

Alpacas found to be the only mammal to directly inseminate the uterus

April 30 2024, by Bob Yirka



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A pair of biologists from Mount Holyoke College, working with a colleague from North American Camelid Studies Program, the Nunoa Project, has found that the male alpaca thrusts his penis all the way into the uterus of the female during mating, making the camelid the only mammal known to do so.

In their [project](#), reported in the open-access journal *PLOS ONE*, Patricia Brennan, Sarah Bacon and Stephen Purdy studied the reproductive tracts of several female alpacas shortly after they were culled for meat to learn more about how the animals mate.

Observations of [alpaca](#) mating by breeders have led to suggestions that the male pushes his [penis](#) farther into the female than other mammals. It has also been noted that the male has an unusual penis—it is very long and thin, and has been described as a fibro-elastic phallus. It is capped with a hard cartilage tip and appears almost spear-like, suggesting the male uses it to deposit sperm directly into the [uterus](#), rather than in the vagina, like all other known mammals. To find out if this might be the case, the researchers ventured to a farm where alpacas are raised for meat.

The team dissected several of the females that had been killed shortly after they had been mounted by a male, focusing specifically on the reproductive organs. They found that the females were bleeding heavily along several parts of the tract from the hymen to the cervix, the tip of the uterine horn and on into the uterus. They found the same evidence in all the females that had recently mated. In sharp contrast, there was no bleeding in females who had not been recently mounted.

The researchers say this evidence suggests that the males thrust their penis all the way into the uterus during mating. The researchers also found that the strong thrusting with the sharp-tipped penis also led to inflammation throughout the reproductive tract.

The researchers conclude that the mating style of the alpaca very likely improves the odds of a successful fertilization and pregnancy, noting that the inflammation may actually help by assisting the fertilized egg to implant on the uterine wall.

More information: Patricia L. R. Brennan et al, Intra-horn insemination in the alpaca *Vicugna pacos*: Copulatory wounding and deep sperm deposition, *PLOS ONE* (2024). [DOI: 10.1371/journal.pone.0295882](https://doi.org/10.1371/journal.pone.0295882)

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Citation: Alpacas found to be the only mammal to directly inseminate the uterus (2024, April 30) retrieved 16 August 2024 from <https://phys.org/news/2024-04-alpacas-mammal-inseminate-uterus.html>

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