

SELECTED PSYCHOLOGICAL ASPECTS OF RECRUITING CANDIDATES FOR DIVING AND SCUBA DIVING

Władysław Wolański, Stanisław Pełka, Józef Ramisch

Polish Army Divers and Scuba Divers Training Centre, Psychological Laboratory of the Polish Navy

ABSTRACT

This paper presents the results of a pilot programme to include psychological tests in the recruitment rules for candidates for military divers and scuba divers. A total of 207 candidates to undertake training at the Polish Army Divers and Scuba Divers Training Centre were examined. They were subjected to tests of mental fitness, tests examining personality traits, tests of psychomotor fitness and tests of general fitness.

Numerous psychological contraindications to undertake diving training and service were found; the most common was a low degree of mental fitness.

In conclusion, it was suggested that, following the example of other countries, psychological testing should be included in the selection of candidates for divers.

The results of the tests, although not obligatory, were partly taken into account in the opinion issued by the Military Medical and Maritime Commission.

Keywords: diver selection, psychological tests for divers, method selection.

ARTICLE INFO

PolHypRes 2024 Vol. 87 Issue 2 pp. 51 – 56

ISSN: 1734-7009 **eISSN:** 2084-0535

DOI: 10.2478/phr-2024-0011

Pages: 6, figures: 0, tables: 2

page www of the periodical: www.phr.net.pl

Publisher

Polish Hyperbaric Medicine and Technology Society

Original article

**Originally printed in Rocznik Służby Zdrowia
Marynarki Wojennej 1980**

Acceptance for print:in PHR: 25.03.2024 r.



INTRODUCTION

The principles for the selection of candidates for diving have been established by many researchers [1,2,3,4,5]. In Poland, these principles are regulated by the "Regulations of the Navy Diving Service" and the "Instructions on Medical Examination and Assessment of Physical and Mental Capacity for Service on a Ship", which, however, rather generally refer to the psychological aspect of the selection of candidates. As is well known, diving involves a number of stresses on the body while under increased pressure. Any psychophysical abnormalities and non-compliance with diving regulations can cause diving-related illnesses and accidents. Divers are required not only to be physically fit, but to be adaptable, emotionally balanced and be mentally predisposed for the job [2,3,6].

The selection of candidates for scuba and diving in terms of adequate physical fitness presents little difficulty, whereas selection based on the psychological-competency-to-dive is much more complex. Searches for an objective psychological assessment of candidates for divers have led to the inclusion of psychological tests in the assessment of candidates' health status. Psychological tests in the recruitment of scuba divers and divers in many European countries have been used since the 1970s [2,3].

American, as well as French and Soviet military doctors, agree on the importance of using psychological tests when recruiting divers and scuba divers [2,3,5,6,7].

In view of the fact that no psychological examinations of divers have been carried out in Poland to date when selecting candidates for diving, a decision was made to identify appropriate tests and carry out psychological examinations at the Psychological Laboratory of the Navy for candidates for basic military service at the Divers and Scuba Divers Training Centre of the Polish Army in Gdynia and to present the results of the examinations to the Medical Commission when determining fitness to dive.

MATERIAL AND METHODOLOGY

Psychological examinations were conducted on 207 sailors, candidates for scuba divers and classical divers, enlisted for basic military service at the Divers and Scuba Divers Training Centre of the Polish Army.

Psychological examinations were conducted in the 3rd week after enlistment. During this period, the candidates were assessed for health by the Military Medical and Maritime Commission as to their fitness to dive. Partial assessments of the results of the psychological examinations were taken into account by the above-mentioned Commission.

Psychological examinations were carried out using the following tests:

- a) Tests measuring multifactorial mental performance:
 - general ability test,
 - the 'landscape' test.
- b) Tests measuring personality traits:
 - H.J. Eysenck personality questionnaire,
 - J. Taylor's personality scale.
- c) MRK-433 apparatus to measure psychomotor performance, whereby the assessment covered:
 - mental fitness,

- basic personality aspects,
- anxiety intensity,
- psychomotor fitness.

The test of General Abilities (GAT-1) has been adapted to examine general intelligence. It consists of three parts:

Part I examines perceptual skills, Part II examines thinking processes (reasoning), while Part III assesses dictionary knowledge, the ability to solve arithmetic tasks and spatial vision.

The "landscape" test is designed to test the ability to perceive specific elements of the landscape in a designated section.

The assessment of the "landscape" test is complementary to the results of the multifactorial mental ability test. Aptitude for landscape perception is tested in candidates referred to the scuba diving and diving course.

The Maudsley Personality Inventory is used to measure the core dimensions of balanced-unbalanced personality (neuroticism) and extra-introversion. The questionnaire consists of 64 questions, 24 of them measure neuroticism (N scale), and further 24 are used to measure extra-introversion (E scale), 16 questions measure the sincerity of statements (K scale).

Neuroticism can be defined as excessive emotional sensitivity, emotional vacillation, low resistance to stress and a tendency to break down in difficult situations. Extraversion is, according to Eysenck, an 'outward-looking attitude', characterised by their low sensitivity while being practical and sociable. An introvert is 'inwardly oriented', closed in, reserved, and prefers solitude. His emotionality is subject to mental control, his attitude to the future is pessimistic. Extra-introversion, according to Eysenck, finds its basis in the excitatory and inhibitory processes of the central nervous system.

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

Taylor assumes that scores on this scale are in some way related to emotional reactivity, which in turn influences the intensity of the impulse. Thus, individuals scoring high on the anxiety scale may be chronically prone to react emotionally, or they may be highly sensitive to arousing stimulation and respond to situations that have some emotional consequences.

According to both interpretations, they would indicate higher emotional arousal in general or at least in many situations than people with low anxiety scores [3,8].

The MRK-433 reaction meter is designed to test psychomotor function by determining the timing of simple, complex and alternative reactions. The principles of the test are that the subject reacts with a hand or foot button(s) to the emitted optical and acoustic stimuli. The test results are expressed as a standard ten value.

RESULTS OF STUDIES

The study was conducted in two groups. In group I, 118 candidates for frogmen were tested. The results of the study are presented in Table 1, while Table 2 shows some of the functions studied. In group II, 89 candidates were tested. The results, as before, are presented in Tables 1 and 2.

The assessment as mentally unfit to dive in group I was taken into account during the assessment of the candidates by the Military Medical and Maritime

Commission, while the results of the psychological tests of group II were not taken into account by the medical examination commission.

In addition, a number of candidates were negatively assessed in psychological test at several levels of testing. These individuals should have been better examined at the start of the training, as this group tends to contain divers who drop out of training for psychological reasons.

Tab. 1

Results of the test for candidates for divers and scuba divers as to their aptitude for diving.

No. of test participants	Unfit		Negative result of psychological test	Training dropout rate
	Mental reasons	Other reasons		
Group I 118	15	18	25	5
	<i>0g, 25</i>			
Group II 89	6	19	37	Not tested
	<i>0g, 25</i>			

Tab. 2

The list of some reduced mental functions and personality disorders in tested candidates.

Group type	Low mental fitness	Neurotic inclinations	Psychopathic inclinations	Anxiety intensity	Expanded response time
Group I	18	3	-	8	Not tested
Group II	17	15	2	3	5

CONCLUSIONS

1. Candidates for divers and scuba divers should undergo psychological examination including: the level of mental fitness, basic scores on dimensions of personality, anxiety intensity, and psychomotor performance.
2. The results of psychological tests should be taken into account when medical examination commission assesses fitness to dive.
3. Psychological examinations should reduce the dropout rate of soldiers participating in training for divers.

REFERENCES

1. Dołatkowski A., Ulewicz K.: Zarys fizjopatologii nurkowania. Warszawa. 1974.
2. Miasnikow A.P.: Medyczne zabezpieczenie pletwonurków, akwanautów i pracowników kesonowych. Leningrad 1977.
3. Michaelis W., Rickers G.: Wahrmed. Mschr. Heft 3/1973, 79. Indywidualna charakterystyka pletwonurków bojowych.
4. Pełka S.: Wstępne wyniki badań psychologicznych kandydatów na nurka i pletwonurka. Przegląd Morski 2/72.
5. Szikanow E.P.: Podręcznik pletwonurka. Moskwa. 1973.
6. U.S.Navy Diving Man.: Navy Department. Washington. 1970.
7. Biuletyn urzędowy Ministerstwa Pracy. Paryż. 1974.
8. C.N. Cofer M.H. Appley: Motywacja. Teoria i badania. PWN Warszawa. 1972.

Władysław Wolański

Ośrodek Szkolenia Nurków i Pletwonurków Wojska Polskiego,
Pracownia Psychologiczna Marynarki Wojennej
Ul. Rondo Bitwy pod Oliwą 1
86-103 Gdynia

