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What is the role of traditional fermented foods to prevent heat stress at work?

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Introduction:

Consumption of fermented foodstuff, such as corn, rice, bean curd and dairy are often encountered in traditional or less affluent societies unable to preserve food through refrigeration (1). In a field study looking at occupational heat stress in Chennai, India it was found that, apart from taking rest and slowing down the pace, a fermented dairy drink buttermilk, was widely used among workers in all studied workplaces as a traditional way of preventing heat strain (67-100% of questionnaire respondents) (2). The aim of the study is therefore to investigate the possible physiological cooling benefits of drinking buttermilk. Buttermilk has not been previously studied like other traditional drinks to prevent heat strain, such as coconut water (3, 4). Although, some papers highlight it as a home remedy effective in dissipating heat (5). Fermented foodstuffs have been studied for their health benefits in terms of probiotics, such as live lactic acid (6, 7) and its importance in sustaining human health (1). Although, not for its potential to mitigate heat strain.

Methods:

A study is being conducted using a recipe from Chennai, to assess the effectiveness of buttermilk on whole body rehydration, cooling and recovery during a 3 hour period of medium load physical work (150-350 W/m²) in a heat chamber (34°C, 60% RH). Three interventions are being studied; no water (~2% body water loss), water provision (hydrated) and buttermilk.

Discussion:

With the expected increases in temperature due to climate change (8, 9, 10), additional preventive actions have to be implemented to prevent adverse health impacts for workers in hot low income countries. Where technical fixes such as air conditioning may not be applicable or desirable, traditional ways of coping with heat stress have a potential. Hence, traditional fermented foodstuff may have an important role to play.