

University Occupational Health and Safety Guidance Notes

MANUAL HANDLING RISK ASSESSMENT FILTER

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1. PURPOSE

The employer's primary duty is to avoid manual handling operations which involve a risk of injury or, where it is not practicable to do so, assess such operations and reduce the risk of injury to the lowest level reasonably practicable.

Simple filters using guideline weights and conditions help to distinguish low risk manual handling tasks from tasks which may require a more detailed risk assessment. The use of these guidelines does not affect the employer's duty to avoid or reduce the risk of injury where this is reasonably practicable. **The guideline figures should not be regarded as weight limits or approved figures for safe lifting.** Even for a minority of fit, well trained individuals working under favourable conditions, operations which exceed the guideline figures by more than a factor of two may represent a serious risk of injury. Where doubt remains after applying the filters, a more detailed risk assessment should be made by a manual handling risk assessor.

2. APPLICATION

The filters described in this document apply to:

- lifting and lowering (See Section 3.1)
- carrying up to 10 metres (See Section 3.2)
- pushing and pulling up to 20 metres (See Section 3.3)
- handling while seated (See Section 3.4)

These filters are most likely to be useful if the activity under assessment is lower risk and it is possible to quickly (within ten minutes) assess whether the guidelines in it are exceeded. The HSE has produced several tools to help assess the risks from manual handling, and these should be used in conjunction with the filters to determine if a full detailed Manual Handling Risk Assessment is required:

- The [MAC tool](#) for common risk factors in lifting and lowering, carrying and team operations;
- The [ART tool](#) for assessing repetitive tasks of the upper limbs;
- The Variable MAC tool (V-MAC)²² for lifting operations where load weights or handling frequencies vary; and
- The [RAPP tool](#) for pushing and pulling operations.

If the filters and tools determine the risk is within the guidelines, there is no requirement to do a detailed Manual Handling Risk Assessment unless the individual employee carrying out the operation is more likely to suffer injury risk, for example pregnant workers, young workers, or those with a significant health problem (see Section 4 for more details on when a full detailed Manual Handling Risk Assessment is required).

A detailed Manual Handling Risk Assessment should be carried out if:

- there is a strong chance the work activities to be assessed involve significant risks from manual handling;
- the activities are complex; or
- if there is uncertainty about the level of detail required.

Under no circumstances should the guidelines be regarded as safe weight limits for lifting. There is no threshold below which manual handling operations may be regarded as "safe." Even operations within the boundaries mapped out by the filters should be avoided or made less demanding wherever it is reasonably practicable to do so.

3. HOW TO USE THE FILTERS

The filters are in several parts. The guideline figures in each part will assist in assessing the risks.

3.1 Guidelines for Lifting and Lowering

If the following assumptions are not valid, it will be necessary to make a detailed [lifting and carrying risk assessment](#):

- the load is easy to grasp with both hands;

- the operation takes place in reasonable working conditions; and
- the handler is in a stable body position.

The work activity being assessed should be compared to the diagram in Figure 1. Each box represents a spatial zone within reach of either a male or female carrying out a lifting or carrying operation, and contains a guideline weight for lifting and lowering within that zone. The vertical and horizontal position of the hands as they move the load, the height of the individual handler and the reach of the individual handler are taken into account. The guideline weights are reduced for higher risk activities such as if the handling is done with arms extended, or at high or low levels.

Decide which zones the lifter's hands pass through when moving the load then assess the maximum weight being handled. If it is less than the figure given within that zone, the operation is within the guidelines. If the lifter's hands enter more than one zone during the operation, then the lowest weight applies. An intermediate weight can be chosen if the hands are close to a boundary between zones.

The HSE have also developed a [Manual Handling Assessment Chart](#) (MAC tool) to help in assessing risk factors for lifting, carrying and team handling. This tool is helpful in identifying high-risk manual handling operations and aids in determining if a full and detailed Manual Handling Risk Assessment is required.

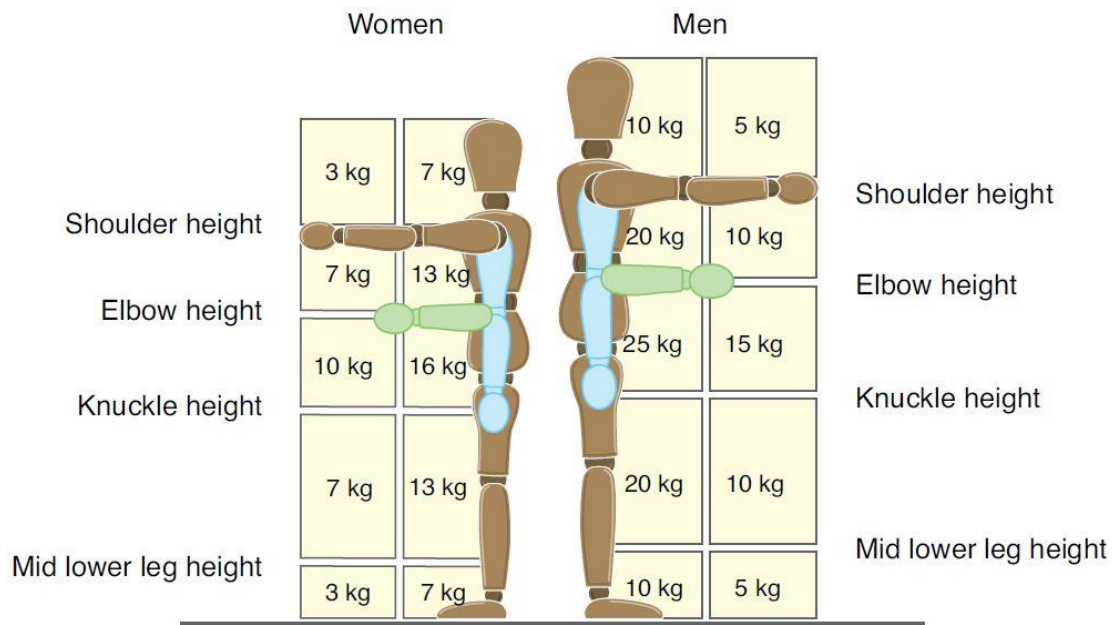


Figure 1. HSE guideline weights for lifting and lowering.

3.11 Frequent Lifting and Lowering

A more detailed risk assessment should be made where:

- the worker does not control the pace of work;
- pauses for rest are inadequate or there is no change of activity which provides an opportunity to use different muscles; or
- the handler must support the loads for any length of time.

The HSE's [ART tool](#) should be used for assessing repetitive tasks of the upper limbs and will aid in determining if a full detailed Manual Handling Risk Assessment is required.

3.12 Twisting

Manual handling operations should avoid twisting, i.e. moving the upper body while keeping the feet static (see Figure 2). The combination of twisting and lifting or stooping and lifting are particularly stressful on the back. Therefore where the handling

involves these movements a detailed assessment should normally be made. Where the handling involves turning, i.e. moving in another direction as the lift is in progress and twisting, then a detailed assessment should also be made.

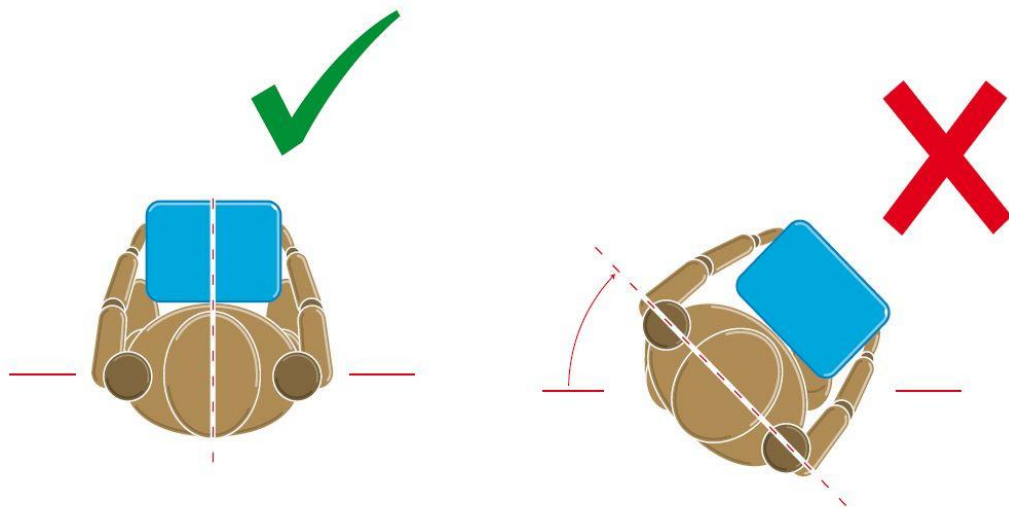


Figure 2. Avoid Twisting

3.2 Guidelines for Carrying

The guideline weights for lifting and lowering (Figure 1) also apply to carrying operations where the load:

- is held against the body;
- is carried no further than about 10 m without resting;
- does not prevent the person from walking normally;
- does not obstruct the view of the person carrying it;
- does not require the hands to be held below knuckle height or much above elbow height (owing to static loading on the arm muscles).

Where the load can be carried securely on the shoulder without first having to be lifted (as, for example when unloading sacks from a lorry) the guideline figures can be applied to carrying distances up to 20 m.

The HSE have also developed a [Manual Handling Assessment Chart](#) (MAC tool) to help in assessing risk factors for lifting, carrying and team handling. This tool is helpful in identifying high-risk manual handling operations and aids in determining if a full and detailed Manual Handling Risk Assessment is required.

3.3 Guidelines for Pushing and Pulling

For pushing and pulling operations (whether the load is slid, rolled or supported on wheels) the guideline figures assume:

- the force is applied with the hands, between knuckle and shoulder height.
- the torso is largely upright and not twisted; and
- the hands are between hip and shoulder level;
- the load can be moved and controlled easily with one hand; and
- the distance involved is no more than about 20 m.

If these assumptions are not met, a more detailed risk assessment is required (see the [risk assessment for pushing and pulling](#)). The HSE have developed a tool to assist in the risk assessment for pushing and pulling (RAPP tool). This tool should be used to assist in identifying high-risk manual handling operations and aid in determining if a detailed full Manual Handling Risk Assessment is required.

	Men	Women
Guideline weight for stopping or starting a load	20 kg	15 kg
Guideline weight for keeping the load in motion	10 kg	7 kg

As a rough guide the amount of force that needs to be applied to move a load over a flat, level surface using a well-maintained handling aid is at least 2 % of the load weight. For example, if the load is 400 kg, then the force needed to move the load is 8 kg. The force needed will be larger, perhaps a lot larger, if conditions are not perfect (e.g. wheels not in the right position or a device that is poorly maintained). Moving an object over soft or uneven surfaces also requires higher forces. On an uneven surface, the force needed to start the load moving could increase to 10 % of the load weight, although this might be offset to some extent by using larger wheels. Pushing and pulling forces will also be increased if workers have to negotiate a slope or ramp. Even when the guideline weights are met, a detailed risk assessment will be necessary if risk factors such as uneven floors, confined spaces, or trapping hazards are present.

There is no specific limit to the distance over which the load is pushed or pulled as long as there are adequate opportunities for rest or recovery.

3.4 Guidelines for handling while seated

The basic guideline weights for handling operations carried out while seated, as shown in Figure 3, are:

Men	Women
5 kg	3 kg

The guidelines only apply when the hands are within the zone indicated in Figure 3. If handling beyond the zones is unavoidable, a more detailed assessment should be made.

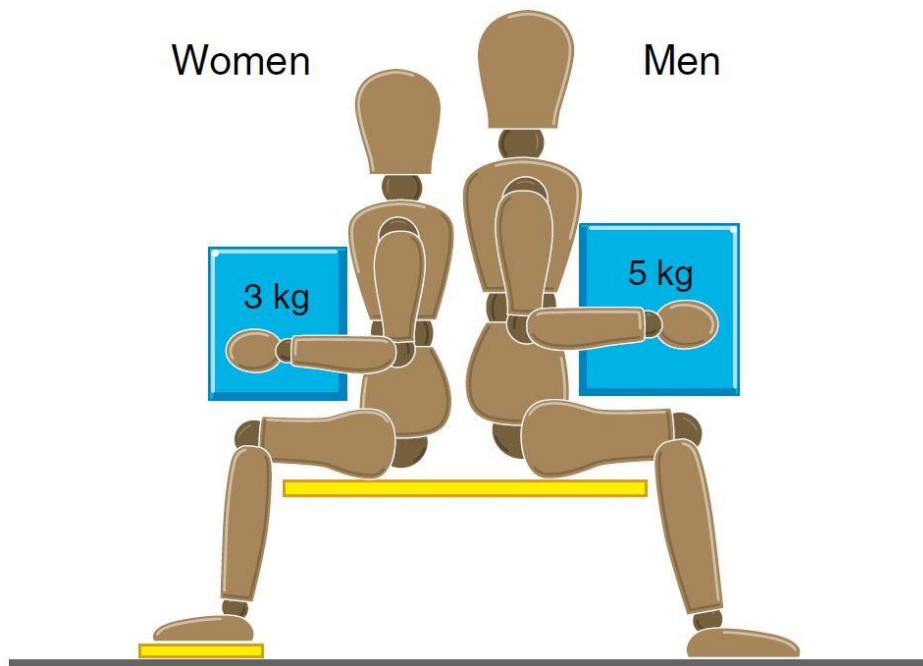


Figure 3 Handling while seated

4. WHEN TO CARRY OUT A MORE DETAILED MANUAL HANDLING RISK ASSESSMENT

A detailed Manual Handling Risk Assessment should be carried out, by a trained manual handling risk assessor, if:

- the activity exceeds the guideline figures;
- if the outcome on the MAC and RAPP tools determine one is required;
- the activities do not come within the guideline (e.g. if lifting and lowering unavoidably takes place beyond the box zones in Figure 1);
- the handling is more frequent than one lift every two minutes;
- the handling involves twisting the torso;
- team handling occurs;
- the operator has reduced capacity (e.g. new and expectant mothers, young persons, recently suffered injury, young workers, workplace layout and organisation);
- the assumptions made in the filter are not applicable, for example when carrying the load it is not held against the body;
- the activities are complex.

Results from the filters should be noted in Table 1.

5. RECORDING FINDINGS AND REACHING A DECISION

For each task, use the filters and HSE tools to assess each of the activities involved (some tasks may only involve one activity, e.g. lifting and lowering, while others may involve several). Table 1 may be used to record the results; this is not a legal requirement but may be useful to facilitate the process of identifying activities that require a detailed Manual Handling Risk Assessment, and stand as a record if problems occur later on that are associated with the task.

Table 1 Results of the Application of the Filters

Identify if each activity being performed comes within the guidelines and if there are other considerations to take into account, it may be helpful to make a note of these in the table below. Then make a final judgement of whether the task needs a full risk assessment.

<p>Brief details of the task:</p> <p>.....</p> <p>.....</p> <p>.....</p>			
<p>Activity</p>	<p>For each activity, does the task fall outside the guidelines?</p> <p>Y / N</p>	<p>Are there any other considerations which indicate a problem?</p> <p>Y / N (Indicate what the problem is, if desired.)</p>	<p>Is a more detailed assessment required?</p> <p>Y / N</p>
<p>Lifting and lowering</p>			
<p>Carrying</p>			
<p>Pushing and pulling</p>			
<p>Handling while seated</p>			

Name of person (s) conducting the basic assessment:

.....

.....

Date conducted: