

# IMHA Working Group Meeting

## About Nutrition on Board

Gdansk, 9 June 2012

Venue, meeting place: on board “Scandinavia” ferry, Gdansk–Nynashamn

With supporting funding from the ITF Seafarers’ Trust

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### REPORT OF THE WORKING GROUP

<b>1 Workgroup meeting title</b>	Nutrition on board					
<b>2 Purpose</b>	<b>Reach consensus and make report</b>	<b>Education</b>	<b>Enable wide exchange of views</b>	<b>Other</b>		
	X		X			
<b>3 Objective</b>	Mapping of the problem					
<b>4 Goals</b>	To map current legislation To map available research on the topic To map knowledge on energy and nutritional demands on board To identify potential cultural aspects To identify potential psychosocial aspects To agree on the way forward to a comprehensive project To appoint a leader of the project To identify other areas necessary for the final aim					
<b>5 Policy Relevance</b>	Final aim of the future project should be to create international guidelines on nutrition on board					
<b>6 Reference to policy concerns and best practice</b>	At present only general statements about nutrition on board are present in international legislation and in the majority of the national regulations. Available national regulations are outdated					
<b>7 Key persons</b>	<b>Name</b>	<b>Title</b>	<b>Affiliation Institution</b>	<b>Postal address E-mail address</b>	<b>Fax</b>	<b>Tel.</b>
Organizer	Bogdan Jaremin	Prof.	Institute of Maritime and Tropical Medicine, Gdynia, Poland	Powstania Styczniowego 9 B, 81–519 Gdynia, Poland bojar@gumed.edu.pl	+48 58 607406120	+48 6223354
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<b>8 Name of presenter</b>	<b>Name</b>	<b>Title</b>	<b>Affiliation Institution</b>	<b>E-mail address</b>	<b>Topic</b>
Idnani	Suresh	Dr.	IMHA	sureshidnani@hotmail.com	Current legislation mapping
Jeżewska	Maria	Dr.	Institute of Maritime and Tropical Medicine, Gdynia, Poland	mariajez@gumed.edu.pl	Promotion of healthy nutrition at sea; Psychological eating disorders
Verbist	Rob	Dr.	Mediport	verbi@glo.be	Health promotion for seafarers: food safety, healthy food, overweight prevention
Carter	Tim	Dr.	IMHA	tim.carter@mcga.gov.uk	Implementation of results
Grøn	Sisse	PhD	Centre of Maritime Health and Safety, Esbjerg	smfg@cmss.sdu.dk	Cultural aspects
Zaborowski	Piotr	Prof.	WMMU in Olsztyn, Poland	pzabor@mp.pl	Functional and pathological consequences of improper nutrition on board
Luisa	Canals	Dr.	ISM/SEMM	lcanals7@hotmail.com	Obesity on board (available research); types of food consumed
Denisenko	Iłona	Dr.	IMHA	dr_denisenko@yahoo.com	Practical implementation of recommended diet
Sanchez	Maria Luisa	Dr.	K-Line Clinic	lmalacasanchez@yahoo.com	Factors affecting proper nutrition on board
Bell	Sally	Dr.	Maritime Medicine, Clinical Quality	sally@sallybell.co.uk	Standards on board ship
<b>9 Attendance</b>	<b>Open to all</b>		<b>By invitation</b>		
			<b>Non-invited cannot join</b>	<b>Non-invited can join as silent observers</b>	<b>Non-invited can join discussions</b>
					10 presenters + 4 of the 13 attendees participated in discussion
<b>10 Workshop paper</b>	Report to be applied in project proposal				
<b>11 Journals for intended publishing</b>	IMH and Medicina Maritima				
<b>12 Time period for workshop</b>	5-minute introduction 10 short 5–8 min presentations of selected topics 30 minutes of free discussion 5–10 minutes of summary and proposal for common project				
<b>13 Estimated time for completed manuscript for publishing</b>	Completed				
<b>17 Funding source</b>	<b>IMHA funded</b>	<b>Externally sponsored - ITF Seafarers Trust</b>		<b>Part of a programme</b>	<b>Self-funded</b>
	4 (travel)	4 (registration/accommodation)		4	2

## 14. INTRODUCTION

The sailor's diet should supply all of the required nutrients for energy, maintenance and repair of body tissue, and growth. The need for calorie intake will depend on variables such as the intensity of physical activity, temperature, body height, etc., while the sociology and anthropology of food, eating, and what is a 'proper diet' are culturally determined. A considerably larger number of crewmembers worldwide are confronted with problems of overeating and obesity than are affected by under-nutrition. Also, the dietary requirements at sea are changing from the provision of sufficient nourishment to providing a range of foods so that healthy eating is encouraged and those who need to control their weight are able to eat the foods needed to do so.

There are no globally standardised recommendations on nutrition on board. However, in the majority of national regulations and in some international legal instruments, general statements about the amount, variety, and quality of food that has to be available on board are made. Several countries used to have very detailed scales of food for seafarers, but almost all of them have been discontinued and replaced by more general statements about the sufficiency and balance of diet. The current situation allows malpractice in the supply of food, which can lead to inadequate nourishment of the crew.

The workshop was designed as an exercise to "map the problem", aiming to identify basic principles, models, and to plot the way forward in designing internationally accepted and usable Guidelines on nutrition on board.

## 15. PRESENTATIONS

### Suresh Idnani

#### Current legislation

Current legislation on nutrition on board was presented. He pointed out that there are no globally standardised recommendations on nutrition on board. However, in the majority of national regulations and some international legal instruments, general statements about the amount and quality of food that have to be available on board are included. Several countries like Russia, Croatia, and Italy used to have very detailed scales of food for seafarers, but almost all of them have been discontinued and replaced by more general statements about sufficiency and balance of diet.

In Finland there has been a regulation on the food to be kept on board ships since 1985. It does not have any information about calories but includes the following details: it is the responsibility of the ship-owner; food must be tasty; three meals/day plus 2 snacks and food for night time must be provided too; coffee or tea at least 2 times a day; and fresh water and juice or non-alcoholic malt liquor must be available. If possible, fresh milk must be available; the quality of food must be the same for every seafarer on board; if necessary, the crewmembers' religious needs should be taken into account when preparing food.

Merchant Ships under the German Flag have to act in accordance with the German *Seemannsgesetz*. A list called *Speiserolle* defines the weekly rations per crewmember. This list has been in use since 1951 and has not been modified.

Some countries like India and the Philippines have special training courses for ship's cooks while other countries accept trained or untrained cooks from onshore who have fulfilled the basic requirements for seaman's license/book (safety, first aid, firefighting certificates, etc.) In the UK there is also training for those involved in supplying the food on ships. At the moment, training modules for ship's cooks are under development by the ILO.

The ILO MLC 2006 Regulation 3.2 – Food and Catering aims to ensure that seafarers have access to good quality food and drinking water stored and prepared under regulated hygienic conditions. Requirements under this regulation are given in Standard A3.2 and Guideline B3.2.

### Maria Jeżewska

#### Promotion of healthy nutrition at sea. Psychological eating disorders

The main challenge for any project on nutrition on sea is to show indications of dietary improvement. The aim should be a permanent change of nutritional standards that would lead to a decrease in the number of eating disorders among people working at sea. Eating disorders are the effect of a non-physiological and irrational diet and can be induced by the interaction of cultural, environmental, genetic, physiological, and psychological factors. Obesity is not the only disorder of interest, others such as anorexia nervosa, bulimia nervosa, bigorexia (muscle dysmorphia), orthorexia nervosa, and compulsive eating should not be neglected in any comprehensive project on nutrition. Obesity is the main condition of interest in the shipping environment that can

be created by improper diet, low physical activity, and stress.

Among people working at sea, disorders that predispose to obesity are emotional eating disorders (EED), binge eating disorders (BED), and night eating disorders (NED). In these disorders eating is most often a reaction to stress and boredom, and it is well known that at sea food is often helpful in alleviation of tension and in mood improvement. Available “comfort food”, “fast food”, and “junk food” all intensify this problem. Overweight and obesity are risk factors for many other metabolic diseases and worsen the quality of life. In the case of eating disorders among seafarers the goal is to achieve a proper body mass index (BMI 19–24.5) while at the same time answering the question, ‘what is the reason for the condition and why is it maintained?’. Healthy nutrition education is necessary as is refuting the value of “wonder diets”. Help in overcoming life problems, which can intensify the existing eating disorders, is needed. It is also necessary to motivate those at risk to stop potentially risky behaviour and to modify their life style and to change nutritional habits.

Achieving such positive results in decreasing the level of eating disorders among people working at sea is possible but needs mutual cooperation between nutritionists, physicians, and psychologists.

### **Rob Verbist**

#### **Health promotion for seafarers: food safety, healthy food, overweight prevention**

The needs of calorie intake differ depending on variables such as intensity of physical activity, temperature, body height, etc. National recommendations from authorities refer to mean values of the specific population and are not adequate for “the seafarer” as they may not be appropriate for seafarers of other nations. However, the International Committee on Seafarers’ Welfare (ICSW) provides “Guidelines for Healthy Food On Board Merchant Ships”. Important recommendations are: eat plenty of fruit (3 servings) and vegetables (300 g), potatoes, and whole grain products, reduce the amount of meat ( $\pm 10$  g), fat (< 35% of calories), sugar, and salt eaten, and drink plenty of water and milk products. Nutritional standards on board are a current issue that is receiving attention from specialists. An increasing number of companies are outsourcing the food supply to their ships, leaving all decisions about quantity, quality, and structure of nutrition on board to suppliers. Usually the concept of a fixed sum per day per

sailor is used in their calculations. The majority of national regulations apply to food supply and hygiene rather than to quantity, quality, and balance. Contemporary approaches to the nutrition for multi-ethnic crews can raise problems. These need to be considered internationally, but the majority of ships are not equipped for such complex meal planning. Social and ethnic elements need to be addressed in all attempts to design international guidelines for nutrition on board. Before designing them it is necessary to undertake research on energy intake and requirements on board.

### **Tim Carter**

#### **Implementation of results**

There is a big economic element in the purchase of provisions, and at the moment the most realistic option to influence the nutrition on board is through the training of ship’s cooks. The supply of microwave-heated prepared meals is becoming more common, and the consequences of this may need to be explored – both in nutritional and social terms. It is also important to be aware that appropriate diet does not only mean enough or adequate calory intake. We need to consider the diversity of food needed to satisfy a multi-ethnic crew. The UK used to have very detailed scales of food for seafarers – dating back to around 1900 – because of concerns then about the poor quality of food provided. These were discontinued in the 1970s and replaced by a more general statement about sufficiency and balance of diet. One of the gaps in this arrangement is that there is no provision to provide food suitable for a calorie-controlled diet in those who are overweight, also that the need is changing from sufficient nourishment to providing a range of foods so that healthy eating is encouraged and those who need to control their weight are able to eat the foods needed to do so.

The best was forward and model solution would be to adopt a “Good practice guide” as it is obvious that regulation can only be general. As this sort of specification would be one for flag states the key players need to include the maritime administrations of the large open registers. The ILO would be the most probable partner in designing such guidelines, and the process used in designing and adopting the “ILO/IMO guidelines for seafarer medical examinations” should be replicated if possible.

### **Sisse Grøn**

#### **Cultural aspects of nutrition on board**

An understanding of the cultural aspects of food and meals is one of the prerequisites in any program

of nutrition on board. What a 'proper diet' is depends on social and cultural matters as much as nutrition. But it is not as straightforward to account for the cultural aspect as it may seem. As the renowned anthropologist Margaret Mead stated in 1943 in a report from a committee of food habits set up during the second world war '...the most practical way of avoiding giving offence to anyone in a mixed group is to cook single foods with a minimum of seasoning and serve all condiments separately.' It is meant ironically because she also warns that 'only by putting each recommended innovation and the methods suggested against the total cultural picture, is it possible to guard against initiating changes which, while nutritionally desirable in the narrow sense, may be socially undesirable in a wider sense'.

According to an expert in anthropology of food, sociologist Claude Fischler, our eating problems stem from the fact that we humans are omnivores. This means that we need variety, but at the same time we cannot eat everything, thus we balance between neophilia and neophobia. A human group's cuisine can be understood as a way to solve this dilemma since a cuisine provides rules and taboos about what can be eaten, when, and by whom. What we eat is a powerful signal of the group we belong to, and the neophobia is especially triggered when we are away from our comfort zone and can lead to disgust with the food of others and a general fear of trying new things. This is often the case for seafarers as they are away from their home and families and may find themselves in a minority position. A way forward could be to create a seafarers cuisine, e.g. a sense of the kind of food that can be eaten when at sea and is good for seafarers. It needs to be acknowledged that people have preferences and everyone needs to have theirs met at least to some extent if they are to thrive.

The cook holds a unique position on board. He or she is in between the different departments and ranks and is a key person in creating a good atmosphere in the galley and the mess. A program of nutrition on board should encompass the role and qualification of cooks. How to provide for the tastes of minorities as well as the master or the majority must be considered.

### **Piotr Zaborowski**

#### **Functional and pathological consequences of inappropriate nutrition on board**

Employment as a seafarer means that the person is bringing their own habits on board where stress,

workload, responsibility, and nature confront their psychological and physical capabilities. While embarking seafarers, their mental/psychological problems are commonly ignored. These include family problems, depression and emotional disorders, "abuses" (nicotine, alcohol, parapharmaceuticals incl. herbs), over the counter drugs to remedy symptoms (analgesics, tranquilizers, stimulants, etc.), and "invisible" pathological conditions and diseases like liver steatosis, functional kidney impairment, or endocrine disorders that are not screened for on PMEs.

General factors that influence the health consequences of inappropriate nutrition are: region/climate, risk of water- and food-borne infections and infestations, the general condition of a seafarer's health/chronic diseases/regular medication, cultural and regional nutritional habits, lifestyle, and the effectiveness of prophylactic measures/dedicated knowledge.

Occupational factors that influence the health consequences of inappropriate nutrition are duties on board, duration of voyage, whether ports are entered, and the presence of a professional cook on board.

Individual behavioural factors that influence the health consequences of inappropriate nutrition are: binge eating (too frequent, too much), inappropriate choice of meals, inappropriate preparation (spices, reheated food), self-treatment, and risky behaviour in ports (street vendors, infections incl. HIV).

There are also functional consequences of inappropriate nutrition such as indigestion, heartburn, regurgitation, bloating, fatigue/chronic sleep disturbances, and large bowel habit changes (constipation/diarrhoea). In the majority of people these are temporary and transitional.

Pathological consequences are: exacerbation of chronic diseases, metabolic disturbances, body mass gain, carbohydrate intolerance/diabetes, gout, ketoacidosis, micro- and macro-element nutritional changes/deficiencies, liver injury, hypovitaminoses, hypertension/heart attack/stroke, headaches/back or joint pain/infections/malabsorption syndrome.

All the above factors include significant individual variability. However, such personalised medicine is often not seen as an acceptable part of maritime medicine. This poses an essential question for those designing nutrition on board: should we adopt an approach based on general regulations and recommendations or one based on adopted individual needs. An approach that incorporates both could be a good way forward.

## Canals M. Luisa

### Obesity on board: available research on the type of food consumed

A review of the relevant research in maritime medicine needs to include subjects related to obesity such as safety, social aspects, and disease risk. There are few published studies on nutrition on board, so we need an international project that should incorporate research, especially if we aim to create international guidelines on nutrition on board. There is also more than one kind of evidence; both the research literature and the clinical experience of experts in maritime medicine need to be integrated as both may be equally valid. For instance, practitioners in maritime medicine noticed several phenomenon, e.g. workers on off-shore platforms are gaining weight when at home, while pilots are losing weight on becoming pilots, perhaps because they are close to home are starting to live healthier lives. The problems on small ships have also been noted. Daily coastal fishermen in the Mediterranean Sea, in order to save time, have lost the good habit of cooking part of their catch, so they bring a less healthy sandwich from home and do not use the kitchen on the ship. It looks as if the rule: smaller ships – bigger problems, can be applied. There is a possibility that 6/6 shift work can influence nutritional habits. The IMHA workshop on metabolic syndrome held in Brest was a significant contribution to our knowledge on metabolic disorders including obesity on board. One of the actions from this was the project “Prevention of obesity and malnutrition to prevent the related diseases and un-fitness for work” (Olaf Jensen, leader). Its premises can be used in a future project. There are several areas available for intervention, such as training programs for nautical students.

Some relevant available studies on nutrition on-board are:

- Canals ML. Comments on fitness in medical examination, a case of morbid obesity in a fisherman. *Med Marit* 2010; 10: 65–69. This is a practical example of how to minimize obesity and to prevent the diseases and unfitness for work related to overweight in a target group;
- Tristancho R, Doreste J, Canals ML, Serra LI. Estudio de prevalencia de diabetes y obesidad en los trabajadores del mar en España (Prevalence study of diabetes and obesity in seamen in Spain). *Med Marit* 2002; 2: 235–240.

**ABSTRACT: Objectives:** To know the prevalence and distribution of diabetes and obesity in seamen from a national database. **Methods:** Descriptive cross-sectional study of seafarers who had a repeat-

ed medical fitness exam between 3<sup>rd</sup> January 1998 to 3<sup>rd</sup> January 2000. **Results:** Glucose and body mass index were recorded in the medical records of 49022 cases. Diabetes mellitus prevalence was 3.6% and obesity 21.3%; they had been identified at previous medicals in 3% and 7.7% of the cases, respectively. Significant differences of these pathologies were found in relation to type of work, navigation, residence, and increase of age. **Conclusions:** Diabetes and obesity prevalence showed that they deserve special attention for control and prevention on board.

Other relevant works from the University of A. Coruña (Spain) published in *Medicina Marítima*:

- MA Bouza Prego, JL Saleta Canosa, MP Castro Rodríguez, D Bellido Guerrero, S Pita Fernández, RP Caramés Balo. Frequency of food consumption in a seafarers' population with overweight and obesity in a nautical student sample;
- MA Bouza Prego, JL Saleta Canosa, MP Castro Rodríguez, D Bellido Guerrero, S Pita Fernández. Assessment and quantitative study of the lifestyle and food consumption related to seafarers with overweight and obesity;
- MA Bouza Prego, JL Saleta Canosa, MP Castro Rodríguez, D Bellido Guerrero, S Pita Fernández. Cardiovascular risk factors and metabolic syndrome in a population of overweight and obese seafarers.

## Ilona Denisenko

### Practical implementation of recommended diet

Obesity is most commonly defined as a body mass index (BMI) over 30 and is connected with diseases like diabetes, hypertension, and endocrine disorders. Application of diets on board must comply and respect the peculiarities of working and the social environment on board. For instance, one of the main rules is: keep the seafarers happy; therefore, cooks try to please the crew without thinking about the long-term effects of a poor diet. One problem that should not be neglected is uncontrolled liquid consumption, where alcoholic beverages are substituted with caloric soft drinks. Another aspect of work on board the ship is the fact that not all workplaces have the same energy expenditure, so a diet adequate for heavy workers can be incorrect for workers that are involved only in light physical work.

## Maria Luisa Sanchez

### Factors affecting proper nutrition on board

Disorders connected with nutrition are the commonest conditions among seafarers in the Philippines,



as found at PME-s. Seafaring as an occupation has a strong influence on those factors too, making seafarers vulnerable to disorders caused by improper nutrition. Seafaring is a stressful occupation, with long working hours and fatigue often posing problems for the crew. Lack of facilities for exercise, poor nutrition, isolation, and smoking and drinking can also spell bad news for on-board health. Factors that affect health on board are: diet, environment, activity, psychology, genetics, culture/religion, and socioeconomics. If we want to influence those factors, we need to create proper interventions, and the main principle should be: as a low budget for food can determine what is available to be eaten on board, intervention should be made to increase the budget and use it to purchase appropriate and varied foods.

Knowing the basics of nutrition can allow individuals to choose and create their individual diet; therefore, one intervention should be to include such a topic in seafarer training.

Suppliers can ensure that the quality and integrity are in conformance with the current good manufacturing practices, but during a voyage poor storage and handling of food can reduce its quality and increase the risk of it becoming unusable. Cooks need to learn and adopt good storage and handling practices. Dietary preferences are culturally influenced, so intervention to create dishes that are universally acceptable is beneficial.

### **Sally Bell**

#### **Standards on board ship**

The key question is whether we should create minimum standards or just good practice guidelines. It is possible to create both, but the guidelines should allow an individualised approach taking into account different requirements for different jobs and nationalities on board, as well as the capabilities and expertise of different companies and vessels. In some large companies with robust policies and procedures and a positive attitude to crew welfare a high stan-

dard is set and is required as a company policy. All companies will have a specific budget for crew catering, but it was not easy to establish what level this is set at. One quoted 8-10 USD/day. Education and training of both catering staff and the whole crew are important factors in healthy eating, and some companies already have a strong programme in place.

## **16. CONCLUSIONS**

Today there are no globally standardised recommendations on nutrition on board. However, the majority of national regulations and some international legal instruments include general statements about the amount and quality of food that has to be available on board. These are rarely sufficiently specific to be used as clear benchmarks for supplies and for menus. Such a lack of internationally acceptable and usable guidelines allows various malpractices, including cultural ones, with various health consequences such as malnutrition and other metabolic disorders like obesity on board.

The global character of sea trade, multi-ethnicity of crews, and the need for an individual focused approach needs to be considered in any recommendation or guidelines that could be used internationally.

An international project on nutrition on board that would include research is essential to create internationally accepted and usable guidelines.

A model basis for guidelines should be the concept of a "Good practice guide".

## **FINAL CONCLUSIONS**

Nutrition on board is a complex, vast, and extremely important problem for health, wellbeing and work safety in global seafaring. The need to approach it in common guidelines elaborated and recommended by IMHA with ITF support is growing. It should become a worldwide base for internationally recognised standards on nutrition on board.