**Why Obesity Matters and the Beneficial Role of Isoflavones and Protein**

New research suggests it’s time to rethink nutritional management strategies for overweight and obese dogs and cats.

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New research suggests it’s time to rethink nutritional management strategies for overweight and obese dogs and cats.
The growing problem of pet obesity.

- Obesity is common among dogs and cats, with 25% to 40% of adult cats and dogs being overweight or obese.¹,²
- Obesity in dogs and cats is associated with many diseases³–⁶ and reduced life span.³⁻⁵ Obesity contributes to these diseases via two mechanisms: 1) metabolic changes associated with excess adipose (fat) tissue, and 2) physical-mechanical stress related to the increased fat mass itself.

How does obesity link to disease?

- Veterinarians have long known that excess body weight places additional mechanical stress on joints and increases cardiac workload.
- Adipose tissue, once considered passive energy storage, is now recognized as an important endocrine organ that actively secretes hormones — leptin, adiponectin and resistin — and many cytokines, including tumor necrosis factor-α (TNF-α) and interleukin-6 (IL-6). Collectively known as adipokines, these mediators result in a chronic, systemic, mild inflammation and promote insulin resistance.⁶
- Studies also show obesity is associated with greater production of free radicals in excess fat tissue, which leads to increased systemic oxidative stress.⁷ Oxidative stress contributes to tissue damage and can play a role in the development of several diseases.
- A growing body of research suggests changes in adipokine secretion provide the link between excess body weight and chronic health conditions, including canine osteoarthritis and feline diabetes mellitus.

Rethinking nutrient composition of weight management diets.

- Weight loss in humans correlates with decreased oxidative damage and markers of inflammation.⁸⁻¹¹ It also can result in improvement in osteoarthritis, diabetes and other conditions.¹²
- Feeding an appropriate diet for weight loss is important. Feeding less of a pet’s current diet may restrict essential nutrients, producing nutritional deficiencies. A low-calorie diet with increased nutrient-to-calorie ratios, particularly an increased protein-to-calorie ratio, can provide helpful benefits.
- Certain ingredients, such as soy, are associated with health benefits when regularly consumed in sufficient quantities.¹³ When used as a component in a weight management diet, research indicates soy isoflavones may play an important role in helping obese dogs achieve healthy weight control.¹⁴,¹⁵

**Dietary protein is especially important during weight loss.**

- Low-calorie weight-loss diets with a high protein-to-calorie ratio have been proven to significantly increase percentage of fat lost and reduce loss of lean body mass in dogs and cats during weight loss.¹⁶,¹⁷
- Compared to carbohydrates and fats, protein consumption increases energy use after a meal and may contribute to satiety.¹ Increased energy expenditure contributes to negative energy balance.
• In a recent study, a high-protein diet reduced markers of oxidative stress in obese cats during weight loss compared to those fed a high-carbohydrate, normal-protein diet.18 (Figure 1)

**Figure 1.** Mean plasma values of malondialdehyde, a marker of oxidative stress, from obese cats fed a high-protein diet vs. a high-carbohydrate diet during weight loss.18

![Graph showing changes in MDA](image)

*Changes in MDA from week 0–6 and week 6–12 differ significantly between dietary treatments (p<0.05).

**The role of soy isoflavones in healthy weight management.**

• Soybean meal, soy protein isolate and soy protein concentrate have been safely used in both human and animal diets, including those for dogs and cats, for years. Isoflavones are natural antioxidants found in soybeans. The major bioactive soy isoflavones are daidzein, genistein and glycitein.

**Table 1.** Comparison of isoflavone content in soybean meal and soybean germ meal

<table>
<thead>
<tr>
<th>Isoflavone</th>
<th>Soybean meal</th>
<th>Soybean germ meal</th>
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</thead>
<tbody>
<tr>
<td>Daidzein</td>
<td>32%</td>
<td>52%</td>
</tr>
<tr>
<td>Genistein</td>
<td>66%</td>
<td>17%</td>
</tr>
<tr>
<td>Glycitein</td>
<td>3%</td>
<td>31%</td>
</tr>
<tr>
<td>Total Isoflavones</td>
<td>1490 mg/kg</td>
<td>6260 mg/kg</td>
</tr>
</tbody>
</table>

• Soybean germ meal contains four times the level of isoflavones as soybean meal.19 It also contains a high percentage of daidzein and glycitein, which have been demonstrated to minimize body weight gain and abdominal fat accumulation without affecting food consumption.20 (Figure 2)

• Nestlé Purina has been studying the health benefits of isoflavones from soybean germ meal for more than five years. This research indicates a weight-loss diet containing isoflavones from soybean germ meal reduces markers of oxidative stress and improves insulin clearance in overweight dogs during weight loss.19

• Research also demonstrates a nutrient-balanced diet containing high levels of isoflavones from soybean germ meal reduced weight gain (Figure 3) and body fat accumulation (Figure 4) by more than 50% in overfed dogs. These effects were more pronounced in neutered male dogs.14,15

**Figure 2.** Daidzein, glycitectin and estrone reduced weight gain in ovariectomized (OVX) rats.28

![Graph showing changes in body weight](image)

*Control vs Isoflavones, p<0.043 and 0.041 at 9 and 12 months, respectively

**Figure 3.** Changes in body weight relative to baseline of dogs fed an isoflavone-containing diet or a control diet.19

![Graph showing changes in % body fat](image)

*Isoflavone group was significantly different (p<0.05) from control from 6 to 12 months

• Nestlé Purina studies also confirm the energy metabolism of dogs fed a diet enriched with isoflavones was 13% higher than the energy metabolism of dogs fed the control diet.19
Purina Veterinary Diets® OM Overweight Management® brand Canine and Feline Formulas.

- Purina Veterinary Diets OM Overweight Management brand Canine and Feline Formulas provide high protein-to-calorie ratios to help maintain lean body mass, stimulate energy metabolism, increase the percentage of fat loss and promote satiety during weight loss.
- OM Canine and Feline Formulas provide optimal levels of dietary fiber to promote satiety while decreasing the number of calories consumed.
- OM Canine Dry Formula has been reformulated to contain isoflavones from soybean germ meal to help support healthy weight loss, reduce obesity-associated oxidative stress and minimize the risk of weight regain.

References:


For more information:
1-800-222-VETS (8387), 8:00 a.m.–4:30 p.m CT weekdays
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