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Are Employees Fit for Work? Reducing Musculoskeletal Injuries in the Workplace

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Employers and employees share responsibility for health and safety in the workplace. Proactive workplaces strive to create healthy and safe working environments through the application of ergonomics.

Ergonomics is a science concerned with the fit between people and their work (Health and Safety Executive, 2013, p. 1). The role of the employee is to maintain their body to meet the demands of the job and to reduce potential musculoskeletal injuries (MSIs).

This article takes a look at the potential risk factors of manual labour jobs, such as oilfield work and the trades, and suggest interventions to reduce MSIs. An MSI can be defined as an injury to a person of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissue that is caused or aggravated by work; this includes overexertion injuries and overuse injuries (Alberta Human Services, Government of Alberta, 2009).

In Canada, the cumulative cost associated with MSIs is over \$20 billion per year (Sinden & MacDermid, 2011). As noted in Alberta's Occupational Health and Safety Code, MSIs are a leading cause of lost-time injury claims in Alberta.

Risk Factors to Consider

Workplaces make an effort to reduce work-related injuries while maintaining a high level of productivity. To assess the fit between a person and their work, there are three main factors to consider (Health and Safety Executive, 2013, p. 1):

- the demands on the worker, e.g., activities, workload, work pacing, shiftwork and fatigue;



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- the physical environment, e.g., terrain, temperature, humidity, lighting, noise, vibrations; and
- the individual's physical and psychological characteristics, e.g., body size and shape, fitness and strength, posture, knowledge, training, and experience.

Once the interactions between these factors are taken into account, it is possible to design safe, effective and productive working systems.

Examples of other types of occupational risks that may predispose workers to MSIs include:

- awkward body positions and work postures, such as bending or twisting (Alberta, Human Services, 2009; Sinden & MacDermid, 2011);
- excessive force as might happen during lifting, lowering, pushing, or pulling (Alberta, Human Services, 2009);
- frequent repetitive lifting (Health and Safety Executive, 2013, p. 3);
- duration of work, time pressures and minimal rest breaks (Sinden & MacDermid, 2011; Health and Safety Executive, 2013, p. 3); and
- contact stress involved in performing work tasks; loads that are too heavy and/or bulky, placing unreasonable demands on the person (Sinden & MacDermid, 2011; Health and Safety Executive, 2013, p. 3).

Such factors can cause or contribute to physical injuries, such as low back pain or injury to any of the extremities.

Acknowledging the risks associated with the job demands, applying ergonomics, and physical conditioning of the employee's body can help to reduce potential accidents, injury, ill health, and improve performance and productivity (Health and Safety Executive, 2013, p. 3).

Putting the "I" in Ergonomics

Trades workers are "industrial athletes" that require fitness training, biomechanical skill training, and education on how to reduce the risk of MSIs. Just like a worker's tools are engineered to optimize efficiency, a worker's body must also have the proper mechanics to perform at peak levels; striving to be the "industrial athlete" (Human Movement Solutions, 2013).

Performing even simple tasks incorrectly places unnecessary stresses on the muscles and spine that build up over time, wearing the body down (Human Movement Solutions, 2013).

Practitioners (e.g., fitness leaders, ergonomic consultants, etc.) and employers (e.g., health and safety advisors) can support tradespersons and other workers in the prevention of MSIs.

Given that most people find it quite normal or acceptable to warm-up before a gym session or to play sports, it makes equally good sense for workers to prepare their bodies before facing the physical demands of manual labour.

The Alberta Workers' Compensation Board advises that maintaining a healthy body through regular conditioning will:

- build strength and endurance;
- stretch muscles and enhance flexibility;
- maintain joint mobility;
- increase quality of life; and
- help a person feel better - physically and mentally.

Achieving good physical conditioning reduces the risk of a workplace MSI and supports the overall health or wellness of the employee.



Work Safety Programs

Reducing work-related MSIs requires more than simply changing the physical environment (e.g., location, positioning, or tasks). Work safety programs need to support employees, provide advice, and share information.

An employee that knows how to use their body correctly when doing physical work may result in less WCB claims (Human Movement Solutions, 2013).

Organizations can get involved in workplace ergonomics by offering in-house programming, such as:

- industry-specific workplace stretching (Choi & Woletz, 2010); and
- in-field biomechanics training (Human Movement Solutions, 2013).

Industry-specific workplace stretching programs are intended to reduce the chance of strain or sprain injury through increased flexibility, improved range of motion, improved posture and stress relief (Choi & Woletz, 2010).


Although research-to-date does not fully support stretching interventions alone, there are studies that demonstrate strength training, conditioning and pre-activity warm-up play an important role in injury prevention (Choi & Woletz, 2010).

In-field biomechanics training programs teach workers how to optimize their effectiveness when performing work-required movements, such as lifting, carrying, hammering, pushing and pulling (Human Movement Solutions, 2013).

Looking Forward

Incorporating workplace and individual interventions can benefit employers and workers. Some of the benefits include (Human Movement Solutions, 2013):

- reduced workplace injury and injury costs;
- less absenteeism in the workplace; and
- improved employee health, satisfaction and productivity in the workplace.

Every workplace is unique. Although prevention of MSIs can be challenging at some worksites, a combination of worker involvement in physical conditioning, application of ergonomic principles, and employer supports such as in-house training programs can help reduce the risk of MSIs. 

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Disclaimer:

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Alberta Get Outdoors (GO!) Weekend

Honourable Dave Rodney, Associate Minister of Wellness

Alberta Get Outdoors (GO!) Weekend is just around the corner. Mark April 11 - 13 in your calendar, and enjoy some active, outdoor fun.

Participating in recreational activities enhances mental and physical well-being. Regardless of the weather, just being outside in the fresh air can be energizing and invigorating.

I'll be kicking off Get Outdoors Weekend with special events in Edmonton on Thursday, April 10 and Calgary on Friday, April 11 and continue with many events across the province. Along with these free, family-friendly events, consider joining one of our GPS-led scavenger hunts, also called geocaching, at a location near you.

As Albertans, we are lucky to have many outdoor, recreational activities available to us. You could visit one of 480 provincial parks or recreational areas in Alberta; many of which are within one hour from home. Keep it simple by planning low cost activities that don't require a lot of equipment. Go for a long walk or hike, do some spring lawn cleaning, or even play tag in the back yard.

To learn more about the free public events for Get Outdoors Weekend, or for ideas about how you can enjoy a great outdoor experience, including the geocaching locations, go to www.getoutdoorsalberta.ca.

I encourage you and your friends, family, neighbours and colleagues to join me and get outdoors. Let's GO Alberta!



Honourable Dave Rodney (BA, BEd, MRE), MLA Calgary-Lougheed, has been a wellness champion during his three Legislative terms—during which he has served on over 2 dozen committees. He is an entrepreneur, filmmaker, writer, keynote speaker, educator, and is the first Canadian to summit Mt. Everest two times. He founded the “Top of the World Society for Children” with his wife Jennifer; and they have two wonderful sons.