

Study on the Prevention of Allergy in Children in Europe (SPACE): Allergic sensitization in children at 1 year of age in a controlled trial of allergen avoidance from birth

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Several studies have demonstrated that early intervention may modulate the natural course of atopic disease. Our objective was to prevent sensitization to house-dust mite and food allergens, as well as the development of atopic symptoms during infancy, by the combination of an educational package and the use of mite allergen-impermeable mattress encasings. A multicentre European, population-based, randomized, controlled study of children at increased atopic risk [Study on the Prevention of Allergy in Children in Europe (SPACE)] was performed in five countries (Austria, Germany, Greece, the UK, and Lithuania), and included three cohorts – schoolchildren, toddlers, and newborns. We report on the newborn cohort. A total of 696 newborns were included from Austria, the UK, and Germany. Inclusion criteria were: a positive history of parental allergy; and a positive skin-prick test or specific immunoglobulin E (IgE) ($\text{IgE} \geq 1.43 \text{ kU/L}$) against at least one out of a panel of common aeroallergens in one or both parents. At 1 year of age, the overall sensitization rate against the tested allergens [dust-mite allergens: *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae* (*Der p* and *Der f*)] and food allergens (egg, milk) in the prophylactic group was 6.21% vs. 10.67% in the control group. The prevalence of sensitization against *Der p* was 1.86% in the prophylactic group vs. 5% in the control group. In conclusion, we were able to demonstrate, in a group of newborns at risk for atopic diseases, that the sensitization rate to a panel of aero- and food allergens could be effectively decreased through the use of impermeable mattress encasings and the implementation of easy-to-perform preventive measures.

**Gerhard Halmerbauer¹,
Christian Gartner¹, Michael Schierl¹,
Hassan Arshad², Tara Dean²,
Dieter Y. Koller¹, Wilfried Karmaus³,
Joachim Kuehr⁴, Johannes Forster⁴,
Radvan Urbanek¹, Thomas Frischer¹
and the SPACE collaborative study
team**

¹University Children's Hospital, Vienna, Austria,

²The David Hide Asthma & Allergy Research Centre, St. Mary's Hospital, Newport, Isle of Wight, UK,

³Department of Epidemiology, Michigan State University, East Lansing, MI, USA, ⁴University Children's Hospital, Freiburg, Germany

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Professor Thomas Frischer, MD, University Children's Hospital, Währinger Gürtel 18–20, 1090 Vienna, Austria
Tel.: +43 140 400 3188
Fax: +43 140 400 3189
E-mail: thomas.frischer@univie.ac.at

It is commonly accepted that the expression of atopic diseases is dependent upon an interaction of genetic factors and allergen exposure (1,2). Allergic diseases are most often preceded by sensitization to various allergens (2,3). It has been demonstrated that exposure to house-dust mite

allergens in early childhood is an important determinant of the subsequent development of bronchial asthma (4–6). Recent findings in T-cell immunology suggest that early childhood is a unique period during which the immune responses that trigger atopic disorders can potentially be