



Does Weight affect Fertility?

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In this article, Emmanuel Fontaine explains the effect of fat and the consequences of excess weight conditions in dogs. You will be able to understand why monitoring the animal's body condition and its food intake are key to optimising fertility.

Excellent work has already been done on the topic of how body condition can potentially impact fertility, and even if we don't know as much as in large animals or humans, there are findings that illustrate the connection between the two systems that can already be implemented in the field.

The role of obesity in fertility issues is more common in overweight-obese pets. How to explain this? There are two main reasons here.

Fat is also an Endocrine Tissue

Overweight conditions means more fat tissue. And while fat tissue is usually seen as an "energy-storage-only" kind of tissue, this is actually not the case. Indeed, fat tissue has also an endocrine function, which means it secretes hormones including sex hormones like oestrogens, progesterone, testosterone.

It secretes another hormone called leptin, which plays a particularly interesting role when it comes to reproduction. The reproductive system is indeed well-organized and different hormonal secretions at different levels participate in its proper functioning and regulation. It is a well-balanced system that needs to stay balanced.

This is where the trouble is: overweight conditions can disrupt this equilibrium. For example, leptin modifies the hormonal secretions of the hypothalamus – which is considered as the pacemaker of the reproductive function.

Overweight means an excess of fat, which produces more leptin. By modifying the hypothalamus secretions, leptin can therefore act as a potential hormonal disrupter.

In humans, being overweight is often associated with diseases like PCOS (Poly Cystic Ovarian Syndrome), which can be influenced by this kind of hormonal misbalance. In small animals, we do suspect that

overweight conditions can favour the occurrence of anovulation, ovarian cysts, and early embryonic death.

Gametes and Embryos Don't Like Increases in Body Temperature

Fat tissue also plays an important role in the body's insulation. In overweight individuals, the body temperature is usually a little bit higher than what is normally found.

Not a big deal? Maybe, but we know that embryos and gametes (sperm cells and oocytes) are sensitive to temperature variations. If the temperature increases, their capacities can indeed be altered.

This phenomenon is well described in the male dog, where infiltration of fat tissue in the scrotum is followed by an increase in temperature that can lead to a dysfunction in the production of sperm cells and in the worst cases, to a total arrest of the testicular sperm production.

When it comes to breeding animals therefore, there is only one simple rule to follow: only breed individuals which are in optimal body conditions. Therefore in order to optimize fertility, it's important to monitor the animal's body condition and manage food intake (through rationing).

