Horses who sleep less tend to put up poorer performances

Sleep equals performance

As an example of how a lack of sleep can impact a horse, Linda points to a small-scale study that she conducted with two post graduate students in 2013. This looked at how the horses in the study slept against their performance scores when jumping a small course of fences. The researchers found that the horses who slept less achieved a poorer performance score.

"We also looked at cognitive bias in horses; whether they were more or less pessimistic about a task. Findings suggested that the horses who slept less were more pessimistic, so less sleep could affect both the performance and the mood of horses."

Physical and mental wellbeing

Understanding equine sleep is important for the physical and mental wellbeing of horses, and sleep research at Hartpury is ongoing. One current study is looking at the link between exercise and sleep, while another is investigating whether horses utilise quiet times on the yard to have a snooze. Both will see findings published later this year.

Linda is also keen to further explore the effects of poor sleep, and how competition horses adapt to overnight stays away and international travel.

"However, due to the variety of factors that can influence performance we're still looking at the practicalities of this," she says.

With plenty more to discover, Linda would love to see AI starting to play a role in equine sleep research.

"I'm really keen to support research that would automate the process of reviewing sleep video analysis. Using AI to produce gold standard behavioural analyses that increased the efficiency of conducting this type of research would open so many doors."

MEASURING EQUINE SLUMBER

Our horses can't tell us if they've slept well, so researchers have developed a variety of methods to measure equine sleep. Linda Greening and her team use behavioural analyses of video data.

Each stable has a CCTV camera in it, giving a view of the entire floor and including the horse's head when over the door. In all but one of their studies to date they watched every minute of footage for every horse.

"A study with 10 horses watched for 24 hours over seven days would generate 1,680 hours of footage, but in larger studies we can easily generate over 2,000 hours," says Linda. "Reviewing an hour of footage can take between 10 to 20 minutes, so 24 hours of footage for one horse could take anywhere between four to eight hours to analyse. Clearly one person can't review all that footage, so we recruit trained teams."

Typically the team measures the quantity of sleep in minutes and seconds over a 24-hour period.

To try to gauge sleep quality, in a study that is the first of its kind, the team developed equations using the number of sleep interruptions they observed, along with sleep measurements, to generate a sleep quality score.

"We found sleep quality for horses, like humans, is highly individualised. However, this measure requires a little more work to refine," notes Linda.

DUST DEMONS

Hartpury's researchers face a slightly mundane challenge when it comes to ensuring that their sleep monitoring cameras stay clean. "If spiders' webs appear across the camera they can block what we see in the stable and this ruins our data collection," says Linda. "So we have to regularly dust the lens in each stable."