



DERMATOLOGY: A MELTING POT

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CURE – A FOUR LETTERED WORD 😊

- There are very few curable dermatologic conditions
 - Parasitic – Scabies, Demodex
 - Infectious – Dermatophytosis
- Almost all dermatologic conditions are **chronic inflammatory problems**
 - Require ongoing management
 - Regular follow ups
 - Client and patient compliance

Want to know my
favourite four letter word?



REALITY



EXPECTATIONS



EXPECTATION

HARD
WORK



SUCCESS

REALITY

HARD
WORK



SUCCESS

CHALLENGE

OBSTACLE

CHALLENGE

FAILURE

PROBLEM

FAILURE

EXPECTATION



REALITY



EXPECTATION



REALITY

ALLERGY: WHY IS IT SO COMMON?

- Progression of Veterinary Medicine
- Hygiene Hypothesis
- Nutrition
- Marketing
- Test Interpretation
- Referring

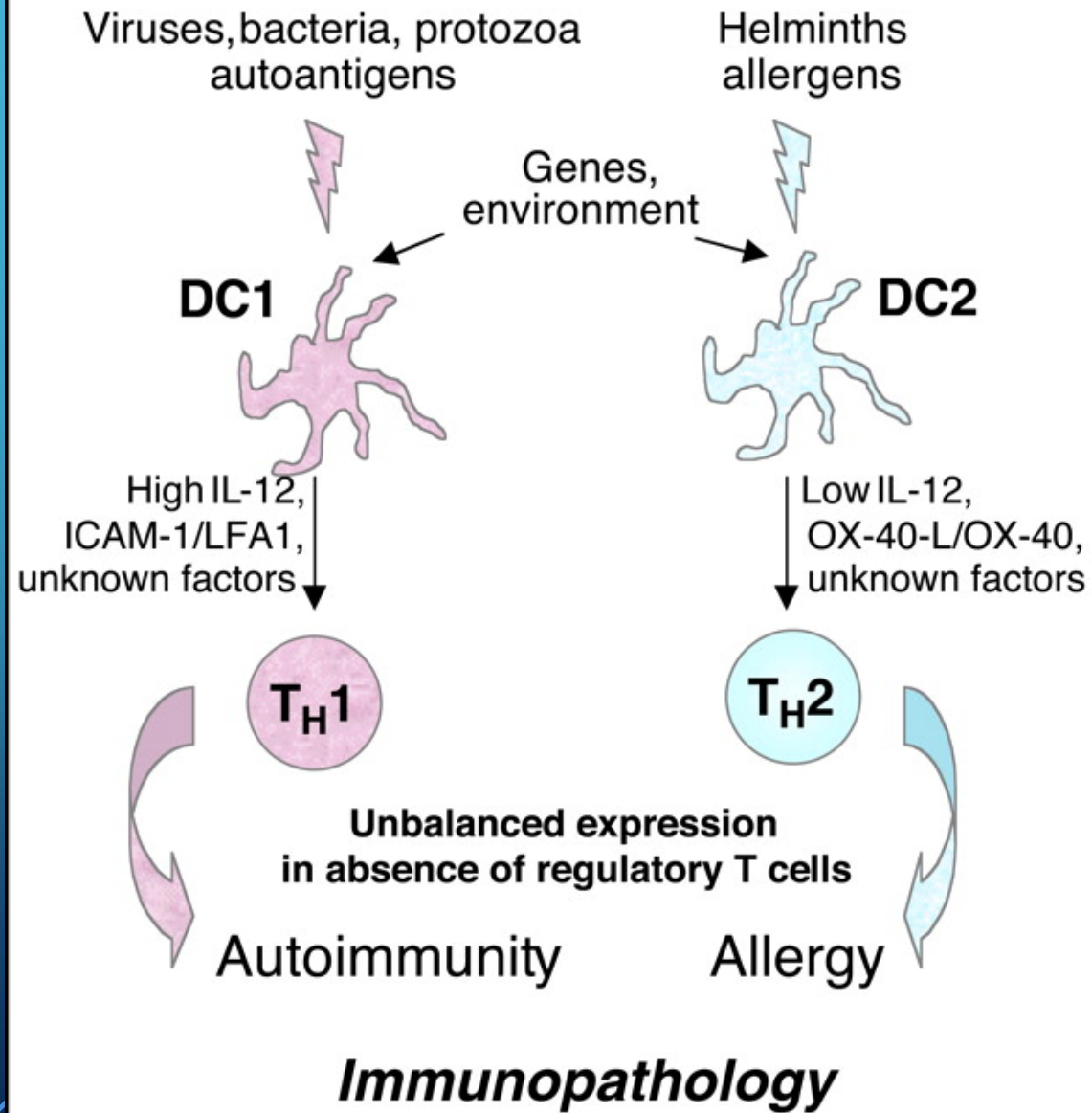


PROGRESSION OF VETERINARY MEDICINE

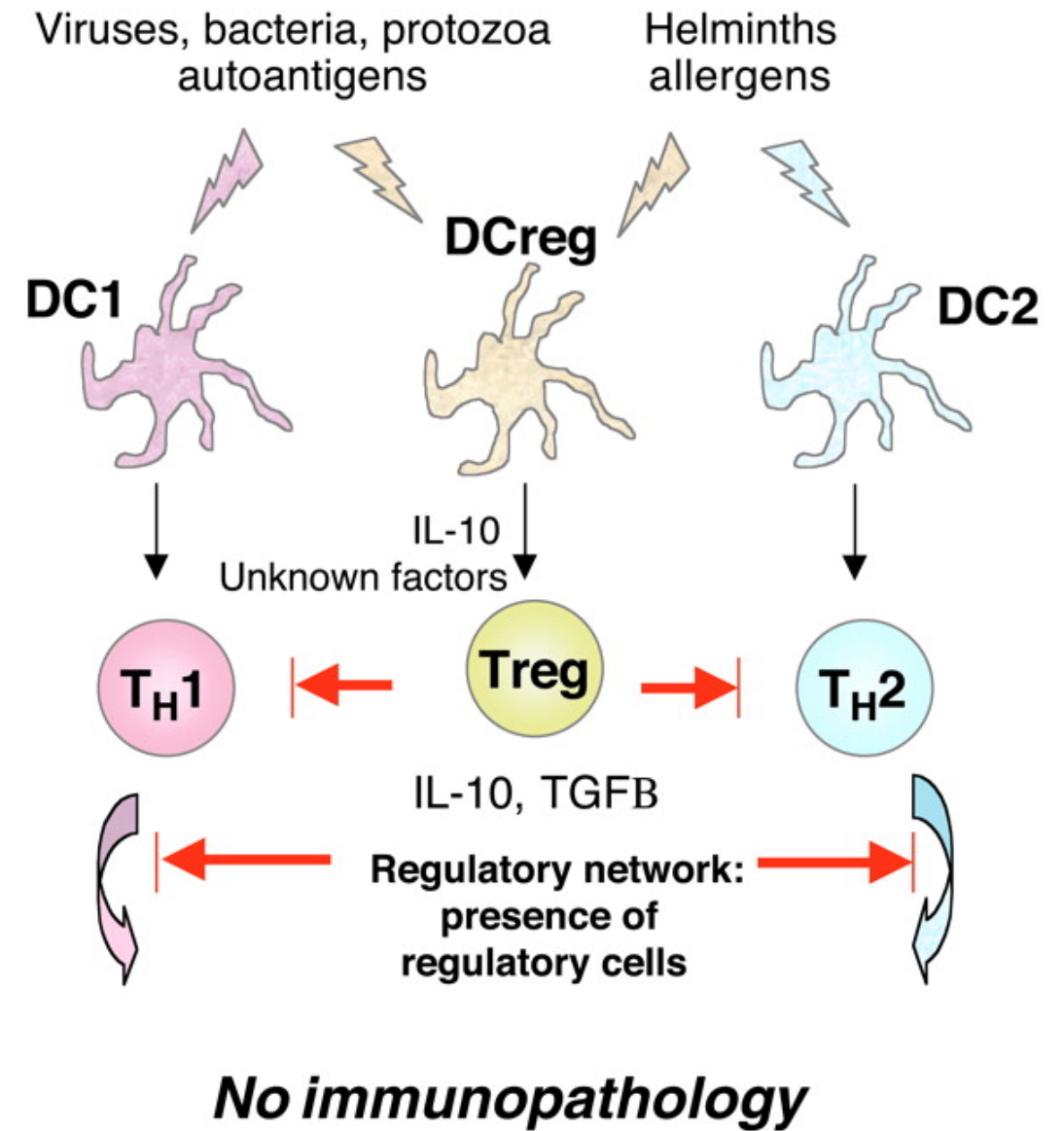
- Agricultural origin
 - Food production
 - Utilitarian
 - Guards
- Companions
 - Human animal bond
 - Better observation
 - Anthropomorphism



High hygiene, low pathogen/adjuvant burden



Low hygiene, high pathogen/adjuvant burden



IMMUNE TOLERANCE

- tol·er·ance
 - Latin origin *tolerare* "to bear, endure, tolerate"
 - early 15c., *toleraunce*, "endurance, fortitude, power or capacity to bear up"
- Loss of tolerance =
 - Active or passive response ("fight or flight")
 - Examples of loss of immune tolerance
 - Allergies, IMHA, ITP, Sterile meningitis, IBD, etc.

NUTRITION

- Probiotics early in life may promote a more tolerant immune response
- Whole products vs. highly refine/processed foods?
- Molecular mimicry – antigenic epitopes have similar structures and cross react
 - Birch and apple,
 - Latex and banana



HUMAN ECZEMA SEARCHES

- Google searches for “diet” and “eczema”
 - 50% results from self-proclaimed “experts”
 - 20% from promotional sites
 - 30% from educational websites

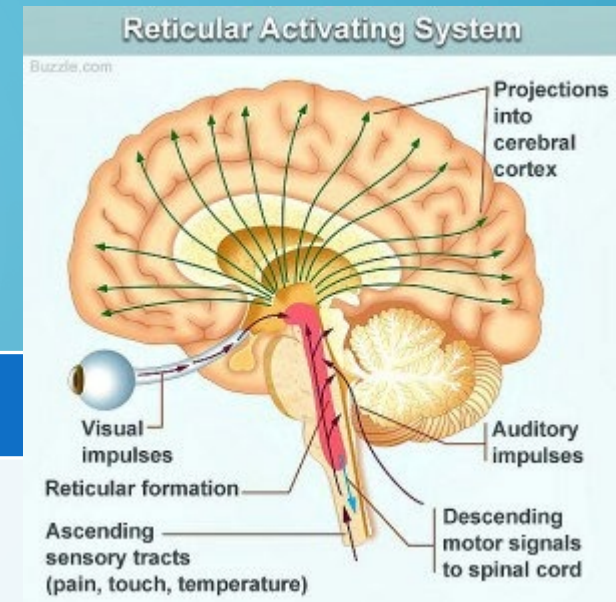


What Role Does Diet Play in Managing Atopic Dermatitis? – Medscape – June 13, 2025.

MARKETING

Reticular activating system

- The reticular activating system (RAS) is a network of neurons
- in the brainstem that controls arousal, sleep, and wakefulness.
- It also helps with attention and sensory perception.
- RAS seeks information that validates your beliefs. It filters the world through the parameters you give it, and your beliefs shape those parameters.
- If you think you are bad at giving speeches, you probably will be. If you believe you work efficiently, you most likely do.
- The RAS helps you see what you want to see and in doing so, influences your actions.



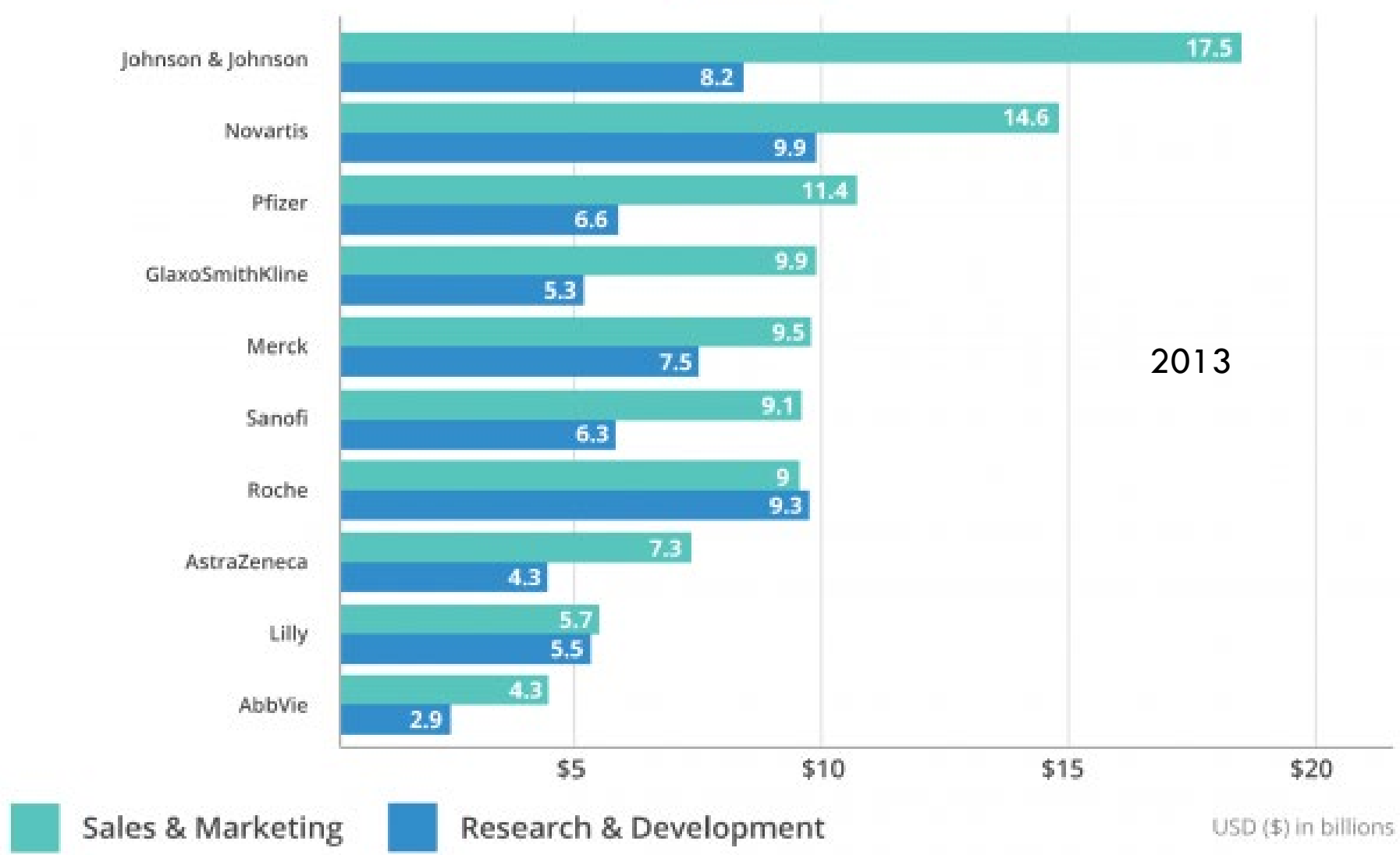
Marketing heavily influences our actions through the RAS!!

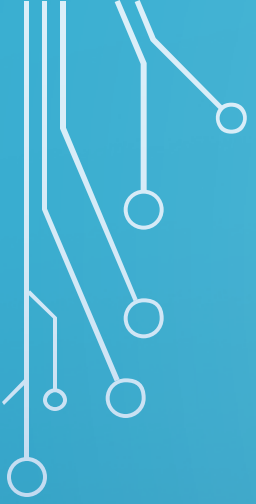


MARKETING

- Commercials
- In-person pharmaceutical reps
- Direct to consumer marketing pop-ups
- Regular dermatology online training (e.g. DVM360, Zoetis, etc)

Big Pharma Spending: Sales & Marketing vs. Research & Development






•**2007** Advertising by pharma companies to consumers reaches \$4.8 billion a year.

•**2011** Congressional Budget Office releases "Potential Effects of a Ban on Direct-To-Consumer Advertising of New Prescription Drugs." Study finds drugs with DTC have nine times more prescriptions than those that do not.

•**2014** FDA considers having fewer risks mentioned in DTC broadcast ads.

•**2015** American Medical Association votes in favor of DTC ban.

•**2016** American Society of Health-System Pharmacists votes in favor of DTC ban.

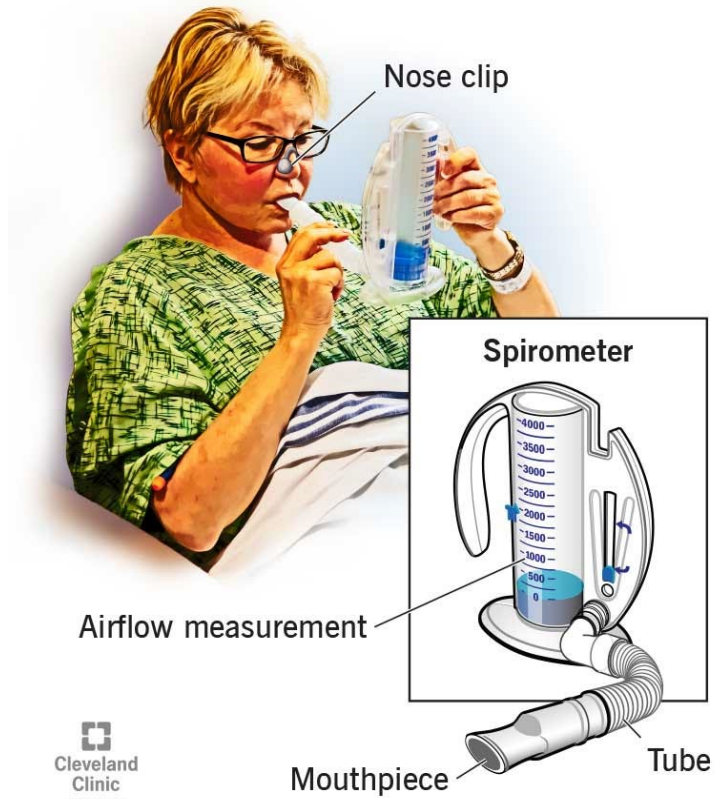


TEST INTERPRETATION

- What is being tested?
- How is it being tested?
- How are results interpreted?
- What is done with the results?



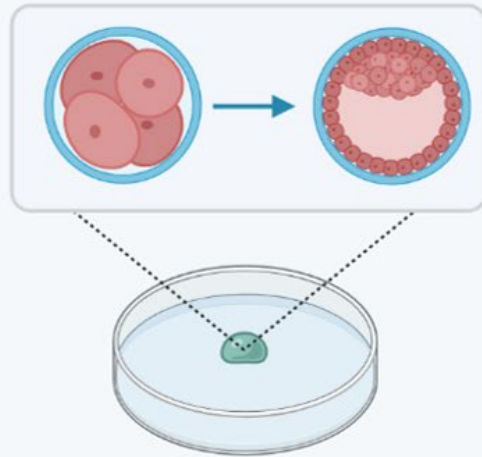
Spirometry



In Vitro Vs In Vivo



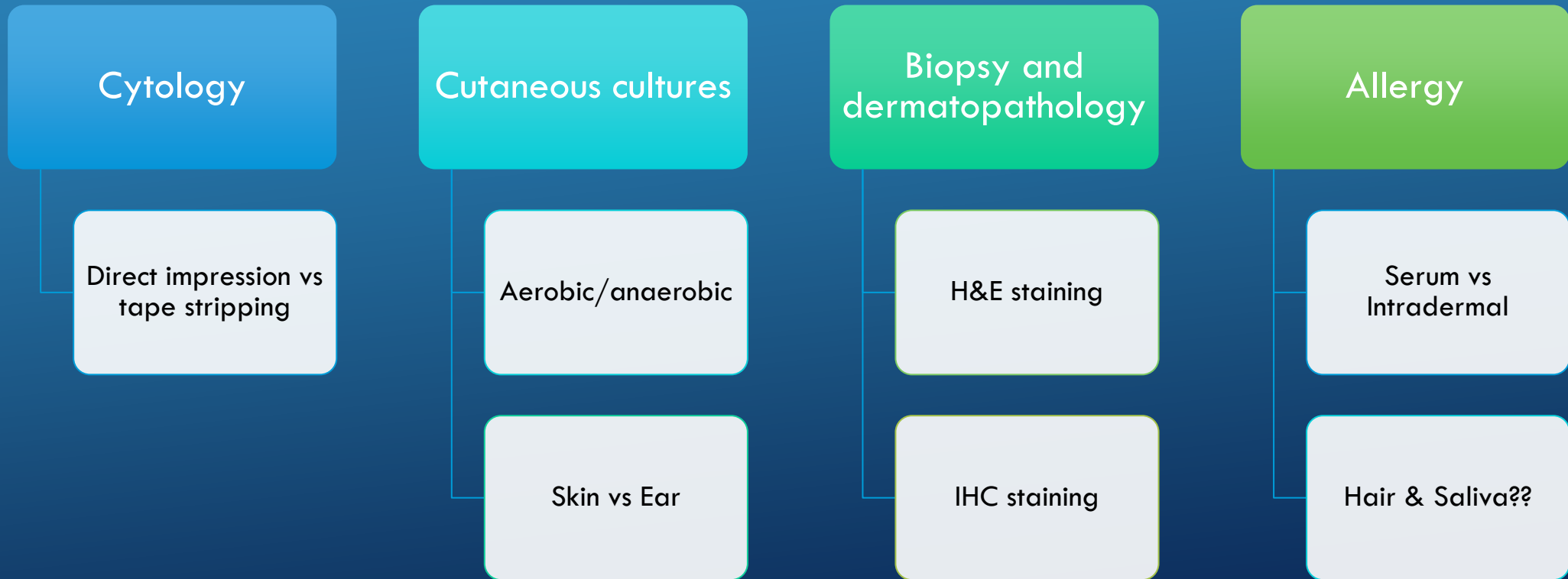
In Vitro



In Vivo



TYPES OF COMMON DERMATOLOGIC TESTS



CYTOLOGY



- Direct impression
 - Glass slide is pressed/scraped along dry or moist lesions
 - Heat fixing or not appears not to matter...I heat fix 😊
- Tape stripping
 - Clear cellophane tape is pressed and lifted from lesional sites
 - No as effective for moist lesions

A WORD ABOUT MICROORGANISMS

- Bacteria and yeast are normal commensal organisms on the skin's surface¹
- Allergic dogs have less diversity to their skin microbiome compared to normal dogs¹
- Bacterial Culture/Antimicrobial Susceptibility Testing is not needed to make or exclude a diagnosis of pyoderma. Samples taken even from healthy skin often yield bacteria, including *S. pseudintermedius*, as part of the normal colonising microbiota in the majority of dogs²

1- Rodrigues Hoffmann A, Patterson AP, Diesel A, Lawhon SD, Ly HJ, Elkins Stephenson C, Mansell J, Steiner JM, Dowd SE, Olivry T, Suchodolski JS. The skin microbiome in healthy and allergic dogs. PLoS One. 2014 Jan 8;9(1):e83197.

2- Loeffler A, Cain CL, Ferrer L, Nishifuji K, Varjonen K, Papich MG, Guardabassi L, Frosini SM, Barker EN, Weese JS. Antimicrobial use guidelines for canine pyoderma by the International Society for Companion Animal Infectious Diseases (ISCAID). Vet Dermatol. 2025 Jun;36(3):234-282.

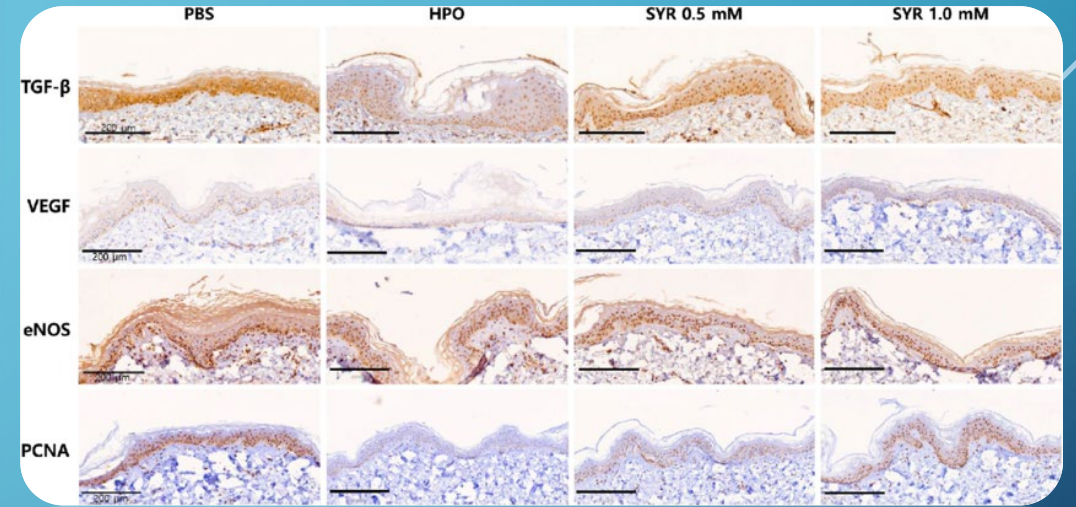
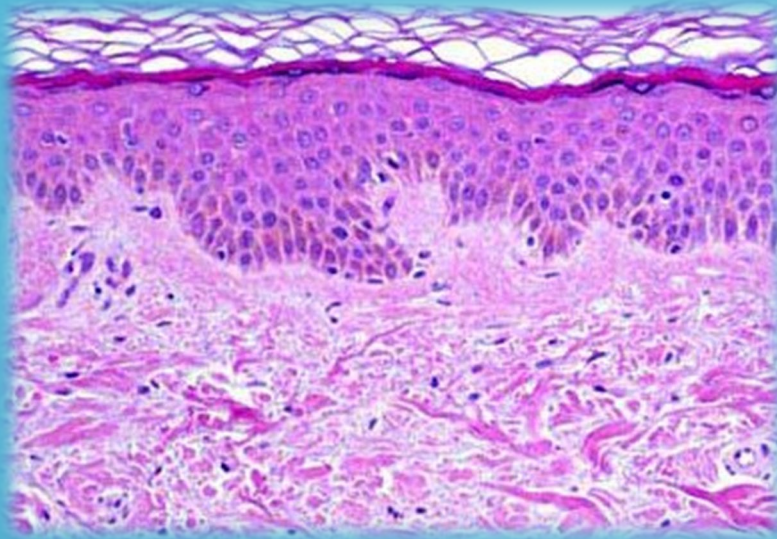
CULTURES

- Standard Copan swabs
- FNA
- Biopsy
- Molecular (MiDog)



BIOPSY

- H&E staining
- Immunohistochemical staining (IHC)
- TAKE SAMPLES DIRECTLY FROM THE MAIN LESION
- ONLY TAKE MARGINAL SAMPLES IF YOU SUSPECT A BULLOUS (blistering), PUSTULAR or VASCULITIC DISEASE



ALLERGY TESTING

- Intradermal
- Serum
- Hair or Saliva



Hair and saliva test fails to identify allergies in dogs

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OBJECTIVES: Several companies offer saliva and/or hair tests for food and environmental allergies in companion animals, but provide no validation of test accuracy. We examined one such hair and saliva allergy test to determine whether it could reliably differentiate between a normal dog and an allergic dog, and to examine test repeatability.

MATERIALS AND METHODS: Ten fur and saliva samples were submitted from a known allergic dog and a normal, non-allergic dog. Five fake fur samples and water were also submitted to determine whether the test could differentiate between a real dog and toy animal. The company performed testing for 128 food and environmental allergens. Statistical analyses were performed to determine whether the response distribution differed significantly between dogs, using the Pearson chi-square coefficient, as well as to determine test–retest reliability by calculating Cohen’s kappa for each allergen.

RESULTS: The distribution of test results from samples obtained from allergic, non-allergic or fake dogs was not different from that expected due to random chance. Test–retest reproducibility was poor to slight.

CLINICAL SIGNIFICANCE: Hair and saliva testing should not be used to diagnose allergies and is not a substitute for veterinary-directed allergy evaluation and diagnostics.

Journal of Small Animal Practice (2019) **60**, 121–125
DOI: 10.1111/jsap.12952

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Hair and saliva analysis fails to accurately identify atopic dogs or differentiate real and fake samples

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Background – The availability of direct-to-consumer medical testing for human and veterinary health conditions has increased in recent years. For allergies, several companies market proprietary hair and saliva tests directly to pet owners. These tests have not been validated and there is limited regulatory oversight for such tests in veterinary medicine.

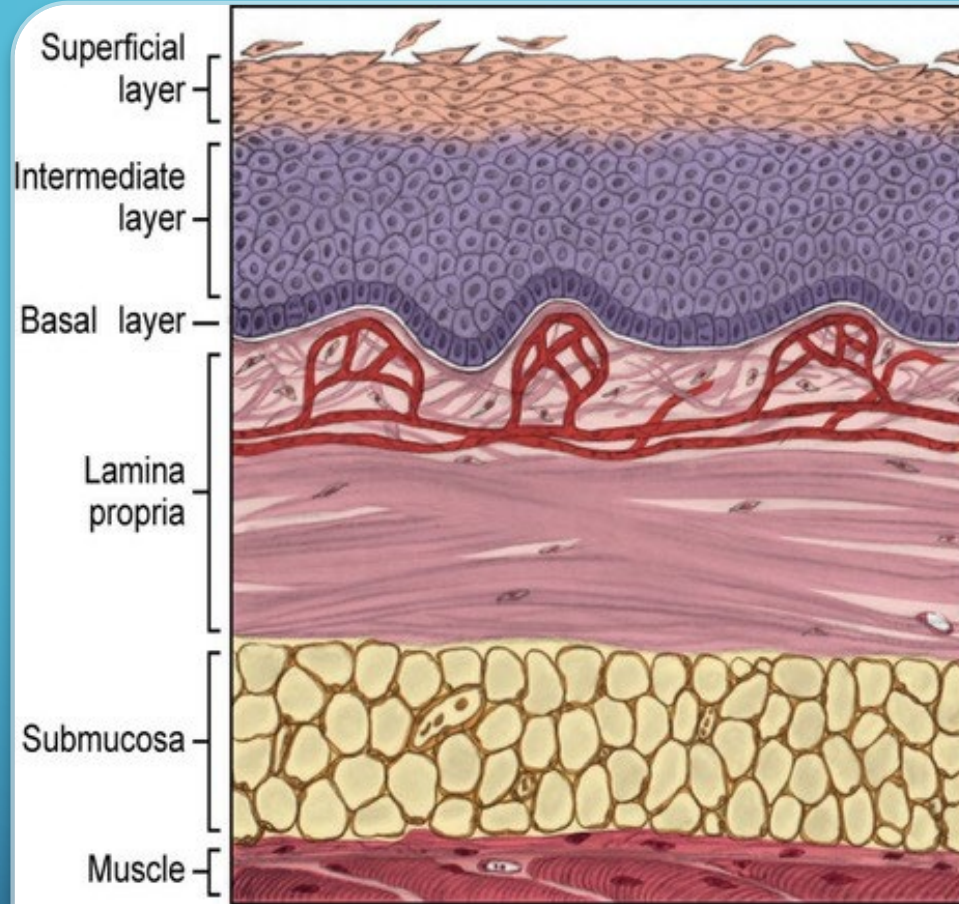
Hypothesis/Objectives – To examine the accuracy and reproducibility of a commercial direct-to-consumer hair and saliva allergen test.

Animals – Seven healthy animals (six dogs, one cat); six animals (five dogs, one cat) with atopic dermatitis; 11 samples of synthetic fur and sterile saline.

Methods and materials – Duplicate animal hair and saliva, and 11 synthetic fur and saline samples were collected (total samples 35) and submitted to the company for analysis, yielding 12,075 outcomes for statistical analysis.

Results – Positive test results were provided by the direct-to-consumer pet allergy for all submitted samples, including synthetic fur and saline. The test results for healthy and atopic animal samples were no different from each other or from synthetic fur and saline samples. Reproducibility for paired samples was not different from random chance. The results for real animals correlated strongly with results for synthetic fur and saline samples ($r = 0.71$, $P < 0.05$).


Conclusions and clinical importance – The direct-to-consumer hair and saliva test for pet allergies examined in this study performed no better than chance and the results were not reproducible.



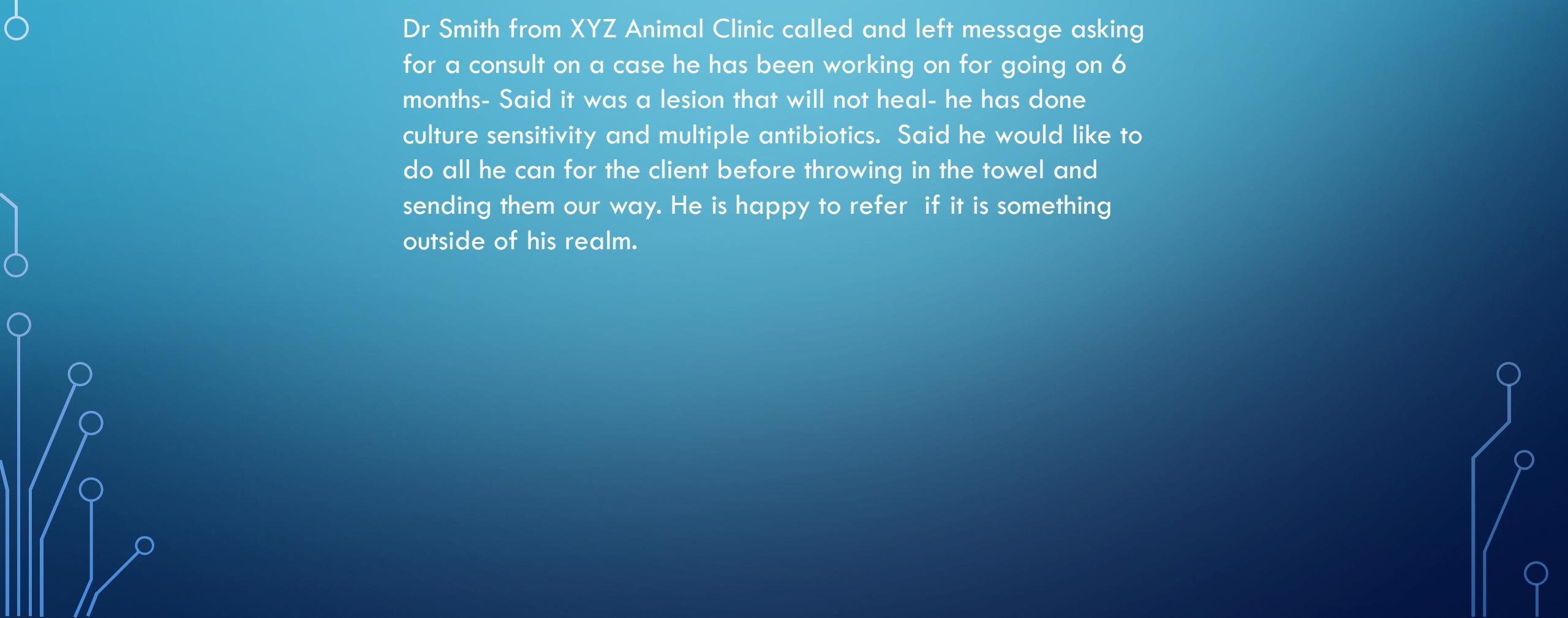
Nonkeratinized Stratified Squamous Epithelium
(and deeper tissues)

FROM ANOTHER VETERINARY CLINIC'S CLIENT COMMUNICATION

Had a long conversation w/O about allergies. O is very unhappy that she has an allergy dog. Doesn't want to keep paying for recheck exams. Told her that we are not responsible that she has a pet w/allergies and it takes time to figure out what causes allergy flares. She asked about a ear culture. Told her it is \$225. She said that she can order her own kit and do that herself.



Dr Smith from XYZ Animal Clinic called and left message asking for a consult on a case he has been working on for going on 6 months- Said it was a lesion that will not heal- he has done culture sensitivity and multiple antibiotics. Said he would like to do all he can for the client before throwing in the towel and sending them our way. He is happy to refer if it is something outside of his realm.



Atopic Dermatitis Care: Is It Time to Call a Specialist?

Christopher G. Bunick, MD, PhD; Louis J. Papa, MD
DISCLOSURES | April 08, 2025

- **Primary care physicians should refer atopic dermatitis patients to specialists early and often**
- **Good benchmarks for referral are when an atopic dermatitis patient is not achieving good skin clearance or itch relief**

QUALITY OF LIFE OF ALLERGIC DOG TREATED WITH ALLERGEN-SPECIFIC IMMUNOTHERAPY

- The quality of life of dogs treated with allergen-specific immunotherapy improved significantly. The dogs were significantly less disturbed at mealtimes (i.e., had better appetites and scratched less at mealtimes) and caused significantly less physical discomfort to their owners (from unpleasant odors to the impression of a dirty apartment) than dogs not treated with allergen-specific immunotherapy. Owners of dogs that received allergen-specific immunotherapy were able to significantly improve their daily activities (such as leisure, vacation, walks, work, hunting), significantly reduce their expenses (treatment costs, veterinary costs), feel significantly less emotional distress (less guilt, powerlessness, sadness, regret, fear, anger, disgust, rage, frustration), and experience less influence on relationships with family members and friends compared to owners of dogs that were not treated with allergen-specific immunotherapy.

A SYSTEMATIC REVIEW OF ALLERGEN IMMUNOTHERAPY, A SUCCESSFUL THERAPY FOR CANINE ATOPIC DERMATITIS AND FELINE ATOPIC SKIN SYNDROME

- Although a number of drugs have been reported to be effective in canine and feline allergic skin disease due to environmental allergens, allergen (-specific) immunotherapy is currently the only causative and definite treatment.
- Allergen immunotherapy consists of the administration of offending allergens to an allergic patient with the aim of decreasing the exaggerated immune response to those allergens by inducing a regulatory response with an increase of regulatory T cells and downregulating the inflammatory response. In the dog, this increase in FoxP3+ Treg cells and concurrent increased concentrations of interleukin-10 and transforming growth factor- β have been documented.

REALITY



EXPECTATIONS



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THANK YOU!!