

**ATB**  
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## The daily biorhythm of horses in different housing systems

The way horses are kept nowadays is very different from their natural habitat and very much interferes with their natural behaviour as shown in wild herds. It is accepted that the housing systems has a large influence on the welfare and health of the horse. Results from several studies show that lack of activity can cause illness in horses as well as different behavioural disorders.

In most countries housing requirements for horses are not regulated by law. Several countries in Europe have clear recommendations for instance for the size of boxes and stables (for example UK and Germany), while some (Sweden and Ireland) have put such requirements into law. There is a need to study the daily biorhythm including active behaviours as well as rest periods to get more scientific background on which guidelines and regulations of horse keeping can be based.

A new system called “ALT-pedometer” has been developed to register **Activity** (movement activity of the leg), **Lying time** (rest periods of the animal) and **Temperature** (environmental temperature on the leg from the animal) for an accurate determination of the daily biorhythm of different animals. The pedometer can be placed on the leg of the horse.

The ATL-pedometer system was tried out in stud-farms in Germany and Switzerland. The aim was to find out if there is an influence of the housing system on the biorhythm of horses. One part of the study took place in Germany and included three stallions and one mare in single boxes. In Switzerland, two investigations were carried out, that included nine stallions and four geldings in single boxes and boxes with paddocks over a period of three months. The size of the single boxes was 3 x 3,65 m. The size of the boxes with paddocks was 3,20 x 4,20 m and the paddocks were 3,20 x 4,80 m. The ALT-pedometer was used to continuously record the horses with an interval of 5 minutes, and gave exact results on the daily biorhythm of the horse with detailed data for activity and lying time per day.

The results from this study showed that in the single inside boxes horses were just “standing” between 80-90% of the day, the average “walking time” was only 6-10% of the time per day and the average “lying time” was 5%. In boxes with access to a paddock the stallions spend 65% and geldings 38% of the time outside in the paddock. During this time they had different activities and the “walking time” was near 20% in average. The lying time was 5% (the same as in single boxes).

Figure1: Stallion with ALT – pedometer

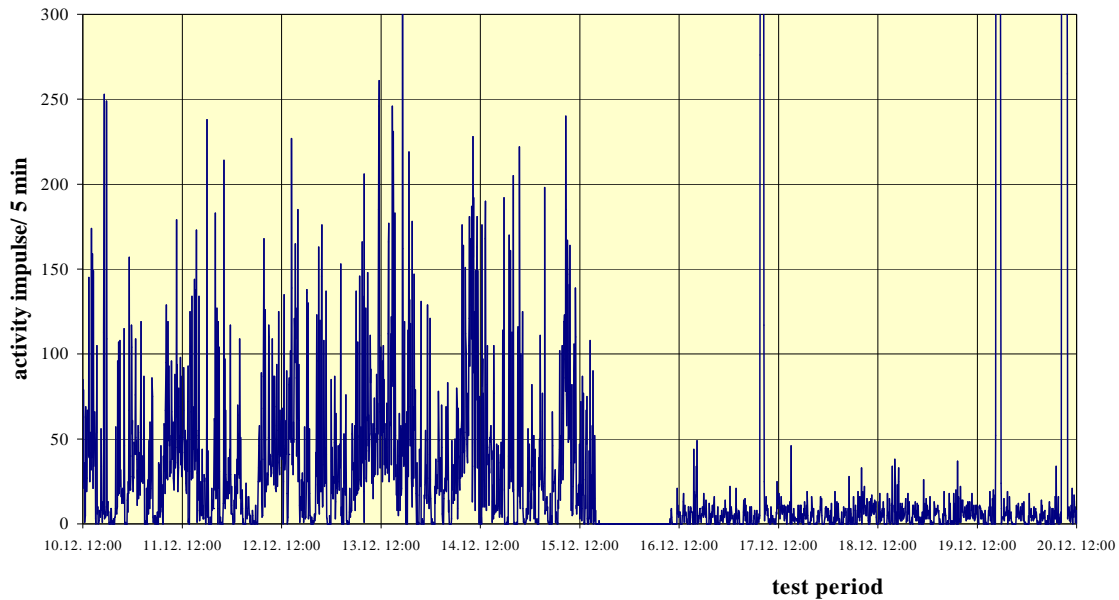


figure 2 : Activity on pasture and single inside box of a stallion

*The results from this study indicate that the housing system has a large influence on the time that horses spend standing and moving. It also seems to be better to keep horses in single boxes with constant access to paddocks compared to the traditional single boxes. Horses preferred to spend most of their time outside the box during the day. The ALT-pedometer could be a good measurement system since it is easy to handle and can be used to learn more about the biorhythm of animals.*

**Source**

S. Rose, U. Brehme, U. Stollberg, Yvonne Buchor, R.v. Niederhäusern. 2005. 'Analysis of the daily biorhythm from horses, measured with ALT-pedometer in different house keeping systems'. 56<sup>th</sup> annual meeting of EAAP 2005, Uppsala, Sweden. Oral presentation. Contact: mail: [ubrehme@atb-potsdam.de](mailto:ubrehme@atb-potsdam.de), [www.atb-potsdam.de](http://www.atb-potsdam.de)