



EXPERIMENTAL SCIENTIFIC INVESTIGATIONS TO GET AN OBJECTIVE CHARACTER OF THE SWIMMING TRAINING OF THE NAVIGATORS

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Abstract

The study's main task was to evaluate the swimming technique of the naval students, at various speeds, in order to increase their specific capacity to develop practical activities, in wreckage cases and survival cases, in extreme situations. The results in the study were obtained by scientific interference in a 30 students' group, (15+15). It was relieved that a technical response to the increasing speed action, already exists. The response was relieved inside many compounds, as: the increasing rhythm of the rowing, the optimal distance of every low heart stroke, the optimal speed at one can get advantage as maximal distance of each stroke.

Key words: applicative swimming, economical swimming, efficiency, speed, endurance, testing, etc.

I. INTRODUCTION

The distance the swimmer is taking by a single stroke, combined with the rhythm of the succession movement are the main components to offer the economy and the efficiency of the swimming. The progression speed is a result of the rhythm the arms are moving, and the resulting efficiency, the distance you cover at a stroke.

The researches showed the improvements in swimming have been brought by the improvement of the long strokes. The same conclusions had: Haz Guimaraes, 1983, Craig and the partners, in 1992, Chngalur and Brown, 1992. Recently they decided the highest class swimmers obtain a longer distance on every stroke, than the others (Wakayoshi and partners, 1995).

Almost unanimously, the scientists underline the **importance of the economy, of the swimming efficiency**, as main deciding factor of the performance. And the same thing is to be said about to increase the chances of the navigators' survival in case of disaster (wreckage)

II. MEANS AND METHODS TO SCIENTIFICALLY INVESTIGATE

1. The training lessons for the navigators' speed swimming

We followed the physiological and bio mechanical efficiency tightly linked with the swimming speed, according to the number of the lessons of specific training.

We investigated, and measured: the stroke, the rhythm, the increasing speed; the heart's rhythm, as a response of the specific force level, as well as the swimming speed; the capacity to recover after effort of the athlete; the efficiency of the swimming act.

The tested group: students of the I-sty and II-end year, two groups of each year, a witness and an experiment from each group. **The moment to do the test.** In spite the scientists recommend to standardize the tests, in the same day of the week, at the same hours, and the same conditions, we mention that in the navy we avoid this. We do not test for the sake of the test. We positively follow the formative effect of every pedagogical activity. The life and the various activities

aboard ships offers to everyone surprises, and the students and the navigators have to face every kind of challenges, efforts and moments of the day and night, in order to successfully achieve the tasks of the general rescue activities. In fact this is the major goal of this training and of the tests in the navy! **For the beginners-navigators just starting the training**, as the speed increases the heart's rhythm increases, too. Therefore, as the swimmer is forcing, he needs a bigger oxygen volume to be pumped in its lungs, and his heart is working at a high level, in order to respond the muscles need. As the speed is bigger the heart's rhythm will also increase, and the distance the swimmer is covering will decrease. As a conclusion, the moment the swimmer tries to increase the speed by increasing the stroke rhythm, he'll never make it if having a poor, un efficient technique, and he'll realize shorter and frequent strokes, without advancing the expected distance. Therefore it exists **an optimal stroke rhythm** according to the training level of every student. **The most efficient swimmers have to get a longer distance per stroke on short distances, at a lower hearts stroke.** The improvements technical and physical as well, have to be proved by improving this variable.

In our practical action we can also mention an interesting **status of an adaptation**, given by the increasing of the rhythm in order to maintain the constant speed as the distance per stroke is lowering. In this case we can decide the navigators are tired. We stressed, during our training process, on the period and the efficiency of the recovering period.

The well trained navigators, have a lowered heart's rhythm at the same speed, just because the swimmer is more physiologically efficient, he has a larger functional capacity, and a smaller oxygen quantity need.

The well trained swimmer's stroke will always be reduced as rhythm at a constant speed. Therefore, the swimmer is more efficient in the water and attacks a longer distance per stroke.

The training status is indicated by the period in which the heart's rhythm is reaching the rest levels, this way meaning the recover period is improving, and will help the further endurance period.



Some aspects of the experimental-scientific activity of the naval students in the Naval Academy „Mircea the Old” swimming pool, Constanta

As the tiredness is increasing, the distance per stroke of the swimmer is decreasing. They think the fatigue is in tight link with the capacity decrease of developing the necessary force to allow him to overcome the resistance to advancing.

III. THE RESULTS OF THE RESEARCH, OF THE INVESTIGATIONS AND THE TESTS

We miss the necessary room to mention more, but, we'll remind here a few requests we asked the students, as a result of our researches, tests and investigations. So, in the Tabel 1. we have these results as figures to better explain the way the training is responding requests.

Table 1

The levels for the civil and military students						
THE NOTE	FREE STYLE (TIME)		BREAST STROKE STYLE (TIME)		EQUIPPED SWIMMING (RESCUE WAISTCOAT AND THE LIFEBUOY) (TIME)	
	Boys (100 m)	Girls (50 m)	Boys (100 m)	Girls (50 m)	Boys (50 m)	Girls (50 m)
10	t ≤ 1'55"	t ≤ 1'10"	t ≤ 2'10"	t ≤ 1'30"	t ≤ 1'20"	t ≤ 2'00"
9	1'56"-2'00"	1'11"-1'20"	2'11"-2'20"	1'31"-1'40"	1'21"-1'30"	2'01"-2'10"
8	2'01"-2'10"	1'21"-1'30"	2'21"-2'30"	1'41"-1'50"	1'31"-1'40"	2'11"-2'20"
7	2'11"-2'20"	1'31"-1'40"	2'31"-2'40"	1'51"-2'00"	1'41"-1'50"	2'21"-2'30"
6	2'21"-2'30"	1'41"-1'50"	2'41"-2'50"	2'01"-2'10"	1'51"-2'00"	2'31"-2'40"
5	2'31"-2'40"	1'51"-2'00"	2'51"-3'00"	2'11"-2'20"	2'01"-2'10"	2'41"-2'50"
4	t ≥ 2'41"	t ≥ 2'01"	t ≥ 3'01"	2'21"	2'11"	t ≥ 2'51"

2. Training lessons of the sailors for the endurance swimming

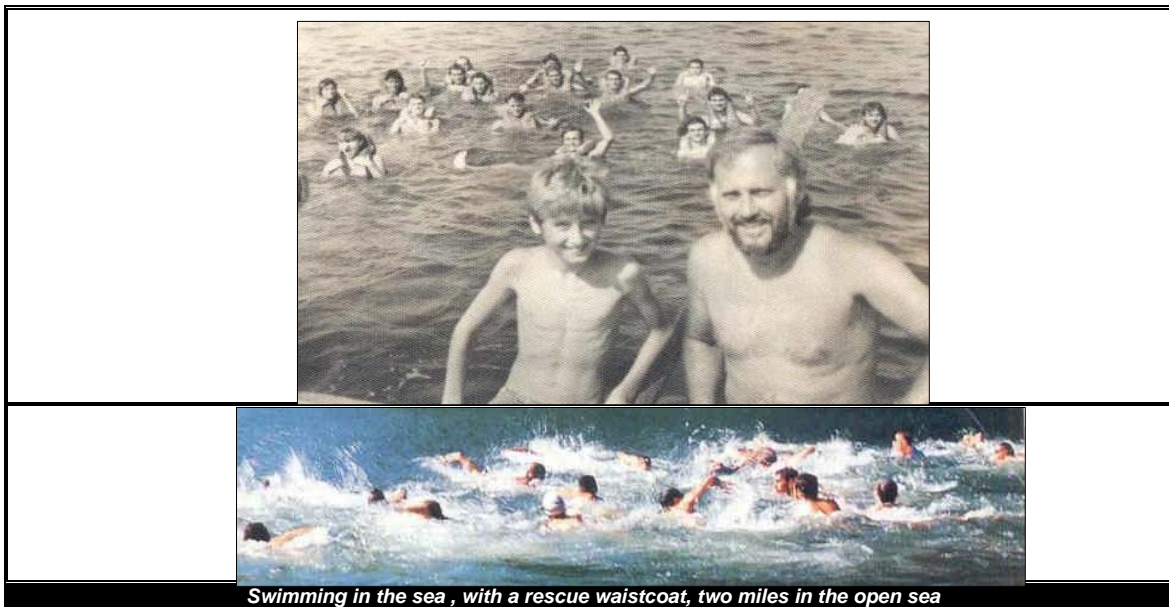
The endurance training and some other trainings to increase the the resistance to the fatigue and a greater tolerance to the lactic acidcan in volve to **improve the distances** the sportsman cover, as the stroking ryhm is decreasing. Some specialists suggested, the improvements on stroke can occur as a result of the increasing swimming efficiency, as much as a result of an increased metabolic capacity, or adaptatations of the nervous system (Craig and associations, 1985).

IV. CONCLUSIONS AND RECOMMENDATIONS

As the results and the researches in this field (reffering to the endurance swimming of the sailors), have

been presented in other works we'll just mention some conclusions we think necessary.

The analyse of the swimming economy with speed changes, provided valuable information over the resistance of the sportsmen to the effort, to maintain their force , their power, the swimming characteristics of every navigator. Concerning the endurance effort we have to mention theat every navigator will have to knoww to reach an imaginary bank, of 30 minutes swim, or an hour or two, or three...Or to save its forcxes to survive as much as necessary to be saved in a wreckrage case.



Swimming in the sea , with a rescue waistcoat, two miles in the open sea



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