Equine water kinetics as influenced by age and temperament
K Van der Aa Kuhle\textsuperscript{1}, AJ Cawdell-Smith\textsuperscript{1}, WL Bryden\textsuperscript{1}, PSW Davies\textsuperscript{2}, G McL Dryden\textsuperscript{1}
\textsuperscript{1}School of Animal Studies, University of Queensland, Gatton QLD 4343
\textsuperscript{2}Department of Paediatrics and Child Health, University of Queensland, Herston QLD 4006

**Background** - Australian horses are worked in hot conditions, including as stock horses on properties and in demanding equestrian events. Provision of adequate water is essential for good performance and for welfare reasons. However, there is limited information about the water requirements, body water content and water turnover of horses under Australian environmental conditions, or the effects of age and temperament on these.

**Design** - During winter in southern Queensland, 15 Australian Stock Horses (5 weanling; 5 yearling; 5 mature), were housed in stables for 51 days (3 periods of 17 days), and water intake and kinetics were measured. Body water content and water turnover were determined using deuterium oxide. Each horse was assigned a temperament rating of 1 (calm) to 3 (very nervous).

**Outcomes** - There was no significant age-related difference in drinking water intake, with the horses consuming (mean ± SD) 29.35 ± 0.53 L water/day. Weanlings had the highest ($P = 0.003$) fractional water turnover rate (0.134/day), compared to yearlings (0.109/day) and mature horses (0.102/day). Horses assigned a temperament rating (TR) of 3 had the highest drinking water intake (34 L/day), and a significantly higher fractional water turnover rate (0.130/day) than TR 1 or 2 horses ($P = 0.021$).

**Conclusion** - Australian Stock Horses use water at similar rates to those of other breeds, but it should be noted that this experiment was conducted in late winter/spring, when water loss for thermoregulation was at a minimum. Nervous horses use significantly more water than calmer animals.