

## Health Promotion / Wellness / Psychosocial

# Musculoskeletal Disorders - Psychosocial Factors

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### What does the term “workplace psychosocial factor” mean?

Workplace psychosocial factors are an aspect of the workplace that is developed by the culture, policies, expectations, and social attitude of the organization.

Thirteen psychosocial risk factors have been identified by researchers at Simon Fraser University based on research and review of empirical data from national and international best practices. The same 13 factors are used in the CSA Standard “[Z1003-13 \(R2018\) - Psychological health and safety in the workplace - Prevention, promotion, and guidance to staged implementation](#)” which is available to view for free from their website. A summary of these factors is available in the OSH Answers on [Mental Health - Psychological Risk Factors in the Workplace](#).

If there is not a match between the work demands and mechanisms in place to help the worker meet these demands, the worker may experience stress induced responses that can contribute to poor mental, psychological or physical health. The stress reaction may also contribute to the development of musculoskeletal disorders.

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### What are some examples of workplace psychosocial factors?

Some examples of workplace psychosocial factors include:

- Job demands - Examples include time pressure, work pace, rest breaks, workload, or surges of work.
- Job control - Examples include perceived lack of participation in decisions, level of influence on work and work outcomes.
- Job satisfaction - Examples include task variety and variability vs. monotony, opportunities for development, or challenges vs. poor skill utilization.
- Support - Social support and emotional support from the employer, co-workers and family.

When workplace psychosocial factors place demands on workers that are greater than the worker's ability to cope with them, they experience stress. Stress creates a wide variety of physiological, psychological and behavioural responses within a person.

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## What is meant by “behavioural responses” to psychosocial factors?

Behavioural responses to psychosocial factors are responses taken by a person that they are unaware of, or that they perceive may help them cope with the stresses placed upon them. Unfortunately, in many cases these responses can actually increase their risk of developing MSDs because it causes them to increase their physical and psychological exposure to some MSD risk factors. Below are several examples:

- An individual who feels pain from a certain activity alters their posture to avoid pain. The new posture places them at further risk for an MSD.
  - Tasks become frustrating and therefore individuals may use excessive force while performing tasks.
  - Tasks that cause pain may result in workers using medications that may have side effects, or use substances in an uncontrolled manner to deal with the pain and stress.
  - Psychosocial factors that cause negative stress may cause the worker to develop a sedentary lifestyle.
  - The worker feels they need to skip breaks or work longer hours to meet job demands, which results in less time away from work for the body to recover.
  - The work is done in a hurried manner or more weight is carried at one time to help speed up the work, but these actions add strain on the body.
  - A common stress reaction is to tense muscles, particularly in the upper body and shoulders.
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# What psychological changes does a person experience when they are exposed to workplace psychosocial factors?

The general stress response is based upon how the stress is perceived by the individual. Although there are several theories, the general stress response can generally be sub-divided into two categories - positive and negative. A positive stress response is one that is associated with stressors that are surmountable or achievable. They are challenges that we believe we can accomplish and with that comes a general sense of engagement, determination, and interest.

Negative stress responses are associated with challenges that we believe we cannot accomplish. They are associated with feelings such as uncertainty, disinterest, boredom, and anxiety. When discussing the workplace, these negative stresses are linked to the psychosocial factors mentioned above: lack of job control, excessive job demands, low job satisfaction, and lack of social support.

The physiological changes that people experience due to stress are intended to prepare a person to physically resolve dangers, problems, or challenges in the short-term time range. When the challenge has been resolved, the stress response in the body shuts down. Similarly when the challenge has not been resolved, these physiological changes are sustained and the body remains in "stress mode".

In most cases, when stress is caused by workplace psychosocial factors, these issues cannot normally be resolved by a one-time stress induced response by the body. In these cases, workplace psychosocial factors will cause the body to be stuck in "stress mode".

There are three primary hormones released into the blood stream during a stress response. These are epinephrine, norepinephrine, and cortisol. The body's reaction to stress is to release these hormones in various proportions based upon how the stress is perceived (positive or negative) to create the following physiological responses in the body:

- Increases the heart rate and the strength of contractions - increase blood flow.
- Expands the bronchioli, making more oxygen available (breathing easier).
- Inhibits the release of histamines, which suppresses immune functions and reactions (which is why epinephrine is used as an initial treatment to anaphylactic reactions and severe allergies in Epi pens).
- Stimulates the breakdown of stored fat reserves to provide a quick source of glucose to the blood.
- Initiates the breakdown of glycogen stores in skeletal muscles as another source of quick energy.
- Directs more blood to the skeletal muscles, and increases their tone.
- Directs resources (blood) away from non-essential systems like the digestive, reproductive, and immune systems.

- Shuts or slows down non-essential activities like growth and repair.
  - Reduces blood flow to skin to prevent blood loss in the event of an injury.
  - Dilates the pupils to increase visual acuity.
  - Increases fluid in the periphery of the body (skin).
  - Decreased sensitivity to pain.
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## How do stress-induced physiological changes in a person's body increase a person's risk of developing a musculoskeletal disorder?

Directly attributing workplace psychosocial factors as a cause of workplace musculoskeletal disorders is difficult because of the number of other factors (biomechanical) that also contribute to the development of musculoskeletal disorders. However, there is general agreement that workplace psychosocial factors can contribute a significant risk to workers. Some of the main theories linking stress induced physiological changes to musculoskeletal disorders is presented in the table below.

Physiological Change	How MSD risk has increased
Increased blood pressure	In joints where space is at a premium (example - carpal tunnel), a consistent increase in blood pressure could lead to increased pressure in the joint specifically on tendons, ligaments, and nerves.
Increased fluid pressure	When fluid pressure is increased for a prolonged period of time, increased pressure may be placed in joints, and on tendons, ligaments, and nerves.
Reduction of growth functions	Reduction of the production of collagen (a growth function) means reduced ability for the body to heal or recover after performing work functions.
Decreased sensitivity to pain	When pain is not sensed as clearly, workers may work beyond and above their body's physical capacity.
Dilation of pupils	Increased sensitivity to light.
Increase in muscle tension	Causes increase in pressure on and around joints, tendons, ligaments, nerves, and may cause excessive use of force during certain activities and movements.
Body remains at a heightened state of sensitivity	Because of heightened sensitivity and alertness, person may overburden their musculoskeletal system (lift more, work faster, etc.)

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