



RESEARCH ARTICLE

THE IMPACT OF DIVING NUMBERS ON SOME PSYCHOLOGICAL VARIABLES AMONG SOME INSTRUCTORS.

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ABSTRACT

The aim of the current research is to identify the effect of the number of dives on some physiological variables among diving instructors, using the descriptive approach "in a survey method" to suit the nature of the research and represent the research community in diving coaches registered with the Chamber of Diving and Marine Activities in Hurghada in the year 2020 AD in the Red Sea Governorate in the Arab Republic of Egypt Its strength is (116) diving instructors. The researchers selected a random sample from the research community. Its strength was (60) diving instructors, with a percentage of 51.7%. The study was carried out from 4/2/2020 to 15/2/2020, Physiological measurements were carried out under investigation. The two researchers concluded that the large number of dives among diving instructors led to a kind of physiological adaptation and improvement and a positive effect on some physiological variables (pulse rate in rest and after diving, vital (absolute) blood pressure, systolic and diastolic blood pressure at rest. After diving) for the benefit of diving instructors with a greater number of dives, the researchers also found that there is a difference between the categories of diving instructors according to the

- 1- Number of submarines
- 2- Physiological variables
- 3- Dive coaches

Introduction and research problem:

Scuba diving is one of the sports activities that fall under watersports, which has caught the attention of most physicians and physiologists to know the responses resulting from the practice of this sport of a unique nature, unconventional in comparison to other water sports, as it has a unique structure, which is the depths of water that require the human being to be provided with more Oxygen and air while diving (186,187) "Bahaa El-Din Salama" (2000 AD) indicates that athletes who practice diving under water are subject to a great and unique challenge as a result of the physical effort under water, and these athletes meet many physiological changes that the body must overcome in order to continue to perform well and these changes are often due to the increased pressure of the bronchial gases and the dissolved oxygen in the body fluids and other changes related to the nature, intensity, and duration of underwater performance (263). From what has been previously presented, and through the researchers' review of references and studies that deal with diving, one can determine the problem of this research, trying to identify the effect of the number of times diving on some physiological aspects of the body for the purpose of evaluating and directing training and learning of diving.

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INTRODUCTION

Aims: Learn the effect of the number of dives on some physiological variables among diving instructors.

Research hypotheses: To achieve the goals of the research, the researchers have developed the following hypotheses:

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There is a statistically significant correlation between diving numbers and the physiological variables under investigation by diving instructors. There are statistically significant differences between the categories of diving instructors according to the number of dives in the physiological variables under discussion.

Research plan and procedures: Research Methodology: The two researchers used the descriptive approach "in the survey method" as it suits the nature, objectives and sample of the research.

Table 1. Distribution of the research sample according to the number of dives (n = 60)

the num ber	Sample description	
20	From 1,700 dives to less than 3,200 dives	First category
22	From 3,200 dives to less than 4,700 dives	The second category
18	From 4,700 dives to 6,000 dives	The third category
60	Total	

Table 2. Correlation coefficients between the number of dives variable and the physiological variables under investigation (n = 60)

Correlation coefficient	measuring unit	Number of subs
		Physiological variables
-0.71	N / s	Pulse rate at rest
0.21	Mm / Hg	Systolic blood pressure at rest
0.31	Mm / Hg	Diastolic blood pressure at rest
-0.49	N / s	Pulse rate after diving
-0.53	Mm / Hg	Systolic blood pressure after diving
-0.48	Mm / Hg	Diastolic blood pressure after diving
0.44	Liter	Dynam ic competence
-0.14	%	Body fat percentage (Tanita)
0.62	Liter	Vital capacity (absolute)

Table 3. The tabular value (t) at two degrees of freedom (58) and the level of significance (0.05) = 0.361

The computed q value	Average of squares	Degree of freedom	Sum of squares	The source of contrast	measuring unit	the hub
9.43	441.07	2	882.13	Between groups	N / s	Pulse rate at rest
	46.78	54	2526.14	Within groups		
3.86	479.52	2	959.03	Between groups	Mm / Hg	Systolic blood pressure at rest
	124.31	54	6712.96	Within groups		
1.55	172.54	2	345.08	Between groups	Mm / Hg	Diastolic blood pressure at rest
	111.59	54	6025.84	Within groups		
4.89	528.34	2	1056.67	Between groups	N / s	Pulse rate after diving
	108.08	54	5836.06	Within groups		
4.57	491.25	2	982.50	Between groups	Mm / Hg	Systolic blood pressure after diving
	107.54	54	5807.34	Within groups		
4.98	275.08	2	550.15	Between groups	Mm / Hg	Diastolic blood pressure after diving
	55.19	54	2980.04	Within groups		
2.86	9.90	2	19.80	Between groups	Liter	Dynam ic competence
	3.46	54	186.68	Within groups		
0.24	1.91	2	3.81	Between groups	%	Body fat percentage (Tanita)
	8.08	54	436.28	Within groups		
10.48	3.57	2	7.14	Between groups	Liter	Vital capacity (absolute)
	0.34	54	18.4	Within groups		

Table (4). The tabular value of (q) at two degrees of freedom (2 and 54) and a level of significance (0.05) = 3.35

From 4,700 dives to 6,000 dives	From 3,200 dives to less than 4,700 dives	From 1,700 dives to less than 3,200 dives	Average	number	sample	axes
13.60*	8.93*	-	84.60	20	From 1,700 dives to less than 3,200 dives	Pulse rate at rest
4.67	-	-	75.67	22	From 3,200 dives to less than 4,700 dives	
-	-	-	71.00	18	From 4,700 dives to 6,000 dives	
8.93	5.20	-	126.20	20	From 1,700 dives to less than 3,200 dives	Systolic blood pressure at rest
14.13*	-	-	121.00	22	From 3,200 dives to less than 4,700 dives	
-	-	-	135.13	18	From 4,700 dives to 6,000 dives	
15.22*	4.85	-	80.10	20	From 1,700 dives to less than 3,200 dives	Pulse rate after diving
10.37	-	-	75.25	22	From 3,200 dives to less than 4,700 dives	
-	-	-	64.88	18	From 4,700 dives to 6,000 dives	
14.25*	9.67	-	141.50	20	From 1,700 dives to less than 3,200 dives	Systolic blood pressure after diving
4.58	-	-	131.83	22	From 3,200 dives to less than 4,700 dives	
-	-	-	127.25	18	From 4,700 dives to 6,000 dives	
10.05*	8.22*	-	88.80	20	From 1,700 dives to less than 3,200 dives	Diastolic blood pressure after diving
1.83	-	-	80.85	22	From 3,200 dives to less than 4,700 dives	
-	-	-	78.75	18	From 4,700 dives to 6,000 dives	
1.15 *	0.10	-	3.06	20	From 1,700 dives to less than 3,200 dives	Vital capacity (absolute)
1.05*	-	-	3.16	22	From 3,200 dives to less than 4,700 dives	
-	-	-	4.21	18	From 4,700 dives to 6,000 dives	

* There are statistically significant differences at the level of significance (0.05)

Research Society and Sample: The research community was represented by the diving instructors registered with the Chamber of Diving Tourism and Marine Activities in Hurghada for the year 2020 AD in the Red Sea Governorate in the Arab Republic of Egypt, which has a strength of (116) diving trainers. The two researchers distributed that sample according to the following table:

A Survey Study: The two researchers conducted the exploratory study on Sunday, 2/2/2020 AD, as it was applied to some divers in Hurghada, with a strength of (6) divers.

Research application: The basic study was carried out in the period from 2/4/2020 AD to 2/15/2020 AD, and the application and physiological measurements under investigation were carried out in the diving centers of Hurghada.

First, display of results: One-way analysis of variance between the research sample according to the categories of the number of dives into the physiological variables under investigation ($n = 60$). Scheffe test among the mean of the research sample according to the categories of the number of dives into the physiological variables under investigation ($n = 60$).

Second: Interpretation and discussion of the results: Table (2) shows that there is a statistically negative (inverse) correlation relationship between the variable of the number of dives and each of the physiological variables (pulse rate at rest, pulse rate after diving, systolic blood pressure after diving, diastolic blood pressure after diving) as the values of (T) The calculated value is greater than the tabular value of (t) at the significance level 0.05

There is a positive (direct) correlation statistically significant between there is a positive statistically significant correlation relationship between the variable number of dives and each of the physiological variables (biological efficiency, vital capacity (absolute)) as the calculated (t) values are greater than the tabular value of (t) when Indication level 0.05. There is a non-statistically significant correlation between the variable of number of dives and each of the physiological variables (systolic blood pressure at rest, diastolic blood pressure at rest, body fat percentage as the calculated (r) values are less than the tabular (t) value at the significance level 0.05. The researchers attribute this result to the presence of the diver underwater breathing compressed air, and thus the partial oxygen pressure in the respiratory medium is higher than the presence in the normal air pressure, and therefore the ability of blood to carry oxygen during diving is much higher than it is from the surface of the sea, and therefore the oxygen transport load on the heart muscle Lower, the heart rate decreases, so the pulse rate decreases immediately after diving and continues for about an hour after diving.

It is clear from Table (3) that: There are statistically significant differences between the research sample according to the categories of the number of dives in the physiological variables under investigation represented in (pulse rate at rest, systolic blood pressure at rest, pulse rate after diving, systolic blood pressure after diving, diastolic blood pressure after diving, vital capacity) Absolute) where the values of (q) calculated for these variables were greater than (q) tabular at a

level of significance (0.05), which necessitates making comparisons to determine the direction of these differences, and therefore the researchers used the least significant difference test Scheffe.

It is clear from Table (4) that: There are statistically significant differences between the mean scores of the first category diving instructors sample and the second category diving instructors in the physiological variables (pulse rate at rest, diastolic blood pressure after diving) and in favor of the second category diving instructors, while there are no statistically significant differences between the two categories in the rest of the physiological variables restricted search.

- There are statistically significant differences between the mean scores of the first class diving sample and the third class diving instructors in the physiological variables (pulse rate at rest, pulse rate after diving, systolic blood pressure after diving, diastolic blood pressure after diving, vital capacity (absolute)) and for the benefit of trainers Diving the third category, while there were no statistically significant differences between the two classes in the rest of the physiological variables under investigation.
- There are statistically significant differences between the mean scores of the second category diving instructors sample and the third category diving instructors in the physiological variables (systolic blood pressure at rest, vital capacity (absolute) and in favor of the third class diving instructors, while there are no statistically significant differences between the two categories in the rest of the physiological variables.
- The researchers attribute these results to the fact that the large number of dives led to a kind of adaptation and improvement in the level of physical fitness for the benefit of diving instructors who obtained a greater number of dives, which reflects the extent of professionalism with the large number of dives and the extent of physiological adaptation to exposure to such depths.

Conclusion

- That the greater the number of dives, the positive effect this has on some physiological variables (pulse rate at rest and after diving, vital capacity (absolute), systolic and diastolic blood pressure at rest and after diving) among dive instructors.
- There is a difference between classes of dive instructors according to the number of dives in the physiological variables (pulse rate at rest and after diving, vital capacity (absolute), systolic and diastolic blood pressure at rest and after diving).

Thanks and appreciation

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