



Human Element Issues KISHPNI-HEI-09-2021
(Type 2 diabetes – a growing health threat putting seafarers at risk)

► **Introduction:**

Diabetes is a chronic disease that occurs when the pancreas is no longer able to make insulin, or when the body cannot make good use of the insulin it produces. Insulin is a hormone that acts like a key to let glucose from the food we eat pass from the blood stream into the cells in the body to produce energy. All carbohydrate foods are broken down into glucose in the blood. Insulin helps glucose get into the body cells.

Not being able to produce insulin or use it effectively leads to raised glucose levels in the blood, known as hyperglycaemia. Over time high glucose levels are associated with damage to the body and failure of various organs and tissues.

► **Types of diabetes:**

There are three types of diabetes, Type 1, Type 2 and Gestational, or diabetes during pregnancy. People with Type 1 diabetes produce very little or no insulin. The disease usually develops in children or young adults. People with this form of diabetes need injections of insulin every day in order to control the levels of glucose in their blood. There is no cure for Type 1 diabetes and for those without access to insulin, the disease is fatal.

Type 2 diabetes accounts for 90% of all cases of diabetes worldwide. It is characterized by insulin resistance and relative insulin deficiency, either or both of which may be present at the time diabetes is diagnosed. The diagnosis of Type 2 diabetes can occur at any age. Type 2 diabetes may remain undetected for many years and the diagnosis is often made when a complication arises or a routine blood or urine glucose test is done. It is often, but not always, associated with obesity, which itself can cause insulin resistance and lead to high blood glucose levels.

People with Type 2 diabetes can often initially manage their condition through exercise and diet. However, over time most people will require oral drugs and/or insulin.

There is an increasing prevalence of Type 2 diabetes, which is associated with more sedentary lifestyles and a higher consumption of unhealthy foods, which lead to obesity.

Diabetes affects at least 425 million people worldwide, that is one in eleven adults.



By 2045, it is estimated that this number will increase to 629 million, one in ten adults; and diabetes-related health expenditure will exceed USD 776 billion.

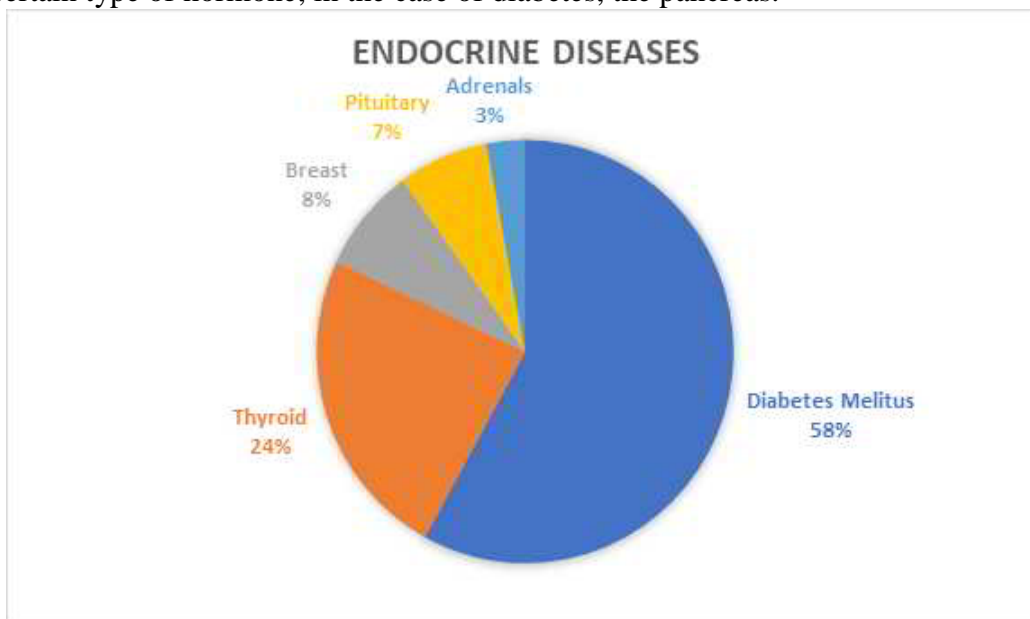
Type 2 diabetes is a leading cause of blindness, amputation, heart disease, kidney failure and early death. Every 8 seconds someone dies from diabetes. The good news is that over 50% of Type 2 diabetes is preventable and complications for those with the condition can be avoided with good management and care.

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The International Diabetes Federation which is an umbrella organization of over 230 national diabetes associations, has produced an [interactive test](#) for individuals to gauge their own risk of developing type 2 diabetes within the next ten years based on their individual risk factors.

► **Diabetes in seafarers:**

Research shows that seafarers have a higher risk of developing Type 2 diabetes compared with the general population. By far the greatest number of seafarers currently working on merchant vessels come from the Philippines. These seafarers undergo a pre-employment medical examination (PEME) which screen for diabetes as well as other health conditions. Based on a review of Filipino Seafarer examinations for 2015 and 2016 done by Del Rosario Pandiphil, diabetes made up 58% of the endocrine diseases found. Endocrine diseases are diseases where a gland produces too much or too little of a certain type of hormone; in the case of diabetes, the pancreas.



The PEME allows for early recognition of seafarers at risk followed by careful monitoring and treatment. Treatment is aimed at correcting lifestyle issues:

- Changes in diet to reduce the intake of high sugar foods and beverages and other carbohydrates and increase servings of fruit and vegetables.
- Exercising at least three times a week for 30 minutes each time, aiming to achieve an exercise heart rate of 75% of maximum. This can be easily calculated as follows: $(220 - \text{age}) \times 0.75 =$ recommended heart rate during exercise to derive cardiovascular benefit. For an average 45-year-old, this would mean an exercise heart rate of 131 beats per minute.
- Monitoring the blood sugar levels with tests such as urine glucose tests, blood sugar tests and a diabetes control measuring test, an HBA1C, which provides a measure of diabetes control over the last six weeks. The seafarer must also keep a logbook of their diabetes control to enable them to understand their health condition, and to take responsibility for its management.
- Using prescribed medication regularly and notifying their doctor of any change in their diabetes control, so that appropriate adjustments to their treatment regime can be made.

Target Blood Sugar Levels for Diabetes

Age 20+

| | |
|----------------------------|--|
| Fasting | less than 100 |
| Before Meal | 70-130 |
| After Meal (1-2hrs) | less than 180 |
| Before Exercise | if taking insulin, at least 100 |
| Bedtime | 100-140 |

Amount shown above mg/dL

| | |
|------------|-------------------------------------|
| A1c | less than or around 7.0% |
|------------|-------------------------------------|

These are general medical guidelines.
Please follow your doctor's instructions.



► Conclusion:

Type 2 diabetes is a growing health threat to seafarers as well as the general population. The risk of developing the disease can be greatly reduced by adopting a healthy lifestyle including adjustments to diet and increase in exercise. The International Diabetes Federation (IDF) recommends these dietary guidelines for the general population:

- Choosing water, coffee or tea instead of fruit juice, soda, or other sugar sweetened beverages
- Eating at least three servings of vegetable every day, including leafy green vegetables
- Eating up to three servings of fresh fruit every day
- Choosing nuts, a piece of fresh fruit, or unsweetened yoghurt for a snack
- Limiting alcohol intake
- Choosing lean cuts of white meat, poultry or seafood instead of red or processed meat
- Choosing peanut butter instead of chocolate spread or jam
- Choosing wholegrain bread, rice, or pasta instead of white bread, rice, or pasta
- Choosing unsaturated fats (olive oil, canola oil, corn oil, or sunflower oil) instead of saturated fats (butter, ghee, animal fat, coconut oil or palm oil).

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