

SELECTED PSYCHOLOGICAL ASPECTS OF QUALIFYING CANDIDATES FOR DIVERS AND SCUBA DIVERS

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ABSTRACT

The article presents the results of a pilot programme to include psychological tests in the qualification rules for candidates for military divers and scuba divers. 207 candidates for training at the Polish Army Divers and Scuba Divers Training Centre were tested. They were subjected to mental fitness tests, personality tests, psychomotor fitness tests and general fitness tests. Numerous psychological contraindications to undertaking training and diving service were identified; the most common issue identified being a lack of robustness of the diver's mental state for dealing with the situations likely to be encountered in the water. The conclusions suggest that, as in other countries, psychological examinations should be included in the qualification of candidates for diving. The results of the tests, despite their non-mandatory nature, were partly taken into account in the opinion of the Military Maritime and Medical Commission.

Keywords: diver qualification, psychological qualification, method selection.

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INTRODUCTION

The determination of the rules for selecting diver candidates was undertaken by numerous researchers [1,2,3,4,5]. In Poland, these rules are regulated by the "Regulations of the Navy Diving Service" and "Instructions on medical examination and assessment of physical and mental capacity to serve on a ship", which, however, quite generally refer to the selection of candidates in the psychological aspect. As is well known, diving is associated with a number of factors that burden the body while staying under increased pressure. Any psychophysical abnormalities and failure to comply with diving regulations may cause diving-related sicknesses and accidents. Divers are required not only to be physically fit, but also to be able to adapt, to have emotional balance and other mental predispositions [2,3,6].

Whilst the selection of candidates for diving and scuba diving in terms of their physical condition is relatively simple, the selection as regards their mental condition is much more challenging. The introduction of objective psychological assessment of candidates for divers has led to the implementation of psychological examinations in assessing the health of candidates. Psychological tests for the selection of divers and scuba divers began to be used in many European countries in the 1970s [2,3].

American military physicians, as well as French and Soviet ones, agree on the importance of selecting divers and scuba divers also from a psychological point of view [2,3,5,6,7].

In view of the fact that to date no psychological tests have been performed on divers in Poland when selecting candidates for diving, it was decided to select appropriate tests for the candidates for basic military service in the Diver and Scuba Diver Training Centre of the Polish Army in Gdynia. These tests would be undertaken in the Naval Psychological Laboratory, the results being presented to the Medical Committee when determining their diving capability.

MATERIAL AND METHODS

Psychological examinations were carried out on 207 seamen, candidates for scuba divers and classic divers, conscripted into basic military service at the Diver and Scuba Diver Training Centre of the Polish Army.

The psychological examination was carried out in the 3 weeks following recruitment. During this period, diver candidates were evaluated in terms of health by the Military Maritime Medical Commission with regard to their ability to dive. Evaluations of the results of the psychological tests were taken into account by the Commission.

Psychological examinations were carried out using the following tests:

- a) Tests to measure multi-factorial mental performance:
 - general ability test - 1,
 - the "landscape" test
- b) Tests determining personality traits:
 - H.J. Eysenck personality questionnaire.
 - J. Taylor personality scale;

- a) MRK-433 apparatus to measure psychomotor performance, whereby assessment is made of the following:
 - robustness of mental fitness
 - basic dimensions of the personality
 - severity of anxiety
 - psychomotor fitness

The General Ability Test (TZO-1) has been adapted for general intelligence testing. It consists of 3 parts:

Part I examines perception, Part II examines thinking processes (reasoning) and Part III assesses knowledge of the vocabulary, the ability to solve arithmetic tasks and spatial vision.

The "landscape" test is designed to monitor the efficiency of perceiving certain landscape elements on a designated section of land.

The assessment of the "landscape" test is complementary to the results of the multi-factorial mental fitness test. The ability for field observation is tested in candidates for diving and scuba diving courses.

H.J. Eysenck's Personality Inventory (Maudsley Personality Inventory) is used to measure the basic dimensions of the personality with view to balance-imbalance (neuroticism) and extra-introversion. The questionnaire consists of 64 questions. 24 of them measure neuroticism (scale N) while another 24 are used to measure extra-introversion (scale E). 16 questions determine the honesty of speech (scale K).

Neuroticism can be described as excessive emotional sensitivity, emotional lability, low resistance to stress and a tendency to break down in difficult situations. According to Eysenck, extraversion is an "outward orientation", a characteristic feature of these individuals is their low sensitivity and at the same time practicality and sociability. An introvert is "inwardly oriented", private, reserved and prefers solitude. The sensitivity of such an individual is subject to mental control, the attitude towards the future is pessimistic. According to Eysenck, the extra-introvert finds a basis in the processes of stimulation and suppression of the central nervous system.

J. Taylor's personality scale is the scale of manifested anxiety, based on the assumption that the reaction potential is a product function of impulse and habit [8]. This scale can be used to study this relationship. Thus, if Hull's claim that existing impulses are the factor by which the strength of existing habits is multiplied is correct, then changes in the strength of human impulse such as anxiety, combined with changes in habitual factors, should lead to implications that could be verified by systematic experimentation [8]. Persons with a strong drive should achieve a higher level of performance than persons with a weak drive, provided that both groups have habits corresponding to the activity being performed.

Taylor assumes that the results obtained on this scale are to some extent linked to emotional responsiveness, which in turn influences the level of impulse. Thus, individuals who score high on the anxiety scale may be chronically prone to react emotionally, or may be very sensitive to stimulation and respond to situations that have some emotional consequences.

According to both these interpretations, they would indicate higher emotional stimulation than individuals with low scores on the scale of anxiety in

general or at least in many situations [3,8].

The MRK-433 response meter is designed to test psychomotor functions by determining simple, complex and alternative response times. The principles of the test are that the test person reacts with a hand held or footswitch(es) to emitted optical and acoustic stimuli. The evaluation of the test results is expressed in sten scores.

RESEARCH RESULTS

The research was conducted in two groups. In group I 118 candidates for scuba divers were examined. The results of the study are presented in Table 1, whereas some of the examined functions are presented in Table 2. In group II, 89 candidates for scuba divers were

examined. The results, as before, are presented in Tables 1 and 2.

The assessment as being mentally unfit to dive in group I was taken into account in the evaluation of the candidates by the Committee and the results of the psychological examinations of group II were not taken into account in the medical committee.

It should be added that a number of candidates received negative results from psychological examinations at several test levels. These individuals should be subjected to enhanced analysis at the beginning of the training, as this recruitment group is most often made up of scuba divers who later drop out in the course of training for psychological reasons.

Tab. 1

Overview of the results of tests of diver and scuba candidates regarding their diving capability.

No. of subjects	Unfit			Unfavourable result of psychological tests	Dropping out in the course of training
	Due to psychological reasons	to	Due to other reasons		
Group I 118	15		18	25	5
	<i>0g,25</i>				
Group II 89	6		19	37	Not examined
	<i>0g,25</i>				

Tab. 2

Overview of the impaired mental functions and personality disorders in the subjects.

Group	Low level of mental fitness	Neurotic tendencies	Psychopathic tendencies	Anxiety level	Extended response time
Grupa I	18	3	-	8	Not examined
Grupa II	17	15	2	3	5

CONCLUSIONS

1. Candidates for divers and scuba divers should have a psychological examination taking into account: level of mental fitness, basic results of personality traits, level of anxiety and psychomotor performance.

2. The results of the psychological tests should be taken into account in the assessment of diving capacity by medical committees.
3. The implementation of psychological tests should contribute to the reduction of the drop-out rate of servicemen and women during diving training.

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