

Acclimatization

What is acclimatization and what does it mean for outdoor workers? Putting in place an acclimatization procedure is an administrative control measure that workplaces can take to help them manage heat stress in their outdoor workers.

Hierarchy of Risk Controls for Sun Safety:

- | |
|-------------------------------------|
| 1. Elimination or substitution |
| 2. Engineering controls |
| 3. Controls that increase awareness |
| 4. Administrative controls |
| 5. Personal protection |

What is Acclimatization?

Acclimatization is the ability of our bodies to adapt to working in a hot environment. It helps to:¹

- Improve the effectiveness and efficiency of our body's physiological heat distribution and heat loss systems (for example, acclimatized workers sweat more but the electrolyte concentration in the sweat decreases)
- Improve comfort during heat exposure
- Delay the development of heat stress

The initial benefits of acclimatization can be seen within a few days of increased physical activity, but the longer-term benefits take a few weeks of constant exposure to hot environments.^{2,3}

Acclimatization Regimens

For workers who *have* had previous experience working in a hot environment, the following regimen for developing acclimatization is suggested:⁴

Day 1	Day 2	Day 3	Day 4
50% exposure	60% exposure	80% exposure	100% exposure

For workers who *have not* had any experience working in a hot environment, the following regimen for developing acclimatization is suggested:⁴

Day 1	Day 2	Day 3	Day 4	Day 5
20% exposure	40% exposure	60% exposure	80% exposure	100% exposure



Visit sunsafetyatwork.ca for more information.

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Acclimatization can also be lost quite quickly, within a matter of days of non-exposure to higher temperatures and work rates. However, this loss can be made-up quickly - a two-day loss can be made-up on the first day back at work, but more than a two-day loss will take up to a week to be made-up.⁵

Given this, some agencies have concluded that outdoor workers often do not work for long enough at high enough temperatures to become acclimatized.⁶ In addition, acclimatization also varies among individuals – people who are not physically fit or who have a range of underlying health conditions take longer to become acclimatized.⁶

Acclimatization and Heat Stress Risk Assessment

Acclimatization is one consideration when conducting a risk assessment for heat stress from sun exposure. It is considered at each of the three steps in our sun safety risk assessment process. As part of an 'operational review', the workplace should make an assessment of the level of acclimatization currently within the workforce and whether any workers are at higher risk.

In the 'daily assessment' of heat stress, acclimatization status of workers should be considered when determining response actions to take, with action taken at lower temperatures for unacclimatized workers.

Implementing Acclimatization at Your Workplace

1. Make an assessment of the level of acclimatization within your workforce
2. Identify those individuals who maybe acclimatized and those who may not be acclimatized
3. Where appropriate, implement an acclimatization regimen suitable for the workforce and workplace
4. When necessary, take account of the level of acclimatization of the workforce when implementing heat stress response measures. Unless acclimatization has been clearly and consistently achieved, consider all workers as being unacclimatized.

Relevant Resources

- Protect Yourself from Heat Stress (poster)
- Heat Stress Alert (poster)
- Heat Stress Warning (poster)
- Heat Stress and Outdoor Work (fact sheet)
- Heat Stress Signs and Symptoms (fact sheet)
- Heat Stress Personal Risk Assessment
- Heat Stress Risk Assessments for Outdoor Workers: Technical Guide, Operational review, Daily Assessment Records for WBGT and Humidex