Summary
The aim of this study was to investigate if the seasonal work load is tolerable for coach horses which are used in the commercial passenger transport in the Lüneburger Heide. 

A total of 60 horses (warm-blooded horses, draught horses and Friesian) were studied during regular tourist transportation with a maximum of 32 km per day. Additionally a standardized exercise test with increasing work load was conducted as a field test with 4 or 3 Friesian and cart, respectively. At defined times draught force, heart rate, respiratory frequency as well as biochemical and hematological parameters (lactate, hemoglobin, hematocrit, creatine kinase, urea and electrolytes) were measured. 

During the regular passenger transport a mean draught force of 540- 750 N per cart was observed. Immediately after exercise heart rate increased to 75-94 beats per minute and 10 minutes after exercise heart rate dropped to 47-58 beats per minute. Directly after exercise mean respiratory frequency was between 39 and 73 breath per minute and during recovery a mean between 18 and 49 breath per minute was determined. Lactate concentration in blood varied between 1.2 and 1.9 mmol/l, no significant changes were noticed for further biochemical parameters (creatine kinase, urea and electrolytes) and for hematological parameters (hematocrit and hemoglobin).

Lactate concentration in blood increased during first standardized exercise test (before seasonal work) to 9.2 ± 3.0 mmol/l (work load 1.500 kg, 660 N) and after the second standardized exercise test (after seasonal work) arise in lactate concentration up to 3.6 ± 0.9 mmol/l was analyzed. The lower increase in lactate concentration during the second standardized exercise test could be considered as a training effect during seasonal work.

For the majority of the horses passenger transport load during the season seemed to be tolerable. Regarding the animal welfare the legislation (Niedersächsischer Kutschenerlaß, NMELF 1997) presents a good basic for coach horses which are engaged in the commercial passenger transport. In some cases heart rate, respiratory frequency as well as lactate concentration were in upper ranges which could be related to the driving manner of the coachman. For controlling work load it is supposed to check horses' general impression, heart rate and respiratory frequency following the recommendation for endurance competition.