

Influence of social environment on the behavior of young horses

by Sarah Florence

Lots of research is focused on the horse, *Equus Caballus*, being among one of the first animals domesticated. It has been living with humans for so long that real wild horses don't exist anymore: we can find groups of feral horses but they are descendants of domesticated ones. Some other animals, namely Przewalski horses, are very close to *Equus caballus* and are often considered as the last wild horses, but actually they are another species: *Equus ferus*. Therefore all studies on the natural behavior of horses are in a way (even if very slightly) biased. This animal is and has been used by humans in many ways, there are yet several questions without answers, several controversies in the riders world, and each new discovery raises other issues. These last decades, we've seen a growing interest in the natural behavior of horses, in order for horses owners to understand better their companion, and to try to provide them with a better life, or to use the best of their natural skills. The ways to train young horses expanded, each trying to be the best. Horses tend to live near to their owners, who usually live near towns and like convenience... Horses can be found living in very different social structures: for example some competition horses live always in a box, having nearly no contact with other horses, and for different reasons, some other horses can live in an almost feral mode like in certain breeding centers and in this case have limited contact with humans. And between these two extremes, we can find a huge variety of cases. Owners sometimes argue on the best way to house their horses, this leads to an interrogation: does the social environment of a horse (number and age of conspecifics) affect it's behavior? And if yes, in which ways ? A horse has a genetically and environmentally determined character. In young horses, the environmental component is less developed because since they are young, their experience of life is limited when compared to an older horse which could for example have learned to overcome it's fearful nature. So when studying the effects of the environment on the behavior of horses, it is relevant to study especially young horses. This is the context of our survey. The age of young horses studied varied between 0,5 and 2 years. Most of the time it is only later that horses are seriously trained to be ridden.

Group housed young horses are easier to train

Before weaning, some foals were purchased and their owners were told to minimize interactions with them. After weaning, they entered a study (Sondergaard and Ladewig, 2003) where they were housed either alone or in group of three. Their reaction to early training (one horse at a time) was studied, but except during training sequences, they had very little contact with humans. These horses had to pass several stages consisting of simple tasks such as accepting to be touched all over the body, accepting a foot to be taken and knocked at the hoof with a piece of metal, or walking between tyres without showing any sign of fear. Undesirable behavior (biting, kicking,etc) during training sessions, and number of stages passed were recorded for each horse. It was found that group housed horses passed more stages and had less undesirable behavior than singly housed horses. Group housed horses learned more quickly and were more focused, their training was more efficient and more easy. Both singly and group housed horses had interaction with humans during training, but only group housed horses had interaction with other horses. So we can say that having interaction with other horses improves the interactions with humans. We can even assume that horses learn from other horses to reduce undesirable behaviors: for example in biting, if a horse lives with other horses and if it happens that it bites another horse, there will be a reaction from the other horse; whereas singly housed horses don't have the opportunity to bite a conspecific and experience what happens next. This could explain why singly housed horses bite their trainer more frequently. Therefore there is a positive influence of group housing on the behavior of horses during training.

Presence of adult horses in groups of young horses

Actually, young horses kept (for practical reasons mainly) in groups of same age/same sex individuals is quite frequent a situation in domestic horses. But this is still far from their natural social environment. We've seen that it is better than singly housed status, but what would happen if we added some adult horses (not related) to these groups of young ? The study has been made (Bourjade et al., 2008) on same age, same sex young horses groups, which were observed before, during and after the introduction of a couple of same sex adult horses (between 4 and 20 years) in the group. Observation sessions recorded all the behaviors of a horse during a 10 min period of time. Maintenance behavior (grazing, drinking,etc), self directed behavior (self grooming, rolling,etc) as well as social behavior (positive, agonist, ritualized behavior, snapping)were recorded. The nearest conspecific was also recorded and the existence of a preferential spatial partner was studied. The study has been divided into three phases: first the behavior of young horses among the group of other young horses, then the behavior of young horses during the time when two adults were introduced into the group, and finally, the behavior of young horses when adults had been removed from the group. During the first phase, young horses showed a high frequency of agonistic interactions and social play, they had few preferential social partners and mutual grooming was almost never seen. When adults were present in the group, young horses showed new behaviors such as flehmen or snapping at adults, moreover, the number of preferential social partners increased among the young horses. Affiliative behavior and social investigations also increased in this phase, in the same time agonistic behaviors decreased. Horses modified their behavior both toward adults and toward others. When adults were taken away from the groups, certain behaviors were maintained but some others returned to the state they were before the introduction of adults. The newly expressed behaviors remained as well as the social preference for spatial and affiliative behavior. But the number of preferred partners, the frequency of agonistic interactions, of affiliative behavior and of social investigations returned to their previous level. Thus we can assume that the presence of adults accelerated social development of young horses and triggered adult-like behavior patterns. Those types of behavior remained after the adults were removed. Adults, when present, played also a hierarchical role of control and mediation since agonistic interactions among young horses were rarer and preferred social partners were more numerous. So young horses seem to behave more respectfully toward other young horses when adults are present.

Adult/young ratio in Przewalski horses

So we have seen that the presence of adults among young horses exerts a positive influence on the behavior of young horses. But what about the relative number of adults against the number of young horses ? Does it make any difference ? A recent study (Bourjade et al., 2009) was focused on this question in Przewalski horses. Those horses lived in semi-freedom in south of France and young horses that were studied belonged to five different naturally formed families. In those families, the adult/young ratio was different, ranging from 0,67 to 1,33. The kind of social interactions made by young horses (aggressive or positive interaction) as well as the distance to the nearest neighbor was recorded. It appeared that in groups where the adult/young ratio was high (this means more adults for one young), the aggression rate among young horses was lower than that in other groups. When this ratio was low, young horses stayed near to their neighbors for longer. There are also some behaviors that were not influenced by the adult/young ratio: the number of preferred spatial partner or the quantity of positive contacts. So regarding this data, we can say that the more adults that are present in a group of young horses, the better it is for the social development of those horses. Indeed there is less aggression among them and they are more bonded

to other young horses. The role of mediator played by the adult assumed in the study where adults were introduced into groups of young horses, seems confirmed here, since the more adults are present, the more this mediator role can be seen (mainly in avoiding aggressivity).

Therefore, those studies point out the fact that it is better for young horses not to be kept alone in a box or a pasture, it will be easier to train and have a less aggressive character if it is kept with other horses and especially with adults. So actually this is showing that the best would be to allow horses to remain in a diversified herd, just like what would be in natural conditions. Of course it is not frequently possible to do so for horse owners and this for many reasons (availability of other horses, necessity to separate genders to avoid unwanted reproduction,...). But this type of housing could be a solution for difficult or particularly aggressive young horses.

References:

E.Søndergaard, J.Ladewig Group housing exerts a positive effect on the behaviour of young horses during training *Applied Animal Behaviour Science*, Volume 87, Issue 1, Pages 105-118

Bourjade M, Moulinot M, Henry S, Richard-Yris MA, Hausberger M (2008) Could adults be used to improve social skills of young horses, *Equus caballus*? *Dev Psychobiol* 50: 408–417.

Boujade M, de Boyer des Roches A, Hausberger M. Adult-young ratio, a major factor regulating social behaviour of young: a horse study. [PLoS One](#). 2009;4(3):e4888. Epub 2009 Mar 18