



australasian society of clinical immunology and allergy inc.

## ALLERGY PREVENTION IN CHILDREN

### ASCIA Education Resources Patient Information

**Allergic disorders are often lifelong and although treatable, there is currently no cure. It therefore makes sense to try to prevent allergic diseases in children, if possible.**

#### **ALLERGIC DISORDERS ARE VERY COMMON IN CHILDREN**

Up to 40% of children in Australia and New Zealand are affected by allergic disorders some time during life, with 20% having current symptoms. Allergic diseases have approximately doubled in western countries over the last 25 years. The most common allergic conditions in children are food allergies, eczema, asthma and allergic rhinitis (hay fever). They are caused by immune system responses to otherwise harmless substances in our environment, such as pollen or house dust mites.

#### **SYMPTOMS RANGE FROM MILD TO POTENTIALLY LIFE-THREATENING**

Allergic diseases are caused by abnormal immune responses to otherwise harmless substances in the environment. For example, hay fever is commonly caused by an immune response in the nose and eyes to grass pollens and/or house dust mites. Some allergic conditions (such as mild hay fever) may cause only mild symptoms. For others (such as moderate/severe rhinitis, asthma), symptoms can be debilitating, disturb sleep and impact on learning and behaviour. Poorly controlled bad asthma, stinging insect allergy or severe food allergies can even be life threatening.

#### **WHY AND HOW SHOULD WE PREVENT CHILDREN FROM DEVELOPING ALLERGIC DISEASES?**

Although effective treatments are available, there are currently no cures for allergic conditions. Therefore it makes sense to try to prevent these conditions, if possible, in infants and children.

Allergy prevention in infants and children is an active area of research but so far, we only have some answers. Recent research has identified some "risk factors" that appear to increase the risk of developing allergic disease. Other studies are examining whether avoiding these factors will reduce the risk.

At present the optimal approach to prevent children from developing allergies is to:

- A. Identify infants that have an increased risk of developing allergic disease; and
- B. Practise allergy prevention in the children who are identified as being at high risk of developing allergic disease.

#### **WHICH INFANTS ARE AT RISK OF DEVELOPING ALLERGIC DISEASES?**

A number of factors appear to increase the risk of developing allergic disorders. We have no control over some risk factors such as family history, whilst there are other environmental factors that we might be able to influence. Identified risk factors for developing allergic disease include:

- Family history of allergic disease in a parent or sibling (family history of allergic disease in both parents OR a parent and a sibling is associated with a further increased risk)
- Introduction of cow's milk or soy milk formula before 3 - 4 months of age (an increased risk for eczema and food allergy)
- Introduction of solid foods before 3-4 months of age (an increased risk for eczema and food allergy)
- Birth in Spring - a risk for seasonal allergic rhinitis (hay fever)
- Passive exposure to cigarette smoke (a risk for increased respiratory symptoms)

## **PRACTICAL SUGGESTIONS FOR PREVENTING ALLERGIC CONDITIONS IN CHILDREN**

If your child is identified as being at increased risk of developing allergic disease, it is sensible to try to reduce the risk by following the recommendations outlined below.

It should be emphasised that even if you follow these suggestions, there is still a chance that a child at high risk may develop allergic disease, and that taking measures to reduce one type of allergy such as eczema, may have no effect on whether the child develops asthma or hay fever.

### **TOBACCO SMOKE**

- ❑ Do not smoke during pregnancy
- ❑ Do not smoke in the presence of the child, or in enclosed spaces where the child sleeps or plays.

### **BREAST FEEDING.**

- ❑ Where possible, breast feed your child for at least 6 months. Breastfeeding provides a nutritious and balanced food source for your baby, reduces the risk of gastrointestinal tract infections and may also reduce the risk of developing allergic disease in early life.

### **WEANING AND INTRODUCTION OF SOLIDS**

- ❑ Where possible, delay the introduction of formula feeds until the child is 4-6 months of age.
- ❑ If it is not possible to breast feed, use a partially hydrolysed (hypo-allergenic) cow's milk formula in the first 4-6 months of life, commonly referred to as 'HA' formula. It is important to note that these formulae should not be used if your child already has cow's milk allergy. Ask your health professional for more information.
- ❑ Delay the introduction of solid foods until the child is 4-6 months of age. Thereafter, foods can be introduced, with a new food introduced every 2-3 days. Introduce one new food at a time so that any reactions can be readily identified. ASCIA Infant Feeding Advice is available on the ASCIA website [www.allergy.org.au/content/view/350/287/](http://www.allergy.org.au/content/view/350/287/)
- ❑ There is no evidence that delayed introduction of allergenic foods like egg, milk, peanut, tree nuts, or seafood beyond the first 4-6 months of life reduces the risk of food allergy and eczema. Some studies suggest that delayed introduction of foods beyond 6 months may even lead to an increased risk of food allergy, although further research is required to confirm this.

### **RESEARCH INTO ALLERGY PREVENTION IS IMPORTANT**

Although allergy prevention in children is an active area of research, our understanding of why allergic diseases develop and why they are increasing in our society is incomplete. We therefore encourage you to support and participate in studies on the development and prevention of allergic disease.

### **SOME COMMON QUESTIONS REGARDING ALLERGY PREVENTION IN INFANTS AND CHILDREN**

#### **1. Will altering my diet during pregnancy prevent my child from developing allergic diseases?**

Excluding "allergenic foods" (such as peanut, egg, fish, soy, cow's milk) from the pregnant mother's diet has not been shown to reduce the risk of developing allergic diseases and has been associated with impaired weight gain by babies. Restricted diets during pregnancy are not recommended.

#### **2. Will altering my diet while I'm breastfeeding prevent my child from developing allergic diseases?**

Studies have failed to show that removing allergenic foods (see above) from a mother's diet while breast-feeding reduces the risk of their child developing allergic disease. Restricted diets during breast feeding are not recommended.

#### **3. Are there any foods I should avoid feeding my child when solids are introduced?**

The introduction of solid foods should be delayed until 4-6 months of age. Studies have shown that high risk children who exclusively breast fed for the first 3-4 months of life were less likely to develop food allergies and eczema during the first 2 years of life. These restrictions had no impact

on whether other allergic conditions developed (such as asthma, hay fever) or on the development of allergies in older children.

There is no evidence that avoiding foods for longer than 4-6 months of age reduces the risk of food allergy, eczema or other allergic diseases. At this time, there is no evidence to suggest that specific avoidance of "allergenic foods" such as egg, cow's milk, peanut, tree nuts, fish or shellfish for longer periods will protect against the development of food allergy, eczema or other allergic diseases.

*\* Any dietary restrictions or modifications should be discussed and supervised by your doctor, who may also recommend a dietitian.*

**4. Are soy milk or goat's milk better at preventing allergies in my child than cows milk formula?**

**No.** Studies have shown that the use of soy milk or goats milk formula does not prevent the development of allergies in children.

**5. If I can't breastfeed, which formula is useful in preventing allergies?**

Partially hydrolysed formula\* (commonly referred to as 'HA' formula) or hypoallergenic, extensively hydrolysed formula (EHF)\*\* (such as Alfare or Pepti-Junior) are cow's milk based formula that have been processed to break down most of the proteins which cause symptoms in infants who are allergic to cows milk. If EHF is not tolerated then amino acid based formula (such as Elecare or Neocate) are prescribed. Studies have shown that using hydrolysed formula instead of conventional formula in high risk infants reduces the risk of developing eczema and cows milk allergy in infancy and early childhood.

\* Partially hydrolysed formula is usually available without prescription at pharmacies and can be used for the purposes of prevention of allergic disease in high risk infants, but is not appropriate if cow's milk allergy already exists.

\*\*In Australia and New Zealand hypoallergenic formula (EHF or amino acid formula) is only available on prescription and most often used to treat children with established cow's milk allergy. The cost of hypoallergenic formula is subsidised by the Pharmaceutical Benefits Scheme in Australia (and by Pharmac in New Zealand) only when there is proven food allergy in infants, and even then only under restricted circumstances.

**6. Should I avoid pets?**

There is no reason to remove pets from the household unless a person is already allergic to them.

**7. Will dust mite avoidance measures reduce the risk of allergy and asthma developing?**

There is no convincing evidence at this time that dust mite avoidance measures have any significant benefit in reducing the risk of allergy/asthma developing.

**8. Will taking fish oils prevent allergy?**

There is no convincing evidence at this time that taking fish oil supplements during pregnancy have any significant benefit.

**9. Are probiotics useful in preventing allergies?**

There are conflicting studies on the benefit of giving probiotics for the prevention of allergic disease. In 4 out of the 5 studies that have given probiotic supplements to mothers in late pregnancy and to their babies in the first 6 months of life found a protective effect against the development of eczema. However, 3 studies that gave a probiotic supplement only to the baby in the first 6 - 24 months of life showed no effect on the development of allergic diseases. Further studies are required to clarify the potential role of probiotics in the prevention of allergic disease. *Probiotics are not currently recommended for preventing allergies.*

**10. Will immunotherapy ("desensitisation") prevent allergy?**

The current role of immunotherapy is to treat established allergies. However, there is preliminary evidence that treating children who have hay fever with immunotherapy to "switch off" allergy may reduce the risk of them developing later asthma or new sensitivities. This is an area of active research.

## ALLERGY PREVENTION IN CHILDREN - SUMMARY

<b>BEFORE PREGNANCY</b>		
Stop smoking	Yes	
<b>DURING PREGNANCY</b>		
Stop smoking	Yes	
Probiotics	No	Await further research studies
Dietary Restrictions	No	
Fish oil supplements	No	
<b>NEWBORN BABIES</b>		
<b>FEEDING</b>		
Breast-feeding	Yes	Exclusively for 4-6 months. Continue breastfeeding while introducing new foods if possible
Partial breast-feeding		Supplement with a partially hydrolysed cow's milk formula (commonly referred to as 'HA' formula) for the first 4-6 months. (unless infant is already cow's milk allergic)
Soy formula		For some forms of cow's milk allergy (seek medical advice).
Weaning		Avoid introduction of solids until aged 4-6 months. Thereafter, introduce a new food every 2-3 days according to developmental readiness and what the family eats. Introduce one new food at a time so that any reactions can be readily identified.
<b>ALLERGEN AVOIDANCE</b>		
Diet restrictions	No	Introduce foods from 4-6 months
Removal of pets	No	Only if family member is already allergic to pets
Dust mite avoidance	No	Await further research studies
<b>AVOID ENVIRONMENTAL IRRITANTS</b>		
	Yes	Avoid exposure to tobacco smoke, unflued indoor gas heaters, remove sources of mould and dampness where possible
<b>LATER CHILDHOOD</b>		
Immunotherapy	No	Useful to treat established allergies - await further studies regarding its role in prevention

## **FURTHER READING**

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## **DISCLAIMER**

The content of this article has been reviewed by ASCIA members, represents the available published literature at the time of review, is not influenced by its sponsors and is not intended to replace professional medical advice. Any questions regarding a medical diagnosis or treatment should be directed to a medical practitioner.

For further information on allergy, asthma or immune diseases, visit [www.allergy.org.au](http://www.allergy.org.au) - the web site of ASCIA is the peak professional body of Clinical Allergists and Immunologists in Australia and New Zealand.

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