

Foaling mares are totally relaxed – no stress

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Foaling appears to cause the opposite of a stress response. Credit: Vetmeduni Vienna

Foaling in horses is extremely fast. Labour and the active part of foaling, resulting in delivery of the foal, take 10 to 20 minutes and are considerably shorter than giving birth in humans or in cows. Is this brief period stressful for the animals or are horses more relaxed than humans when giving birth? This issue has been addressed by Christina Nagel and

colleagues, who closely observed 17 foalings at the Brandenburg State Stud in Neustadt (Dosse), Germany, as well as recording electrocardiograms before, during and after foaling. The researchers also took samples of saliva and blood and analysed the levels of stress hormones such as cortisol and epinephrine. As Nagel summarizes, "Normal foaling appears to cause just the opposite of a stress response".

Cardiac and circulatory demands remain at a low level

Surprisingly, during labour the heart rate of mares does not increase. On the contrary, the mares even miss some individual heart beats due to delayed stimulus conduction in the heart. In humans, such second-degree atrioventricular (AV) blocks often require medical treatment but many healthy [horses](#) show AV blocks at rest. On physical activity, e.g. when the horse is ridden, the heart beat becomes regular and the beat frequency increases. The finding of AV blocks during foaling suggests that mares are strongly influenced by the parasympathetic nervous system, which usually causes a state of rest and relaxation. Its antagonist, the sympathetic nervous system, would prepare the organism for a [stress](#) response but does not seem to be active while the animals are giving birth.

No stress during foaling

The level of [stress hormones](#) remains low in foaling mares and the researchers did not find an adrenaline rush at any point. Foaling clearly does not evoke a [stress response](#). The need to care for the newly born foal was also not perceived as stressful: contact between the mare and the foal was associated with a further state of relief and relaxation.

Horses thus experience [giving birth](#) very differently from human

mothers. They need a safe environment to give birth: all the foals in the study were born at night, when the stable was quiet. As the Head of the Research Group, Christine Aurich, explains, "Parturition in horses requires a state of relaxation in the mare. This is an advantage in wild horses because [mares](#) can postpone labour until they perceive the environment as calm and safe. Once this is the case, foaling proceeds within a very short time."

More information: "Parturition in horses is dominated by parasympathetic activity of the autonomous nervous system", Christina Nagel, Regina Erber, Natascha Ille, Mareike von Lewinski, Jörg Aurich, Erich Möstl and Christine Aurich. *Theriogenology*, 2014. [dx.doi.org/10.1016/j.theriogenology.2014.03.015](https://doi.org/10.1016/j.theriogenology.2014.03.015).

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