

## Spaced Versus Massed Learning in Horses:

### The Effects of Inter-trial Interval Within a Learning Session

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Horses are routinely trained to perform various tasks, yet relatively little research has been conducted to determine how often and for how long a horse should be trained to obtain the best short-term and long-term training outcomes. Research on other species indicates that spaced training often, but not always, results in better acquisition and retention of new skills than does massed training. Time between training sessions, time between learning bouts within a single session, as well as the type of task being taught, all affect training success. Previous research with horses has focused on the effects of time between sessions as well as the number of trials (learning bouts) within a training session on learning outcomes. There does not appear to be any published research on the effect of varying time between learning bouts within a training session. The aim of the current study was to determine the effect of varying the time between learning bouts within a training session on horses' speed of learning and remembering of three common training tasks. Fifteen horses were divided into three groups, with the length of time between learning bouts within a session varying between groups. Group 1, *massed learning*, was trained with three 5-min learning bouts back to back during the first 15 min of the session and was then given a 15-min break. Group 2, *equal spaced learning*, was trained with equal amounts of rest time between learning bouts (5 min of training, 5 min of rest —repeated three times). Group 3, *variable spaced learning*, was trained with variable amounts of time between learning bouts (5 min of training, 3 min of rest, 5 min of training, 10 min of rest, 5 min of training, 2 min of rest). The horses were trained to perform three common training tasks, however only task, an obstacle

course, produced sufficient data for analysis. Learning of the task was measured as the amount of time, in minutes, it took for the horses to master each task. The horses' ability to remember the tasks was measured one day and two weeks following mastery of the task. It was expected that horses that had breaks between learning bouts within a session (spaced-learning protocols) would master the task faster than horses that had no breaks between trials (massed-learning protocol). No statistically significant differences were found in rate of learning or retention between the three groups, but this may have been due to the small sample size. The massed versus spaced training may have had an impact as, on average, the obstacle task was learned in 21 min by horses in the *equal-spaced learning group*, 29 min by horses in the *variable-spaced group*, and 51 min by the horses in the *massed group*. These results suggest that there may be a potential benefit of spaced learning in horses. Further research is required to substantiate this possibility.