La casa del bambino allergico

Carlo Capristo
CONTROLLO AMBIENTALE

- Materassi e cuscini devono essere avvolti in fodere speciali, impermeabili agli acari e altri allergeni, ma permeabili al sudore umano; se nella camera del soggetto allergico ci sono più letti è opportuno adottare per tutti analoghi accorgimenti.

- Coperte e piumoni devono essere lavati a 55°-60° ogni due settimane e, quando possibile, arieggiai. È consigliabile lasciare il letto freddo per alcune ore, consentendo in tal modo una riduzione di temperatura ed umidità.

- Piccoli oggetti che accumulano polvere, come libri e giochi, devono essere riposti il più possibile in cassetti o armadi. Sono da preferire giocattoli in gomma o legno, evitando soprattutto quelli in pelouche. I vestiti contenuti in appositi sacchi di plastica vanno conservati negli armadi.

- Tappeti e moquette vanno eliminati; anche l’aspirapolvere più potente, infatti, non riesce ad aspirare gli acari vivi che possono reinfezare l’ambiente. Il pavimento in ceramica o marmo è da preferire a quello in legno o linoleum. Ogni tipo di pavimento va pulito tutti i giorni con un panno umido.

- La camera da letto deve essere arredata con mobili semplici e facili da pulire. Le tende eventualmente presenti devono essere di cotone o sintetiche, facilmente smontabili e lavabili. I mobili imbottiti presenti nella stanza vanno sostituiti con quelli in legno o laminato, facili da pulire con un panno umido. I bambini devono evitare di saltare sui letti e/o divani e giocare con i cuscini.

- Bisogna cercare di mantenere la temperatura ambientale non superiore ai 18°-20° e l’umidità relativa al di sotto del 50%; è controindicato, quindi, l’uso dell’umidificatore ed è sconsigliato stendere la biancheria in casa. Durante o dopo un’attività domestica che produce calore e umidità (cucinare, fare la doccia, ecc.) è opportuno arieggiare la stanza.

- Le pulizie domestiche non devono essere eseguite in presenza del soggetto allergico. È consigliabile usare un aspirapolvere con filtri ad alta efficienza (filtri HEPA) per impedire la dispersione nell’ambiente degli allergeni aspirati. Se la casa è dotata di riscaldamento ad aria e/o condizionatori, i filtri vanno puliti e sostituiti periodicamente.

- Evitare di tenere in casa animali quali cani, gatti e uccelli.

- NON FUMARE! Il fumo sia attivo che passivo rappresenta nell’ambiente domestico una fonte di inquinamento molto pericolosa e incide sulla funzionalità respiratoria in misura maggiore rispetto all’inquinamento provocato dalle attività industriali e dal traffico automobilistico.
Original article

Environmental prevention in atopic eczema dermatitis syndrome (AEDS) and asthma: avoidance of indoor allergens

Indoor allergens represent an important precipitating factor for both asthma and atopic eczema dermatitis syndromes (AEDS). There is also accumulating evidence that sensitization to those allergens is associated with the onset of atopic disorders. Patients with AEDS present Aeroallergen-specific T-cell responses associated with worsening of symptoms when exposed to specific aeroallergens. Furthermore, application of indoor allergens to the skin of patient with AEDS induces a local eczematous response in one-third of these patients. Exposure to high concentrations of mite allergens in early infancy have been demonstrated to be a risk factor for developing atopic dermatitis during the first 3 years of life. Moreover, a clear dose–response relationship has been documented between mite exposure and disease activity. Primary prevention of AEDS by avoiding indoor allergen exposure has been proved to be effective only when allergenic foods have also been avoided. Mite allergen avoidance in infants with AEDS and food allergy may however, prevent mite sensitization and the onset of asthma. Indoor allergen avoidance has been demonstrated to be effective in the majority of studies performed in patients with established AEDS. Negative results may be explained either by individual susceptibility variation, by long duration of disease with the consequent irreversible pathological changes in the target tissue or by exposure to allergens outside the house. Education of the patients and public consciousness of the problems are crucial for the efficacy of indoor allergen avoidance in allergic diseases.

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Key words: Vasomotor rhinitis; drug-induced rhinitis; NANIPER; NARES; idiopathic rhinitis; nasal reflex; C-fibres; Cosinophilia

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Italy
Eczema severity decreased significantly in both HDM sensitive and non sensitive patients (p < 0.001)

Patients not sensitized to HDM allergens benefited from the bedcovers as much as sensitized patients

A result which could be due to a reduction in beds of:
- other important allergens
- superantigens
- irritants and enzymes
RESULTS OF NURSE-LED HOME VISITS FOR CHILDREN WITH DIFFICULT ASTHMA

Paediatric Respiratory Royal Brompton Hospital; Imperial College, London, UK

Our difficult asthma protocol involves a three-stage assessment.

This addressed four key areas:

1) psychological and social issues;
2) adherence;
3) smoking; and
4) allergen exposure (pets and mites).

Stage 1: nurse-led home visit is central. Only those with no remedial factors found at stage 1 progress to Stage 2: in-patient stay and bronchoscopy and Stage 3: assessment of steroid responsiveness.
RESULTS OF NURSE-LED HOME VISITS FOR CHILDREN WITH DIFFICULT ASTHMA

Bracken Thorax 2007;62(Suppl 111):A21

- 46 children (5-17 yrs)
- Nurse-led home visited

% children with difficult asthma

- 56% referred to psychologists
- 33% poor adherence
- 30% passive smoking
- 45% exposed to pets to which they were sensitive
RESULTS OF NURSE-LED HOME VISITS FOR CHILDREN WITH DIFFICULT ASTHMA Bracken Thorax 2007;62(Suppl 111):A21

46 ch (5-17 yrs)
Nurse-led home visited

% children with difficult asthma

- 46% sensitive to HDM
- 33% no HDM avoidance
- 43% partial HDM avoidance
RESULTS OF NURSE-LED HOME VISITS FOR CHILDREN WITH DIFFICULT ASTHMA Bracken Thorax 2007;62(Suppl 111):A21

46 ch (5-17 yrs)
✔ Nurse-led home visited

Ultimately, only 25% of those visited at home progressed to stage 2 of the protocol.
A simulation model of building intervention impacts on indoor environmental quality, pediatric asthma, and costs.  

Fabian MP, J Allergy Clin Immunol 2014;133:77

Schematic of the pediatric asthma discrete event simulation model

- Age, gender
- Housing characteristics
- Asthma controller medication compliance
- FEV1 % predicted

- Allergens (cockroach, mold)
- Air pollutants (NO₂, PM₂.₅)

- Previous asthma attack
- Seasonality

Changes in FEV1%predicted

- Asthma symptoms
- Serious asthma events:
  - Emergency room visit
  - Clinic visit
  - Hospitalization

INTERVENTION
A simulation model of building intervention impacts on indoor environmental quality, pediatric asthma, and costs.  

Fabian MP, J Allergy Clin Immunol 2014;133:77

- The impact of building interventions on indoor environmental quality and pediatric asthma health care use
- Discrete event simulation model (DEM)

Interventions, such as:
1) integrated pest management
2) repairing kitchen exhaust fans,

7% to 12% reductions in serious asthma events with 1- to 3-year payback periods.
A simulation model of building intervention impacts on indoor environmental quality, pediatric asthma, and costs.  
Fabian MP, J Allergy Clin Immunol 2014;133:77

Integrated pest management (IPM) can:
1) reduce cockroach allergen levels,
2) replacement mattresses and hypoallergenic pillow covers can reduce dust mite concentrations,
3) intensive cleaning can reduce levels of multiple allergens and fungi, and
4) air cleaners or source elimination can reduce concentrations of air pollutants.

Interventions, such as:
1) integrated pest management
2) repairing kitchen exhaust fans,

7% to 12% reductions in serious asthma events with 1- to 3-year payback periods.
A simulation model of building intervention impacts on indoor environmental quality, pediatric asthma, and costs. *Fabian MP, J Allergy Clin Immunol* 2014;133:77

**Interventions:**

- fix and/or operate kitchen and bathroom exhaust fans
- replace gas stoves with electric stoves
- eliminate use of the stove for heating by fixing the heating system
- institute a smoke-free housing policy
- use high-efficiency particulate air filters
- integrated pest management
- weatherization

**The impact of building interventions on indoor environmental quality and pediatric asthma health care use**

**Discrete event simulation model (DEM)**
A simulation model of building intervention impacts on indoor environmental quality, pediatric asthma, and costs. *Fabian MP, J Allergy Clin Immunol 2014;133:77*

- The impact of building interventions on indoor environmental quality and pediatric asthma health care use
- Discrete event simulation model (DEM)

Weatherization efforts targeted solely toward tightening a building envelope

20% more serious asthma events
A simulation model of building intervention impacts on indoor environmental quality, pediatric asthma, and costs. *Fabian MP, J Allergy Clin Immunol* 2014;133:77

- The impact of building interventions on indoor environmental quality and pediatric asthma health care use
- Discrete event simulation model (DEM)

Weatherization efforts targeted solely toward tightening a building envelope but bundling with repairing kitchen exhaust fans and eliminating indoor sources (e.g., gas stoves or smokers) mitigated this effect. 20% more serious asthma events
Contribution of air-proof doors and windows to asthma in Campania Plain (Italy) M. Bencivenga C. Capristo S. Capasso

4400 children

Schoolchildren aged 8-9 years

Self-administered quest.

16% asthma dr-diagnosed

Air proof doors and windows and prevalence of asthma

Int. J Enviromental Health Research 2004
ASSOCIATION BETWEEN INDOOR RENOVATION ACTIVITIES AND ECZEMA IN EARLY CHILDHOOD.
Herbarth Int J Hyg Envirn Health 2006

✓ 2536 ch born in 1991/92 and followed to 1997/98

✓ Effect of indoor redecoration activities (1. painting, 2. floor covering and 3. new furniture) before birth and during the first year of life

![Graph showing life time prevalence of allergic symptoms and eczema.]
- Life time prevalence of allergic symptoms: Non-exposed 9.3%, Exposed to all 3 activities 17.2%
- Life time prevalence of eczema: Non-exposed 11.5%, Exposed to all 3 activities 20.4%

OR = 1.8 for allergic symptoms, p<0.05
OR = 1.9 for eczema, p<0.05
Prenatal VOC exposure and redecoration are related to wheezing in early infancy

Franck: Environ Int 2014; 73:393

LINA birth cohort study
renovation activities
respiratory outcomes assessed via questionnaires
during pregnancy and at children's age of one

O.R. for increased risk for physician treated wheeze

Floor covering during pregnancy

G Piacentini
ASSOCIATION BETWEEN INDOOR RENOVATION ACTIVITIES AND ECZEMA IN EARLY CHILDHOOD.

✓ Exposure emissions due to redecoration activities seem to be associated with the risk of eczema and allergic symptoms.

✓ Prevention of allergic disorders should include the avoidance of such activities around birth and in the first year of life.
Short communication

High incidence of sensitization to ornamental plants in allergic rhinitis

- Ficus benjamina
- Yucca
- Ivy
- Palm tree

The most frequent sensitization being:

% patients reacting to the leaves of their own plant

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Key words: allergic rhinitis; ornamental plants.

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Accepted for publication 12 October 2005
FREQUENT USE OF CHEMICAL HOUSEHOLD PRODUCTS IS ASSOCIATED WITH PERSISTENT WHEEZING IN PRE-SCHOOL AGE CHILDREN.

- Population based Avon Longitudinal Study of Parents and Children.
- Frequency of use of 11 chemical based domestic products determined from questionnaires completed by women during pregnancy.
- A total chemical burden (TCB) score was derived.

In children whose mothers had high TCB scores (>90th centile) than children whose mothers had a low TCB score (<10th centile).

Sherriff Thorax 2005
Cleaning agents and disinfectants: moving from recognition to action and prevention
Heederik D, CEA 2014; 44: 472-474

- Workers in French healthcare settings and exposure to cleaning and disinfection agents [bleach- and chlorine-containing cleaning agents, glutaraldehyde and quaternary ammonium compounds (QACs)]

- 500 employees from the nursing staff and cleaning personnel of seven healthcare settings

- Strong association between nasal symptoms and physician-diagnosed asthma, in particular the use of QACs

% of participants with exposure to QACs

60%
Cleaning agents and disinfectants: moving from recognition to action and prevention
Heederik D, CEA 2014; 44: 472-474

✓ Workers in French healthcare settings and exposure to cleaning and disinfection agents [bleach- and chlorine-containing cleaning agents, glutaraldehyde and quaternary ammonium compounds (QACs)]

✓ 500 employees from the nursing staff and cleaning personnel of seven healthcare settings

✓ Strong association between nasal symptoms and physician-diagnosed asthma, in particular the use of QACs

![Graph showing the association between nasal symptoms and physician-diagnosed asthma.]

In exposed to QACs OR for

- Nasal symptoms: 2.5
- Physician-diagnosed asthma: 5.9

p<0.005
The value of house dust mite avoidance for asthmatic patients has been questioned, (Gotzsche PC, Allergy 2008; 63: 646–659.) but several lines of evidence suggest it may be useful in severe asthma.


Secondly, the combination of viral infection, allergen sensitisation and high levels of exposure to that allergen in the home are predictive of severe exacerbations, and of these factors only allergen exposure is amenable to intervention. Murray CS, Thorax 2006; 61: 376–382.
EARLY LIFE ENVIRONMENTAL CONTROL: EFFECT ON SYMPTOMS, SENSITIZATION AND LUNG FUNCTION AT AGE 3 YEARS

128 active group
111 control group

% CHILDREN WITH CURRENT WHEEZE (last 3 months)

ns

16.4%
20.7%
EARLY LIFE ENVIRONMENTAL CONTROL: EFFECT ON SYMPTOMS, SENSITIZATION AND LUNG FUNCTION AT AGE 3 YEARS

128 active group
111 control group

Ln sRaw GM & 95% CI at age 3 years

p=0.003

Woodcock AJRCCM 2004

1) In all patients symptoms and early morning peak flows improved.
2) In 7 patients anti-asthma treatment could be reduced and it was possible to carry out repeated bronchial provocation with histamine.
3) 5 of these patients showed a progressive eightfold or greater increase in the concentration of histamine necessary to provoke a 30% fall in forced expiratory volume in one second (PD30).

- 9 patients with severe asthma
- Allergic to dust mites
- Lived in hospital rooms for ≥ 2 months

- 9 patients with severe asthma
- allergic to dust mites
- lived in hospital rooms for ≥ 2 months

Time course of changes in BHR to histamine in five patients showing ≥ 8 fold increase in $\text{PD}_{30}$

- 9 patients with severe asthma
- Allergic to dust mites
- Lived in hospital rooms for ≥ 2 months

4) The increase in PD30 in the 7 patients during their period of living in hospital was highly significant.

5) Avoidance of important allergens seems not only to result in clinical remissions but in many cases also reduce bronchial hyperreactivity.
60 children (≥6 yrs) referred because of difficult asthma to the rehabilitation centre.

The median stay at the centre was 5 months.

- In 4 (6.7%) patients a diagnosis other than asthma was made.
- In 5 (8.3%) patients symptom control remained difficult.
- In the remaining 51 (85%) children, asthma symptoms became well controlled.
'Difficult asthma': can symptoms be controlled in a structured environment?


- 60 children (≥6 yrs) referred because of difficult asthma to the rehabilitation centre.
- The median stay at the centre was 5 months.

% factors that contributed to poor asthma control in the home setting

- Poor treatment adherence: 62.7%
- Parental smoking: 43.1%
- Allergen exposure: 19.6%
- Psychosocial problems: 70.5%
Factors contributing to poor asthma control in the home situation in children referred with a diagnosis of difficult asthma but in whom symptoms could be controlled in a residential setting (n=51)

✓ 60 children (≥6 yrs) referred because of difficult asthma to the rehabilitation centre.
✓ The median stay at the centre was 5 months.
Results of a home-based environmental intervention among urban children with asthma
Morgan WJ, NEgl J Med 2004;351:1068

- 937 children with atopic asthma (age, 5 to 11 years)
- Environmental intervention that lasted one year and included education and remediation for exposure to both allergens and environmental tobacco smoke.
- Home environmental exposures assessed every 6 months.

Days with symptoms for every 2 weeks:

<table>
<thead>
<tr>
<th>Year</th>
<th>Intervention Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year</td>
<td>3.39</td>
<td>4.2</td>
</tr>
<tr>
<td>2nd year</td>
<td>2.62</td>
<td>3.21</td>
</tr>
</tbody>
</table>

P<0.001
Results of a home-based environmental intervention among urban children with asthma


**Results of a home-based environmental intervention among urban children with asthma**


**LESS:**
1. Days of wheeze
2. Days child has to slow down or stop play because of asthma
3. Nights child woke up because of asthma
4. Nights parents woke up because of asthma
5. Days parents changed plans
6. School days missed

**days with symptoms for every 2 weeks**

<table>
<thead>
<tr>
<th></th>
<th>Intervention Group 1st Year</th>
<th>Control Group 1st Year</th>
<th>Intervention Group 2nd Year</th>
<th>Control Group 2nd Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P&lt;0.001</strong></td>
<td></td>
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</tbody>
</table>
Results of a home-based environmental intervention among urban children with asthma

% REDUCTION PER YEAR IN INTERVENTION GROUP

- Unscheduled visits (-2.1/yr): -13.6%
- Days with symptoms (-21.3/yr): -19.5%
- Missed days of school (-4.4/yr): -20.7%
“Environmental control of multiple allergens, coupled with repeated educational endeavors, can significantly reduce asthma-related complications among inner-city children with atopic asthma.

The results are similar to those of studies evaluating the effects of corticosteroid therapy on asthma.”
The intervention, which cost $146 per family, led to statistically significant reductions in:

1) symptom days,
2) unscheduled clinic visits,
3) use of β-agonist inhalers

The intervention is cost-effective

✓ home environmental allergen and irritant remediation among children aged 6 through 11 years with moderate-to-severe asthma

✓ ambulatory visits, hospitalizations, and pharmaceutical use
In adult practice, and to a lesser extent in paediatrics, the concept of severe asthma with fungal sensitisation (SAFS) is becoming established.

There is considerable evidence that fungal sensitisation and exposure are associated with increased morbidity and severity of asthma, including really severe exacerbations.

Anti-fungal therapy

- A randomised, double-blind, placebo-controlled clinical trial in adults showed some benefit in terms of improved quality of life, PEFR, and a reduction in IgE with itraconazole therapy.
  - Denning DW, Am J Respir Crit Care Med 2009;179:11–18.

This was more a proof of concept trial, with small numbers (<60 in total) rather than a study which showed major clinical benefit.

- The evidence in children is limited to isolated case reports.
The patient was maintained on itraconazole for a total of 6 months. Systemic steroids were weaned within the first 2 to 3 weeks, and he was maintained on inhaled corticosteroids, long-acting agonists, and leukotriene receptor antagonists.

3 months after discontinuation of itraconazole, the patient was again hospitalized for an exacerbation.

His serum IgE level at that time, drawn after 3 days of systemic steroids, had risen to 3060 IU/mL.

Efforts to address the mold problems in the apartment have been unsuccessful thus far, and the family is attempting to relocate to a different building.
Anti-fungal therapy

**Recommendations**

Children with possible SAFS, who are not controlled after eliminating as far as possible any moulds in the environment, may be candidates for a trial of oral itraconazole or even voriconazole if symptoms persist, although the cost and side-effect profile of the latter mandate caution.

The interaction between ICS and itraconazole leading to Cushing’s syndrome should not be forgotten. De Wachter E, Eur J Pediatr 2003;162:488–89.

- The evidence in children is limited to isolated case reports.


- A 4-year-old boy with cystic fibrosis developed hypertension, rapid weight gain and a moon face 2 weeks after starting a combined treatment of oral itraconazole and inhaled budesonide for a suspected allergic bronchopulmonary aspergillosis.

- Adrenal suppression was documented and found to persist 3 months after stopping this combined treatment.

CONCLUSION:
- To the best of our knowledge, this is the first time that an iatrogenic Cushing syndrome in a young child with cystic fibrosis after such combined treatment is reported. The inhibition of cytochrome P4503A by itraconazole and a higher glucocorticoid tissue sensitivity is suggested as the underlying mechanism.

- 35 cotton encasement vs 35 synthetic encasement impermeable to particles > 3 µg
- All new foam mattresses
- Sampling time 3-6-12 mo

Colony forming units/mL

- ns
- p<0.01
- p<0.001

*AL Boner*
I danni dell’esposizione al fumo di sigaretta: fisiopatogenesi, implicazioni cliniche, strategie di intervento in Pediatria

Carlo Capristo
Dipartimento di Pediatria S.U.N.

Danni da fumo passivo

Il fumo passivo è quello che viene inalato involontariamente dalle persone che si trovano a contatto con uno o più fumatori attivi e rappresenta il principale inquinante degli ambienti chiusi. Esso è la risultanza del fumo espirato dal fumatore attivo (corrente terziaria) sommesso al fumo prodotto dalla combustione lenta e imperfetta della sigaretta lasciata bruciare nel portacine ne o in mano fra un tiro e l’altro (corrente secondaria). Si ammette che il fumo passivo sia costituito per 6/7 dalla corrente secondaria e per 1/7 dalla corrente terziaria. Si definisce anche fumo laterale (sidestream smoke) per distinguolo dal fumo centrale (mainstream smoke) che rappresenta invece il fumo attivo.

Negli Stati Uniti si stima che il 60% dei bambini tra 3 e 11 anni siano esposti ad inquinamento ambientale da tabacco (environmental tobacco smoke, ETS) e che per il 90% questa esposizione avvenga in casa [1].

L’esposizione all’ETS è associata a un aumento di rischio di sindrome da morte improvvisa del neonato (SIDS), infezioni respiratorie e otorrino; rappresenta un importante fattore di rischio per asma ed è fortemente correlato, nei soggetti asmatici, ad uno scarso controllo dei sintomi e ad una riduzione della funzionalità respiratoria. In uno studio recentemente pubblicato si dimostra un’associazione statisticamente significativa tra riduzione dell’esposizione all’ETS e riduzione degli episodi di asma nei controllati, infine le visite medi che, le ospedalizzazioni e le assenze scolastiche [2].

È accertata la correlazione del fumo materno durante la gravidezza con la riduzione della funzione respiratoria e la comparazione di aspetti nell’aspirante precoci e successivamente di asma. I neonati esposti in utero al fumo materno presentano vie aeree con calibro ridotto, pareti ipertrofiche, microerosioni, iperossigenizzazione e iperpatia del movimento vibratorio linfocitico bronchiale [3].

Diversi studi associano l’esposizione al fumo di tabacco nell’ambiente domestico a sintomi respiratori, quali tosse e respiro riluttante, ad un incremento delle assenze scolastiche per malattie respiratorie e alle cure mediche che ne conseguono [4, 5].

I principali costruttori del fumo di tabacco che colpiscono l’apparato respiratorio comprendono elementi gassosi, quali monossido di carbonio, ossidi d’azoto, formaldeide, ossido di idrogeno, diossido di zolfo e nitrosonammìne, e particolati, come nicotina, metalli pesanti (piombo, cadmio, nichel) e benzeno. I loro effetti sono mediati da diversi meccanismi che includono effetti irritanti diretti, meccanismi immunologici e mutagenici [6].

L’esposizione al fumo di tabacco determina una soppressione della difesa immunitaria innata a livello del- l’epitelio polmonare, altera la clearance macrofagica, favorisce l’adesione e la colorizzazione batterica, influenza la funzione delle cellule immunitarie [7].

L’immunità innata rappresenta la prima linea di difesa del polmone e i peptidi antimicrobici (AMPs) sono le principali molecole effettive di questo sistema. A livello del tratto respiratorio sono principalmente espresse le defensine e il cathepsine. In particolare le β-defensive vengono prodotte e secretate dalle cellule epiteliiali della mucosa respiratoria in seguito all’induzione da parti di prodotti batterici e mediatori infiammatori. Il fumo di tabacco sopprime questa induzione, un’azione che ha conseguenze per i pazienti asmatici e infiammatori. Il fumo di tabacco altera l’adiposolizzazione, maggiore prodotto della combustione organica, inibisce l’attivazione del nucleo factor kappa B (NF-κB) attraverso l’interazione con complessi inibitori delle chiavette (IκB), inibendo così l’espressione di sistemi immunitari come TNF-α e INF-β. Inoltre, il fumo inibisce la produzione di citochine infiammatorie indotte dal liposaccaride batterico, soprattutto l’attivazione della proteina A (AP-1) e delle cellule epiteliiali bronchiali. Aumenti la descrizione dei recettori toll-like (TLR), in particolare il TLR4, nelle cellule epiteliiali può contribuire all’effetto del fumo sull’espressione delle β-defensive. La soppressione dell’immunità innata determina un aumento della carica batterica, favorendo così la suscettibilità alle infezioni. La combinazione di questo con i danni diretti del fumo alla barriera epiteliale ricalca in un circolo vizioso di infezione, danni strutturale, infezione. Il fumo di tabacco danneggia profondamente l’epitelio ciliato della mucosa respiratoria. Nei soggetti fumatori si determinano delle tipiche alterazioni istologiche che
Effect of 17q21 Variants and Smoking Exposure in Early-Onset Asthma

Ordered-Subset Regression Analysis of Asthma with Two Single-Nucleotide Polymorphisms (SNPs)

Smoke-free Legislation and Hospitalizations for Childhood Asthma

- **Asthma Admissions (no./day)**
  - **Crude No.**
    - Jan. 1, 2000: 2391
    - Jan. 1, 2001: 2142
    - Jan. 1, 2002: 2034
    - Jan. 1, 2003: 1803
    - Jan. 1, 2004: 2621
    - Jan. 1, 2005: 2103
    - Jan. 1, 2006: 2633
    - Jan. 1, 2007: 2056
    - Jan. 1, 2008: 2235
    - Jan. 1, 2009: 1397
    - Oct. 31, 2009: 1397

- **Upper 95% CI boundary**
- **Smoothed hospitalizations**
- **Lower 95% CI boundary**

Daniel Mackay, N ENGL J MED 363;12 NEJM.ORG SEPTEMBER 16, 2010
Persistent Effects of Maternal Smoking during Pregnancy on Lung Function and Asthma in Adolescents
Hollams EM, AJRCCM 2014;189:401

✓ maternal smoking in pregnancy (MSP);
✓ risk of respiratory disorders in adolescence;
✓ bronchial responsiveness, respiratory symptoms,
✓ total and allergen-sIgE;
✓ 1,129 participants in the 14-year follow-up.

![Graph showing the effect of maternal smoking on asthma and wheeze in adolescents.]

- Current asthma: 1.84
- Current wheeze: 1.77
- Exercise-induced wheeze: 2.29

in adolescent born from mothers smoking in pregnancy OR for
Persistent Effects of Maternal Smoking during Pregnancy on Lung Function and Asthma in Adolescents
Hollams EM, AJRCCM 2014;189:401

✓ maternal smoking in pregnancy (MSP);
✓ risk of respiratory disorders in adolescence;
✓ bronchial responsiveness, respiratory symptoms,
✓ total and allergen-sIgE;
✓ 1,129 participants in the 14-year follow-up.

% adolescents with FEV₁/FVC < 80%

- YES: 11% (p = 0.004)
- NO: 5.7%

SMOKING IN PREGNANCY
The association between smoking in the home and persistently high levels of tobacco toxins is well beyond the period of active smoking.

These toxins take the form of particulate matter deposited in a layer onto every surface within the home; in loose household dust; and as volatile toxic compounds that “off gas” into the air over days, weeks, and months.
Atopic eczema in children: another harmful sequel of divorce

Background: Different lifestyle factors seem to be associated with the risk for atopic diseases and some studies suggest that stress increases the risk of allergic sensitization, asthma and atopic eczema. Only few studies have investigated the association of early stressful life events and atopic eczema (AE) in children.

Subjects and Methods: Parents of participants of the ongoing LISA birth cohort study were asked to give information on life events, such as severe disease or death of a family member, unemployment, or divorce of the parents. Lifetime prevalence of AE and incidence after the assessment period for life events were compared.

Results: Prevalence of AE until the age of 4 years was 21.4%. Reported life events within the first 2 years were: severe disease (17.5%) or death (8.4%) of a family member, divorce/separation (3.4%), and unemployment (2.7%). Divorce/separation was associated with a significantly [odds ratio (OR) 3.59, 95% confidence interval (CI) 1.69–7.66] increased disease and disease with a significantly (OR 0.29, 95% CI 0.13–0.68) decreased incidence of AE for the subsequent 2 years of life. No effect was seen for unemployment.

Conclusions: Divorce/separation of the parents and severe disease of a family member influence the risk of developing AE.

Figure 1. Time of interviews and covered time period.
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<tr>
<th>Table 3. Association between life events within the first two years of life and atopic eczema</th>
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<tr>
<td><strong>Prevalence of atopic eczema</strong></td>
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<td><strong>Variables</strong> &amp; <strong>OR (95% CI)</strong> &amp; <strong>aOR (95% CI)</strong></td>
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*OR adjusted for gender, maternal school education, parental history of atopy, older siblings.*

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Key words: atopic eczema; children; divorce; life event; psychosomatic.

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Kissing reduces allergic skin wheal responses and plasma neurotrophin levels

Abstract

The effect of kissing on allergic skin reactions, including histamine, house dust mite (HDM) and Japanese cedar pollen (JC) responses were studied in 30 normal subjects, 30 patients with allergic rhinitis, 30 patients with atopic dermatitis, and 30 healthy patients. Patients with AR or AD are allergic to HDM and JC but not to histamine. The subject kissed freely during 30 min with their lovers. After kissing, skin prick tests were performed and wheal responses were measured. Simultaneously, serum levels of nerve growth factor (NGF), brain-derived neurotrophin factor (BDNF), neurotrophin-3, and neurotrophin-4 were measured. Kissing significantly reduced wheal responses induced by HDM and JCP, but not by histamine. Kissing significantly reduced wheal responses induced by HDM and JCP, but not by histamine. Kissing did not affect the levels of NGF, BDNF, NT-3, and NT-4 in patients with AR or AD, while it failed to do so in normal subjects. These results have some implication in the study of neuroimmunology in allergic patients.

Keywords: Kissing; Skin wheal response; Allergic rhinitis; Atopic dermatitis; Nerve growth factor; Brain-derived neurotrophic factor; Neurotrphin-3; Neurotrphin-4
Mediterranean Diet as a Protective Factor for Wheezing in Preschool Children

Jose A. Castro-Rodriguez, MD, PhD, Luis Garcia-Marcos, MD, Juan D. Alfonsoa Rojas, MD, Jose Valverde-Molina, MD, and Manuel Sanchez-Sous, MD

**Objective**  To test the hypothesis that the Mediterranean diet can be a protective factor for current wheezing in preschoolers.

**Study design**  Questionnaires were completed by parents of 1784 preschoolers (mean age, 4.08 ± 0.8 years). Children were stratified according to whether they experienced wheezing (20.0%) or not in the previous year. A Mediterranean diet score was built according to the intake frequency of several foods.

**Results**  Age, birth by cesarean section, low birth weight, exposure to livestock during pregnancy, antibiotic use in the first year of life, acetaminophen consumption in the previous 12 months, rhinoconjunctivitis, eczema, parental asthma and tobacco consumption, maternal educational level, maternal age, physical activity, cat at home, and Mediterranean diet were associated with current wheezing but not with obesity. In the multivariate analysis, eczema, rhinoconjunctivitis, parental asthma, and acetaminophen consumption remained risk factors for current wheezing (adjusted odds ratio [aOR] = 2.35 [95% confidence interval (CI) = 1.2 to 4.8], 2.78 [95% CI = 1.3 to 6.1], 3.89 [95% CI = 1.4 to 10.7], and 2.38 [95% CI = 1.2 to 4.6], respectively). Conversely, Mediterranean diet and older age remained protective factors (aOR = 0.54 [95% CI = 0.3 to 0.9] and 0.67 [95% CI = 0.5 to 0.9], respectively).

**Conclusions**  The Mediterranean diet is an independent protective factor for current wheezing in preschoolers, irrespective of obesity and physical activity. (*J Pediatr* 2008;152:823-8)
Treatment of the Exacerbating Phenotype

- The rare child who has catastrophic drops in lung function over a few minutes on the background of apparent excellent control (type 2 brittle asthma) may on an anecdotal basis benefit from being given injectable adrenaline (Epipen™) for emergency treatment of these deteriorations, enabling very rapid administration of a sympathomimetic (α and β) intramuscularly while more selective inhaled treatment is being prepared.

- Food allergy is common in this group and should actively be sought as part of the treatment programme.

  • Simpson AB, Pediatr Pulm 2007;42:489-495.

La casa del bambino allergico

CONCLUSIONI
In the Bedroom:

• Sleep Comfortably! **Cover mattresses, pillows and box springs** with removable allergen-resistant coverings.

• Clean bedrooms in your home on a regular basis to reduce allergens. Use **steam vacuum with a high efficiency filter**. If you are allergic, wear a NIOSH rated N95 dust mask while you clean.

• **Wash bedding** (including mattress pads) in **hot water** every 7-10 days.

• **Go Carpet Free!** Dust mites and mold love to hide in carpets!
In the Playroom:
• Keep **stuffed animals** and toys in plastic containers for easy access.
• Look for soft toys which can be washed at 60°C (washing stuffed animals and other items in hot water can reduce allergens).
• If your child plays “school” at home, you might want to steer clear of chalk, since chalk dust can irritate children with allergies. At school, tell your children not to sit too close to the chalkboard for the same reason.
In the Kitchen:

• **Do the Dishes!** Avoid those high piles of dishes. Keep the kitchen clean and wash dishes as soon as you are finished eating.

• Make sure all your **food is stored in sealed containers** and try not to leave food out.

• Break Out the Rubber (or **Latex-Free**) Gloves!

• Clean visible mold on walls, floors and ceilings using **five percent bleach** as directed. If you are sensitive to cleaning products, see if you can “delegate” disinfecting to a non-allergic family member.
In the Living Room:

- Attempt to **limit the number of indoor plants**. Molds like to hang out in potting soil.
- Allergens make themselves at home in fabrics throughout the house, like upholstered couches and chairs, bedding, carpets and more. **If you can’t tear up the carpet or remove the curtains, use steam cleaning.**
- Shop for furniture with a smooth, nonporous surface, such as leather.
In the Bathroom:

• While you get spick and span in the shower, make sure to use your exhaust fan and/or bathroom window.

• Clean and disinfect bathrooms regularly and keep them well ventilated.
The **house of the allergic child**….. and obviously of every child in conclusion should be a **home**
GRAZIE PER L’ATTENZIONE

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