

Bacteria Exposure in Early Childhood: Does it Protect Children from Asthma?

A study published in the June 6th issue of the *Journal of Allergy and Clinical Immunology* indicated that infants exposed to a wide range of bacteria in house dust during their first year are less likely to develop asthma than other infants. Specifically, the results showed that infants from inner-city neighborhoods with high exposure to cockroach, cat and mice allergens during their first year had a lower risk of wheezing and other asthma symptoms at age three, even if their parents suffered from asthma. This study is the latest piece of scientific proof to support the “Hygiene Hypothesis” approach to prevent young children from developing asthma.

The FDA describes the Hygiene Hypothesis this way: “This hypothesis suggests that the critical post-natal period of immune response is derailed by the extremely clean household environments often found in the developed world. In other words, the young child’s environment can be “too clean” to pose an effective challenge to a maturing immune system.”

Children must develop their immune systems by being exposed to certain microbes as newborns. This doesn’t mean you should raise your child in a dirty environment; it simply means a home that’s clean to the point of being sterile may do more harm than good to an infant’s developing immune system. A newborn needs to encounter a small amount of dust, dirt, pet dander and “good” bacteria during the first year of life to develop immunity to these allergens.

To illustrate the Hygiene Hypothesis, let’s look at how children in both cities and suburbs grew up in the mid- 20th century, when asthma wasn’t as prevalent as it is today. They played outdoors, sometimes spending hours riding bikes and playing “tag or “hide and seek.” Homes were kept clean, but floors and carpets bore the brunt of dirty shoes (and paws) running inside after a long day outdoors. This allowed for a bit of bacteria and dust to seep through. Not enough to cause sickness or disease, just enough to introduce young children to “good bacteria” and build their immune systems.

Introducing a newborn to a cat or dog early on may also be an asthma deterrent. Babies who play with a dog or cat may be less likely to develop allergies as they get older. A Tufts University study suggests letting a young child play with dogs reduces the risk of future asthma and respiratory ailments. According to researchers, living with an indoor dog restructures gut bacteria to protect against respiratory problems.

Other research studies have shown bacteria found in certain locations may afford even more immunity against asthma. A German study found that kids living on farms had lower asthma rates than kids living in nearby towns. Farm kids were exposed to a wider variety of microbes at a younger age than their peers, and this strengthened their immune systems. The dirt on farms seems to have a special protection against asthma. Scientists are currently studying this and other environmental factors present on farms to determine how they inhibit asthma development.

Researchers need to conduct more studies on animals and more human clinical trials before recommending the Hygiene Hypothesis as a surefire anti-asthma measure. If you have an infant or young child, ask your pediatrician how you can improve your home environment to reduce the chance of your child developing asthma.

Links:

<http://www.npr.org/blogs/health/2014/06/06/319420973/early-exposure-to-bacteria-protects-children-from-asthma-and-allergies?>

<http://www.fda.gov/biologicsbloodvaccines/resourcesforyou/consumers/ucm167471.htm>

<http://www.ucsf.edu/news/2014/06/115111/lower-asthma-risk-associated-microbes-infants%E2%80%99-homes>