Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XIII, ISSUE 2 Supplement, 2013, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Science, Movement and Health, Vol. XIII, ISSUE 2 supplement, 2013
September 2013, 13 (2), 118-123

THE EFFECTS OF COMBINED PROGRAM (LAND- AND AQUATIC EXERCISES) ON GLIDING UNDERWATER FOR YOUNG SWIMMERS

ALIAA HELMY[1]

Abstract
Purpose. Swimming analysis on up to 200 m events pointed out that the first 15 m plays an important role in the performance result. Hence the hydrodynamic ability to glide under water in a streamline position. Should not be neglected during training, especially in young competitors. Glide in one of five important tips of training .The purpose of this study was to identify Training Program (contains land exercise and water drills. And its effect on the glide performance in (15 m) crawls and breaststrokes in young swimmers
Methods. Sample contains (30 young swimmers) dived into two groups (control group) & (experimental group) , each one 15 young swimmers male (mean ± SD , age 13 ± 1.5 years , height 166 ± 8 cm , body mass 52.3 ± 11.3 kg. Study used tests to measure gliding includes: Starting block and asked to dive and swim foe 15 m crawl CR and 15 m breaststroke (BR) in two different trails. Later subjects underwent a series of hydrodynamic tests such as : diving and gliding under water in a streamline position for 8 m (DG) , pushing off from the wall and gliding underwater position 8 m (PG) , pushing off from the wall , gilding and swimming crawl for 12.5 m (PGC) , pushing from the wall , gliding and swimming breaststroke for 12.5 m (PGB) , sculling while floating on the back for 10m (SC) . Time was recorded.
Results. There was a statistically significant between the two measures (pre &post) for the experimental group and between the two (post) measures for control and experimental groups.
Conclusions. As a result the specific exercise program has been improved performance of gliding through crawl and breaststroke for young swimmers.
Key Words: land training, aquatic training, gliding underwater.

Introduction

The use of various types of exercises in champion sports is occasionally associated with complications that contradict the main goal of physical activity, which is maintaining human health. In order to eliminate or reduce the harmful effects of heavy exercises in champion sports and to achieve highly efficient exercises. In addition , entry of Early age into intensive physical training programs was becoming a widespread phenomenon, with children as young as 5 or 6 years undergoing training programs of increasing intensity, often reaching 20±30 h á week) (Theintz, et al. 1993).

Researchers forward to finding new methods to benefit the advantages and mitigate the risks of this kind of exercises. Water-based activities (WA) in recent years have gained popularity and are considered as one of the possible alternatives among the traditional physical activities for wellbeing and health. The reasons can be linked to several factors: buoyancy reduces the effect of weight bearing on skeletal joints and reduces compressive joint forces; the larger density of water (compared to air) and the drag force (Colado, et al. 2008) provides loading during all movements; the hydrostatic pressure and the water temperature improve blood flow and favorably alter the hemodynamic responses at rest and during exercise.

Water is an environment in which almost everyone can work hard without pain, and relax at the same time. Almost everybody can benefit from aquatic exercises. Improving the performance and technical aspects of tactical of the most important factors to improve the results of swimmers, so the processes to improve technically and tactically continue through all stages of the preparation of the swimmer through training long-term or during the training of seasonal as well and the ability of the swimmer on the compatibility between the components of the race different from the distance of the start and swimming and rotation and how to focus on the primary and composite components for each of these elements. Despite the fact that there is very little research supporting the benefits of exercising in water.

Considering the paucity of research in this regard, swimming analysis on up to 200 m events pointed out that the first 15 m plays an important role in the performance result. Hence the hydrodynamic ability to glide under water in a streamline position. Should not be neglected during training, especially in young competitors. Glide in one of five important tips of

[1]Faculty of physical education, Department of aquatic training, Helwan University, EGYPT
Email: ashamza@zu.edu.eg

training .The purpose of this study was to identify Training Program (contains land exercise and water drills. And its effect on the glide performance in (15 m) crawls and breaststrokes in young swimmers.

Methods

Sample contains (30 young swimmers) dived into two groups (control group) & (experimental group) , each one 15 young swimmers male (mean ± SD , age 13 ± 1.5 years , height 166 ± 8 cm , body mass 52.3 ± 11.3 kg. Study used tests to measure gliding includes: Starting block and asked to dive and swim foe 15 m crawl CR and 15 m breaststroke (BR) in two different trails. The researcher conducted on the sample homogeneity of basic research in the variables (age,height, weight, balance, strength of the flexible alarm, sliding 15 meters, sliding 12, 5 meters, 10 meters glide, glide 8 meters.

The procedures.

Training Protocol

The subjects in the aquatic experimental group and the land experimental group were given the training exercises at the same time and the same exercises with different of environment, for 12 weeks, twice a week. Each session was of 60 minutes' duration. The intensities to the training sessions was between 50 - 80%

The structure of a training session consists of:

1. Introduction - 3-5 Minutes

Explains the aim of the session, the contents of the training and the

Expectations concerning the workload according to the player's needs.

2. Warm up - 10 Minutes

Warm up can be split into general and specific parts. The purpose of the warm up is to prepare the whole organisms.

3. Main part(s) 40 Minute

Main part(s) can be split into physical and Technique parts

3.1. Physical part - 20 Minute: In the main part which is aimed to improve the

General or specific level of the physical conditions, this part included these exercises, (walking, jogging, swinging, etc.)

3.2. Technique part- 20 Minute: In the main part which is aimed to improve the general or specific level of the Technique conditions, this part included this jumps (Tuck jump - session - Pike jump- Split Leap Forward - Straddle Pike jump)

4. Cool down - 5-7 Minutes

Starting with a slow and easy jogging and followed by excellent stretching exercises.

Tools.

Balance of medical Balk to measure weight.
Ristamitr to measure length with poison.
A tape measure. - Stopwatch.
Testing facility. - Skill tests.

Physical Tests.

Balance.
The power of the two men.
Flexibility of the trunk.

Skill testing question:

15 m sliding, sliding 12, 5 meters, 10
meters glide, glide 8 m, and was 200 meters.
15 m sliding, sliding 12,5 meters, 10
meters glide, glide 8 meters, 200 meters Crawl

Equivalence among the groups

Was a parity between the Tribal measurements for the two experimental and control groups in the flexible alarm, sliding 15meters, 12,5 meter glide, glide 10 meters, 8 meters using the glide test and the Mann Whitney non barometer test.

A - Tribal measurement:

The researcher to conduct the measurement of tribal groups on the day of Friday /6/2010 and the measurement variables included the following: flexibility of alarm, the two men tested the ability - and the Balance (starting skill test for a distance of glide 15 meters, 12,5 meter glide, glide 10 meters, glide 8 meters. And measuring 200 m and 200 m was free

B - Measurement of the post:

Test the skill of starting distance on
9/7/2010.
Test the ability of the flexibility and balance 10/07/2010

Statistical analysis

All statistical analyses were calculated by the SPSS statistical package. The results were report as means and standard deviations (SD).Wilcoxon signed-rank test (non-parametric statistical hypothesis test) used to determine the differences. $p<0.05$ was considered as statistically significant.

Results

Table 1 Homogeneity of the sample

Measurements	Mean	Median	Std. Deviation	Skewnes
Age	12.64	12.6	0.86	0.14
Length	1.64	1.55	6.57	0.04
Weight	46.35	46.00	5.88	0.18
Balance	14.630	14.550	0.981	0.001
Ability	27.441	27.500	0.757	0.052
Flexibility of the trunk	23.968	24.230	0.615	0.017
Glide 15 m	9.854	9.560	0.636	0.800

Glide 12.5 m	8.096	8.140	0.511	-0.488
Glide 10 m	7.331	7.225	0.373	0.355
Glide 8 m	6.657	6.670	0.370	0.212
Brest 200m	3.202	3.200	0.036	0.267
Glide 15 m	9.866	9.855	0.537	0.125
Glide 12.5 m	8.902	8.960	0.379	0.075
Glide 10 m	7.619	7.440	0.527	0.878
Glide 8 m	6.343	6.400	0.552	-0.527
Crawl 200m	2.545	2.500	0.222	1.928

Table (1) show that the coefficient of torsion of the variables (age, height, weight, Glide 8 m و Glide 10 m, Glide 12.5 m, Glide 15 m) and Crawl 200m and (Glide 8 m, Glide 10m glide 12.5 m, Glide 15 m) and Brest 200m, and Balance, Ability of the Legs, Flexibility of the trunk ranged between (-0.527: 1.928) and these values confined between (±3) are located under the curve equinoctial indicating sample homogeneity.

Table 2 Significant differences between the measurements of the tribal groups in the experimental and control flexibility of alarm, sliding 15 meters, sliding 12,5 meters, 10 meter glide , glide 8 meters using the Mann Whitney test

Variables	Group		Average Ranks		Total Ranks		Value (U) Calculated	Level Significance
	Control group	Experimental group	Control group	Experimental group	Control group	Experimental group		
Balance	8	7	1.25	1.00	9.75	8.00	1.56	0.094
Ability of the Legs	7	8	1.25	1.50	10.00	10.50	1.47	0.124
Flexibility of the trunk	7	8	1.00	1.50	8.00	10.50	1.08	0.120
Glide 15 m	8	7	1.25	1.25	9.75	10.00	1.34	0.088
Glide 12.5 m	7	8	1.25	1.50	10.00	10.50	1.19	0.96
Glide 10 m	8	7	1.25	1.00	9.75	8.00	1.56	0.094
Glide 8 m	7	8	1.25	1.50	10.00	10.50	1.47	0.124
Brest 200m	7	8	1.00	1.50	8.00	10.50	1.08	0.120
Glide 15 m	8	8	1.25	1.25	9.75	10.00	1.34	0.088
Glide 12.5 m	7	8	1.25	1.50	10.00	10.50	1.19	0.96
Glide 10 m	8	8	1.25	1.00	9.75	8.00	1.56	0.094
Glide 8 m	7	8	1.25	1.50	10.00	10.50	1.47	0.124
Crawl 200m	7	8	1.00	1.50	8.00	10.50	1.08	0.120

Table (4) There are no statistically significant differences between measurements tribal for the two experimental and control group race Crawl (Glide 8 m, Glide 10 m, Glide 12.5 m و Glide 15 m) and Crawl 200m and (Glide 8 m, Glide 10 m, Glide 12.5 m , Glide 15 m) and Brest 200m , and Balance , Ability of the Legs , Flexibility of the trunk, as it made the differences level of significance was (0.088: 0.124), It is the largest values for the significance level that was acceptable to the researcher a level of significance 0.05, which shows the equivalence between the two groups.

Differences between pre and post measurements in the experimental group in the flexible alarm sliding 15 meters, 12, 5 meter glide, glide 10 meters, 8 meters using the glide test and Wilcoxon signed-rank test.

Table (5) Significant differences between the measurements (tribal - posttest) in the variables under consideration the control group Wilcoxon signed-rank test (N = 15)

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XIII, ISSUE 2 Supplement, 2013, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Variables	Average Ranks	Average Ranks		Total Ranks		Value (Z) calculated	Level Significance
		Positive	Negative	Positive	Negative		
Balance	Degree	4.00	8.29	4.00	116.0	-3.181	0.001**
Ability of the Legs	Degree	6.50	8.11	6.50	113.5	-3.040	0.001**
Flexibility of the trunk	Degree	0.00	8.00	0.00	120.0	-3.409	0.001**
Glide 15 m	Second	0.00	8.00	0.00	120.0	-3.408	0.001**
Glide 12.5 m	Second	3.50	6.94	10.50	55.5	-2.013	0.044*
Glide 10 m	Second	3.50	6.94	10.50	55.5	-3.302	0.001**
Glide 8 m	Second	0.00	7.5	0.00	105.0	-3.302	0.001**
Brest 200m	Second	4.00	8.29	4.00	116.0	-3.181	0.001**
Glide 15 m	Second	6.50	8.11	6.50	113.5	-3.040	0.001**
Glide 12.5 m	Second	0.00	8.00	0.00	120.0	-3.409	0.001**
Glide 10 m	Second	0.00	8.00	0.00	120.0	-3.408	0.001**
Glide 8 m	Second	3.50	6.94	10.50	55.5	-2.013	0.044*
Crawl 200m	Second	3.50	6.94	10.50	55.5	-2.013	0.044*

Table (5) Shows the existence of statistically significant differences between the measurement pre and the variables race Crawl (Glide 8 m, Glide 10 m, Glide 12.5 m, Glide 15 m) and Crawl 200m and (Glide 8 m, Glide 10 m, Glide 12.5 m , Glide 15 m) and Brest 200m , and Balance , Ability of the Legs ,Flexibility of the trunk post experimental group second in the variables and for measuring the post as the value of (Z)indexed respectively (-3.181), (- 3.040), (- 3.409), (-3.408), (-2.013), (-3.302) , (-3.302) respectively (-3.181), (- 3.040), (- 3.409), (-3.408), (- 2.013) and at the level of statistical significance was in a race Crawl (8 m, 10 p.m., 12.5 m, 15 m) , and the 200-meter race Crawl(0.001), and in the race was 200 meters (0.044), and all those values less than (0.05)

Table 6. Significant differences between the measurements (tribal - posttest) in the variables under consideration for the group pilot in Wilcoxon signed-rank test (N = 15)

Variables	Average Ranks	Average Ranks		Total Ranks		Value (Z) calculated	Level Significance
		Positive	Negative	Positive	Negative		
Balance	Degree	8.00	0.00	120.0	0.00	3.408-	0.001**
Ability of the Legs	Degree	8.00	0.00	120.0	0.00	3.408-	0.001**
Flexibility of the trunk	Degree	8.00	0.00	120.0	0.00	3.410	0.001**
Glide 15 m	Second	8.00	0.00	120.0	0.00	3.408-	0.001**
Glide 12.5 m	Second	8.00	0.00	120.0	0.00	3.419-	0.001**
Glide 10 m	Second	8.00	0.00	120.0	0.00	3.411-	0.001**
Glide 8 m	Second	8.00	0.00	120.0	0.00	3.408-	0.001**
Brest 200m	Second	8.00	0.00	120.0	0.00	3.408-	0.001**
Glide 15 m	Second	8.00	0.00	120.0	0.00	3.410-	0.001**
Glide 12.5 m	Second	8.00	0.00	120.0	0.00	3.408-	0.001**
Glide 10 m	Second	8.00	0.00	120.0	0.00	3.419-	0.001**
Glide 8 m	Second	8.00	0.00	120.0	0.00	3.411-	0.001**
crawl 200m	Second	8.00	0.00	120.0	0.00	3.408-	0.001**

Table (6) Shows the existence of statistically significant differences between the measurement pre and post experimental group second in the variables the variables race crawl (Glide 8 mو Glide 10 mو Glide 12.5 mو Glide 15 m) and Crawl 200m and (Glide 8 mو Glide 10 mو Glide 12.5 m , Glide 15 m) and Brest 200m , and Balance , Ability of the Legs , Flexibility of the trunk for measuring the post as the value of (Z)indexed respectively (-3.408), (- 3.408), (- 3.410), (-3.408), (-2.019), (-3.411), (-3.408), (- 3.408), (- 3.410), (-3.408), (-2.019), (-3.411),(-3.408) and at the level of statistical significance was in a race Crawl (8 m, 10 p.m., 12.5 m, 15 m) The race was 200 m and 200 m race Crawl (0.001), and all those values less than(0.05).

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XIII, ISSUE 2 Supplement, 2013, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Table 7. Significant differences between control and experimental groups in the dimensional measurements of the variables under consideration in the Mann –Whitney (N 1 = n 2 = 15)

Variables	Average Ranks	The control group		The experimental group		Value (Z) calculated	Level Significance
		Average Ranks	Total Ranks	Average Ranks	Total Ranks		
Balance	Degree	22.87	343.0	8.13	122.0	2.00	0.00❋❋
Ability of the Legs	Degree	22.93	344.0	8.07	121.0	1.00	0.00❋❋
Flexibility of the trunk	Degree	22.9	343.5	8.10	121.0	1.500	0.00❋❋
Glide 15 m	Second	17.70	280.5	12.30	184.5	64.50	0.045❋
Glide 12.5 m	Second	21.13	317.0	9.87	184.0	28.00	0.00❋❋
Glide 10 m	Second	20.10	301.5	10.90	163.5	43.50	0.003❋❋
Glide 8 m	Second	22.87	343.0	8.13	122.0	2.00	0.00❋❋
Brest 200m	Second	22.93	344.0	8.07	121.0	1.00	0.00❋❋
Glide 15 m	Second	22.9	343.5	8.10	121.0	1.500	0.00❋❋
Glide 12.5 m	Second	17.70	280.5	12.30	184.5	64.50	0.045❋
Glide 10 m	Second	21.13	317.0	9.87	184.0	28.00	0.00❋❋
Glide 8 m	Second	20.10	301.5	10.90	163.5	43.50	0.003❋❋
Crawl 200m	Second	22.87	343.0	8.13	122.0	2.00	0.00❋❋

Table (7) Shows the existence of statistically significant differences between the measurement pre and post experimental group second in the variables race Crawl (Glide 8 m, Glide 10 m, Glide 12.5 m, Glide 15 m) and Crawl 200m and (Glide 8 m, Glide 10 m, Glide 12.5 m , Glide 15 m) and Brest 200m , and Balance , Ability of the Legs, Flexibility of the trunk for measuring the post as the value of (U) indexed, respectively (2.00), (1.00), (1.50), (64.5),(28.0), (43.5), (2.00), (1.00), (1.50), (64.5),(28.0), (43.5),(2.00), and a t the level of statistical significance was in a race Crawl (8 m, 10 m to 12.5), and in the race Crowl 15 m was (0.045) and the 200-meter race was reached (0.00), and the 200-meter race Crawl (0.003), which is statistically significant at the level of (0.05).

Table 8. Differences in the rates of improvement between pre and post measurements for the two experimental and control groups in the flexible alarm, sliding 15 meters, sliding 12, 5 meters, 10 meter glide, glide 8 meters

Variables	The control group			The experimental group			
	Before	After	Change %	Before	After	Change %	Change %
Balance	14.393	15.104	4.708	14.867	16.167	8.041	6.571
Ability of the Legs	27.300	28.133	2.962	27.583	29.433	6.288	4.417
Flexibility of the trunk	14.393	15.104	4.708	14.867	16.167	8.041	6.571
Glide 15 m	9.960	9.203	8.222	9.747	7.506	29.855	22.608
Glide 12.5 m	8.228	7.184	14.532	7.963	6.463	23.221	11.162
Glide 10 m	7.391	6.832	8.177	7.272	5.667	28.314	20.551
Glide 8 m	6.847	6.197	10.490	6.468	4.867	32.886	27.311
Brest 200m	3.203	3.189	0.460	3.201	3.129	2.323	1.918
Glide 15 m	9.953	9.381	6.097	9.779	9.002	8.635	4.214
Glide 12.5 m	8.816	8.530	3.353	8.989	7.363	22.084	15.855
Glide 10 m	7.669	7.315	4.847	7.569	6.114	23.792	19.640
Glide 8 m	6.753	6.106	10.591	5.934	4.614	28.609	32.336
Balance	2.573	2.527	1.847	2.516	2.374	5.981	6.431
Crawl 200m	14.393	15.104	4.708	14.867	16.167	8.041	6.571

Table (8) differences in the rates of improvement between pre and post measurements for the two experimental and control groups in the variables race Crawl (Glide 8 m, Glide 10 m, Glide 12.5 m, Glide 15 m) and Crawl 200m and (Glide 8 m, Glide 10 m, Glide 12.5 m , Glide 15 m) and Brest 200m , and Balance , Ability of the Legs , Flexibility of the trunk the results were as follows:

Ranged from rates of improvement for the experimental group between (2.323% to 32.886%) for the measurement posttest, and ranged from rates of improvement in the control group between (0.460%

to 14.532%) for the measurement posttest, while the range difference between the two groups in rates of improvement between (1.918% to 32.336%) in favor of the experimental group.

Discussion

The results of Table (5) an improvement, but by simple changes in the physical and skill under the control group between pre and post measurements and for dimensional measurement, and these results agree with previous studies, (G.Michielon , et al. 2006) in that the practice of the sport of swimming to help improve the skill and physical variables under consideration in general and the logical consequence of the regularity in the performance leads to improved physical abilities and skills in an appropriate manner.

It is clear from the results of Table (6) the existence of evolution and improvement in a positive and significant in the varied physical and skill under discussion for members of the experimental group and attributed the researcher to apply the training program (ground - water) on a glide under the water for swimmers emerging in question This is consistent with what was noted by many researchers.

As can be seen from the results of Tables No. (7) and (8) the existence of evolution and improvement in a positive and significant in the varied physical and skill under discussion between the experimental and control groups to measure the post and in favour of the experimental group, and it shows that the proposed training program is working to improve performance skills where Many studies have indicated that good preparation physically works to improve the level of performance skills. (Invernizzi, et al. 2006)

From the above you see the researcher that the training program (ground - water) on a glide under the water for swimmers emerging a penalty key stages of physical preparation and skill so that it exercises preparatory private and can increase the intensity of exercise, where they become exercises especially advanced by increasing the number of groups or increasing frequencies or reduce the rest period, and thus can serve the special physical qualities next to improve the level of performance skill. (Cossor & Manson, 2001)

Conclusions

In light of the objectives of the study and its results were discussed and the researcher concludes the following:

1 - Has helped the program used to improve and develop the skills and physical variables under consideration in young swimmers.

2 - Resulted in skill and physical variables under consideration by the training program (ground - water) on a glide under the water for young swimmers to improve performance skills to the level of my skills (breast and Crawl) and reduce the time of performance.

Recommendations

In light of the objectives of the study and its results were discussed and the researcher recommends:

1 - Interest in the development of skill and physical variables under consideration, and the use of the training program (ground - water) to slip under the water level of performance for the development of young swimmers.

2- Conducting similar studies in the development plan preparation for the junior swimmers.

3 - Circulate the study to sports organizations to take advantage of them.

References

Colado, J.C., Tella, V., Triplet,t N.T. 2008, A method for monitoring intensity during aquatic resistance exercises. J Strength Cond Res 22:2045–2049

Cossor, J.M., Manson, B.R. 2001, Swim start performances at the Sydney 2000 Olympic Games. Paper presented at XIX international Symposium on Biomechanics in sports. Proceedings of Swim Sessions, San Francisco

Invernizzi, P.L., Scurati, R., Roione, G.C., Michielon G., 2006, Swimming and training: comparison between heuristic and prescriptive learning, Xth International Symposium "Biomechanics and Medicine in Swimming", Porto, 227-229

Michielon, G., Scurat,i R., Roione, G.C., Invernizzi P.L., 2006, Analysis and comparison of some aquatic motor behaviors in young children, Xth International Symposium "Biomechanics and Medicine in Swimming", Porto, 235-236

Theintz, G.E., Howald, H., Weis,s U., Sizonenko, P.C., 1993, Evidence for a reduction of growth potential in adolescent female gymnasts. J Pediatr 122:306±313