FOOD ALLERGY;

ARE WE CRACKING THE CODE?

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Disclosure

- Honoraira/ Research grant: Purina Proplan
- Honoraria Purina Institute
- Honoraria: Nextmune
- Stock :Vetbiotek
- Honotaria: Elanco
- Honoraria: Zoetis
- Honoraria: MSD
- Honoraria: Vetoquinol
- Reaserch Grant: Dermoscent

Changing perspectives.... From a clinical standpoint

How often do discuss, recommend or have the client do diet trials?

0

ALWAYS WHEN CLINICALLY INDICATED

0%

IN MOST NON-SEASONAL CASES

0%

ONLY IF HIGHLY SUSPECT FOOD ALLERGY

0%

NEVER RECOMMEND THEM

0%

Why you do not recommend diet trials

Do not beleive in food allergy as a clinical entity

0%

Not rewarding

0%

Too difficult to accomplish correctly

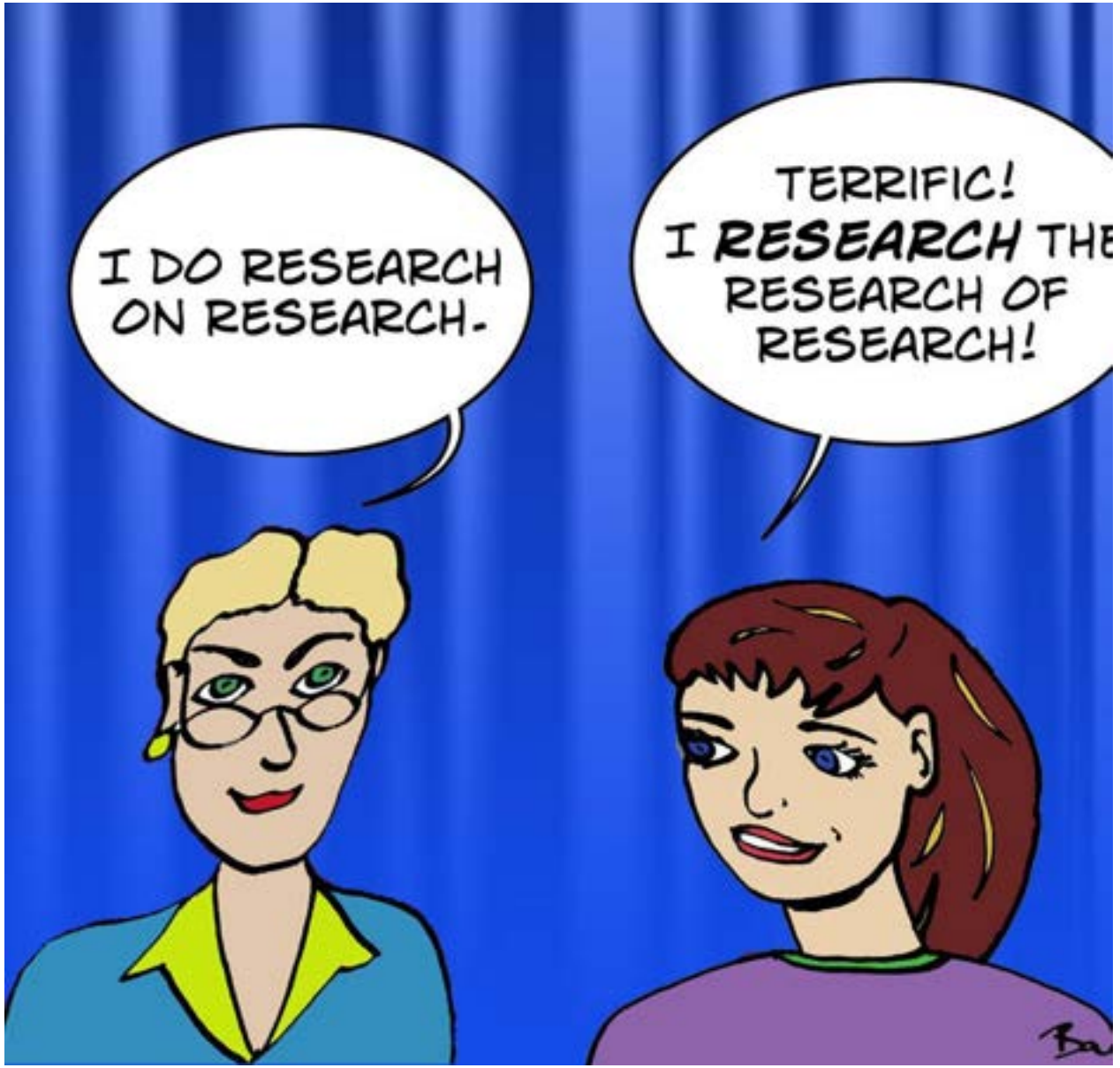
0%

I rather treat symptoms and move on to environmental

0%

Challenges we encounter in small animal dermatology and allergology

The practice of **EBM** means integrating individual clinical expertise with the **best** available external clinical evidence from available research



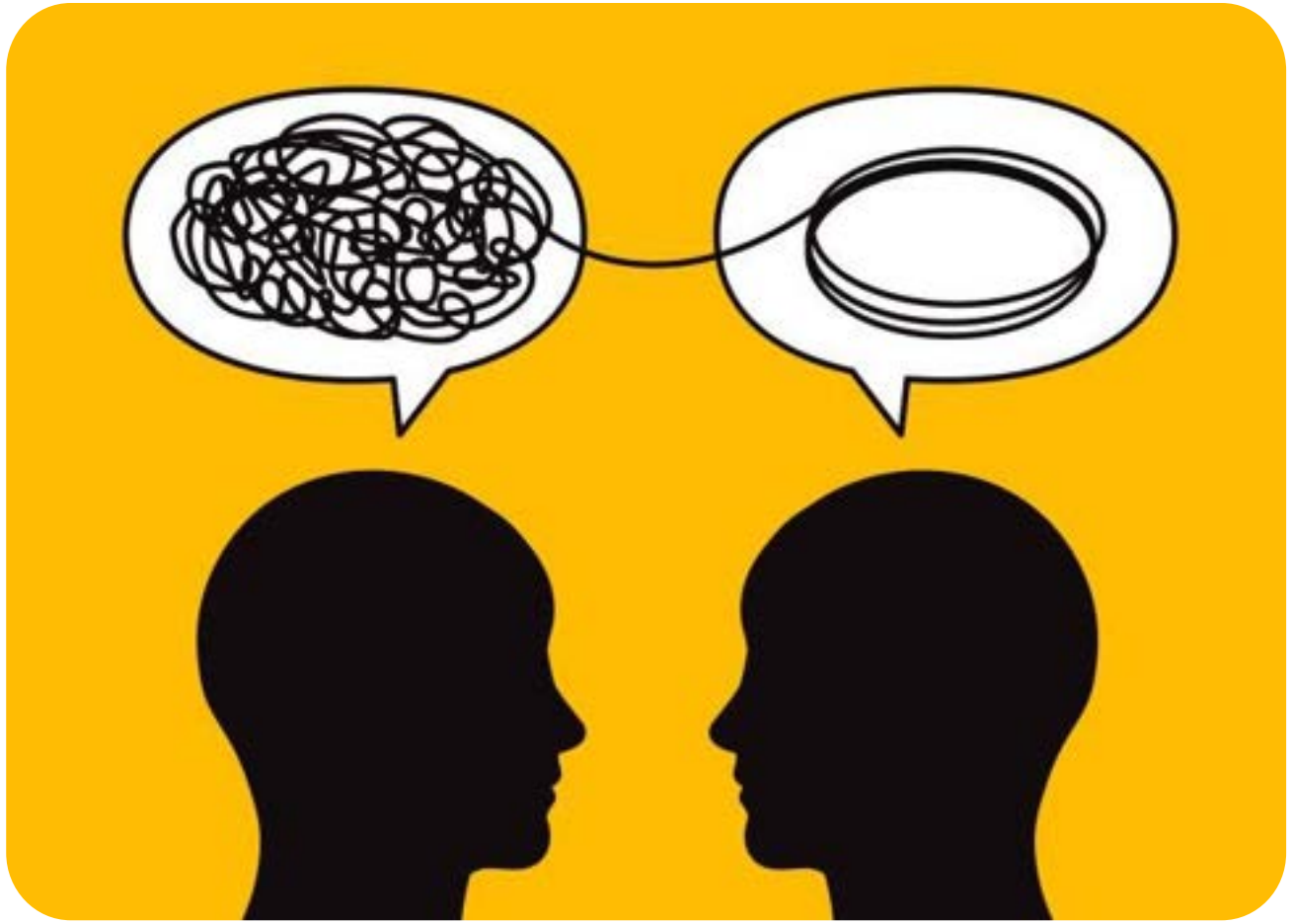
Evidence based medicine, evolving

- Meta-analysis reviews
- Consensus statements
- Treatment guidelines
- Position papers
- Critically appraised topics

Different styles and rules used to summarize and “grade” the scientific literature

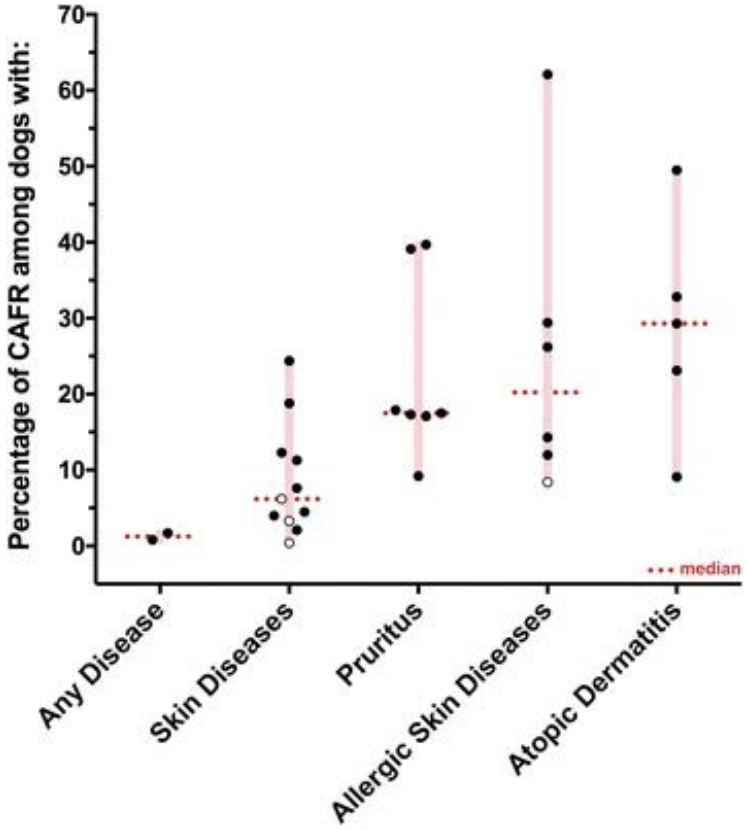
May involve experts, clinicians with less expertise, industry representatives and the general public

Limitations regarding information FA



- Unknown actual* clinical prevalence
- A limited amount of studies
- Lack of homologous criteria
- Small studies
- Older studies* duration, type of diets, ingredients
- Clinical grading (pruritus, lesions)
- Improvement to consider the response to diet
- Not all studies involve provocation tests
- Other interventions make a difference

Prevalence, review from data up to 2016.



Research article | Open access | Published: 15 February 2017

Critically appraised topic on adverse food reactions of companion animals (3): prevalence of cutaneous adverse food reactions in dogs and cats

Thierry Olivry & Ralf S. Mueller

BMC Veterinary Research **13**, Article number: 51 (2016) | Cite this article

11k Accesses | **38** Citations | **11** Altmetric | Metrics

- 28 papers
- Main limitation of this review is variability of methods or criteria used to make the diagnosis of CAFR, **Not specified in 3**
- A similar inconsistency also existed in the way atopic dermatitis was diagnosed between studies.
- Not all animals from the reported population had been subjected to an elimination diet.
- 4 studies did not challenge the diet
- This lack of systematic dietary testing likely led to a lower prevalence of CAFR reported in articles where the diet change was not made in all pets.

Received: 11 January 2023 | Accepted: 7 August 2023

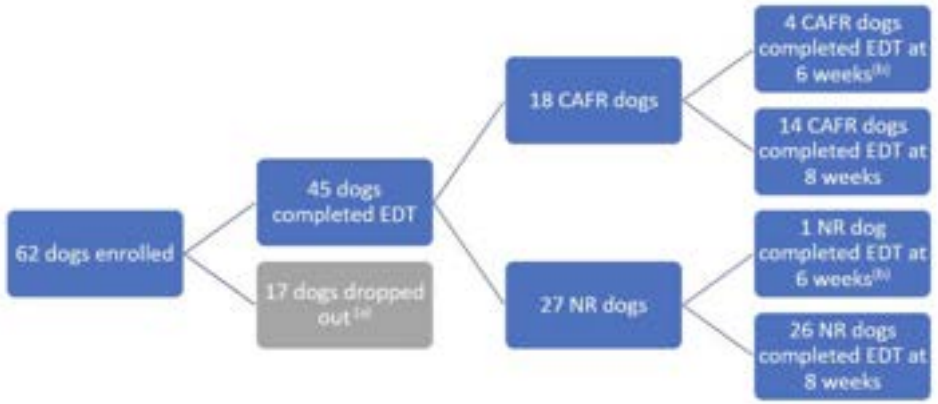
DOI: 10.1111/vde.13198

Veterinary Dermatology

ORIGINAL ARTICLE

An open-label clinical trial to evaluate the efficacy of an elemental diet for the diagnosis of adverse food reactions in dogs

Jeffrey Tinsley[1] | Craig Griffin[2] | Galia Sheinberg[3] | Joya Griffin[1] | Emily Cross[4] | Jason Gagné[4] | Anahi Romero[3]



40% CAFR

60% atopic dermatitis

PVAS ≤3

- The amount of food needed to flare was measured
- Time to flare
- 83% had GI signs from the FA diagnosed group
- 44.44% Managed with diet
- 55.56% Ongoing pruritus

Dermatology an elemental diet study follow-up, what happens after the study

- Out of 19 dogs that we enrolled
- 7 were diagnosed as food allergic
- 2 continued to do well on another hydrolyzed diet
- 2 did well on another diet but needed medication for pruritus control
- 2 did not do well on any other diet needed Elemental
- 1 Lost on follow-up

Are we harvesting the correct clinical history?

Common allergens and triggers*

Type of reaction

Owner’s interpretations

Limitations (time, knowledge, communication)

Identification of cases and physical findings

Disease markers

Response to treatments

Skin lesions

Sneezing, GI

Perineal itching, dorso-lumbar, urticaria.

Are we missing other markers?

clinical grading PVAS/CADESI

Clinical presentations

- **Pruritus:**
- Not able to differentiate environmental vs food (CAD, FAS)
- Erythema and papules in similar regions.
  - Chronic and secondary changes: Hypotrichosis, alopecia,

Research article | Open access | Published: 09 May 2019

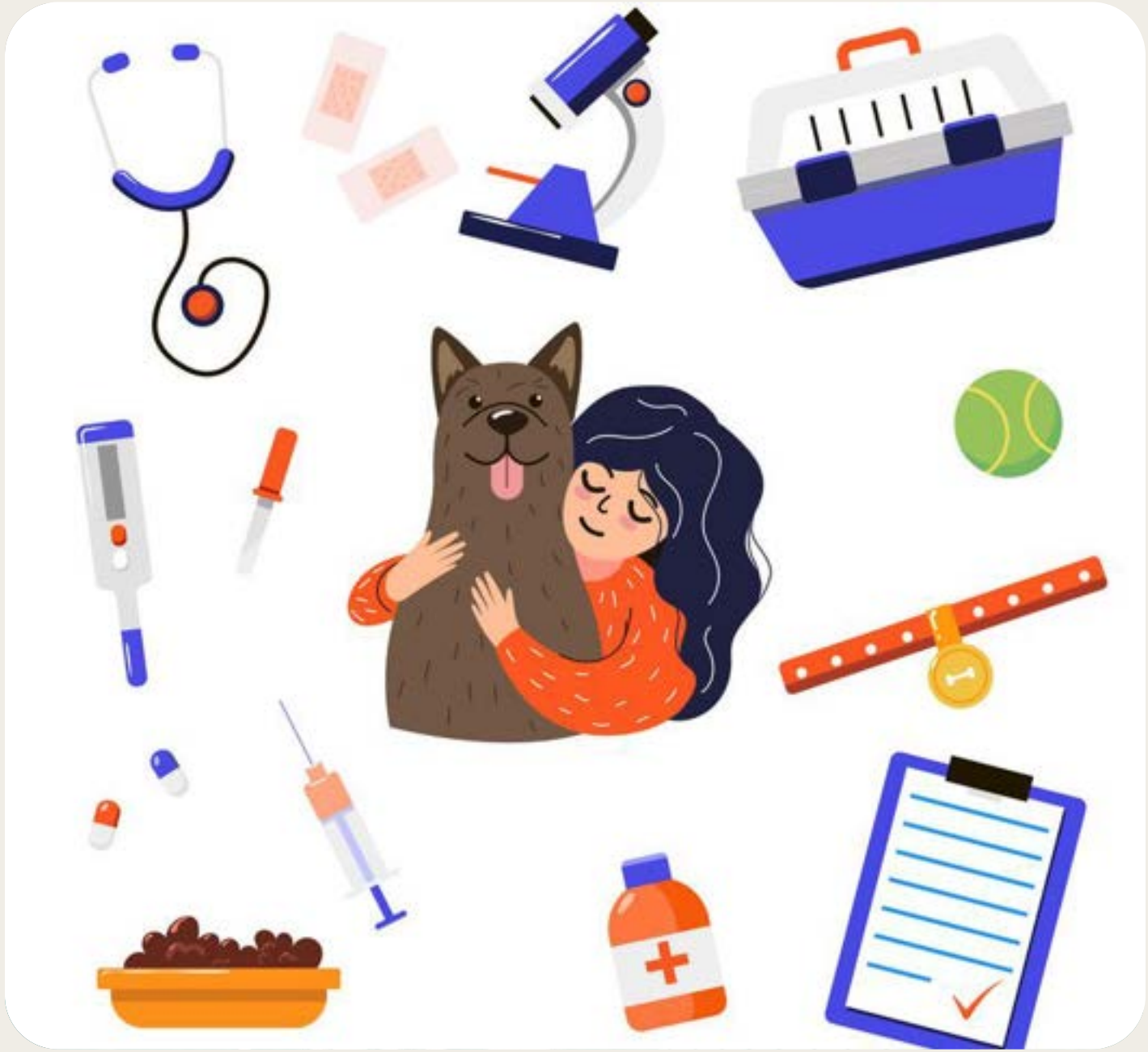
Critically appraised topic on adverse food reactions of companion animals (7): signalment and cutaneous manifestations of dogs and cats with adverse food reactions

Thierry Olivry ✉ & Ralf S. Mueller

BMC Veterinary Research **15**, Article number: 140 (2019) | Cite this article

Clinical manifestation and clinical findings

- Insufficient studies on the mechanisms of FA
- Clinical manifestations are not as heterogeneous as in humans, and the clinical picture often overlaps.
- Clients providing information
- Clinician vs investigators



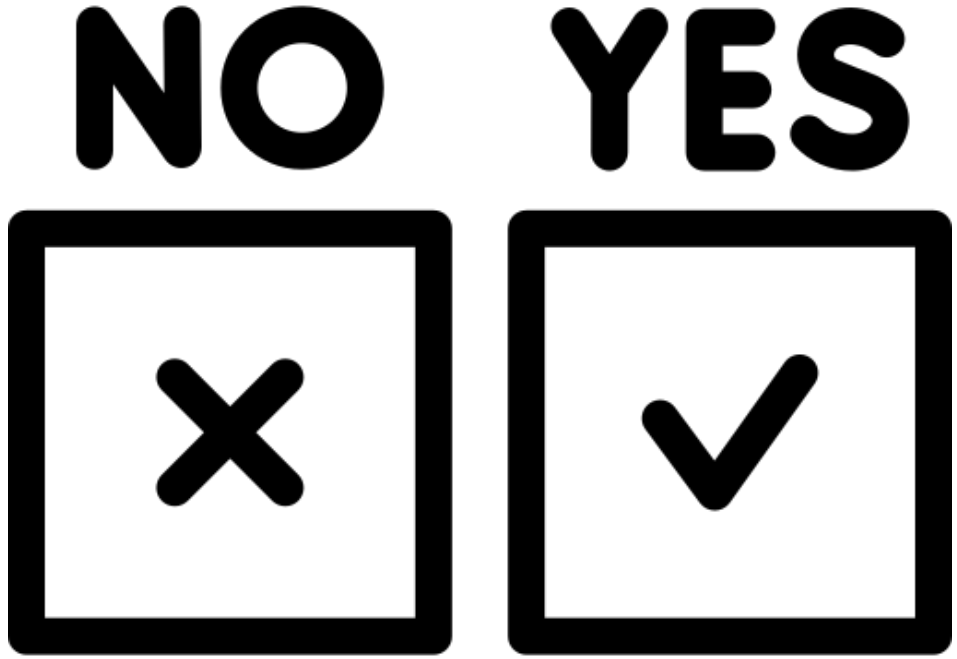
Are we using the right tools for diagnosis?

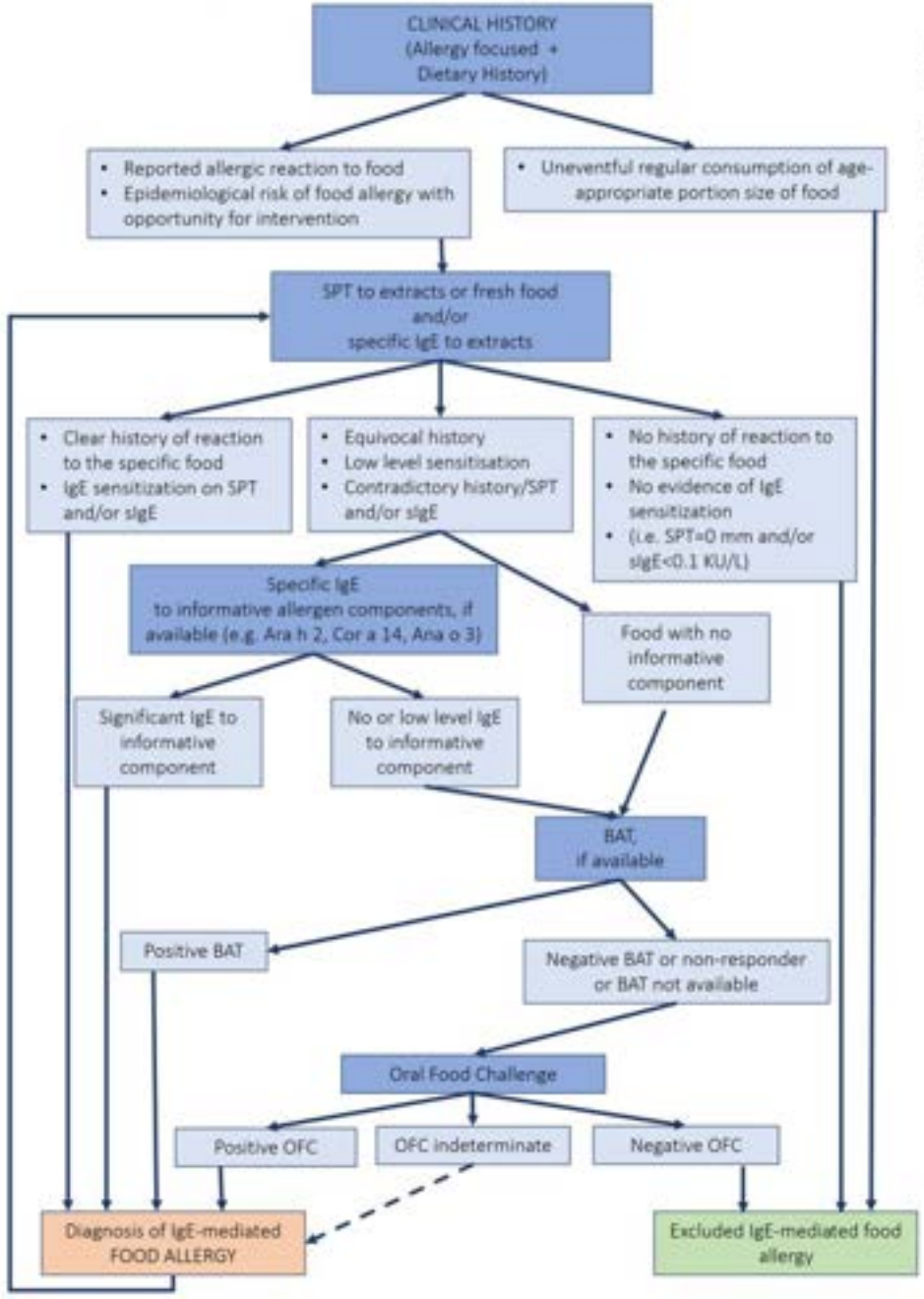
1. ~~Clinical tools~~
2. Diet trials
3. Testing

How do we compare to human food allergy?

Human food allergy testing and diagnosis

- **THOROUGH clinical** history, food reactions, and feeding history.
- The clinical presentation will guide the clinician to more specific testing based on suspicion of IgE-driven disease, cell-mediated disease, or a combination of the two.
- **Not all individuals** with positive tests for food-specific **IgE** antibodies exhibit allergic reactions following ingestion.
- The discordance between IgE and clinical sensitivity CAN create a diagnostic challenge for clinicians.





Received: 21 March 2024 | Revised: 17 August 2024 | Accepted: 3 September 2024
DOI: 10.1111/all.16321

Allergy WILEY

NEWS AND VIEWS
Medical Algorithms in Allergy and Immunology

An algorithm for the diagnosis and management of IgE-mediated food allergy, 2024 update

A clear history of IgE- mediated symptoms minutes after exposure to a specific food, together with evidence of significant IgE sensitisation to that food, confirms the diagnosis of IgE- mediated food allergy.

The European Academy of Allergy and Clinical Immunology (EAACI)
recently launched their updated Clinical Guidelines for the Diagnosis

Testing for food allergy in human current state

frontiers | Frontiers in Allergy

TYPE Mini Review
PUBLISHED 07 November 2024
DOI 10.3389/falgy.2024.1456585

OPEN ACCESS

EDITED BY
Takahisa Murata,
The University of Tokyo, Japan

The future of food allergy diagnosis

Dominic S. H. Wong[1] and Alexandra F. Santos[2,3,4]*

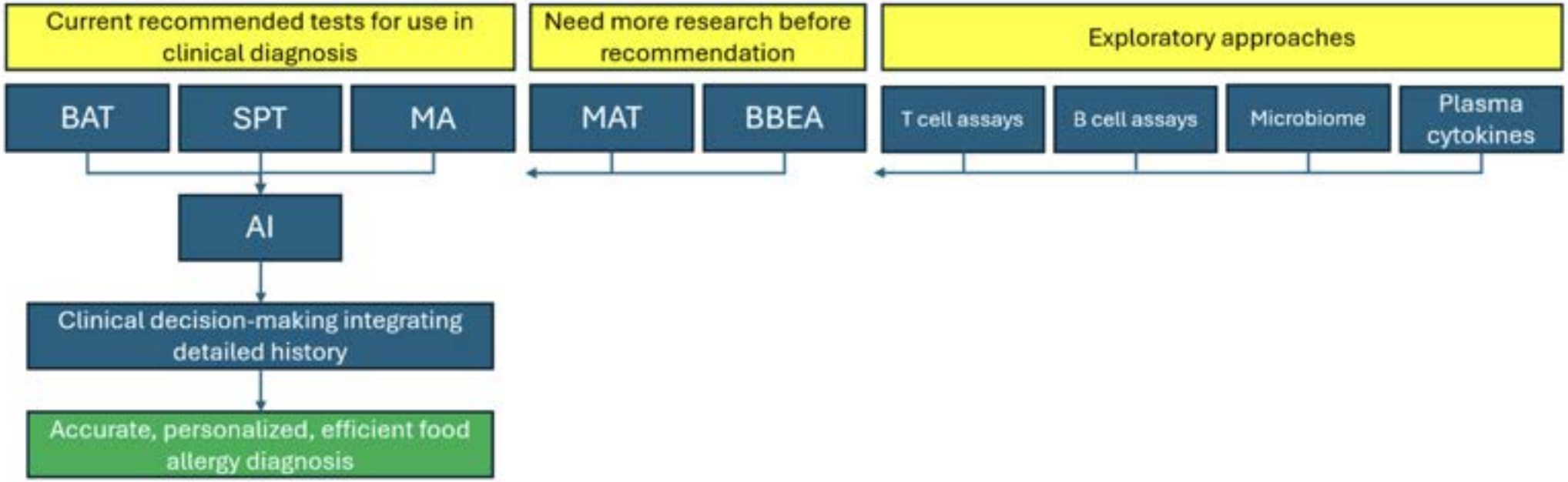
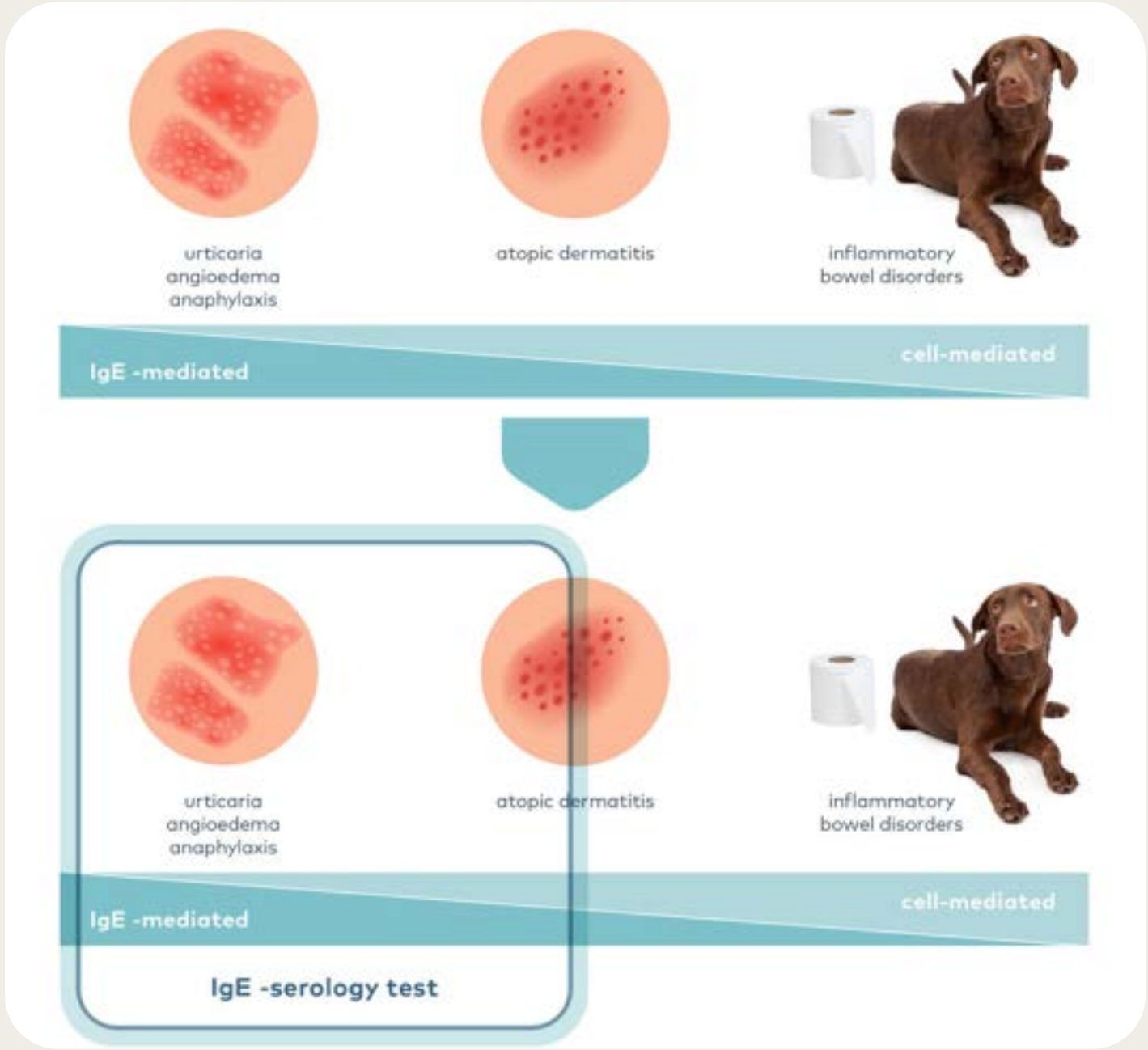


FIGURE 2
Framework for future directions in the diagnosis of IgE-mediated food allergy. BAT, basophil activation test; SPT, skin prick test; MA, molecular allergology; MAT, mast cell activation test; BBEA, bead-based epitope assay; AI, artificial intelligence.

Food allergy testing: where are we now?

In dogs and cats, detection tests for IgE sensitisations (intradermal or serological) to food allergens have had too variable a diagnostic accuracy to warrant their wide acceptance in practice.



IgE: Advances in molecular testing.

1. Identification of molecules relevant to dogs and cats
2. Could we implement measures to determine who should be tested and when?
3. More research needed

Veterinary Dermatology

Original Article

Combined prick and patch tests for diagnosis of food hypersensitivity in dogs with chronic pruritus

Juliane Possebom, Ariane Cruz, Vanessa Cunningham Gmyterco, Marconi Rodrigues de Farias

First published: 11 January 2022
https://doi.org/10.1111/vde.13055
Citations: 2

Patch testing, prick testing and combination

The prick and patch tests are useful tools to aid in the selection of foods for an ED and subsequent FC

PESQUISA VETERINÁRIA BRASILEIRA
Brazilian Journal of Veterinary Research
ISSN 0100-736X (Print)
ISSN 1678-5150 (Online)

Pesq. Vet. Bras. 43:e07196, 2023
DOI: 10.1590/1678-5150-PVB-7196

Original Article
Small Animal Diseases

Evaluation of skin prick test, exclusion diet and dietary challenge in the diagnosis of food allergy in dogs with chronic pruritus[1]

Camilla O.R. Alcalá[2]*, Juliane Possebom[2], Lucas A. Ludwig[2], Ana Paula Cerdeiro[2], Raniere Gaertner[2] and Marconi R. Farias[2]

In conclusion, the prick test can be used for screening food allergens to make an exclusion diet.

How to evaluate non-IgE mediated reactions in our patients

FULL PAPER *Internal Medicine*

Flow Cytometric Analysis of Lymphocyte Proliferative Responses to Food Allergens in Dogs with Food Allergy

Masato FUJIMURA[1], Kenichi MASUDA[2]*, Makio HAYASHIYA[3] and Taro OKAYAMA[2]

[1]*Fujimura Animal Hospital, 5–10–26 Aomatanihigashi, Minou, Osaka 562–0022,* [2]*Animal Allergy Clinical Laboratories, SIC-2 301, 5–4–30 Nishihashimoto, Midori-ku, Sagamihara, Kanagawa 252–0131 and* [3]*Hayashiya Animal Hospital, 39–1205 Kohataokurayama, Uji, Kyoto 611–0002, Japan*

(Received 24 October 2010/Accepted 1 June 2011/Published online in J-STAGE 15 June 2011)

Journal of Veterinary Internal Medicine / Volume 18, Issue 1 / p. 25-30

Free Access

Lymphocyte Blastogenic Responses to Inciting Food Allergens in Dogs with Food Hypersensitivity

Rinei Ishida, Kenichi Masuda, Keigo Kurata, Koichi Ohno, Hajime Tsujimoto

First published: 28 June 2008
https://doi.org/10.1111/j.1939-1676.2004.tb00131.x
Citations: 35

Veterinary Dermatology / Early View

ORIGINAL ARTICLE

Evaluation of a direct lymphocyte proliferation test for the diagnosis of canine food allergies with delayed reactions after oral food challenge

Carlos Fernandez-Lozano, Ana Mas-Fontao, Silvia T. Auxilia, Marie Welters, Alla Olivri, Ralf S. Mueller, Thierry Olivry

First published: 21 November 2024
https://doi.org/10.1111/vde.13312

- High Sensitivity and specificity
- Difficult test to perform commercially

Veterinary Immunology and Immunopathology 284 (2025) 110924

Contents lists available at ScienceDirect

Veterinary Immunology and Immunopathology

journal homepage: www.elsevier.com/locate/vetimm

Exploring CD4 +CD8 + double-positive T cells in canine allergy and health: A pilot study

Elisa Maina [a,*], Bert Devriendt [b], Eric Cox [b,c]

DP T cells proliferated in all groups, with the most significant proliferation observed in the FA group when stimulated with food allergens.

Results indicate that DP T cells are unreliable screening tests for distinguishing allergic from healthy dogs.

Potential for identifying allergic phenotypes

Not valuable for pinpointing specific allergens.

Diet trials are HARD!:

-Type of diet

-Duration

-Improvement

-Challenge

-Interpretation*

Owner compliance, financial limitations.

We wish we could do everything we want to do....

A common scenario and a less common owner

8 M/O French Bulldog

Female

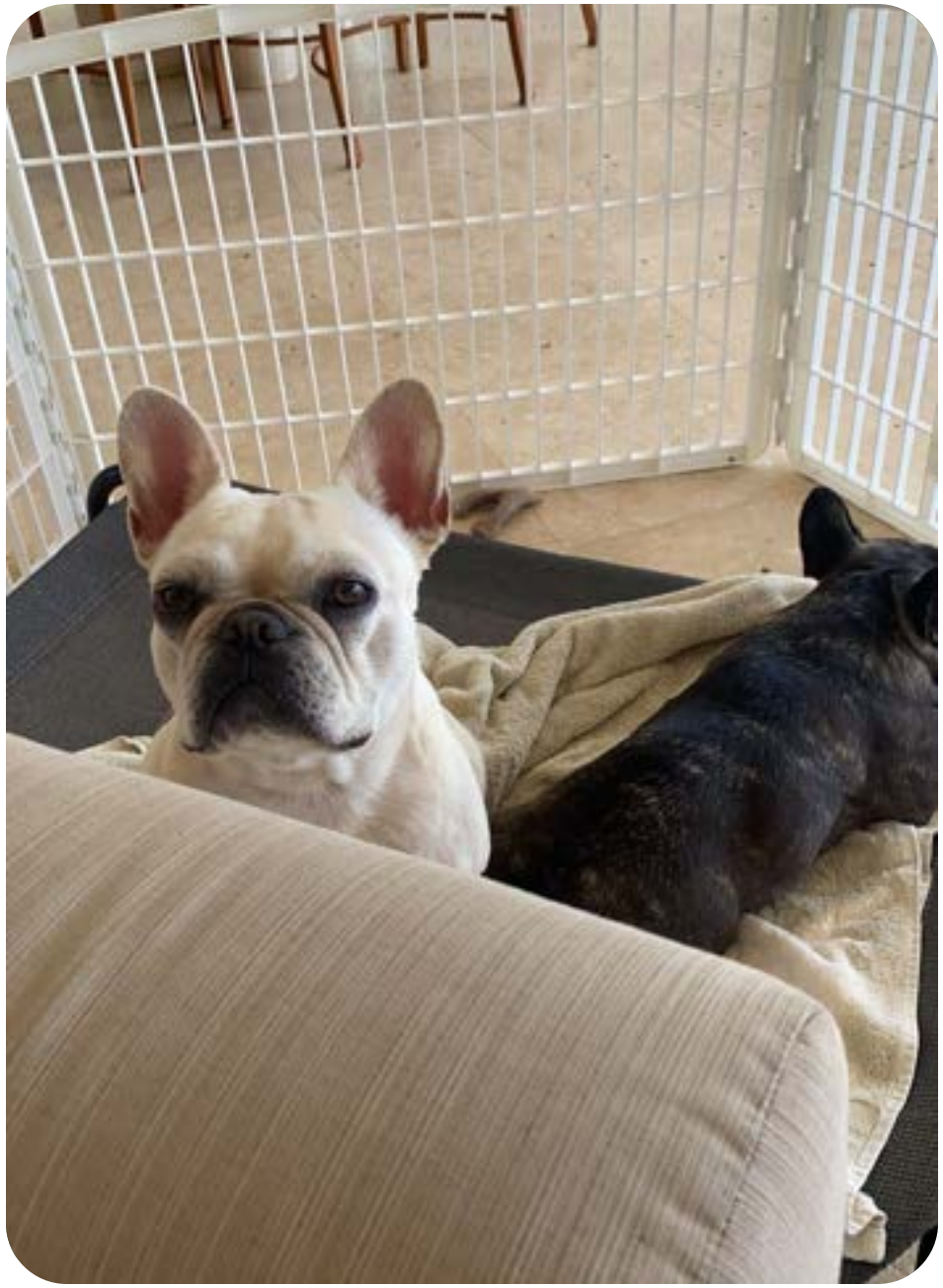
Home-prepared diet

Fish, Chicken, Beef, Egg, Pork, and many others, all protein diet, no supplements, no carbohydrates

Axillary erythema at 4 months old

Paw chewing and pruritus 7-8/10 PVAS

The owner changed from one protein-based food to another



Emilia & her long story

1. Body score 2/9
2. Vomiting, diarrhea, pyoderma and itching
3. The owner does not want a commercial diet
4. Currently feeding an all-protein home-prepared food. No supplements

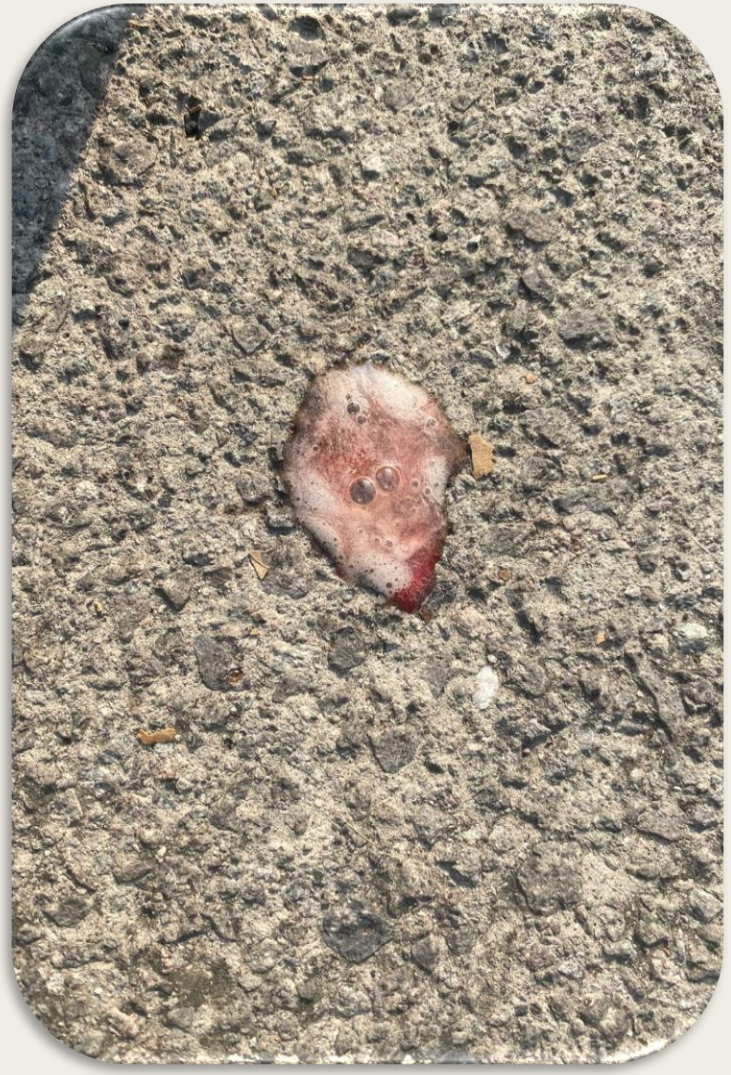


Initial presentation

Facing challenges with Emilia

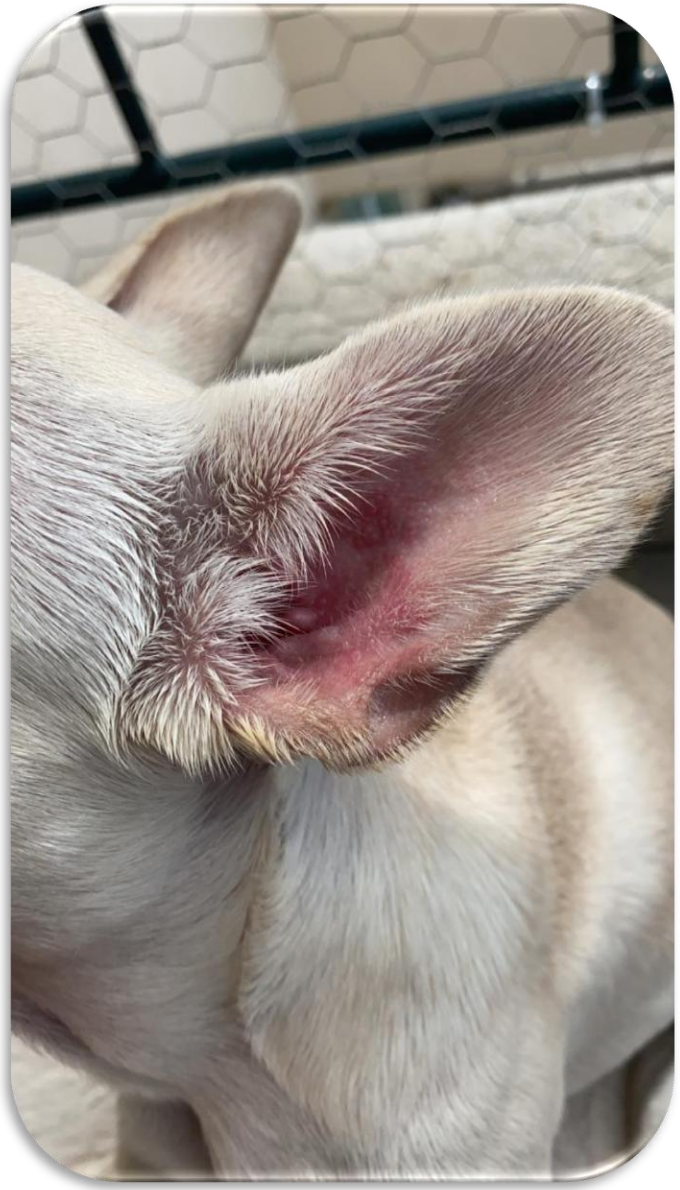
After a very long and difficult initial diet trial

1. Slow transition to the hydrolyzed diet
2. 3 Different diets until successful implementation with elemental diet
3. GI issues resolved
4. Derm issues resolved
5. No medication needed to control pruritus and no lesions or secondary infections for 3 weeks.
6. The owner is eager to stop feeding commercial food.

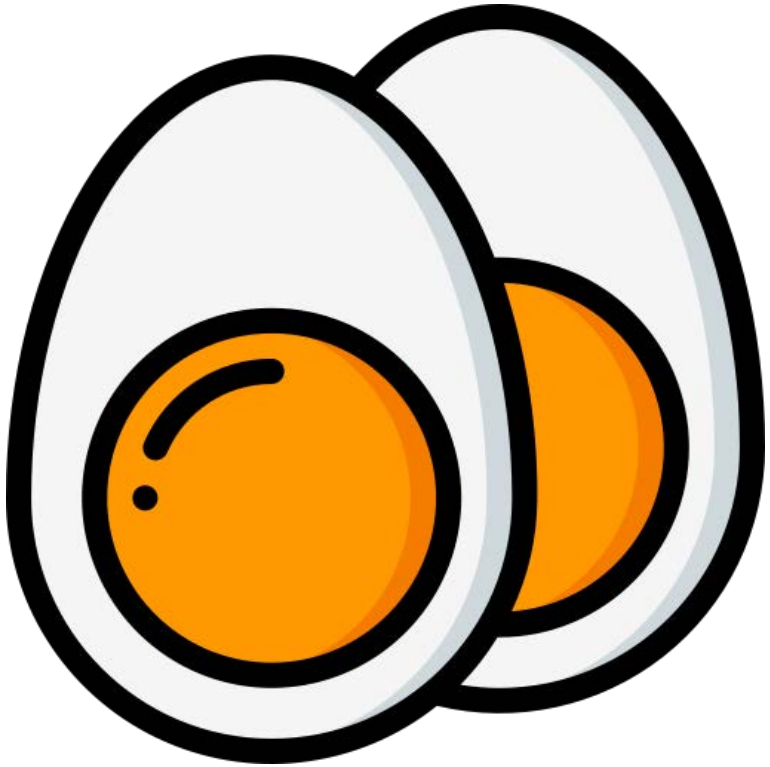


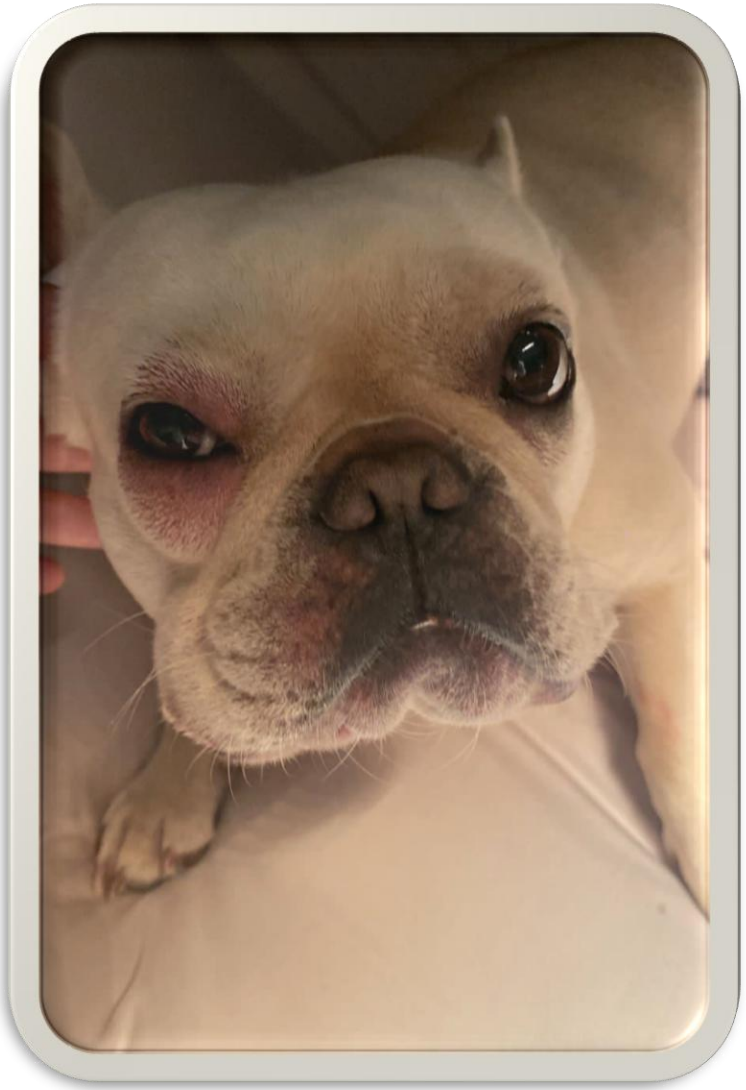
Chicken (carrots) challenge

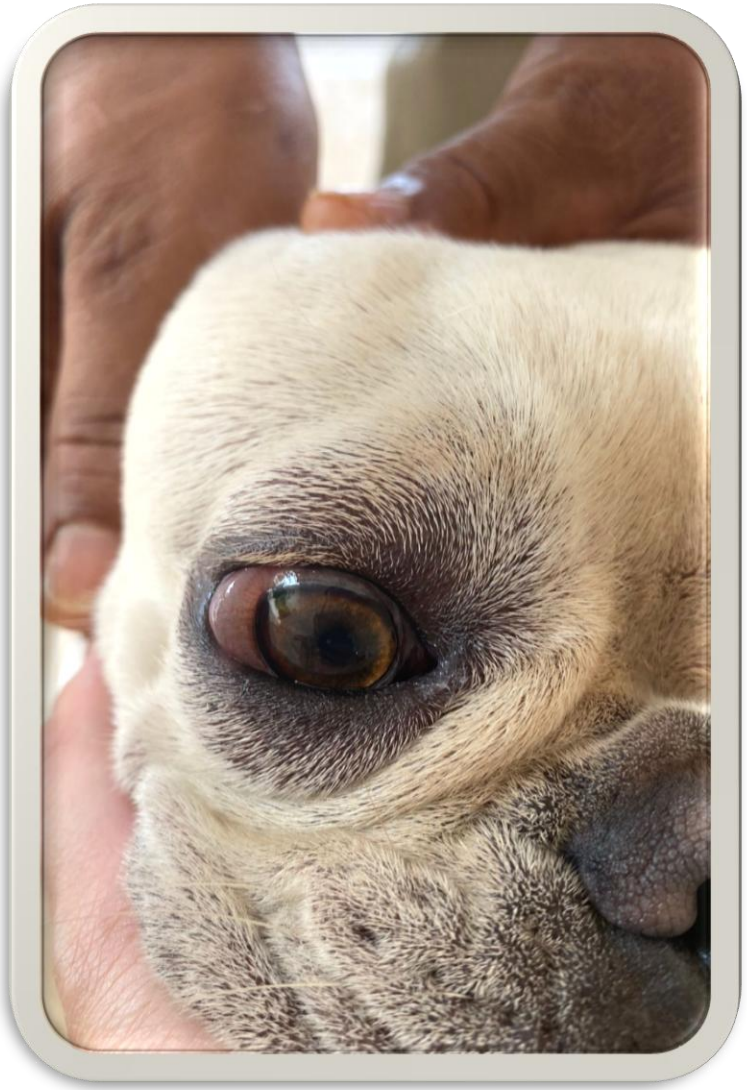

1
Emilia Y Martina Ari...
26 May 2021
Hola Galia cómo estás? Aquí molestándote con la alimentación de Emilia
18:50
Filete de Cerdo, 1.2kg
Tipo algo así está bien?
18:51



48 hr after egg challenge



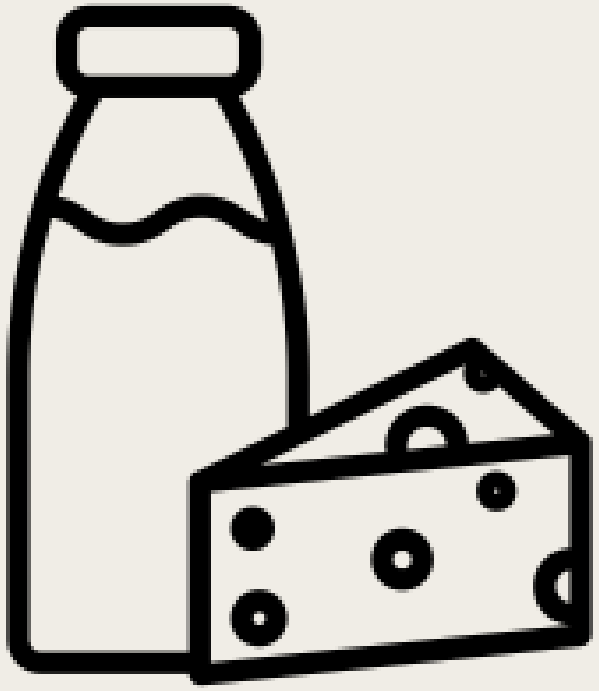




Salmon challenge

Tuna reaction

Is Emilia’s reaction primary IgE driven? Should we consider testing?



Time to flare

Research article | Open access | Published: 24 May 2020

Critically appraised topic on adverse food reactions of companion animals (9): time to flare of cutaneous signs after a dietary challenge in dogs and cats with food allergies

Thierry Olivry & Ralf S. Mueller

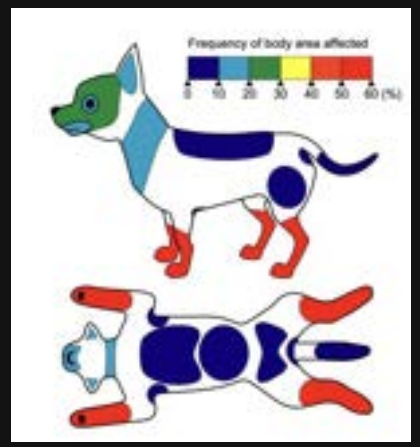
BMC Veterinary Research **16**, Article number: 158 (2020) | Cite this article

8596 Accesses | **11** Altmetric | Metrics

Veterinary Dermatology

Results of food challenge in dogs with cutaneous adverse food reactions

Hidekatsu Shimakura* and Koji Kawano†‡

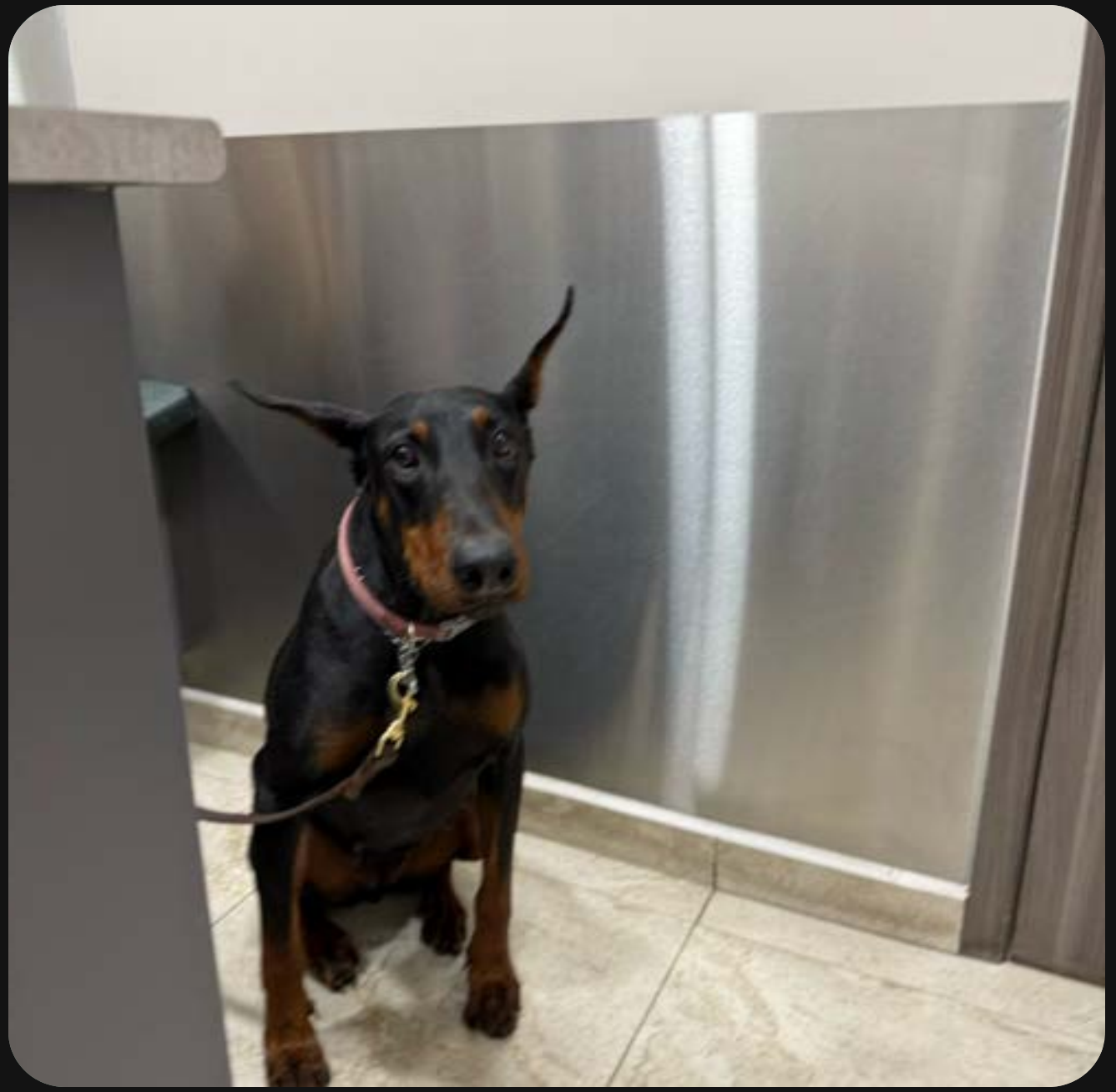


Type of reactions seen

How are pet owners able to recognize a reaction or a flare?

This is Emilia, YES, another Emilia.

- 14 m/o f/s Doberman
- Poor fecal consistency and intermittent diarrhea, fecal score 5-6, 4 bm per day
- PVAS 8
- Mild regional alopecia and secondary nipple enlargement
- No secondary infections
- No ear disease history or clinical exam



Diagnostic process and management

- Pruritus management: oclacitinib, stop 5 days pre-follow-up
- Weekly bathing hydrating shampoo
- Flea prevention changed to topical (isoxazoline)
- Hydrolyzed diet chosen based on recommendation and owner preference (ultamino)
- Key points for recommending a diet trial on this patient.
- 6 Week diet trial goal

Follow-up visit
5 and ½ weeks

Diet implementation has been successful

GI issues solved, 2 BM per day fecal score 3

Sopped oclacitinib 5 days before the visit, and pruritus was back within 24hr (8 PVAS) returned to oclacitinib after 48 hr

Mild new scratch lesions on the abdomen and axilla

Very happy with GI issues resolved.

Do not want to change diet

Time to have “the talk”....

Emilia 2.0

- Continued for three more weeks on oclacitinib and diet
- Stopped oclacitinib
- PVAS went from 2 to 4 after a week
- Challenged with gastrointestinal formula, whole protein chicken
- Gas, poor fecal consistency
- Itching increased to 8
- Back to the hydrolyzed diet, and look for improvement and resolution?

Immunotherapy for food allergy in dogs beyond allergen avoidance

Veterinary Immunology and Immunopathology
Volume 212, June 2019, Pages 38-42

Food allergen-specific sublingual immunotherapy modulates peripheral T cell responses of dogs with adverse food reactions

Elisa Maina, Bert Devriendt, Eric Cox

Veterinary Dermatology / Volume 28, Issue 6 / p. 612-e149
Brief Communication | Full Access

Changes in cytokine profiles following treatment with food allergen-specific sublingual immunotherapy in dogs with adverse food reactions

Elisa Maina, Bert Devriendt, Eric Cox

First published: 23 July 2017
https://doi.org/10.1111/vde.12463

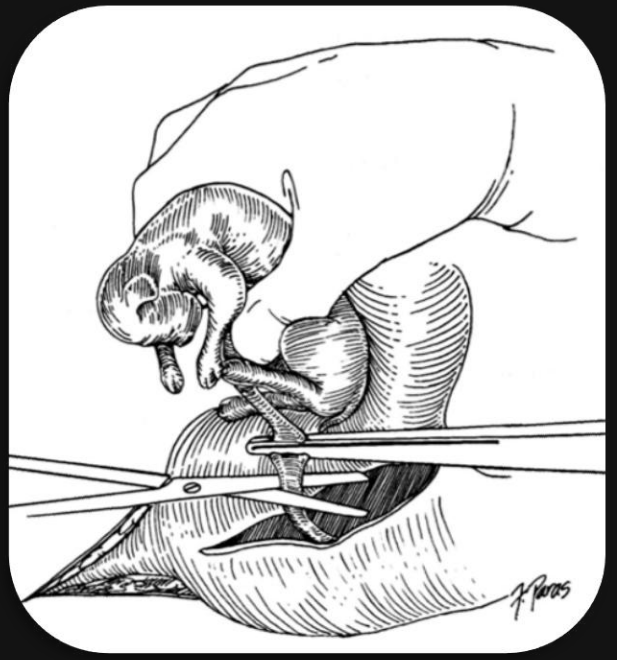
Maina et al. BMC Veterinary Research (2017) 13:25
DOI 10.1186/s12917-017-0947-1

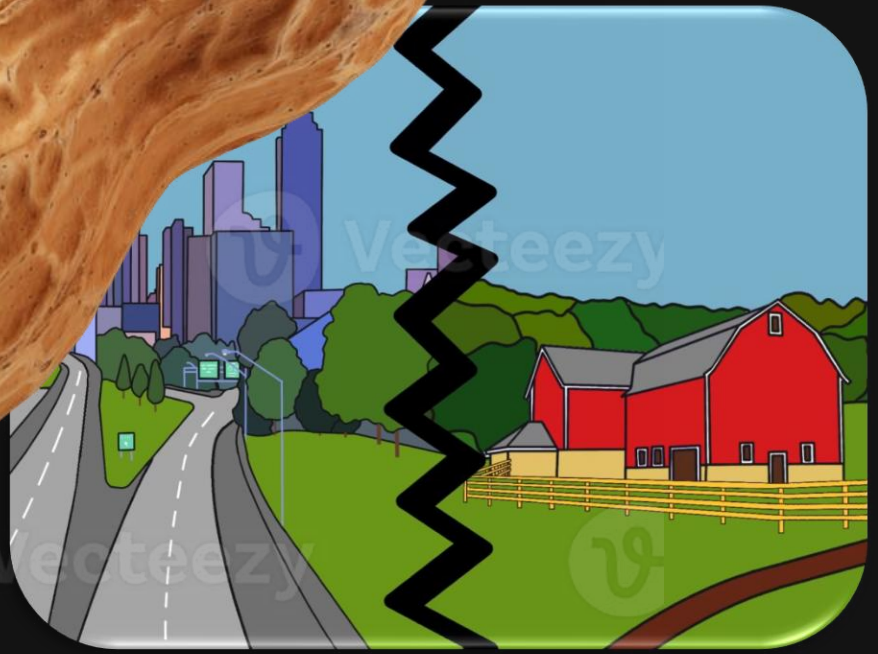
BMC Veterinary

RESEARCH ARTICLE Open Access

Food-specific sublingual immunotherapy is well tolerated and safe in healthy dogs: a blind, randomized, placebo-controlled study

E. Maina*, M. Pelst, M. Hesta and E. Cox





Can we prevent food allergy, should we try based on what we know?

Thinking ahead

Are food allergies preventable?
Early interventions?

improving the skin barrier could reduce the risk of food allergy?

- Effective treatment of atopic dermatitis **may lower the risk** of food allergy and further sensitization.
- Limit the use of antibiotics?
- Several studies in mice and humans have linked increased intestinal barrier permeability to FA **(Intestinal inflammation)***
- **Microbiome** interventions*
- **Nutritional** Interventions* Variety, types of diets, exposures.
- Environmental exposures

Pediatric Allergy and Immunology / Volume 32, Issue 5 / p. 843-858

POSITION PAPER | Open Access

EAACI guideline: Preventing the development of food allergy in infants and young children (2020 update)

Susanne Halken, Antonella Muraro, Debra de Silva, Ekaterina Khaleva, Elizabeth Angier, Stefania Arasi, Hasan Arshad, Henry T. Bahnson, Kirsten Beyer, Robert Boyle, George du Toit ... See all authors

First published: 12 March 2021
https://doi.org/10.1111/pai.13496
Citations: 284

veterinary sciences

MDPI

Review

Primary Prevention of Canine Atopic Dermatitis: Breaking the Cycle—A Narrative Review

Beatriz Fernandes [1,2,3,*], Susana Alves [1,2], Vanessa Schmidt [4], Ana Filipa Bizarro [1,2,3], Marta Pinto [1,2,3], Hugo Pereira [1,2], Joana Marto [3] and Ana Mafalda Lourenço [1,2]

What is our goal as clinicians?

1. Identify FA patients correctly
2. QoL
3. Facilitate the diagnostic process
4. Improve interventions

What does the clinical research community need to focus on?

Acknowledgment:

Valerie Fadok
Craig Griffin
Thierry Olivry

Questions?

Thank you!