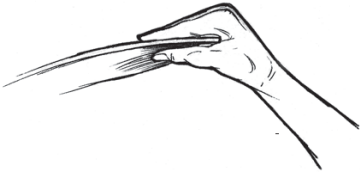






# MSI Investigation Chart

This chart can be used to correlate risk factors with specific body parts when investigating an injury or signs and symptoms of musculoskeletal injury (MSI). For each risk factor, use or adapt the examples of activities or movements that could place a worker at risk.

Risk factor	Neck, shoulders, upper back	Elbows, forearms, hands	Lower back	Hips, knees, feet
	The risk factor applies to the body part marked with a ●			
<b>FORCE: Lift, lower, or carry</b>				
<p>Worker lifts, lowers, or carries objects:</p> <ul style="list-style-type: none"> <li>• That are alive (people, animals)</li> <li>• That are large or odd-shaped</li> <li>• That are heavy or unbalanced or that have a shifting centre of gravity</li> <li>• That are difficult to grasp or hold onto</li> <li>• Using awkward postures (e.g., stooped, long reach)</li> <li>• Over long distances</li> <li>• From a sitting position</li> <li>• Frequently or repeatedly</li> </ul>	●	●	●	●
<b>FORCE: Push or pull</b>				
<p>Worker pushes and/or pulls objects:</p> <ul style="list-style-type: none"> <li>• That are unstable</li> <li>• With a handle height above the shoulder or below the waist</li> <li>• Over long distances</li> <li>• By sliding the load</li> <li>• Over uneven, sloping, or slippery surfaces</li> <li>• Within restricted space</li> <li>• Using poorly maintained or designed equipment</li> <li>• Using awkward postures</li> <li>• Using visible effort</li> </ul>	●	●	●	●

Risk factor	Neck, shoulders, upper back	Elbows, forearms, hands	Lower back	Hips, knees, feet
<b>FORCE: Grip</b>	The risk factor applies to the body part marked with a ●			
<p>Worker uses grip force to grasp or handle objects:</p> <ul style="list-style-type: none"> <li>• With a bent wrist</li> <li>• With a wide grip span</li> <li>• With a firm grip</li> <li>• Wearing poorly fitting gloves</li> <li>• That vibrate</li> <li>• That have a cold surface temperature</li> <li>• That have a slippery surface</li> <li>• Using a pinch grip</li> </ul>	●	●		
		 <p style="text-align: center;"><i>Pinch grip</i></p>		
<b>REPETITION</b>				
Worker repeats similar motions with the same body part.	●	●	●	●
<b>WORK POSTURE</b>				
<p>The trunk of the body is in an awkward posture.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p><i>Bending trunk forward</i></p> </div> <div style="text-align: center;">  <p><i>Bending trunk to side</i></p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  <p><i>Twisting trunk</i></p> </div> <div style="text-align: center;">  <p><i>Bending trunk backward</i></p> </div> </div>	●			

Risk factor	Neck, shoulders, upper back	Elbows, forearms, hands	Lower back	Hips, knees, feet
<b>WORK POSTURE (continued)</b>	The risk factor applies to the body part marked with a ●			
<p>Either shoulder is in an awkward posture:</p> <ul style="list-style-type: none"> <li>• When worker uses excessive reach, such as in front or to the side</li> <li>• When worker reaches above the shoulder</li> <li>• When worker reaches across or behind the body</li> </ul>	●			
<p>Worker bends or twists the neck.</p>	●			
<p>Worker bends the wrist.</p>	●			



*Moving shoulder forward*



*Moving shoulder out*



*Bending neck to side*



*Bending neck backward*



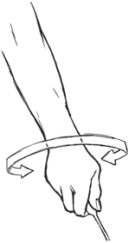


*Bending wrist forward*


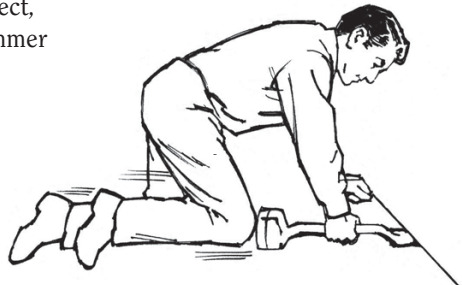


*Bending wrist backward*



*Bending wrist to outside*

Risk factor	Neck, shoulders, upper back	Elbows, forearms, hands	Lower back	Hips, knees, feet
<b>WORK POSTURE (continued)</b>	The risk factor applies to the body part marked with a ●			
<p>Worker twists the forearm.</p>  <p><i>Forearm rotation</i></p>		●		
<p>Worker squats or kneels.</p>  <p><i>Squat position</i></p>  <p><i>Kneeling</i></p>				●
<p>Worker sits:</p> <ul style="list-style-type: none"> <li>• Using a poor posture</li> <li>• For long periods</li> <li>• Resulting in local contact stress</li> <li>• With no back support</li> <li>• Using a poorly designed or poorly adjusted chair</li> </ul>			●	
<p>Worker stands:</p> <ul style="list-style-type: none"> <li>• On a very hard surface (e.g., concrete)</li> <li>• For long periods of time</li> <li>• With no footrest</li> <li>• Using foot pedals continuously</li> </ul>			●	●

Risk factor	Neck, shoulders, upper back	Elbows, forearms, hands	Lower back	Hips, knees, feet
<b>LOCAL CONTACT STRESS</b>	The risk factor applies to the body part marked with a ●			
<p>Worker contacts a hard or sharp object or surface:</p> <ul style="list-style-type: none"> <li>• With a tool or object digging into hand or arm</li> <li>• With a body part resting against a sharp edge</li> <li>• When kneeling</li> <li>• When the hand or body strikes an object, such as using a knee or hand as a hammer</li> </ul>	●	●		●
				
<i>Using hand as a hammer</i>	<i>Using knee as a hammer</i>			
<b>THE ENVIRONMENT</b>				
Worker sits or stands on a vibrating surface.	●		●	●
Parts of the body are cold while performing tasks.	●	●	●	●
<p>Lighting is inappropriate for the tasks being performed, such as:</p> <ul style="list-style-type: none"> <li>• Too much glare</li> <li>• Too bright</li> <li>• Too dark</li> </ul>	●			
<b>ORGANIZATION OF WORK</b>				
Worker uses the same muscles without opportunities for recovery or rest.	●	●	●	●
Worker is unable to keep up with the pace or demands of the work tasks.	●	●	●	●