Dynamics of Body Fluids and Hormonal Profile of Egyptian Nubian Goats under Chronic Heat Stress Conditions

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INTRODUCTION

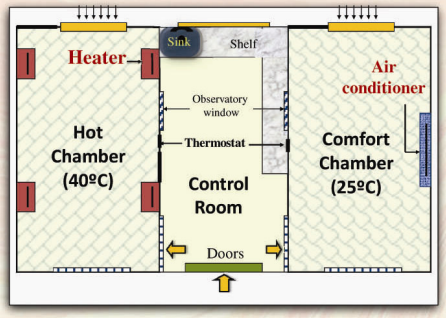
Heat waves are common during the summer months in Egypt. The ambient temperature exceeds 35-40°C or even more and may sustain for many days, initiating compensatory mechanisms to reestablish homeothermy and homeostasis, including water balance and dynamic of body fluids. Therefore, the present study was executed to simulate the usual outbreaks of severe hot weather waves during summer months in Egypt.

OBJECTIVE

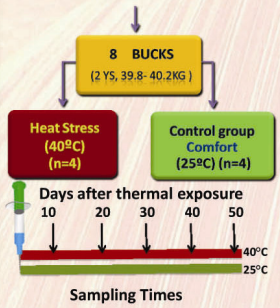
To assess the significance of body fluids' dynamic that activated by the body's regulatory systems of the Egyptian Nubian goats under severe heat stress (40°C) conditions with particular reference to hormonal profile .

MATERIALS AND METHODS

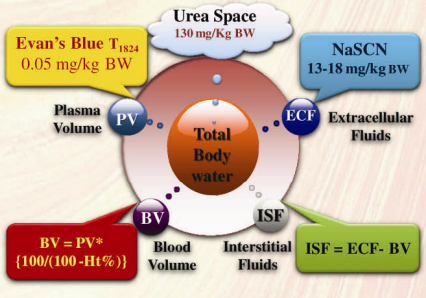
Heat control chambers



Experimental Animals



Body fluid compartments



Water Balance

RESULTS

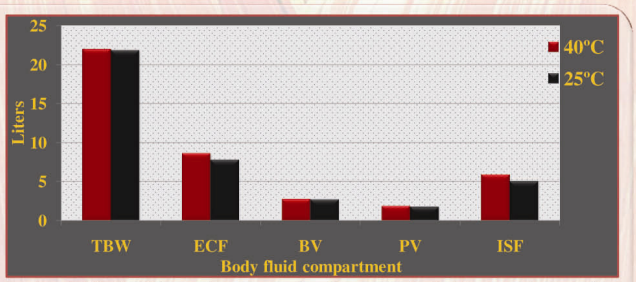


Fig. 1.Effect of thermal exposure duration on body fluid compartment of bucks under heat stress (40°C) and comfort condition (25°C).

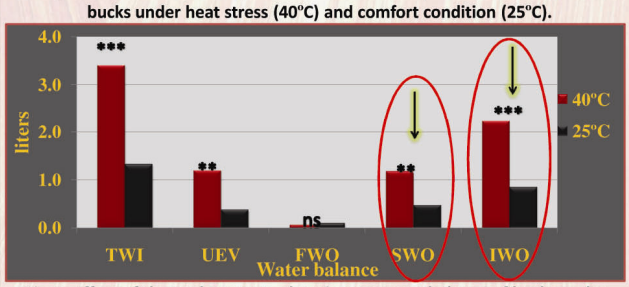


Fig. 2. Effect of thermal exposure duration on water balance of bucks under heat stress (40°C) and comfort condition (25°C).

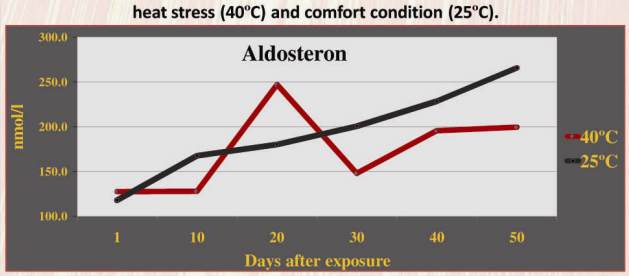
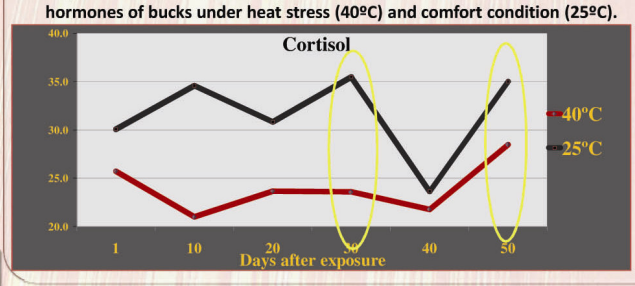


Fig. 3 &4.Effect of thermal exposure duration on aldosteron and cortisol hormones of bucks under heat stress (40ºC) and comfort condition (25ºC).



CONCLUSION

Results indicate that the upper critical temperature of Egyptian Nubian goats may exceed 40°C, increasing the ability of this breed to cope with the global climatic changes. The dynamics of body fluids can be changed according to cortisol, which may act to defend plasma volume depletion in heat stressed bucks.

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