

Shearing of alpacas is necessary, but also stressful

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Credit: Vetmeduni Vienna

Alpacas, a species of New World camelids, have very thick wool. This

requires them to be shorn regularly, just like sheep. But shearing is a source of stress for the animals. This has now been confirmed for the first time by researchers from Vetmeduni Vienna based on an evaluation of clinical, hormonal and behavioural parameters. The scientists were able to show that even the act of restraining the animals in different positions released higher concentrations of the stress hormone cortisol. Shearing the animals on the floor or on a special tilt table also resulted in changed clinical parameters such as heart rate. These values remained at normal levels only when the animals were sheared in a standing position. But shearing animals in the standing position is only possible if the alpacas do not resist being restrained with a risk of injury to themselves or to their handlers. These animals should be restrained on a mattress on the ground or on a tilt table. The study was published in *Veterinary Records* with organisational and financial support from the Alpaca Association e.V. of Germany and the Austrian Buiatric Association.

Alpacas are members of the camel family and, like llamas, guanacos and vicuñas, belong to the New World camelids. Domesticated they are of great importance in South America, especially in Peru, where they have been kept and bred for their wool for thousands of years. In Europe, on the other hand, alpaca breeding is relatively uncommon. But the number of animals and breeders has been growing for years. Just like sheep, alpacas must be shorn regularly to harvest their wool. The procedure is an unusual one for the animals and thus a source of [stress](#). An interdisciplinary team of researchers from Vetmeduni Vienna has now investigated for the first time which shearing position produces the least amount of stress for the animals and therefore represents the least stressful method from the point of view of the animal's wellbeing.

Stress hormone detectable in saliva and faeces

Unlike sheep, which are usually turned onto their backs, alpaca breeders use several different methods of restraint. The animals are either held by

assistants in a standing position, restrained on a mattress on the ground or placed on special shearing tables. Previously, there had been no studies as to which method produced the least stress among the animals. "The stress of the animals can be determined based on clinical parameters, by observing the animals' behaviour or through the laboratory analysis of saliva and faeces," explains senior author Susanne Waiblinger of the Institute of Animal Husbandry and Animal Welfare. Saliva and faeces contain cortisol, which is an important stress marker. Saliva cortisol is considered to reflect a short-term stress response, whereas faecal cortisol shows longer-lasting stress responses. Besides measuring stress-induced hormonal levels, the researchers also looked at clinical parameters, such as [heart rate](#), respiratory rate and body temperature, as well as the animals' behaviour.

Clinical parameters nearly unchanged when shearing in standing position

To describe the impact of shearing on the alpacas, the team divided its study into two parts. Part one studied the level of stress caused by each of the restraining methods, as the shearing itself represents a separate stress factor. In part two, the animals were divided into groups and shorn using one of the methods. Animals that were restrained without shearing exhibited no significant changes in terms of the clinical parameters. Both the respiratory rate and heart rate remained at normal levels. "The body temperature was unchanged during this part of the study. But if the animals were restrained and also shorn, the clinical values changed significantly in the animals that were restrained on the floor or on the table. For all restraining methods, however, body temperature remained unchanged. This makes alpacas different from sheep or from the alpaca's relative, the vicuña," says first author Thomas Wittek of the University Clinic for Ruminants.

Stress hormone shows that alpacas are only stressed by the restraint

The analysis of the cortisol concentrations in saliva and faeces, on the other hand, showed that the animals were also stressed in the first part of the study despite the almost unchanged clinical parameters. Saliva cortisol levels were clearly higher after just 20 minutes and increased even further within 40 minutes. The cortisol concentrations then remained unchanged, although the higher levels could be demonstrated in faeces even 33 hours later. During restraint and shearing, the cortisol values also increased regardless of the shearing position. When animals were restrained on the ground, however, this led to a more significant increase of hormone levels over time compared to the other two methods. Faecal cortisol levels remained at the same high levels in all three groups.

Animal behaviour just as important for choice of restraining method

"At first glance, it appears difficult to compare or associate the two experiments," says Wittek. "But we can assume that just the sound of the shearing machine and the duration of the restraint cause stress for the animals. This means that you can practically add the values." Merely positioning the animals is a source of stress, which then increases further through the act of shearing. The standing position was tolerated the best by the alpacas in terms of the clinical parameters. Restraining the animals in the standing position, however, only makes sense and is only possible if the alpacas remain calm. If they resist from the beginning, the risk of injury to themselves or to one of the handlers is too great, says first author Wittek. These animals should therefore be restrained on a table. The handlers usually know the behaviour of their [animals](#) and can decide in advance which method to use.

More information: T. Wittek et al. Clinical parameters and adrenocortical activity to assess stress responses of alpacas using different methods of restraint either alone or with shearing, *Veterinary Record* (2017). [DOI: 10.1136/vr.104232](https://doi.org/10.1136/vr.104232)

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