

# INNERVATION OF UTERINE WALL IN ASPECT OF MUSCULAR LAYER CONTRACTION IN CAT'S REPRODUCTION CYCLE

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## ABSTRACT

Female cats are seasonally polyestrous, which means they may have many periods of heat. The season begins in January or February and ends in late October. The adult cat is seasonally polyestrous, cycling repeatedly throughout the breeding season, unless interrupted by pregnancy or illness. Several major phases compose the estrous cycle, and variations in the level of normal circulating hormones contribute to these different phases (proestrus, estrus, diestrus, anestrus, nonestrous). Proestrus is the period that precedes estrus when males are attracted to nonreceptive females. Nonestrous is the period of hormonal inactivity. The innervation of the uterine wall depends on the phase of the reproductive cycle. A cat's reproductive cycle is stimulated by the longer period of daylight as winter turns to spring and is regulated by hormones produced both in the brain and in the ovary. These hormones not only produce the changes in the reproductive organs needed for pregnancy but also cause some dramatic departures in a cat's normal behavior. Hormones influence fertility and reproductive behavior in both the dog and the cat, although their heat and reproductive cycles vary depending on environment and sexual behavior.

In cats, mating behavior is required to induce ovulation. Domestic cats usually reach sexual maturity (puberty) between five to 12 months, at which time they experience their first estrus. The ovulation is the liberation of one or more ova from the ovaries to the oviduct and the fertilization is the moment in which the spermatozoa join with the free ova. It is fundamental to indicate that the female cat, in contrast with the female dog, does not have a spontaneous ovulation. This ovulation is induced by the mating.

**Key words:** innervation, cat reproduction cycle

## **INTRODUCTION**

The aim of this study was define to localization and distribution the elements of nervous system (ganglion, cells) in the uterine wall. In the fact of growing interest of cat's breeding it is impossible to avoid subject area relating physiology and cat's reproduction. The morphological modification in innervations of kitten uterus and it's dynamic changes are poorly understood. Modification in structure of reproduction organ are well-known however/but change relating innervations dependent on reproduction's phase is the subject of this study.

## **MATERIAL AND METHODS**

The material was uterine horns taken from 11 cats in different stages of reproductive cycle.

The investigation of dynamics contraction in uterus realized by Videoekstensometer (*Messphysik ME 46*) and contractile reaction on electric impulse were recorded by PC computer. It is a visual reading tension by numbered vision analysis .The mean property is: simplicity in use, accurate and non-contact during measurement investigation. After analysis in videoekstensometer material was fixed and satined with osmium tetraoxide for the presence of nerve fibers in uterine horns

## **RESULT AND DISCUSSION**

The investigations confirm necessity realization analysis which including uterus contraction and hormone's impact. In the first anoestral group, uterine horn has very regular, repeatability contraction. The second group, diestral uterus characterized an average in force contraction. Smooth muscle cells during pregnancy, undergo strong hypertrophy, what prepare the reproductive organ to the moment of parturition. The histological analysis of uterine horns in different stages of reproductive cycle confirm the fact, that number of nerves innervating uterine wall vary and have influence on muscle activity.

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