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

Lundgren Kownacki, Karin; Kuklane, Kalev; Jakobsson, Kristina; Gao, Chuansi; Dahl, Mats; Granér, Simon; Linninge, Caroline; Dahlqvist, Camilla; Halder, Amitava

Published in:
[Publication information missing]

2015

Link to publication

Citation for published version (APA):

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.
What is the role of traditional fermented foods to prevent heat stress at work?

K. Lundgren1, K. Kuklane1, K. Jakobsson2, C. Gao1, M. Dahl3, S. Graner3, C. Linninge4, C. Dahlqvist2, A. Halder1

1Design Sciences, Lund University, Lund, Sweden, 2Occupational and Environmental Medicine, Lund University, Lund, Sweden, 3Psychology, Lund University, Lund, Sweden, 4Food Technology, Lund University, Lund, Sweden

Keywords: Heat stress, Fermented food, Prevention

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 (34C, 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.