

## PUBLISHED VERSION

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### The impact of apparent temperature on occupational injuries in Australia


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relationships for corn and sunflower. Pesticide use, sowing and harvesting were particularly associated (HR 1.3 to 1.7). (ii) For women in vineyard: HR 1.4 (1.0-2.0) (with a surface effect relationship), specifically working in cellars (HR 1.9) and re-entry tasks (HR 1.4). We observed inverse associations with some duration effect relationships for most livestock (risk deficit up to 40% for both sexes) and other crops (grassland, beet, fruit, potato for both sexes – risk deficit up to 30% –, and wheat/barley and tobacco for women – risk deficit up to 60%).

**Conclusion** We observed different associations with agricultural activities between men and women, which could account for biological or occupational exposures differences. Analysis for RCC will also be presented.

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### **Incidence of Voice Disorders among Private School Teachers in Taiwan: A Nationwide Longitudinal Study**

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**Introduction:** Teachers were more likely to seek medical treatment for voice problems, but few studies described the development of voice disorders among teachers under longitudinal observation. We estimated the occurrence of voice disorders in private school teachers by using National Health Insurance Research Database between 2000 and 2010 in Taiwan.

**Material and Methods:** Private school teachers under 35 years old and newly employed between 2000 and 2010 were included, while people with other occupations were selected as comparison. Patients visiting Outpatient clinic with diagnosis of vocal polyps and vocal granulomas (ICD-9-CM: 478.4, 478.5) were identified. Survival analysis and Cox proportional hazard regression model were applied for risk estimation.

**Results:** In the 11 years follow up, the incidence rate of voice disorders was 27.3 per 1000-person-year in private high school teachers, 13.4 in private college teachers, and 8.6 in comparison group. After adjusting age, gender, income, work duration, sinusitis and laryngitis history, private school teachers were associated with higher risk of voice disorders (hazard ratio 1.58 [95% confidence intervals: 1.43-1.75]). About 50% cases happened during first three years of being private high school teachers.

**Conclusions:** The incidence and risk of voice disorders in private school teachers were higher than general population in Taiwan. This study added information to causality between occupation and voice disorders as well as the burden of voice disorders in Taiwan.

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### **The impact of apparent temperature on occupational injuries in Australia**

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**Introduction:** Hot temperatures are associated with an increased risk for work-related injuries increases. But nation-wide estimates for this risk are underexplored, particularly when indoor and outdoor heat exposure and the effects of cold. This study aimed to explore how this risk are affected by apparent heat stress.

**Materials and Methods:** Workers' compensation claims from Adelaide, Brisbane, Darwin, Melbourne, Perth and Sydney from 2005 to 2018 were merged with weather station and workers' demographic data. Workers and heat exposure were classified as indoors or outdoors. The daily risk of occupational injuries from wet bulb globe temperature (WBGT) and Steadman's apparent temperature were quantified separately using time series analysis and distributed lag non-linear models. National estimates were obtained using meta-analysis.

**Results and Conclusions:** The relative risk for occupational injuries was similar within the middle 50% of WBGT values but otherwise increased curvilinearly. 26852 (95% CI: 16890 - 36203) of injuries were attributed to non-optimal WBGT, equivalent to an attributable fraction of 1.63% (95% CI: 1.03 - 2.2%). Nearly three times as many injuries were due to hot (1.21%, 95%: 0.75 - 1.64) instead of cold exposure (0.42, 95% CI: 0.04 - 0.83). Only small differences were observed between outdoor and indoor workers. Similar results were obtained using Steadman's apparent temperature. Global warming will likely exacerbate the risk of occupational injuries. Workplace heat adaptation and prevention measures are imperative to reduce the risk of injuries.

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### **Longitudinal study of DNA in lymphocytes of female farmers measured using the alkaline comet assay and link with cancer development.**

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**Introduction:** Occupational exposure in the agricultural field is vast, including exposure to pesticides or dust. Literature shows a link between occupational exposure to pesticides and DNA damage, though few studies focus on females. This work aims to study the relation between agricultural exposure and DNA damage at two time points and the link between DNA damage and cancer development.

**Material and Methods:** 99 female agricultural workers gave blood samples at enrolment, and 10 years later. Questionnaires were completed at every donation. DNA damage was assessed by visual scoring of the alkaline comet assay on PBMCs. Longitudinal score was calculated by subtracting the enrolment score from the follow-up score. The link with cancer development was studied using data