

## ABSTRACT

### THE EFFECT OF ELECTROLYTE SOLUTION ON URINARY DENSITY AND OSMOLALITY IN WORKERS IN HEAT STRESS ENVIRONMENT

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**Background :** Heat exposure in workplace is one of potential hazard that could harmed to workers especially for their urinary tract system. This study examined the effects of electrolyte water solution in laundry worker's urinary density and osmolality in heat stress environment.

**Methods :** Wet bulb globe temperature, and relative humidity were measured. Seventy workers divided in two groups of thirty five were given isotonic and hypotonic electrolyte solution ad libitum respectively. Fluid intake during working and breaktime were measured. Two samples of urine were taken from each worker at 10 am and 15 pm of working. At the end of study the amount of water consumed were observed.

**Result :** Low consuming water was found after study at average 400 ml – 1100 ml/ 4 working hour. There was no significant differences in urinary density between the groups ( $U = 608,00$ , and  $p$  value 0,954). However, a majority of workers were coming to work in a moderately hypohydrated state (average urinary density 1.026).

**Conclusions :** This study found that "involuntary dehydration" occurred in laundry workers, which has implications for heat stress standards that do not make provision for full fluid replacement during heat exposure.

**Keywords :** heat exposure, electrolyte solution, urinary osmolality, urinary density, laundry worker