ENHANCING NOVEL-PROTEIN FOODS
NOVEL-PROTEIN FOODS

KEY POINTS:

- A clinical study was conducted to determine if novel-protein foods with enhanced levels of fatty acids and antioxidants would aid in the management of canine dermatitis due to atopy or food allergy.
- At the end of the 8-week study, pet owners perceived improvements in itchy skin, otitis, skin redness and hair loss. Veterinarians recognized improvement in the clinical signs of inflammation and pruritus.
- This clinical study shows that novel-protein foods with enhanced levels of omega-3 fatty acids and antioxidants are useful as an aid in the management of dogs with chronic, non-seasonal pruritic dermatitis, due to atopy and/or food allergy.

EVALUATING THE BENEFITS OF A NOVEL-PROTEIN FOOD ENHANCED WITH FATTY ACIDS AND ANTIOXIDANTS ON DOGS WITH DERMATITIS DUE TO ATOPY OR FOOD ALLERGY

A prospective, 8-week study was conducted to determine the effects of feeding a new food to dogs with chronic pruritic dermatitis due to atopy or atopic dermatitis.

- The two test foods contained either potato and salmon or potato and venison as major ingredients, with higher levels of omega-3 fatty acids than those found in typical commercial dog foods (total omega-3 fatty acids 0.66 – 1.21% dry matter).
- Eighty-eight dogs from 18 private veterinary practices in 10 states participated in the study, which was conducted from November 2004 to March 2005.
- The most common breeds of dogs included in the study were Dachshund, German shepherd, golden retriever, Labrador retriever, Shih Tzu, West Highland white terrier and mixed breed dogs.
- Owners and veterinarians evaluated clinical manifestations of chronic pruritic dermatitis, and erythema, lichenification and excoriation.
- Owners evaluated skin and coat quality and overall quality of life.

STUDY RESULTS

At the conclusion of the study, pet owners and veterinarians reported the following results after feeding the test foods to dogs for 8 weeks (results for each formula are combined):

**Pet Owner Evaluation**
- 61% noticed improvement in pruritus (scratching, face rubbing and licking)
- 62% noticed improvement in otitis (shaking head and ear scratching)
- 55% noticed improvement in skin and coat (hair sheen, hair loss, dandruff and overall skin and haircoat condition)

**VETERINARIAN ASSESSMENT AT 8 WEEKS**

<table>
<thead>
<tr>
<th>Clinical Sign</th>
<th>Marked</th>
<th>Moderate</th>
<th>Slight</th>
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<tbody>
<tr>
<td>Pruritus</td>
<td>27%</td>
<td>36%</td>
<td>13%</td>
</tr>
<tr>
<td>Otitis</td>
<td>21%</td>
<td>21%</td>
<td>25%</td>
</tr>
<tr>
<td>Skin &amp; Coat</td>
<td>34%</td>
<td>19%</td>
<td>25%</td>
</tr>
<tr>
<td>Erythema</td>
<td>40%</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>Lichenification</td>
<td>27%</td>
<td>36%</td>
<td>13%</td>
</tr>
<tr>
<td>Excoriation</td>
<td>21%</td>
<td>21%</td>
<td>27%</td>
</tr>
<tr>
<td>Dandruff &amp; Overall Skin &amp; Haircoat Condition</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
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</tbody>
</table>
Veterinary Assessment

- 78% of dogs experienced an improvement in erythema (34% marked, 19% moderate, 25% slight)
- 76% of dogs experienced an improvement in lichenification (27% marked, 36% moderate, 13% slight)
- 68% of dogs experienced an improvement in excoriation (21% marked, 21% moderate, 27% slight)

In addition, the combined veterinarian-pet owner interviews conducted at the completion of the study found that more than half of the dogs (63%) showed improved overall health after being fed the test foods for 8 weeks.

<table>
<thead>
<tr>
<th>Clinical Sign</th>
<th>Marked</th>
<th>Moderate</th>
<th>Slight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erythema (n=88)</td>
<td>34%</td>
<td>19%</td>
<td>25%</td>
</tr>
<tr>
<td>Lichenification (n=84)</td>
<td>27%</td>
<td>36%</td>
<td>13%</td>
</tr>
<tr>
<td>Excoriation (n=73)</td>
<td>21%</td>
<td>21%</td>
<td>27%</td>
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</table>

CONCLUSION

Results of this study confirm that the use of novel-protein foods with enhanced levels of omega-3 fatty acids and antioxidants is useful as an aid in the management of dogs with chronic, non-seasonal pruritic dermatitis due to suspected atopic dermatitis and/or adverse food reactions. Pet owners perceived improvements in itchy skin, otitis, skin redness and hair loss. Veterinarians recognized improvement in clinical signs of acute and chronic inflammation and pruritus. Both veterinarians and pet owners detected improvements in the overall skin and coat condition, as well as the overall health of most dogs.

NUTRITIONAL RECOMMENDATION

This clinical study provides data that illustrate the potential benefits of feeding a novel-protein food high in omega-3 fatty acids and antioxidants to dogs with chronic, non-seasonal pruritic dermatitis. Based on these findings, the high levels of omega-3 fatty acids and antioxidants found in Hill's® Prescription Diet® Canine d/d® pet food make this food a superb choice for the nutritional management of dogs with suspected dermatitis due to atopy or food allergy.
CANINE DERMATITIS STUDY SYNOPSIS

Allen TA, Fritsch D. A multi-center clinical study of therapeutic foods in dogs with chronic, non-seasonal pruritic dermatitis due to atopy and/or adverse reaction to food. Final study report #CLIN28983R. Hill’s Pet Nutrition Center, Topeka, Kansas, 2005.

BACKGROUND

The purpose of this prospective, multi-center clinical study was to determine if novel-protein therapeutic foods with enhanced levels of fatty acids and antioxidants aid in the management of chronic pruritic dermatitis in dogs with suspected atopic dermatitis and/or adverse reactions to food. The test foods were appropriate for adult dogs and were available in dry and wet forms. Potato and salmon were major ingredients in one food, and potato and venison were major ingredients in the other food.

STUDY DETAILS

The diagnosis of chronic, non-seasonal pruritic dermatitis due to atopy and/or adverse reactions to food was based on history, typical clinical signs and ruling out other pruritic skin conditions. For dogs to be included in the study, at least three of the following major features must have been present—pruritus, facial and/or digital involvement, lichenification of the flexor surface of the tarsus or extensor surface of the carpus, chronic or chronically relapsing dermatitis, familial history of atopy, breed predilection, or positive diagnosis of adverse reaction to food based on elimination food trials. The following minor features were often present—onset before 3 years of age, facial erythema or perioral inflammation, bacterial conjunctivitis, superficial staphylococcal pyoderma, or positive allergy test (intradermal tests and/or allergen-specific IgE serology). A positive allergy test or positive elimination food trial was not required for inclusion in the study.

As appropriate, other pruritic skin conditions were ruled out using standard diagnostic or therapeutic methods. Dogs with a positive dietary elimination trial for salmon or venison were excluded. Dogs exhibiting acute exacerbations of bacterial pyoderma or Malassezia dermatitis resulting in increased pruritus or erythema were excluded. However, once the acute flare-up had been successfully treated, the dog was eligible for enrollment.

Nutritional supplements or foods containing high levels of omega-3 fatty acid sources (e.g., fish oil, fish meal or flaxseed oil) were not permitted within 12 weeks of the start of the study. Additional general exclusion criteria included major concurrent systemic diseases such as diabetes mellitus, hypothyroidism, hyperadrenocorticism and kidney failure, concurrent illness or disease that made completion of the 8-week feeding period unlikely, surgery anticipated or planned during the feeding period, and pregnancy or the likelihood of pregnancy during the study.

Standard treatments for atopic dermatitis including allergen avoidance, allergen-specific immunotherapy, symptomatic anti-inflammatory therapy and antimicrobial therapy were permitted as long as drugs, doses and frequency of administration remained constant from the time of previous food administration through the completion of the study. Nutritional supplements such as vitamin supplements without omega-3 fatty acids were permitted. Medications that were permitted included antimicrobial therapy, antihistamines, topical anti-inflammatory agents, cyclosporine and glucocorticoids.

Owners and veterinarians evaluated clinical manifestations of chronic pruritic dermatitis, skin and coat quality, and overall quality of life. A time-series design was used with no concurrent control group. Dogs were examined pre-feeding and 4 and 8 weeks after initiation of feeding the test foods. Test foods contained...
either potato and salmon or potato and venison as major ingredients, with total omega-3 fatty acid contents higher than typical dog foods (total omega-3 fatty acids 0.66% – 1.21% dry matter) and added antioxidants. For a given case, the same veterinarian performed all clinical assessments (initial, week 4 and week 8). A scoring system based on the skin lesions typically associated with atopic dermatitis was used. The system was based on severity (0-none, 1-mild, 2-moderate and 3-severe) for each of three specific lesions (erythema, lichenification and excoriations). Erythema was an indicator of acute inflammation and lichenification was a marker of chronic inflammation. Excoriations were used as an indirect manifestation of pruritus. Three specific lesion scores were assigned at a total of 15 pre-determined sites covering the entire body. Investigators were provided a numbered schematic showing the location of the 15 sites to be scored.

Owners evaluated perceived severity of clinical signs for the 24 hours prior to each examination. Clinical signs were evaluated pre-treatment and after 4 and 8 weeks of feeding. Owners rated perceived signs using a visual analog scale (200-mm line, with major and minor graduations) with legends indicating anchors such as “not scratching at all” to “scratching all of the time.” The owners also completed a questionnaire with questions about clinical signs associated with chronic, non-seasonal pruritic dermatitis, therapeutic foods and overall quality of life.

Investigators from 18 private veterinary practices located in 10 different states were involved in the study, which was conducted from November 2004 through March 2005. A total of 88 dogs completed the study. The most common breeds enrolled were mixed-breed dogs, Labrador retriever, golden retriever, West Highland white terrier, Dachshund, German shepherd and Shih Tzu. After feeding the test foods for 8 weeks, 61% of pet owners noticed improvement in dog pruritus (scratching, face rubbing and licking); 62% noticed improvement in otitis (shaking head and ear scratching); and 55% noticed improvement in skin and coat (hair sheen, hair loss, dandruff, and overall skin and haircoat condition). Veterinary assessment at the 8-week recheck noted improvement in erythema (34% marked, 19% moderate, 25% slight); lichenification (27% marked, 36% moderate, 13% slight); and excoriation (21% marked, 21% moderate, 27% slight). 74% of owners were satisfied with dietary therapy. They also noted improved overall health in 67% of the dogs and improved quality of life in 61% of pets in the study. The owners indicated 81% of the dogs liked the food, and stool quality was rated good (4 or 5 rating on a 5-point scale) in 89% of the dogs. The combined veterinarian-pet owner interview at the completion of the study found that more than half of dogs had improvement in overall health (38% marked to moderate improvement in overall health; 25% slight improvement) after being fed the foods for at least 8 weeks.

CLINICAL IMPACT

Compared with feeding the previous food, use of novel-protein foods with enhanced levels of omega-3 fatty acids and antioxidants was useful as an aid in the management of dogs with chronic, non-seasonal pruritic dermatitis due to suspected atopic dermatitis and/or adverse food reaction. Pet owners perceived improvements in itchy skin, otitis, skin redness and hair loss. Veterinarians recognized improvement in clinical signs of inflammation and pruritus. Veterinarians and pet owners detected improvement in overall skin and coat condition in most dogs. Most of the pet owners were satisfied with the nutritional management offered by these foods. Novel-protein foods such as Hill’s® Prescription Diet® Canine d/d®, with enhanced levels of omega-3 fatty acids and antioxidants, should be considered in the overall management of dogs with suspected allergic dermatitis.