



**Karolinska  
Institutet**

**Institutionen för klinisk forskning och utbildning,  
Södersjukhuset**

# Lifestyle, Salivary Cortisol and Allergy in Children

AKADEMISK AVHANDLING

som för avläggande av medicine doktorsexamen vid Karolinska  
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Av

**Fredrik Stenius**

*Huvudhandledare:*  
Med.dr. Johan Alm  
Karolinska Institutet

*Bihandledare:*  
Professor Annika Scheynius  
Karolinska Institutet

*Fakultetsopponent:*  
Professor Karin Fälth-Magnusson  
Linköpings Universitet

*Betygsnämnd:*  
Docent Caroline Olgart Höglund  
Karolinska Institutet

Docent Lennart Bråbäck  
Umeå Universitet

Professor Gunilla Hedlin  
Karolinska Institutet

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# ABSTRACT

**Background:** IgE-mediated allergic diseases (eczema, food allergy, asthma and rhinoconjunctivitis) are common chronic diseases in childhood. In Sweden 30-40% of the children are affected by allergic manifestations during childhood. The understanding and prevention of allergic diseases require further studies of the determinants of these diseases. Exposure to environmental factors before birth or early in life is most likely responsible for the comparatively rapid changes in prevalence. The anthroposophic lifestyle has previously been associated with a low prevalence of allergic diseases in children. Psychosocial factors and the stress-related hormone cortisol have been associated to allergic diseases.

**Aim:** The overall aim of this thesis was to investigate patterns of lifestyle early in life in relation to salivary cortisol levels in infancy and allergic sensitization and disease during childhood.

**Methods:** The material in this thesis is based on the ALADDIN (Assessment of Lifestyle and Allergic Disease During Infancy)-study where 330 families with different lifestyles were recruited during pregnancy. Demographic and exposure data were obtained by questionnaires and interviews. Information on allergy related symptoms was obtained by repeated examinations of the children. Salivary samples for analysis of cortisol were collected at six months of age on three occasions during one day from the children and their parents. Blood samples were collected from the parents before birth and from the children at birth and at six, twelve and 24 months of age for analyses of IgE.

**Results:** Many exposure characteristics before birth and early in life differed between children from families with an anthroposophic lifestyle in comparison to other children. The prevalence of IgE-sensitization to common food and inhalant allergens in children was lower among children from families with an anthroposophic lifestyle compared to other children during the first two years of life. Correlations were found between salivary cortisol levels in six-months-olds and their parents, for the mother on all three sampling occasions and for the father in the afternoon and evening. Children from families with an anthroposophic lifestyle had lower levels of salivary cortisol at six months of age compared to other children. Increasing levels of salivary cortisol at six months of age was associated to an increased prevalence of sensitization and eczema during the first two years of life.

**Conclusion:** Different lifestyle aspects had an influence on levels of salivary cortisol early in life. These levels were associated to allergic sensitization and symptoms in children. The results may increase knowledge about mechanisms behind undesired immunologic reactions in children. This is needed to enable prevention or early treatment of allergy, and thus improve living conditions for those affected today and tomorrow.