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**WARMING AND HUMIDIFICATION OF INSPIRED GASES:  
ITS EFFECTIVENESS IN MINIMIZING  
HYPOTHERMIA IN ANAESTHETIZED CATS**

A THESIS  
PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
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## ABSTRACT

Body temperature is governed by a complex, highly integrated control system which carefully balances heat production and heat loss. Heat is produced as a byproduct of metabolism, and as the result of muscular work, shivering and chemical thermogenesis; while heat is lost from the body via the channels of heat exchange - radiation, conduction, convection and evaporation. General anaesthetic agents interfere with the normal mechanisms of temperature control by reducing heat production in the face of increased heat loss.

Six adult domestic short-haired cats were included in a randomized cross-over study, to evaluate the effectiveness of warming and humidification of inspired gases in the prevention of anaesthetic induced hypothermia. General anaesthesia was maintained with halothane in 100% oxygen, delivered via a Mapelson type E non-rebreathing anaesthetic circuit. Both passive and active methods of inspired gas warming and humidification were investigated in this study: the passive technique evaluated the effectiveness of a human neonatal Heat and Moisture Exchanger (HME), while the active technique used an electrical heating unit to supplement the warming capabilities of the HME.

Rectal and oesophageal temperatures continued to fall throughout each of the 120 minute experimental periods. Body temperature did not vary significantly between the three trials. The effectiveness of the HME in preserving normothermia in anaesthetized animals has not been reported previously. Despite the success of similar techniques in human neonates and infants, the results of this study indicate that warming and humidification of inspired gases is ineffective in minimizing hypothermia in halothane anaesthetized cats.

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