

When Work Changes, Risk Changes

Why workplace innovation should consider performance and safety together

The Canadian Forum on Workplace Innovation · September 2026

THE ARGUMENT

Workplace change alters more than output. Changes to tasks, pace, staffing, equipment, automation and workflow can change physical and cognitive demands at the same time. A credible workplace-innovation model therefore evaluates operational performance, human performance and safety together — and measures the effects before scaling.

54.3%¹

Canadian workers frequently exposed to ergonomic risks · 2024–25

88,000+³

B.C. time-loss claims for musculoskeletal injuries · 2020–2024

\$2.35B+³

B.C. claim costs for musculoskeletal injuries · 2020–2024

1 Ergonomic exposure is not a niche issue

Statistics Canada's Canadian Survey on Working Conditions found ergonomic risks were the most commonly reported physical risk in 2024–2025. More than half of workers (54.3%) reported frequent ergonomic exposure. Rates were particularly high in natural resources, agriculture and related production (74.9%), trades, transport and equipment operators and related occupations (74.5%), and manufacturing and utilities (73.2%).¹

2 Risk is shaped by the design of work

Canadian and international ergonomics guidance converges on a systems view. CCOHS identifies awkward or static posture, repetition and pace, forceful movement, heavy loads, vibration and temperature among relevant physical factors, while also recognizing organizational and psychosocial contributors. NIOSH defines ergonomics as designing tasks and job demands to fit worker capabilities and recommends examining tools, equipment, materials, workstation layout, job demands and organizational climate.

ISO 6385 provides the broader work-system principle: human, social and technical requirements should be considered together when work systems are designed or changed. That is a stronger foundation for workplace innovation than treating safety as an inspection conducted after an operational redesign is complete.

3 The burden is substantial – but compensation data require care

WorkSafeBC reported in February 2026 that more than 88,000 time-loss claims for musculoskeletal injuries (MSIs) had been accepted over five years, with more than \$2.35 billion in claim costs.³ These figures establish material burden in one large provincial system. They should not be extrapolated directly to Canada. The Association of Workers' Compensation Boards of Canada cautions that jurisdictional statistics differ because of coverage, legislation, industry mix and administrative practice. Cross-jurisdiction figures are therefore useful for scale and pattern, but simple provincial ranking is not methodologically sound without adjustment.

FORUM INTERPRETATION

A workplace can improve one operational measure while worsening another human outcome. A faster process can increase repetition; automation can remove lifting while increasing monitoring or cognitive load; a staffing change can improve coverage while changing pace and recovery time. The relevant question is not whether change is 'good' or 'bad,' but what changed across the whole work system.

4 Worker participation can improve the quality of diagnosis

Participatory ergonomics is one practical response. Institute for Work & Health reviews describe approaches in which workers, supervisors and other workplace parties jointly identify and address ergonomic hazards. The evidence base is not uniform — older studies vary in methodological quality — but IWH concluded there was enough evidence to recommend participatory ergonomics as one means of reducing the burden of work-related musculoskeletal disorders (MSDs) and emphasized formal documentation of participation and changes.

An IRSST project completed in 2002 illustrates the task-analysis logic in Canadian workplaces. In a metallurgical intervention program, mixed worker-manager groups were trained to analyze work situations, identify risk factors and develop transformation projects. The value of this evidence is not a universal effect size; it is the implementation model — structured analysis by people who understand the work.

5 Measurement should begin before the intervention

NIOSH ergonomics guidance recommends collecting baseline evidence from injury records, claims, symptom surveys, interviews and job analysis, then evaluating interventions after implementation. This is directly compatible with a workplace-innovation pilot model: define the task, document the baseline, change something specific, measure both intended and unintended effects, and decide whether to scale.

6 Technology can improve observation — but creates new responsibilities

NIOSH has identified potential occupational-safety applications for AI-enabled sensors and computer vision, including improved exposure estimates and analysis of images or video. The potential is real, but so are governance questions. Where video, sensors or AI collect information about workers, Canadian privacy regulators recommend specific, necessary and proportionate purposes, minimal intrusion, appropriate safeguards and impact assessment.

Technology-assisted assessment should therefore be judged on several dimensions at once: validity and reliability for the task; usability in real operating conditions; worker participation and acceptability; privacy and data governance; the quality of the decision it supports; and whether the subsequent intervention actually changes exposure or outcomes.

7 A stronger applied-innovation model

Challenge

Define the operational and human-performance problem.

Baseline

Document the task, workflow and relevant exposure/outcome measures.

Intervention

Select work-design, equipment, training or technology changes that fit the problem.

Pilot

Test in a bounded setting with affected workers and managers involved.

Evidence

Measure intended outcomes, unintended effects and implementation conditions.

Decision

Scale, adapt, stop or investigate further.

Share

Capture transferable learning without assuming one solution fits every site or task.

8 Research questions worth testing in Canada

- Which physical-risk measures are reliable and practical enough for routine workplace use?
- How do technology-assisted assessments compare with established ergonomic observation methods?
- What level of worker participation improves diagnosis and implementation?
- How should productivity, burden, safety and worker experience be measured together?
- Which results transfer across sites and sectors, and which remain task-specific?
- How should privacy and governance be designed when video, sensors or AI are used in assessment?

BOTTOM LINE

Safety is not a separate endpoint from workplace innovation. Both are consequences of how people, technology, equipment, tasks and organizational conditions are combined. The strongest applied approach is therefore systems-based, worker-informed and evidence-led.

Sources and evidence notes

1. Statistics Canada, [Canadian Survey on Working Conditions, 2024–2025](#). National exposure estimates.
2. Canadian Centre for Occupational Health and Safety, [Work-related Musculoskeletal Disorders](#). Canadian ergonomics and WMSD risk-factor guidance.
3. WorkSafeBC, [Musculoskeletal injuries remain the most common workplace injury in B.C. \(Feb. 2026\)](#). Provincial claims burden; not extrapolated nationally.
4. Association of Workers' Compensation Boards of Canada, [statistics and comparability guidance](#). National compensation-statistics context and comparability limitations.
5. Institute for Work & Health, [Effectiveness of participatory ergonomics](#). Systematic-review evidence and methodological cautions.
6. IRSST, [ergonomic intervention at the task-design stage](#). Canadian participatory task-analysis and workplace transformation example.
7. NIOSH, [Elements of Ergonomics Programs](#). Baseline assessment, job analysis, intervention and evaluation framework.
8. NIOSH, [The Role of Artificial Intelligence in the Future of Work](#). AI-enabled sensors and computer-vision applications in occupational safety.
9. ISO 6385:2016, [Ergonomics principles in the design of work systems](#). Human-social-technical systems approach to work design.
10. Federal, provincial and territorial privacy commissioners, [Protecting Employee Privacy in the Modern Workplace](#). Necessity, proportionality, privacy-impact assessment and human-oversight principles.

EVIDENCE STANDARD

Official statistical and regulatory sources are used for core factual claims where available. Survey, think-tank, consulting and international evidence is used as complementary context and is identified by source type. Descriptive associations are not presented as causal effects, and measures with different populations, definitions or reference periods are not treated as directly comparable.