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By: Stefan Anitei, Science Editor



## [The Largest Clitoris in the World](#)

### *When females are more "male" than males*

The clitoris is a female sexual organ in mammals - that is common knowledge by now. However, have you ever wondered why do mammalian females have one in the first place? Well, at the beginning of its development, the embryo has no gender. As it prepares to develop into either of the two genders, it forms bud tissues that will later generate either a penis or milk glands. After the first stage of its development is over, the embryo starts generating sex hormones according to its chromosome information of what it's going to be, male or female. Male hormones trigger the development of the penis, but female hormones stop the development of the penis bud, which thus remains a vestigial clitoris. As a side note, this is also why males also have nipples. Thus, the clitoris is the homologous female organ for the penis, the only difference between the two being that it lacks urethra (females do not urinate through their clitoris). The clitoris has only the function of inducing sexual excitement - it even has erectile tissue and a gland, just like the penis. What's bizarre is that, in some mammal species, the clitoris can grow very large, reaching lengths that have prompted scientists to refer to it as to a "pseudopenis". So far, researchers have discovered the following cases of female mammals with pseudopenises: the European mole, some lemurs (a kind of primitive monkey from Madagascar), squirrel monkeys (from tropical America), binturong (a type of arboreal civetcat from Southeast Asia) and, of course, the most famous case, the African spotted hyena. The labia of the female spider monkeys (from tropical America) are also elongated and may be mistaken for a penis but, until now, their function has been unclear. Female squirrel monkeys, for instance, use their large clitoris to display dominance over other individuals in the hierarchy of the group. It is presumed that, in other species as well, the pseudopenis plays the same role. Amongst these female mammals, the spotted hyena is by far the largest species: consequently, it is here that we also see the largest clitoris in the animal kingdom. In fact, the very well developed clitoris of the spotted hyena is extremely different from other pseudopenises. In the case of this animals, the vulva is fused, and the clitoris is used for urination, mating (when the clitoris contracts, while the opening widens to allow penetration) and giving birth. [img=4]To make matters even more complicated, the females also have a fake scrotum made by the enlarged joined vulva, and pseudo-testes filled with fatty tissue. You can imagine the surprise of the first explorers of Africa, back at the beginning of the 19th century, when they saw that their caged "male" hyenas could actually give birth! For a long time, the species was believed to be hermaphrodite. In fact, only the shape of the gland marks the difference between a penis and a clitoris in spotted hyenas. The erection of the penis or clitoris, which is voluntary in both sexes, is certainly a display of submission in both male and female spotted hyenas. Studies have also revealed that the clitoris plays a high social role in the clans of these animals. The subordinate female individuals lick the clitoris of a higher-ranked female as a clear sign of submission and obedience. Nevertheless, this is not something that happens only amongst females, since males (which are inferior to all females) and cubs also lick the clitoris of dominant females. There is also the situation when females lick each other's clitorises, which is a greeting or an affective behavior that strengthens links between individuals. Oppositely, a female will never lick the penis of a male, since it is subordinate - the highest ranked male is inferior to the lowest ranked female. [img=2]Another curious fact about female spotted hyenas is that they carry higher levels of testosterone than the males in their blood, and this is something that can be observed as early as the embryo stage. Later in life, females become bigger in size and more aggressive than their counterparts, which makes them the dominant sex in the spotted

hyena society. That's why biologists initially believed that the development of the clitoris was caused by the huge quantities of testosterone to be found in the fetus. But, since anti-androgens administration did not stop the growth of the huge clitoris, this character is now regarded as genetic. Another element that makes the female spotted hyena be so dominant within the clan is also the fact that it has full control of and during mating, since penetration is practically impossible without its cooperation. Birth is particularly difficult because the clitoris itself is narrow. However, since it breaks during the first parturition, the subsequent births are easier. There are countless cases of captive females giving birth for the first time that had stillborn cubs because of the long and painful labor. In the wild, the survival rates of females fall sharply when giving birth for the first time. Just to state the obvious, we can easily conclude that the first parturition is extremely hazardous for the spotted hyena females. This evolutionary trade-off is somewhat like the one noticed with the human bipedal position and the pelvis bones in women. Whatever might have been its causes, it seems to have paid off, as the spotted hyenas, due to their social organization, are the single largest dominant predators in the African savanna, with numbers surpassing by far that of the lions and leopards. The other hyena species (striped and brown) do not present the trait of the enlarged clitoris. ***Image credit: Kay Holekamp's laboratory, Michigan State University***