International Journal of Psychosocial Rehabilitation, Vol.24, Issue 01, 2020
ISSN: 1475-7192

(The effect of an educational curriculum with aids in teaching and development Technical performance of direct free kick and some variables Biomechanical age (15 years old)

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ABSTRACT

The educational curriculum that includes exercises for aids means a great importance in the numbers of the player physically and skillfully, especially beginners, with its characteristics to prepare the athletes as the importance of special exercises lies in the participation of the largest possible number of muscles while improving skills and gaining the linkage of movement parts and that the most important benefit of exercises for aids. It can expand the perception of the player, especially if those exercises for the auxiliary means are prepared players according to the biomechanical variables that contribute to the success of the technical performance in a large way, as organizing the exercises, using scientific methods and investing educational methods based on the correct foundations is the scientific approach that is intended to raise the educational level And achieve the goals of the educational process.

.***Key words*** *(educational curriculum, aids, technical performance, biomechanical variables).*

The importance of the research was demonstrated by the fact that the special exercises that are built according to correct, objective and sound scientific foundations within the physical and mental capabilities of football players at the age of (15) years have a great impact in accelerating the process of education for sports skills, including the technical performance of the direct free kick, which constitutes a milestone in the outcome of the match. In addition to the inclusion in the educational units of special exercises with aids that help to control the biomechanical variables (biochemical and biochemical) and thus shorten the effort and time, this is what researchers seek in his study, which contributes to achieving a better technical level in performance for this age group and put it in front of trainers and workers in this The field for improving the level of performance of this mathematical skill, and then adopting exercises for the aids to the teaching and training process.

As for the research problem, the researchers demonstrated the follow-up of many educational units in the specialized school in football in the district of Al-Nasiriya. He noticed a weakness in the technical performance of the free direct kick among the players due to the lack of use of exercises for the aids and a weakness in the methodology of the exercises used according to some biomechanical variables on the basis of Accurate scientific concepts that target this age group (15) years, which also requires focusing on learning the correct performance of a direct free kick and fixing it to reach better technical performance, which collectively work to improve performance and accuracy.

1- Introducing research

1-1 Introduction and importance of research:

Football game has witnessed great progress and rapid spread, and it is one of the games that has occupied a position among other games and the game has become one of the games that examine its multiple skills widely and based on

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several sciences, including biomechanics, physiology, sports psychology, dynamic learning, sports training, and coaches turned in preparing players since childhood to reach the stage of mastery and proficiency in the completion of the vocabulary of the game, including teaching the technical performance of a direct free kick in football and emphasizing it during its learning and during training by relying on mechanical aspects, especially with regard to biomechanical variables from angles and speeds, reaction strength and others, which The basis for the success of this skill, which is the skill of free direct kicking and the accuracy of its implementation, is one of the aspects of speed, strength, accuracy, and this will come to us through the result of education and using special exercises by means of aids that give us the final vision and to know the correct performance, and through what has been mentioned, the importance of research lies in studying some Biomechanical variables of the direct free kick, the internal foot, and the role of the educational curriculum included Special exercises by means of aids in the education process and improving the skill of direct free kicking in terms of accuracy, thrust and speed for this age group, and through the foregoing, the importance of research lies in the fact that the special exercises that are built according to sound and sound scientific foundations within the physical and mental capabilities of football players of a lifetime (15) A year that has a major impact on the acceleration of the process of education for mathematical skills, including technical performance, which constitutes a milestone in the outcome of the match, in addition to the inclusion of educational units special exercises by means of help that help to control the biomechanical variables (biochemical and biocentical) and thus shortens the effort and time, and this is what seeks to The researchers have a mechanism in his study which contributes to achieving a better technical level in performance for this age group and placing it in front of trainers and workers in this field to improve the level of technical performance and then adopting the educational curriculum that includes exercises for the aids in the process of education and training.

1-2- Research problem:

The direct free kick is one of the skills that need to improve the muscular nervous compatibility and accuracy in performance and this requirement is difficult to achieve with such age groups, depending on the traditional means that do not take into account the biomechanical properties and from here the researchers decided to put the form of performance and accuracy in the direct free kick for this age group (15) years through relying on the biomechanical foundations to improve the kinetic characteristics of the direct free kick, as the researchers, through their observation, did not see during the teaching of the direct free kick the use of special exercises by a variety of auxiliary means according to the biomechanical foundations in a large way that aims to improve performance and the result of technical performance and accuracy Performance, and all of these reasons prompted the researchers to carry out this study through preparing an educational curriculum that includes exercises specific to auxiliary means based on the correct mechanical foundations to raise the level of the educational unit

And through it develop the level of education for players.

1-3- Research Objectives:

1. Preparing an educational curriculum that includes special exercises by means of assisting in the technical performance of direct free kicks according to the values of some biomechanical variables for ages 15 years in football.
2. Identify the effect of the educational curriculum that includes exercises for assistive methods, according to the values of some biomechanical variables in teaching the technical performance of a direct free kick in football for ages (15) years for the experimental group in pre and post tests.
3. Identify the differences in the level of scoring accuracy in the post-test between the two research groups (control and experimental).

1-4- Research hypotheses:

1. There are statistically significant differences between the pre and post tests in teaching the skill of the technical performance of direct free kicks in football and the values of some biomechanical variables of the experimental group and in favor of the post-tests of the experimental group.
2. There are statistically significant significant differences and values of some biomechanical variables for the post-dimensional tests for the control and experimental groups and for the benefit of the experimental group.

1-5- Research fields:

1-5-1 The human field: Players of the specialized school in Nasiriyah for the sports season (2018-2019) in football at the age of (15) years.

1-5-2- Timeline: From 25/12/2018 to 25/7/2019.

1-5-3- Spatial domain: The Specialized School Stadium in Nasiriyah.

2- Research Methodology and Field Procedures:

2-1-Research Methodology:

The two researchers used the experimental approach with two groups equal (control and experimental) to suit the nature of this study and its objectives.

2-2- Research Society and its Sample:

The research community determined that the specialized school players in Dhi Qar Governorate were (30) players aged 15 years. The same sample included (20). The sample that was chosen in the intentional way represented a percentage of (66.66%) of the original community. It was divided into two experimental and control groups by (10)

players for each group. The experimental variable represented by special exercises and aids to the experimental group was entered. As for the control group, it was based on the usual method by the coach.

2-2-1- Consistency

In order to control some of the variables that affect the accuracy of the research results, and in order to return the differences in the effect only to the independent variable, we must ensure the homogeneity of the research sample in variables (length, mass, leg length, and age), and the researchers used the coefficient of variation to make homogeneity of a sample Research, as shown in Table (1)

Table (1)

The mean, standard deviation and coefficient of variation in the study variables

Height, mass, leg length, chronological age

The sequence	Variables	measuring unit	Arithmetic mean (x)	Standard deviation) p(+	Coefficient of variation
1	Length	Cm	151.16	5.76	%3.81
2	Bloc	Kg	48.5	2.818	%6.06
3	Leg length	Cm	74.6	3.762	%3.51
4	Chronological age	Month	167.10	6.031	3,69%

* All difference coefficient values were less than 30%, which indicates the consistency of the sample in the above variables

All values of the difference coefficient are less than (30)%, and it is mentioned that whenever the difference coefficient is closer to (1)%, the homogeneity is high, and if it exceeds (30)%, it means that there is a dispersion, and thus the research sample at the age of (15) years is homogeneous in these variables)]1 [(

2-2-2 Equivalence:

For the purpose of ascertaining the equivalence of the two research groups in the research variables, the two researchers performed the equivalence using the law (t) for independent samples and a table (2) shows that.

Table (2)

Equivalence of the research sample is shown for the experimental and control groups

T	Variables	measuring unit	the group Experimental		the group Control		Differences between circles	Value of t Calculated	Significance level	The result
			s	P+	s	P+				
1	Approach angle	Degree	69.10	4.70	67.888	4.10	1212	0.447	0.660	Not significant
2	The angle of inclination of the body the moment the ball is kicked	Degree	13.85	1.833	15.05	2.11	2 .0	0.95	0.121	Not significant
3	The relative angle of the knee at the moment of kicking the ball	Degree	145.80	8.30	148.222	9.30	2.32	1.100	0.287	Not significant
4	The angled velocity of the kicked leg	M. S	321.77	13.25	331.874	15.886	10.104	0.638	0.478	Not significant
5	The height of the center of body mass the moment the ball is kicked	meter	0.718	0.018	0.760	0.023	0.042	1,000	0.332	Not significant
6	Football contact time	S	0.0124	0.002	0.013	0.001	0.0006	0.652	0.458	Not significant
7	Speed of the	M / t	13.55	2.73	15.458	08 . 2	1.908	0.440	0.675	Not significant

	starting ball									
8	**The starting angle of the ball**	**M**	**32.6**	**3.14**	**36.21**	**6.5**	**3.61**	**1.42**	**0.271**	**Not significant**
9	**The distance between the foot and the center of the ball**	**Cm**	**12.2**	**1.06**	**11.3**	**0.3**	**0.9**	**1.453**	**0.32**	**Not significant**
10	**Maximum strength for footing**	**Net**	**620.02**	**38.87**	**615.83**	**46.29**	**4.19**	**0.223**	**0.9185**	**Not significant**
11	**Force arrival time**	**S**	**0.170**	**0.010**	**0.175**	**0.011**	**0.005**	**0.523**	**0.677**	**Not significant**
12	**The maximum pressure of the bearing foot**	**Net / cm^2**	**95.600**	**7.405**	**96.163**	**6.090**	**1.562**	**0.333**	**0.918**	**Not significant**
13	**Accuracy of scoring**	**Degree**	**36**	**8.43**	**34**	**6.43**	**2**	**0.318**	**0.754**	**Not significant**
14	**Technical performance**	**Degree**	**4.20**	**0.788**	**4.10**	**0.567**	**0.1**	**0.325**	**0.749**	**Not significant**

*Significant at the significance level (0.05) and in front of the degree of freedom (18)

It is clear from Table (2) that the calculated value (t) of all research variables has a level of significance greater than (0.05), which indicates that there are no significant differences and this means that the two groups are equal in the search variables.

2-3 Means, tools and devices used in the research:

2-3-1- Ways to collect information:

Arab and foreign sources – tests and measurement – questionnaire form – information network (Internet) – personal interviews – observation and experimentation.

2-3-2- Auxiliary tools and devices:

(1) Japanese-made Casio Xlem video camera, 2 hp laptop, Foot scan, 25m tape measure, football field, number of footballs (10) Hand Whistle, number (2), characteristic of (10) of different sizes, wall number (1), phosphorous adhesive tape to illustrate the points of the joints of the body, number (1), video and pictures to illustrate the correct performance of the direct free-kick, drawing scale length (1) (M), CDs (8), electronic medical scale (2), colored tape to divide the target (2), in Burk (its purpose is to control the approach of approaching).

2-4-Modified test specifications:

Test name: Scoring accuracy test skill from fixed kick to adjusted goal.

The purpose of the test: To measure the accuracy of scoring from a fixed kick to a goal.

The tools used: a soccer goal, a number of soccer balls (10), a goal-splitting tape, a tape, bork to determine the goal distance.

Method of performance: one of the balls is placed on the scoring point and the player advances from a distance of (10) yards to hit the ball strongly and the ball is fixed on the ground and with the preferred feet to the following parts

The right side of the goal, the left part of the goal, the middle of the goal.

Registration:

- The test score for the left and right part is 40 degrees, and the middle part is 20 degrees.
- Each player is given (3) attempts for each part, and the best attempt is calculated for the purpose of analyzing it.
- The highest score obtained by the player is (100).

2-5 Pre-test:

The pre-test of the research sample (experimental and control) was conducted on Thursday 9/2/2018 in the court of the Specialized School in Nasiriyah. The researchers have proven the conditions related to the test in terms of time, place, tools used, method of implementation and the auxiliary team for working on their availability in the post-test.

2-6- The main experience

The educational curriculum for the auxiliary exercises used in the auxiliary methods used took (10) weeks at the rate of (2) two educational units per week to reach the total educational units for special exercises (20) educational units, and the researchers relied on developing the vocabulary of the special exercises used by taking the opinions of experts and specialists in kinetic and biomechanical training and training The athlete in football and relying on some sources. Special exercises used from Thursday, 11/2/2018 and until Saturday 25/4/2018 were applied to the experimental

group, either of the control group, and the vocabulary of the educational curriculum followed by the coach was applied.

The special exercises used were given immediately after the warm-up and in the first part of the main part of the educational unit because the exercises depend on a high mental focus and neuromuscular compatibility in particular, so any fatigue in this aspect will have a negative return in developing the neuromuscular compatibility so it was at the beginning of the unit Educational.

2-7- Statistical means:

The Statistical Package for Social Sciences (SPSS) was used to analyze research data, and it used the following methods:

Arithmetic mean, standard deviation, percentage, difference coefficient, correlation coefficient (Pearson), t for independent samples.

3-Presenting, analyzing and discussing the results

3-1 Presentation, analysis and discussion of the results of the two-dimensional tests for the control and experimental groups and the test values:

Table (3)

Shows the arithmetic mean, standard deviations, and test values for the experimental and experimental groups in the post-dimensional tests.

T	Variables	Control group		Experimental group		The test
		-s	±p	-s	±p	
1	Approach angle	68.77	1.092	71.00	1.118	74
2	The angle of inclination of the body the moment the ball is kicked	14	2.50	11.77	1.301	11
3	The relative angle of the knee the moment he kicks the ball	147.88	3.65	151.6	2.788	154
4	The angular velocity of the kicked foot	328.54	12.33	369.2	44.53	396.69
5	The height of the center of body mass the moment the ball is kicked	0.72	0.026	0.76	0.03	0.780
6	Football contact time	0.013	0.003	0.02	0.002	0.019
7	Speed of the starting ball	15.014	1.55	16.56	0.52	19.772
8	The starting angle of the ball	28.7	4.5	25.2	2.8	30
9	The distance between the center of the foot and the center of the ball	10	1.34	14	1.60	15th
10	Maximum strength for footing	645.36	46.79	847.6	87.69	972.72
11	Force arrival time	0.17	0.015	0.15	0.01	0.1514
12	The maximum pressure of the bearing foot	95.04	1.70	187.2	12.89	197.23
13	Technical performance	4.90	0.62	6.40	0.90	8
14	Accuracy of scoring	44	7.43	56	9.43	60

Table (4) shows the results of the values of the two-dimensional post-tests for the control and experimental groups of the biomechanical variables, i.e. after completing the application of the exercises for the auxiliary methods based on mechanical foundations for the experimental group in addition to the traditional curriculum for the control group, it is clear from all the above that there are differences in the values of these Biomechanical variables and in favor of the experimental group, and the researcher attributes that the reasons for these Significant differences in favor of the experimental group in all biomechanical variables is due to the effectiveness of the exercises for the auxiliary means as well as the logical and objective progression in giving the exercises for the auxiliary means and that the values of the arithmetic mean in all the values of the biomechanical variables for the skill of scoring accuracy From the stability of football to the experimental group has evolved significantly in the post-dimensional tests, and this development has led to approaching the members of the experimental group from the ideal performance (criterion) when compared, while the control group, the values of the arithmetic mean of the biomechanical variables to the skill of scoring accuracy from the stability of football have It has only improved By a few percentages when comparing tribal arithmetic circles with post-test and these few percentages of improvement are due

to the application of daily exercises used by members of this group, which have moved away from the ideal performance (criterion) when compared to it.

3-2-Present the results of the two-dimensional pre-test for the scoring accuracy and technical performance of the experimental group and its analysis

Table (4)

Shows the mean, the standard deviation of the differences, and the calculated value of t

Statistical significance in the pre and post test of the experimental group in scoring accuracy and technical performance

T	Variables	Alone Analogy	Pre-test		Post-test		T values Calculated	indication Statistical	The result
			the middle Arithmetic	Deviation The normative	the middle Arithmetic	deviation The normative			
1	Accuracy of scoring	Degree	36,00	8,43	56,00	8,43	5,30	0.000	Significant
2	Technical performance	Degree	4.200	0.78	6.40	0.90	6.60	0.000	Significant

Significant ≤ 0.05 at freedom (9)

We note from the table above that there is a significant difference in favor of the post-test of the experimental group in the skill of scoring accuracy, and that this difference is due, of course, to the development of biomechanical variables for its members as a result of exercises for the auxiliary methods used by the researchers on the research sample, which strengthened the skill of scoring accuracy in the form that is It has a smooth flow and kinetics, according to biomechanical variables.

The researchers attribute the reason for this to the adoption of the exercises followed by the experimental group on a variable pattern in the development and development of the basic scoring skill during educational units, which depends on the various exercises and aids and in accordance with the terms of biomechanical and the ball, when implemented so that the coach can develop the capabilities of his players and raise their educational status they must To reach the external limits of their physical and skill ability, "as the coach can put his players in the educational program content appropriate to their skill level and the skill level that largely determines the plans that can be included in the educational the program .)]2 [(

3-3-Presenting and analyzing the results of the pre and post tests of the technical performance of the control group

Table (5) shows the arithmetic mean, the standard deviation of the differences and the value of (t)

Statistical significance in the pre and post test of the control group in the level of scoring accuracy and technical performance

T	variable	Alone Measurement	Pre-test		Post-test		t Values Calculated	indication Statistical	The result
			$\bar{Q}$	±p	$\bar{Q}$	±p			
1	Accuracy of scoring	Degree	34,00	6,42	44,00	8.43	2.84	01 .0	Significant
2	Technical performance	Degree	4.10	0.56	4.90	0.62	3.15	0.004	Significant

***Significant ≤ 0.05 at 9 degrees.**

It appeared that the control group had also achieved significant differences in favor of the arithmetic mean for the scoring accuracy test. The researchers attribute the reason for the existence of significant differences in the scoring accuracy to the failure of the control group to submit to the exercises for the auxiliary means that contain exercises by means of aids that correct the errors that occurred to them which led to the adoption Members of this group refer to the traditional method of performance without paying attention to the method of correct performance, which leads to achieving the motor duty according to the mechanical foundations.

3-4Presenting and analyzing the post-test results of the technical performance of the experimental and control groups

Table (6) shows the arithmetic mean, the standard deviation of the differences and the value of (t) Statistical significance in the post-test of the experimental and control group in the level of scoring accuracy

T	variable	Alone Measurement	Experimental group		Control group		t Values Calculated	indication Statistical	The result
			$\bar{Q}$	±p	$\bar{Q}$	±p			
1	Accuracy of scoring	Degree	56,00	8,43	44,00	8,43	3,18	0.000	Significant
2	Technical performance	Degree	6.40	0.90	4.90	0.62	5.26	0.000	Significant

***Significant ≤ 0.05 at 18 degrees freedom**

When discussing the results of the table to test the accuracy of scoring between the experimental and control groups in the post-tests and for the benefit of the experimental group in the post-tests, that is, after the completion of the application of special exercises and augmented by auxiliary means for the experimental group as well as the traditional curriculum for the control group, it is clear from all of the above that there are differences In the values of these variables and for the benefit of the experimental group, the researchers attribute the reasons for these Significant differences in favor of the experimental group and the increase in the degree of development achieved by the experimental group in all the variables due to the effectiveness of special exercises and auxiliary means included in the educational units as well as the logical and objective progression to learn the skill of accurate scoring football Through the use of some auxiliary means as well as sensory information, i.e. the application of the vocabulary of the feedback in a scientifically correct and thoughtful way through the fragmentation of the scoring skill starting with the accelerating stage and linking it to the weighted stage and ending with the kicking stage which leads to the lengthening of the speed of the acceleration path, which led to an increase in the length of the radius of rotation which led In the end to achieve a quick launch speed Comply with mechanical requirements.

Also, the auxiliary methods used by the researchers during the implementation of the educational curriculum and reinforced with special exercises, these methods are characterized by containing more direct experiences than abstract words, and if multiple educational aids are used, it is possible to obtain effective education based on experience, as well as to make learning and training broad And profoundly, as the teaching aids are materials and tools appropriate to the various educational situations that the teacher and the learner use with experience and skill to improve the learning process, it also helps in conveying meanings, clarifying ideas, fixing the process of perception and increasing learners' experiences and skills.

The process of repetition in the performance led to the result in the development of the members of the experimental group in technical performance in football in a manner different from their performance in the pre-test, and this was shown by the results of statistical treatments, in addition to the above, we find that the superiority of the experimental group over the control group in the values of the angle of knee joint for men The kick in the post-tests came as a result of increasing the values of extending the angle of the knee joint for the kicked leg, which led to the lengthening of the radius of the axis of rotation, which in turn increases the speed of hitting the ball during the performance of the scoring skill)]3 [.Where you should pay attention to the pivoting man while achieving the kicking process, because of its importance in providing the player with balance and the driving force of the body. This is also consistent with what Baumgartner (1972) referred to in "that the player's balance and the correct kinetic compatibility of body sections and streamlined muscular work at ideal angles play a fundamental role in the success of the mechanical precision scoring."]4 [(

4- Conclusions and recommendations:

4-1-Conclusions:

In light of the results of the research, the researcher reached mechanical conclusions:

1-The use of exercises for assistive devices has a positive effect in developing all biomechanical variables for the skill of technical performance in soccer for the experimental group.

2-The control group did not achieve a significant development in the values of the biomechanical variables by comparison between the pre and post tests to test the accuracy of the scoring from stability despite the presence of apparent differences in the values of the mathematical media, as did not achieve a high rate of development in the values of all the biomechanical variables and the accuracy of scoring from the kicks Fixed compared to experimental group and this is due to the traditional method that I followed during the learning process.

3- It appears that there has been an evolution in the skill of scoring accuracy for the experimental group due to the use of exercises for assistive devices.

4-2- Recommendations:

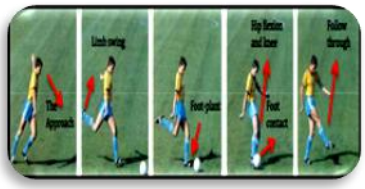
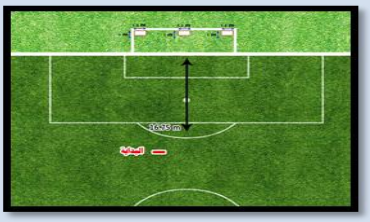
The necessity of using the exercises for the auxiliary means in teaching the technical performance of football according to the biomechanical variables, which are important and their ability to give learners the best kinetic perception of artistic performance depending on the mechanical conditions and principles compared to the traditional method.

The necessity of adopting the mechanical foundations to achieve the scoring accuracy element, through proper handling of the kick position, by setting the relevant part of the foot surface in contact with the ball and its effect on the speed of the ball.

Asylum. Adopting the logical and objective progression in teaching artistic performance in football by splitting this skill into its four stages or divisions, starting with the accelerating stage and ending with the process of kicking the ball, which leads to achieving the best outcomes of the learning experience through its compatibility with mechanical elements and foundations.

Models of the educational curriculum through the auxiliary methods used in the research

Module: the first and second **sample :**players exert specialized school
Number of players 10 **:** in the district of Nasiriyah
Unit time 90: minutes **Educational goal** : Teaching stages of performance
And the skill of kicking the ball from the constancy) scoring

Section	Time	the details	Notes
Preparatory	25 m	Stand, walk, jog, jog with arms rotated forward, back-to-back -The torso rotated to the sides alternately, scrambling with the legs straight forward	Ball warm up The warm-up goal is to serve the main part and do similar exercises to perform
General warm up **The private**	**15 M.** 10 M.	Weighted jumps on the spot with the feet positioned forward, backward, aside -wold with both legs from above inhibitor (5) inhibitors repeat the exercise (4) times	
the main	**(60) m.**		
Educational section	**(10) M**	**1. Explain the stage of technical performance for the scoring accuracy skill, and present a model to the player who performs the stages of technical performance through illustrative pictures of artistic performance through a poster 1 × 80cm shows the stages of performance.**	
Applied section **(50)M.** **(25)M.** **Fixed kicks**	5 M. 12 M 8 M.	**1. Partition exercises on the foot as the player performs the parting on the right foot back and on the left foot back for a distance of 10 m.** **2. The player adjusts the technical performance through the approximate steps and scoring the sole of the foot from a distance of 16.75 m on the goal without the goalkeeper through a rope extending from the goal to the scoring point so that the player kicks the ball with an extension or parallel to the rope until the performance is adjusted to the player.** **3. The player places the pivot leg next to the ball, then takes three steps to the back, and then**	 

		runs towards the ball on the same steps taken and scoring on the goal from 16.75 meters in front of the goal.	Adjust the horizontal distance between the foot and the foot

Note: It takes only 25 minutes from the Applied section to learn the skill of accurate scoring from sticking to

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