

# THE EFFECT OF TWO WAYS OF WARM UP ON SOME OF THE FUNCTIONALITY AND PERFORMANCE IN SWIMMING EVENTS FOR AGES 14-16 YEARS

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## Abstract

sports activities required to prepare the body physically and psychologically, yet apart of the tenths of second set winner in the competition, as well as a good swimmer's performance is also affected by other variables including heredity factor and special training, which is a warm up, considered by many researchers as a critical factor for performance in training and competition alike. The warm-up can be defined in swimming and other physical sports as an initial preparation of internal body system to link physical activity on, before the main event in competitions, or by performing daily training program, with the aim of improving physical condition and thus achieving accomplishment. Generally, warming up is aimed to raising body temperature, increasing blood flow, respiratory rate, heart rate and the flexibility of the muscles involved in the working muscles, taking into account the stage of exhaustion, as well as to adapt the swimmers with water familiarity and with platforms, wall, jumping, and information about the things surrounding the swimmer. It is believed that all such information of warm-up established the swimmer to make a better performance during the competitions

. The objective of this research is to evaluate the effect of two ways of warm up of some the functional capacities and the achievement in the 100 m freestyle event, the sample consisted of ten swimmers used to do different ways to warm up before swimming 100 m freestyle, they were divided into two groups, the first group (the control ) did the normal warm up (as a swimmer do in his daily training), the second group (experimental) used the warm up units prepared by the researcher, which included some varying proportions of maximum effort, The test was conducted of all swimmers and have been recorded all the search variables as a pretest , then they were tested after one week, as a post-test , where swimmers in their daily sessions trained usual program which prepared by their trainer , except that the experimental group was implementing a warm-up as organized by the researcher, then give the swimmers rest for 5 minutes, before testing 100 m freestyle, then the heart rate were measured after warming up and after completion of the test. The researcher concluded from the results that there is statistical significant between the warm-up methods used by two groups in the time of 100 m free style.

**KEYWORDS:** Method. Warm up-swimming. Age.

## 1. INTRODUCTION

As in all the digital gaming, swimming sport requires the overall physical, functional and psychological attributes such as force, stretching, and speed, as part of a second-tenths determines the winner of the competition. The performance of a good swimmer affected by a number of factors included his genetic and training factors, and the warming – up process, which is one of the module sections, which viewed by many researchers as a decisive factor for the performance in training and competition alike. We can swim definite "warm – up" as in other physical sports as the initial configuration of the body's internal organs to link with the needed physical activity before the main event in the competitions, or prior to the implementation of daily training module, in order to improve their physical condition or achievement. Generally warming – up aims to raise body's temperature, increase blood flow, respiration rate, heart rate, and flexibility of the muscles involved in the work, taking into account not to access to the exhaustion phase, As well as it ensures for the swimmer to adapt to water and familiarity with the jumping platforms, the wall of the pool, the fields and the media, And researcher believes that all of these aspects of the warm-up prepares the swimmer to provide the best performance during the competition.

The warm-up is considered to be the key when you make physical activity to start implementing the physical training or competitions, it's a set of physical exercises to prepare the internal organs of the body and stimulate energy systems used in competition or in the daily workouts, as well as its usefulness in the psychological preparation for the main section of the training module or competition.

Warm-up definition does not depend on the distance or time, but instead of that, any kind of activity related to swimming can be implemented to a certain extent, it can be felt trough it that body has reached a standby state to change the swimming speed without get tired, and gradually Swimmer will feel his need to some distance to the warm-up as the season training progresses than in the

past few days, and when the swimmer swims a certain period and still feel that his swimming is slow he has to try to change his swimming in the direction of speed.

The amount of the warm-up depends on a number of internal and external variables alike, included where is the swimmer from his swimming course or the number of hours of sleep, or what is the types of the food he eats, what is the temperature of the water, and age also plays a role. While most of children have a quick warm-up, older athletes tend to need longer warm-up and a more gradual in terms of size and intensity.

It's usual to perform warm-up exercises before starting daily exercises or before competitions for both short and long events with the aim of achieving the warm-mentioned objectives, usually long events requires that the warm-up being for longer period of time than it is in short events, and thus requires high energy consumption and may contribute to muscle fatigue in the absence of the order of its items appropriately and commensurate with the physical condition of each swimmer, and in general, the long-term warming may reduce the implementation of the daily workouts entries and thus affects the achievement.

The researcher sees through his follow-up to the swimmers' method of warming-up before entering the competitions that the research problem is the existence of a kind of non-order of warm-up items in terms of intensity and amount to fit the swimmer to enter the competition or to prepare for the implementation of the daily training modules with sufficient time to do a warm-up, although some studies have pointed to the existence of conflicting evidence on the impact of warming on the achievement, the researcher believes that the warm-up, whatever the method of execution is used to fit a swimmer from the physical, psychological and functional side to conduct daily training or enter in competitions.

The research aimed to:

1. Prepare the items of fitting section of the warm-up phase.
2. Identify the impact of any of the methods of the warm-up on the time of 100-meter freestyle swimming and some functional variables for swimmers ages (12-14 years)
3. Identify any methods used in the warm-up is better to improve some functional variables and achievement.

## 2. MATERIAL AND METHODS

**Research Methodology:** The researcher used the experimental method based design equal groups, a "system for testing or comparison between two or more groups" (Wajih Mahjoub, 2002), because of its suitability to the nature of the research problem.

**Research Population:** The research population is defined to be the swimmers who ongoing their daily training and present in the open international public pool (50 m) category (14-16 years) totaling 20 swimmers jurisdiction of free-swimming style.

**Research Sample:** The sample consisted of ten swimmers aged (14-16 years) were randomly selected to participate in this research, with training age (3-4 years), and (50%) of the original population, all swimmers were in the preparation phase of training season of the year during the days of the test (research), trained by five training units per week, and the amount and intensity of all the participants during this period was the same.

Homogeneity of the research sample and commensurability of the two sets of research:

Homogeneity of the research sample:

The researcher tests research variables regarding to the homogeneity of the sample in terms of chronological and training age and weight, as shown in the table (1) the homogeneity of the sample individuals in the mentioned variables.

Variables	A	B	The value of the coefficient of variation	Result
Age / year	14.5	1.39	0.870	matching
Training age / year	3.7	1.66	0.48	matching
Weight / Kg.	61	1.01	0.95	matching

Commensurability of the research sample:

The researcher measured research variables in calculating the time of (100 m) and heart rate after the warm-up and after the effort to see sample Commensurability in the mentioned variables, as shown in Table 2.

Table 2 shows the means and standard deviations for the time tests of 100m freestyle swimming and heart rate after the warm-up and after the effort and the value of (T) calculated and tabular and the result of the sample individuals.

Variables	Experimental group		Control group		T Value		Result
	A	B	A	B	Calculated	Tabular	
100m swimming time	61.6	1.11	61.62	0.97	0.22	3.36	Random
Heart rate after the warm-up	94	1.1	94.4	1.6	0.25		Random
Heart rate after the effort	145.2	1	144.8	1	0.35		Random

Under the degree of freedom of 8 and 0.05 cluing level

The research main procedures:

The pre-tests:

The researcher conducted the anthropometer measurements and the prior tests for 100m freestyle swimming and calculated the heart rate after warm-up and after completing 100m swimming to the research sample which was 5 swimmers in the international public pool, Thursday 7/8/2014, and then took the same measurements and the prior tests for the control group which was 5 swimmers in the same day, all variables was recorded in the research record.

The warm-up items:

The researcher prepared and ordered the warm-up items which were carried out by the Experimental group before they have the post-test which included the following items:

Start with light swimming for 5 minutes or equivalent to 400m without stop with (50-60%) intensity of the maximum.

Increasing the intensity level or keep it for another 3 minutes or equivalent to 200m with 70% intensity.

Take short break for 2 minutes, then do 2-3 × 100m slow interval with speed equivalent to heart rate (120b/m) with 80% intensity and at this time heart rate will be raised slightly from the stable position.

Have treatment and then do 2-3 × 25m with near to the maximum intensity.

Decreasing the speed slowly, and continuing swimming another 200m until reach to the start speed, at this time the swimmer will be ready to start the second section of the training unit or race.

Both groups have carried out the items of the same training curriculum in terms of amount, intensity and rest periods which prepared by their trainer aim to have its effect equal to all members sample during the week before the post-test, except when they make the warm-up before the daily training, the experimental group used warm-up prepared by researcher, and the control group carried out the usual warm-up, which they used to have during daily workouts.

The post-tests:

The researcher conducted a posteriori tests for the same measurements to the two groups of research and after the implementation of each of the items of the warm-up, each group according to what a prepared for it, after completing the implementation of the warm-up items prepared by the researcher for sample experimental group after a week of having the pre-test and on 14/8 / 2014 for the lack of impact of the daily training curriculum items prepared by the research sample coach, and on the same day the post-test was held for control group, with the same conditions in which the measurements and pre-tests conducted.

### 3. RESULTS AND DISCUSSION

The researcher presents, analyzes and discusses the results obtained from the research objectives and hypotheses in determining the effect of the warm-up items prepared by the researcher on the experimental group in improving the freestyle swimming time of 100m and heart rates before and after the effort.

Show the results of the differences between pro- and posttests in the research variables for the control and experimental group and analyze it

**Table 3: Shows the Means and standard deviations and (T) calculated and tabular value and Statistical significance of the pro- and post tests for freestyle swimming of 100m and heart rate before and after the effort for the experimental group.**

Tests	Pro-test		Post test		(T) calculated value	Result
	A	B	A	B		
100m free time	61.6	0.22	59.9	0.10	6.13	Moral
Heart rate after warm-up	95.6	0.195	103.2	0.122	4.94	Moral
Heart rate after effort	144.8	0.08	154.4	0.122	10.6	Moral

The tabular degree 2.77 on Statistical significance 0.05 and free degree 4

**Table 4: Shows the Means and standard deviations and (T) calculated and tabular value and Statistical significance of the pro- and post tests for freestyle swimming of 100m and heart rate before and after the effort for the control group.**

Tests	Pro-test		Post test		(T) calculated value	Result
	A	B	A	B		
100m free time	61.62	0.21	60.58	0.15	4.69	Moral
Heart rate after warm-up	94.4	0.182	99.2	0.018	2.16	Random
Heart rate after effort	145.2	0.11	147.6	0.09	1.43	Random

The tabular degree 2.77 on Statistical significance 0.05 and free degree 4

**Table 5: Shows the Means and standard deviations and (T) calculated and tabular value and Statistical significance of the pro- and post tests for freestyle swimming of 100m and heart rate before and after the effort for both groups control and experimental**

Tests	Pro-test		Post test		(T) calculated value	Result
	A	B	A	B		
100m free time	59.9	0.10	60.58	0.15	4.95	Moral
Heart rate after warm-up	103.2	0.122	99.2	0.018	3.16	Random
Heart rate after effort	154.4	0.122	147.6	0.09	6.45	Moral

The tabular degree 3.36 on Statistical significance 0.05 and free degree 8

Analysis of the results of tests of 100m freestyle swimming and heart rate changes after the warm-up and after the effort for the control and experimental groups: -

On noting the research results showed in tables (3), (4) of pro- and post testes for both control and experimental groups, moral differences appeared in favor of the post testes for 100m freestyle swimming for both groups, but the improvement that has occurred for the experimental group was the best, that appeared through means difference of two tests for the two groups.

The results showed that there is an effect with statistical significance between the two methods of worm-up in time test of 100m swimming (table 3) which used by the experimental group, and the normal method which used by swimmers before their training units and before competitions. (Table 4) the results were in favor of the worm-up prepared by the researcher for the research sample. The experimental group who used the worm-up prepared by the researcher was faster than the control group with (59.9 sec.) compared with the control group with (60.58 sec.). The results also showed that the participants' results were better after the suggested worm-up by the researcher, table 3 and 4 showed as well that the heart rate of the experimental group after the worm-up prepared by the researcher (103 b/m), while the heart rate of the control group after the worm-up prepared by their coach (99 b/m).

The research aimed to evaluate the effect of the items of suggested worm-up on achieving 100m freestyle swimming for the participants in the test. The recent research results refer to that freestyle swimming time of 100m has statistical significance for the group who carried out the worm-up prepared by the researcher (59.9 sec.) compared with the control group (60.58 sec.), and as studies pointed, worm –up helps raise the body's degree and increase blood flow and respiration rate and heart rate and flexibility of the muscles involved in performance and that fits swimmer better performance (king, 1979, Bishop, 2003), and as noted in the current research the heart rate after the warm-up of experimental group (103 b / m) was significant compared with the control group (99 b / m), and researcher attributed that to the increase in the volume of oxygen in the muscles and increase of the temperature and the effect of the psychological factor among swimmers. Overall, the experimental group had made the best times after the warm-up prepared by the researcher. This corresponds with what was found by (Zochowski, et al, 2007), and the researcher believes that this may have an impact on achievement in the 100m freestyle swimming for members of the experimental group as it leads to raise the volume of oxygen and thus can be used during physical performance.

The worm-up duration in the current study had effect on raise the body's degree and the muscles involved in performance, as well as the psychological side may contribute to the development of swimmers time (Bishop, 2003a), Where some sources indicate that the warm-up will lead to increased preparedness and gives time to focus before the race (the previous source), and this may clarify that the experimental group had achieved their best times after the worm-up prepared by the researcher. There are number of studies their results were inconclusive, also there were results for conflicting studies, (Romney et al., 1993) found development in the performance time of 200m after worm-up takes 15 minutes compared with 200m time without worm-up. Also (king, 1979) didn't find significant difference in 50m swimming time after worm-up for 400m or without worm-up, may by that was because of the sample size (13 swimmer), and varying ages young and old (9-24 years old), as well as 400m as worm-up wasn't enough to increase body and muscles temperature. For (Mitchell et al., 1993) he found that there wasn't a moral difference in time of 200m with worm-up with low intensity or with worm-up with high intensity, the researcher thought that worming-up for 400m distance with low intensity and high intensity wasn't enough to increase body and muscles temperature, as well as the high intensity caused muscle fatigue because it completed the worm-up at 110% of maximum oxygen Consumption, so he found that the low intensity wasn't enough to raise body and muscles temperature, and high intensity caused muscle fatigue. In the current research the researcher used intensity distribution method in the line with the race distance and swimmers ages (research sample) nature, and the results had Statistical significance between the pro- and post testes and for favor to the post test for the experimental group, and this has achieved the goal of research on the swimmers participating in the test achieved their best time in 100m free swimming after the implementation of the items of the warm-up, which prepared by the researcher.

#### 4. CONCLUSION

1. The use of the method of warm up prepared by the researcher may direct and significant impact on the improvement of time 100m freestyle swimming used by the experimental group.
2. The results of the experimental group in the post tests proved the validity of the warm-up items prepared by the researcher through a clear development in time of 100m freestyle swimming and heart rates after the warm-up and after the effort.
3. The researcher found through statistical indications that the items of the normal warm-up carried out by the control group did not contribute to the development of heart rates after the warm-up and after the effort.
4. The improved swimming time of 100-meter freestyle for the control group is the result of psychological factor and the determination to achieve the best time as it is the experimental group.

#### 5. RECOMMENDATIONS

1. Assure the method of warm up prepared by the researcher, because of its positive impact on the development of swimming time of 100m freestyle for swimmers aged 14-16 years old.
2. The coaches need to determine the best way to warm-up for their swimmers individually for the purpose of increasing the training and achievement.

3. Conduct similar studies to the distances of 400 m and up to 1500 m by determining the warm-up duration, required intensity and treatment time.

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