PODIUM
Journal of Science and Technology in Physical Culture

UNIVERSITY EDITORIAL

Volumen 17
Issue 1

2022

University of Pinar del Río “Hermanos Saíz Montes de Oca”

Director: Fernando Emilio Valladares Fuente

Email: fernando.valladares@upr.edu.cu

ISSN: 1996–2452 RNPS: 2148
PODIUM Journal, *January-April 2022; 17(1):274-285*

UNIVERSIDAD DE PINAR DEL RÍO
HERMANOS SAÍZ MONTES DE OCA

PODIUM
REVISTA DE CIENCIA Y TECNOLOGÍA EN LA CULTURA FÍSICA

Translated from the original in spanish

Original article

The laterality importance in the dribbling development in basketball initiation

Importancia de la lateralidad en el desarrollo del dribling en la iniciación al baloncesto

Importância da lateralidade no desenvolvimento do driblem na iniciação do basquetebol

Juan Andrés Manangón Vinueza[1*] https://orcid.org/0000-0001-5518-0166

[1]Central University of Ecuador. Quito, Ecuador.

[*]Corresponding author: jamanangon@uce.edu.ec

Received:12/10/2021
Approved:16/02/2022.

How to cite ítem: Manangón Vinueza, J. (2022). The laterality importance in the dribbling development in basketball initiation/Importancia de la lateralidad en el desarrollo del dribling en la iniciación al baloncesto. *PODIUM - Journal of Science and Technology in Physical Culture*, *17*(1), 274-285. Retrieved from https://podium.upr.edu.cu/index.php/podium/article/view/1196

RESUMEN

La lateralización, al ser la preferencia motriz de un lado del cuerpo sobre el otro, tiene aplicaciones prácticas en los deportes, pues el control y potenciación del lado diestro y no diestro requieren de análisis previos y de estrategias específicas de desarrollo. En tal sentido, y como primer paso de la investigación, se propone como objetivo validar teóricamente a través de especialistas nacionales e internacionales una propuesta de indicadores de lateralidad a tener en cuenta en el entrenamiento del dribling del baloncesto de iniciación. La investigación es teórica-descriptiva, de orden correlacional y análisis cualitativo, estudiando los criterios teóricos emitidos por 13 especialistas nacionales de baloncesto (Grupo 1) y diez especialistas extranjeros (Grupo 2). De los nueve indicadores analizados, en 6 existieron diferencias significativas en los criterios emitidos por cada grupo independiente (LV: p=0.000; LH: p=0.000; LC: p=0.002; Pdi:

p=0.000; PE: p=0.000 y ME: p=0.001), con excepción de la Mano Dinámica (Mdi: p=0.648), mano director (MD: p=0.738) y el indicador mano no director (MnD: p=0.605). Todos los rangos promedios emitidos por los especialistas internacionales fueron mayores que en los especialistas nacionales, indicativo de que los primeros consideran de mayor importancia el entrenamiento de diversos indicadores de lateralidad en el dribling del baloncesto de iniciación. En tal sentido, se recomienda realizar un trabajo metodológico con los especialistas nacionales en función de mejorar la comprensión sobre la importancia del entrenamiento de la lateralidad en todas sus manifestaciones, especificando aspectos relacionados con el entrenamiento técnico y técnico-táctico, incluyendo el dribling como técnica fundamental.

Palabras clave: Lateralidad; Dribling, Baloncesto de iniciación.

ABSTRACT

Lateralization, being the motor preference of one side of the body over the other, has practical applications in sports, since the control and empowerment of the right-handed and non-right-handed side require previous analysis and specific development strategies. In this sense, and as a first step of the research, it is proposed as an objective to validate theoretically through national and international specialists a proposal of laterality indicators to be taken into account in the training of dribbling in initiation basketball. The research is theoretical-descriptive, of correlational order and qualitative analysis, studying the theoretical criteria issued by 13 national basketball specialists (Group 1) and ten foreign specialists (Group 2). Of the nine indicators analyzed, in 6 there were significant differences in the criteria issued by each independent group (LV: p=0.000; LH: p=0.000; LC: p=0.002; Pdi: p=0.000; PE: p=0.000 and ME: p=0.001), with the exception of the Dynamic Hand (Mdi: p=0.648), director hand (MD: p=0.738) and the non-director hand indicator (MnD: p=0.605). All the average ranges issued by the international specialists were higher than in the national specialists, indicating that the former consider of greater importance the training of various indicators of laterality in the dribbling of initiation basketball. In this sense, it is recommended to carry out methodological work with national specialists in order to improve the understanding of the importance of laterality training in all its manifestations, specifying aspects related to technical and technical-tactical training, including dribbling as a fundamental technique.

Keywords: Laterality; Dribbling; Initiation basketball.

INTRODUCTION

The different bibliographic sources consulted define bodily laterality as the motor preference of the frequent and effective use of one lateral half of the body over the other Ferré *et al*., (2000); Hurtado, Carrizosa (2002). The study of laterality applied to early childhood education and specialized physical activity implies the stimulation of motor activity on both parts of the body from early ages, so that the child acquires the necessary information to synthesize and make the choice of the preferred hand Rosales, Escalante, Lemus, (2017).

For the specific case of sport sciences, the study and improvement of body laterality involve developing the coordination capacity in different sports, taking into account their particularities, Dorochenko *et al,* (2018); González *et al.,* (2019); Morales, González,

(2015). These are integrated in the process of sports training management to improve the athlete's performance, which includes the control, manipulation and stimulation of the motor component, Gualdi-Russo *et al.,* (2019); Córdova *et al.,* (2021); Mayolas, (2011). On this basis, Bache and Orellana (2014) delimit that knowledge of the lateral preference of athletes can improve individual performance. Therefore, group performance on the playing field is fulfilled and in other contexts, as long as the correct actions are taken that should be trained as part of the sports planning model designed.

In cooperation-opposition sports, the coordination component plays an essential role, as it manifests itself in its totality in the technical-tactical performance of the athlete. (Morales, 2014; Calero, 2019). In the specific case of basketball, an eminently cooperative opposition sport, studies related to laterality include the characterization of the dominant parts of the body such as the work provided in Betancourt *et al.,* (2020). These analyses are aimed at school and youth reserves, which, according to Gualdi-Russo, *et al.,* (2019) emphasizes hand preference and performance in certain tasks performed in basketball. Works related to asymmetry to avoid the greatest performance and even injury deficits are also included (Mancha-Triguero *et al.,* 2019).

Laterality studies applied to basketball start from the comparison that characterizes the players, with players of other sports, Wang *et al.,* (2018). Here the basic and specific characteristics are recognized to establish specialized physical stimuli that allow the improvement of motor movement in the dominant and non-dominant limbs. An example of this is shown in the differentiation of performance levels and positions of the game, Versic *et al.,* (2021) or in the profiling of external workloads in multiple anatomical joints including laterality. In these results, decision making for the design of specific strategies for training and prevention of sports injuries is raised, Gómez-Carmona *et al.,* (2021). This originates because specific training involves curvilinear movements and high-intensity changes of direction in the game of basketball. This training is developed, especially because of the different motor patterns of each leg and arm according to the direction of the movement, as specified by the aforementioned authors.

Laterality is one of the essential elements to take into account in the training of sport technique, Marcin, (2020) as would be the case of dribbling in basketball, Gualdi-Russo *et al.,* (2019). This component is produced, given the need for the athlete to move with the dominant hand, although making constant changes that require both hands and the dominance of the non-dominant hand to perform feints or deceptions to the opponent. In this sense, training laterality in basketball has a similar importance to that provided by various authors in its applicability in different sports. However, a first step for the design of a training model in basketball, which prioritizes contents to develop laterality, would be to previously carry out a theoretical validation by national specialists. This serves as a theoretical and methodological basis for selecting or designing future laterality indicators to be taken into account in a specialized technical-tactical training, as defined by Chicaiza Jácome (2021). It is worth adding that the indicators used in this study were elaborated based on the Chicaiza-Jácome (2021) criteria.

In this case, of the technical-offensive training of the initiation soccer player, the objective of the research is to validate theoretically through national and international specialists a proposal of laterality indicators to be taken into account in the training of dribbling in initiation basketball.

MATERIALS AND METHODS

The research is theoretical-descriptive, of correlational order and qualitative analysis, based on the study of the theoretical criteria issued by 13 national basketball specialists and 10 foreign specialists (United States of America, Spain, Cuba and Puerto Rico). These selection criteria are related to the number of years of experience in the sport under study (ten years) and the national results with emphasis on initiation basketball.

In the study, several theoretical indicators stated in the introduction to this work were taken into account; here they are expanded and adapted to the characteristics of the sample presented, the description of these indicators is as follows:

1. Visual laterality (VL): as there are two lateral hemispheres, the potential of training the right and left eye is included.
2. Shoulder laterality (LH): of supposed importance for marking, feints and integral movement from a technical-tactical point of view.
3. Waist laterality (LC): includes the direction of rotation of the waist, the preferential being the most complete and balanced.
4. Dynamic leg (Pdi): fundamental leg to perform the technical movements of feint, conduction and translation.
5. Static leg (PE): non fundamental leg to perform the technical movements of feint, conduction and translation.
6. Dynamic hand (Mdi): fundamental hand to perform the technical movements of receiving, passing, ball control and placement.
7. Static hand (ME): non-fundamental hand to perform the technical movements of receiving, passing, ball control and placement.
8. Directing hand (MD): the hand with which the ball is preferably controlled.
9. Non-directional hand (NnH): the hand with which the ball is not preferentially controlled.

For the evaluation of the theoretical indicators, the specialists have been divided into two independent samples. (Group 1: National Specialists; Group 2: International Specialists), using a five-level Likert-type scale, assigning a quantitative and a qualitative value for each evaluation, as described below:

- 1 point: Bad.
- 2 points: More or less.
- 3 points: Good.
- 4 points: Very Good.
- 5 points: Excellent.

ISSN: 1996–2452 RNPS: 2148
PODIUM Journal, January-April 2022; 17(1):274-285

UNIVERSIDAD DE PINAR DEL RÍO HERMANOS SAÍZ MONTES DE OCA

PODIUM
REVISTA DE CIENCIA Y TECNOLOGÍA EN LA CULTURA FÍSICA

Since there is no normal distribution of the data, given the type of scale used, a nonparametric test for two independent samples will be used (Mann-Whitney U: $p \leq 0.05$), correlating and analyzing the data obtained in each analysis group.

RESULTS AND DISCUSSION

Table 1 shows the results issued by the two independent groups of specialists consulted, according to nine analysis indicators that allow the comparison and/or understanding of the importance given theoretically by each specialist (Table 1).

Table 1. - Evaluations by independent groups in each indicator of analysis

No	National Specialists									International Specialists								
	LV	LH	LC	Pdi	PE	Mdi	ME	MD	MnD	LV	LH	LC	Pdi	PE	Mdi	ME	MD	MnD
1	2	2	1	3	2	3	3	5	3	5	2	3	4	4	5	4	5	3
2	2	2	3	3	2	4	3	5	3	4	4	3	4	4	4	4	5	4
3	3	3	2	3	3	3	3	4	4	4	5	3	4	4	5	4	5	3
4	2	1	3	3	2	4	2	5	3	4	4	4	5	4	4	4	5	4
5	3	3	2	5	4	4	3	5	4	5	4	4	5	4	4	3	4	4
6	2	3	3	3	3	4	3	5	5	4	3	4	4	4	4	4	4	4
7	3	2	3	2	3	5	4	5	4	4	4	4	5	4	5	5	5	3
8	2	3	3	3	3	5	3	4	3	4	4	3	5	4	4	4	4	3
9	3	3	2	2	4	5	3	4	4	5	4	4	4	4	5	3	4	4
10	2	3	2	3	3	5	2	4	3	4	4	4	5	4	5	4	5	5
11	3	3	3	3	2	4	3	5	3									
12	3	3	2	4	3	5	2	5	3									
13	3	2	3	4	3	5	2	5	4									
	3	**3**	**2**	**3**	**3**	**4**	**3**	**5**	**4**	**4**	**4**	**4**	**5**	**4**	**5**	**4**	**5**	**4**

In the case of indicator 1, related to Visual Laterality, national specialists give it an approximate theoretical importance for its training of three points (Good), but international specialists have given it a rating of four points (Very Good), indicating a greater importance and, therefore, a higher priority in specialized sports training. In terms of significant differences, the Mann-Whitney U test (Table 2) shows significant results ($p=0.000$) in favor of the posttest, with a higher average rank (18.50) than that established for the national specialists (7.00).

The visual training in basketball players, according to Rodríguez-Castela, (2019) is more promising within the specialized sport, including basketball, for which the design of various contents of visual training in basketball is a recurring theme in different specialized training models. From here, in part, international specialists give greater importance to the time dedicated as part of training, including dribbling, which has a direct relationship with the development of the visual field (Naranjo-Morante, 2019). On the other hand, analyzing the results reached by Chicaiza-Jácome (2021) for the case of

soccer, there is evidence of a coincidence in the scores issued by the specialists that the mentioned author consulted with the results achieved in the present research. This is because the national specialists evidenced a lower score in visual training than that established by the international specialists. In view of these results, an integral analysis by national managers and methodologists is recommended in order to improve the knowledge related to visual training, with emphasis on initiation basketball.

For the case of indicator 2, related to the laterality of the shoulder, it is of importance in basketball for the performance of feints and throws of the ball, Betancourt *et al.,* (2020); Morales, Carrión Ponce, (2016). National specialists give it an average score of points 3.

(Good), as this score is logically higher in basketball than the one established in soccer by Chicaiza-Jácome, (2021). On the other hand, international specialists score it with an average of 4 points (Very Good) for the present rersearch, it behaves significantly different in favor of the posttest (p=0.000). Shoulder instability is a significant decreasing factor in the effectiveness of basketball throwing, Lu *et al.,* (2020). From all this, it can be deduced that a specialized physical and technical-tactical training can favor aspects related to the laterality of the motor movement of the shoulder, depending on the specialization required in basketball. This phenomenon causes the musculoskeletal system to adapt posturally from an early age, Guedes, João, (2014) Guedes, João, for example, for the realization of the dribbling technique in basketball.

In the case of indicator 3, related to the laterality of the waist, Betancourt *et al., (*2020) describe the importance it has for manual dominance and the preference for the turning side, which serves as a feint for passing the ball and deceiving the opponent in specialized technical-tactical actions of the sport. The present research evidences a low score of two average points, issued by the national specialists (More or less), while the international specialists grant a higher score of four points (Very Good), being significantly different in favor of the post-test (p=0.002), as there is a higher average range (Table 2: 16.90).

In the fourth indicator, related to the Dynamic Leg, the national specialists evidenced an average score of three points, while the international specialists evidenced a higher score of five points. Significant differences in favor of the post-test are shown here (p=0.000). The lower limbs from a technical-tactical point of view, in the case of basketball, have a lower relative technical-tactical importance compared to sports such as soccer. In part, the scores issued by the national specialists are lower by two points than those established in Chicaiza Jácome's (2021) research are. These data are very comprehensive from the point of view of the training priority of the laterality mentioned above. However, it is curious that international specialists give the highest score to the importance of the laterality of the dynamic leg in initiation basketball; perhaps this is justified given the importance of the directing foot in balance as a fundamental coordination capacity in basketball Álvarez *et al.,* (2021); Mejía Pérez, (2021). In addition to having, this process a transcendental importance in the rest of the physical capacities.

On the other hand, the fifth indicator (Static Leg), the national specialists score it with an average of three points (Good) and the international specialists with four points (Very Good), which is significantly different in favor of the post-test (p=0.000), as well as the comparison of the dynamic leg indicator.

In the sixth indicator, related to the dynamic hand, the national specialists score it with an average of four points (Very Good) and the international specialists with an average of five points (Excellent). From this perspective, there are no significant differences (p=0.648) in this indicator. National and international specialists statistically agree on the importance of training the laterality of the Dynamic Hand in introductory basketball. This should be reflected in the priority of technical and technical-tactical training of the basketball player, from early ages, in terms of time dedicated to the training of the dominant and nondominant hand, as mentioned by Gimeno, 2020. Likewise, the seventh indicator, related to the Static Hand, the national specialists score it with an average of three points (Good) and the international specialists with an average of four points (Very Good); a significant difference prevails in this case in favor of the international specialists (p=0.001). In this case, the training of the non-dexterous hand is an essential technical-tactical requirement in basketball, given the possibility of widening the player's motor repertoire and, therefore, widening the possibilities of technical and technical-tactical success. Dribbling is included as a technical element of basketball, which must be performed with dexterity in both hands, as it is shown in the specialized literature and the one provided in de Lanuza Arús del Río, (2002).

The director and non-director hand are the two final indicators of analysis for the present research, which are directly related to indicators 6 and 7 respectively. In the directing and non-directing hand, both national and international specialists did not show notable differences in the average score (5 points and 4 points respectively), and significant differences were not significant for both cases (p=0.738; p=0.605 respectively) shown in table 2. As Lanuza Arús del Río, (2002) state, dominating the ball in basketball with both hands offers additional technical-tactical possibilities, which are the basis for learning ball-handling techniques, Grigoriev, (1989), such as dribbling. In this sense, both national and international specialists are clear that the upper limbs are essential in the learning of ball handling techniques, which should be reflected in the time dedicated to the training of technical elements such as dribbling that accompanies the teaching-learning process in introductory basketball (Table 3).

Table 2. - Mann-Whitney U test

Ranges				
	Groups	N	Average range	Sum of ranks
DataLV	National Specialists	13	7,00	91,00
	International Specialists	10	18,50	185,00
	Total	23		
DataLH	National Specialists	13	7,73	100,50
	International Specialists	10	17,55	175,50
	Total	23		
DataLC	National Specialists	13	8,23	107,00
	International Specialists	10	16,90	169,00
	Total	23		
DataPdi	National Specialists	13	7,96	103,50

	International Specialists	10	17,25	172,50
	Total	23		
DataPE	National Specialists	13	7,77	101,00
	International Specialists	10	17,50	175,00
	Total	23		
Data di	National Specialists	13	11,42	148,50
	International Specialists	10	12,75	127,50
	Total	23		
DataME	National Specialists	13	8,04	104,50
	International Specialists	10	17,15	171,50
	Total	23		
DataMD	National Specialists	13	12,46	162,00
	International Specialists	10	11,40	114,00
	Total	23		
DataMnD	National Specialists	13	11,31	147,00
	International Specialists	10	12,90	129,00
	Total	23		

Table 3.- Test statistics[a]

	DataLV	DataLH	DataLC	DataPdi	SPE Data	DataMdi	DataME	DataMD	DataMnD
Mann-Whitney U	,000	9,500	16,000	12,500	10,000	57,500	13,500	59,000	56,000
W for Wilcoxon	91,000	100,500	107,000	103,500	101,000	148,500	104,500	114,000	147,000
Z	-4,190	-3,588	-3,323	-3,407	-3,753	-,517	-3,420	-,451	-,620
Asymptotic sign(bilateral)	,000	,000	,001	,001	,000	,605	,001	,652	,535
Exact significance [2*(sig. onesided)].	,000b	,000b	,002b	,000b	,000b	,648b	,001b	,738b	,605b

a. Grouping variable: Groups.
b. Not corrected for ties.

Once the data resulting from the research have been analyzed, it is recommended to use the present analyses as a theoretical and methodological basis to justify specific work actions to train aspects related to laterality in the Ecuadorian training environment. From this point of view, emphasis is placed on the teaching-learning process of dribbling in introductory basketball, as it is deduced that laterality is of great importance in the development of sports technique. Dribbling is highlighted as the basis of ball handling, given the clear lateralization of the motor functions of the hands and the precision of the movement Timofeyev, (2018).

CONCLUSIONS

International specialists consider that most of the indicators analyzed have a greater importance in technical and technical-tactical training, including dribbling as part of initiation basketball. In this sense, it is recommended to carry out methodological work with national specialists in order to improve the understanding of the importance of laterality training in all its manifestations, specifically, aspects directly related to technical and technical-tactical training, including dribbling as an essential element of basketball.

ACKNOWLEDGMENTS

To the Master's Degree Program in Sports Training of the Universidad Central del Ecuador.

REFERENCES

Arús, F. de L., & Río, J. A. del. (2002). *Metodología del baloncesto*. Editorial Paidotribo. https://books.google.com.ar/books?id=GuQNvW3Te1sC&printsec=copyright#v=onepage&q&f=false

Bache, M. A. B., & Orellana, J. N. (2014). Lateralidad y rendimiento deportivo. *Archivos de medicina del deporte: revista de la Federación Española de Medicina del Deporte y de la Confederación Iberoamericana de Medicina del Deporte*, *31*(161), 200-204. https://dialnet.unirioja.es/servlet/articulo?codigo=4780310

Betancourt González, J. C., Sánchez Córdova, B., Arias Moreno, E. R., & Barroso Padrón, E. (2020). Patrón de lateralidad en jugadores masculinos de baloncesto, reservas escolares y juveniles de La Habana. *Podium. Revista de Ciencia y Tecnología en la Cultura Física*, *15*(3), 449-459. http://scielo.sld.cu/scielo.php?script=sci_abstract&pid=S1996-24522020000300449&lng=es&nrm=iso&tlng=es

Calero Morales, S., & González Catalá, S. A. (2015). *Preparación física y deportiva*. http://repositorio.espe.edu.ec/jspui/handle/21000/10201

Córdova, B. S., Fuentes, A. R., Reyes, O. N., Madrigal, A. L., & Anoceto, M. M. (2021). Caracterización de patrones de lateralidad de esgrimistas cubanos de élite. *Acción*, *17*. http://accion.uccfd.cu/index.php/accion/article/view/156

Dorochenko, P. (2009). Interés de las lateralidades en el deporte. XXII Jornades de medicina de l'ésport del Bages, (págs. 1-18). Manresa. http://www.jmebages.cat/pdf/ponencies_09/CR2.pdf

Gómez-Carmona, C. D., Mancha-Triguero, D., Pino-Ortega, J., & Ibáñez, S. J. (2021). Multi-Location External Workload Profile in Women's Basketball Players. A Case Study at the Semiprofessional-Level. *Sensors*, *21*(13), 42-77. https://doi.org/10.3390/s21134277

González, L. F., Córdova, B. S., Madrigal, A. L., & Pérez, A. J. P. (2019). Estudio de patrones de lateralidad en el fútbol femenino: Un enfoque psicológico. *Lecturas: Educación física y deportes*, *24*(258), 9. https://dialnet.unirioja.es/servlet/articulo?codigo=7272961

Grigoriev, G. N. (1989). El baloncesto en la E.G.B.: Técnicas de conducción del balón. *Comunicación, Lenguaje y Educación*, *1*(2), 77-89. https://doi.org/10.1080/02147033.1989.10820886

Gualdi-Russo, E., Rinaldo, N., Pasini, A., & Zaccagni, L. (2019). Hand Preference and Performance in Basketball Tasks. *International Journal of Environmental Research and Public Health*, *16*(22), 43-36. https://doi.org/10.3390/ijerph16224336

Guedes, P. F., & João, S. M. A. (2014). Postural Characterization of Adolescent Federation Basketball Players. *Journal of Physical Activity and Health*, *11*(7), 1401-1407. https://doi.org/10.1123/jpah.2012-0489

Hurtado, P. V., & Carrizosa, M. V. (2002). *Los fundamentos teórico-didácticos de la educación física*. https://dialnet.unirioja.es/servlet/libro?codigo=124616

Jácome, C. A. C. (2021). El entrenamiento de la lateralidad en los fundamentos técnicos-ofensivos de futbolistas sub-12. Validación teórica. *PODIUM - Revista de Ciencia y Tecnología en la Cultura Física*, *16*(1), 114-124. https://podium.upr.edu.cu/index.php/podium/article/view/1004

Lu, Y., Okoroha, K. R., Patel, B. H., Nwachukwu, B. U., Baker, J. D., Idarraga, A. J., & Forsythe, B. (2020). Return to play and performance after shoulder instability in National Basketball Association athletes. *Journal of Shoulder and Elbow Surgery*, *29*(1), 50-57. https://doi.org/10.1016/j.jse.2019.05.035

Mancha, D., Gómez-Carmona, C., Santos, D., García, J., & Ibáñez, S. (2019). Comparative analysis of interlimb asymmetry in a RSA Test in basketball players. *Journal of Human Sport and Exercise*, *14*, S1499-S1502. https://doi.org/10.14198/jhse.2019.14.Proc4.8

Marcin, S. (2020). Effects of attentional focus on flying disc throwing accuracy in terms of lateralization and throwing technique. *Theory and Practice of Physical Culture*, *7*, 10-12. https://cyberleninka.ru/article/n/effects-of-attentional-focus-on-flying-disc-throwing-accuracy-in-terms-of-lateralization-and-throwing-technique

Mejia, N., & Pérez, B. Z. (2021). Estructura interna de la coordinación motriz de los movimientos de pies en ataque del baloncesto. *Retos*, *42*, 813-820. https://doi.org/10.47197/retos.v42i0.88511

Morales, S. C., Flores, N. C. C., & Guerrero, P. M. P. (2016). Incidencia de la atención en la efectividad de los tiros libres del baloncesto escolar. *Revista Internacional de Deportes Colectivos*, *26*, 101-120. https://dialnet.unirioja.es/servlet/articulo?codigo=7958183

Pi, C. M., Aparicio, A. V., & Masia, J. R. (2011). Lateralidad de miembro inferior y su relación con la distribución de las presiones plantares en el equilibrio estático. *Retos*, *20*, 5-8. https://doi.org/10.47197/retos.v0i20.34615

Piñeros Álvarez, J. L., Hernández Oñate, G. E., Arana Cruz, C., López-Salamanca, D. E., & Hincapie-Gallon, O. L. (s. f.). Características del pie y equilibrio dinámico en basquetbolistas juveniles colombianos. *Fisioterapia*. https://doi.org/10.1016/j.ft.2021.03.003

Rosales, J. J. P., Escalante, Y. G., & Lemus, E. P. (2017). Un enfoque teórico práctico contemporáneo de la lateralidad en edades tempranas y escolares (Revisi´on). *Revista científica Olimpia*, *14*(45), 113-127. https://revistas.udg.co.cu/index.php/olimpia/article/view/756

Sagues, V. C. (2000). *El desarrollo de la lateralidad infantil: Niño diestro, niño zurdo*. Lebón. https://books.google.com.cu/books/about/El_desarrollo_de_la_lateralidad_infantil.html?id=7KRmAAAACAAJ&redir_esc=y

Timofeyev, A. (2018). Comparison of indicators of physical and technical preparedness of basketball players 12th and 13th years old. Слобожанський науково-спортивний вісник, *63*, 98-101. https://www.researchgate.net/publication/323549400_Comparison_of_indicators_of_physical_and_technical_preparedness_of_basketball_players_12th_and_13th_years_old

Versic, S., Pehar, M., Modric, T., Pavlinovic, V., Spasic, M., Uljevic, O., Corluka, M., Sattler, T., & Sekulic, D. (2021). Bilateral Symmetry of Jumping and Agility in Professional Basketball Players: Differentiating Performance Levels and Playing Positions. *Symmetry*, *13*(8), 13-16. https://doi.org/10.3390/sym13081316

Wang, W.-C., DeLang, M., Vittetoe, K., Ramger, B., Hilbig, S., & Appelbaum, L. G. (2018). Laterality Preferences in Athletes: Insights from a Database of 1770 Male Athletes. *American Journal of Sports Science*, *6*(1), 20. https://doi.org/10.11648/j.ajss.20180601.14

Conflict of interest:
The authors declare that they have no conflicts of interest.

ISSN: 1996–2452 RNPS: 2148
PODIUM Journal, *January-April 2022; 17(1):274-285*

UNIVERSIDAD DE PINAR DEL RÍO
HERMANOS SAÍZ MONTES DE OCA

PODIUM
REVISTA DE CIENCIA Y TECNOLOGÍA
EN LA CULTURA FÍSICA

Authors' contribution:

Juan Andrés Manangón Vinueza: Conception of the idea, literature search and review, instrument making, instrument application, compilation of information resulting from the instruments applied, statistic análisis, preparation of tables, graphs, and images, database preparation, general advice on the topic addressed, drafting of the original (first version), review and final version of the article, article correction, authorship coordinator, translation of terms or information obtained, review of the application of the applied bibliographic standard