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## Dietary Sources of Vitamin D

- Cod liver oil
- Salmon
- Mackerel
- Tuna fish
- Sardines
- Milk (vitamin D fortified)
- Margarine
- Fortified cereals
- Egg yolk
- Liver (beef)
- Cheese

Source: [National Institutes of Health](#)

## From Researchers to You

“...We report that low maternal vitamin E intake during pregnancy is associated with increased likelihood of wheezing and asthma in 5-year-old children...”

Devereux et al.  
University of Aberdeen

## Dietary Sources of Vitamin E

- Wheat germ oil
- Almonds
- Sunflower seed kernels
- Sunflower oil
- Safflower oil
- Hazelnuts
- Peanuts
- Peanut butter
- Corn oil (salad or vegetable oil)
- Spinach (raw or frozen)
- Broccoli
- Soybean oil
- Kiwi
- Mango

Source: [National Institutes of Health](#)

## Greetings

This month we present Part 2 in our series explaining the link between prenatal health and lifelong health. As you will see, what you eat before and during pregnancy impacts a lot more than your grocery bill.



## How Prenatal Nutrition Influences Lifelong Health

### Does “Eating for Two” Matter Forever?

Pregnant women often talk about “eating for two,” but how much do their diets really matter during pregnancy?

Scientists now know that what a woman eats and drinks during pregnancy makes a big difference in the health of her baby. Babies who don’t receive enough of the right nutrients in the womb can suffer lifelong consequences.



### Folic Acid Deficiency and Spina Bifida

Folic acid is widely known as a vital nutrient for women before and during pregnancy. What happens if babies don’t have enough folic acid during early pregnancy? For one thing, they are more likely to develop a neural tube defect.<sup>[1]</sup> The most common type is spina bifida.<sup>[2]</sup>

For years, the U.S. government has recommended that women of childbearing age consume 400 micrograms of folic acid daily in order to help prevent neural tube defects.<sup>[1]</sup>

Less well known is that babies lacking folic acid are also more likely to be born premature and to suffer from low birth weight.

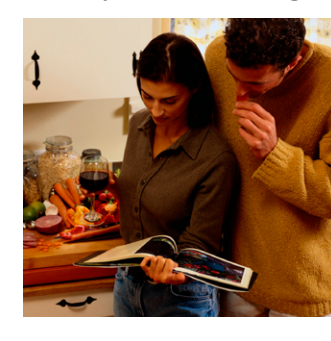
### Iodine Deficiency and Mental Retardation

Iodine is also well known as a necessary nutrient for healthy prenatal growth. Babies need iodine during pregnancy to produce thyroid hormone. The brain needs this hormone to develop and function normally throughout life. Iodine deficiency is the leading preventable cause of mental retardation worldwide.<sup>[3]</sup>

In fact, widespread lack of iodine was the major reason that salt companies around the world began fortifying salt with iodine. According to the [Salt Institute](#), this began in 1924. They also report that more than *one billion* people around the world continue to suffer from iodine deficiency.

Unfortunately, there are other nutritional deficits whose consequences are less well known and in many cases, not fully understood.

### Dietary Intake During Pregnancy and Asthma



Asthma is the leading cause of school absenteeism<sup>[4]</sup> among chronic illnesses. Asthma’s primary symptoms of cough, wheezing, and shortness of breath range in severity from mild to life threatening. The majority of people who develop asthma are diagnosed before the age of six. Anyone who has ever seen a child experiencing a severe attack can describe just how frightening it can be

for everyone involved.

Is there a link between the risk of asthma and prenatal nutrition? A study<sup>[5]</sup> published last year in the *American Journal of Respiratory Critical Care Medicine* is one of several that strongly suggests there is.

The authors of this study reported a five-fold difference in the risk of persistent asthma symptoms among different groups of 5-year-old children. Mothers with the lowest vitamin E intake during pregnancy produced children with the highest risk of asthma symptoms. Mothers with the highest vitamin E intake produced children with the lowest risk of asthma symptoms. The study also reported that giving vitamin E to these 5-year-olds did not improve their symptoms.

This same study found mothers with the lowest zinc intake produced children that were nearly twice as likely to develop persistent asthma symptoms. Children of mothers with the highest zinc intake developed asthma symptoms less frequently.

No evidence was found that maternal levels of iron, β-carotene, vitamin C, magnesium, or copper had any influence on the subsequent development of asthma.

Another group of researchers evaluating this same group of children published a separate study that reported low vitamin D intake was associated with higher risk of persistent wheezing symptoms consistent with asthma at ages 2 and 5 years.<sup>[6]</sup>

A third study looking at 3-year-olds found a strong association between low vitamin D intake during pregnancy, and a higher risk of recurrent wheezing.<sup>[7]</sup>

### Conclusions

These and other studies strongly suggest that there are critical windows of time before birth when the presence or absence of adequate nutrients permanently impacts development.

In the process, each child’s lifelong health hangs in the balance.

### Further Research is Needed

The authors of these studies all emphasize the need for further research. None of the authors is making specific dietary recommendations. This information should not be used to make dietary decisions. As with all decisions regarding pregnancy, each woman should seek the advice of her health care provider regarding prenatal vitamins and supplements, and for guidance in eating a balanced diet.

### References

[1] Williams JL, Abelman SM, Fassett EM, Stone CE, Petrini JR, Damus K, Mulinare J. 2006. Health care provider knowledge and practices regarding folic acid, United States, 2002-2003. *Maternal and Child Health Journal*. 2006 Sep;10(5 Suppl):S67-72. PMID: 16721664

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[3] World Health Organization website. <http://www.who.int/whr/2002/chapter4/en/index3.html>; Ashworth CJ and Antipatis C, 2001, 533. Accessed 10/29/2007.

[4] US Environmental Protection Agency website; “Asthma is the leading cause of school absenteeism due to a chronic illness, accounting for over 14 million missed school days per year.” Accessed 12/20/2006. <http://www.epa.gov/iaq/schools/managingasthma.html>

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## Dietary Sources of Zinc

“Zinc is found in a wide variety of foods. Oysters contain more zinc per serving than any other food, but red meat and poultry provide the majority of zinc in the American diet. Other good food sources include beans, nuts, certain seafood, whole grains, fortified breakfast cereals, and dairy products. Zinc absorption is greater from a diet high in animal protein than a diet rich in plant proteins.”

Source: [National Institutes of Health](#)

## Our Standing Invitation

**Professional educators:** We invite you to complete the [free registration process](#) and our free webinar. This 60-minute course will help you become familiar with the subject and the extensive resources at [www.ehd.org](#). Please encourage your colleagues, supervisors, and administrators to do the same. Eligible educators in some states (TX, FL, KY, AL) who complete the webinar qualify for a free copy of our award-winning DVD, *The Biology of Prenatal Development*.

**Health care professionals:** Explore the free resources at the [Little One Pregnancy Place](#). Here your pregnant patients can create a personalized pregnancy calendar, journal, and guestbook that can be shared with family and friends. Details and images of the developing human are included throughout the calendar.

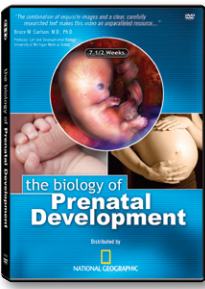
**Parents:** Please become familiar with our website and [purchase our DVD](#). Share what you learn with your family and other families who might benefit. You could also contact teachers and health care professionals in your community and ask them to consider helping any way they can. Please consider [printing and posting](#) a flyer on community bulletin boards to help spread the word about the [Little One Pregnancy Place](#).

**Everyone:** We invite you to help build a healthier future. You can start by becoming familiar with our website and DVD. Perhaps you can [give a tax deductible financial gift](#) to help train and equip educators and schools in your state. Please introduce this education project to friends and local business owners who could match or even exceed your gift.

Thank you for your interest and please invite your family and friends to visit our site. Please also invite them to sign up for our free newsletter using the link on our home page or at the foot of any of our web pages.


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