

Preventing Asthma and Allergy In Your Newborn Infant—What Parents Can Do

Worldwide, as societies move from rural to urban living, from less to greater affluence, from primitive to civilized cultures—rates of asthma and allergy invariably increase. It is now well accepted that asthma and allergy are diseases of civilization.

Dr. Bengt Bjorksten

Practical Asthma Review

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Practical Asthma Review
www.PracticalAsthma.net
2504 Blair Boulevard, Nashville, TN 37212
jh@PracticalAsthma.net

John S Hepler, analysis, writing
Barbara Heilman, research
Dan Feather, communications, layout

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Can asthma be prevented before it ever starts?

Children are considered to be "at risk" of developing asthma or other allergic disease if either parent has asthma or allergies. Researchers have been trying to determine why this hereditary asthma/allergy tendency is switched on in some children while others grow up without allergic problems. Many studies of the past decade show that parental choices made in the infant's first year of life influence the child's outcome.

Even if asthma and allergic disease are not prevented early in the infant's life, the child's health status can be improved in later years by modifying lifestyle factors, including eating, drinking, sleeping, breathing, physical conditioning, emotional attitudes, and certain living conditions. These are practical matters that are subject to human choices, low in cost, of very low risk, and not related to drug therapies.

Parents wishing to use the information in this booklet should consult with a doctor, nurse, nutritionist or other health professional. The information in this booklet does not contradict official asthma/allergy guidelines nor is it a substitute for professional medical advice. Though asthma drugs can save lives, optimal health with minimal drug dependency is a goal shared by all.

***In Appreciation**—We are deeply grateful to the researchers cited in our references, as well as many others not cited here who have contributed so much.*

Practical Recommendations for Parents

The last trimester of pregnancy and the infant's first year of life is a critical window of development for the child's immune system. While this approach does not guarantee success, it decreases the infant's risk of asthma and allergic sensitization.

Give your baby high quality air and environment

Quit smoking and using all unnecessary drugs, including alcohol.

Feed your baby naturally

Breastfeed at least six months before introduction of solid foods—breastmilk is the ideal food for your child, due to protective factors passed on.

Optimize the mother's diet

- Eat plenty of high quality fruits and fresh or lightly steamed vegetables, important not only for vitamins, minerals, and antioxidants but also for content of soluble fiber (primary food for intestinal microflora).
- Take a megavitamin supplement daily to assure adequate vitamins and minerals commonly low in the US diet (including zinc, magnesium, folic acid, vitamin E and selenium). This supplement should include 50 mg of most B vitamins.
- Eat good quality, unsweetened whole milk yogurt (fruit or preserves may be added), sauerkraut, or other fermented foods to assure healthy gut microflora. Supplementation of bifidobacteria and lactobacilli is recommended to assure this important protection, though it is not necessary on a daily basis unless you are taking antibiotics.
- Eat good quality fats, especially extra virgin olive oil (reasonably priced by the gallon), and plenty of omega 3 fatty acids, found most abundantly in fish. *[CAUTION: Most oceans and lakes, especially coastal waters, are polluted by PCBs and mercury. Large fish*

tend to concentrate and store more of these toxins, which can be especially damaging to unborn children.] Farmed fish are not recommended, being low in omega 3 oils because they are grain fattened. Small fish such as sardines, anchovies, and herrings are the best bet for safety, being lower on the food chain. Fish *body* oil may be the surest way to take vital omega 3 fats, at a rate of 5 to 10 one-gram capsules per day, depending on mother's weight.

Cod *liver* oil is excellent, but not recommended for daily use due to high levels of vitamin A.

Minimize highly polyunsaturated oils including corn, safflower, sunflower, soy, and cottonseed oils. Avoid hydrogenated and partially hydrogenated oils as found in Crisco™, margarine, and most chips.

- Minimize refined foods, white foods, deep fried foods, sweetened products (e.g., candy, soft drinks, bread, donuts, and pasta). Bottled juices should be diluted 50% with water.
- Drink sufficient amounts of good quality water.
- Minimize use of antibiotics. Avoid antibiotic soaps.
- General elimination diets are not recommended. In *specific* cases of 1) mother's problems with specific foods, 2) breastfeeding infant's problems linked to specific foods eaten by the mother, or 3) infant's problems apparently linked to specific foods eaten during and after weaning, eliminate suspect foods for a week to see if the problems end. *Any food eaten often* may already be a problem for the mother, or become one for the nursing infant.

The "Best Fish" Shopping List

Fish considered safe (uncontaminated) for consumption and high in omega 3 oils:

Anchovy
Catfish
Cod (Pacific only)
Flounder and Sole (Pacific only)
Herring (kippers, sprats)
Pollock (Pacific only)
Salmon (wild Pacific only)
Salmon (canned, Pacific)
Sardines

—taken from *Mothering* magazine,
July 2002, and other sources

- Weaning foods may include occasional supplements of lactobacilli and bifidobacteria, particularly if the infant is having digestive problems or taking antibiotics. Avoid sweets and sweet drinks, including undiluted juices. Eat plenty of steamed vegetables and fresh fruits.

Expose your child to the natural world

Certain environmental factors in the first year of life tend to protect the infant from developing allergic disease later.

Spending more time with other children in the first year of life—whether in daycare, with brothers and sisters, or in other social situations—improves chances of avoiding allergic disease.

If the infant can live the first year of life on a farm or in a country situation, chances are significantly improved that the child will not develop allergic disease. Regular visits to a farm or zoo may help.

CAUTION: Diesel exhaust, smoke, dust mite and cockroach dander are negatives worth avoiding in first year of infant life, and thereafter.

Play, sunshine, fresh air and love are essential to all health.

Recommended Reading

—*Food Allergies and Food Sensitivities*, esp. pp 307-317,
Dr. Jonathan Brostoff and Linda Gamlin (2000)

—*Natural Health, Natural Medicine*, Dr Andrew Weil (1990)

—*Total Wellness*, Dr Joseph Pizzorno (1996)

—*The Schwarzbain Principle*, Dr Diana Schwarzbain (1999)

The Evidence

Asthma is now considered to be an epidemic, and authorities admit that they have few answers.¹ Asthma and allergy have a hereditary component. Infants are considered “at-risk” if the mother, father or other family members suffer from allergic disease.^{2,3} But this inherited tendency is *not* a certain sentence of suffering for the infant. Both clinical researchers and epidemiologists have learned much about the factors and situations which determine whether this tendency is “switched on” in an infant.

It is increasingly clear that parental choices made during pregnancy and in the first year of the child’s life—can decrease the risk that the child will develop asthma or allergic disease. This is a subject of urgent consequence for parents and health care workers.

The initiation of allergic disease often includes a sensitization to food allergens which may manifest as eczema (atopic dermatitis), an itchy or oozing rash, in early stages. (Though not all eczema is linked to allergic disease.) Airborne allergen sensitization or allergic rhinitis (hay fever) may develop concurrently or later. Wheezing is not a certain sign of asthma, but asthma may occur or develop later. All these conditions may overlap or remain with the child.⁴

In this booklet, the terms *atopy* and *allergic disease* characterize the general condition that includes eczema, allergy, allergic rhinitis, and/or asthma. *Infants and children* herein are assumed to be “at-risk.”

Tobacco smoking

It is well accepted that maternal cigarette smoking (including second hand smoke) is a serious risk factor for asthma. Maternal smoking impairs airway development in the infant,⁵⁻⁹ and is associated with a greater chance of viral infections¹⁰ and decreased lung function.^{3,11}

Mother's Milk and Diet

Maternal milk is the best food in early life, not only for its nutritional design but for its contributions to immune development and protection against infections.¹³⁻¹⁵ Exclusive breastfeeding for at least six months is universally recommended.¹⁶⁻¹⁸ While earlier studies differed as to whether breastfeeding is protective against allergic sensitization, it is now understood that variations in mother's milk probably account for these controversies.¹⁹⁻²³

Critical differences in maternal diets include potential problem foods eaten during pregnancy and nursing; fatty acids and dietary oils; levels of IgA; and mixtures of intestinal microorganisms.

Problem foods: Cow's milk—a food far different from mother's milk—is the most common allergy in infants.¹⁸ Infants can be sensitized to cow's milk (potentially the initiation of atopy) directly through mother's milk in exclusively breast-fed babies.^{24, 25} The likelihood of this allergy is greatly reduced by the mother's avoidance of cow's milk (dairy products) in the last trimester of pregnancy and the first year of the infant's life.^{26, 27} Other allergens can be passed through mother's milk and prevented by elimination of these foods from mother's diet.^{28, 29} The next most common food allergens in infants are eggs, peanuts, soy and wheat.³⁰ Maternal avoidance of high risk foods may not prevent allergic disease in later childhood.²⁷

Increased intestinal permeability is typical of atopic children. Protection against food allergies begins with good digestion and a healthy intestinal wall which allows only very small food particles to pass.³¹ Avoiding known problem foods is prudent if nutritional needs are otherwise met. Dairy products are the most common source of calcium in the US today but are not necessary for adequate calcium intake. Dietary changes should be considered in the light of nutritional science, preferably with a nutritionist. If foods are thought to be inadequate to meet optimal nutritional needs, vitamin and mineral supplements are available at low cost.³²

Fatty acids: Higher ratios of omega 6 to omega 3 fatty acids are found in atopic mothers.³⁴ Certain fatty acid ratios in mother's milk

Maternal Diet and Allergic Disease

Finnish researchers gave lactobacilli, similar to the type in yogurt, to 64 atopic pregnant women for a month before expected birth and for six months after. By the age of two years, half as many of the infants had asthma or allergic disease as those of the 68 controls (different atopic women) not given the lactobacilli. “In Finland, we recommend normal homemade healthy food . . . yogurt, plenty of vegetables and fruits, fish, meat and only moderate fat . . . for pregnant and breastfeeding women,” said Dr Marko Kalliomaki, principle author of the study. (Kalliomaki M et al, Lancet 2001;357:1076-79)

This is by no means an isolated experiment. In the past decade, Scandinavian scientists have explored the relation of microbe types colonizing the infant intestinal tract to the beginning of allergic disease in the child. Some studies concern the relation of diet to the development of healthy intestinal flora. Others focus on the influence of diet on mother’s milk and how that may determine the health status of the infant. These data point to a low-risk, mother-infant “lifestyle strategy” to prevent the inception of allergic disease in infants.

are strongly associated with allergic outcomes in the infant.^{33, 35, 36, 23} Maternal diet has a strong influence on the content of breastmilk³⁷.³⁸ Maternal supplementation can affect fatty acid composition in mother’s milk,^{39, 21} and in infants at birth⁴⁰ but fatty acid content of breastmilk is also dependent on maternal capacity to synthesize. Studies relating fatty acid manipulation to later childhood atopy have not yet been published.

IgA: IgA is an important component of the mucosal defense system of the intestinal walls.⁴¹ By reducing entry of food antigens thru mucosal intestinal surfaces and into the blood, IgA helps lower the risk of allergic sensitization.⁴² There are lower rates of IgA in the milk of atopic mothers.²⁹ IgA levels are often low in atopic children.^{43, 44} Low IgA in maternal milk is strongly associated with infants who later developed cow’s milk allergy.⁴⁵⁻⁴⁷ Higher IgA is

associated with better tolerance to cow's milk allergy.⁴³ Maternal zinc insufficiency is linked to reduced levels of IgA in the infant.⁶¹

Intestinal Microflora: Bacterial microflora of the human gut is now accepted as an integral component of the host defense system. Two to four pounds of bacterial colonies, which normally reside in the human intestines, play a vital role in the education of the immune system.^{48, 49} In the first weeks of life, an infant develops a mixed colony of microflora, mainly passed on from the mother.⁵⁰ Distinct patterns of gut microbes, for example a reduced ratio of bifidobacteria to clostridia, are typically found in the gut microflora of infants who go on to develop atopy.⁵¹⁻⁵⁵ Beneficial microflora, such as lactobacilli, promote antiallergenic processes through several possible mechanisms.⁵⁶⁻⁵⁸ The integrity of intestinal walls are better maintained in the presence of beneficial microorganisms.^{41, 43, 59, 60} Selected healthful microorganisms, called “probiotics,” fed to subjects in food and capsule form are consistently associated with lower rates of allergy and asthma.^{58, 59, 62, 63, 64}

Lactobacilli and bifidobacteria are everywhere in nature. Lactic acid preservation of foods—such as sauerkraut, yogurt and fermented oatmeal gruels—is traditional and typically healthful. Not all probiotics are equally helpful.⁶⁵ Benefits may be transient (dependent on regular ingestion of the probiotic), but transient benefits may be extremely important in instances such as recovery from a course of antibiotics (in which beneficial gut microflora are killed), recovery from permeable intestinal walls (leaky gut), during the last trimester of pregnancy, or during nursing.⁶⁶

The preferred foods of these beneficial microflora, called “prebiotics”, include soluble fiber such as onions, garlic, apples, and most fruits and vegetables; and certain components of milk. Human experiments have confirmed that prebiotic feeding results in substantial increase of beneficial microflora.^{67, 68}

Antibiotics may encourage the emergence of undesirable microflora. The use of antibiotics during pregnancy⁶⁹ and in the first year of life is significantly associated with infant atopy^{70, 71}

The Hygiene Hypothesis

The cleanliness of everyday living conditions may help to account for the dramatic rise in asthma and other allergic diseases in Britain and the West. Modern vaccinations, fear of germs and obsession with hygiene are all part of a modern “ultra clean” lifestyle which is depriving the immune system of needed inputs. Professor Graham Rook, a London researcher (and author of an influential article entitled Give Us this Day Our Daily Germs (72) says, "For 99.9 per cent of human evolution, when humans were basically hunter-gatherers, we've lived in association with mud because we went down to the water-hole to drink just like any other animal. It's only very recently that we've been living on concrete." And asphalt. And plastic. These surfaces are far from squeaky clean but the type of dirt on them is far different from more primitive dirt. Modern people get very little stimulus from the microbes in mud and soil, which have helped the immune system evolve over thousands of years. “Stimulus,” says Rook, “is as essential to the immune system as it is to the brain.”

Epidemiology

A study in 1992 comparing culturally equivalent populations of former East and West Germany came to a startling conclusion: that asthma and allergy incidence (the level of allergic disease) was much lower in the far more polluted East.⁷³ This was followed by a series of confirming studies such that there is now broad agreement that pollution is not the cause of 40 years of rising rates of atopic disease.^{74,75} Nevertheless, air pollution greatly aggravates asthma and some other allergic conditions, and may cause allergic disease.⁷⁶

An important feature of most the studies cited here is *timing*. The infant's first year of life, and probably the last trimester *in utero*, are thought to be critical to the healthy education of the infant's immune system.⁷⁷ What may be protective stimulus in the first year may become less beneficial or harmful in succeeding years, in initiating or aggravating allergic disease.

Siblings and Daycare: Many studies have shown a reduced risk of atopic sensitization in children with older siblings. In general, the larger the family, the greater the protection. This is thought to be due to increased exposure to infections.⁷⁸⁻⁸⁴ Similarly, infants who have attended daycare in the first year of life have about half the risk of atopy as children who started at age two.^{85, 86}

Farm Life: Studies made all over Europe show that living on a farm, especially with animals, is highly protective, particularly in the first year of an infant's life. German farm children, tracked over 15 years, are six times *less* likely to suffer from asthma, allergy or hay fever than their urban counterparts. There was an intermediate level of protection for children who visited or spent time on farms.^{87, 88} In former East Germany, less affluent families had less atopy.⁸⁹ Exposure to farm conditions, particularly in the first year of life results in far less atopic disease than in comparable city dwellers.^{90, 91}

According to one theory, atopy tends to be prevented by exposure to infectious agents such as oral-fecal microbes, foodborne bacteria, dirt and airborne dust. There is a strong association of certain infections with lower levels of allergic disease.⁹²⁻⁹⁴ A prime candidate-mechanism for atopy prevention is exposure to endotoxins, found in dust everywhere, but in concentrations about five times greater in farms with animals. (Endotoxins are parts of cell walls of certain bacteria which, though dead, are still biologically active.^{95, 96})

Evolution: The atopic response—IgE, exploding mast cells, histamine and inflammation—probably evolved as a defense against parasites and intestinal worms (helminths). Lack of such parasites leaves a potent weapon of the immune system with no target, thus its aim shifts in modern, hygienic times to aeroallergens.⁹⁷ In populations with high helminth incidence, there is a very low rate of atopic disease.^{98, 99} Several studies have confirmed the inverse relationship of helminth infection and atopy.¹⁰⁰ One recent small therapeutic trial of immune modulation (in Crohn's disease, using harmless helminths) was largely successful.¹⁰¹

Caution: There is some agreement that exposure to dust mite and cockroach dander is *not* protective at any time. There is controversy over the role of respiratory infections in the initiation of atopy.^{83, 102} Several recent studies show that exposure to cats or other household pets in the infant's first year are strongly protective against atopy.^{103, 104} Other studies refute this.^{105, 106}

Costs, Benefits, and Risks

The high standard of proof required in modern medicine is well justified for its primary tools—surgery and drugs. Even proper application of these modern medical mainstays is generally expensive and prone to undesirable side effects. A recent Journal of the American Medical Association study estimates 106,000 annual deaths due to non-error, negative effects of drugs.¹⁰⁷

The modification of human habits and patterns of living entails far lower costs and risks, and so requires a less rigorous standard of evidence. For example, lifestyle factors such as stress and physical conditioning are now accepted as significant components of health.

Simple health-promoting habits and practical healing therapies may be formulated before pathophysiologies are completely understood. The modification of lifestyle factors offers great potential health benefits relative to costs and possible harm. A comprehensive evaluation of relevant data is needed. It remains for our modern medical system to recognize and apply these principles.

Footnotes

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