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The effect of exercises using the mini-trampoline device on some kinetic abilities and combined offensive skills for players in handball specialized centersHaider Abdul Wahid Globe ⁽¹⁾ ✉, Hassanein Abdel Kazem Fairouz ⁽²⁾ ✉, Ammar Abdel Hussein Abdel Amir ⁽³⁾ ✉

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Abstract

The trampoline tool is considered one of the modern and exciting means that is characterized by aesthetic character and precision through coordinated movements in kinetic performance. The spread of this tool in the modern era has great importance in most physical and kinetic abilities, which combines excitement and suspense in exercises, and many exercises similar to playing with the trampoline tool. It contributes to increasing the motivation of these boys, and therefore they will make a lot of effort and with a strong will to achieve the best possible level of performance during the game. Through the observation of researchers and their field experiences in clubs and training centers, they noticed that the training units for players of age groups in most institutions lack modern training methods and therefore they lose their spirit of excitement and suspense, especially if the methods used are traditional and with the same frequency of daily exercises. Thus, the researchers prepared exercises using the mini-trampoline tool for handball players and the extent of its effect on the kinetic abilities and offensive skills combined with handball. The researchers used the experimental method by designing two equal groups (experimental and control). The same pre- and post-tests. Pre-tests were conducted on the research sample (14) in the Kufa Sports Club hall, where the exercises were carried out using a trampoline device in (24) training units for a period of two months, where the exercises were mixed with kinetic skills and abilities, and after completing the exercises used and with the same steps. Conditions: The researchers conducted post-tests for obtaining the best results. The researchers concluded that the process of combining kinetic abilities and combined offensive skills during trampoline exercises contributed significantly to the development of combined offensive skills for the experimental group. This achieves one of the sustainable development goals of the United Nations in Iraq, which is (the use of modern training methods, including the trampoline device, contributes to developing the kinetic capabilities and offensive skills of handball players aged 14-16 years).

Keywords

trampoline, kinetic abilities, offensive skills combined in handball.

Introduction:

The development taking place in all areas of life is an inevitable result of the efforts of specialists and researchers in these fields in order to advance them, and the sports field is one of the fields covered by development and advancement. Among the sports games that have enjoyed a share of development is handball, which is one of the team games that requires its players to have a high level of individual and group performance in order

to achieve the best level of performance, especially when the players have good kinetic abilities and in order to develop kinetic abilities. It is necessary to study the appropriate kinetic capabilities of age groups that are consistent with the requirements for performing basic handball skills. Increasing training by coaches on combined skills similar to playing situations helps improve the kinetic and skill capabilities of players, as players need modern training methods that create

a spirit of excitement and motivation. They have to create a competitive atmosphere among players through practicing and applying practical exercises for basic skills. The trampoline tool is considered one of the modern and exciting means that is dominated by aesthetic character and precision through coordinated movements in kinetic performance. The spread of this tool in the modern era has great importance in most physical and kinetic abilities, which mixes excitement and suspense in exercises, and the abundance of exercises similar to playing with the trampoline tool contributes It increases the motivation of these boys, and therefore they will make a lot of effort and a strong will to achieve the best possible level of performance during the game. Hence the importance of the research, through preparing exercises using the mini-trampoline device and knowing its effect on the kinetic abilities and performance of some combined offensive skills among the players of the handball specialized centers. Research problem: Through the observation of researchers and their field experiences in clubs and training centers, they noticed that the training units for players of age groups in most institutions lack modern training methods and thus lose their spirit of excitement and suspense, especially if the methods used are traditional and with the same frequency of daily exercises. Researchers may believe that exercises Traditional exercises are useless in the main work with age groups, and since working with these groups requires fun and joy and not repeating the same exercises that prevail in the training process, therefore exercises with a trampoline tool were used and combined with kinetic abilities for the purpose of developing them with the basic combined offensive skills for players of the handball specialist centers. . The research aims:

Preparing exercises using the mini-trampoline device for players in handball specialist centers. Thus, identifying the effect of exercises using the mini-trampoline device to develop some kinetic abilities and combined attacking skills for players in handball specialist centers. The researchers assume that trampoline exercises have a significant effect on developing some kinetic abilities and combined attacking skills for players in handball specialist centers. Areas of research: The human field, the players of the specialized centers in the governorates of the Middle Euphrates for the 2022/2023 sports season. As for the time field: the period from 29/9/2022 until 10/1/2023 in the Kufa Sports Club hall, as for the spatial field.

Method and procedures:

The researchers used the experimental method by designing two equal groups (experimental and control) with pre- and post-tests. The research population was determined by the players of the specialized handball centers aged (14-16) years affiliated with the Iraqi Handball Federation in the governorates of the Middle Euphrates, who numbered (73) players. The research sample was selected randomly (lottery) from the sub-specialized center affiliated to the governorate. Najaf, which numbered (24) players, and after excluding goalkeepers and players not committed to the training units, as well as the exploratory experiment players, the research sample consisted of (14) players distributed into two groups (experimental and control). For the purpose of verifying the homogeneity and equality of the two groups, the researchers did some Procedures to control extraneous variables. Which may affect the application of exercises using a trampoline, which appeared in Tables (1) and (2).

Table .1 shows the homogeneity of the research sample regarding extraneous variables

Variables	Measuring unit	Mean	Std. Deviations	Skewness
Length	Cm	165.644	2.154	0.020
Mass	Kg	57.247	1.165	0.014-
Age	Year	15.133	0.834	0.264 -
Training age	Year	3.143	0.986	0.011-

Table .2 shows the equivalence between the two research groups (experimental and control)

Variables	Measu	Control group	Experimental group	T value	Level sig	Type sig
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	ring unit	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation	Calculated		
Moving balance	Second and its parts	12.745	1.468	12.681	1.276	0.087	0.932	Non sig
Agility	Second	29.56	1.61	29.38	0.99	0.436	0.669	Non sig
Compatibility	Second	8.975	0.64	8.860	0.60	-0.57	0.665	Non sig
Passing and receiving	Count	21.571	1.718	21.285	1.112	0.369	0.718	Non sig
Receiving and then shooting	Degree/time	0.051	0.019	0.050	0.016	0.030	0.944	Non sig
Deception and then shooting	Degree/time	0.035	0.016	0.035	0.013	0.072	0.944	Non sig

As for the research tools and devices, a trampoline tool - a video camera with a speed of (180 p/s) - an HP laptop computer - a manual electronic stopwatch - a height and weight measuring device - a whistle - an adhesive measuring tape for planning the field and determining the testing areas - legal handballs of different sizes - Floor rug.

Tests used in the research:

Test of compatibility between the eyes and legs and agility test (SIMO test). (6)

Balance test: measuring moving balance on the platform. (4).

The tests used for combined offensive skills were chosen

Passing and receiving test: measuring the speed of passing and receiving the ball (2).

As for the test of deception, then shooting - receiving, then shooting) the tests used were from the Handball Quartet by the author (Ismail and Hassanein) (7).

Exploratory experience:

Exploratory experiments are important to learn about the method of measuring research variables and their requirements, as well as the performance and suitability of the exercises used on the trampoline for the purpose of identifying the

difficulties that the researcher may face during the main experiment. The researchers conducted exploratory experiments for two days, Friday and Saturday, corresponding to 14-15/10/2022. On a sample of (5) players from the main experiment.

After conducting the exploratory experiment, the researchers conducted pre-tests on the research sample, which numbered (14) players, representing the two groups (control and experimental), after which the exercises were carried out using the trampoline device, from 28/10/2022 until 17/12/2022, with (24) training units. It contains (3) days a week (Tuesday - Friday - Saturday). The exercises were at an intensity ranging between 70-80%, and a time ranging from (25-30) minutes in one training unit in the main section and in the special preparation stage, and after completing the exercises used and with the same steps and conditions under which the tests were conducted (approximately). The researchers conducted post-tests to obtain the best results. Research. The statistical methods used are the arithmetic mean and the standard deviation. Skewness coefficient. T-law for independent samples. T-law for non-independent samples.

Results:

Table .3 shows the results of the differences between the pre- and post-tests for the control and experimental groups

Variables	Groups	Pre-test	Post-test	T value	Level sig	Type sig
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		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Moving balance	Control	12.745	1.468	11.846	1.265	2.154	0.214	Non sig
	Experimental	12.681	1.276	10.458	0.598	6.413	0.010	Sig
Agility	Control	29.56	1.61	29.13	1.519	5.587	0.014	Sig
	Experimental	29.38	0.99	27.050	0.822	9.447	0.000	Sig
Compatibility	Control	8.975	0.64	8.084	0.381	4.782	0.040	Sig
	Experimental	8.860	0.60	7.650	0.492	7.145	0.000	Sig
Passing and receiving	Control	21.571	1.718	23.362	0.871	4.984	0.014	Sig
	Experimental	21.285	1.112	24.574	0.236	5.547	0.000	Sig
Receiving and then shooting	Control	0.051	0.019	0.78	1.365	7.055	0.001	Sig
	Experimental	0.050	0.016	0.089	0.478	5.269	0.000	Sig
Deception and then shooting	Control	0.035	0.016	0.055	1.001	3.255	0.035	Sig
	Experimental	0.035	0.013	0.071	0.074	6.058	0.004	Sig

Discussion:

It appears from Table (3) that there were significant differences for the control group in all variables investigated except for the balance test. The significant difference did not appear. The researchers attribute that the reason may be due to the exercises used by the trainer. Not enough exercises are given to develop the balance element that contributes to the development of balance dynamic, as well as not using assistive devices such as the trampoline to improve their balance. What significant differences did the researchers obtain? They attribute this significant difference to the nature of the exercises that were used by the trainer. This indicates that the trainer follows his own method, as the exercises had a significant effect on the tests. The dimensionality is that the approach followed by the coach is subject to scientific foundations, in addition to the coach's experience in this field, and this is what the researcher agrees with the opinion of (Abdel Wahab Ghazi Hamoudi), "The use of exercises that are consistent in the nature of their performance with the general form of performing basic offensive skills and physical kinetic abilities that leads to Better results are acquired. (3). (Mufti Ibrahim Hammad) points out (that among the skills that serve to prepare players are the basic skills, which are appropriate in their composition to the performance level of the

players and which serve two goals at the same time, kinetic and skill, and then gradually become more difficult over time) (8). We also see that the training curriculum the approach followed by the coach took into account the important kinetic abilities along with all the basic attacking skills in the specificity of the game. As for the absence of a significant difference in the ability of moving balance on the platform.

As for the discussion of the experimental group: It is clear from Table (3) that the post-test outperformed the pre-test for all the variables studied, as the calculated T value was greater than its tabulated value. This indicates that there are significant differences in all post-tests, and the researchers attribute the reason for this to the significant effect of the experimental group. In the post-test, it is due to the use of the mini-trampoline device that the researchers will use in their exercises. In addition, the difference that occurred between the pre- and post-measurements of the experimental group, and in favor of the post-measurement, is due to the diversity in the exercises and the departure from traditional exercises for the purpose of increasing the suspense, excitement, and motivation of the players in order to increase Their readiness, and this means that the researchers relied on the philosophy of increasing repetition and practicing in a varied manner throughout the period of

exercises on the trampoline. The more repetition and practice increase, the greater their fluidity of kinetic abilities and a high level of balance, agility and coordination appear. This opinion is

consistent with what Abdel Ali Nassif stated, quoted by (Owen, Bandelark), where he stated that “programmed exercise has a significant impact on developing performance.” (10)

Table .4 shows the results of the post-tests of the control and experimental groups for kinetic abilities and combined attacking skills in handball.

Variables	Measuring unit	Control group		Experimental group		T value Calculated	Level sig	Type sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Moving balance	Second	11.846	1.265	10.458	0.598	7.166	0.000	Sig
Agility	Second	29.13	1.519	27.050	0.822	5.396	0.001	Sig
Compatibility	Second	8.084	0.381	7.650	0.492	6.117	0.000	Sig
Passing and receiving	Count	23.362	0.871	24.574	0.236	4.548	0.003	Sig
Receiving and then shooting	Degree/time	0.78	1.365	0.089	0.478	3.658	0.012	Sig
Deception and then shooting	Degree/time	0.055	1.001	0.071	0.074	7.264	0.000	Sig

Discussion of the significance of the differences between the two groups in the post-tests.

According to the statistical results reached by the experimental group in the post-post test, compared with the results of the control group for kinetic abilities and combined offensive skills, the researchers attribute these significant differences to a preference for the experimental group in the development of basic offensive skills. The researchers attribute the reason for this development to the development of kinetic abilities. With the trampoline tool, which in turn led to the development of the basic skills of handball players, and this is what (Qasim Lazam Sabr) confirmed: “Whoever has a level of kinetic abilities will help in developing basic skills.” (5), and (Ashraf and Hisham) mention that the exercises used the mini-trampoline “is one of the aids used in teaching and training most sports” (1), as it contains exercises that combine several kinetic components with combined attacking skills. In addition to developing the basic skills in the game of handball, you need precision in performing the exercises so that the training unit must have combined, qualitative and well-studied

objectives, and its difficulty levels are compatible with the level of the research sample members. (Makram Saeed Al-Saadoun) pointed out the importance of kinetic abilities: “The individual’s possession of a high level of kinetic abilities helps to successfully practice many sports activities. Kinetic abilities participate in developing and improving kinetic skills.” (9). Researchers also believe that the reason for the difference between The two groups are due to the nature of the exercises to which the research sample was exposed during the training units, which was represented by the mini-trampoline tool that was adopted by the members of the experimental group, as the nature of the exercises was prepared by the researchers and included many things that were consistent in achieving the goal to be developed, by integrating the exercises kinetic abilities with offensive skills. This is what gives the players excitement and suspense, and thus is reflected in the development of their kinetic and skill capabilities when carrying out their training duties, which led to better results in the post-tests, and this is what (Daaely BD,Otey) indicated: “Using a trampoline is a new way to train fitness

elements.” Physical fitness, which has become popular over the past few years, focuses on using full-body instability to build strength, ability, flexibility, and coordination in its exercises” (11) As it is mentioned in the similar studies (12) & (13)

Conclusions:

- The process of combining kinetic abilities and combined offensive skills through trampoline exercises contributed significantly to developing the combined offensive skills of the experimental group.
- The change and diversification in trampoline exercises contributed greatly to the superiority of the experimental group.
- Regular exercises led to an improvement in the kinetic abilities and basic attacking skills of the control group players, but at a small rate compared to the experimental group players.
- Completing the exercises using the mini-trampoline from easy to difficult, re-doing them intensively, and then repeating them in reverse from difficult to easy contributed greatly to the superiority of the experimental group over the control group.

Recommendations:

Within the framework of the conclusions reached, the researchers developed a set of recommendations:

- Necessity of using modern training methods in trampoline exercises to develop kinetic abilities and basic attacking skills for young age groups and up to the rest of the groups.
- Focus on trampoline exercises being similar to performing kinetic skills in handball.
- Coaches must pay attention to all kinetic abilities and basic offensive skills in handball during the initial learning stages and give exercises at levels appropriate to their ages.
- Conducting studies and research exercises that include the use of mini-trampolines in other team sports events and games.

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Appendix (1)**A sample of exercises on a trampoline****Exercise (1): Consensus + Deception then Correction:**

The player jumps onto the trampoline, then gets down on the ground, then makes a simple trick between the blocks, then shoots at the goal. Training size (6*3) - Training unit time: (9) minutes

second exercise: balance exercises + passing and receiving:

The player jumps onto the trampoline, then receives the ball over the trampoline base, then lands on the ground and passes the ball to a teammate, once leading from the left side and again from the right side. Training size (5*3) - Training unit time: (8) minutes

Third exercise: agility + receiving then shooting:

The player jumps onto the trampoline while changing body directions so that he performs repetitions specified by the coach, then receives and shoots at the goal. Training size (6*3) - Training unit time: (9) minutes

Fourth exercise: Shooting from the run exercise:

The player stands on the trampoline, and then dribbles the ball, and after hearing the whistle from the coach, he jumps forward and then shoots at the goal. Training size (5*3) Training unit time: (8) minutes

تأثير تمارين باستخدام اداة الترامبولين المصغر في بعض القدرات الحركية والمهارات الهجومية المركب للاعبين**المراكز التخصصية لكرة اليد**

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3 المديرية العامة لتربية النجف

تعتبر اداة الترامبولين "من الوسائل الحديثة والمشوقة يغلب عليها الطابع الجمالي والدقة من خلال الحركات المتناسقة في الأداء الحركي فانتشار هذه الاداة في العصر الحديث لها أهمية كبيرة في اغلب القدرات البدنية والحركية والتي تمزج بين الاثارة والتشويق في التمارين , وان الاكثار من التمارين المشابهة باللعب باداة الترامبولين تسهم في زيادة الدافعية لهؤلاء الفتيه, وبالتالي فإنهم سوف يبذلون الكثير من الجهد وبارادة قوية لتحقيق افضل مستوى ممكن من الاداء خلال اللعب, ومن خلال ملاحظة الباحثون وخبراتهم الميدانية في الاندية والمراكز التدريبية لاحظوا ان الوحدات التدريبية للاعبين الفئات العمرية لاغلب المؤسسات تفتقر الى الوسائل التدريبية الحديثة وبالتالي تفقد روح الاثارة والتشويق لديهم وخاصة اذا كانت الوسائل المستخدمة تقليدية وبنفس تكرار التمارين اليومية وبذلك قاموا الباحثون باعداد تمارين باستخدام اداة الترامبولين المصغر للاعبين كرة اليد ومدى تأثيرها على القدرات الحركية والمهارات الهجومية المركبة لكرة اليد , واستخدموا الباحثون المنهج التجريبي بتصميم المجموعتين المتكافئتين (التجريبية و الضابطة) ذات الاختبارين القبلي والبعدي. تم إجراء الاختبارات القبليّة على عينة البحث البالغ عددهم (14) على قاعة نادي الكوفة الرياضي، حيث تم تنفيذ التمارين باستخدام اداة الترامبولين بواقع (24) وحده تدريبية ولمدة شهرين , حيث كانت التمارين ممزوجة مع المهارات والقدرات الحركية, وبعد الانتهاء من التمارين المستخدمة وبالخطوات نفسها والظروف اجري الباحثون الاختبارات البعدية لغرض الحصول على أفضل النتائج. حيث توصل الباحثون إلى أن عملية المزج بين القدرات الحركية والمهارات المركبة الهجومية خلال التمارين الترامبولين ساهم بشكل كبير في تطوير المهارات الهجومية المركبة للمجموعة التجريبية. وهذا يحقق احد اهداف التنمية المستدامة للامم المتحدة في العراق وهو(ان استعمال الوسائل التدريبية الحديثة ومنها اداة الترامبولين تسهم في تطوير القدرات الحركية والمهارات الهجومية للاعبين كرة اليد بأعمار من 14- 16 سنة)

الترامبولين، القدرات الحركية، المهارات الهجومية المركبة لكرة اليد.

الكلمات المفتاحية