

**Lower critical temperature of competition horses**

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The common theory, contradictory to horse practice, is that the active competition horse is considerable more resistant to ambient climate than the horse on maintenance, since the active competition horse get more feed and therefore has a higher energy intake. The aim of the study was to investigate if there was any difference in lower critical temperature, LCT, between the active competition horse and the horse on maintenance. The practical aim was to improve management of competition horses in relation to climate. The hypothesis was that there is a difference in LCT, which is due to the difference in feed intake. In the study we used a computer model for estimation of LCT in three different types of individuals used for equitation; pony, warmblood and thoroughbred. We studied horses in winter coat and clipped horses. The intensity of feeding were maintenance and competition. A relative part of heat production of the metabolisable feed intake energy was estimated. Input data were all based on previous research. The result showed a variation in LCT; for the pony from 1,4°C to 10,8 °C, the thoroughbred from -2,1°C to 7,9 °C and the warmblood from -3,4°C to 7,4°C. The competition horse had a higher energy intake in total, that gave a lower LCT in absolute value. The span between LCT was more narrow with this new model compared to previous model with a constant part of heat production. In conclusion, the climate resistance of the competition horse has been overestimated in the earlier model.

**Management factors and behaviour in horses**

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Housing and management conditions influence most of the functional systems of the normal behaviour of horses, e.g. feeding, locomotion and social behaviour. In nature, locomotion and feeding behaviour are closely connected as feeding means grazing and walking at the same time. When housing horses, the two behaviours are separated and none of them occur in the natural way. Horses are often fed with limited amounts of roughage, and they have only limited access to exercise and some only to forced exercise. Most horses are housed singly, thus their opportunities for social behaviour are very limited. Horses are capable of adapting to many circumstances, but sometimes limits are reached and behaviour problems appear, often as stereotypies like crib biting, box walking or weaving. Stereotypies are a sign that welfare problems are or were present. It is thus expected that also the performance of the horses may be affected but our knowledge in that area is very scarce. However, we know today that e.g. the social environment of young horses can influence the human-animal relationship and as a consequence the training ability and learning aptitude. For the well being and probably also for the performance of horses, more attention should be given to the housing of horses in a behaviour adapted way. Housing and management conditions should allow tactile contact to other horses, daily free movement, as well as the provision of high amounts of roughage.

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