

# Ergonomic Risk Assessment

Job or Task: \_\_\_\_\_ Date: \_\_\_\_\_

Completed by: \_\_\_\_\_

Once a potential risk of repetitive strain injury (RSI) has been identified, the purpose of this risk assessment is to determine if a high risk of injury exists. We recommend that it be completed by someone who understands the work process, the risk factors that contribute to a RSI, and the principles of risk assessment and control.

## Instructions:

1. Write in the job title or task, date and name of person(s) completing this Ergonomic Risk Assessment above.
2. Observe and consult with a representative sample of workers and those workers with signs and symptoms of RSI who perform the specific job task.
3. Read across the page under each risk factor and determine if all of the conditions in that row are present in the work activities.

Note Duration:

- Duration (e.g., 2 hours total per day) refers to the total time per day the worker is exposed to the risk factor(s), not the duration of the work activity that includes the risk factor(s).
  - However, when duration is associated with repetition (e.g., using the same motion every few seconds) or frequency (e.g., more than once per minute), it refers to duration per day of the repetitious task.
  - If exposure to a risk factor (e.g., 2 hours total per day) is continuous, the risk will be significantly greater than intermittent exposure distributed over a shift.
4. Check the box () to indicate that a “high” risk of RSI injury exists if all conditions are present. Make any appropriate notes to clarify specific details.
  5. Complete the Risk Factor Summary Table below.
  6. A “high” risk task requires that controls be implemented without delay. Controls should eliminate, or if that is not practicable, minimize the risk of RSI.
  7. If the risk remains “potential,” controls should be developed to minimize the risk of a RSI.

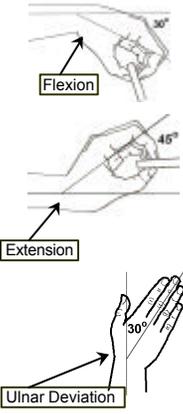
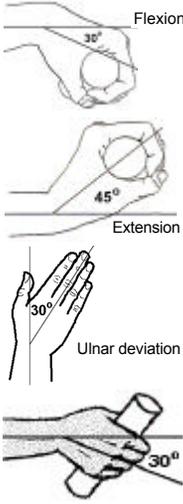
Risk Factor	"Potential Risk"	"High Risk"
Contact Stress	<input type="checkbox"/>	<input type="checkbox"/>
Repetition	<input type="checkbox"/>	<input type="checkbox"/>
Grip Force	<input type="checkbox"/>	<input type="checkbox"/>
Lift/Lower Force	<input type="checkbox"/>	<input type="checkbox"/>
Awkward Posture	<input type="checkbox"/>	<input type="checkbox"/>
Vibration	<input type="checkbox"/>	<input type="checkbox"/>

## Ergonomic Risk Assessment

CONTACT STRESS:				Mark ✓ here to indicate a High Risk of RSI
Body Part	Physical Risk Factor	Duration	Visual Aid	
Hands	Using the hand (heel/base of palm) as a hammer more than once per minute	More than 2 hours total per day **		<input type="checkbox"/>
Knees	Using the knee as a hammer more than once per minute	More than 2 hours total per day		<input type="checkbox"/>

REPETITION:				Mark ✓ here to indicate a High Risk of RSI
Body Part	Physical Risk Factor	Combined with	Duration	
Neck Shoulders Elbows Wrists Hands	Using the same motion with little or no variation every few seconds (exclude keying activities)	No other risk factors	More than 6 hours total per day	<input type="checkbox"/> Neck <input type="checkbox"/> Shoulders <input type="checkbox"/> Elbows <input type="checkbox"/> Wrists <input type="checkbox"/> Fingers
Wrists Hands	Using the same motion with little or no variation every few seconds (exclude keying activities)	Wrists bent in; = 30° flexion, or = 45° extension, or = 30° ulnar deviation, AND High forceful hand(s) exertions	More than 2 hours total per day	<input type="checkbox"/>
	Intensive keying Keying with the hands or fingers in a rapid, steady motion with few opportunities for temporary work pauses	Awkward wrist posture, = 30° flexion, or = 45° extension, or = 30° ulnar deviation	More than 4 hours total per day	<input type="checkbox"/>
		No other risk factors	More than 7 hours total per day	<input type="checkbox"/>

## Ergonomic Risk Assessment

GRIP FORCE:					Mark ✓ here to indicate a High Risk of RSI
Body Part	Physical Risk Factor	Combined With	Duration	Visual Aid	
Arms Wrists Hands	Pinch gripping ** an unsupported object(s) ▶ Weighing 1 kg (2 lbs) or more per hand, OR ▶ Pinch gripping with a force of 2 kg (4 lbs) or more per hand (comparable to pinch gripping half a stack of photo-copy paper)	Highly repetitive motion	> 3 hours total per day		<input type="checkbox"/>
		Wrists bent in = 30° flexion, or = 45° extension, or = 30° ulnar deviation  Circle the appropriate movements	More than 3 hours total per day		<input type="checkbox"/>
		No other risk factors	More than 4 hours total per day		<input type="checkbox"/>
Arms Wrists Hands	Power gripping ** an unsupported object(s) ▶ Weighing 5 kg (10 lbs) or more per hand OR ▶ Power gripping with a force of 5 kg (10 lbs) or more per hand (comparable to clamping light duty automotive jumper cables onto a battery)	Highly repetitive motion	> 3 hours total per day		<input type="checkbox"/>
		Wrists bent in = 30° flexion, or = 45° extension, or = 30° ulnar deviation  Circle the appropriate movements	More than 3 hours total per day		<input type="checkbox"/>
		No other risk factors	More than 4 hours total per day		<input type="checkbox"/>

\*\*Note: A pinch grip occurs when the force application is primarily between the fingers and thumb. A power grip occurs when the force is applied primarily between the fingers and the palm.

**Lift/Lower Force Assessment – To Determine High Risk**

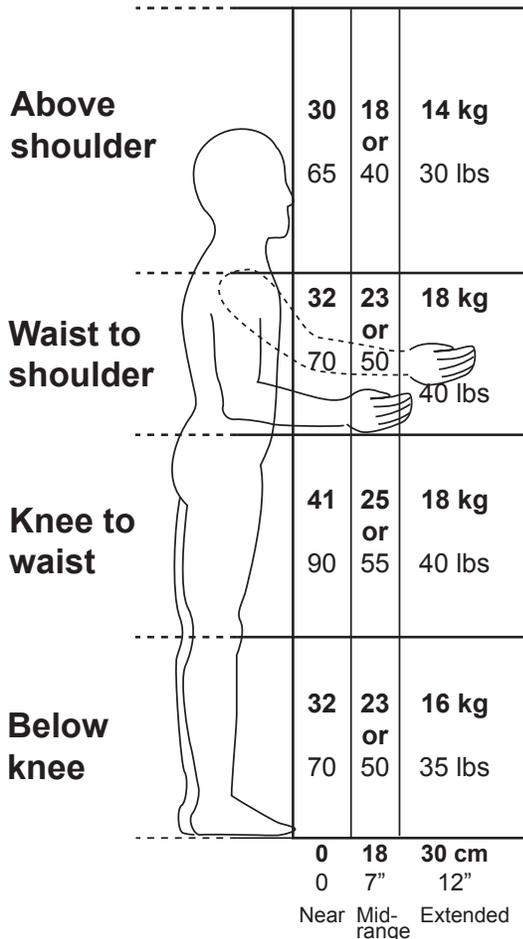
This document can be used to assess forceful exertion due to lifting/lowering force. Weight limits in this document represent “high” risk that require controls without undue delay.

Mark one of the two boxes () to indicate which assessment situation applies. \_\_\_\_\_

- With one specific lift or when repeating the same lift, use Steps 1-5 below.
- When there is a number of lifts with different weights and/or different postures, use Steps 1-5 to:
  1. Assess the two worst case lifts – the heaviest object lifted and the lift in the most awkward posture, AND
  2. The most commonly performed lift. In Step 3, use the frequency and duration for all of the lifting done in a typical workday.

**STEP 1** Find the actual weight of the object that the employee lifts.  
**Actual Weight =** \_\_\_\_\_

**STEP 2** **Determine the Unadjusted Weight Limit**  
 Determine the most awkward hand position during the lift/lower task. Mark that spot on the diagram below. The number in that box is the **Unadjusted Weight Limit**.



**Unadjusted Weight Limit:** \_\_\_\_\_

**STEP 3** **Find the Limit Reduction Modifier**  
 Find out how many times the employee lifts per minute and the total number of hours per day spent lifting. Use this information to look up the **Limit Reduction Modifier** in the table below

How Many Lifts per Minute	For How Many Hours per Day?		
	1 hr or less	1 hr to 2 hrs	2 hrs or more
1 lift every 2-5 min.	1.0	0.95	0.85
1 lift every minute	0.95	0.9	0.75
2-3 lifts every minute	0.9	0.85	0.65
4-5 lifts every minute	0.85	0.7	0.45
6-7 lifts every minute	0.75	0.5	0.25
8-9 lifts every minute	0.6	0.35	0.15
10+ lifts every minute	0.3	0.2	0.0

Note: For lifting performed less than once every five minutes, use 1.0

**Limit Reduction Modifier:** \_\_\_\_\_

**STEP 4** **Calculate the Weight Limit**  
 Start by copying the Unadjusted Weight Limit from Step 2  
**Unadjusted Weight Limit (step 2) =** \_\_\_\_\_  
 If the employee twists more than 45 degrees while lifting, reduce the Unadjusted Weight Limit by multiplying by 0.85. Otherwise, use the Unadjusted Weight Limit

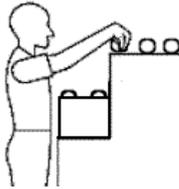
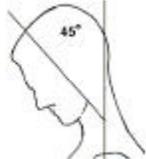
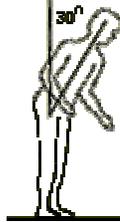
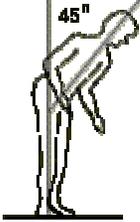
**Twisted Adjustment =** \_\_\_\_\_  
**Adjusted Weight Limit =** \_\_\_\_\_

Multiply the Adjusted Weight Limit by the Limit Reduction Modifier from Step 3 to get **X**  
 the **Weight Limit**.

**Limit Reduction Modifier (Step 3) =** \_\_\_\_\_  
**Actual Weight =** \_\_\_\_\_ **Weight Limit =** \_\_\_\_\_

**STEP 3** **Is this a Hazard?**  
 Compare the Actual Weight lifted from Step 1 to the calculated Weight Limit in Step 4. If the **Actual Weight (Step 1) > Weight Limit (Step 4)** then the lift is “high” risk and requires controls without undue delay to the degree that it is practicable. If the Actual Weight is below the Weight Limit, the risk is “moderate” and requires consideration for control.

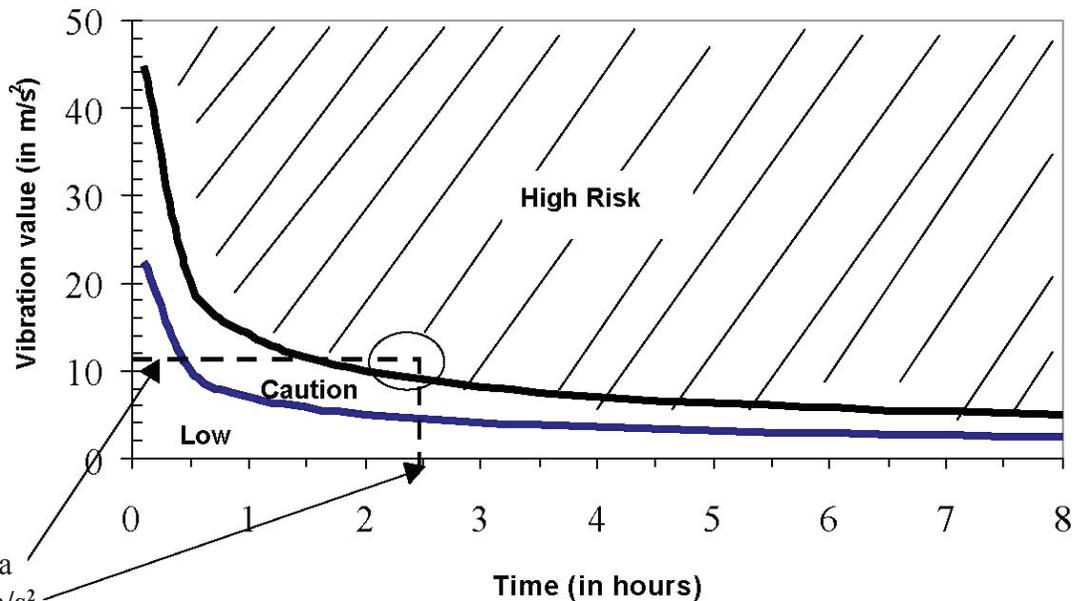
## Ergonomic Risk Assessment

AWKWARD POSTURE:				Mark ✓ here to indicate a High Risk of RSI
Body Part	Physical Risk Factor	Duration	Visual Aid	
Knees	Squatting	More than 4 hours total per day		<input type="checkbox"/>
	Kneeling	More than 4 hours total per day		<input type="checkbox"/>
Shoulders	Working with the hand(s) above the head or the elbow(s) above the shoulder(s)	More than 4 hours total per day		<input type="checkbox"/>
	Repetitively raising the hand(s) above the head or the elbow(s) above the shoulder(s) more than once per minute	More than 4 hours total per day		<input type="checkbox"/>
Neck	Working with the neck bent more than 45° (without support or the ability to vary posture)	More than 4 hours total per day		<input type="checkbox"/>
Back	Working with the back bent forward more than 30° (without support, or the ability to vary posture)	More than 4 hours total per day		<input type="checkbox"/>
	Working with the back bent forward more than 45° (without support or the ability to vary posture)	More than 2 hours total per day		<input type="checkbox"/>

## Vibration Risk Assessment – To Determine High Risk

Use this document to determine if a “high” risk of RSI from hand-arm vibration exists

- STEP 1** Find the vibration value for the tool. (Get it from the manufacturer, look it up at this web site: <http://umetech.niwl.se/vibration/HAVHome.html>, or you may measure the vibration yourself). The vibration value will be in units of meters per second squared ( $m/s^2$ ). On the graph below find the point on the left side that is equal to the vibration value.
- STEP 2** Determine how many total hours per day the employee is using the tool and find that point on the bottom of the graph.
- STEP 3** Trace a line in from each of these two points until they cross.
- STEP 4** If that point lies in the crosshatched “High Risk” area above the upper curve, then the vibration exposure is “high risk” and requires controls without undue delay. The vibration must be reduced below the high risk level or to the degree technologically and economically feasible. If the point lies between the two curves in the “Caution” area, then the job is of “moderate risk” and may merit controls to minimize the risk of RSI. If it falls in the “Low” area below the bottom curve, then no further steps are required.



**Example:**

An impact wrench with a vibration value of  $12 m/s^2$  is used for  $2\frac{1}{2}$  hours total per day. The exposure level is in the High Risk area. The vibration must be reduced below the high risk level or to the degree technologically and economically feasible.

Note: The caution limit curve (bottom) is based on an 8-hour energy-equivalent frequency-weighted acceleration value of  $2.5 m/s^2$ . The high risk limit curve (top) is based on an 8-hour energy-equivalent frequency-weighted acceleration value of  $5 m/s^2$ .

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