

Influence of

Dolphin strikes

On 200-Meter Swim Races

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Abstract

This study is regarded a methodological attempt to identify the impact of training program (TP) for dolphin strikes (DS) to develop the physical variables, Leg muscle test (LM), Back muscle test (BM), Right hand power (RHP), Left hand power (LHP), long jump (LJ), free 200, back 200, breast 200, fly 200, and medley 200 tests for Al-Ably swimming club (ASC) juniors under 12 years old. The researcher has noticed the low and slow level in swimming performance and their velocity to perform continue the performance in a good way particularly in races that are approximately similar in level. So, researcher tended to use (TP) of (DS) to (LM), (BM), (RHP), (LHP), (LJ) and their impact on the velocity of free 200, back 200, breast 200, fly 200, and medley 200 for (ASC) juniors. The experimental method was applied on a subject of 26 (ASC) juniors in Egypt, their ages under 12 years old. One of the most important results of this research was an enhancement in Regular use of (TP) Exercises of (DS) leads to enhancement in physical variables (LM), (BM), (RHP), (LHP), (LJ), free 200, back 200, breast 200, fly 200, and medley 200 tests for (ASC) juniors under 12 years o in the post measurement than the pre one. Also, there were statistically significant differences between pre and post measurements for post measurement in the physical variables, (LM), (BM), (RHP), (LHP), (LJ), free 200, back 200, breast 200, fly 200, and medley 200 tests for (ASC) juniors under 12 years old.

Key words

swimming, Dolphin strikes, training program, Leg muscle, Back muscle, hand power, free 200m, back 200, brest 200 m, fly 200m, and medley 200m.

Introduction:

Achieved sports level a big step forward in previous years has been reflected on the achievement of indexes and physical abilities and skills, has focused on countries and peoples of different sports including swimming. Swimming competitions had the rapid progress in the figures recorded for different swim ways crashed these figures year after year, which was destroyed wishful impossible, dream flirts workers in the sports field, due this enormous development of scientific progress for ways and means different training to advance level digital in swimming, Because there are differences in the physical preparation programs and skills terms that achieve the accomplishments digital associated background coach and know academic and past experience, and what was part of a second impact is negative or positive on the order swimmer among his becomes impossible for the swimmer to improve his figures without undergo training scientific standardized.

The researcher noted that there is a difficulty for some swimmers when performing dolphins strikes which became unreliable at the beginning of each race (except breaststroke) and after rotation - or it may be confused does not help the progress and achievement

digital . Making the researcher is given dolphins strikes largest degree in the field of training for all ages, especially young even contribute to the upgrading of digital swimmers and use of the maximum of their capacities to reach the best performance . The researcher also noted the lack of interest coaches selected training performance on the implementation of Dolphins strikes skills during training units and do not use Help Tools despite attempts by these trainers upgrading digital by increasing training loads or use programs weight training, etc. which may not suit stages certain age and especially beginners, Therefore the researcher found that submit the study to complement the inception of previous studies to be helpful for coaches and swimmers to achieve their goal and upgrading the game and its development, particularly after the scan the Arab and foreign journals and found the scarcity of Arab Studies in this area and that it needs to be more effort and study, therefore the researcher tried to do this study to put some of the foundations and rules to upgrade the record level of swimmers. Therefore researcher try to investigate the impact of dolphins strikes (DS) in competitive swimming races (free 200-meter , 200 - back 200 m - butterfly 200 m brest 200 m - medley 200 m)

Material and methods

The subject:

The subject was 26 (ASC) juniors from AL-Ahly swimming club in Cairo under 12

years old, mean age (11.48 ± 0.23 years), weight (42.25 ± 0.36 kg), height (152.43 ± 4.32 cm) and training experience (5.95 ± 0.28 years), volunteered to participate in the study. The subject Was only one group, an experimental group

(EX) group 26 juniors from (SAC) and were informed about the experimental procedures and signed informed consent statement and medical history. The physical characteristics of the subject are given in table 1 .

Table (1):

The physical characteristics of the subject

Variables	Mean	SD	Median	Skewness
Age (y)	11.48	0.23	11.50	0.07
Height (cm)	152.43	4.32	153.00	0.12
Weight (kg)	42.25	0.36	42.25	0.16-
Experience (y)	5.95	0.28	6.00	0.14
Leg muscle test (kg)	55.25	2.08	55.5	0.127-
back muscle test (kg)	51.12	1.85	51	0.279-
Right hand power (kg)	22.38	0.68	22.5	0.3
Left hand power (kg)	21.38	0.66	21.35	1.00-
long jump (cm)	151.79	2.25	151.6	0.27
free 200 (Sc)	140.56	1.34	141	0.98-
back 200(Sc)	166.65	1.18	167	0.88-
brest 200(Sc)	180.51	1.25	182	1.17-
fly 200 (Sc)	159.14	1.32	159	0.32
medley 200 (Sc)	167.80	1.55	167	1.54

These results made clear that there are no significant deference's in the following variables (age, height, weight, training experience, and other variables, which indicates the harmony of research subject as well as the possibility of conducting such an experiment in such a subject. (table 1).

This study has been conducted of three steps (1) doing the pre- measurement from 20/4/2012 to 22/4/2012 by measuring height, weight, Leg muscle

test (LM), Back muscle test (BM), Right hand power (RHP), Left hand power (LHP), long jump (LJ), free 200, back 200, brest 200, fly 200, and medley 200 tests. (2) Applying the trainings program course (TP) to develop the Dolphin strikes (DS) for the subject for 10 weeks from 23/4/2012 to 30/6/2012, using (TP) to develop (DS) in this study. (3) Third step: post- measurements from 1/7/2012 to 4/7/2012 are performed on all variables in post- measurements.

The content of the training course being used:

- ✓ Duration of training course is 10 week.
- ✓ (TP) contain the basics exercises of (ASC)are in Appendix 1.
- ✓ (TP) Exercises content are in Appendix 2.

- ✓ Weekly training unit's time are 100 min.
- ✓ Weekly training units are 6 times, Appendix 2.
- ✓ Training unit consists of three parts (1) warming – up 15 min, (2) Basic part 80 min and (3) the relaxation part 5 min.

Table (2):

The Reliability of the tests

<i>Variable</i>	<i>Pre- measurements</i>	<i>Post-measurements</i>
<i>Leg muscle test (kg)</i>	<i>55.25± 2.08</i>	<i>55.06± 1.88</i>
<i>back muscle test (kg)</i>	<i>51.12± 0.85</i>	<i>53.75± 2.14</i>
<i>Right hand power (kg)</i>	<i>22.38± 0.68</i>	<i>22.40± 1.25</i>
<i>Left hand power (kg)</i>	<i>21.38±0.66</i>	<i>21.65 ± 0.82</i>
<i>long jump (cm)</i>	<i>151.79± 2.25</i>	<i>152.00± 2.86</i>
<i>free 200 (Sc)</i>	<i>140.56±1.34</i>	<i>140.25 ±1.29</i>
<i>back 200(Sc)</i>	<i>166.65 ± 1.18</i>	<i>166.31 ±1.13</i>
<i>brest 200(Sc)</i>	<i>180.51± 1.25</i>	<i>180.19 ± 1.27</i>
<i>fly 200(Sc)</i>	<i>159.14± 1.32</i>	<i>158.75 ± 1.29</i>
<i>Medley 200 (Sc)</i>	<i>167.8± 1.55</i>	<i>1.67 ± 1.54</i>

* Mean ± SD standard deviation *n=10

These results made clear that there are a significant differences between the first and the second application of the test

($P < 0.05$), which indicate the stability of the tests. These indicate the reliability of the tests (Table2).

Table (3):*The Validity of the tests*

Variable	Pre- measurements	Post-measurements
Leg muscle test (kg)	55.25 ± 2.08	58.50 ± 1.46
back muscle test (kg)	51.12± 1.85	55.18 ± 1.22
Right hand power (kg)	22.38± 0.68	25.12 ± 1.02
Left hand power (kg)	21.38 ±0.66	24.93 ± 0.77
long jump (cm)	151.79± 0.79	154.44± 1.46
free 200 (sc)	140.56±1.34	134.69 ± 0.87
back 200(sc)	166.65 ± 1.18	156.31±2.15
brest 200(sc)	180.51± 1.25	168.00± 1.26
fly 200(sc)	159.14±1.32	146.25±2.25
medley 200 (sc)	167.80 ± 1.55	151.25±3.82

* Mean ± SD standard deviation *n=10

These results made clear that there are a significant differences between the two distinctive and the non- distinctive groups ($P < 0.05$), which indicate the stability of the tests. These indicate the validity of the tests (Table 3).

Statistical analysis

Data analysis was performed using SPSS version 13.0. Where the researcher analyzed the results using the mean, Standard deviation, t.test, simple correlation, f test, L S D and percentage ratio.

Table (4):*The pre and post measurements for (EX) group.*

Variable	Pre- measurements	Post-measurements	Percentage ratio
Leg muscle test (kg)	51.55± 3.45	54.18± 14.34	4.85
back muscle test (kg)	55.25± 4.33	59.06±6.32	6.45
Right hand power (kg)	22.38±5.47	25.37 ± 1.58	11.78
Left hand power (kg)	21.38± 0.43	24.06± 86	11.13
long jump (cm)	151.79±5.10	161.06±8.19	5.75
free 200 (sc)	140.56± 1.80	135.43 ± 0.66	3.87
back 200(sc)	166.65±1.40	161.93± 0.59	2.90
brest 200(sc)	180.51± 1.57	173.75±2.60	3.89
fly 200(sc)	159.14± 1.74	151.63± 3.30	4.95
Medley 200 (sc)	167.8± 2.43	160.5± 1.86	4.54

* Mean ± SD standard deviation *n=16

These results made clear that there are no significant differences between the pre - and the post measurements in

(LM), (BM), (RHP), (LHP), (LJ), free 200, back 200, brest 200, fly 200, and medley 200 tests ($P < 0.05$). (Table 4).

Table (5):

The Anova between swimming races for (EX) group.

Variable	Variance	Sum of Squares	Degree of freedom	Squares average	F value
Digital level in swimming	<i>Between groups</i>	12965	4	3241.10	1795.10
	<i>Inter groups</i>	135.41	75	1.81	
	<i>Sum of Squares</i>	13100.41	79		

Anova Analysis of variance, *

These results made clear that there are a significant differences between the measurements in free 200, back 200,

brest 200, fly 200, and medley 200 tests ($F < 0.05$). (Table 5).

Table (6):

The Anova between swimming races for (EX) group.

Variable	Mean	difference of averages					L S D
		free 200 (sc)	back 200 (sc)	brest 200 (sc)	fly 200 (sc)	medley 200 (sc)	
<i>free 200 (sc)</i>	135.43						
<i>back 200(sc)</i>	161.93	*26.5					
<i>brest 200(sc)</i>	173.75	*38.31	*11.81				1.27
<i>fly 200(sc)</i>	151.64	*16.2	*10.3	*22.11			
<i>medley 200 (sc)</i>	160.5	*25.06	*1.43	*13.25	*8.86		

These results made clear that there are a significant differences (L.S.D) between the measurements of races free 200, back 200, brest 200, fly 200, and medley 200 tests for free 200, and between the measurements of races free 200, brest 200, fly 200, and medley 200 tests for back 200. And between the measurements of races brest 200, fly 200, and medley

200 tests for brest 200. The results show too there are a significant differences between fly 200 and medley 200 for fly 200m (Table 5).

These results show too that there are an enhancement in all variables between the pre - and the post measurements and between the swimming races (free 200, back 200, brest 200, fly 200, and

medley 200). The researcher refers that to influence of the (TP) exercises. The researcher refers that to influence of the (TP) which contains the exercises of (DS) exercises which led to an enhancement of muscular work among back and abdominal muscles in motor control of limbs. Which matches what was mentioned in previous studies that trunk area is the control area in motor performance especially if this performance depends on the strength of limbs through keeping the balance in improving forward and backward trunk muscles [1,2]. This refers that (TP) exercises led to improving the nervous system ability in increasing the harmony of muscular work between upper and lower limbs muscles. And this matches with what mentioned that swimming player mostly needs during motor performance in matches, to considerable harmony between body's parts during performance. And this correlated with muscle tone or muscles tension which suits the nature of target performance. Also, reflexes help achieving the required balance between stimulation and refraining processes within working muscles set inside motor performance and that is called motor harmony [3]. Also the (TP) contains a various and scientific standardized exercises which led to an enhancement in strength of abdominal and middle muscles, leg –hand muscles, flexibility of trunk muscles and raising level of biological capacity efficiency. The use of (TP) exercises led to strength of abdominal and middle muscles, flexibility

of trunk muscles and raising level of biological capacity efficiency [4].

Also These results made clear that there are no significant differences between the pre - and the post measurements in free 200, back 200, brest 200, fly 200, and medley 200 tests ($P < 0.05$). (Table 4). And These results shows too that there are an enhancement in all variables between the pre - and the post measurements, the researcher refers that to the impact of the (TP) which leads to improve in the different type of swimming, and that's indicate to the Importance of (DS) performance at the start and after a turnover in the limits of allowable distances (15 m) underwater in free, back and dolphin swimming. Also, take the horizontal position of the body during (DS) in drills contributed to improve the horizontal position of the body (trunk and legs) on the surface of the water, Where that dolphin movement are vertically Waves under the surface of the water and also on both sides body roll and also helped to improve the timing and compatibility and performance synchronization between legs and breathing rate. Osama Rateb and Ali Zaki (1992) and Essam Helmy (1980) confirms that many of the heroes of the swim performing 25% of their training to a butterfly in a dolphin way. (10-11). Also legs strikes in butterfly swimming like the same performance as soon as a dolphin swimming and has a benefit performance for leg strikes reciprocity in free and back swim

(hands pull together) "the movement of arms analogue" in exercises butterfly "drills" blows arms improvement in free and back swim, tensile strength for arm moment taking breathing during training two men dolphin drills in butterfly - sign a burden on the muscle groups of the arm and forearm helps to develop and improve the performance of arms. That's agree with Abo El-Elela (1994) Advised to increase the size of exercises butterfly swimmers brest for being the nearest road to the performance in the brest (12)

CONCLUSION

Regular use of (TP) Exercises of (DS) leads to enhancement in physical variables Leg muscle test (LM) 4.85%, Back muscle test (BM) 6.45%, Right hand power (RHP) 11.78%, Left hand power (LHP) 11.13%, long jump (LJ) 5.75%, free 200 (3.87%), back 200 (2.90%), brest 200 (3.89%), fly 200 (4.95%), and medley 200 (4.54%) tests for (ASC) juniors under 12 years old.

There were statistically significant differences between pre and post measurements for post measurement in the physical variables, Leg muscle test (LM), Back muscle test (BM), Right hand power (RHP), Left hand power (LHP), long jump (LJ), free 200, back 200, brest

200, fly 200, and medley 200 tests for (ASC) juniors under 12 years old.

Recommendations

- ✓ Using.
- ✓ the ((TP) Exercises of (DS) leads to enhancement in physical variables and record level of different type of swimming sports, free 200, back 200, brest 200, fly 200, and medley 200 for (ASC) juniors under 12 years old.
- ✓ Using a Procedure a training courses (training drills and paddels by dolphins strikes) for trainers to prepare the swimming juniors and develop them.
- ✓ Measurements and similar research to determine the impact of (TP) Exercises of (DS) in other swimming sports activities and different ages in swimming sports.
- ✓ concern using (TP) Exercises of (DS) to enhancement and increase the speed and time record of swimmers.
- ✓ Using of quality exercises inside the training unit to develop training programs
- ✓ Performance of all competitions swimmers for butterfly swimming by dolphins swimming

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