

Gestione della dermatite atopica

XXI Congresso Nazionale
Società Italiana di Pediatria
Preventiva e Sociale



**La prevenzione:
da atto medico a risorsa
per la collettività**

30 Maggio • 1 Giugno 2009, *Siena*

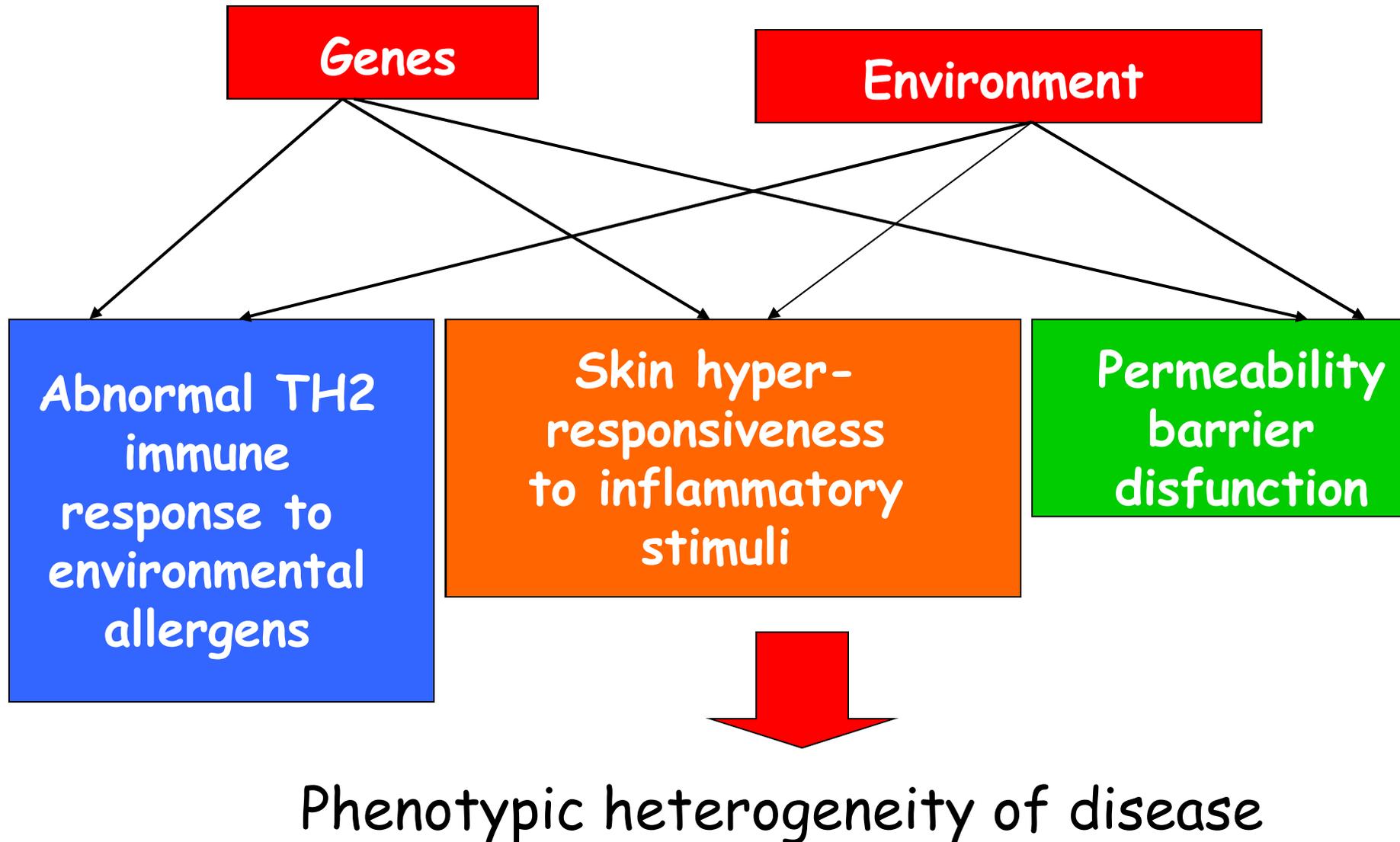
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Policlinico S. Maria "Le Scotte"



Peroni Diego

Clinica Pediatrica di Verona

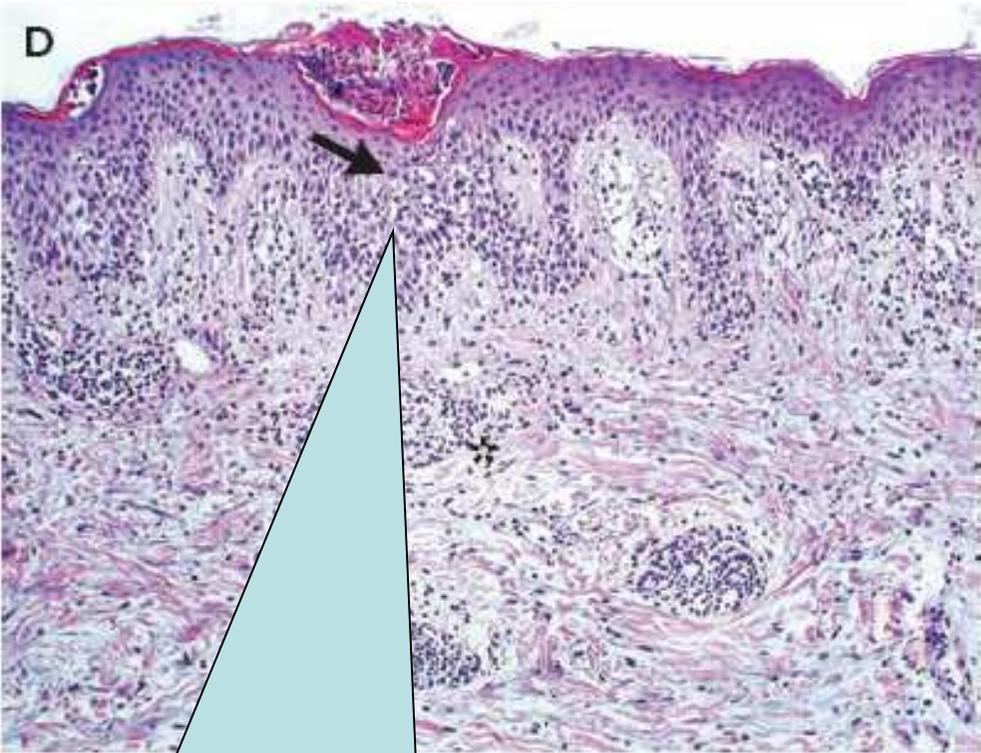
Pathogenesis of atopic eczema



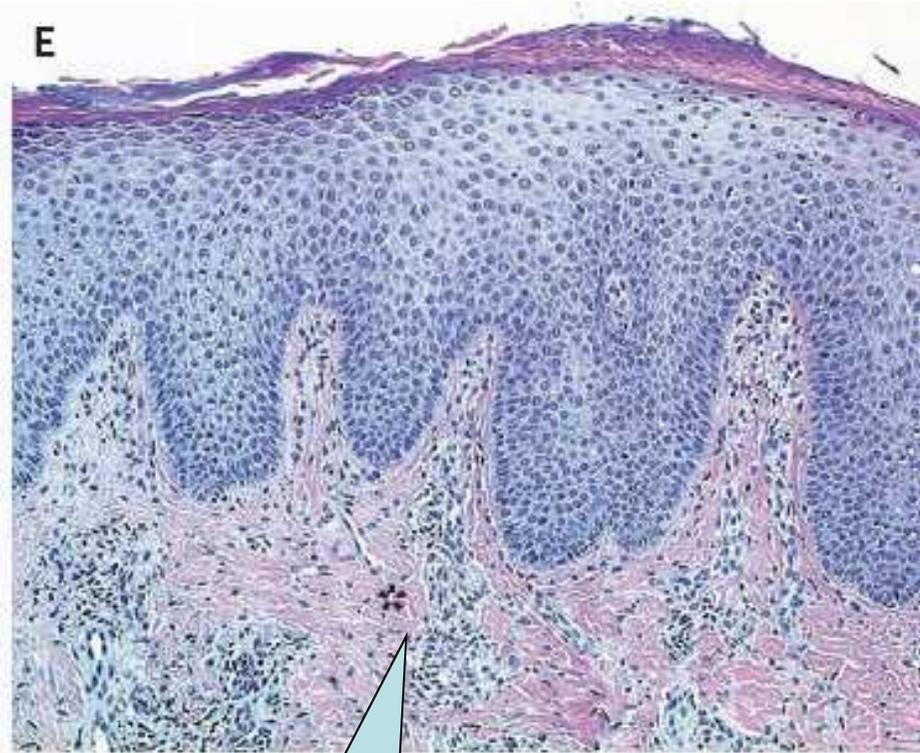


Atopic Dermatitis

Bieber T, N Engl J Med 2008;358:1483



the typical histologic aspects of acute lesions, indicates a spongiotic area within the epidermis



Perivascular infiltrate

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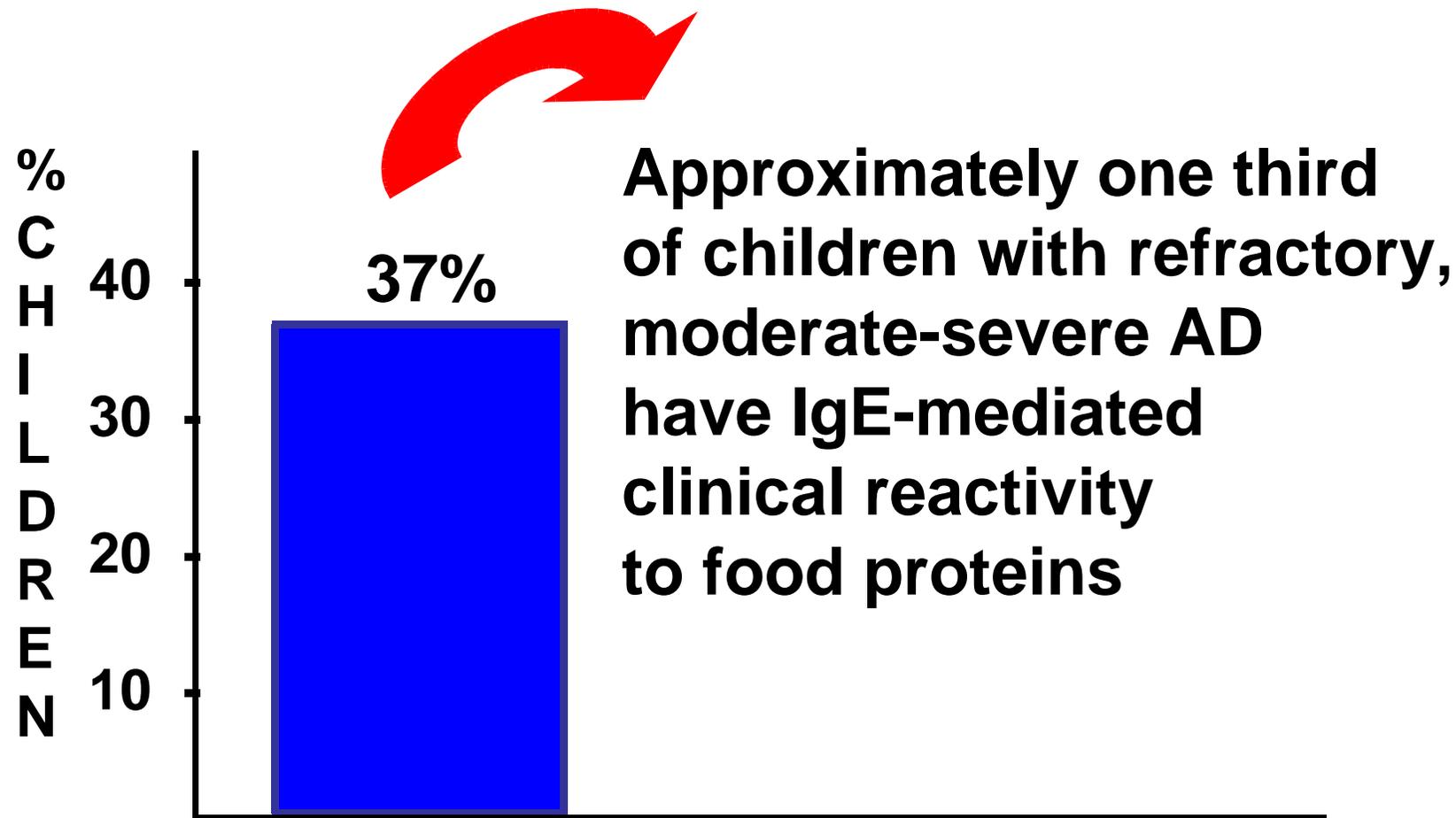
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- **Role of allergens**
- **Epidermal barrier impairment**
- **Role of infections**

Prevalence of IgE-mediated food allergy among Children with atopic dermatitis

Eigenmann Pediatrics 1998; 101: E8



AD TRIGGERS

Jones Imm All CNA; 2002; 22: 55

✓ food allergens (most common)

77% of (+) SPT to food
are clinically irrelevant

peanut

soy

wheat

shellfish

fish

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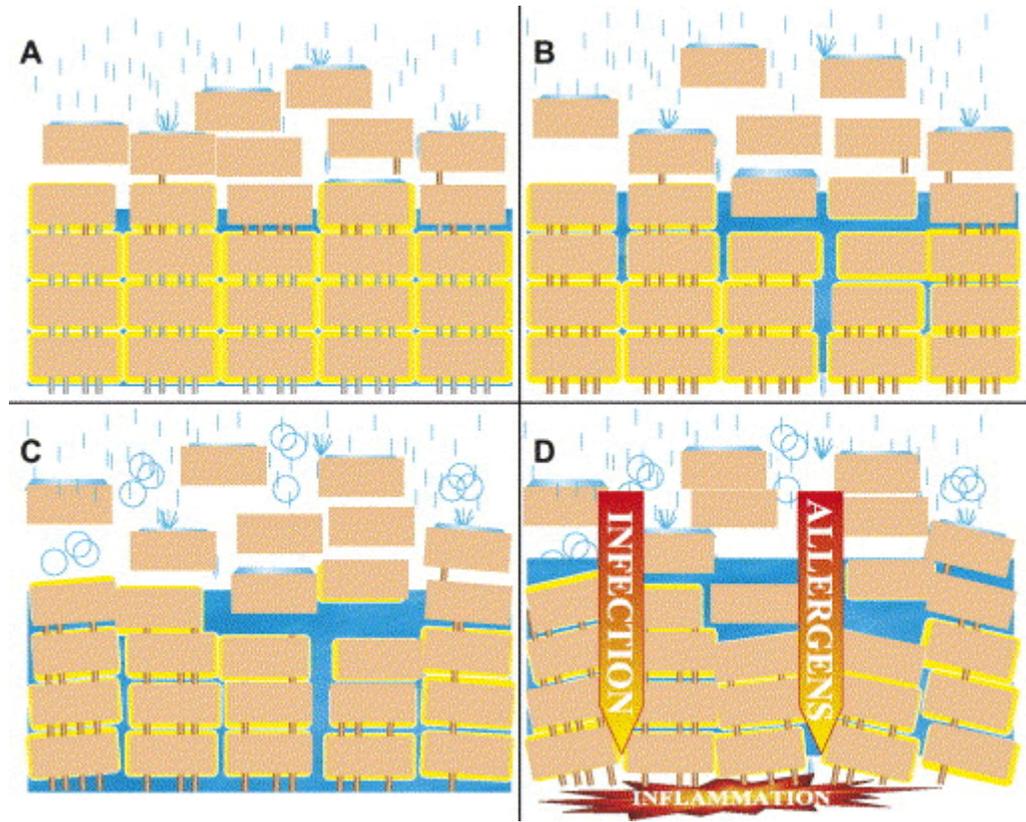
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The brick wall analogy of the stratum corneum of the epidermal barrier



If the iron rods are already weakened, an environmental agent, such as soap, can corrode them much more easily. The brick wall starts falling apart (C) and allows the penetration of allergens (D).

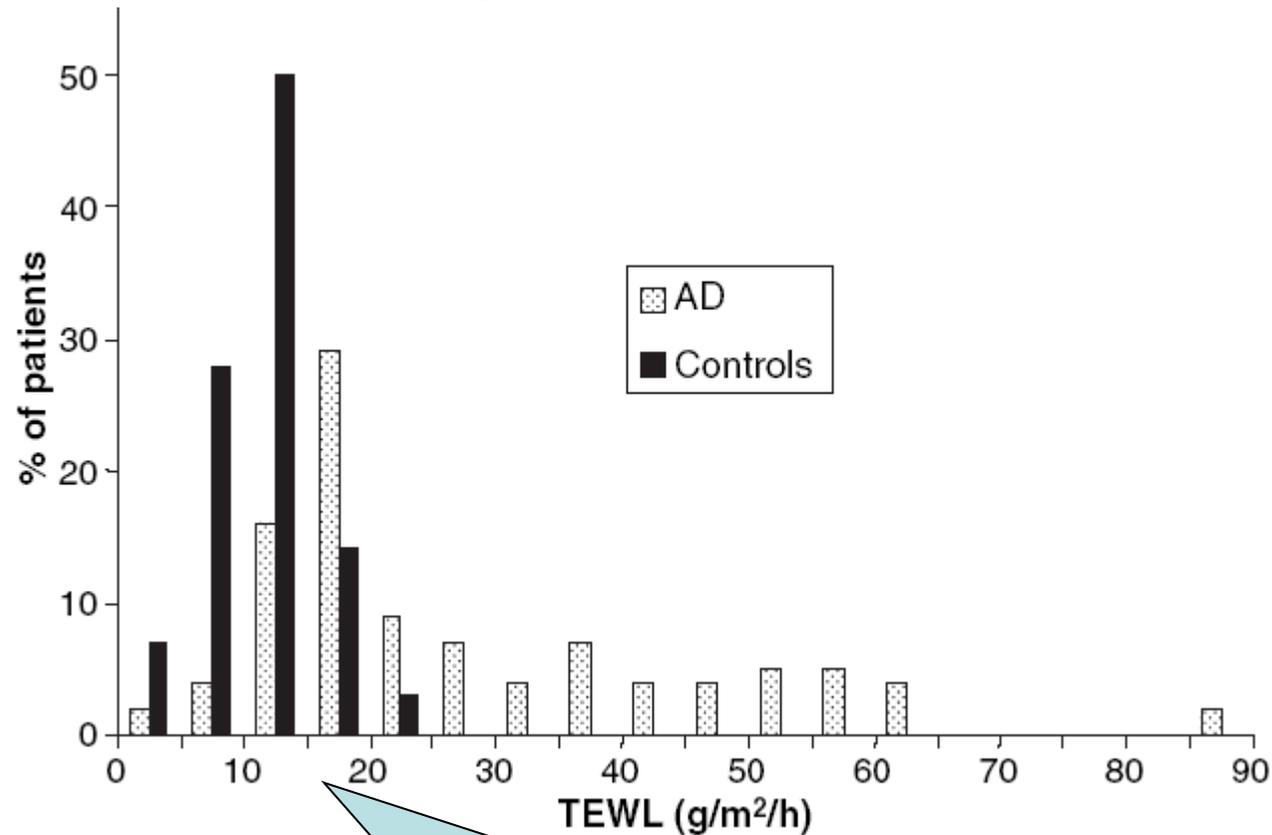
Epicutaneous aeroallergen sensitization in atopic dermatitis infants - determining the role of epidermal barrier impairment. F Boralevi, Allergy 2008; 63: 205

➤ 59 AD children and 30 controls

➤ aged 3-12 mo

➤ TEWL

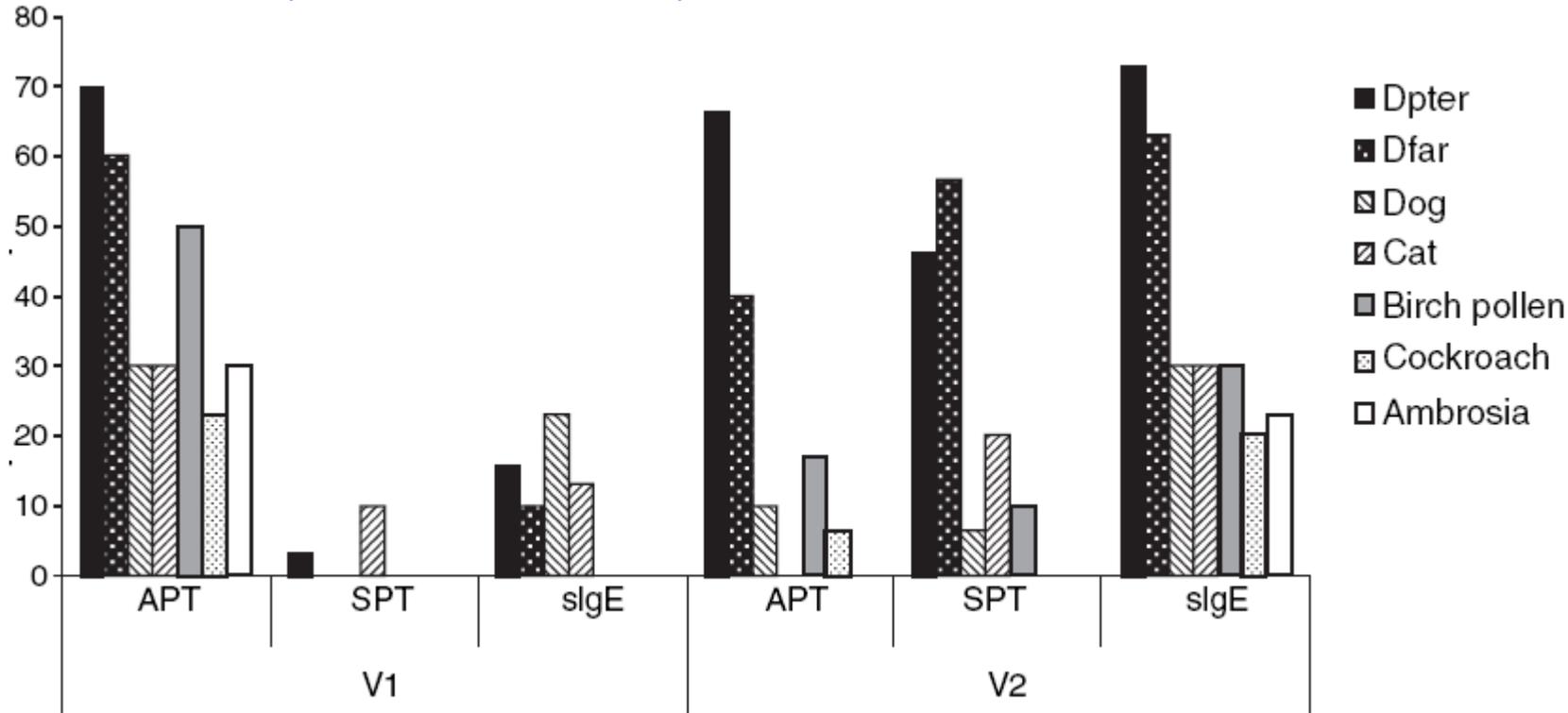
➤ SPT, APT, sIgE x 7 aeroallergens



The majority of AD patients (79%) had a TEWL above 15 g/m²/h, while TEWL was less than 15 g/m²/h in 83% of controls.

Epicutaneous aeroallergen sensitization in atopic dermatitis infants - determining the role of epidermal barrier impairment. F Boralevi, Allergy 2008; 63: 205

% of patients with positive tests



At baseline

At follow-up, after 2 yrs

Epicutaneous aeroallergen sensitization in atopic dermatitis infants - determining the role of epidermal barrier impairment. F Boralevi, Allergy 2008; 63: 205

% of patients with positive tests

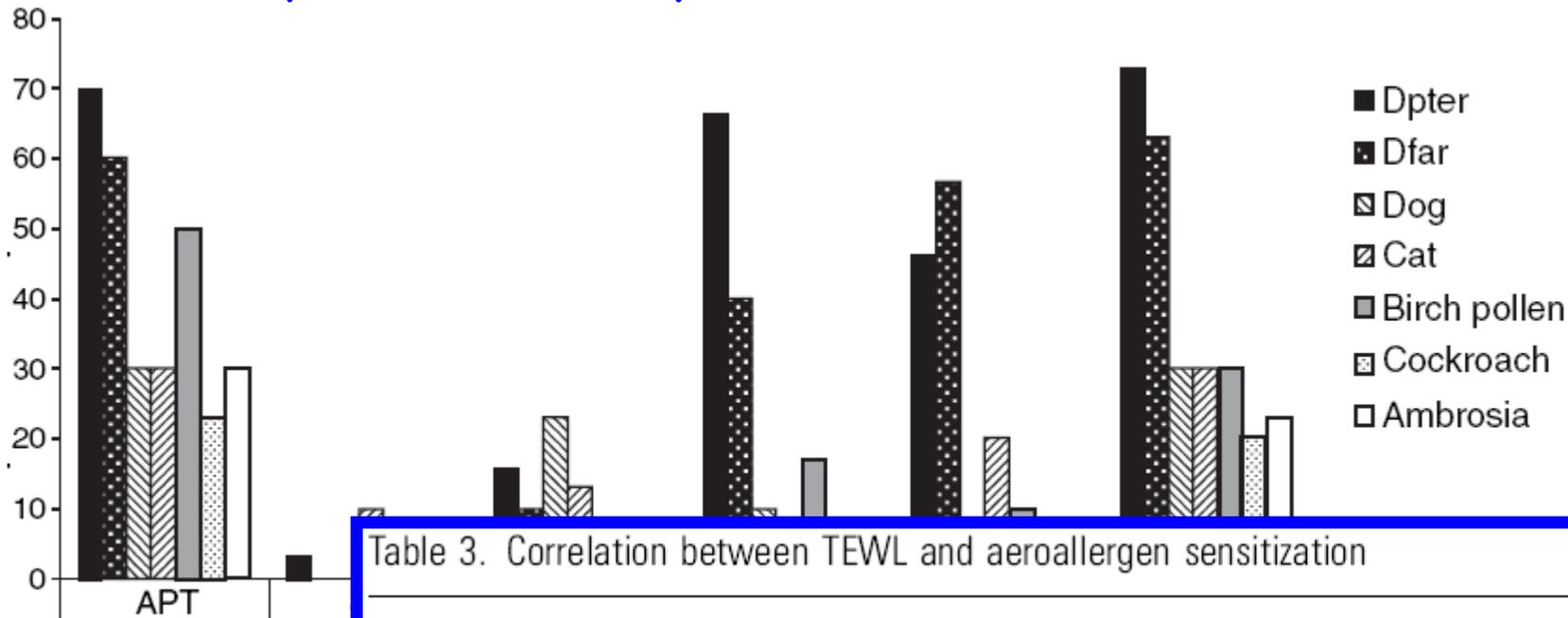
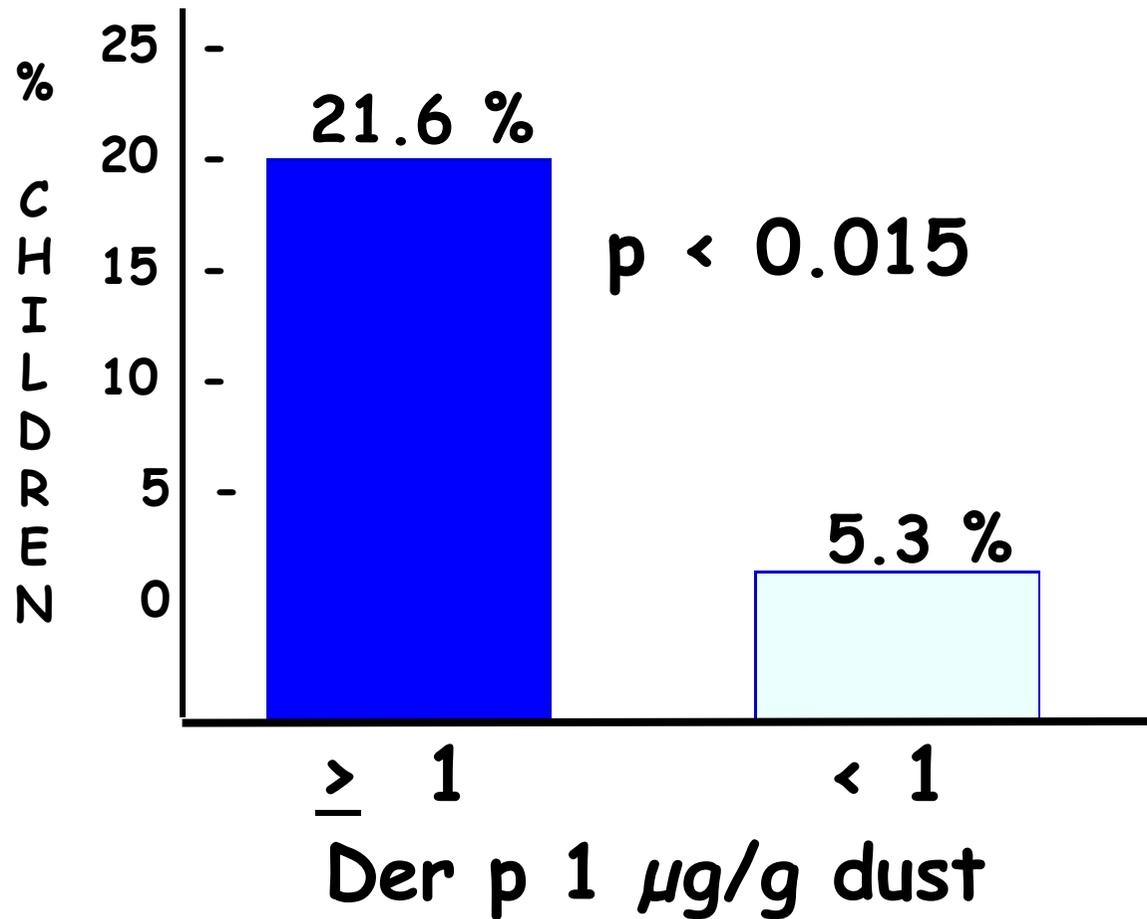


Table 3. Correlation between TEWL and aeroallergen sensitization

	0 or 1 positive APT	2 or more positive APT	
Mean TEWL (g/m ² /h)	19.031	31.134	<i>P</i> = 0.0256
SD	10.7	19.0	
95% CI	12.8–25.2	25.2–37.9	

At b

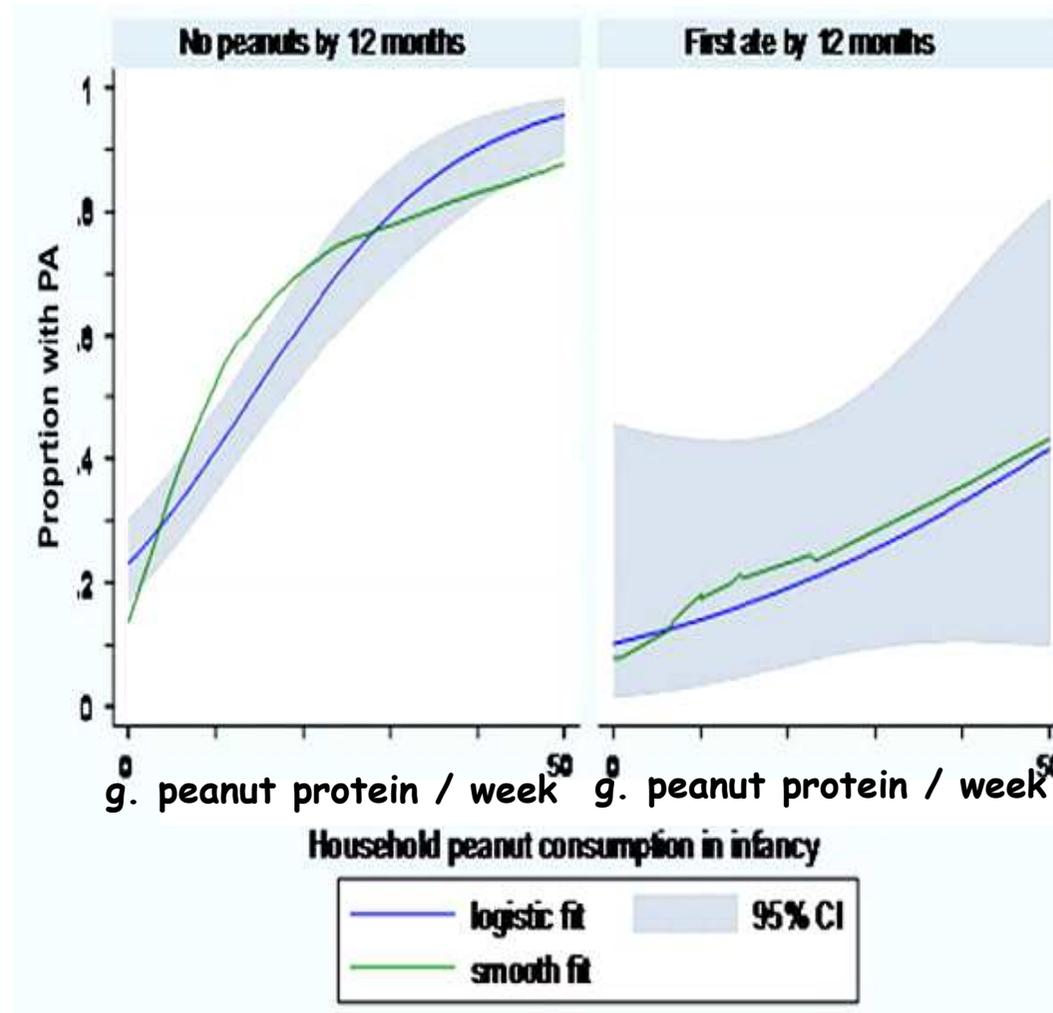
Exposure to *Dermatophagoides pteronyssinus* and
the occurrence of atopic dermatitis at 3 years of age
Huang Ped. All. Imm. 2001; 12:11



Household peanut consumption as a risk factor for the development of peanut allergy

Fox JACI 2009; 123:417

Peanut allergy among children with food allergy (n= 293) as a function of environmental exposure depending on whether child first ate peanuts by 12 months.

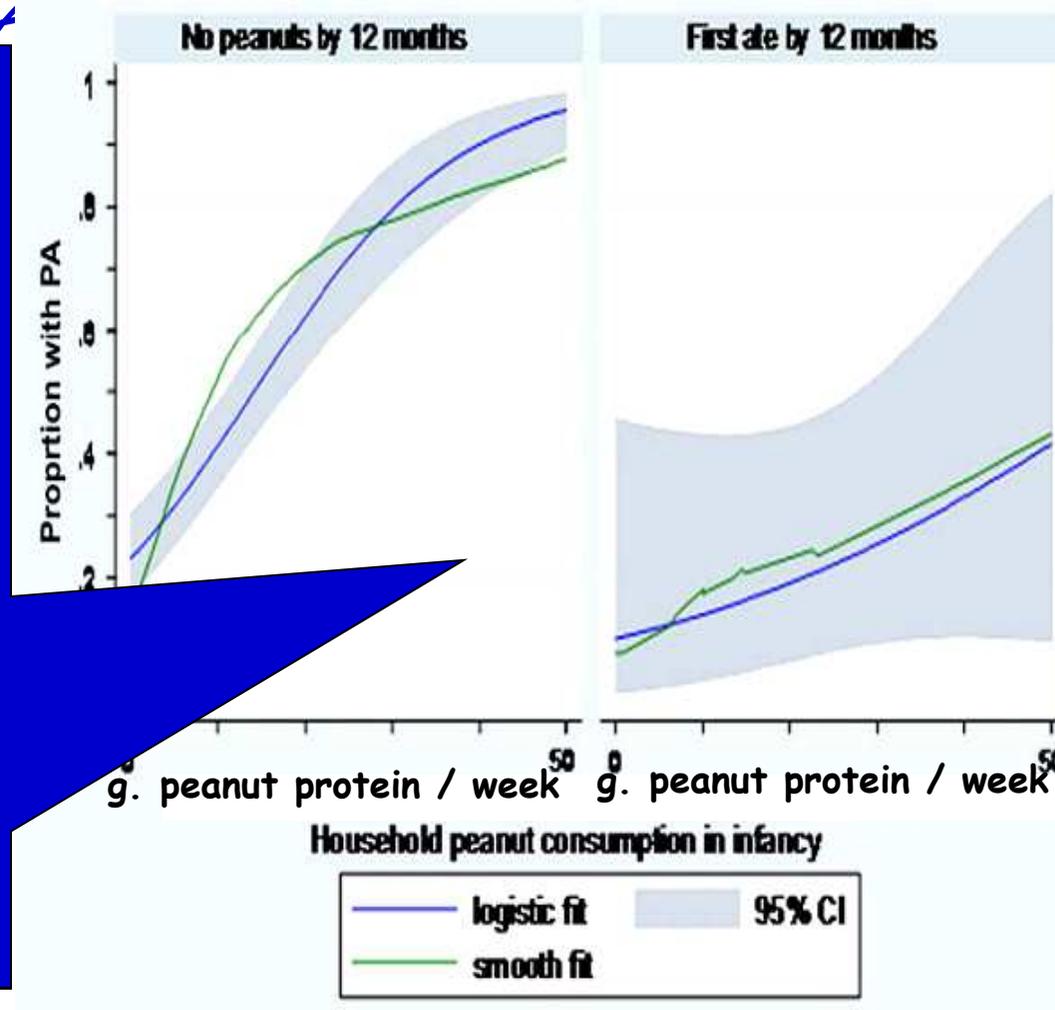


Household peanut consumption as a risk factor for the development of peanut allergy

Fox JA *et al* 2008 *100* *117*

the strong relationship between PA (in high-risk children) and household peanut breaks down in the subgroup of children who themselves ate peanuts by 12 months

months.

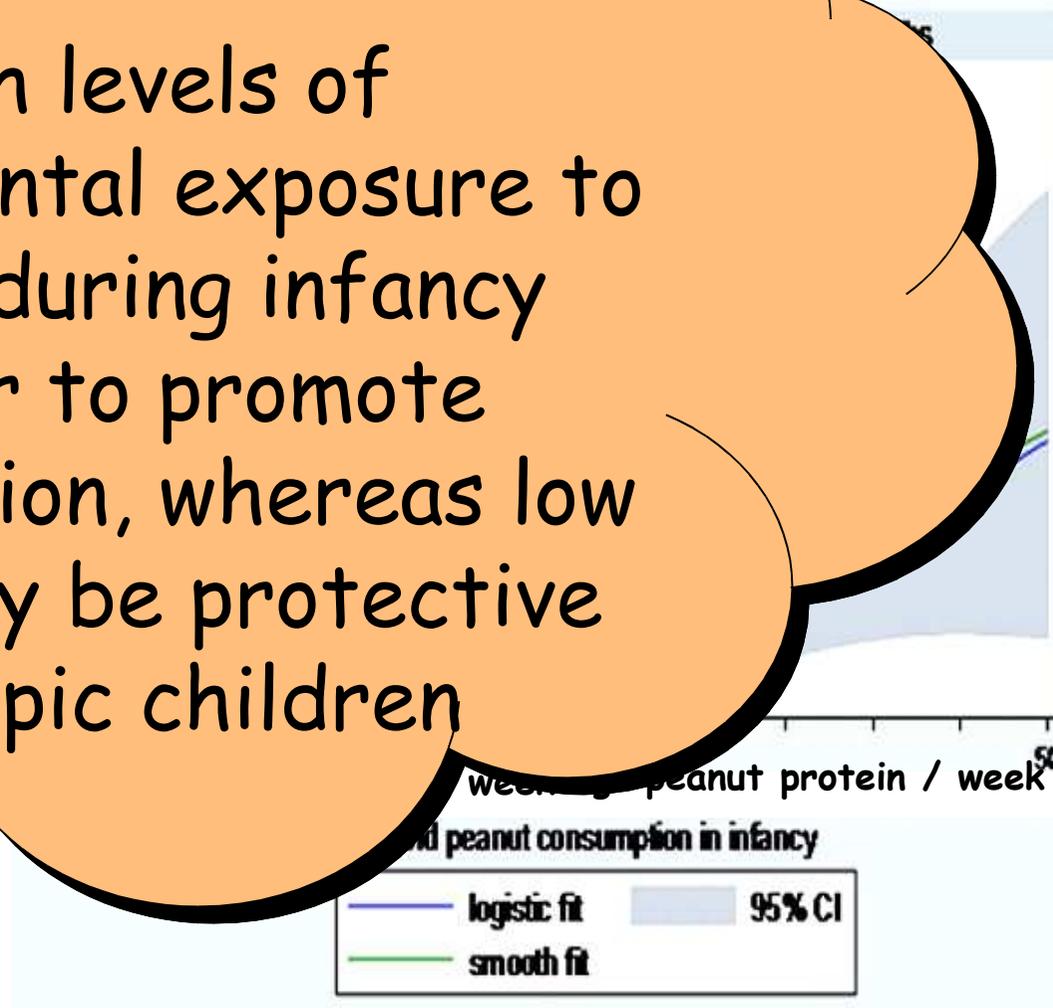


Household peanut consumption as a risk factor for the development

of

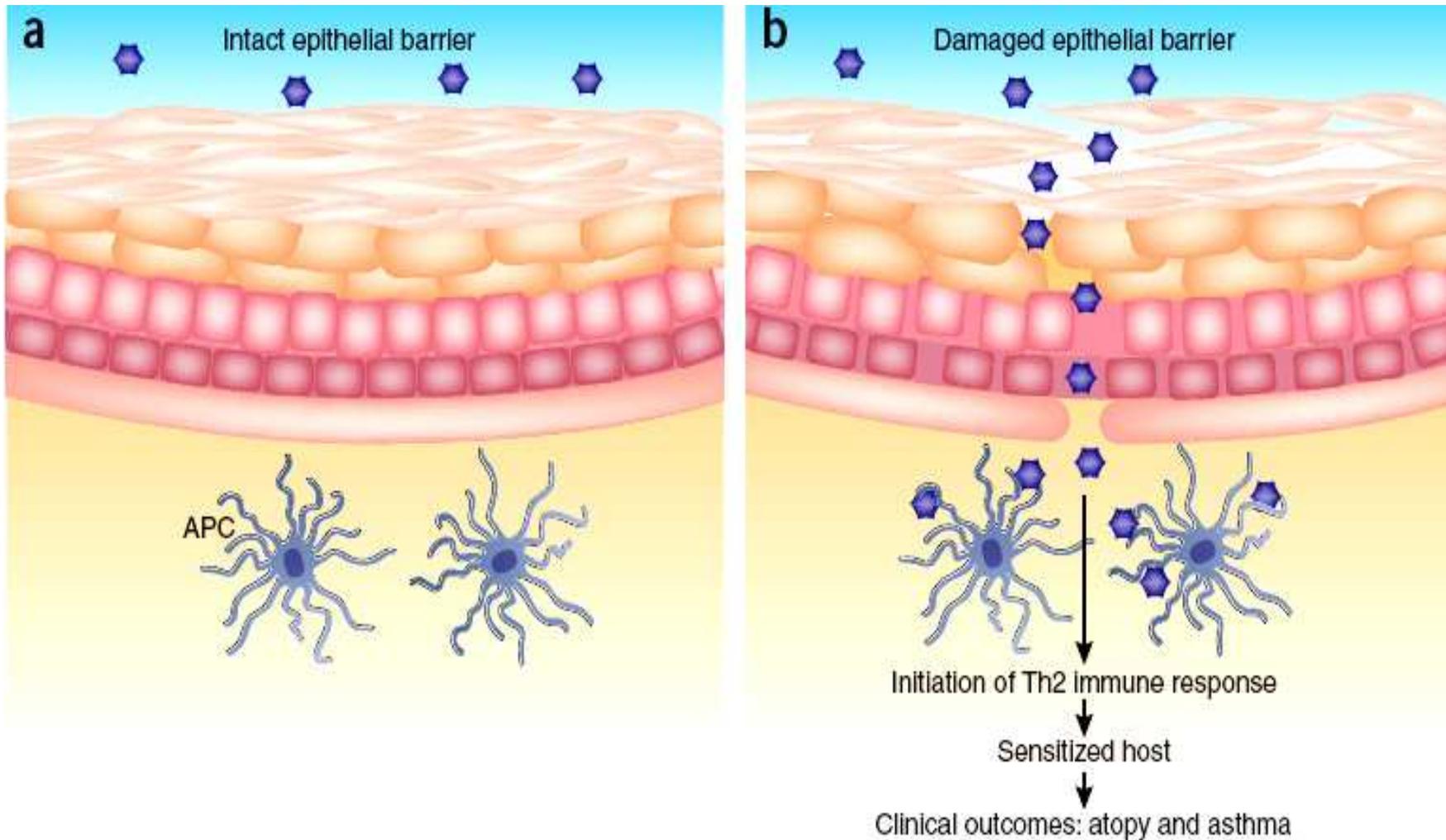
High levels of environmental exposure to peanut during infancy appear to promote sensitization, whereas low levels may be protective in atopic children

Peanut
of
fu
e
e.
depend
whether
first ate peanuts
by 12
months.



SKIN BARRIER FUNCTION AND ALLERGIC RISK

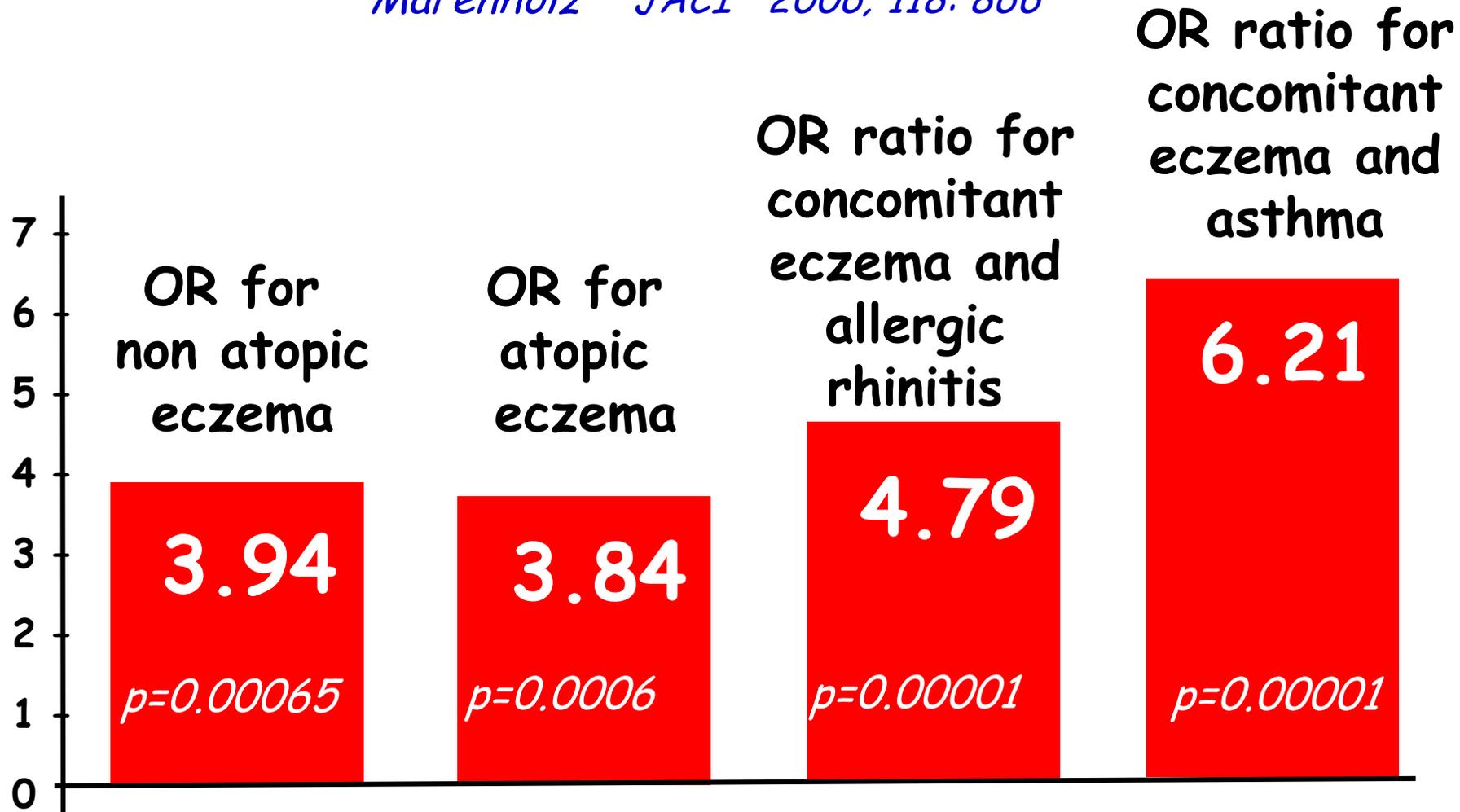
Hudson Nature Genetics 2006; 38: 399



An intact epithelial barrier (a) prevents allergens from reaching antigen presenting cells (APCs) in subepithelial tissues. Damage to this barrier (b) allow allergens to penetrate into the subepidermal layer and interact with APCs, leading to allergic sensitization and, secondarily, to allergic manifestations in the host.

FILAGRIN LOSS-OF-FUNCTION MUTATIONS PREDISPOSE TO PHENOTYPES INVOLVED IN THE ATOPIC MARCH

Marenholz JACI 2006; 118: 866



IN CHILDREN WITH FILAGGRIN LOSS-OF-FUNCTION MUTATION

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- Role of allergens
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- Role of infections

Severe atopic dermatitis is associated with a high burden of environmental *Staphylococcus aureus*. Leung, CEA 2008

62 pts aged 1-40 yrs

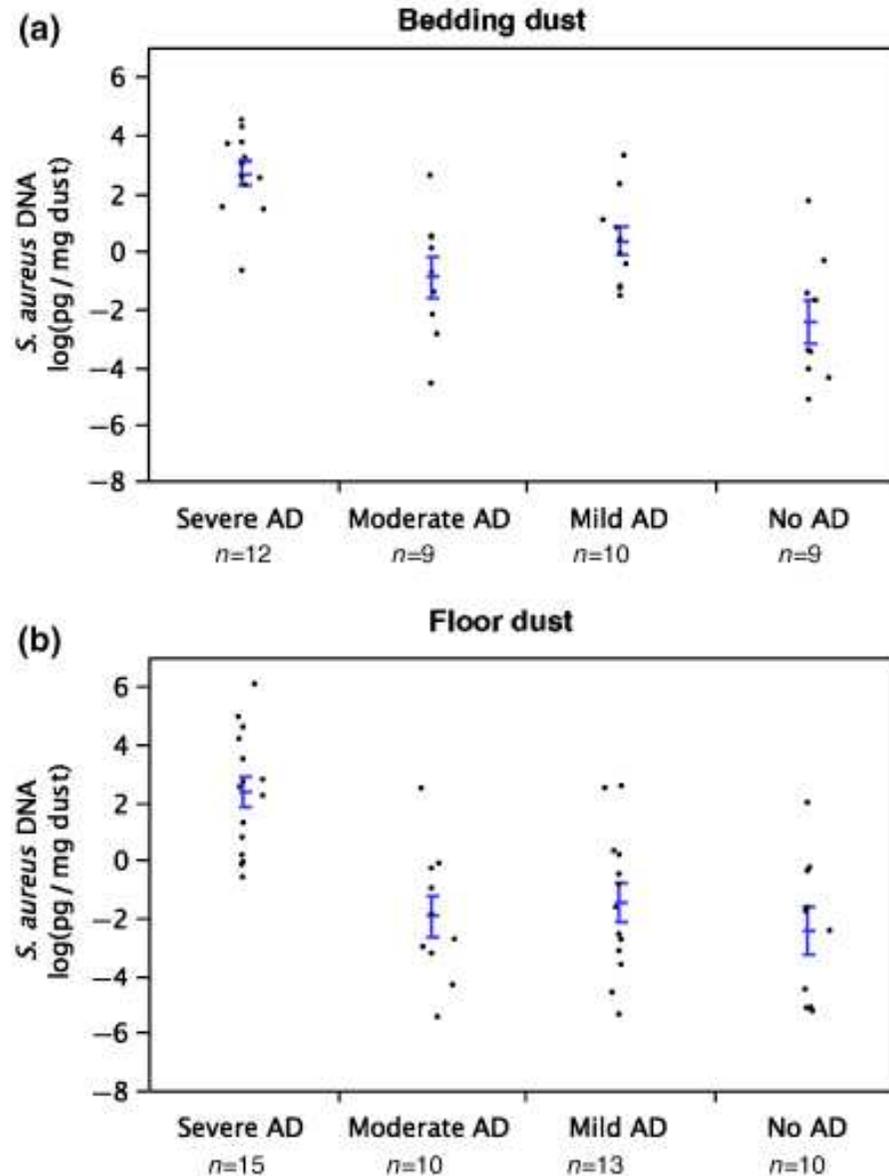
➤ 18 participants had mild AD;

➤ 14, moderate AD;

➤ 15, severe AD;

➤ and 15 had no AD

➤ Bed, floor, dust bag evaluation for S.A.



Severe atopic dermatitis is associated with a high burden of environmental *Staphylococcus aureus*. Leung, CEA 2008

Strong association between home environmental *S. aureus* burden and severe AD.

High environmental *S. aureus* burden could cause severe disease in susceptible hosts, both inflammatory and infectious.

62 pts

1

14

1

and

Bed, floor,

(a)

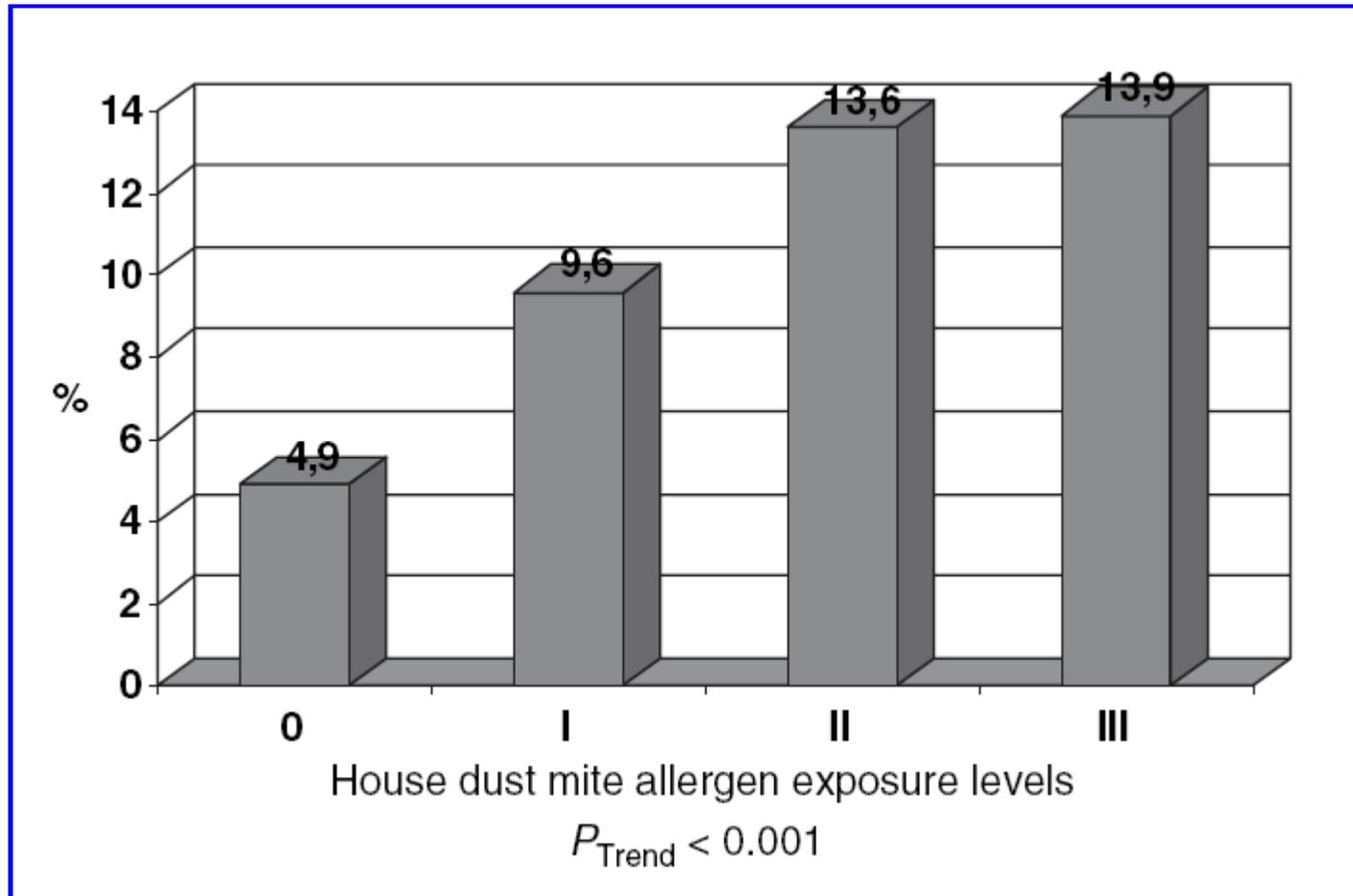
Bed

Moderate AD n=10 Mild AD n=13 No AD n=10

Atopic eczema and indoor climate: results from the children from Lubeck allergy and environment study (KLAUS).

Schafer, Allergy 2008; 63:244.

Relationship between prevalence of atopic eczema and measured house dust mite allergen exposure levels



Atopic eczema and indoor climate: results from the children from Lubeck allergy and environment study (KLAUS).

Schafer, Allergy 2008; 63:244.

Relationship between indoor climate and atopic eczema and measured IgE levels

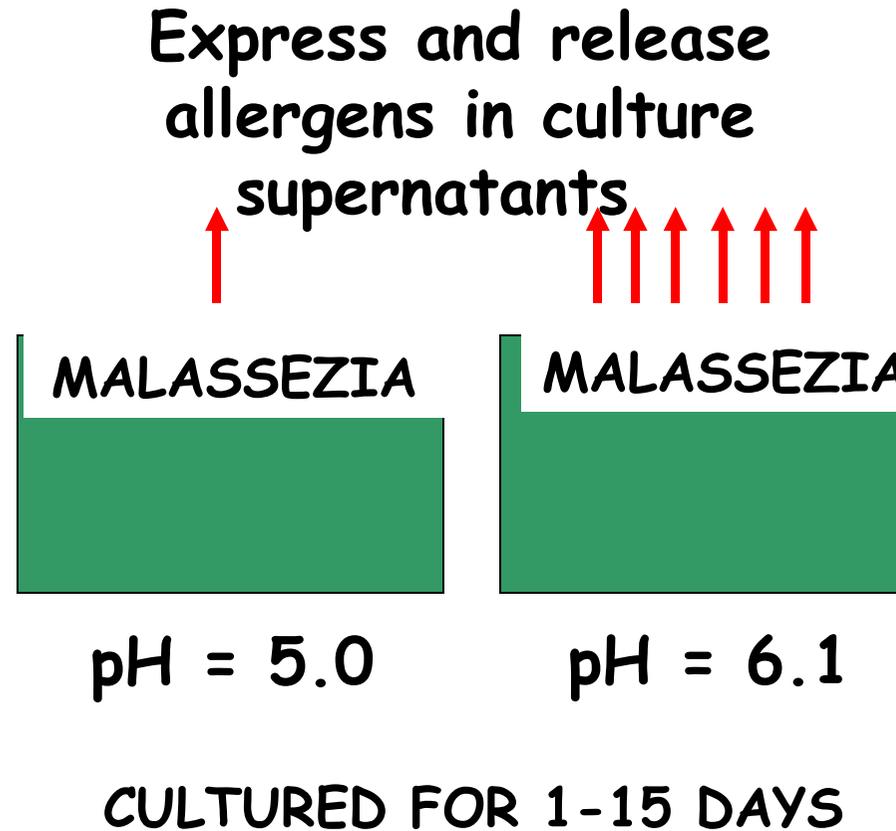
an unfavourable indoor climate, especially a high humidity and visible moulds, which is known to be associated with allergic sensitization and respiratory allergy, also correlates with AE.

children with atopic eczema (7.3%) (OR 1.84)

HIGHER PH LEVEL, CORRESPONDING TO THAT ON THE SKIN OF PATIENTS WITH ATOPIC ECZEMA, STIMULATES THE RELEASE OF MALASSEZZIA SYMPODIALIS ALLERGENS

Salander Allergy 2006;61:1002

- ✓ The opportunistic yeast *Malassezia* is a trigger factor in atopic eczema;
- ✓ Around 30-80% of patients with AE have an IgE and/or T-cell reactivity to the yeast;
- ✓ The pH of the skin surface in patients with AE is higher than that of normal healthy skin.



Sensitization to *Malassezia* in infants and children with atopic dermatitis: prevalence and clinical characteristics.

Lange, Allergy 2008; 63:486

- ✓ 141 ch.
- ✓ Aged 3-196 mo.
- ✓ SCORAD
- ✓ IgE to *Malassezia*

We demonstrate a sensitization rate to *Malassezia* of 17% in infants and children with atopic dermatitis.

	All patients (n = 141)		Infants 12 months or younger (n = 58)		Children older than 12 months (n = 83)	
	Odds ratio (95% CI)	P-value	Odds ratio (95% CI)	P-value	Odds ratio (95% CI)	P-value
Chronic active disease	4.42 (1.6–11.4)	0.003	5.54 (1.2–25.43)	0.011	3.87 (1.21–12.35)	0.015
Lesions on hands and feet	4.2 (1.6–11.4)	0.001	2.35 (0.56–9.9)	ns	7.31 (1.53–34.9)	0.005
Repeated oozing lesions	3.49 (1.34–9.06)	0.007	10.67 (1.2–91.9)	0.018	2.28 (0.72–7.13)	ns
Lesions on the neck	3.32 (1.31–8.39)	0.009	3.44 (0.77–15.48)	ns	3.23 (0.99–10.51)	0.044
Lesions on the face	3.28 (1.14–9.31)	0.022	2.59 (0.29–22.9)	ns	4.44 (1.28–15.4)	0.013
Sensitization to food allergens	11.19 (2.51–49.75)	<0.0001	0.77 (0.65–0.91)	0.023	9.29 (1.94–44.4)	0.001
Sensitization to aeroallergens	2.79 (1.06–7.35)	0.034	2.46 (0.48–12.68)	ns	2.97 (0.77–11.5)	ns
Sensitization to <i>Candida albicans</i>	15.42 (4.29–55.36)	<0.0001	13.42 (1.07–168.3)	0.013	22.13 (4.38–111.86)	<0.0001

Vitamin D Regulation of Cathelicidin in the Skin: Toward a Renaissance of Vitamin D in Dermatology?

Segaert J Invest Dermatol 2008, 128, 773

1,25-Dihydroxyvitamin D₃, the active form of vitamin D, is a major regulator of the expression of the cationic antimicrobial peptide cathelicidin, not only in monocytes but also in epidermal keratinocytes.

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- Role of allergens
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- **Conclusions**

Early predictors for developing allergic disease and asthma: examining separate steps in the "allergic march" *Almqvist ClinExpAll 2007;37:1296*

In non-sensitized children, eczema, but not wheeze, is a predictor for subsequent development of sensitization.

In children not sensitized at 18 months OR for sensitization at age 5

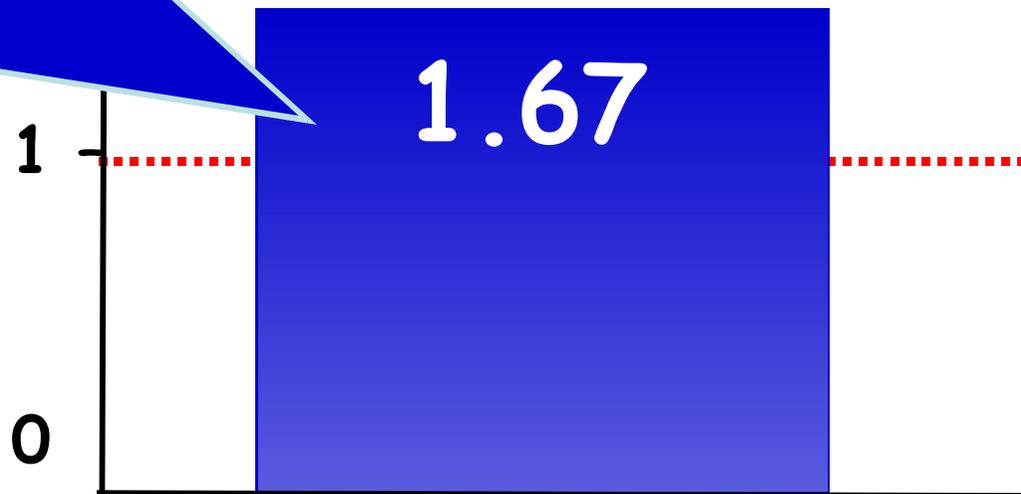


Eczema at age 18 months

Early predictors for developing allergic disease and asthma: examining separate steps in the "allergic march" *Almqvist ClinExpAll 2007;37:1296*

This suggest that early childhood eczema may promote subsequent allergen sensitization and raises the possibility that early managment of eczema may reduce the prevalence of sensitization in children

In children not sensitized at 18 months OR for sensitization at age 5



Eczema at age 18 months

Prevention of allergic respiratory disease in infants: current aspects and future perspectives

Holt Curr Opin Allergy Clin Immunol 2007; 7:547-555.

the reversibility of severe atopic diseases decreases over time after onset,

