

Immersing arms in ice water, special pads to keep troops cool



Cadets dipping their arms in iced water, for between 15 and 30 seconds, to cool their core body temperature. PHOTOS: LIANHE ZAOBAO

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From this month, the Singapore Armed Forces (SAF) is expanding the use of an arm immersion cooling system and purpose-built cooling pads across the armed forces.

This comes after recommendations from an external panel looking into the SAF's heat injury practices following the death of Corporal First Class (CFC) Dave Lee Han Xuan in April from heat injury.

The five-member external panel's 15-page report was released yesterday.

Although the report found the SAF's current heat injury measures generally sound and aligned with prevalent industry and foreign military practices, there was room for improvement.

For instance, it suggested the full-scale implementation of a cooling regime known as the Arm Immersion Cooling System.

This is a preventive measure whereby soldiers dip their arms into iced water for between 15 and 30 seconds to help cool their core body temperature.

This is done during rest periods when training, and after training.

In a study done by the SAF and the DSO National Laboratories, the pads cooled subjects at a rate of 0.12 deg C per minute, compared with the 0.03 deg C per minute rate of the ice packs.

Major (Dr) Teo said: "They can also be stuck on to the body, which means they do not drop off as easily, compared with ice packs."

While the cooling pads have been used during overseas training since 2015, they will be rolled out across the SAF in phases from this month.

Medics at the Basic Military Training Centre on Pulau Tekong will be the first to receive the upgrade.

Among other recommendations by the panel were the upgrading of the SAF's Body Cooling Units (BCUs) and fine-tuning work-rest cycles based on the practices of foreign militaries.

Brigadier-General Kenneth Liow, commander of the Army Training and Doctrine Command (Tradoc), said yesterday that the army is evaluating every recommendation proposed by the panel.

"However, not every recommendation can be implemented immediately. As highlighted by the panel, some recommendations would require further study."

He said the panel noted in its report that existing BCUs have served the SAF well, and the BCU is still in operation in local hospitals such as the Singapore General Hospital and Changi General Hospital.

SOME RECOMMENDATIONS OF SAFETY AND HEAT-INJURY PANELS

The external review panel on heat injury management suggested the SAF could look into more effective rapid-cooling methods such as cold-water immersion and cooling suits which could eventually replace body-cooling units currently used by the SAF.

The panel noted that the Australian Defence Force has more demanding work-rest guidance for its Special Forces, compared with the more generic guidelines for ground forces. It said the SAF could consider having a less demanding work-rest cycle for first-year soldiers, in view of their higher susceptibility to heat injuries.

The panel suggested adding four more risk factors that may predispose someone to heat injuries: inexperienced soldiers, alcohol intake, use of supplements and salt depletion. The army currently has 16 risk factors, which are largely similar to what foreign militaries have.

The panel also recommended reducing barriers to self-reporting if soldiers feel unwell, as it felt that soldiers might be reluctant to fall out due to peer pressure or fear of failing a course, among other possible reasons. The panel's view, it said, is supported by the army's finding that many heat injury cases arise as a result of overzealous soldiers pushing themselves beyond their limits.

The external review panel on SAF safety said that medics must be able to exercise their professional authority when dealing with medical issues, and this includes being able to communicate effectively with commanders who are much more senior than them.

It said that while it is the soldiers' responsibility to tell their commanders if they are unwell or unable to cope, it is also important for commanders to watch out for such soldiers and pull them out of training before they get hurt.

 [Army heat injury cases](#)

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