

Design a Program to Improve the Harmonization Abilities for the Butterfly Stroke among Young Swimmers.

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Abstract

Abilities for butter fly stroke and study their effect on some biomechanical Variables , the skillful performance level for butter fly stroke of research sample , some biomechanical Variables related to butter fly stroke , numerical levelfor 50m butter fly stroke , The researcher used experimental methodology , The main sample reached (30) young swimmer , Ruslts ; The suggested program showed positive effect in variables (Harmonization abilities – butter fly performance level - some biomechanical variables – numerical levelof 50m butter fly stroke) , Differences of improvement percentage between both grope experimental and control in variables of the research , showed the superior of experimental group which used suggested program greater than the contraol group which used traditional program

Key word : *butter fly stroke , Harmonization Abilities, performace , biomechanical Variables.*

Introduction:

The continuous development of sport in general and swimming in specials and the attempt to keep up with the requerment of current age followed by development of swimming training and th organized program became on scientifec base and with specific targets wordeing on developing skillful performance level through focusing on performance details also paying attention of all physical , physiological reuirements which serve the nature of performance it reach perfection and the reach for best results. The Harmonization Abilities is considred one of the main requirements in swimming for its importanc in improving the technical performance either for thir four types of suimming of starting and rotaton for each type .

Nevin Hussin (2004) mentioned that Harmonization Abilities related derectly with skillful performance level , affect and got affected that every sports activity has its own Harmonization Abilities and devolping them leads to elevate achievement level in performance and the components of Harmonization Abilities are different in all sports activity and also the requirements of each skill in their need of Harmonization Abilities in the same activity and that developing these skills always related to the level of skillful performance and physical level of the players . [24]

Hohman (2002) and Julius Kasa(2005) both refers to that players when having Harmonization Abilities in different sports activities that helps to reduce the time of gaining motor skills and be perfect in them also that Harmonization Abilities besed directly on the level of

morphological and functional efficiency of the player . [30] [31]

Vladimir Lyakh (2006) refers that Harmonization Abilities are the economical coordinated work as possible between muscles , neruvs , senses , balance , reflex and fast adaption for the situation . [36]

As Mohamed Lotfy (2006) defines it as general psychological motor conditions for porttive achievement which enable the player to control its performance , also he refers that convenient abilities are one of groups belonging to motor abilities and those abilities follow compound abilies.[14]

Khaled Farid (2007) confirms that Harmonization Abilities are one of the important factors needed to improved the level of skillful performance of the players as it emerges form type analysis of specifc sports activity and the developing them serve the technical aspect in great way. [7]

Mohammed Preka and Khairiha Ibrahim (2002) see that the most way used to improved the level of skillful performance in many sports is to improve performance of skills in volving these sport , here the couch depends on mechanical imformation through using biomechanical analysis in training program to correct players performance to rxcute this skill perfect . [15]

Mostafa Kazem and Mahmoud Hassan both refers to the importance of perfection of skillful performance and then improving numerical levelby increasing power and decresasing resistance gacingseimmer during his program in water. [22]

The research problem through his observation of the educational program inside the faculty during lectures or in swim schools also training programs in clubs, he found that making between different performance steps one of the difficult phases facing coach which is making coordination between body position, length stroke, arms movement and breathing to get more power to the body inside water and less resistance to the swimmers body so not to decrease his speed and also muscle fatigue to the muscles working during performance that is why there is importance of developing Harmonization Abilities which lead to the right connection between all body parts and organs with harmony and less effort for perfect performance.

butter fly stroke is one of the difficult type of swimming with hanc performance because of the mixing between dolphin movements starting from head, centre and feet with length stroke together and not alternatively, also arms movements are resemble and not alternative, because the ability of the swimmer to perform dolphin movement and link it with length stroke and arms movement in harmony and right rhythm increase power with less resistance which need a high level of specific Harmonization Abilities for butter fly stroke, that is why the researcher studied the effect of developing some specific Harmonization Abilities for butter fly stroke on the skillful performance level and its relation with some biomechanical Variables like (Range of intensity length, range of intensity repeatoin, intensity time, range of swimmer speed).

Research objects:

The research aims to design program to improve specific Harmonization Abilities for butter fly stroke and study their effect on:

- -Some specific Harmonization Abilities for butter fly stroke.
- -the performance level of skillful for butter fly stroke of research sample.
- -some biomechanical Variables related to butter fly stroke.
- -numerical level for 50m butter fly stroke.

Research methodology:

The researcher used the experimental methodology with the experimental design of the two groups, one applied the suggested program, and the control group is applied to the traditional program followed.

Research sample:

The researcher choose the research sample from young swimmers community in EL Moassa Sports Club in Alexandria; age (11:12) year in the summer season 2012/2013 reaching (50) young swimmer. The basic sample was chosen by deliberate, randomized, reaching (30) young swimmer from the boys and girls (20 boys 0.10 girls).

The reasons for selecting the sample:

- - This stage (11-12) is the best stages of the acquisition of the harmonic components and capabilities appropriate for early sports specialization in most sporting activities.
- - This stage is characterized by the rapid growth is not fast that helping to increase the compatibility neuromuscular.
- - There is no significant differences between the sexes at this stage. (4:36)

Tools for collecting data:

Evaluation form for performance level in butter fly stroke:

1-body position : 5 degree

2-length stroke : 5 degree

3-arms movements : 5 degree

4-breathing : 5 degree

5- over all convenient for butter fly stroke : 5 degree

Total : 25 degree

Tests for Harmonization Abilities :

1-the motion connection ability: test of motion connection for butter fly stroke measured by degree.

2- doing best effort ability of : test of foot ball throwing by arms measured by meter.

3-the preserving stability balance ability : test of standing on foot toes 'steady balance' measured by second.

4-the preserving moving balance ability : test of jumping on feet inside hexagonal shape measured by second.

5-the motion rhythm ability : test of motion rhythm for butter fly stroke measured by degree.

6-the motion sense ability : test of motion sense for butter fly stroke measured by degree.

suggested Training program for Harmonization Abilities for butter fly stroke:

The aim of the suggested program:

The suggested program aims to develop specific Harmonization Abilities for butterfly stroke

Time distribution and time period for program stages in season intervals for research sample:

- The time period to apply program: 10 weeks divided into(5 weeks in special preparation interval and 5 weeks in competition interval).
- Number of training sessions per week: 3 sessions per week.
- Time of training session: from(110:80) minutes distributed from first week to fifth (80) minutes and from sixth week to tenth week (110) minutes.

Component of training load in different stages of the program:

From first week to fifth week:

Intensity: 65%:75%

volume: 1200:1800m

rest : 150:160 B/m

From six week till tenth week:

Intensity:75%:85%

volume:1800m:2800m

rest:160;180 B/m

The pre measurements:

after the pilot study and the scientific procedures the researcher did the pre measurements in the interval

The results:

between wednesday 20\2\2013 to Sunday 24\2\2013 for the variables of the research on both experimental and control groups.

Applying the program:

the suggested program was applied to develop Harmonization Abilities for butterfly stroke on experimental group in time period take 10 weeks from 27\2\2013 to 7\5\2013 as three sessions per week with session time (110:80)m, while traditional program was applied by the club technical director on the control group at the same time of the experimental group. Took into account the researcher to be parts warm and calm in the programs on a two groups was uniform and equally, and the difference between the experimental and control groups in the main part of the program as applied to the experimental group inter exercises that work on the development of Harmonization Abilities on butterfly stroke like motion rhythm exercises with using Moternom music, exercise (3 : 3: 3) ... and others, while the control group applied to the conventional water exercise groups like improved performance and bug fixes and other exercises that have been placed by the Technical Director Club.

Post measurements:

The post measurements for the variables of research on both experimental and control groups after termination of program suggested on thursday 9/5/2013 till sunday 12/5/2013 on the same condition and procedures and arrangements in pre measurements

Table (1)

The significance between the mean of both pre measurements of two groups the control and experimental in Growth rates, physical abilities, Harmonization Abilities , interoperability biomechanical variables , performance level and numerical level

variables	measure units	Control Group		Experimental Group		t
		S.D.	Mean	S.D.	Mean	
length	cm	2.36	138.13	1.91	138.93	0.568
age	month	1.59	129.67	1.41	129.13	0.219
Weight	kgm	1.94	40.27	2.04	40.20	0.011
strength	cm	1.51	22.53	1.66	21.80	0.114
speed	s	0.53	18.43	0.45	18.39	1.179
flexible trunk	cm	1.33	55.07	1.36	54.87	0.062
flexibility shoulders	cm	1.60	24.13	1.80	24.40	0.230
muscle power	m	0.05	1.77	0.04	1.75	0.400
motion sense	Times	1.21	15.80	1.22	15.27	0.013
motion rhythm	Degree	1.06	2.53	0.99	2.40	0.152
motion connection	Degree	0.80	5.07	0.88	4.93	0.571
best effort	m	0.32	5.83	0.48	5.52	2.905

variables	measure units	Control Group		Experimental Group		t
		S.D.	Mean	S.D.	Mean	
balance	s	0.50	6.62	0.41	6.69	1.507
moving balance	s	0.46	18.77	0.62	18.80	1.813
length strike	cm	0.18	1.25	0.16	1.25	0.198
time strike	s	0.17	1.41	0.15	1.38	1.852
strike repetition	tims/ m	0.08	0.74	0.08	0.73	0.090
Average Speed swimmer	m/s	0.02	0.91	0.02	0.91	0.099
numerical level	s	1.47	53.78	1.36	53.84	0.136
Performance level	Degree	0.94	14.20	1.15	13.80	0.393

Table (2)

The significance between the mean of pre and post measurements of both control group and experimental group for Harmonization Abilities and biomechanical Variables and performance level for research sample

variables	Experimental Group					Control Group				
	Mean pre	Mean post	Mean different	Sd. different	t	Mean pre	Mean post s	Mean different	Sd. different	t
motion sense	15.27	11.87	3.4	0.63	*20.82	15.8	8.53	7.03	0.7	*39.99
motion rhythm	2.4	4.33	1.93	0.7	*10.64	2.53	6.86	4.33	1.58	*10.56
motion connection	4.93	5.87	0.93	1.39	*2.6	5.06	10.33	5.26	2.05	*9.94
moving balance	18.8	18.05	0.75	0.47	*6.17	18.77	17.02	1.74	0.42	*16.01
balance	6.69	6.99	0.3	0.5	*2.31	6.61	7.8	1.18	0.49	*9.24
best effort	5.52	6.7	1.18	0.92	*4.93	5.83	9.08	3.24	0.79	*15.72
length strike	1.25	1.28	0.027	0.43	*2.43	1.24	1.43	0.18	0.08	*8.28
time strike	1.37	1.33	0.048	0.067	*2.75	1.4	1.41	0.06	0.11	0.22
strike repetition	0.73	0.71	0.015	0.031	*1.87	0.74	0.66	0.06	0.5	*5.14
Average Speed swimmer	0.91	0.91	0.005	0.027	0.78	0.9	0.95	0.048	0.018	*10.23
numerical level	53.84	52.54	1.29	0.5	*9.98	53.78	50.79	2.98	0.56	*20.55
Performance level	13.8	15.93	2.133	1.92	*4.3	14.2	21.2	7	2.13	12.68*

Table (2) The significance between the averages of pre and post measurements for experimental group for Harmonization Abilities and biomechanical Variables and performance level for research sample.

Table (3)

The significance between the averages of post measurements of both control group and experimental group for Harmonization Abilities and biomechanical Variables and performance level for research sample.

variables	Control Group		Experimental Group		t
	Mean	S.D.	Mean	S.D.	
motion sense	11.87	1.06	8.53	1.25	7.89
motion rhythm	4.33	1.05	6.87	1.13	6.38
motion connection	5.87	1.13	10.33	1.72	8.42
moving balance	18.05	0.43	17.03	0.43	6.6
balance	6.99	0.23	7.81	0.36	7.28
best effort	6.7	0.75	9.08	0.67	9.17
length strike	1.28	0.15	1.44	0.15	2.96
time strike	1.33	0.1	1.41	0.11	2.1
strike repetition	0.72	0.05	0.67	0.05	2.48
Average Speed swimmer	0.91	0.04	0.96	0.03	3.38
numerical level	52.54	1.49	50.8	1.29	3.44
Performance level	15.93	1.83	21.2	1.74	8.07

There is a significant statistical difference between averages of post measurements for both experimental and control groups for Harmonization Abilities and biomechanical Variables and performance level for research sample for the experimental group .

Table (4)
Percentage change in Harmonization Abilities and biomechanical Variables and performance level
for both experimental and control groups .

variables	Control Group			Experimental Group		
	pre	post	percentages	pre	post	percentages
motion sense	15.27	11.87	28.64	15.8	8.53	85.23
motion rhythm	2.4	4.33	44.57	2.53	6.86	63.12
motion connection	4.93	5.87	16.01	5.06	10.33	51.02
moving balance	18.8	18.05	4.16	18.77	17.02	10.28
balance	6.69	6.99	4.29	6.61	7.8	15.26
best effort	5.52	6.7	17.61	5.83	9.08	35.79
length strike	1.25	1.28	2.34	1.24	1.43	13.29
time strike	1.37	1.33	3.01	1.4	1.41	0.71
strike repetition	0.73	0.71	2.82	0.74	0.66	12.12
Average Speed swimmer	0.91	0.91	0	0.9	0.95	5.26
numerical level	53.84	52.54	2.47	53.78	50.79	5.89
Performance level	13.8	15.93	13.37	14.2	21.2	33.02

There is difference in percentage of improvement between pre and post measurements for both control and experimental groups in Harmonization Abilities and biomechanical Variables and performance level for research for to experimental group .

Discussions :

The results of table 2, 4 there is a significant statistical difference between averages of (pre – post) measurements for control group ,also improvement percentage in variables (Harmonization Abilities - biomechanical - performance level of butter fly stroke – numerical level of 50m butterfly stroke) but not the swimmer speed Average variable .

The researcher refers that improvement in Harmonization Abilities to the effect of applied program on them , which contains general physical and drills training led to increase Harmonization Abilities in simple way as the percentages (4.16 – 44.75) , this comply with Essam El Din abdel Khalek (2005) that Harmonization Abilities always related with achievement terms like physical abilities [14] , The researcher refers this changin of control group in Harmonization Abilities to continuity of young swimmer of control group in the training program which led to continuity effect in training and adaptation and there for the increase of level of convenient abilities , where Adel Abd El Bassair (1999) refers that adaptation in training

and improving the level cannot be done or progressed unless there is continuous prolonged training [10] , While the researcher refers that there no significant statistical difference in the speed variable for control group swimmer to the weak improvement in length , time and repetition of strike as it reaches (2.34 % , 3.01 % , 2.82 %) which did not make any improvement in swimmer speed and also weak improvement in numerical level for butter fly stroke 50m (2.46 %) .

The researcher refers that there is a significant statistical difference and improvement percentages for young swimmer for control group in the variables of skillful performance level of butter fly stroke which reached (13.37 %) , the researcher refers that to the content of skillful training in applied group on control group which make a positive effect in skillful performance level for butter fly stroke due to the repetition of the group member which comply essam Helmy (1998)[13] and Khaled Farid (2002)[7] and Nevin Hassan(2009) as they refers that the applied program on the control group has a positive effect on the improvement of technical performance level in different sports .

The results of table (2),(4) there is a significant statistical difference average of (pre –post) measurements for experimental group and also improvement in percentage of variables (Harmonization Abilities - biomechanical -

performance level of butterfly stroke –numerical level of 50m butterfly stroke) and refers that positive effect of the suggested program , which includes drills training with tools and without tools and also training inside and outside water which led to the interest of young swimmer and led them to domore effort and so increasing the efficiency of nervous system and increasing th connection between nerves which affected with the benefits of the program and its connection with motion nerves which led to develop and improvement of specific Harmonization Abilities for butterfly stroke of the research which contributed to the improvement of performance level of butterfly stroke also improvement of variable length , time and repetition of strike and swimmer speed Average which led to improvement the numerical level for 50m butterfly stroke .This comply with what Raczek (2002)[35] that convenient abilities has a great importance in training as it reflects the level of Harmonization Abilities directly on skillful performance level . It also comply with Nevin Hussin (2004)[24] , Khaled Farid (2007)[7] as they refer that developing Harmonization Abilities through training program oriented to develop Harmonization Abilities led to developing skillful performance level In physical activity consistent with the practitioner as indicated by Marwa Ramadan (2012)[20] that the use of exercises similar to the actual performance of the skill in the Harmonization Abilities have a positive effect on the level of skill development and skill development Tqllil mistakes

Table (3) , (4) Show significant statistical difference between average of two post measurement of both experimental and control groups , also improvement percentages in variables (Harmonization Abilities - biomechanical - performance level of butterfly stroke – numerical level of 50m butterfly stroke) to experimental group , the researcher refers that progression due to the effect of suggested training program which applied on experimental group which contain a set of training to each of Harmonization Abilities of the research which led to improvement of Harmonization Abilities level of experimental group and on refers because of no training of control group with Harmonization Abilities led to the weakness of Harmonization Abilities level of their group and so the differences in two post measurements for both experimental and control group to experimental group , also Harmonization Abilities consist of set of abilities if they were coordinated a high level of general motion coordination required for motion performance can be achieved and so improvement in Harmonization Abilities level led to improvement of performance level of butterfly stroke for experimental group , also improvement of some biomechanical variable level , which comply with Jaluis kasa (2005) [31] that a thelets naving

Harmonization Abilities contributes in the gaining and perfecting motion skills Faster and perfects on Evaluation performance level as it is consistent with what referred to Ahmed Mohammed Abbas (2013)[4] , and Khaled Nasr Kelani (2011) that the use of Harmonization Abilities to stage rookies have a positive impact on raising the level of performance skills in various sports activities, development programs.

Also paying attention of convenience abilities helps to improving speed , precision , fitness and decrease the percentage of mistakes in performance and this explain the differences in two post measurements and improvement percentage for both experimental and control group to experimental group in numerical level for 50 m butterfly stroke , this comply with results of Essam Abd El Khalek (2003) , Essam Helmy (1998) [10] , Nevin Hussin (2004) [24].

Conclusion:

From the research results, the researcher reached the following :

1. The most important Harmonization Abilities for butterfly stroke (motion sense –motion rhythm – motion connection “ sequence “ – balance –motion balance –doing maximum effect).
2. The suggested program showed positive effect in variables (Harmonization Abilities – butterfly fly performance level- some biomechanical variables – numerical level of 50m butterfly stroke).
3. Differences of percentage of improvements between both groups experimental and control in variables of the research , showed the superior of experimental group with used suggested program over the control group which used traditional program .

Recommendations:

According to what has been reached of results and the research objects the research recommends:

1. 1- The necessity of developing Harmonization Abilities inside training program specific for young swimmers as it has positive effect in elevation skillful performance level .
2. The necessity that Harmonization Abilities training must come from motion component of the skill and serve this skill directly .
3. The necessity of using Harmonization Abilities training in the high levels as it has positive

effect in elevating performance efficacy and improving numerical level.

4. Conducting more studies similar to the native of this research another stroke of swimming and different age stages .

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