

# The New Zealand manual handling assessment charts (NZMAC)

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**Te Kāwanatanga o Aotearoa**  
New Zealand Government

**WORKSAFE**  
Mahi Haumarū Aotearoa

## **ACKNOWLEDGEMENTS**

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WorkSafe New Zealand has adapted the *Health and Safety Executive's (HSE, UK) Manual Handling Assessment Charts (MAC) (Ref 1)* for use in Aotearoa New Zealand. To reflect these changes and to differentiate from the original United Kingdom version, WorkSafe have called this document *The New Zealand Manual Handling Assessment Charts (NZMAC)*. The risk factor categories, descriptions, and scoring system remain largely unchanged from the original tool.

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# 1.0

## Introduction

### **IN THIS SECTION:**

- 1.1** What is manual handling?
- 1.2** How to manage the risk of WRMSDs?
- 1.3** The MAC and NZMAC
- 1.4** When to use NZMAC?
- 1.5** Who can use NZMAC?
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# Work-related musculoskeletal disorders (WRMSDs), including injuries from manual handling, cause a significant amount of work-related harm in Aotearoa New Zealand.

## 1.1 What is manual handling?

Manual handling is the transporting or supporting of a load by hand or bodily force. It includes lifting, lowering, pushing, pulling, moving, or carrying a load. A load is any type of moveable object such as a box, container, person, animal, or trolley.

Manual handling may be considered a hazardous manual task. Hazardous manual tasks have one or more of the following characteristics:

- high, sudden, repetitive, or sustained forces
- repetitive movements
- sustained or awkward postures, or
- exposure to vibration.

## 1.2 How to manage the risk of WRMSDs?

Under the Health and Safety at Work Act 2015 (HSWA) a person conducting a business or undertaking (PCBU) must ensure, so far as is reasonably practicable, the health and safety of its workers and others.

This means PCBUs (businesses) must, so far as reasonably practicable, manage health and safety risks associated with WRMSDs (Ref 2 and 3).

## 1.3 The MAC and NZMAC

The Manual Handling Assessment Charts (MAC) was developed in the United Kingdom (UK) by the Health and Safety Executive (HSE) to identify high-risk manual handling (Ref 1). It will help you assess the most common risk factors in lifting (and lowering), carrying, and team handling.

MAC has been adapted by WorkSafe New Zealand to reflect New Zealand legislation. This version is known as the New Zealand MAC (NZMAC). The NZMAC can also help you to identify where control measures could be put in place to eliminate or minimise the risk of discomfort, pain, and injury, and prioritise which tasks should be considered first.

For more information about WRMSDs and risk factors, see our quick guide [Work-related musculoskeletal disorders and risk factors](#) (Ref 2).

For information about identifying, assessing and managing work risks, see our quick guide [Identifying, assessing and managing work risks](#) (Ref 4).

## 1.4 When to use NZMAC?

Use the NZMAC to assess the following manual handling tasks:

- lifting and lowering tasks (pages 9–13)
- carrying tasks (pages 15–19)
- team handling tasks (pages 21–25).

For each type of task there is an assessment guide, a flowchart, and a score sheet to record findings.

NZMAC uses a traffic light system to indicate the risk level for each risk factor:

|  |   |
|--|---|
|  | <p><b>Low level of risk</b></p> <p>Although the risk is low, consider the exposure levels for vulnerable groups such as workers who are new mothers, or pregnant, young workers, older workers, new to the job or workforce, or those that have a disability, significant health condition, injury, or are recovering from an injury.</p> |
|  | <p><b>Medium level of risk</b></p> <p>Examine tasks closely.</p>  |
|  | <p><b>High level of risk</b></p> <p>Prompt action needed. This may expose a significant proportion of the working population to risk of injury.</p>   |
|  | <p><b>Unacceptable level of risk</b></p> <p>Such tasks may present a serious risk of injury and should be improved urgently.</p>  |

## 1.5 Who can use NZMAC?

The NZMAC can be used by PCBUs (the 'you' in this tool).

It can also be used by others including:

- health and safety generalists such as advisors and managers
- health and safety specialists (for example, human factors/ergonomics professionals, occupational health nurses, occupational health physiotherapists, vocational occupational therapists)
- workers and their representatives
- health and safety inspectors.

If you need help to use the NZMAC, you could use a qualified health and safety specialist with the right training, skills, and expertise. You could use the [HASANZ Register](#) to find one.

Be aware that some professional groups will have more knowledge and expertise than others in the use of these assessment methods and the interventions and controls that reduce musculoskeletal health risks.

## 1.6 Using the NZMAC

### 1. Identify the tasks to assess

Choose tasks that you know are 'hard work' or that workers complain about.

### 2. Check that the NZMAC is the best tool to use

Look at the table below and decide if the NZMAC is the right assessment tool. The NZMAC is made up of three assessments.

| USE THE NZMAC FOR THESE TASKS   | DO NOT USE THE NZMAC FOR THESE TASKS  |
|---|---|
| <ul style="list-style-type: none"> <li>- Lifting or lowering</li> <li>- Carrying</li> <li>- Team handling</li> </ul> <p>Carry on to Step 3 below.</p> | <p><b>Pushing or pulling</b><br/>Use: Risk assessment of pushing and pulling (<a href="#">RAPP</a>) (Ref 5)</p> <p><b>Repetitive use of the upper limbs</b><br/>Use: Assessment of repetitive tasks of the upper limbs (<a href="#">ART</a>) tool (Ref 6)</p> <p><b>Moving or handling people</b><br/>Refer to WorkSafe's <a href="#">Moving and handling people in the healthcare industry</a> (Ref 7) and ACC's <a href="#">Moving and Handling People: The New Zealand Guidelines</a> (Ref 8)</p> <p><b>Manual handling while seated (loads are more than 5kg for men or 3kg for women)</b><br/>Further investigation of the contributory risk factors is recommended. Use the <a href="#">Contributing factors for musculoskeletal risks checklist</a> or other assessment tools, or seek specialist advice from a qualified professional.</p> <p><b>Carrying on the shoulder without lifting first</b><br/>Further investigation of the contributory risk factors is recommended. Use the <a href="#">Contributing factors for musculoskeletal risks checklist</a> or other assessment tools, or seek specialist advice from a qualified professional.</p> |

### 3. Engage with workers (Ref 9)

The key to effective risk assessment is making sure you talk to workers. To best understand the risks, you should complete the NZMAC with your workers.

- Ask workers about the manual handling risks from their work and if they have any ideas on how to manage these risks.
- Aim to gain insight into the demands of the job from the perspectives of **all** workers carrying out the task.

### 4. Observe the task carefully

Make sure that you look at how the task is being carried out by workers – not how you assume it is. Videoing it may help, but make sure to follow the privacy principles outlined in the Privacy Act 2020.

### 5. Select the type of assessment to carry out

Decide if the task involves lifting, carrying, or team handling. If a task involves lifting and carrying, consider assessing each one separately.

### 6. Follow the appropriate assessment guide and flowchart

Work through the assessment guide to determine the level of risk for each risk factor. Always assess the worst-case scenario if unsure.



## 7. Fill in the score sheet

Manually enter the colour bands and numerical scores on the score sheet. You can use a hard copy or the online PDF NZMAC [interactive score sheet](#)

You can also use the online [UK MAC tool](#) that will take you through the assessment and automatically complete the score sheet.

## 8. Understanding the scores

The score sheet can be used in several ways to:

- **identify which risk factors** to look at more closely. For example, the risk factor results that were scored as purple, red or amber, and to
- **compare tasks** by looking at the total score when more than one assessment has been completed. Use these total scores **only to prioritise** which task to look at first. Those with the highest total scores should be prioritised first. The total scores do not indicate if a task has low, medium, high, or unacceptable risk.

## 9. Manage the risk

Look for ways of changing the task to reduce high risk factors (those that are scored as purple or red) to amber or green, and to reduce amber risk factors to green.

- Use the hierarchy of control measures to decide what control measures to use (see [Identifying, assessing and managing work risks](#) (Ref 4)).
- Involve your workers as they might have already thought of how to manage the risk or how to make the task easier.

## 10. Is further investigation needed?

When you have completed your assessments using the NZMAC, you may want to consider other contributing factors in more detail. The [Contributing factors for musculoskeletal risks checklist](#) can be used to identify these factors. Other assessment tools that focus on different risk factors may provide you with more information and ideas for controls. You can also seek specialist advice from a qualified professional by using the HASANZ Register.

**Remember:** The purpose of the assessment is to identify and then reduce the overall level of risk of the task. You need to put control measures in place to manage the risks you have identified. There is space to list your control measures on the score sheet.

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# 2.0

## Lifting tasks assessment guide

### IN THIS SECTION:

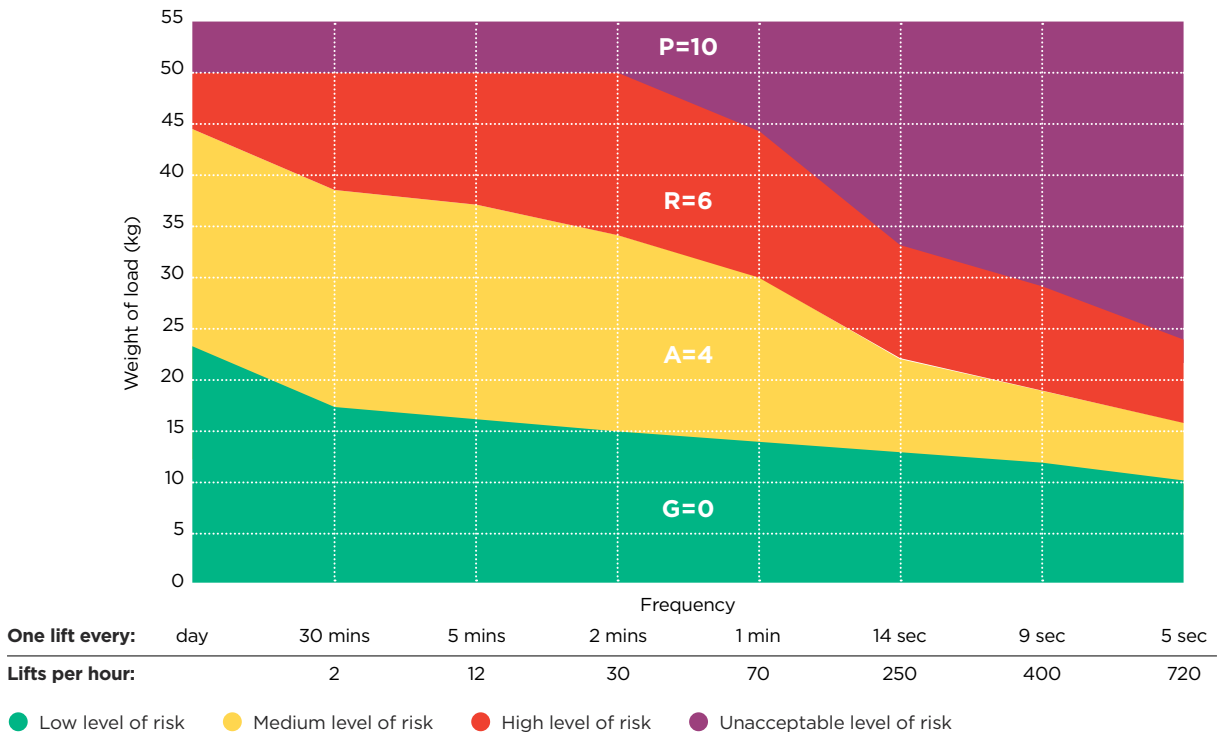
- 2.1** Load weight/frequency
- 2.2** Hand distance from the lower back
- 2.3** Vertical lift zones
- 2.4** Torso twisting and sideways bending
- 2.5** Postural constraints
- 2.6** Grip on the load
- 2.7** Floor surface
- 2.8** Environmental factors

## 2.1 Load weight/frequency

- Note the weight of the load and the frequency (or repetition rate) of the lifting task.
- Read the risk band from the graph below and enter the colour band and numerical score onto the score sheet.

If the colour band is purple you should examine the task very closely as it may represent a serious risk of injury and should be reviewed and improved urgently.

### Load weight/frequency graph for lifting tasks

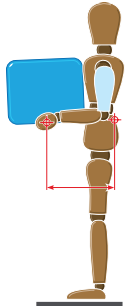


Remember:

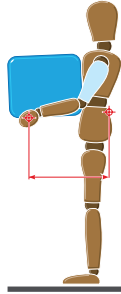
- For more complex tasks, for example when lifting at more than once every five seconds, further investigation may be required. Consider using the [Contributing factors for musculoskeletal risks checklist](#) or other assessment tools, or seek specialist advice from a qualified professional.
- **Use the ART tool if there is repetitive handling of light items.** These will fall within the green zone but may be associated with upper limb problems (Ref 6).
- **Use the Variable manual handling assessment chart (V-MAC) tool** when a job is complex because load weights vary significantly (for example in order picking/distribution). You can use the V-MAC to assess the load weight/frequency risk factor instead of this graph, before returning to complete your NZMAC assessment (Ref 10).

## 2.2 Hand distance from the lower back

- Observe the horizontal distance between the worker's hands and lower back.
- Assess the 'worst-case scenario', including picking up and putting down.
- Use the following illustrations and descriptions as a guide:



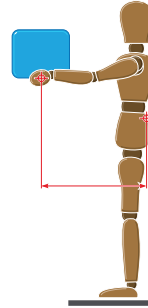
Upper arms vertical **and** torso upright



Upper arms angled away from torso



Torso bent forward



Torso upright, arms fully outstretched



Upper arms angled away from torso **and** torso bent forward

Hands close to the low back **G/0**

Hands at moderate distance from the low back **A/3**

Hands far from the low back **R/6**

## 2.3 Vertical lift zones

- Observe the vertical position of the worker's hands at both the start and end of the lift.
- Record the 'worst-case' colour band/score.
- Use the following illustrations and descriptions as a guide:



Hands between knee and elbow height **G/0**



Hands between knee and floor level **A/1**



Hands between elbow height and head height **R/3**



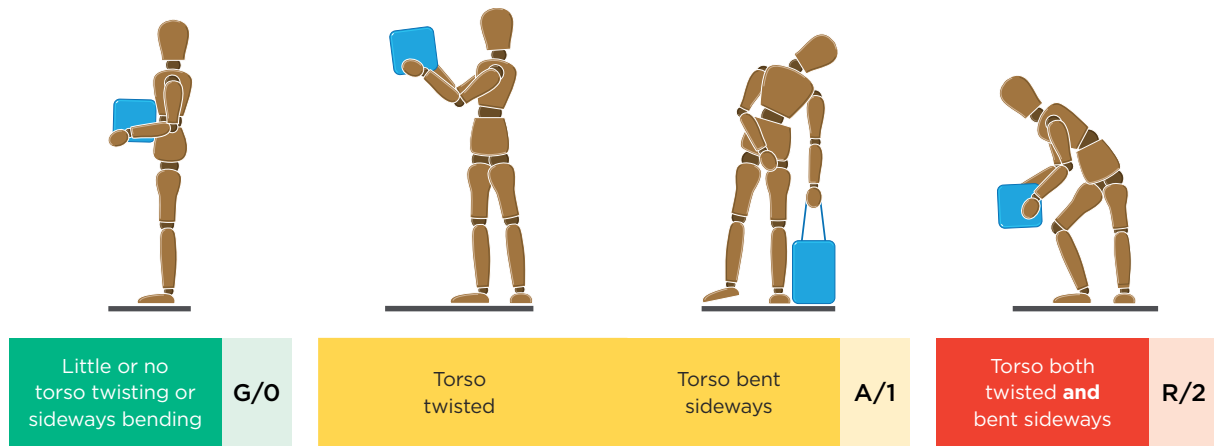
Hands at floor level or below **R/3**



Hands at head height or above **R/3**

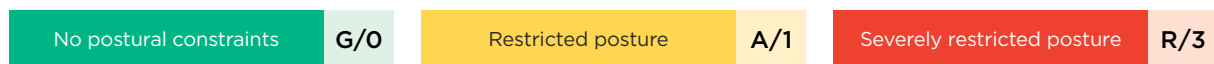
## 2.4 Torso twisting and sideways bending

- Observe the worker's torso as the load is lifted.
- If the person twists the torso in relation to the hips **or** leans to one side as the load is lifted, the colour band is amber and the score is **1**.
- If the torso both twists **and** bends to the side as the load is lifted, the colour band is red and the score is **2**.



## 2.5 Postural constraints

- Look for factors that force workers to modify their postures.
- If their movements are restricted when lifting because of the space available (for example, lifting in a narrow aisle or in a crowded or disorganised storage area) or lifting through narrow gaps, the colour band is amber and the score is 1.
- If the posture is severely restricted (for example, lifting in an area with a low ceiling where the worker cannot stand upright) the colour band is red and the score is 3.



## 2.6 Grip on the load

- Look at the quality of the grip that the worker can use to get hold of and control the load.
- The worker may need to reposition their hands on the object as a lift progresses. If this is so, assess the 'worst-case scenario'.

|   |   |   |  |
|---|---|---|--|
|  <p>Fit-for-purpose handles/handholds matched to the size and weight of the load</p> |  <p>Handles or handholds too small or lack finger clearance or only the fingers support the load</p> |  <p>No handles or handhold areas</p>                                      |  <p>Rough, slippery or with pressure points</p> |
|  <p>Cylindrical handles or items the whole hand can wrap around comfortably</p>      |  <p>No handles or handholds but can be held underneath, or has strap or loop handles</p>             |  <p>Palm, pinch or fingertip grip or force used to keep items together</p> |  <p>Irregular, bulky or non-rigid</p>           |
| <p>Good grip <b>G/0</b></p>   | <p>Reasonable grip <b>A/1</b></p>   | <p>Poor grip <b>R/2</b></p>   |  |

## 2.7 Floor surface

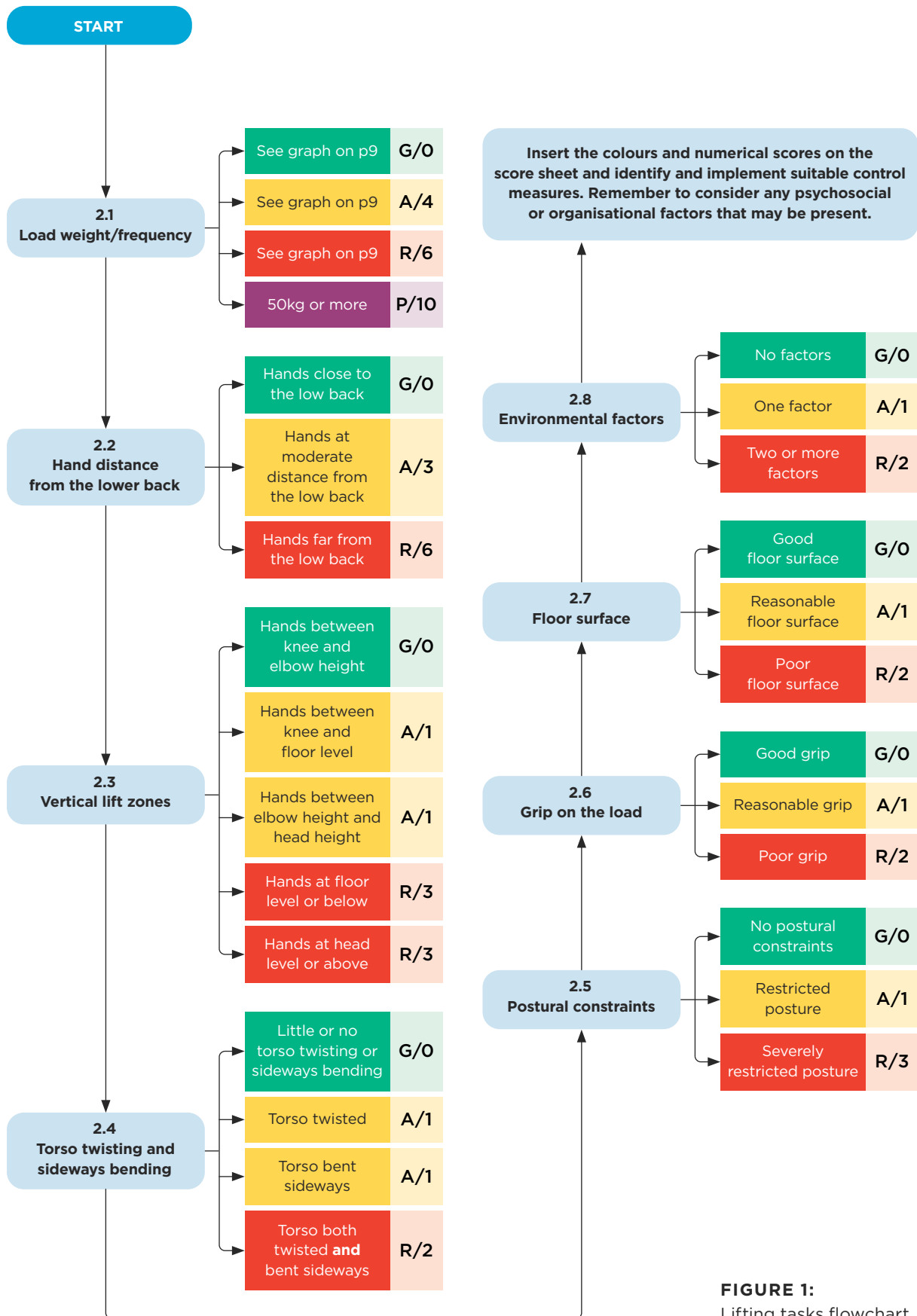
- Look at the condition of the floor where the handling task takes place.
- Note that for outdoor work this will depend on the weather. Always assess the 'worst-case scenario'.

|  |   |  |
|--|---|--|
| <p>Non-slip, dry, clean, firm, level and undamaged</p> | <p>Mostly dry and clean (damp or some debris), <b>or</b> reasonably firm <b>or</b> minor damage</p> | <p>Slippery (greasy, oily, wet, icy) <b>or</b> much debris <b>or</b> soft <b>or</b> unstable <b>or</b> severe damage</p> |
| <p>Good floor surface <b>G/0</b></p>                   | <p>Reasonable floor surface <b>A/1</b></p>  | <p>Poor floor surface <b>R/2</b></p>   |

## 2.8 Environmental factors

- Observe the work environment and score if the handling task takes place:
  - in extremes of temperature
  - with strong air movements, or
  - in extreme lighting conditions (dark, bright, or poor contrast).
- If one of the risk factors is present score **1**.
- If two or more of the risk factors are present score **2**.

|                              |                              |                                       |
|------------------------------|------------------------------|---------------------------------------|
| <p>No factors <b>G/0</b></p> | <p>One factor <b>A/1</b></p> | <p>Two or more factors <b>R/2</b></p> |
|------------------------------|------------------------------|---------------------------------------|



**FIGURE 1:**  
Lifting tasks flowchart

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# 3.0

## Carrying tasks assessment guide

### IN THIS SECTION:

- 3.1** Load weight/frequency
- 3.2** Hand distance from the lower back
- 3.3** Asymmetrical torso or load
- 3.4** Postural constraints
- 3.5** Grip on the load
- 3.6** Floor surface
- 3.7** Carry distance
- 3.8** Obstacles on route
- 3.9** Environmental factors

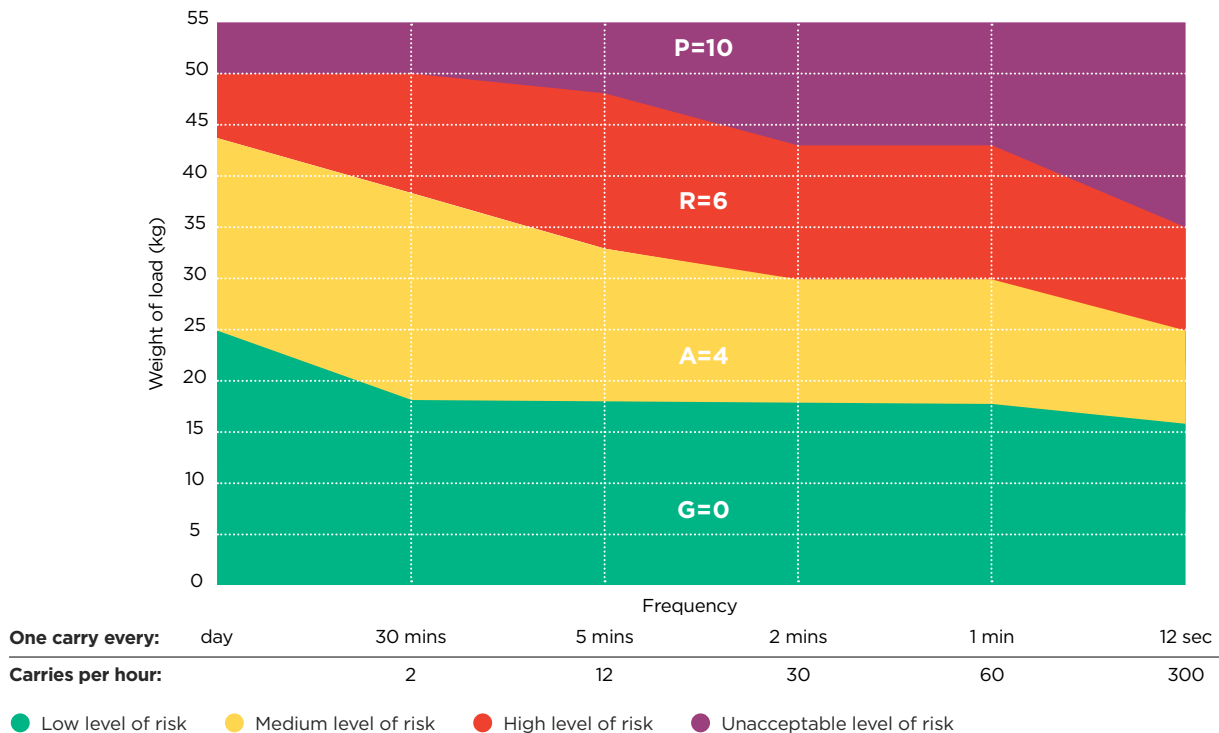


### 3.1 Load weight/frequency

- Note the weight of the load and the frequency (or repetition rate) of the carrying task.
- Read the risk band from the graph below and enter the colour band and numerical score onto the score sheet.

If the colour band is purple you should examine the task very closely as it may represent a serious risk of injury and should be reviewed and improved urgently.

#### Load weight/frequency graph for carrying tasks

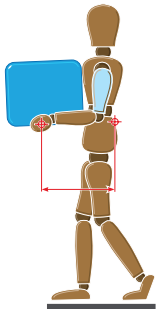


Remember:

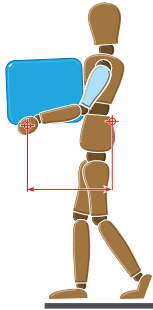
- For more complex tasks, for example when carrying at more than once every 12 seconds, further investigation may be required. Consider using the [Contributing factors for musculoskeletal risks checklist](#) or other assessment tools, or seek specialist advice from a qualified professional.
- Use the [Variable manual handling assessment chart \(V-MAC\) tool](#) when a job is complex because load weights vary significantly (for example in order picking/distribution). It takes account of carrying distance and you can use the V-MAC to assess the load weight/frequency risk factor instead of this graph, before returning to complete your NZMAC assessment (Ref 10).

### 3.2 Hand distance from the lower back

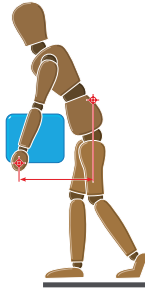
- Observe the horizontal distance between the worker's hands and lower back.
- Assess the 'worst-case scenario', including the start and finish of the task.
- Use the following illustrations and descriptions as a guide:



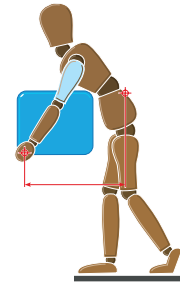
Upper arms vertical **and** torso upright



Upper arms angled away from torso



Torso bent forward

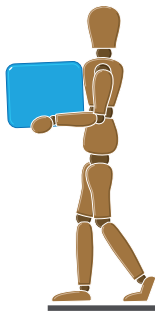


Upper arms angled away from torso **and** torso bent forward

|                             |     |  |     |                             |     |
|-----------------------------|-----|--|-----|-----------------------------|-----|
| Hands close to the low back | G/0 | Hands at moderate distance from the low back | A/3 | Hands far from the low back | R/6 |
|-----------------------------|-----|--|-----|-----------------------------|-----|

### 3.3 Asymmetrical torso or load

- When carrying, the posture of the worker's torso and the position of the load are risk factors associated with musculoskeletal injury.
- Use the following illustrations and descriptions as a guide:



Load **and** hands symmetrical in front of the torso

G/0

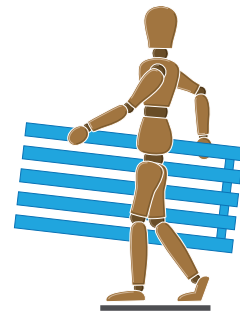


Torso symmetrical but load is carried to one side



Load not symmetrical

A/1



Two-handed carrying to the side

R/2

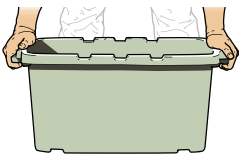
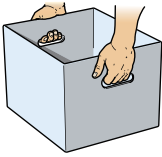


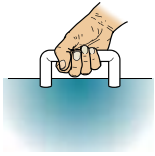
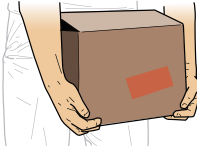


### 3.4 Postural constraints

- Look for factors that force workers to modify their postures.
- If their movements are restricted during the carry (for example, a narrow doorway forces the worker to turn or move the load to get through) the colour band is amber and the score is **1**.
- If the posture is severely restricted (for example, having to bend forward to carry in an area with a low ceiling where the worker can't stand upright), the colour band is red and the score is **3**.

|                         |            |                    |            |                             |            |
|-------------------------|------------|--------------------|------------|-----------------------------|------------|
| No postural constraints | <b>G/0</b> | Restricted posture | <b>A/1</b> | Severely restricted posture | <b>R/3</b> |
|-------------------------|------------|--------------------|------------|-----------------------------|------------|

### 3.5 Grip on the load

- Look at the quality of the grip that the worker can use to get hold of and control the load.
- The worker may need to reposition their hands on the object as a lift progresses. If this is so, assess the 'worst-case scenario'.

|   |  |   |   |
|---|--|---|---|
|   |            |  |   |
| Fit-for-purpose handles/handholds matched to the size and weight of the load        | Handles or handholds too small or lack finger clearance or only the fingers support the load | No handles or handhold areas  | Rough, slippery or with pressure points   |
|  |           |  |  |
| Cylindrical handles or items the whole hand can wrap around comfortably             | No handles or handholds but can be held underneath, or has strap or loop handles             | Palm, pinch or fingertip grip or force used to keep items together                  | Irregular, bulky or non-rigid   |
| <b>Good grip</b>  | <b>Reasonable grip</b>   | <b>Poor grip</b>  |   |
| <b>G/0</b>  | <b>A/1</b>   | <b>R/2</b>  |   |

### 3.6 Floor surface

- Examine the condition of the floor at the locations where the handling task occurs.
- Note that for outdoor work this will depend on the weather. Always assess the 'worst-case scenario'.

|   |  |   |
|---|--|---|
| Non-slip, dry, clean, firm, level and undamaged | Mostly dry and clean (damp or some debris), or reasonably firm or minor damage | Slippery (greasy, oily, wet, icy) or debris in several areas or soft or unstable or severe damage |
| <b>Good floor surface</b>                       | <b>Reasonable floor surface</b>  | <b>Poor floor surface</b>   |
| <b>G/0</b>                                      | <b>A/1</b>   | <b>R/3</b>  |

### 3.7 Carry distance

- Observe the task and estimate the total distance that the load is carried (not the distance 'as the crow flies').

|                   |     |                    |     |          |     |
|-------------------|-----|--------------------|-----|----------|-----|
| Between 2m and 4m | G/0 | Between 4m and 10m | A/1 | Over 10m | R/2 |
|-------------------|-----|--------------------|-----|----------|-----|

### 3.8 Obstacles on route

- Count the number of obstacles along the carrying route.
- Obstacles include carrying the load:
  - up or down a steep slope
  - up or down steps
  - through closed doors/narrow doorways
  - around tripping hazards
  - around bends and corners
  - up or down ladders.
- The colour band is amber and the score is 2 if there is one obstacle.
- The colour band is red and the score is 3 if there are at least two obstacles **or** a ladder is used.

|   |     |              |     |   |     |
|---|-----|--------------|-----|---|-----|
| No obstacles <b>and</b> carry route flat or slopes gently | G/0 | One obstacle | A/2 | At least two obstacles <b>or</b> a ladder is used | R/3 |
|---|-----|--------------|-----|---|-----|

### 3.9 Environmental factors

- Observe the work environment and score if the carrying task takes place: in extremes of temperature; with strong air movements; or in extreme lighting conditions (dark, bright, or poor contrast).
- If one of the risk factors is present score **1**.
- If two or more of the risk factors are present score **2**.

|            |     |            |     |                     |     |
|------------|-----|------------|-----|---------------------|-----|
| No factors | G/0 | One factor | A/1 | Two or more factors | R/2 |
|------------|-----|------------|-----|---------------------|-----|



**FIGURE 2:** Carrying tasks flowchart

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# 4.0

## Team handling tasks assessment guide

### IN THIS SECTION:

- 4.1 Load weight
- 4.2 Hand distance from the lower back
- 4.3 Vertical lift zones
- 4.4 Torso twisting and sideways bending
- 4.5 Postural constraints
- 4.6 Grip on the load
- 4.7 Floor surface
- 4.8 Carry distance
- 4.9 Obstacles on route
- 4.10 Communication, coordination, and control
- 4.11 Environmental factors

## 4.1 Load weight

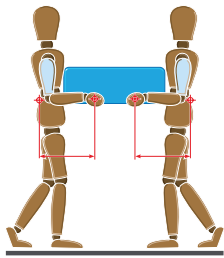
- Note the weight of the load and the number of workers performing the task.
- Enter the colour band and numerical score on the score sheet.
- For teams of five people or more, a more detailed risk assessment is needed.

If the colour band is purple you should examine the task very closely as it may represent a serious risk of injury and should be reviewed and improved urgently.

|   |            |   |            |   |            |   |             |
|---|------------|---|------------|---|------------|---|-------------|
| 2 people < 35kg<br>3 people < 55kg<br>4 people < 75kg | <b>G/0</b> | 2 people 35-65kg<br>3 people 55-95kg<br>4 people 75-130kg | <b>A/4</b> | 2 people 65-85kg<br>3 people 95-130kg<br>4 people 130-170kg | <b>R/6</b> | 2 people > 85kg<br>3 people > 130kg<br>4 people > 170kg | <b>P/10</b> |
|---|------------|---|------------|---|------------|---|-------------|

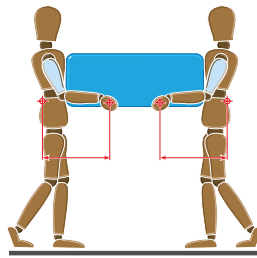
## 4.2 Hand distance from the lower back

- Observe the task and examine the horizontal distance between each worker's hands and their lower back.
- Assess the 'worst-case scenario', including picking up and putting down.
- Use the following illustrations and descriptions as a guide:



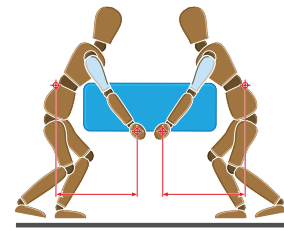
Upper arms vertical **and** torso upright

|                             |            |
|-----------------------------|------------|
| Hands close to the low back | <b>G/0</b> |
|-----------------------------|------------|



Upper arms angled away from torso **or** torso bent forward

|  |            |
|--|------------|
| Hands at moderate distance from the low back | <b>A/3</b> |
|--|------------|

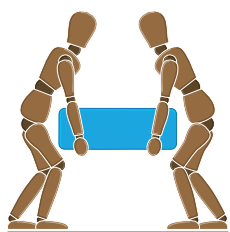


Upper arms angled away from torso **and** torso bent forward

|                             |            |
|-----------------------------|------------|
| Hands far from the low back | <b>R/6</b> |
|-----------------------------|------------|

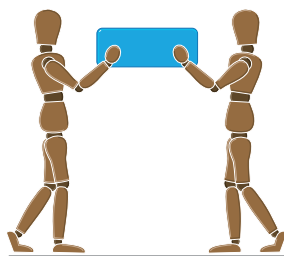
### 4.3 Vertical lift zones

- Observe the vertical positions of the workers' hands at both the start and end of the lift.
- Individual height differences between team members is particularly important when lifting goes above elbow height.
- Record the 'worst-case' colour band/score.
- Use the following illustrations and descriptions as a guide:



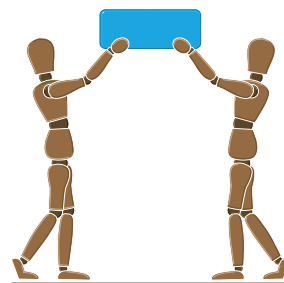
Hands between knee  
and elbow height

G/0



Hands below knee **and/or**  
above elbow height

A/1

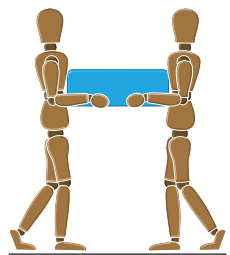


Hands at floor level or below  
**or** head height and above

R/3

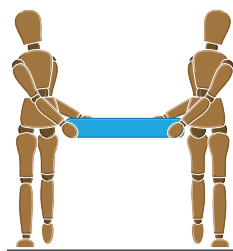
### 4.4 Torso twisting and sideways bending

- Observe the workers' torsos as they lift the load.
- If their torsos twist in relation to their hips **or** they lean to one side as the load is lifted, the colour band is amber and the score is **1**.
- If their torsos twist **and** bend to the side as they lift the load, the colour band is red and the score is **2**.



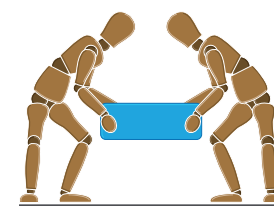
Little or no torso twisting  
or sideways bending

G/0



Torsos either twisted  
**or** bent sideways

A/1



Torsos both twisted  
**and** bent sideways

R/2



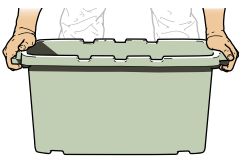
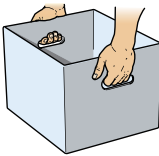


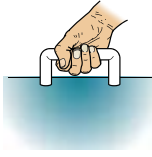
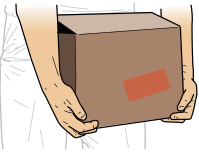


### 4.5 Postural constraints

- Look for factors that force the team members to modify their postures.
- If their movements are restricted because of the space available (for example, lifting in a narrow aisle or in a crowded or disorganised storage area) or lifting round obstructions, the colour band is amber and the score is **1**.
- If the postures are severely restricted (for example, lifting or carrying in an area with a low ceiling where the worker can't stand upright) the colour band is red and the score is **3**.

|                         |     |                    |     |                             |     |
|-------------------------|-----|--------------------|-----|-----------------------------|-----|
| No postural constraints | G/O | Restricted posture | A/1 | Severely restricted posture | R/3 |
|-------------------------|-----|--------------------|-----|-----------------------------|-----|

### 4.6 Grip on the load

- Look at the quality of the grip that the workers can use to get hold of and control the load.
- They may need to reposition their hands on the object as a lift progresses. If this is so, assess the 'worst-case scenario'.

|   |  |   |   |           |     |
|---|--|---|---|-----------|-----|
|  <p>Fit-for-purpose handles/ handholds matched to the size and weight of the load</p> |  <p>Handles or handholds too small or lack finger clearance or only the fingers support the load</p> |  <p>No handles or handhold areas</p>                                       |  <p>Rough, slippery or with pressure points</p> |           |     |
|  <p>Cylindrical handles or items the whole hand can wrap around comfortably</p>      |  <p>No handles or handholds but can be held underneath, or has strap or loop handles</p>            |  <p>Palm, pinch or fingertip grip or force used to keep items together</p> |  <p>Irregular, bulky or non-rigid</p>          |           |     |
| Good grip   | G/O  | Reasonable grip   | A/2   | Poor grip | R/4 |

### 4.7 Floor surface

- Examine the condition of the floor at the locations where the handling task occurs.
- Note that for outdoor work this will depend on the weather. Always assess the 'worst-case scenario'.

|   |     |  |     |   |     |
|---|-----|--|-----|---|-----|
| Good floor surface                              | G/O | Reasonable floor surface   | A/1 | Poor floor surface  | R/3 |
| Non-slip, dry, clean, firm, level and undamaged |     | Mostly dry and clean (damp or some debris), or reasonably firm or minor damage |     | Slippery (greasy, oily, wet, icy) or debris in several areas or soft or unstable or severe damage |     |

## 4.8 Carry distance

- Observe the task and estimate the total distance that the load is carried (not the distance ‘as the crow flies’).

|                   |     |                    |     |          |     |
|-------------------|-----|--------------------|-----|----------|-----|
| Between 2m and 4m | G/0 | Between 4m and 10m | A/1 | Over 10m | R/3 |
|-------------------|-----|--------------------|-----|----------|-----|

## 4.9 Obstacles on route

- Count the number of obstacles along the carrying route.
- Obstacles include carrying the load:
  - up or down a steep slope
  - up or down steps
  - through closed doors/narrow doorways
  - around tripping hazards
  - around bends and corners
  - up or down ladders.
- The colour band is amber and the score is 2 if there is one obstacle.
- The colour band is red and the score is 3 if there are at least two obstacles **or** a ladder is used.

|   |     |              |     |   |     |
|---|-----|--------------|-----|---|-----|
| No obstacles <b>and</b> carry route flat or slopes gently | G/0 | One obstacle | A/2 | At least two obstacles <b>or</b> a ladder is used | R/3 |
|---|-----|--------------|-----|---|-----|

## 4.10 Communication, coordination, and control

- A good team handling task will be well planned.
- Communication between the individuals is essential when lifting as part of a team. An example of good communication would be using ‘ready, steady, lift’ to coordinate their actions.
- Look to see if the team has control of the load, that it is lifted smoothly, and that all members lift together.
- An uncoordinated team lift may leave one member of the team bearing the entire weight.

|  |     |  |     |   |     |
|--|-----|--|-----|---|-----|
| Good communication, coordination and control | G/0 | Reasonable communication, coordination and control | A/1 | Poor communication coordination and control | R/3 |
|--|-----|--|-----|---|-----|

## 4.11 Environmental factors

- Observe the work environment and score if the handling task takes place in extremes of temperature, with strong air movements, or in extreme lighting conditions (dark, bright, or poor contrast).
- If one of the risk factors is present score **1**.
- If two or more of the risk factors are present score **2**.

|            |     |            |     |                     |     |
|------------|-----|------------|-----|---------------------|-----|
| No factors | G/0 | One factor | A/1 | Two or more factors | R/2 |
|------------|-----|------------|-----|---------------------|-----|



FIGURE 3: Team handling tasks flowchart

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# Appendices

## **IN THIS SECTION:**

**Appendix 1:** Further reading

**Appendix 2:** NZMAC score sheet

## Appendix 1: Further reading

1. Health and Safety Executive (2016). *Manual handling assessment charts (the MAC tool)*. Leaflet INDG383(rev3). [www.hse.gov.uk/pubns/indg383.htm](http://www.hse.gov.uk/pubns/indg383.htm)
2. WorkSafe New Zealand, (2023). *Quick Guide: Work-related musculoskeletal disorders and risk factors*. [Quick guide](#)
3. WorkSafe New Zealand, (2023). *Our approach to musculoskeletal health*
4. WorkSafe New Zealand (2017). *Identifying, assessing and managing work risks*
5. Health and Safety Executive (2016). *The Risk Assessment of Pushing and Pulling Tool - RAPP tool*
6. Health and Safety Executive (2010). *Assessment of Repetitive Tasks of the upper limbs (the ART tool)*
7. WorkSafe New Zealand, (2018). *Moving and handling people in the healthcare industry*
8. Accident Compensation Corporation (2003). *Moving and handling people: The New Zealand Guidelines* [www.acc.co.nz/assets/provider/1d98940288/acc6075-moving-and-handling-people-guidelines.pdf](http://www.acc.co.nz/assets/provider/1d98940288/acc6075-moving-and-handling-people-guidelines.pdf)
9. WorkSafe (2023). *Worker engagement, participation and representation*
10. Health and Safety Executive, (2021). *Variable manual handling assessment chart (V-MAC) tool*

## Appendix 2: NZMAC score sheet

### Company/site details

Name/purpose of activity:

Location of activity:

Team/individuals involved:

What items are handled:

When does the task take place (shift/time of day):

### Are there indications that the task is high risk for WRMSDs?

- Task has a history of manual handling incidents (for example, accident register, week away from work reports) or lost time
- Task is known to be strenuous, can only be done by a few people, or workers complain about WRMSD risk
- Workers doing the work appear to be struggling or find it hard work (for example, red-faced, sweating) or ask for help
- Other indications. If so, what:

### Are there other factors present that may contribute to the overall risk?

- High workloads
- Tight deadlines
- Lack of control over the work and working methods
- Lack of support from colleagues or managers
- Machine-paced work
- Other if so, what?

### Notes

Large empty text area for notes.

### Assessment completed by

Name of assessor:

Signature:

Date: DD / MM / YEAR

| RISK FACTORS   | SCORE (COLOUR BAND, AND NUMERICAL SCORE) |       |      | POSSIBLE CONTROL MEASURES TO REDUCE THE RISK OF PURPLE/RED/AMBER FACTORS |
|--|--|-------|------|--|
|  | Lift                                     | Carry | Team |  |
| Load weight/frequency  |  |       |      |  |
| Hand distance from the lower back  |  |       |      |  |
| Vertical lift zones  |  | N/A   |      |  |
| Torso twisting and sideways bending or asymmetrical torso or load (carrying) |  |       |      |  |
| Postural constraints   |  |       |      |  |
| Grip on the load   |  |       |      |  |
| Floor surface  |  |       |      |  |
| Carry distance   | N/A                                      |       |      |  |
| Obstacles on route   | N/A                                      |       |      |  |
| Communication, coordination, and control                                     | N/A                                      | N/A   |      |  |
| Environmental factors  |  |       |      |  |
| <b>TOTAL SCORE</b>   |  |       |      |  |

**Other factors present**  
 (for example, psychosocial, organisational, or individual)

List the factors present:

**Is further investigation needed?**

Use the checklist below to identify if you need to complete further assessment.

| CONSIDER FURTHER ASSESSMENT IF ANY OF THE FOLLOWING APPLY  | TICK IF ANY APPLY        |
|--|--------------------------|
| <p><b>Individual factors</b></p> <p>The task is carried out by workers who may be at significant risk:</p> <ul style="list-style-type: none"> <li>- for example, workers who are new mothers, or pregnant, young workers, older workers, new to the job or workforce, or those that have a disability, significant health condition, injury, or are recovering from an injury.</li> </ul>  | <input type="checkbox"/> |
| <p><b>Biomechanical and physical factors</b></p> <p>The tasks involve:</p> <ul style="list-style-type: none"> <li>- lifting or lowering at more than 12 lifts per minute/1 lift every 5 seconds, or</li> <li>- carrying more than once every 12 seconds, or</li> <li>- carrying on the shoulder without lifting the load first, or</li> <li>- handling while seated, especially if the loads are handled are greater than the screening values</li> </ul> <p>or</p> <p>The loads handled:</p> <ul style="list-style-type: none"> <li>- could suddenly move, or</li> <li>- are unstable or with contents likely to shift, or</li> <li>- are sharp, hot, or otherwise potentially damaging.</li> </ul> | <input type="checkbox"/> |
| <p><b>Work organisation factors</b></p> <p>The jobs or tasks:</p> <ul style="list-style-type: none"> <li>- have large vertical movements, or are on different levels, or</li> <li>- require workers to keep up with a rate of work imposed by a process, or</li> <li>- have pay incentives that affect how workers complete the work (for example, piece work), or</li> <li>- require unusual strength, height, or other physical attributes, to perform, or</li> <li>- require special information or training for its safe performance, or</li> <li>- need workers to wear personal protective equipment (PPE) or clothing and the movement or posture is hindered.</li> </ul>                     | <input type="checkbox"/> |
| <p><b>Environmental factors</b></p> <p>Environmental factors, clothing, PPE, and work activities may combine to place additional physiological demands on workers. For example, workers are sweating a lot which may lead to dehydration.</p>  | <input type="checkbox"/> |
| <p><b>Psychosocial factors</b></p> <p>Workers consistently identify the same types of psychosocial factors. For example:</p> <ul style="list-style-type: none"> <li>- high job demands or workloads (mental or emotional)</li> <li>- lack of control over how they complete their work (freedom or autonomy)</li> <li>- lack of support (from managers or colleagues)</li> <li>- low job satisfaction (unsatisfied with their jobs or have poor work-life balance)</li> <li>- low role clarity (unclear of their responsibilities and expectations).</li> </ul>  | <input type="checkbox"/> |

If you have ticked that any of the factors apply you may want to investigate these further. The [Contributing factors for musculoskeletal risks checklist](#) can be used. Other assessment tools that focus on different risk factors may provide you with more information and ideas for controls.



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