicking technique _
Very good (MB)	5	Foot above head	180° _
Good B)	4	Foot at forehead level	160° _
Fair (R)	3	Foot at chin height	150
Bad (M)	2	Foot at chest height	140
Very Bad (MM)	1	Foot at 90°	-140

Source: Taken from Regalado and Jiménez (2021).

3. Evaluation of the indicator acrobatic straddle jumps, left split jumps, right split jump.

In this indicator, the straddle jump was performed in front split, straddle in left lateral split and straddle in right lateral split. The score was expressed in accordance with the degree of amplitude of the technique, through indirect observation, recording of the technique, its analysis and measurement in degrees of movement using the Kinovea biomechanical software.

The maximum bonus to be awarded for each straddle split jump was of five points, the sum of the three jumps was 15 points, it was divided by three and the final value of the straddle jump indicator was obtained: five points, with a qualitative assessment of very good (Table 3).

Table composition of the indicator for acrobatic straddle jumps.



Qualitative and quantitative evaluation.

Table 3. - Evaluation criteria for acrobatic straddle jumps

Acrobatic straddle jumps, left split jumps, right split jump. Measurement in degrees		
Qualitative analysis	quantitative	Description of acrobatic jumps in splits. (straddles, left split, right split)
Very good (MB)	5	Feet on the horizontal or above the horizontal passing through the front splits in the air astride. 180°-200°
Good B)	4	Feet horizontal without going through the front splits in the air in straddle. 150°-170°
Fair (R)	3	Legs on the diagonal down between 30 ° -40 ° degree in the air astride.
Bad (M)	2	Legs in the air astride below 40 °, and legs closed.
Very Bad (MM)	1	Legs very diagonal below and the trunk leaning forward.

Source: Taken from Regalado and Jiménez (2021).

4. Evaluation of the indicator turn acrobatic element, bell acrobatic element, front and back turns acrobatic element.

Turn acrobatic element (360° both guards), front and back turn (swan), handstand (walk 3-4 steps), bell (no hands), front fli (all front and one hand), back fli (flic -flac), (complete realization of the element and front mortal).

In this indicator, the execution of the acrobatic jumps turns, front or back turns and bell were carried out. The score was awarded depending on the errors presented by the acrobatic jumps. Only three types of acrobatic jumps were performed on the list.

The maximum bonus to be awarded for each acrobatic jump was five points, for a total of 15, which divided by three, five points were obtained, with a qualitative assessment of very good (Table 4).

Table composition of the acrobatic jumps indicator. Qualitative and quantitative evaluation.



Table 4. - Evaluation criteria for acrobatic elements

Acrobatic elements of turn, bell and turns.				
Qualitative analysis	quantitative	Turn (left right)	Bell	Turns (front-back)
Very good (MB)	5	Without errors	Without errors	Without errors
Good (B)	4	1-3 errors	1-3 errors	1-3 errors
Fair (R)	3	4-5 errors	4-5 errors	4-5 errors
Bad (M)	2	6-8 errors	6-8 errors	6-8 errors
Very Bad (MM)	1	More than 8 errors	More than 8 errors	More than 8 errors

Source: Taken from Regalado and Jiménez (2021).

5. Evaluation of basic techniques: positions, blocks and positions, three consecutive kicks and turning technique.

The three positions were evaluated in this indicator: hakdari sogui, dwitkubi sogui and boom sogui, the three blockages: mong makki (an makki), han sonnal makki, anpalmok mong bakkat makki and the 3 kicks: bandae and baro jireugui, chevipong mok chigui and deungjumeok ap chigui.

It was carried out the evaluation of a position, a block and a hit, with a value of five points each, for a total of 15 points, which provided the maximum bonus and was qualitatively evaluated as very good.

The quantitative evaluation of the three consecutive hits techniques was rewarded with a maximum of five points. The evaluation of the technique with turn, say 540° turn and a half turn with kick.

5. Evaluation of the basic techniques indicator: positions, blocks, hits, three kicks and technique with a 540° turn.

Table composition of the indicator, basic techniques, three kicks and turn technique. Qualitative and quantitative evaluation (Table 5).



Table 5. - Evaluation criteria for basic techniques: positions, blocks and hits; consecutive kicks of three techniques and technique with 540° turn

Technical elements: basic: positions, 3 kicks, turning technique, blocks and hits.				
Qualitative analysis	quantitative	Positions	Blocks, hits	3 kicks, turn technique.
Very good (MB)	5	Without errors	Without errors	Without errors
Good B)	4	1-3 errors	1-3 errors	1-3 errors
Fair (R)	3	4-5 errors	4-5 errors	4-5 errors
Bad (M)	2	6-8 errors	6-8 errors	6-8 errors
Very Bad (MM)	1	More than 8 errors	More than 8 errors	More than 8 errors

Source: Taken from Regalado and Jiménez (2021).

6. Evaluation of the kicking techniques indicator: tuio yop chagui.

In this indicator tuio jump technique was carried out yop chagui. The maximum bonus to be awarded for the correct technical execution of the tuio yop chagui was five points, with a qualitative assessment of very good (Table 6).

Table composition of technical indicator tuio yop chagui kick of the Poomsae.

Qualitative and quantitative evaluation.

Table 6. - Evaluation criteria of technical indicator tuio yop chagui kick of the Poomsae

Quantitative qualitative analysis	Tuio yop chagui	kicking technique
Very good (MB)	5	Foot above head 180° _
Good B)	4	Foot at forehead level 160° _
Fair(R)	3	Foot at chin height 150
Bad (M)	2	Foot at chest height 140
Very Bad (MM)	1	Foot at 90° -140

Source: Taken from Regalado and Jiménez (2021).



Materials used for research

- Measurement recording protocol
- Pen
- Measuring tape
- Sony camera
- Asus Laptop. Software Kinovea 64 bit

RESULTS AND DISCUSSION

The results obtained in this study were analyzed in accordance with the methods and instruments used in the research and with the Cuban Taekwondo Federation, published by Jiménez *et al.* (2021).

The research results are:

1. Documentary review of the Comprehensive Taekwondo Athlete Preparation Program (Fernández, 2016).
2. Composition of the output tables of the selection indicators for high performance athletes in the free style poomsae.
3. Statistical results of the measurements of the seven indicators of athlete selection for high performance in the free style poomsae.

In the documentary review, it was found that in the Comprehensive Athlete Preparation Program (Fernández, 2016), a technical-methodological document that governs taekwondo throughout the country, it is not offered the coaches, in school sports initiation schools, the information required to carry out an effective selection process, in accordance with the current competitive demands of the poomsae modality in its free style event.



Due to these circumstances, different indicators were selected according to the competitive demands and the regulations of the sports modality of the WT International Poomsae Regulations (Arias, 2019).

Evaluated indicators:

1. Flexibility: central split, left split and right split.
2. Maintaining the leg extended in front and leg extended laterally executing tuio ap chagui .
3. Straddle jumps: center split jump, left split jump and right split jump.
4. Basic techniques: positions, blocks and strikes.
5. Technique kicks: kicking three consecutive techniques and kicking techniques with 540° turns.
6. Acrobatic elements: acrobatic technical element turn or 360° degrees, acrobatic technical element bell, acrobatic technical element front and back turns.
7. Technical indicator kicking tuio yop chagui of the poomsae.

Practical validation of the technical indicators proposed for the selection process for Sports Initiation Schools (Eide in Spanish) in the poomsae modality in their free style event (Table 7).

Results of the 7 indicators measured: flexibility of the lower limbs, maintenance of tuio ap chagui technique, acrobatic straddle jumps, basic techniques: positions, blocks and punches, three consecutive kicks technique, turn technique, acrobatics, and tuio yop chagui technique.



Table 7. - Descriptive statistics of selection indicators

Numb-poomsist	Flex	Maintenanc e	Leap Acrobati c	Basic techniqu e	Thre e kicks	Techniqu e with turn	acrobat ic s	tuio yop chagui techniqu e
1	14	11	12	15	3	2.7	4.9	3
2	6.5	6	8.3	12	3	2.7	3.7	1.5
3	2.5	2	5	1	3	1.3	.9	0
4	15	15	12	15	3	2.0	3.6	3.5
5	12	10	11	15	3	.7	.9	1
6	3	2	6	7	1	1.0	,5	0
7	14	10	7.8	14.5	2	2.0	1.3	1.5
8	15	12	9.3	15	1	1.8	3.2	3.5
9	14	5	9.5	14.5	2	2.2	,5	4
10	6.5	3	6	9.5	4	23	2.6	1
Minimum	2.5	2	5	1	1	0.7	0.5	0
Maximu m	15	15	12	15	4	2.7	4.9	4
Addition	102.5	77	86.9	115	25	18.7	22.1	19
Medium	10.25	7.75	8.69	11.85	2.5	1.87	2.21	1.9
Desv . typ	5.06	5.30	2.52	4.72	0.97	0.68	1.58	1.48

As seen in Table 7, the lower limb flexibility indicator presents an average value of 10.25 points, with the maximum value of 15 points and the individual score shows that the athletes named with the numbers 3, 6 and 10 have deficiencies in the complete execution of the pass of the central, left and right splits.

Another of the indicators measured is the maintenance of the tuio ap chagui technique, frontal and lateral, with an average value of 7.75 points, out of a total of 10 points, so this indicator is considered deficient in the athletes listed with 3, 6 and 10, this condition is repeated in the previous indicator of flexibility in the lower limbs, since this capacity determines the correct execution and maintenance of the ap chagui technique, in the form of poomsae.

In the indicators acrobatic jump in front, left and right straddle splits, and acrobatics, the results are presented on an average of 8.69 points, and 2.21 respectively, out of a maximum of 15 points and these are the two indicators with the highest difficulty; however, the athletes listed with 3, 6 and 10 have the lowest values and are evaluated as fair or poor.



The indicators acrobatic jumps and acrobatics are the ones with the highest scores according to the WT poomsae regulations, according to Arias (2019). Correct execution of these elements can ensure success in the competition.

In the indicators, three consecutive kicks and spinning technique kick, the highest score to be achieved is a total of five points for each of the indicators, the average of the three kicks was 2.5 and 1.9 points, the technique with turn with an average of 1.87, the greatest difficulty was in the athletes listed with 2, 6, and 8.

The greatest difficulties were found in kicking with one foot, where the *tuio yop chagui* technique is executed in the air, as well as in the kicking technique with turns; therefore, these two indicators were the most difficult, a product of the new demands of the free style program and it is where the most points are reduced due to incorrect execution, it is graded depending on the height of the kick and the complexity of the turn (Arias, 2019, p. 37-38).

Kicks with turns range from 360° to more than 720°, the higher the ° the turn, the higher the score and this is how the height measurement also behaves, since these must be performed at different heights, from the *montang* area to the height of the trunk to exceed the head (Idem).

In the basic technique indicator where the positions, blocks and hits constitute elements of traditional poomsae and are extrapolated to the choreography in free style poomsae, the result of the average of this indicator presents a value of 11.85 points, with very positive values.

Therefore, it can be summarized that, from a practical point of view, the proposed indicators constitute a feasible instrument to evaluate the fundamental technical elements of free style poomsae and flexibility as a determining capacity in the correct technical execution in this modality. All the indicators evaluated for the selection coincide with the aspects evaluated in the Poomsae Competitive Regulations in its free style event.



In this study, as in the research of the authors Malla and García (2022), the execution of the technical foundations of taekwondo, poomsae modality, was evaluated using observation sheets to generate a database and allow the construction of a methodological guide for the teaching-learning process of the contents of technical preparation. The research showed that the levels of execution of the technical foundations of this modality are fair.

In accordance with the scoring criteria of the poomsae competition regulations (2019), translated by Arias (2019, p 37-38), "Spinning kicks are proposed: leg techniques are scored from 360°, 540°, 720° and 900°".

Kicking with one foot depending on the height, that is, the degree (°) and the different phases through which it must go determine the score. Difficulties were also observed in the acrobatics test, with a higher degree of complexity in its execution, so the scoring criteria was based fundamentally on the performance of the requested elements and not on their technical level of execution, in accordance with the Regulations of poomsae competition, translated by (Arias, 2019), technical skills collect the highest score.

In general, the group of authors carried out a bibliographic review on the selection of talents in taekwondo, specifically in free style poomsae, and it was found that there are limitations in terms of normative selection indicators for sports initiation schools (Fernández, 2016; García *et al.*, 2022; Jiménez *et al.*, 2021; Lastres, Sánchez, Anoceto, 2022; Malla and García, 2022).

At the international level, research references address the issue of selection mainly in the kyorugi modality, but not in poomsae, in its two events, although it is a new modality and there is little research on the topic.

Therefore, the authors of the research report that the study is feasible and has practical applicability for the selection of high-performance athletes in the free style poomsae modality in Cuba and for the upcoming multidisciplinary games.



CONCLUSIONS

The results found and previously discussed allowed us to determine the indicators of competitive performance in the Poomsae modality in the free style event, in accordance with the current competitive demands of the WT.

The selection indicators defined and evaluated are: flexibility capacity (central, left lateral, right lateral splits) with an average of 10.25 points; kicking techniques (basic kicks, maintenance, kicks with a turn in the air) with average results of 2.5; 1.9 and 1.87 points; acrobatic jumps (stride jumps, left split jumps, right split jumps) and acrobatic elements with average results of 8.69 and 2.21 points.

The proposed technical indicators were validated in a practical way, through their execution by the selected sample and difficulties were found in specific indicators, due to the poor execution of the athletes in the defined elements.

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The authors declare not to have any interest conflicts.

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



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