

# Too Much, Too Little: The Fat Factor in Canine Reproduction – Part 1

Guest blog by [Dr Emmanuel Fontaine](#), Scientific Communications Veterinarian at Royal Canin North America

*Nutrition is far more than just feeding; I believe it can be the foundation of your breeding success. And when I speak to dog breeders on the topic, I want to equip them with essential tools that can transform their kennel management. One such tool is the [Dog Body Condition Score chart](#), published by the World Small Animal Veterinary Association. And this chart isn't merely a reference... Indeed, by aligning nutrition with reproduction, you can set up a new standard of excellence.*

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I strongly recommend downloading the [Dog Body Condition Score \(BCS\) chart](#) and placing it prominently in your kennel. This chart is a powerful tool that visually describes nine different body conformations, ranging from too thin (BCS=1) to dangerously overweight (BCS=9). And by regularly reviewing it, you can learn to assess your dogs' body condition with accuracy. The ideal range you should aim for is a BCS of 4 or 5—this is where your dogs are neither too lean nor too heavy, striking the perfect balance for health and performance. Why is this so important? Because achieving and maintaining the ideal BCS can significantly impact your dogs' overall well-being, fertility, and longevity. To learn more about how this simple yet effective tool can transform your breeding program, keep reading!

## Fat: More Than Just Energy Storage

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### Hormonal Disruption

When we think of fat tissue, we often see it as just a storage site for excess energy.

But fat is much more than that—it's actually an endocrine tissue, meaning it secretes hormones, including sex hormones like estrogen, progesterone, and testosterone. It also produces leptin, a hormone that plays a crucial role in reproduction.

#### **Fat is truly an endocrine powerhouse.**

The reproductive system is finely tuned, with all hormones working together to maintain balance. However, when a dog is either overweight or underweight, this balance can be disrupted.

**Excess fat leads to higher levels of leptin and other sex hormones, while too little fat can cause a deficiency in these crucial hormones.**

Both scenarios can throw off the hormonal control of reproduction, with leptin impacting the hormonal secretions from the hypothalamus—the key regulator of reproductive function.

In humans, these conditions can lead to conditions like PCOS (Polycystic Ovarian Syndrome), anovulation (=not releasing eggs), or reduced sperm production.

In dogs, we suspect that being either overweight or underweight may contribute to issues such as **anovulation, ovarian cysts, and low sperm quality** as well.

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## Heat Stress: Fat's Effect on Gametes

Fat also insulates the body.

And in overweight dogs, **this extra insulation can raise body temperature slightly.**

While that might not seem like a big deal, it can have serious consequences for reproduction. We refer to the impact of increased body temperature on reproductive cells as "**heat stress**."

**Gametes (sperm and eggs) and embryos are highly sensitive to temperature changes, and even a small increase can impair their function.**

In male dogs, this issue is particularly concerning.

When excess fat accumulates in the scrotum, it raises the temperature, disrupting sperm production. **In severe cases, this can even lead to a complete halt in sperm production.**

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## The Hidden Dangers of Fat Infiltration

Fat does not just accumulate under the skin; **it can also infiltrate muscles, including the myometrium, the muscular layer of the uterus responsible for contractions during whelping.**

**Maintaining the right balance of fat is crucial because both too much and too little fat can disrupt the normal pattern of uterine contractions.**

In overweight and obese dogs, excess fat can weaken the myometrium, leading to less frequent and weaker contractions. This is a serious concern, as strong, regular contractions are essential for a smooth birth. On the other hand, insufficient fat can also impair the strength and frequency of these contractions.

**When the balance is off, whether due to too much or too little fat, the risk of difficult births increases, putting both the mother and her puppies at risk.**

Overweight, obesity, and underweight conditions have all been identified as significant risk factors for complications during whelping, and they can dramatically raise the chances of neonatal mortality in dogs.

# Why Dog Breeders Must Monitor Body Condition

**A study from the Netherlands revealed that 18.6% of show dogs had a BCS above 5 (=overweight), with 1.1% scoring above 7 (=obese), indicating significant overweight and obesity issues.**

One might argue that these findings may not apply universally to other countries, but I believe **we should see this as an important reminder—almost a cautionary tale.**

It shows us that such issues do exist and underscores the need to do everything possible to prevent the potential negative side effects associated with overweight and obesity in breeding dogs.

**That's why I firmly believe the Body Condition Score Chart is a must-have tool for every dog breeder's kennel.**

**The practical takeaway is straightforward: breed only dogs that are in optimal body condition, with a Body Condition Score of 4-5 as the benchmark every breeder should aim for.**

If a dog is overweight or underweight, it's essential to restore them to their ideal BCS before attempting breeding. This principle applies equally to both males and females, as optimal body condition is crucial for reproductive health.

In females moreover, **monitoring weight gain during gestation is crucial**, as this is a phase where they can either gain or lose weight depending on the quality of their nutrition.

During the first 42 days of gestation, it's important to feed the female a maintenance diet (= a standard adult diet) or [a diet meant for this first part of gestation](#).

After 42 days, as the pregnancy progresses, the energy intake should be gradually increased by 10% each week until parturition. The simplest way to meet this increased energy demand is to switch to a growth diet, such as a puppy diet or [a diet specifically designed for the second stage of gestation](#), after the 42-day mark. This ensures the female gets the necessary nutrients to support both her health and [the developing puppies](#).

**At the time of parturition, females should ideally weigh between 115-125% of their optimal body weight.**

This information is invaluable for monitoring their weight gain throughout gestation.

**By tracking their progress, you can ensure that they are gaining the right amount of weight, reducing the risk of overweight or underweight conditions that could complicate the pregnancy.**

[There are online tools available to help you monitor this process](#), ensuring that the female remains on track for a healthy whelping.

*Part 2 will be included in our next Newsletter*

## **Practical Nutrition Tips for Breeding Success**

From a practical standpoint, when it comes to the nutrition of breeding dogs, everything boils down to answering three key questions: **what to feed, how much to feed, and how to feed it.**

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***Emmanuel Fontaine** graduated from the Toulouse Veterinary School in 2004, he continued his studies at the Alfort Veterinary School (Paris) as trainee Vet in the domestic carnivore unit of the Reproduction Department. From 2005 to 2011, he worked at the Centre d'Etude en Reproduction des Carnivores (CERCA) [Research Centre for Reproduction in Carnivores], a unit specializing in pet breeding assistance. Emmanuel Fontaine is also qualified at the European College for Animal Reproduction (ECAR) and completed his PhD in 2012 on the use of GnRH agonists in canines. He joined Royal Canin Canada 's PRO team in September 2011. He currently works as Senior Scientific Communications Veterinarian for Royal Canin North America.*