What is acclimatization, and why should you know about it?

Acclimatization is the process your body goes through to adjust to changes in temperature, either cold or hot, and to changes in altitude. This medical briefing explains what you need to know to safely adjust to working in hot environments.

Your body acclimates (adapts) to work in hotter conditions by adjusting how your body sweats and through other heat-regulating body mechanisms. The average person needs five to 14 days to acclimate, during which you are at higher risk for heat-related injuries, like heat stroke or heat cramps.

Accidents and serious injuries can occur due to the physical and mental adjustments that are occurring with your body while it adjusts to the change in environmental conditions. You may make mistakes, bad decisions and errors in judgment, or you may miss important cues or changes because your mind and body are busy adjusting to changes in your work environment.

This is a time to be especially aware of what you are doing and how you are doing it. For up to five days, your body is learning how to adjust your heart rate and blood volume and sending more blood to the small-blood vessels on the surface of your skin to increase cooling. With this adaptation, your body increases its sweat rate, learns to start sweat production sooner and paces your heart to help lower central body temperature.

Excess dietary water and electrolytes do not speed the process of heat acclimatization. It takes time for your body to learn to make these adjustments.

The three heat illnesses discussed below involve fluid-electrolyte balance and cardiovascular adaptation and are discussed in detail in BNSF Medical Briefing Working In Hot Environments: Heat Stress.

- Heat cramps occur in the voluntary muscles of the legs, arms and abdomen caused by water loss due to sweating.
- Heat syncope (or fainting) occurs most commonly during the first three to five days of heat exposure.
- Heat exhaustion is the most commonly diagnosed form of heat illness.

Heat acclimatization adaptations may vanish after only a few days or weeks of inactivity such as a vacation in a cooler climate with reduced activity. People who are more physically fit tend to maintain their acclimatization better than people who are less physically fit.

Summary

Understand the hazards associated with acclimatization and take the extra steps necessary to work safely while your body adjusts to hot working conditions. Get proper rest, eat right and drink plenty of fluids.