

*Капустинская О.А.*

Изучены степени воздействия факторов риска первичных проявлений на нейрорегуляторную дистонию (НЦД) в структуре развития сердечно-сосудистых заболеваний с учетом принадлежности работников к той или иной профессиональной группе. Выявлены характерные изменения минерального обмена с накоплением внутриклеточного  $\text{Na}^+$ , задержкой и накоплением его в тканях с тенденцией к повышению потери  $\text{K}^+$  на последующих стадиях патологического процесса.

Изучение экскреции катехоламинов с

мочой (биомаркеры состояния симпато-адреналовой системы), анализ факторов производственной среды и трудового процесса, проведение психофизиологического тестирования, первичных проявлений заболевания сердечно-сосудистой системы позволяют диагностировать НЦД на ранних стадиях, что способствует стратификации степени риска и определение поражений органов-мишеней на начальных стадиях, позволяет предотвращать трансформацию заболевания в артериальную гипертензию и снизить риск развития сердечно-сосудистых заболеваний.

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## MEDICAL EXAMINATIONS OF SEAFARERS AND TRAINING FOR MEDICAL DOCTORS IN MARITIME HEALTH

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### Introduction

The maritime industry is one of the most international trades in the world. Ships sail from sea to sea and transport cargoes from country to country, from one continent to another. A ship-owner lives in one country, his ships are sailing under the rules and regulations of another country, and his seafarers on board ship come from different countries. Even more than 20 nationalities and cultures can be represented on board a single ship. Each seafarer must have a medical certificate attesting that he/she is fit for work at sea.

International bodies such as The World Health Organization (WHO), The International Labour Organization (ILO) and The International Maritime Organization (IMO) have laid down conventions, regulations and recommendations which include training requirements for medical doctors carrying out medical examinations for seafarers. The European Union (EU) and the Union Europeenne des Medecins Specialistes (UEMS) have also laid down their own guidelines and regulations. Almost every single country has its own rules and regulations, together with training courses, for their doctors.

This paper concentrates only on rules and regulations laid down by WHO, ILO and IMO concerning the competencies of medical doctors carrying out medical examinations for seafarers.

The most important international regulations laid down by these bodies are as follow:

- ILO: Medical Examination (Seafarers) Convention, 73/1946
- ILO: Health protection and medical care (Seafarers) Convention 164/1987
- ILO/WHO: Guidelines for Conducting Pre-sea and Periodic Medical Fitness Examinations for Seafarers D.2/1997

### MEDICAL EXAMINATION (SEAFARERS) CONVENTION, ILO 73/1946

Medical Examination (Seafarers) Convention, ILO 73/1946 (1), in its article 3, states that every person on board ship must have a medical certificate attesting to his fitness for the work for which he is to be employed at sea, signed by a medical practitioner. Article 4 states that each country should prepare the nature and the content of the medical examinations on a tripartite basis (state authorities, employers and employees) taking into account especially the age of the seafarer and his duty on board ship. The medical certificates shall attest that hearing, eye sight and colour vision on deck service are satisfactory. The medical certificate shall also attest that the seafarer is not suffering from any disease likely to be aggravated by, or to render him unfit for service at sea, or likely to endanger the health of other persons on board.

Thus, convention 73/1946 supposes that the examining medical doctor should know:

- Health and fitness demands of the work on board ship

- Effects of the age of the seafarer on his fitness at sea (young seafarers, old seafarers?)
- How to detect a possible disease of an individual seafarer during the fitness examination and how to make the prognosis of that disease
- How to eliminate from on board ship persons with diseases which could endanger the health of other persons
- How to examine eye-sight, hearing and colour vision, and the satisfactory minimum limits of these senses.

### Health and fitness demands

The examining doctor must be familiar with maritime occupational medicine. The doctor must know the work on board various types of ships, in different departments and in different ranks. The doctor must also know when the health of the examinee is inadequate for work on board ship. The annex of the STCW-code helps the medical doctor a lot in this determination (2).

Fitness for work on board ship is a very complicated combination of health status, ill health, diseases, work motivation, training, intelligence, leadership and management on board ship, as well as social atmosphere etc (Figure 1). How can all these parts of fitness and their combination be evaluated in the case of an individual seafarer?

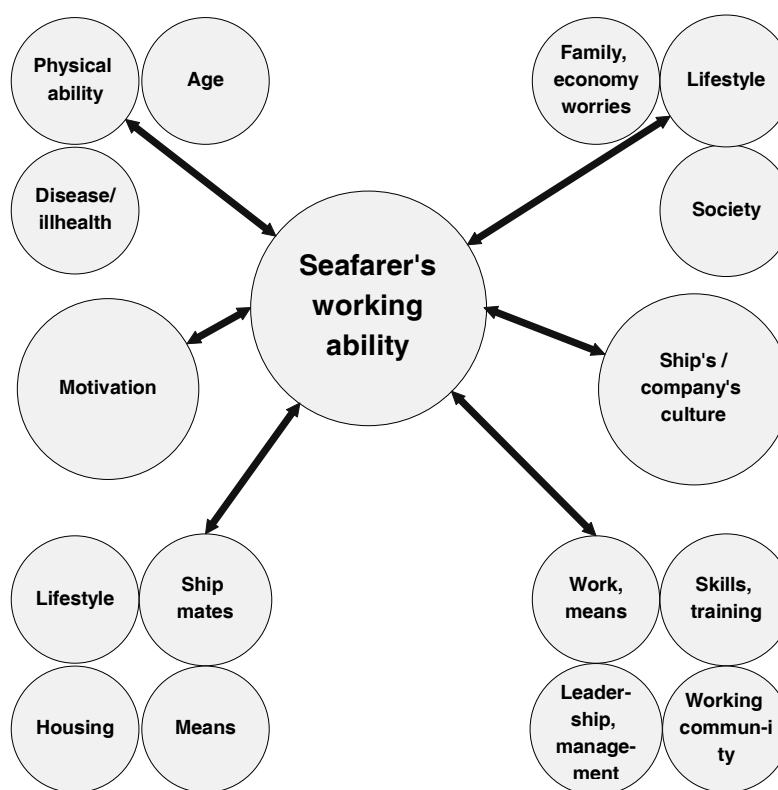
The lack of clear worldwide health demands and methods to estimate the effects of both medical status and work performance together with the varying demands of shipping companies lead to a wide variation in medical examinations in different countries.

Very often the basic health standards demanded by, e.g. shipping companies appear to be too high compared with real needs ("just for sure"). The

shipowner wants to have only "supermen". As long as there are enough candidates to select from this practice will continue. However, the attraction of a seafaring occupation is decreasing and there is already a lack of new seafarers. Supermen must soon be replaced by "suitable, good enough seafarers".

The Seafarer's Health Improvement Programme guidelines for the medical examination of seafarers (S.H.I.P's, 3) from the USA provide a new, modern model of how the effects and risks of an individual disease on sea fitness should be estimated. SHIP's clear "health risk evaluation thinking" should be taken as a basis when renewing and unifying the medical examinations of seafarers. This risk evaluation process has also been adopted by ILO/WHO Guidelines (4). Without such a new approach, old and often even false beliefs and traditions guide modern medical examinations.

### Effects of age on fitness for work at sea



**Actors having influence:**

- Shipowner
- management, leadership
- Occup. health services
- General health care
- Social insurance
- Seafarer him-/herself

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Seafarers under 18 years of age should be examined once a year so that the seafaring occupation does not cause any harm to their health and development (1, 5). Nobody has estimated this “*piae cantiones*” in practical life; what to look for and how! Most seafarers today are over 18 years, so the problem of young age has been solved in most countries.

Today's problem is formed by old seafarers. Ageing correlates with an increased appearance of various health defects and diseases. Although the body gets older, slower and maybe weaker, long work experience and knowledge can compensate for some parts of the aging losses. How can a medical doctor take this into account when carrying out medical examinations?

### **Finding a disease and making the prognosis**

The efficacy of a single medical examination is rather often overestimated.

The doctor has usually no or only limited knowledge of the previous medical history of the seafarer to be examined. Most of the information the doctor has in the examination situation is based on the subjective report of the examinee, on the report which the seafarer is willing to give to the doctor voluntarily, e.g. the diagnosis of epilepsy is usually impossible during a routine medical examination without the patient's own report or other information about his previous health history.

Laboratory measurements and functional tests of muscles, joints and cardiopulmonary performance give information about the functional capacity of the seafarer. The functional capacity is not, however, the same as work performance! Weight lifting is not the same as stair climbing! Can the medical doctor test a seafarer in his/her normal working surroundings? The answer is NO.

A common medical slogan is that “only an unexamined person is a healthy person”. How wide a range of medical tests should be connected with routine medical examinations of seafarers? Do the tests used identify all health defects affecting the working ability of a seafarer? What are the most relevant tests clearly connected with the working ability of the seafarer?

No international body has even objectively thought which diseases, medical diagnoses as such, are an obstacle to service at sea. And what are the relevant tests to detect these diseases when doing a medical examination? Why, e.g. can HIV-infection, which at the early stages does not cause any symptoms, prevent service at sea

in some countries? Which of us knows for sure that he or her does not have HIV?

As stated above, the past and today are rather unclear when thinking about medical fitness. What about the future? Should the prognosis of a disease of an experienced seafarer be made for the following 2 years, the usual time to the next medical examination, or for a longer time period? For the rest of his life? In today's business life, even two years seem to be a rather long time.

### **Need for treatment on board ship**

The treatment needs of a medical condition on board ship should, of course, always be remembered, whether the sailing period is shorter or longer. But how can we assess the occurrence of the treatment needs on board ship when the medical condition varies from time to time? Who gives the doctor a crystal ball to see the future with?

EU directive 29/92 (6) provides EU member states with a regulation concerning the contents of a ship's medicine chest. IMO has also given a recommendation for the first-aid bag on Ro-Ro-passenger vessels sailing without a doctor on board ship (7). The International Council of Cruise Lines (ICCL) has its own guidelines for medical facilities on board cruise ships (8). Nearly every country has its own national regulations concerning ship's medicine chest. Every medical doctor working in the maritime world should know at least the national and flag-country regulations concerning medical facilities on board ship.

### **Elimination of sick persons from work at sea**

There are many diseases which at least in certain positions on board ship can endanger the health and well-being of other persons on board ship. A master with eye-sight defect is not fit to steer the ship. But what about a steward with the same disease in the galley? The situation is totally the opposite with salmonellosis.

Seafarers coming from areas where active tuberculosis is a common disease should be x-ray tested to eliminate the risk of tuberculosis spreading among the shipboard personnel. But what is the evidence-based time period between x-rays to be sure that the seafarer is not suffering from tuberculosis? How often should salmonellosis be checked for among the catering personnel?

### **Eye-sight, hearing and colour vision**

The national eye-sight standards for

seafarers usually concern only distant vision with and without spectacles. Though the IMO has given its recommendations for minimum eyesight and hearing demands, adopted later also into ILO/WHO Guidelines for conducting medical fitness examinations for seafarers (4), they still vary a lot from one country to another.

The testing of vision acquirance should be a rather simple procedure. The situation is identical when testing colour vision or hearing. However, in practice, every-day testing procedures are far from constant leading variation in test results depending on the testing person and testing method. Thus, even simple basic medical examinations should be guided and unified.

**ILO: HEALTH PROTECTION AND MEDICAL CARE (SEAFARERS) CONVENTION 164/1987**

Convention 164/1987 (9) by the ILO states that health and medical care on board ship should also include the prevention and treatment of diseases and medical facilities on board ship. Article 12 states that there should be a standard medical form for medical records on board ship. Medical doctors should have closer international cooperation, they should participate in rescue activities and in the training of seafarers and their health promotion.

Disease prevention and health promotion among seafarers are thus the responsibility of shipping companies (and company doctors, company occupational health service?). The doctors have an important role in health education and health promotion among seafarers. This information and support should can be given, e.g. during every medical examination. In training syllabus of medical doctors, training in preventive medicine is given only a small number of hours if any, so it should be included in their postgraduate training in maritime health.

**ILO/WHO: GUIDELINES FOR CONDUCTING PRE-SEA AND PERIODIC MEDICAL FITNESS EXAMINATIONS FOR SEAFARERS D.2/1997**

The clearest requirements concerning for the competence of medical doctors carrying out medical examinations for seafarers are given by ILO/WHO guidelines from the year 1997 (4). A medical examiner, so authorized by the competent authority, should be a licensed physician; and should be experienced in general and occupational medicine or maritime occupational medicine. The examiner doctor should have a knowledge of the living and working conditions on board ships and should be provided with written guidance on the procedures for the conduct of medical

examinations of seafarers, including information on appeals procedures for persons denied a medical certificate as the result of an examination. He/she should also enjoy absolute professional independence from employers, workers and their representatives in exercising their medical judgement in terms of the medical examination procedures.

Thus, there is a clear parallelism between occupational and maritime medicine. Seafarers' medical examinations are seen as occupational on-entry or follow-up medical examinations.

The professional independence of examining doctors is very important, especially when many doctors are working for the shipping companies. The doctors must know and follow ethical rules especially strictly in the present situation when no comprehensive lists of contraindications for sea fitness on the level of the individual seafarer exist. The list of diseases in the guidelines can only provide some guidance, it cannot replace sound medical judgement. The final decision lies in the hands of the examining doctor!

**Estimating the risks of a disease**

The principles of SHIP (3) as mentioned above have been included in the guidelines. The examining doctor should be able to evaluate

- the critical time needed for treatment / access to appropriate land-based care
- the extent of the threat and danger caused by the medical problem to the patient and to the safety of the vessel
- the current risk of occurrence of the medical problem.

When there is a health problem which affects the fitness of a seafarer but does not make him/her totally unfit for work at sea, restrictions on time, position, trade area or type of ship, as mentioned in the guidelines, may be needed.

The risk evaluation process is rather unfamiliar to medical doctors and should be taught during postgraduate training in maritime medicine.

The need for evidence based-medicine when carrying out medical examinations and when evaluating medical needs on board ship has arisen recently. However, where does the doctor get objective data about seafarers' fitness to carry out his/her work on board ship?

Every seafarer, every work task on board ship, every ship, every sailing region / sea and every harbour and event on board ship is a unique case. Even though, in the light of statistics, general rules and trends can be found,

the final decision about sea fitness will be left in the hands of the examining medical doctor also in the future.

The problem of sea fitness is a rather difficult one even among fleets where all the seafarers are hired on a permanent basis, so that the company's occupational health service learns to know their problems and has good possibilities to follow their fitness from year to year. The situation is much more complicated when the seafarer seeks a fitness certificate on shore, seeing the doctor for the first and last time at the same time. The situation is only a little better with company doctors, they have (in theory?) the possibility to follow a seafarer's health at work, at least for one working period.

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#### Реферат

МЕДИЦИНСКИЕ ОСМОТРЫ ЛИЦ ПЛАВСОСТАВА И ПОДГОТОВКА ВРАЧЕЙ В ОБЛАСТИ МОРСКОЙ МЕДИЦИНЫ.

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В соответствии с международными правилами врачи, работающие в области морской медицины, должны иметь специальную подготовку по профпатологии. Врачи должны знать:

- национальное и международное законо-

дательство в данной области;

- условия работы и жизнеобитания на борту судна;
- требования, предъявляемые к уровню здоровья, необходимому для работы на борту;
- порядок проведения медицинских осмотров;
- этические требования, действующие в области морской медицины;
- методы оценки рисков в случае болезни члена экипажа;
- методы пропаганды здорового образа жизни среди членов экипажа.

Международному сотрудничеству врачей в области морской медицины уделяется внимание со стороны многих организаций. Международное сотрудничество в области морской медицины должно строиться на основе этических норм. Международная ассоциация морской медицины (ММАМ – IMNA) может стать той инстанцией, которая начнет международную дискуссию среди специалистов по вопросам проведения профессиональных отборов. ММАМ должна также организовать международные унифицированные курсы по подготовке врачей в области морской медицины и проведению профессиональных отборов моряков. Курсы, организованные в различных странах по всему миру с привлечением курсантов из разных стран, должны сократить существующий в настоящее время значительный разброс в стандартах проведения профосмотров, критериях подбора и медицинского обслуживания моряков.

#### Abstract

According to the international rules and regulations doctors working in maritime medicine need training in occupational medicine. The doctors must know:

- National and international rules and regulations
- Work and life on board ship
- Health and fitness demands of the work on board ship
- Medical examination procedure
- Ethics in maritime medicine
- Risk evaluation procedure, when a seafarer has a disease
- Health promotion among seafarers

International cooperation between medical doctors in maritime medicine has been stressed by international bodies. Ethical rules are needed to form the basis for successful work in international maritime medicine. The

International Maritime Health Association (IMHA) could be a suitable forum to start an international discussion among specialists about facts, evidence and principles in medical examinations. IMHA should also organise international, unified training courses for medical doctors in maritime

medicine, and in seafarers' fitness evaluation. Training, organized in various countries around the world with international students would diminish the existing wide variation in medical examinations, fitness criteria and medical care of seafarers.

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## ПОЛІПШЕННЯ МЕДИЧНИХ ОГЛЯДІВ ПЛАВСКЛАДУ – ШЛЯХ ДО ЗБЕРЕЖЕННЯ ЗДОРОВ'Я І ПРАЦЕЗДАТНОСТІ ЧЛЕНІВ ЕКІПАЖІВ

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Особливості праці плавскладу – специфічні умови перебування на борту судна, переважно операторський характер праці, несення вахт, збільшені вимоги до психічних функцій, постійна дія негативних і шкідливих факторів (шум, вібрація, несприятливий мікроклімат та температура зовнішнього повітря) – пред'являють збільшені вимоги до стану здоров'я членів екіпажу (1, 2).

Одним із заходів, направлених на допущення до специфічної роботи на судні в якості плавскладу здорових і придатних членів екіпажів, є попередні при працевлаштуванні і періодичні медичні огляди. Важливість їх проведення на високому професійному рівні підтверджується не тільки відповідними Міжнародними Конвенціями (наприклад, 73-1946 р.), (14), а й значною кількістю національних нормативно-правових актів України (3-12).

Медичні огляди моряків на Дніпровському басейні проводяться в трьох басейнових лікарнях (Київська центральна клінічна, Дніпропетровська і Запорізька), а також в лікарні Суворовського району м. Херсона і клінічній лікарні Миколаївського морського порту.

Профспілка, керуючись статтею 30 Закону України «Про професійні спілки, їх права та гарантії діяльності», щорічно здійснює громадський контроль за проведенням попередніх і періодичних медичних оглядів плавскладу.

В 2003 р. питання надання медико-соціальної допомоги працівникам галузі, включаючи стан проведення медичних оглядів плавскладу, було детально

розглянуто на III-у Пленумі профспілки.

Стан проведення медичних оглядів плавскладу розглядається також постійно на засіданнях Медичної Ради при Київській центральній басейновій клінічній лікарні.

В цілому по галузі стан проведення попередніх медичних оглядів плавскладу слід визнати, як задовільний: працівники більшості лікувально-профілактичних закладів виконують вимоги наказу МОЗ № 347-96, доповнюючи їх спеціальними додатковими дослідженнями за показаннями згідно з результатами огляду.

Необхідно відзначити, що в останні роки якість і повнота медоглядів поліпшилась: в первинних медичних документах плавскладу стали більш детально відображатися результати огляду офтальмолога (поля зору, внутрішньоочний тиск та інші), оториноларинголога (вестибулярна проба та аудіограма), кардіолога (велоергометричне дослідження) та інших фахівців.

Діловий зв'язок медичних працівників з відділами кадрів підприємств і впровадження комп'ютерної програми моніторингу за проведенням попереднього медичного огляду (Дніпропетровська басейнова лікарня, поліклініка Суворовського району м. Херсона) допомогло уникнути формалізму при проведенні попереднього медогляду плавскладу.

Як на певний недолік у проведенні попереднього медичного огляду слід вказати на відсутність у більшості членів плавскладу анамнестичних даних з медичної документації (амбулаторна карта за ф.25) за місцем постійного проживання, а також відсутність об'єктивних даних щодо оцінки стану органів дихання (визначення функції