**Improved control of childhood asthma with low-dose, short-term vitamin D supplementation: a randomized, double-blind, placebo-controlled trial**

**Citation:** Allergy, Jul 2016, vol. 71, no. 7, p. 1001-1009  
**Author(s):** Tachimoto, H, Mezawa, H, Segawa, T, Akiyama, N, Ida, H, Urashima, M

**Aim:** We aimed to clarify whether low-dose, short-term vitamin D supplementation, in addition to standard treatments, improves control of childhood asthma.

**Methods:** We conducted a randomized, double-blind, placebo-controlled trial comparing vitamin D3 supplements (800 IU/day) with placebo for 2 months in schoolchildren with asthma. The primary outcomes were frequency and severity of asthma judging from changes in asthma control levels defined by the Global Initiative for Asthma (GINA) by collaborating doctors at 2 and 6 months.

**Results:** At 2 months, GINA asthma control was significantly more improved in the vitamin D group compared with the placebo group. Childhood asthma control test (CACT) scores, a secondary outcome, were also significantly improved in the vitamin D group compared with the placebo group at 2 months, and differences remained significant at 6 months.

**Conclusions:** Low-dose, short-term vitamin D supplementation in addition to standard treatment may improve levels of asthma control in schoolchildren.

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**The component-specific to total IgE ratios do not improve peanut and hazelnut allergy diagnoses**

**Citation:** The Journal of allergy and clinical immunology, Jun 2016, vol. 137, no. 6, p. 1751  
**Author(s):** Grabenhennrich, Linus et al.

**Aim:** Specific IgE measurement predicts the outcome of oral food challenges with considerable uncertainty when evaluating food allergy. Our aim was to assess whether accounting for the ratio of component- or allergen-specific to total IgE can improve this prediction.

**Methods:** This multicenter study collected blood samples from children with suspected peanut or hazelnut allergy referred to allergy specialist clinics for food challenges. Specific IgE to peanuts, hazelnuts, and their components and total IgE levels were determined by using the ImmunoCAP-

**Results:** Eighty-eight (43%) of 207 children with suspected peanut allergy and 44 (31%) of 142 children with suspected hazelnut allergy had symptoms during food challenge. Discrimination was similar for raw and ratio measures. The probability for a positive peanut challenge with 0.35 kU/L Ara h 2-specific IgE was 16% when the total IgE level was greater than 500 kU/L compared with 51%/48% for low/medium total IgE levels. A positive hazelnut challenge with 0.35 kU/L Cor a 14-specific IgE was estimated in 7% when total IgE levels were high compared with 34%/32% with low/medium total IgE levels.

**Conclusions:** Raw Ara h 2- and Cor a 14-specific IgE levels were the best single predictors for pediatric peanut and hazelnut allergies, suggesting the omission of challenges at very high levels. Calculating ratio measures did not improve prediction in this population. However, estimation of individual probabilities for challenge outcomes could be supported by total IgE levels because high levels might indicate lower probabilities at a given component-specific IgE level.
Forced midexpiratory flow between 25% and 75% of forced vital capacity is associated with long-term persistence of asthma and poor asthma outcomes

Citation: The Journal of allergy and clinical immunology, Jun 2016, vol. 137, no. 6, p. 1709
Author(s): Siroux, Valérie et al.

Aim: To assess whether the level of forced midexpiratory flow between 25% and 75% of forced vital capacity (FEF25-75) was associated with the persistence of current asthma over 20 years and the subsequent risk for uncontrolled asthma independently of FEV1.

Methods: We studied 337 participants (142 children and 225 adults) with current asthma (asthma attacks or treatment in the past 12 months) followed up at the 12- and 20-year surveys. Persistent current asthma was defined by current asthma reported at each survey.

Results: A reduced level of FEF25-75 at EGEA1 increased the risk of long-term asthma persistence. In children the association remained significant after further adjustment for FEV1 and in participants with FEV1 of greater than 80% of predicted value. A reduced FEF25-75 level at EGEA1 was significantly associated with more severe bronchial hyperresponsiveness and with current asthma a decade later, with an association that tended to be stronger in those with compared with those without asthma exacerbation.

Conclusions: Our analysis is the first to suggest that small-airway obstruction, as assessed based on FEF25-75, might contribute to the long-term persistence of asthma and the subsequent risk for poor asthma outcomes independently from effects of the large airways.

ω-3 fatty acids contribute to the asthma-protective effect of unprocessed cow’s milk

Citation: The Journal of allergy and clinical immunology, Jun 2016, vol. 137, no. 6, p. 1699
Author(s): Brick, Tabea et al.

Aim: We sought to assess the asthma-protective effect of unprocessed cow’s milk consumption in a birth cohort and to determine whether the differences in the fatty acid (FA) composition of unprocessed farm milk and industrially processed milk contributed to this effect.

Methods: The Protection Against Allergy-Study in Rural Environments (PASTURE) study followed 1133 children living in rural areas in 5 European countries from birth to age 6 years. In 934 children milk consumption was assessed by using yearly questionnaires, and samples of the “usually” consumed milk and serum samples of the children were collected at age 4 years. Doctor-diagnosed asthma was parent reported at age 6 years.

Results: The risk of asthma at 6 years of age was reduced by previous consumption of unprocessed farm milk compared with shop. Part of the effect was explained by the higher fat content of farm milk, particularly the higher levels of ω-3 polyunsaturated FAs.

Conclusions: Continuous farm milk consumption in childhood protects against asthma at school age partially by means of higher intake of ω-3 polyunsaturated FAs, which are precursors of anti-inflammatory mediators.

Review articles

Moving towards precision care for childhood asthma

Citation: Current opinion in pediatrics, Jun 2016, vol. 28, no. 3, p. 331-338
Author(s): Mokhallati, Nadine, Guilbert, Theresa W

Asthma guidelines recognize the presence of different asthma endotypes and phenotypes but treatment recommendations are limited to age groups rather than phenotypes, as the phenotype literature is regarded as emerging evidence. This review will examine the current evidence regarding the management of asthma in school age children (5-18 years old) by endotype and phenotype. A number of studies have examined the effect of endotypes and phenotypes on response to
conventional asthma therapy, omalizumab and specific allergen immunotherapy, and response in children with severe asthma. Emerging therapies, namely biologics and immunomodulators, have attracted considerable attention and appear to have favorable effects in adults with asthma, but additional pediatric studies are needed. The optimal treatment strategy for children with asthma is not yet defined and likely dependent on many patient and disease characteristics. Much of the phenotypic response literature presented in this review was constrained by a limited number of pediatric and adult studies available and as such should be regarded as preliminary. Better definition of asthma phenotypes and better targeting of therapy based on individual patient phenotypes are likely to improve asthma treatment in the future.

**Anaphylaxis in children**

*Citation:* Current opinion in pediatrics, Jun 2016, vol. 28, no. 3, p. 294-297  
*Author(s):* Farbman, Karen S, Michelson, Kenneth A

Anaphylaxis is a serious allergic reaction that can be life threatening. We will review the most recent evidence regarding the diagnosis, treatment, monitoring, and prevention of anaphylaxis in children. Histamine and tryptase are not sufficiently accurate for the routine diagnosis of anaphylaxis, so providers should continue to rely on clinical signs. Platelet-activating factor shows some promise in the diagnosis of anaphylaxis. Intramuscular is the best route for epinephrine administration for children of all weights. Glucocorticoids may reduce prolonged hospitalizations for anaphylaxis. Children with anaphylaxis who have resolving symptoms and no history of asthma or previous biphasic reactions may be observed for as few as 3-4 h before emergency department discharge. Early peanut introduction reduces the risk of peanut allergy. Epinephrine remains the mainstay of anaphylaxis treatment, and adjuvant medications should not be used in its place. All patients with anaphylaxis should be prescribed and trained to use an epinephrine autoinjector. Clinically important biphasic reactions are rare. Observation in the emergency department for most anaphylaxis patients is recommended, with the duration determined by risk factors. Admission is reserved for patients with unimproved or worsening symptoms, or prior biphasic reaction.

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**July** (1pm)  
Tue 5th  Critical Appraisal  
Wed 13th  Statistics  
Thurs 21st  Information resources  
Fri 29th  Literature Searching

**August** (12pm)  
Tue 2nd  Critical Appraisal  
Wed 10th  Statistics  
Thurs 18th  Information resources  
Fri 26th  Literature Searching

Library and Information Service: library@uhbristol.nhs.uk  
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