Contributory factors					
Government	Regulator/Association	Company	Management	Staff	Work
Communication	Action management	Communication	Task design	Awkward posture	Clothing/PPE
Governance	Communication	Design and procurement of tools/equipment	Task allocation	Sustained posture	Cognitive requirements
Planning	Consultation	Governance	Legitimacy of task allocation	Communication	Force
Resource allocation	Governance	Planning	Role clarity	Co-workers support	Load characteristics
Training	Planning	Policy and procedures	Role conflict	Engagement	Load weight
	Training	Risk management	Tool / equipment provision	Health behaviours	Physical environmental conditions
		Staff selection	Maintenance	Worker attitudes and beliefs	Physical task attributes
		Training	Jobs designed with high physical demands		Tools/equipment
			Jobs designed with high psychosocial demands		Workplace layout
			Jobs designed with low psychosocial demands		
			Job control		
			Work/life balance		
			Recovery time		
			Leadership		
			Supervisor support		
			Recognition and reward		
			Consultation		
			Change management		
			Organisational justice		
			Training		
			Development possibilities		

Contributor	Description of contributor (Note: Examples are indicative only and not exhaustive)
Government: Contributors at the government level are associated with the activities of government (both civil servants and elected officials) that constrain or influence the activities of the industry.	
Communication	The communication, promotion and co-ordination of government policy and priorities stakeholders such as safety regulators, employee associations, employer associations, companies. Examples: • The minister announces a blitz on manual handling injuries in the mining industry without consulting with the safety regulator regarding the plan and resources required prior to the announcement leading to regulatory staff being overworked and unable to perform their role appropriately.
Governance	The management and responsiveness of legislative instruments, resources, and oversight processes. Examples: • Legislative instruments are not up to date with best practice resulting in industry are focussed on the wrong priorities. • Oversight processes are those undertaken by the parliament or minister do not include manual tasks e.g., Estimates Committee hearings, leading to minimal attention to the resources needed by regulators to appropriately address MSD are workplaces.
Planning	The establishment of a risk-based strategy or plan for reducing hazardous manual task risks. Examples: • The government's strategy or plan endorsed by the minister is not risk based leading to work being undertaken that has minimal effect on the incidence of manual task injury. • Ministerial advisers ignore the evidence provided by e.g., regulators, employer associations, employee associations, leading to manual tasks not being on the minister's agenda.
Resource allocation	The budgeting and financing of programs that facilitate a reduction in musculoskeletal disorders caused by hazardous manual tasks are not evidence-based nor use contemporary information and data. Examples: • Budget allocation is not evidence based e.g., cost of manual task related injuries relative to other injury types. • Budget allocation is not evidence based e.g., cost of manual task related injuries relative to financial cost to the community (%GDP).
Training	The establishment of, and provision for the qualification, training, experience, and competency, for regulatory bodies. The government's requirement for regulatory bodies to identify and ensure the qualification, training, experience, and competency, for regulatory staff. Examples: • The minister does not require the director general to develop a training plan for regulatory staff leading to regulatory staff having insufficient knowledge to provide advice and support to companies. • The training plan for regulatory staff accepted by the minister is not based on a training needs analysis leading to regulatory staff having insufficient knowledge to provide advice and support to companies.
Regulator / Association: Contributors at the regulator/association level are associated with the activities of regulators; professional, industry or employee associations that constrain or influence the activities of companies.	
Action management	The use of sanctions, and delivery of services or support. Examples: • A non-compliance is identified by the safety regulator resulting in contact with the company to provide advice to rectify the issue.

	• A non-compliance is identified by the safety regulator resulting in a punitive approach e.g., improvement notice, prohibition notice or prosecution. • Publicly available resources developed by an industry association or regulator regarding risk management for hazardous manual tasks is out of date. • Company requests to an industry association for assistance and advice are not responded to in a timely manner resulting in continuing risk of injury from manual tasks.
Communication	The communication of information regarding the obligations and available resources to employer and employee associations, companies, managers, and workers. Also includes where information such as performance reporting is provided to government. Examples: • Posting contemporary information to web sites is not undertaken or difficult to find in internet searches e.g., legislative obligations, manual task related resources, case studies, assessment tools. • Reporting to government is not provided e.g., data on enforcement actions undertaken. • Recognition/awards not specifically recognising proactive approaches by companies or managers reducing hazardous manual tasks.
Consultation	The sharing of information by giving companies and employee associations a reasonable opportunity to express views and contribute to the decision-making process, taking those views into account before making decisions. Examples: • Failure to consult with industry when amending or developing a strategy or action plan • Company and employee representatives are not invited to nominate for industry consultative committees.
Governance	The management of legislative instruments, resources, and oversight processes. Examples: • An audit programme of companies exceeding a performance threshold for musculoskeletal disorders in an industry or company. • An unclear and ambiguous organisational structure unable to provide hazardous manual task related services and support.
Planning	The establishment of a risk-based strategy or plan for reducing hazardous manual task risks including allocation of resources to enact the plan. Examples: • No strategy or plan developed by employer associations to lobby regulators or government for additional resources being available to members/companies. • No strategic or tactical plan developed by the regulator to deliver manual task related services and support to companies. • Budget requirements are not evidence/risk based e.g., cost of manual task related injuries analysed by industry and relativity to other injury types. • Allocation of staff is not evidence/risk based e.g., industries with higher manual task related injury rates are allocated more staff.
Training	The establishment of, and provision for the qualification, training, experience, and competency for regulatory staff, companies, managers, and workers. Examples: • Regulatory staff do not receive training in manual task risk management. • The National Competency Standards are not used as the basis for advice to employee association members e.g., MSS403032 Analyse manual handling processes, FBPOOPR1010 Carry out manual handling tasks, FNSRSK411 Apply risk management strategies to own work.
Company: Contributors at the company level are associated with the activities of senior executives and board members that constrain or influence the company as a whole.	
Communication	The internal and external communication of information associated with manual tasks. Examples: • Policy, procedures, standards, or resources are not provided to staff in an accessible manner. • Injuries or incidents are not reported as required to the safety regulator. • Propensity to measure LTFIR rather than positive interventions that reduce risk.

Design and procurement of tools/equipment	Design of tools/equipment suitable for the task.
	Examples:
	• Design does not encompass ergonomic principles, no procurement standards, worker's anthropometry not considered.
	  ○ Workstation height designed/procured for 50th percentile males and not adjustable to suit workers from 5th percentile female to 95th percentile males.
	  ○ Impact drill procured does not have sufficient torque to tighten bolts to the required specification which requires hand tightening with a torque wrench.
	• A system to develop design specifications for tools and equipment associated with manual tasks in consultation with workers.
	• Procurement processes enable tools and equipment to be purchased without consideration of the needs of the workers (i.e., no consultation).
	• Procurement processes do not require that tools and equipment are assessed for hazards e.g., vibration, handle size, tool balance, tool weight, force to operate, spatial requirements, etc.
	• Design fails to consider the context of the work when designing tools / equipment for staff to use.

Governance	The due diligence structures and processes by which the company is controlled and operates. Examples: • No action is taken in response to non-compliances identified in relation to company standards, policy and procedures by managers who have responsibility in relation to hazardous manual tasks. • The documented policy and procedures for the management and execution of hazardous manual tasks are outdated and thus ineffective. • Governance does not include the commendation of excellent performance and correction of sub-standard performance associated with manual tasks.
Planning	The establishment of a manual task plan of action including the preparation of all resources to enact the plan, for example, plans are not specific, measurable, achievable, realistic, and timely (SMART). Examples: • The identification and assessment of all manual tasks by [date]. • Detailed assessment of hazardous manual tasks by [date]. • Development, implementation, evaluation, and monitoring of controls within two months of the assessment of manual tasks.
Policies and procedures	The policies that set the parameters for decision making and procedures that describe the process for undertaking a task or activity. Examples: Policy • The risk management policy does not include manual tasks. • Audit policy does not include hazardous manual tasks. • Health and safety policy does not include hazardous manual tasks or consultation. • Code of conduct does not include compliance to company policies and procedures. • Human resource policy does not include workplace safety requirements Procedures • Procurement • Discipline • Reward and recognition • Recruitment and selection
Risk management	The budgeting and financing of programs that aim to facilitate a reduction in musculoskeletal disorders caused by hazardous manual tasks.

	Examples: • The risk assessment process is not evidence-based using contemporary data and information. • Risks are not regularly reviewed or when a change relevant to, or likely to affect manual tasks occurs. • Unacceptable risks are not included in the planning process.
Staff selection	The non-discriminatory selection of workers, using valid criteria such as inherent job requirements, relevant to the hazardous manual task and work environment. Examples: • Defence force personnel are required to carry a 23kg pack for 5 km at 11 min per km.
Training	The establishment of training system relevant to manual tasks for the qualification, training, experience, and competency for managers, workers, designers, and contractors for manual tasks. Examples: • The training system does not comply with legislative obligations. • The training does not comply with National Competency Standards e.g., MSS403032 Analyse manual handling processes, FBPOOPR1010 Carry out manual handling tasks, FNSRSK411 Apply risk management strategies to own work. • Company policy does not include all positions that have a responsibility for governance or management of manual task related activities e.g., board members, executive managers, managers, supervisors, workers, contractors and specialists in section such as design and procurement • The training is not based on current evidence.
Management: Contributors at the management level are associated with the activities of supervisors and managers that constrain or influence the activities of the staff.	
Task design	The design of tasks accounting for worker anthropometry and characteristics, task duration, frequency and repetition, work area layout and space, work pace required to undertake the task. Examples: • The variability of worker's anthropometry e.g.,5th percentile female to 95th percentile male, is not addressed during task design. • Tasks are not designed to be safely undertaken by all workers. • Inspection of fruit for defects, and removal, on a conveyor system continually for 2 hours (task duration, frequency and work pace).
Task allocation	The allocation of tasks amongst staff to manage the potential for risk of injury where there is an imbalance between physical and psychological attributes of the person being unsuitable to perform the task, particularly where there are inherent requirements, increasing the risk of injury. Examples: • Skills and experience—inexperienced workers are likely to be at higher risk due to unfamiliar work. • Physical characteristics—an overload situation may result from a mismatch between the worker and the task, e.g., fire and rescue workers handling high pressure hoses. • Unaccustomed work—workers who are new, have transferred from another job or are returning from extended leave and whose muscles are not conditioned to the work. • Cumulative effects—for example, body tissue that has been weakened by cumulative damage may be more vulnerable to injury.
Legitimacy of task allocation	Illegitimate tasks include tasks that violate norms about what an employee can properly be expected to do because they are perceived as unnecessary or unreasonable; they imply a threat to one's professional identity. Examples:

	• Assigning a new worker to a complex task e.g., inspecting product of a conveyor system requiring the identification of 8 defect types and removing them from the conveyor. • Inadequately trained/experienced workers being required to stack product into cartons that must be stacked in a specific way. • A fire and rescue worker, who has not been trained or made aware of what could be expected at a fatal car crash, resulting in loss of situational awareness resulting in incorrect handling of rescue equipment for example, jaws of life.
Role clarity	Role Clarity deals with the employee's understanding of her or his role at work, i.e., content of the tasks, expectations to be met, and her or his responsibilities. Examples: • The manager does not provide clear instructions on how palletise cartons. After two pallets have been delivered to despatch, the manager is advised the pallets are incorrectly loaded. The manager instructs the worker in the correct method and directs him to re-palletise the cartons. Rework increases the risk of injury. • Frequent changes to task or work standards. • Important task information is not available to the worker. • Conflicting priorities set by different managers.
Role conflict	Role conflicts stem from two sources. The first source is about possible inherent conflicting demands within a specific task. The second source is about possible conflicts when prioritizing different tasks. Examples: • Conflicting goals between meeting production targets or working safely e.g., stopping a production line to provide time to correctly load cartons onto a pallet. • Using the best equipment for that job e.g., near the end of the shift, a forklift operator's forklift runs out of gas. The operator chooses to use a manual pallet jack to move 3 pallets rather than spend 15 minutes to fill the cylinder leading to an injury.
Tool / equipment provision	The provision of tools or equipment suitable for the task. Examples: • Access to drinking water in hot or humid environments • Tools or equipment are not compliant to company standards. • The quantity of tools or equipment is insufficient for workers to access •
Maintenance	The operational management of the maintenance of tools, equipment, and workplaces. Examples: • Tools and equipment have not been assessed for maintenance requirements. • The maintenance of tools and equipment is not programmed or scheduled, e.g., pallet jack wheels and hydraulics, pallet lift hydraulics and bearings, cleaning of walkways, sharpening of butchering knives. • Maintenance is not of the correct quality e.g., not in line with manufacturer's instructions due to cost or lack of availability of replacement parts.
Jobs designed with high physical demands	Jobs with sustained high physical job demands. Examples: • Long workhours. • High workloads - too much to do, fast work pace or significant time pressure. • Long periods of vigilance looking for infrequent events e.g., air traffic controllers, long distance driving, security monitoring. • Shift work leading to higher risk of fatigue.

	• Frequently working in unpleasant or hazardous conditions e.g., extreme temperatures or noise, hazardous chemicals, dangerous equipment. • Performing demanding work while wearing uncomfortable protective clothing or equipment.
Jobs designed with high psychosocial demands	Jobs with sustained high psychosocial job demands resulting in stress: Examples: • Emotional effort in responding to distressing situations or distressed or aggressive clients e.g., paramedics dealing with difficult patients resulting to increased blood pressure potentially leading to increased pressure in joint specific tendons, ligaments and nerves. • Exposure to traumatic events or work-related violence e.g., emergency workers (police, fire and rescue workers, paramedics), doctors resulting in increased muscle tension resulting in an increase in pressure on and around joints, tendons, ligaments, nerves, and may cause excessive use of force during certain activities and movements
Jobs designed with low psychosocial demands	Sustained low levels of physical, mental or emotional effort required to do the job. Examples: • Tasks or jobs that where there is too little to do e.g., fire and rescue workers waiting for a call-out who respond quickly when called out – moving from low to high arousal state and sedentary to high activity. • Highly repetitive or monotonous tasks e.g., picking and packing products, monitoring production lines. Workers become bored and lose focus on correct performance of the task.
Job control	The extent that workers have control over aspects of the work including how or when a job is done. Examples: • Work is machine or computer paced resulting in muscle fatigue, mental fatigue resulting in task inattention. • Workers have little say in the way they do their work, when they can take breaks or change tasks e.g., extended work duration resulting in muscle fatigue, mental fatigue resulting in task inattention. • Workers not involved in decisions that affects them e.g., workers are cannot raise concerns about the task which could cause injury. • Workers are unable to refuse dealing with aggressive clients e.g., police, doctors, nurses, paramedics.
Work/life balance	Work life conflict deals with the possible consequences of work on personal and family life. It includes conflict regarding energy (mental and physical energy) and conflict regarding time. Examples: • A focus on production and regular use of overtime/extended shifts reducing the time for workers to recover from manual tasks away from work. • An increase in hospital admissions results in medical staff working extended shifts and an associated increase in manual tasks undertaken. Medical staff have reduced time away from work to recover. • Workers are required to respond to work-related communications (calls, texts, emails) over weekends while not formally rostered to work, leading to lack of opportunities for recovery and conflict with family and social responsibilities.
Recovery time	The time allocated for workers to recover from task performance either between tasks or between shifts. Examples: • Muscle fatigue from completing strenuous tasks without appropriate breaks. • Muscle fatigue from high frequency tasks without appropriate breaks. • Working in high humidity increasing fatigue e.g., commercial laundries, deep underground mines. • Working in elevated temperatures increasing fatigue e.g., foundries, metal fabrication.
Leadership	Leadership is the motivation and direction of a person or group of people to act toward a common goal or task performance.

	Examples: • A supervisor performs a task without wearing gloves, required for the manual task, leading to staff members perceiving that it is acceptable to stop wearing gloves. • A general manager observes a worker not wearing gloves, required for the manual task, but does not address the issue, leading to its continuation and acceptance as a group norm. • A general manager ignores the advice of an operations manager that the design of new equipment will cause MSD and other injuries. The general manager does not act to correct the equipment design leading to the operations manager and their staff perceiving that it is not worth the effort to engage in consultation processes.
Supervisor support	Tasks or jobs where workers have support from supervisors, information or training to support their work performance, tools, equipment and resources to do the job. Examples: • A worker is finding it difficult to move a load. The worker asks for help from the supervisor who ignores the request and says to "If you cannot move that by yourself you should not be here." The worker sustains an injury. • A worker is transferred to a different section that uses manual pallet jacks. The worker has not used this model of pallet jack which requires a specific tool to operate and asks the supervisor for one. The tools are hard to get but a piece of pipe can be used but is not ideal. The supervisor tells the worker to use a piece of pipe instead. The transferred worker sustains an injury when the pipe being used needs the application of high force. • The worker has a sick parent and exhausted their leave allocations over the previous months due to caring responsibilities. They ask their supervisor for leave without pay and this is refused on the grounds that the team have a high workload. The situation leads to the worker not focussing on the manual task, causing sub-standard performance and resulting in an injury.
Recognition and reward	Provision of positive feedback, there is a balance between workers' efforts and formal and informal recognition and rewards, opportunity for skills development as a reward, skills and experience. Examples: • Workers are not recognised or rewarded for their work resulting in disengagement/loss of focus on the task which is likely to increase the risk of injury. • A roof tiler labourer continually loads roof tiles onto the tile elevator with minimal tile breakage. The tiler does not recognise nor reward this excellent work resulting the tiler being "disgruntled" and taking less care in the task and handles tiles in a hazardous manner.
Consultation	The sharing of information by management to give workers a reasonable opportunity to express views and contribute to the decision-making process, taking those views into account before making decisions. Examples: • Design and provision of new tools and equipment without consultation with workers e.g., the engineering section does not provide drawings for review by workers. • Changes to existing tools and equipment without consultation with workers. • New tasks are designed without consultation with workers for example, draft work procedures not made available to workers for review. • Changes to existing tasks are undertaken with consultation with workers e.g., workplace meetings. • Content of new training is developed without consultation with workers.
Change management	Change management processes are undertaken to prepare, equip and support workers. Examples: • Reduction in worker numbers with no reduction in the production rate resulting in increased manual tasks. Mechanical aids or task redesign were not considered.

	• New equipment is introduced without worker training. Workers learn by using the equipment which may be incorrect and hazardous, for example, pallet jack, pallet lift, wrapping station.
Organisational justice	Application of company policies and procedures regarding fairness or bias in decisions about allocation of resources and work, poor management of underperformance. Examples: • A policy requires all workers performing manual tasks to complete training. Only full-time workers are trained, and casual workers are not trained. • Members of the employee union are the only employees consulted about workplace changes that affect manual tasks leading to inadequate consultation. • Supervisors ignore manual task work procedure violations by some employees while counselling others for the same procedural violation, leading to psychological stress for those who perceive they have been unfairly targeted.
Training	The design and provision of training in how to use equipment and tools, in work procedures and risk management processes for hazardous manual tasks. Examples: • The only training provided is "safe lifting techniques". • Training content has not been identified based upon and analysis of an inventory of manual tasks e.g., tool use, equipment use, risk assessment process, hazard identification, task performance, reporting system, consultative processes, environmental hazards.
Development possibilities	Possibilities for development include tasks that are challenging for the employee and provide opportunities for learning, thus providing opportunities for development in the job and at the personal level. Examples: • Jobs that do not offer the opportunity to develop new skill or knowledge e.g., inspection of product on production lines. • Jobs that do not include rotation, enlargement (more variety) or enrichment (more responsibility) opportunities.
Staff: Contributors at the staff level are associated with the activities of the individual staff members who interact directly with the work activity in which the hazardous manual task occurs.	
Awkward posture	Awkward posture is where any part of the body is in an uncomfortable or unnatural position, e.g., unbalanced or asymmetrical postures, postures requiring extreme joint angles or bending and twisting. Examples: • Squatting while servicing plant or a vehicle. • Working with arms overhead. • Bending over a desk or table. • Using a hand tool that causes the wrist to be bent to the side. • Kneeling while trowelling concrete or laying carpet. • Bending the neck or back to the side to see around bulky items pushed on a trolley.
Sustained posture	Sustained posture is where part of or the whole body is kept in the same position for a prolonged period. Examples: • Supporting plasterboard sheeting while it is being nailed into place. • Continually standing with weight mainly on one leg while operating a power press with foot pedal controls. • Prolonged sitting at a workstation.
Communication	Includes untimely or unclear communication between workers when undertaking a hazardous manual task. Examples:

	• Handling an object as part of a team where coordination of effort is necessary e.g., long loads, heavy loads, large dimension objects such as refrigerators. • Crane lifts when multiple workers are required to stabilise the movement of a slung load with guide ropes. • Starting of a production line that requires workers to lift boxes from a conveyor onto a pallet. Timely communication allows workers to be prepared e.g., putting on gloves, positioning of themselves to lift the box. • Limited understanding of what, how and when objects should be handled.
Co-worker support	The extent workers have inadequate support from co-workers, including providing assistance, sharing of information tools, equipment and resources amongst the work group. Examples: • A worker is finding it difficult to move a load. The worker asks for help from another worker who refuses to help and says to "If you cannot move that by yourself you should not be here." The worker sustains an injury. • The company has a buddy system for new workers. The buddy of a new worker tells the new worker just to watch him do the task and not ask any questions. • A worker is transferred to a different section that uses manual pallet jacks. The worker has not used this model of pallet jack which requires a specific tool to operate. The tools are hard to get but a piece of pipe can be used but is not ideal. An existing worker refuses to allow the new worker to use his tool even though he is not using it. The transferred worker sustains an injury when the pipe being used needs the application of high force.
Engagement	Engaging with management by expressing views and contributing to consultation and decision-making processes where opportunity provided. Examples: • Not providing information or raising concerns when consulted about the design and provision of new tools and equipment. • Not providing information or raising concerns when consulted about the design of new tasks. • Not providing information or raising concerns when consulted about the improvement of existing tasks. • Not providing information or raising concerns when consulted about the content of new training. • Not receiving feedback from managers.
Health behaviours	Personal health behaviours that may be influenced through a company health and well-being programmes. Examples: • Smoking leading to adverse effects on bone mineral density and fracture risk. • Alcohol abuse leading to decreasing bone formation and reduction in bone mineralisation.
Worker attitudes and beliefs	The attitudes and beliefs of workers including attitudes towards safety and risk perception. Examples: • Workers who do not perceive a task to be hazardous, for example due to many years' experience without experiencing injury, are more likely to engage in behaviours that put them at risk of injury. • Personal carers and assistants, an occupation having a high rate of MSD, believing that they will sustain an injury at some point leading to complacency when performing manual tasks e.g., pushing a wheelchair. • Fear of losing job or not achieving outcomes are weighted higher than personal health and wellbeing.
Work: Contributors at the work level are conditions, tools, equipment associated with the particular hazardous manual task undertaken.	
Clothing/PPE	Clothing or personal protective equipment worn by the worker which hinders movement, posture, or increases thermal stress. Examples: • Leather welding gloves affecting the gripping of loads.

	• Freezer jackets restricting movement leading to awkward postures. • Equipped police/security duty belts affecting movement and leading to awkward postures. • Radiant heat protection (foundry workers, fire and rescue workers, welders), restricting movement and leading to awkward postures.
Cognitive requirements	The cognitive attributes of the task for example, thinking, deciding, calculating, remembering, looking, searching. Examples: • Intensive care health professionals concentrating on patient care leading to reduced situational awareness during patient transfer. • Random intermittent noise interrupting concentration subsequently increasing muscular tension. • Fire and Rescue workers searching for and finding unconscious occupants in a burning building leading toe reduced situation awareness when lifting the occupant. • Sustained boredom or mentally unstimulating work. • Perceived or actual work pressures.
Force	Tasks requiring repetitive, sustained, high, or sudden muscular effort (force) to perform the task which overloads muscles, tendons joints, or, intervertebral discs. Examples: • High hand force required to grip or a load or tool. • Lifting a heavy load. • Pushing or pulling an object repetitively. • Holding an object in place for a sustained period of time. • Cutting reinforcement bar with bolt cutters. • Experiencing recoil from using a nail gun.
Load characteristics	The attributes or nature of the load. Examples: • No handholds/grip points on the load being moved (e.g., cardboard cartons, bagged cement, bagged fertiliser). • The surfaces of the load are too smooth to grip. • Tool handles are too big/too small to grip comfortably. • Transferring a combative/uncooperative patient. • Lifting and transporting frightened animals.
Load weight	The weight of the load, tool or object to be handled or used. Examples: • Drums of liquid (e.g., greater than 20 litres). • Bagged fruit and vegetable produce (e.g., potatoes, onions). • Changing and balancing car tyres. • Laying concrete blocks. • High mass e.g., cattle, 200 litre drums, 50 kg LPG bottles.
Physical environmental conditions	Physical environmental conditions are the conditions workers perform their tasks within. Examples: • Cold environments such as freezer rooms, cold stores, and working outside in low ambient temperatures reducing blood flow to muscles in limbs.

	• Hot environments such as foundries, commercial laundries, kitchens, and bakeries leading to heat stress resulting in muscle cramps, weakness, fatigue. • High humidity environments such as steam cleaning, deep underground mining, commercial laundries, low air flow workplaces leading to fatigue, muscle cramps, heat exhaustion. • Working outside in high wind handling objects with large surface area e.g., steel roofing, creating excessive loading. • Slippery or uneven walking surfaces resulting in reduced stability while performing manual tasks, or increased force required to push a trolley. • Obstructions in walkways, reducing the space to perform work resulting in awkward postures. • Low lighting resulting in awkward and/or sustained posture to see the task such as inspection, or excessive lighting resulting in awkward and/or sustained posture to avoid glare or reflection.
Physical task attributes	The physical attributes of the task. Examples: • The position of the load relative to the body. • The distance a load must be moved in a single trip. • Tasks requiring frequent repetition. • Task duration. • Intensity of exertion. • Recovery time. • Tasks requiring awkward or sustained postures • Tasks requiring prolonged standing. • Tasks requiring prolonged sedentary work.
Tools/equipment	Tools or equipment which are unsuitable for the task. Examples: • Unable to set up workstation height correctly when sitting of standing for work. • Non-adjustable chair used at a desk for entering data into a computer. • Ball-peen hammer used for carpentry work which is too heavy and has a harder face than a claw hammer. • Electric drill used to torque bolts instead of an impact drill. The electric drill will lock up when the bolt is tight and cause the drill to cause a shock load to the hand/wrist. • Heavy hand tools, particularly if used over an extended period e.g., unsupported tool on an assembly line. • Unbalanced hand tools e.g., heavier part in front of the wrist. • Tool handle is too small or too small resulting in a sub-optimal grip span that increases grip force and awkward postures. • Shock loading and impact from hand tools such as hammers, hammer drills, impact drills resulting in impact forces on ligaments and requiring increased grip force. • Poorly maintained tools for example, blunt knives, tight/worn drill chucks, sticky bearings.
Workplace layout	The layout of the workplace including the placement of elements of a work area which can affect the posture of the worker. Examples: • Inspection conveyors too high/too low/too wide requiring inspectors to adopt awkward postures to inspect material on the conveyor. • Furniture/workstations/chairs not adjustable to accommodate worker's anthropometry. • The space/area required to perform the task is inadequate for example, insufficient space to turn a patient hoist when moving a patient.