



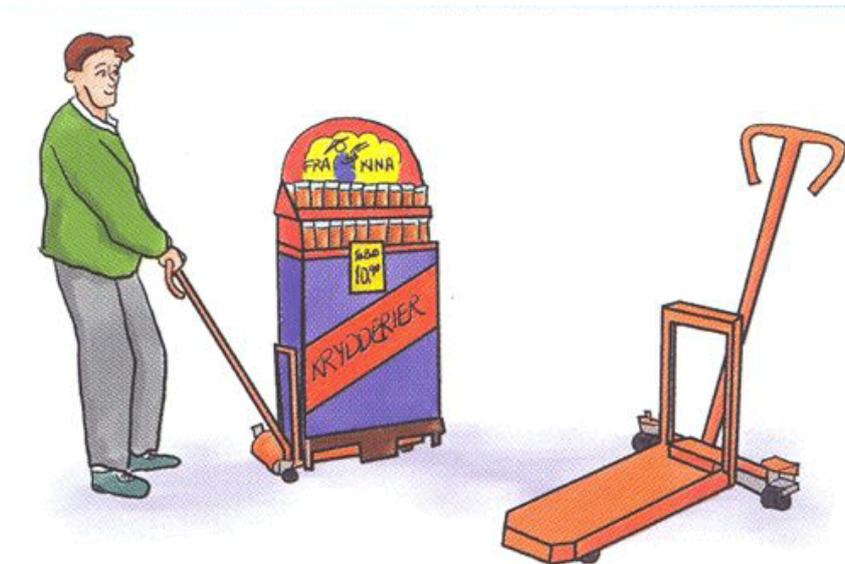
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Ergonomics on Provisioning, Stores Handling, etc., on Board Merchant Ships

Manual handling consists of work processes where goods are lifted, carried, dragged, pushed or pulled. The work may cause injury to joints, muscles and tendons, especially in the back. For instance, lifting may lead to injuries if the load is too heavy, unexpected, or unaccustomed.

In this folder you can read about how to perform manual handling, and about the requirements that transport routes and technical equipment must comply with in order to minimize the risk of injury as much as possible. The folder is mainly aimed at passenger ships, but the principles discussed can be used in all permanent workplaces, irrespective of the vessel type.

In order to ensure that manual handling can be carried out properly, there are special requirements for the arrangement of workplaces in store rooms, shops, engine room etc. Moreover, there are requirements for the use of suitable technical equipment for the performance of the work.



Information from the Danish Maritime Authority A, chapter I on the Performance of Work, and chapter III on the Manual Handling of Loads, make the following demands about ergonomic conditions with regard to safety and health:

- the design of workplaces, equipment and technical equipment shall be adapted to the persons using them as far as possible,
- work shall be planned in such a way that manual handling is avoided by applying suitable and efficient technical equipment, e.g. lifting devices and transportation means. The technical equipment must be available in the required extent,
- unnecessary physical loads and inappropriate postures and movements shall be avoided, and

- persons carrying out the work shall receive adequate training and instruction.



Before you begin, a risk assessment of the work must be carried out to clarify whether the work could be dangerous to your safety or health. The purpose of the assessment is to find and remove negative effects in the working environment.

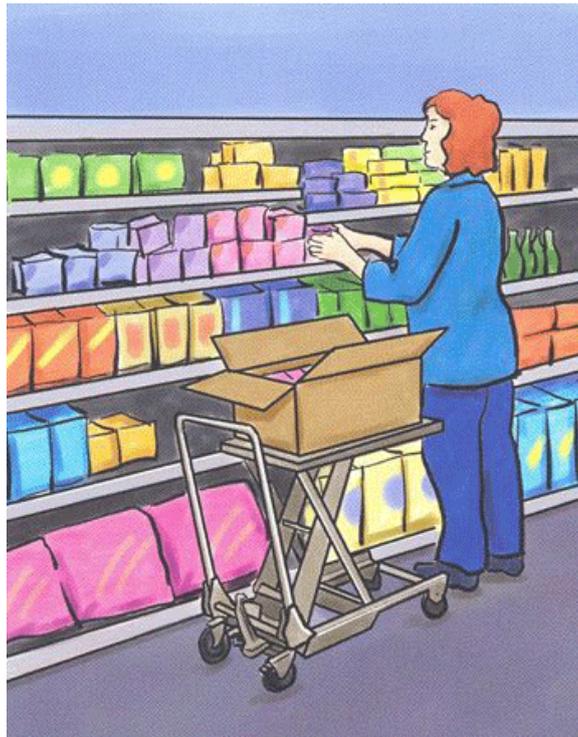
This risk assessment must be carried out by the ship owner or master in cooperation with the safety organization. On ships where a safety organization is not mandatory, the assessment is carried out in cooperation with the employees. (See also the folder regarding workplace assessment).

When assessing the lifting risks, many factors play a role. These include the shape and weight of the load and its distance from your body while lifting, but also your working postures and movements, frequency of lifts, the risk of unexpected load, space availability, the deck condition, and the distance you have to carry the load.

Therefore, you should try to reduce manual handling with heavy lifting as much as possible. Usually, harmful lifts can be avoided by combining good work planning, use of suitable technical equipment, and proper arrangement of the workplace.

In practice this means that appropriate handling depends on:

- the design of store rooms and shops, standing height, space availability, sitting of shelves, number of rooms, and their location in relation to each other,
- transport routes, passage widths, the lift sizes, access conditions, differences in levels of transport routes, deck conditions, pallet sizes etc., and
- the suitability of technical equipment, including the size of wheels, manoeuvrability, adjustable trucks, net weight (weight of technical aid), braking possibilities, manually or electrically operated, etc.



When carrying out the risk assessment, the work processes performed must be considered and assessed, as the technical equipment, the pallet sizes, transport routes and other arrangements must altogether ensure that provisioning and other manual handling, e.g. in the tax-free shop, cafeteria, galley, engine room, etc., can be performed without unnecessary physical load.

It is the practice of the Danish Maritime Authority

- that as much transportation as possible is carried out by cranes, lifts, electrically operated means of transportation etc.,
- that transport routes must have a width and depth in order for goods to be transported directly from the quay, car deck, etc., without being reloaded. I.e. that pallets, trolleys, etc., can move in passages and lifts, and that a correlation between the ship's construction and the technical equipment exists,
- that transport routes for various racks and trolleys are wide enough to ensure that they easily get around,
- that doors and hatches, etc. that are passed, are easily opened and can be fastened in an open position, and
- that equipment applied in transport functions is height adjustable to equalize working heights as far as possible. This includes trolleys, forklifts and other lifting gear.



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The width of the transport routes depends on the form of transport to be used. The following guidelines are based on ergonomic principles:

- When transporting rolling technical aids, the width must be equal to the width of the goods transported + 30–50 cm free space on each side
- Where rolling technical aids have to turn, e.g. in front of lifts and refrigerated/freezer rooms, sufficient space is available. Depending on the technical aids applied, a width of 2–3 metres is required

The deck surfaces of transport routes must be plane, even and without holes. As far as possible, the deck must be free of steps and rises.

You must apply safety boots or shoes and work gloves when required in order to perform the work properly. The ship owner must make the necessary protective aids available.