

Introduction

This document designed to help you sell the products of our R-Go line. It provides additional information that you will find especially useful when selling this range of products.

Tools to help you

During our market studies on building and heavy equipment maintenance, we also learned a considerable amount about health and safety at work, which quickly became our key selling point for the R-Go product line. This document explains musculoskeletal disorders, their causes and their associated statistics in the workplace. It will also help you to better identify risk factors, which provides you with further selling points. Checklists are also provided to help you collect more information that will allow us serve our customers better.

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Musculoskeletal disorders (MSDs)

Definition

Work-related musculoskeletal disorders (MSDs) are pain or symptoms experienced in the neck, back, or various parts of the upper or lower limbs. They affect the tendons, muscles, ligaments, tissues around the joints or certain nerves and come from an accumulation of damage when the demand for work exceeds the adaptability of the tissues.¹

Signs

Signs are things you can see, such as swelling or redness. Typical signs of MSD include:

- Redness of the skin
- Swelling around the injured area
- Loss of full, normal joint movement

Symptoms

Symptoms are things you can feel but cannot see. Typical symptoms of MSD include:

- Weakness
- Pain
- Numbness
- Heaviness
- Heat or burning

Musculoskeletal disorders (MSDs) contd.

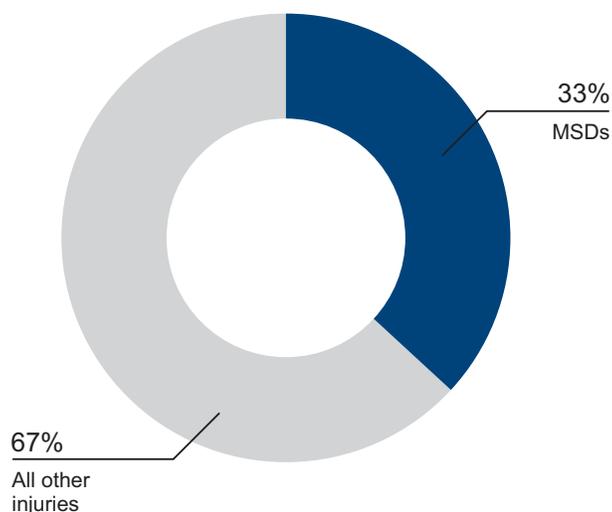
Causes

MSDs are caused by frequent, repetitive and traumatic movements for the musculoskeletal structures. Here are the main factors that can cause MSDs:

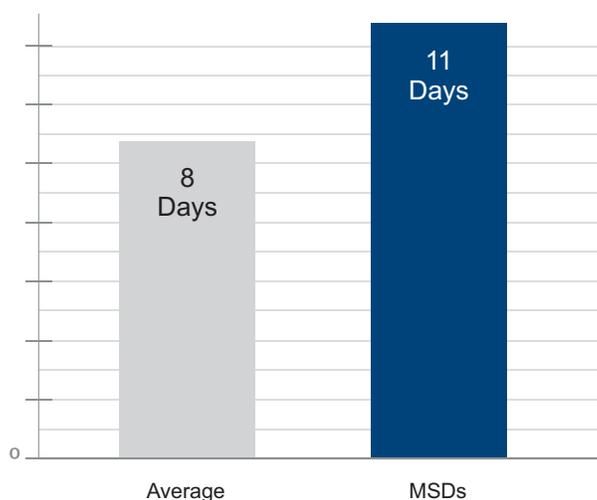
- **Repetitive movements**
High repetition of tasks, combined with other risk factors such as high force and/or awkward postures, can contribute to the formation of MSDs. For example, continuously maneuvering a cart in a crowded room can be repetitive.
- **Intense and sustained effort**
Intense and sustained effort increases the energy needs of the body and physically strains muscles, tendons, ligaments and joints, which increases the risk of injury. For example, frequently pushing a heavy cart over an obstacle such as a pipe or electrical cable requires significant effort.
- **Awkward posture**
An awkward posture occurs when the body needs to work in a position that is not considered neutral. Neutral postures are those in which muscles, tendons, ligaments and joints work optimally and require the least amount of effort to be maintained. An awkward posture increases the amount of pressure on muscles, tendons, ligaments and joints. It becomes more worrying when it is maintained for long periods or combined with other risk factors.

MSDs statistics

1- MSDs account for 33% of all workers' compensation costs.²

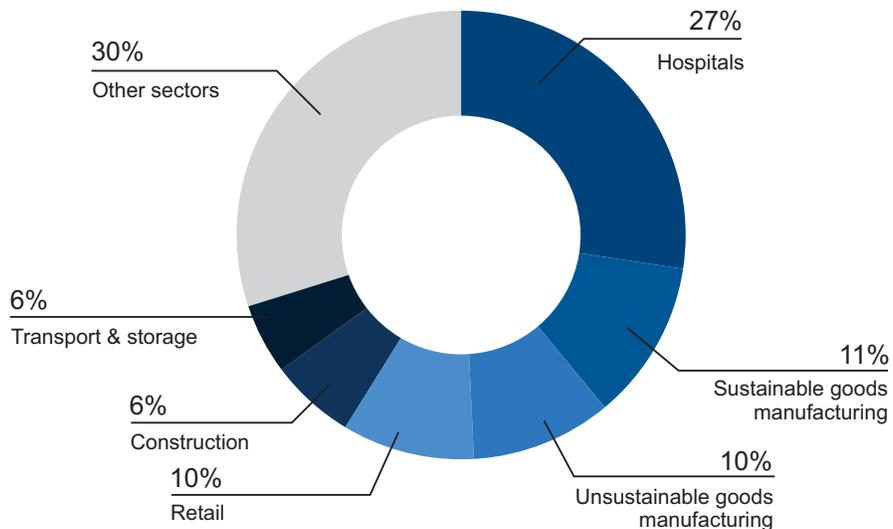


2- Musculoskeletal disorder cases require 38% more time off from work than the average injury.³

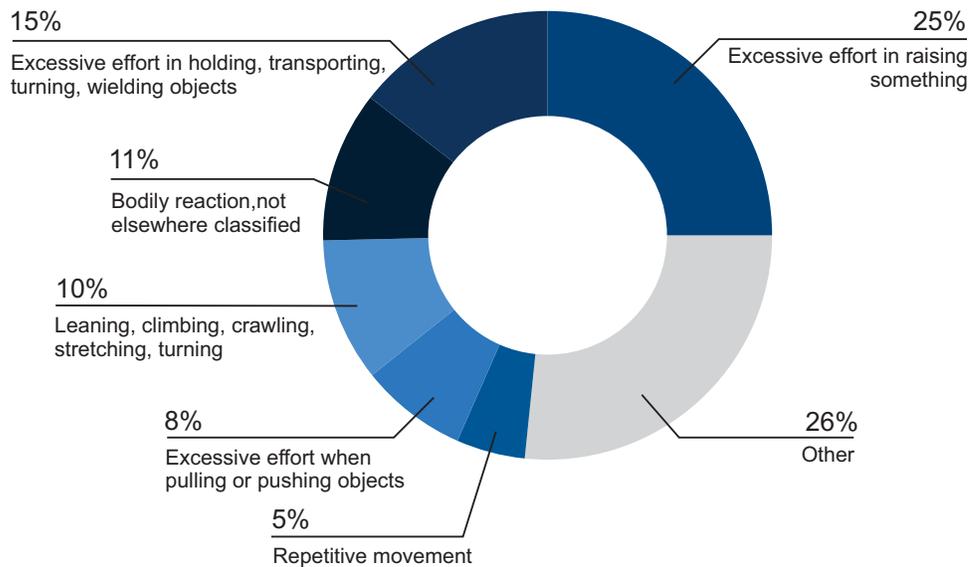


MSDs statistics

3- Number and % of opened and accepted MSD cases by activity sector in 2018 in Quebec.⁴

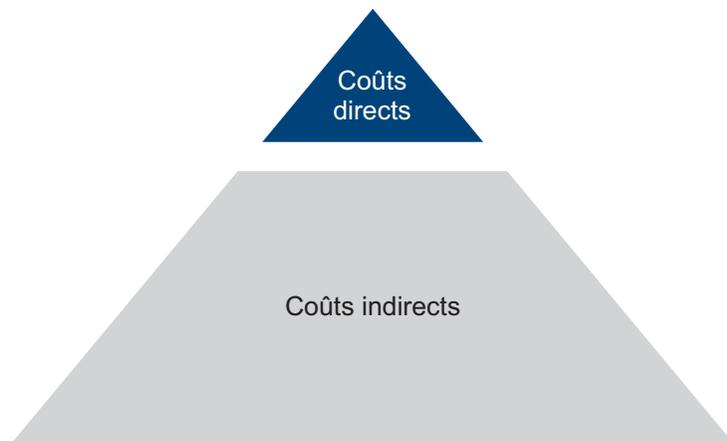


4- Number and % of opened and accepted MSD files by type of accident or exposure in Quebec.⁵



MSDs statistics

5- The indirect costs of MSDs can be up to five times the direct costs.⁶



Direct costs

Direct costs include workers' compensation payments, medical payments and legal expenses.

Indirect costs

Indirect costs include training replacement employees, accident investigation, loss of productivity, repairs to damaged equipment and property, and costs associated with lower employee morale and absenteeism.

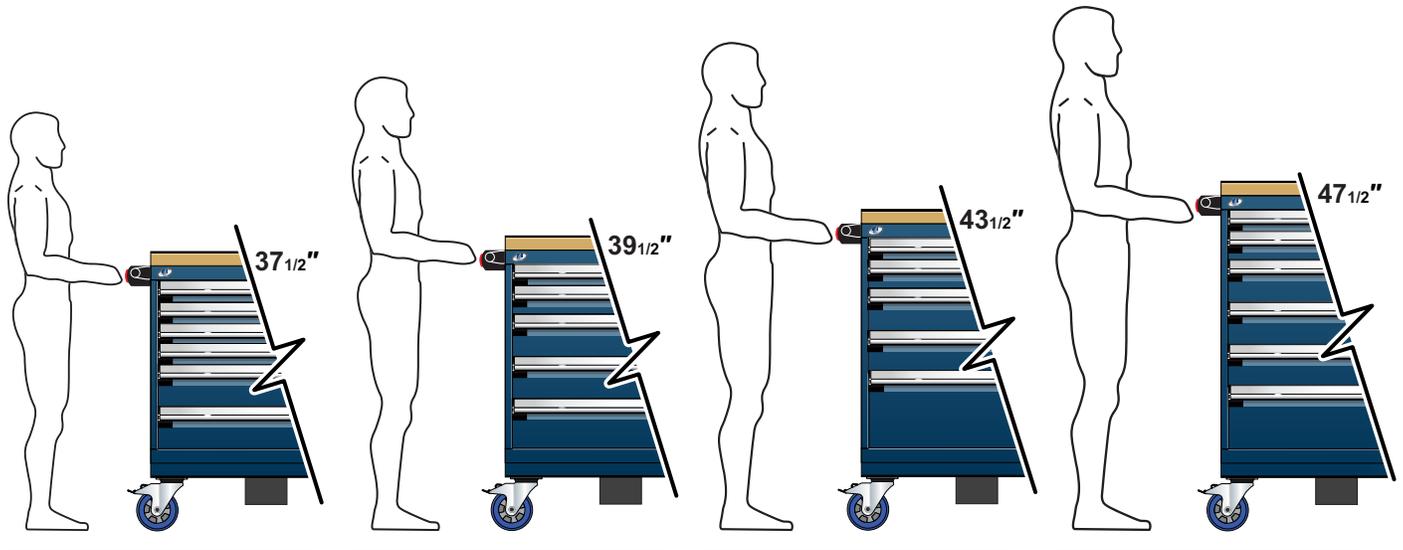
The cost of MSDs

Here is a table showing the direct and indirect costs related to the most common musculoskeletal disorders.⁷ An Excel file is also available at the following link: <https://pshfes.org/cost-calculator>. From this link you can download a file called "Washington State Ergonomics Cost Benefit Calculator" along with its explanatory sheet. The Excel file is used to calculate the return on investment of an ergonomic solution in a workplace. The results can provide useful selling points

Musculoskeletal disorders	Direct costs	Indirect costs	Total costs
Tendonitis	US\$19,896	US\$21,885	US\$41,781
Epicondylitis, medial epicondylitis	US\$20,446	US\$22,490	US\$42,936
Carpal tunnel syndrome	US\$31,551	US\$34,706	US\$66,257
Bursitis	US\$23,630	US\$25,993	US\$49,623
Knee strain	US\$19,228	US\$21,150	US\$40,378
Back strain	US\$16,384	US\$18,022	US\$34,406

Ergonomic Heights

Below are the ergonomic heights for the R-Go motorized toolbox. Note that these heights are theoretical and may be subject to change depending on the type of work performed on the surface and the physiognomy of the person.



5th percentile female
Stature: 59" / 149.9 cm

Cabinet height : 28"

50th percentile female
Stature: 64" / 162.6 cm

Cabinet height : 30"

50th percentile male
Stature: 69" / 175.3 cm

Cabinet height : 34"

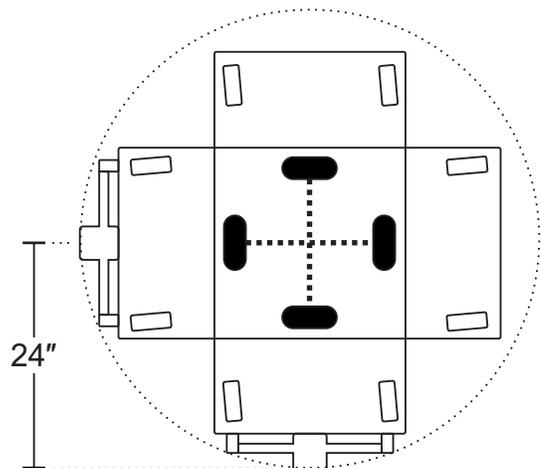
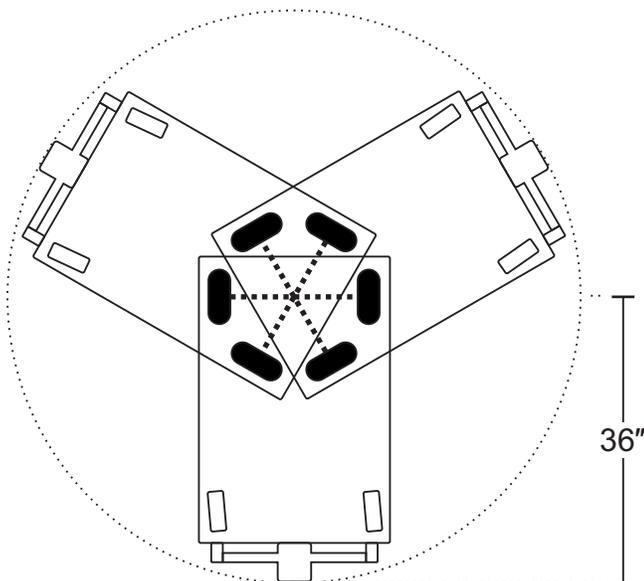
95th percentile male
Stature: 74" / 188 cm

Cabinet height : 38"

Turning radiuses

36"W model with front-wheel motorization. 36" turning radius.

48"W model with center-wheel motorization. 24" turning radius.



Risk factor identification checklist

Potential risk factors in the workplace.

Ergonomics	Yes	No
Is the physical ability of workers inadequate?	<input type="checkbox"/>	<input type="checkbox"/>
Are there any movements that could result in MSDs?	<input type="checkbox"/>	<input type="checkbox"/>
Are there any awkward postures that could result in MSDs?	<input type="checkbox"/>	<input type="checkbox"/>
Does the company place any importance on workplace health, safety and ergonomics?	<input type="checkbox"/>	<input type="checkbox"/>
Is the cart to be moved heavy?	<input type="checkbox"/>	<input type="checkbox"/>
Does the cart require a lot of effort to start moving?	<input type="checkbox"/>	<input type="checkbox"/>
Does the cart require a lot of effort to keep moving?	<input type="checkbox"/>	<input type="checkbox"/>
Does the cart require a lot of effort to steer or maneuver?	<input type="checkbox"/>	<input type="checkbox"/>
Are workers loading or unloading materials heavier than 50lb. (23 kg)?	<input type="checkbox"/>	<input type="checkbox"/>
Do workers spend most of their workdays pushing or pulling carts?	<input type="checkbox"/>	<input type="checkbox"/>
Building considerations		
Is the equipment to be repaired stationary or heavy?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a long distance to travel?	<input type="checkbox"/>	<input type="checkbox"/>
Is the frequency of trips high?	<input type="checkbox"/>	<input type="checkbox"/>
Are there any slopes?	<input type="checkbox"/>	<input type="checkbox"/>
Is there any surface that increases resistance (carpet, cement, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>
Are there raised door thresholds, floor transitions, cracks, or other obstacles on the ground along the cart's journey?	<input type="checkbox"/>	<input type="checkbox"/>
Is pedestrian traffic busy in the building?	<input type="checkbox"/>	<input type="checkbox"/>

This list includes most risks associated with moving carts in the workplace. It is important to identify the factors that can put workers at risk of developing musculoskeletal disorders.

The answers to these questions indicate whether there are one or more risk factors. Only one factor may be identified, but it may be important enough to offer R-Go products as solutions. If most responses result in a YES, then it is obvious that the R-Go Motorized Toolbox and R-Go Motorized Platform can be offered as solutions to these different risk factors.

Decision-making tools contd.

Use this checklist for each task that requires a cart, mobile toolbox or platform. This tool can help you identify your needs so you can make a more informed decision when purchasing an R-Go. We recommend that the completed checklists are shared with the purchaser of your installation and your Rousseau distributor so that they can help you choose the ideal product.

Task:

Materials transported:

Completed by:

Date:

Pre purchase checklist

A. Load weight and size

1. What will the total load weight be? (Total load weight is the combined weight of the cart and the materials being transported.)

Material weight + Cart weight (actual) = Total load weight (kg / lb)

2. What will the load dimensions be?

Width Length Height (ft / in / cm / m)

Width Length Height (ft / in / cm / m)

Width Length Height (ft / in / cm / m)

B. Building considerations

1. What type of surface will the cart roll on?

- Carpet
- Concrete
- Linoleum
- Tiles
- Polyurethane
- Metal
- Wet floor
- Outdoor surface
- Other

2. What obstacles, dangers or ground conditions might be encountered?

- None
- Gap between elevator and floor
- Raised door frames and mouldings
- Wet floor
- Slopes
- Cracks
- Confined spaces
- Busy pedestrian traffic
- Oil, grease or chemicals
- Floor debris
- Floor grids/grates
- Other

Pre purchase checklist

B. Building considerations

3. If your building has a slope, how many degrees is it?

Slope degree.....

4. How often is turning required

- Rarely (< 10% of journey)
- Occasionally (10%-30% of journey)
- Frequently (31%-60% of journey)
- Constantly (>60% of journey)

5. Does the cart journey include the following?

- Long and straight runs
- Confined areas

6. How far will the cart travel?

Approximate distance(mi / km) per (journey / hour / day)

C. Storage on the cart

1. Are special shelves, hooks or supports required?

- No
- Yes

If yes, please describe

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D. Ergonomic

1. How tall are the cart operators? (Check all that apply)

- < 152 cm (5ft.)
- 152 cm - 158 cm (5ft. - 5ft. 6in.)
- 168 cm - 183 cm (5ft. 6in.- 6ft.)
- > 183 cm (6ft.)

E. Notes

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References

- 1: Inspq, <https://www.inspq.qc.ca/troubles-musculo-squelettiques-lies-au-travail>
- 2: Ergo-plus, <https://ergo-plus.com/cost-of-musculoskeletal-disorders-infographic/>
- 3: Ergo-plus, <https://ergo-plus.com/cost-of-musculoskeletal-disorders-infographic/>
- 4: Commission des normes, de l'équité, de la santé et de la sécurité du travail. (2019). *Statistiques sur les lésions attribuables aux troubles musculosquelettiques (TMS) en milieu de travail*. Taken from https://www.cnesst.gouv.qc.ca/Publications/300/Pages/DC_300_322.aspx
- 5: Commission des normes, de l'équité, de la santé et de la sécurité du travail. (2019). *Statistiques sur les lésions attribuables aux troubles musculosquelettiques (TMS) en milieu de travail*. Taken from https://www.cnesst.gouv.qc.ca/Publications/300/Pages/DC_300_322.aspx
- 6: Ergo-plus, <https://ergo-plus.com/cost-of-musculoskeletal-disorders-infographic/>
- 7: pshfes, <https://pshfes.org/cost-calculator>, Washington state ergonomics cost benefit calculator.