

SEGMENT EIGHT - Work Equipment

AIMS OF THE SEGMENT

The main aim of this segment is to help you have a greater understanding of the hazards and risks associated with work equipment and be able to:

- State how work equipment can cause injuries
- Describe suitable control measures including:
 - Correct design and construction;
 - Suitable working environment;
 - Safe working procedures;
 - Training and authorisation;
 - Use of PPE;
 - Maintenance.

TYPES OF HAZARD

When talking about the types of injury likely to be caused by workplace equipment we usually group the hazards presented by equipment into mechanical hazards and non-mechanical hazards.

Mechanical Hazards

These are largely caused by the movement of some mechanical component such as a gear, wheel, arm or blade.

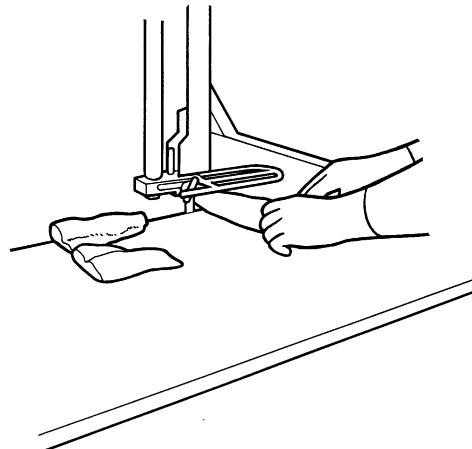
In order to understand mechanical hazards we break them down into the following types:

Crushing hazards – the crushing of fingers and toes is an all too common occurrence in industry. In the fishing sector, crush injuries are possibly the most common form of injury.

Shearing hazards – the injuries caused by shearing hazards usually involve the loss of a minor limb (finger or toe) or a major limb.

Crushing and shearing hazards are two of the most common mechanical hazards, but other include:

- **Cutting** – whether by a knife, bandsaw blade or something less obvious, like the sharp edge of some equipment, cutting injuries can range from the simple (needing a plaster) to the serious (needing surgery).
- **Entangling** – getting clothing or anything else entangled in moving machinery is



no joke and can easily result in a very serious injury.

- **Impact** – if you are hit by a moving object, or bump into something stationary hard enough then you can suffer an impact injury. Sharp corners on equipment where you can easily bump into them are a common cause of impact injuries.
- **Stabbing or Puncture** – sharp knives, splinters, broken wires on conveyor belts are all common hazards likely to cause a puncture injury.
- **Friction and Abrasion**, high pressure injection and drawing-in hazards are less common in the seafood industry.

Non-mechanical Hazards

In the seafood industry there are numerous non-mechanical hazards, many of which you could encounter in your workplace.

SAQ Against each type of non-mechanical hazard I would like you to write an example of your own, ideally one from your own workplace.

Hazard	Your Own Example
Electricity	
High temperatures	
Vibration	
Noise	
Chemicals	
Radiation	
Low temperatures	

Non-mechanical hazards can cause injury through electric shock, burning or by causing damage to the body over a longer period.

The effects of low temperatures, noise, vibration, many chemicals and radiation usually take more time to produce injury or ill health. In effect, you

need to be exposed for longer for the damage to be done, while you need very little exposure to high voltages or high temperatures to be in trouble.

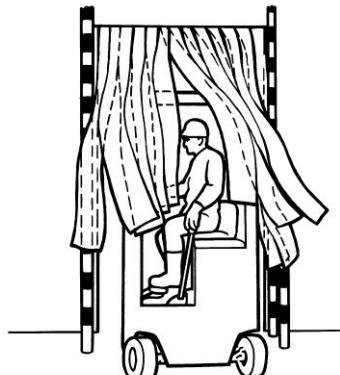
CONTROLLING WORK EQUIPMENT HAZARDS

There is a set of regulations, the **provision and use of work equipment regulations** (the PUWER Regulations) that govern the safety of work equipment.

These Regulations require that work equipment should be **appropriate** for the use it is to be put to, well **maintained, inspected**, used by **trained** and competent persons and used with the appropriate **safety measures** in place.

So any guesses as to how we control work equipment hazards?

1. **Appropriate.** All work equipment must be appropriate for the use it is to be put to, and for the environment in which it is to be used. In the seafood industry where so many workplaces are 'wet', work equipment is rarely electrically powered. When it is then it may well be low voltage or occasionally 110volt. This is one example of equipment that is correctly designed and constructed.
2. **Inspected and Maintained.** Equipment should be inspected as often as necessary and maintained effectively. Often the supplier of the equipment will specify how often and how the equipment should be inspected and how it should be maintained.
3. **Training.** Staff training has many advantages and one of those is safety. Staff who have been properly trained in the use and operation of equipment are much less likely to damage or break the equipment, and, more importantly, much less likely to injure themselves or someone else. This applies as much to people using skinning machines as it does to drivers of forklift trucks.
4. **Safety Measures.** Having appropriate safety measures in place is the key control for work equipment safety hazards.



Almost all of the mechanical hazards such as crushing, cutting, entanglement etc are controlled using guards and screens to separate you from the equipment. Some equipment is so dangerous that it is completely enclosed. One example is the automated bandsawing equipment used by some fish processing companies which are totally enclosed by wire screens.

Guards come in various types. **Fixed Guards** are those that cannot easily be removed. Fixed guards are usually only removed in exceptional circumstances.

Fixed guards on a frying range should not stop someone cleaning the range and carrying out simple maintenance.

Interlocked Guards are the other type. These guards are easily removed or opened and will allow access to the hazardous parts of the equipment. Common examples in fish processing would be the guard that is opened to remove jammed packing material from a boxing line, or the guard that covers most of the blade in a manual bandsaw machine. In both of these cases the guard is linked to the controls, and when the guard is opened the power to the machinery is cut off and it stops.

The advantage of an interlocked guard is that the machinery cannot be started until all of the guards are closed and safe – as long as the interlocks are working properly.

The one weakness of interlocked guards, is that your safety relies on the interlocks working correctly.

Automatic guards are linked to the machine's cycle. They move into place as the machine operates and move out of the way when it is safe. There are few examples of these types of guards in the seafood industry.

Trip devices are used to stop a dangerous device when it detects something in the danger zone. The trip device may be a light guard, pressure mat, or switch. If you get too close to the danger zone then power to the machine is cut off.

Other simple **machine controls** are the switches that operate the machinery itself. One example is a gas flushing and packing machine. Typically, these will only operate when the user presses two buttons, one with each hand. This means that your hands are not in the machine when it operates.

Other machine controls include **start, stop and emergency stop controls**. These require a deliberate action.



OTHER MEASURES FOR CONTROLLING WORK EQUIPMENT HAZARDS

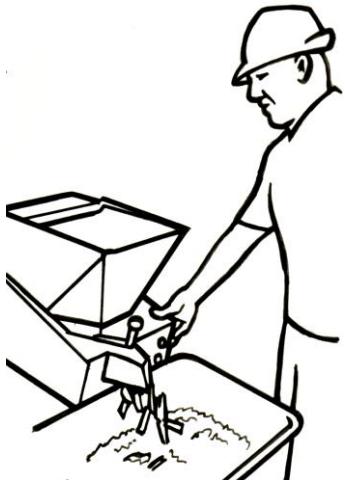
Suitable working environment

This simply means not using equipment in an unsuitable environment. In the seafood industry our unsuitable environments involve high levels of humidity and the ready presence of water. For this reason, much of the equipment we use, is either unpowered or powered by air pressure or hydraulic pressure. Equipment that is electrically powered has additional safeguards built in such as low voltage, a high level of insulation, special electrical supply.

Safe working procedures

Almost every item of work equipment more complicated than a filleting knife, has a safe working procedure written down somewhere. Often the procedure is provided by the equipment supplier, but it may be written by your employer. Regardless of who wrote the procedure, you have a legal responsibility to follow that procedure. Employers also have a responsibility to ensure that all working processes have a set procedure which takes into account the hazards and risks.

Training



Training in work procedures and the use of work equipment is an effective way of reducing risks. Fishmongers need to know how to use a filleting knife, not just so the fish looks good but so that they can fillet fish safely. If you are a frier in a fish and chip shop then you will have been trained in how to use the chipper, how to switch it on and off, and what to do if it jams.

Authorisation

Authorisation is related to training. If it is necessary for someone to be trained to use a piece of equipment safely, then it follows that until they have been trained, and found to be competent, then they cannot be authorized to use the equipment.

Use of PPE

Even trained and competent people, using well designed and safe equipment in a suitable environment, can still be subject to hazards. If these hazards are significant and cannot be removed or controlled in any other way, then the last resort is Personal Protective Equipment or PPE.

Hazard	PPE
Vibration	Padded gloves, insulated boots
Noise	Ear defenders and ear plugs
High Temperatures	Insulating heat resistant clothing
Low Temperatures	Warm clothing
Chemicals	Protective clothing, gloves, goggles, respirator or mask

There is a great variety of PPE in use in every aspect of working life, including yours.

SAQ Please list the common forms of PPE worn in your workplace. Against each form of PPE list the hazards they protect against.

PPE	Hazards

LIFTING OPERATIONS AND LIFTING EQUIPMENT REGULATIONS (LOLAR)

LOLAR and PUWER are often discussed together as Lifting equipment is a form of Work Equipment, albeit with its own hazards and risks.

To summarise LOLAR:

Where you undertake lifting operations involving lifting equipment you must:

- Plan them properly;
- Using people who are sufficiently competent ;
- Supervise them appropriately;
- To ensure that they are carried out in a safe manner;

SUMMARY

Workplace equipment hazards can lead to injury and ill health.

Mechanical and non-mechanical hazards can be reduced by means of training, following working procedures, only using equipment you are authorised to and by wearing appropriate PPE.

The design, construction and selection of equipment to ensure it is suitable for the job and the environment will help to reduce the level of hazard.

Injuries caused by work equipment are usually:

- crush injuries;
- cuts;
- burns;
- electric shocks;
- noise related (hearing loss);
- vibration related;
- bruises (impact injuries).