



# Wise Traditions

IN FOOD, FARMING AND THE HEALING ARTS



Healthy Baby Issue

THE WESTON A. PRICE FOUNDATION®

Healthy Baby Issue

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## President's Message

This issue is devoted to the subject of the optimal diet for children's health, starting with the diet of the mother during pregnancy and then the feeding of the infant from birth. In these articles, we have attempted to answer the numerous queries and comments we receive on this subject—everything from how to mix up homemade baby formula to navigating through all the bad advice in the many books written on infant health.

We have often used the analogy of building a house to underscore the importance of optimal nutrition for the infant. A house that is spacious and strongly built will serve as a pleasant home for many, many years, even if the occupants are less than conscientious about the upkeep. And if such a house falls into disrepair because of poor maintenance, it can be brought back to good condition again with the proper attention. But a house that is poorly built may never be comfortable and will require constant maintenance just to keep it from falling down.

Most of us born after the Second World War live in the latter type of house; to be healthy we must pay very careful attention to our diets at all times. Our houses are constantly springing leaks—allergies, digestive problems, fatigue, etc. Those born before the Second World War, when the food most Americans ate was of excellent quality, likely live in a body that is solidly built; these lucky individuals can indulge in junk food, at least for a time, without showing any signs of poor health, and if they are careful to eat a nutrient-dense traditional diet, can count on a long and healthy life.

Providing the information parents need to give their children their birthright of a healthy, well-built body is our number one priority at the Weston A. Price Foundation. The effort parents put into good nutrition for their children, starting even before conception, will return many blessings for the child, the parents and the generations to come.

If you are new to our message, we urge you to become a member of the Weston A. Price Foundation to keep abreast of new research on the relationship between diet and health, and to profit from the information that we provide. A membership form can be found on the back inside cover of this reprint.

To obtain the kinds of foods we recommend, including raw milk and grass-fed animal products, contact your local chapter. Local chapters are posted at our website, [www.westonaprice.org](http://www.westonaprice.org), or you can call our office at (202) 363-4394 to obtain contact information. Our local chapters can also put you in touch with like-minded parents engaged in the worthy effort of providing a nutritious diet to their children in this age of processed food. 



# Letters



## WEBSITE CHANGED OUR LIVES

Thank you for the information provided on your website. It has literally changed our lives! About two years ago, I began researching nutrition because of certain health problems I was experiencing (allergies, migraine headaches, severe cervical dysplasia, etc.). Somewhere along the way, I stumbled upon the Weston A. Price Foundation website and have referred to it over and over again, to the exclusion of almost every other resource I was using.

With very little support from others and much opposition, our food intake has gradually changed from pasteurized milk to raw and cultured milk, from “low-fat” boneless chicken breasts to free-range whole chicken and homemade bone stock. Presently, I have crème fraiche sitting on top of my kitchen counter, beans soaking in water, grass-fed pot roast soaking in buttermilk in the refrigerator and freshly ground spelt soaking in a warm place for buttermilk biscuits tomorrow morning. This is a complete turnaround from the way we were eating two years ago and our health is all the better for it. The only medical problems I and my family experienced this past year were some minor cold symptoms that lasted a few days, which is a very different health status for us! And, after seeing results, more of my friends and family are following suit.

What attracted me to your website at first was the absence of advertisements and the fact that many statements in the articles I read were backed up with documentation that I could read myself. These facts alone distinguish

the Weston A. Price Foundation website from all others on the same subject. I was hard-pressed to find good quality information that was not sponsored by a company clearly only concerned with making money. I continued to refer to your website not only because I began to feel healthier as I put to practice the advice given, but because the website is so functional, making it easy to find the answers to my questions from well-written articles. Thank you again for your website and the help you have provided for our family.

Elizabeth Kingery  
Kent, Washington

## HAVING IT BOTH WAYS

I want to share my happy suspicion that we “WAPF mommies” may be able to have the best of both worlds: nursing and sleeping. The statement from a reader in your last issue—“when a baby sleeps through the night, the mother’s milk typically dries up”—is not my experience. That is because my son nurses at night while continuing to sleep.

I believe that our comparatively restful nights are due to two factors: our practice of having our baby sleep with my husband and me (“co-sleeping” or “family bed”), and our diet of nourishing foods as outlined by the Weston A. Price Foundation.

Before conceiving, all through my pregnancy and to this day, my diet has included cod liver oil, lacto-fermented vegetables, raw milk products, eggs from local free-range chickens and organ meats. I am forty years old; my husband is fifty-five. After several miscarriages

we finally have our long-awaited child. Baby Gillis is robust and cheerful.

As a newborn, Gillis nursed voraciously through the day and slept through the night while nursing (one major session and some little nips). As he got older and became more interested in his surroundings, he nursed a bit less during the day and more at night—while continuing to “sleep through the night.” As of this writing, Gillis is nearly ten months old and continues to nurse like a champion, even though he now eats some other food as well. He goes to sleep around 8 pm and remains asleep until 7 am or later. When he wants to nurse during the night, he wiggles a bit, and I pop him on the breast. He does not wake up, and I barely have to wake up myself. Papa slumbers on. . .

Fortunately, my husband and I learned of the nourishing traditional diet in time to improve our health and become parents. Our days of soy and other so-called “health foods” are behind us. Your magazine and philosophies have truly given us new life.

Eveline MacDougall  
Greenfield, Massachusetts

## FAT DEFICIENCY SYNDROME

I have seen a lot of children who eat butter by the spoonfuls directly out of the butter bin. That is what I call “acute fat deficiency syndrome.” They also lick the butter off the sandwich and then throw the bread away. Wise parents give the child more butter as the child signals fat deficiency.

In 1991, I wrote an article with the provocative title “Children Starve in

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Sweden,” (of course rejected by peer review) where I found that 50 percent of the children in the area where I worked, in the south of Stockholm, Sweden had a normal height development but had a weight lag of .5 to 2 standard deviations below the normal weight curve from 4-6 months of age until 18 months-4 years of age when the children had caught up to normal weight again. In Mora in the province of Delacarla, a rural area 300 km northwest of Stockholm, there were only 10 percent of children having a weight lag. Cause: lowfat, low-calorie diet in Stockholm, high fat and higher-calorie diet in Delacarla. Lowfat and low-calorie diet means canned baby food with 75 Kcal/100 grams. A 7-month-old child needs 840 Kcal/day. The high-fat, high-calorie diet meant traditional Swedish rural food.

Bjorn Hammarskjold  
Mora, Sweden

*Leanness in children with normal or above-normal height is a sign of adequate protein but deficiency in fat-soluble vitamins. Extreme smallness (height and weight) can be a sign of protein deficiency.*

## MILK IN JAPAN

You might be interested to know that we consume more milk in Japan than people think. Many people here believe that milk is full of nutrients like eggs. Sadly, the quality of milk may not be as good as it should be. At the same time, I have not really heard people attacking milk either. Lowfat milk is not so widely available like it is in the US. However, skim milk is sold in powder form.

My parents (ages 65 and 62) have the milk delivered every morning, but otherwise their diet is a typical Japanese diet. They start their day with a bowl of miso soup made with kelp and broth made of small dried fish or dried shiitake vegetables and/or sea vegetables, as well as *hoshizakana* [fermented fish] or eggs.

School children get milk every day at school. If you will go to the following website you will see a sample of a school lunch menu. You may not be able to read the Japanese text but you can see the photos. The website is [www.pureweb.jp/~natural/lunch/lunch-box16/lunch2004.htm](http://www.pureweb.jp/~natural/lunch/lunch-box16/lunch2004.htm).

Kayako Miyake  
Kyoto, Japan



## PROOF AGAINST INFECTION

Proof is in the pudding: an old adage? I run a daycare drop-in, meaning, I get kids whom I may have never seen prior to their stay and parents that I may not know all that well. Recently we had a virus of almost epidemic proportions run through our communities here in Phoenix.

When I got calls asking whether I

would take the ailing children. I said yes. I follow the nutritional traditions found at the website of the Weston A. Price Foundation. Go ahead, ask me if *any* of my family members got the virus. Go ahead, ask me. Thanks for asking. No! We didn't.

Since that time, I have three families on better eating programs. Not because I told them to do it, but simply because they wanted to know why we continued to thrive despite the fact that we had ailing children in our home. Say what you will, the proof is in the pudding.

Jennifer Thompson  
Phoenix, Arizona

## FATS AND BEHAVIOR

At choir last night, one of the younger women, who has a son about four years old, said that she wanted to tell me something she'd noticed about my daughter Susan, who will be six in June. She said that Susan has recently become more easygoing than she used to be.

That surprised me, because I did not think that Susan had exhibited less-than-easy-going behavior around her before. But as I think about it, I know that she has exhibited almost infantile separation anxiety anytime I had to leave her in the nursery. She never did that as an infant, but she had begun doing that in the last year or two. I guess that's what she was referring to. And it's true. My daughter no longer cries when I drop her off at the nursery.

Anyway, I thanked her and asked whether she would like to know what made the difference. She said she would. I told her about how we switched from 2% to whole milk in January, and I'd





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been using more eggs and making pot roast at least once a week. And Susan loves the pot roast and continues to be a big milk drinker.

Until we started using whole milk, she cried a lot and was kind of “brittle.” And I have noticed that I don’t get as angry since we started drinking whole milk and my daughter hasn’t run off crying in ages, even though occasionally she is rebuked strongly.

This gal and a close friend of hers, who also has young children and is in choir, both seemed amazed about what I told them about cholesterol being healthful and whole milk being that much better than lowfat milk. I told them about how my foot had stopped giving me trouble, and instead of gaining weight (which I was resigned to do when we switched to whole milk), I have actually lost weight and am able to wear clothes that several sizes smaller than I had been wearing. And I’m stronger and have more stamina.

I have a friend with three children. They’re all pretty lean and getting taller. As my daughter and I ate our supper while waiting for choir time to arrive, I noticed that my friend’s kids (especially the older two) kept picking at each other, even throwing kicks at each other! The youngest child is a vegetarian.

On a recent Max-X show, they aired videos of people rioting, including a riot between factions of Buddhists. This fits right in with evidence showing that vegetarianism doesn’t make your life quiet and full of peace.

Good nutrition influences behavior, as well as overall health. There is a school district in Pennsylvania, where they’ve lost six kids since December to

health-related problems. They need your message!

Laura J. Cooper  
Stillwater, Oklahoma

*Your story proves that when raw milk is not available, even whole milk from the supermarket can be beneficial for many children. We condemn our children to all sorts of behavioral and emotional difficulties when we deny them healthy fats.*

## SEDATIVE IN THE FORMULA?

My son and daughter-in-law are convinced that formula is fine. I shudder when I see my grandson using plastic bottles, liners and silicone, and the plastic pacifier constantly in his mouth.

I have observed something that frightens me further. After feeding the baby sleeps forever, like he is drugged. They have to wake him up. Is it possible that they are putting a sedative in the formula? Could they be adding an ingredient to make parents believe their children are very content on the formula? When he does wake up he can be fussy, like a drug has worn off.

He is gaining weight and my thought is that he is being fed the same ingredients as cows on the feed lot.

Beth Marble  
Columbus, Ohio

*According to Barbara Heiser of the National Alliance for Breastfeeding Advocacy, DHA and ARA from non-nutritional sources (DHA manufactured from fermented micro-algae and ARA or arachidonic acid from soil fungus) added to certain baby formulas have been causing trouble in babies, notably*

*severe explosive diarrhea. (She has not heard reports of babies acting like they are drugged, but several ingredients in the formula could cause such a reaction.) The National Institutes of Health is so concerned that they are conducting post-market surveillance on DHA- and ARA-enriched formulas. Another frightening revelation is the fact that none of the powdered formulas is sterile, and they may harbor lethal bacteria; and the carrageenan added to pre-mixed formula may cause severe digestive problems.*

## GOAT MILK FORMULA

I spoke with you about a year ago because I wanted to use a homemade raw goat milk formula for my adopted baby. Well, almost a year has gone by and my baby has thrived, thrived, thrived. Thank you for making this information available for mothers of adopted children.

Judith Ugelow  
Sheffield, MA

## BLATANTLY IGNORANT

Recently, I was running errands with my mom and we stopped at the local pharmacy. At the entrance of the store was a large barrel-shaped cooler filled with soda. On top of this cooler was a sign announcing that proceeds from the soda would benefit the American Diabetes Association.

Having been raised by my mom who is an avid Weston A. Price Foundation supporter and an outspoken nutritionist, and being only seventeen, I was grateful to have been able to recognize an inconsistency such as this. I laughed and asked my mom if it was supposed to be a joke. How could the American Diabetes



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Association be promoting a substance such as soda that is a direct cause of the very disease that the organization is trying to prevent and cure? To me, this was a blatantly ignorant fund-raiser, but unfortunately, many less-educated people probably will think of purchasing a soda as a charitable donation and are later dumbfounded when they discover they have health problems such as diabetes. So I have to wonder where all the money they raise goes because it surely isn't doing anything to help people avoid diabetes.

Caroline Valvardi  
Berwyn, Pennsylvania

## THE HEIDI SOLUTION

Your enthusiasm for milk as a simple, workable solution for the “walking wounded” is just what we all need. This “Heidi Solution” really is a political solution, as you say. For one thing, we cannot just fix our own families with our communal cowshare programs and watch others suffer. This is a political movement in so far as it empowers the individual with freedom from disease. I am so much less judgemental now that I have more fully comprehended the tremendous burden of illness and pain our fellow citizen must bear.

We must envision a societal solution that encompasses the entire polis. Being part of what will soon be an enormous cultural revolution for the welfare of my community has been tremendously exciting—almost as exciting as seeing the health of my whole family transformed before my very eyes.

Paul Hubbard  
Poquoson, Virginia

## SAFETY OF RAW CHEESE

My doctor has given me dire warnings about drinking raw milk and eating raw cheeses during my pregnancy. Should I be concerned?

Anne Smythe  
San Bernadino, California

*Raw milk produced in clean conditions and raw hard cheeses are safe for pregnant women (we recommend that pregnant women drink one quart of whole raw milk per day), but it's best to be careful about all commercial soft cheeses, not because they are “raw,” but because they are often improperly pasteurized, that is, the temperature does not quite reach pasteurization temperature, which kills all the protective components of milk but not the pathogens.*

## “A” SCANDAL

I recently visited to a new doctor to whom I don't think I'll return. Since I told her I might be getting pregnant within a year or two, she wanted me to take prescription prenatal vitamins. I told her I was happy with my vitamins (which are whole food vitamins) and wouldn't need them. This concerned her, so she told me to make sure I was getting enough folic acid and that I should be careful to keep vitamin A out of my diet. She even told me to avoid foods that might contain vitamin A. Keep vitamin A out of my diet?? I wonder how many doctors tell their patients this?

Kelly Young  
Morrisville, North Carolina

## SUPER BABY

Just wanted to drop you a quick note to say thanks. Our new baby son,

Derek, was born just over two weeks ago, and he barely cries at all! He is the quintessential, healthy baby described by Weston Price in his book. We are so thrilled. Such a change from our first son, who is now three years old, who was a good baby, but cried a lot and I never could figure out why. Now I know he was just hungry and my milk was not rich enough in what he needed. My milk is certainly rich enough now with all the pasture-fed butter, meat and raw cheeses I'm eating.

Another astounding thing. . . I can eat anything and my milk does not cause our baby any digestive problems. He does not spit up and does not even need to be burped. He burps himself!

One piece of amazing news. Little Derek turned over at just two weeks old! I put him to sleep on his tummy, and he turned himself onto his back. I'm wondering whether this was commonplace back when folks had a nutritious diet. Perhaps our expectation that babies don't roll over until several months old is not based on what they should really do if fed rich, nutritious breast milk.

Today little Derek turned over the other direction--my husband thought it was a fluke, so little Derek had to prove him wrong! He has now turned from tummy to back and back to tummy in the span of four days. He can also pick his head up to 90 degrees while on his tummy and can hold his head steady while I am holding him upright (albeit for only 10-15 seconds or so). I am starting to understand what a truly healthy baby is supposed to be like. It certainly is different from what the baby books describe!

Anyway, thank you for getting the



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word out and helping to make our second baby such a delight.

Sarah Pope  
Lutz, Florida

## A DIFFERENT CHILD

I'd like to report a success story regarding my 10-year-old daughter, Chelsea. We had some extensive evaluations done last year as it seemed she was having some academic and social problems in school. The counselor identified several specific problems (they all coincided with weaknesses that I myself possess--the apple doesn't fall far from the tree). Her diagnosis included the word "organic." That was what I needed to hear because that meant we were dealing with some deficiencies that could be addressed instead of some type of injury. I immediately started her on fish oil supplement and last summer when I discovered your foundation and its tremendous work, I incorporated the dietary information as soon as I could. We started using only raw dairy products from a local farmer and we purchased half a share in a pasture-fed cow. We avoid refined sugar, white flour, and hydrogenated garbage and have switched the fish oil to cod liver oil.

Just a week ago, the school counselor called me to tell me that Chelsea is doing wonderfully and she seems "so different." Her "eyes look different." She asked me if I had put Chelsea on medication. I answered with a very distinct "No!" I told her about the dietary changes and about your work and hope that she will follow up and educate herself so that she can help other children.

It's amazing how quickly everyone wants to shove pills down the throats of

our children when they don't need them. Well, I'm going to continue to "shove" raw dairy, grass-fed beef, free-range chicken and eggs, and whole foods into my four children. Thank you for everything!

Laurie Fisher  
Odessa, Florida

## SAVED BY REAL MILK

I have been furnishing my son's pediatrician with information on *trans* fats and soy products. She is the second pediatrician that I have spoken to that had heard nothing about the problems with soy infant formula. What's going on? Seems to me, if anyone should know, it would be the pediatricians.

As for raw milk, Cody, my son, has always been tiny. He was full term, but only weighed just over four pounds at birth. His growth rate had always remained below what it should be. At almost six years, he only weighed 32 pounds. He also had been on four different allergy medications—Claritin, Flonase, Tanafed and Extendryl. Two weeks after my finding a source of raw Jersey milk, he no longer needed any medicine.

When I took him to the pediatrician, she wanted to know what I had done because Cody had gained four pounds and grown about one-and-one-half inches in a month. I told her and, surprisingly, she was for it. After all, what could she say? She has been his doctor since his birth.

Another story: Years ago Elton Maddox had a dairy. Some people he knew had a very sick baby. Elton said, "The little thing was as poor as a rail, and cried all of the time." A baby specialist in Charleston told the baby's father to find

someone with a cow that had not been fresh for more than six weeks, and get the milk for the baby. Elton's wife told the baby's father that she was afraid that the milk would be too rich, give the baby diarrhea and that they might lose it. The father said that they were going to lose it anyway, so he wanted to try the milk. Elton separated out a Guernsey to milk her specially for the baby. The next day the baby's mother wanted him to "come in and see something." He went in and there was the baby sleeping peacefully. After putting it on the milk, the little thing got better and did just fine.

Billie Paxton  
Elkview, West Virginia

## WONDERFUL NEWS

Just a short story to share. Our pastor and his wife were told many years ago that she was infertile and would never be able to conceive--something to do with a cyst. About 18 months ago I got her to take some butter oil and cod liver oil home and they both started to drink raw milk. Well, today was a joyous day because we learned that our pastor's wife is pregnant and due this August. I am so happy for them. Her personality is one that begs to have 12 children around her feet at all times. (The doctors don't know what happened to the cyst.)

David Wetzel  
Page, Nebraska



Gifts and Bequests  
to the Weston A. Price Foundation  
will help ensure  
the gift of good health  
to future generations.

# Caustic Commentary

## Sally Fallon and Mary Eng take on the Diet Dictocrats

### PRECOCIOUS PUBERTY

“There has been much speculation about why earlier maturation may be occurring in girls, especially because there has been no apparent advance. . . in the onset of puberty in boys.” So writes Jane E. Brody in the *New York Times* (December 12, 1999). More than any other writer, Jane Brody has pushed Americans into the lowfat, mostly vegetarian diet that has sent sales of soy foods soaring and, as a corollary, resulted in 25 percent of American bottle-fed babies getting estrogen-loaded soy-based infant formula. Could this trend to early maturation be due to increased obesity or exposure to plastics and insecticides, she wonders, carefully avoiding mention of the dreaded S word. And how shall parents cope with the tragic truncation of girlhood, not to mention the other problems that often accompany premature puberty—stunted growth, central nervous system disorders including headaches and seizures, reproductive complaints and behavioral problems? Not to worry. Researchers suggest that we should just redefine the ages at which puberty is considered precocious. “The onset of breast development between 7 and 8 years of age in white girls and between 6 and 8 years in African-American girls may be part of the normal broad variation in the timing of puberty and not, in most cases, a pathological state,” say members of the Lawson Wilkins Pediatric Endocrine Society. This will be reassuring to one group of 33 early-maturing girls whom researchers found to be more depressed, socially withdrawn, aggressive and moody than a comparable group of girls who had not yet entered puberty. Perhaps these girls sense what is in store—a shrinking pool of fully developed males, due to the fact that *failure* to mature is becoming increasingly common in boys.

### WRONG PREMISES, WRONG DIET

The traditional view of human brain development is that babies are born with all the brain cells they will ever have, and that neurological development occurs through the connection of these cells in the early years. But new research indicates that from birth through late adolescence, the brain adds billions of new cells, constructing its circuits out of freshly made neurons as children and teenagers interact with their environments. In

adulthood, the process of adding new cells slows down but does not stop. Mature brain circuits appear to be maintained by new cell growth well into old age (*New York Times*, January 4, 2000). Unfortunately, current lowfat dietary recommendations for children are predicated on the belief that the brain does not grow or develop after the age of two. The new discoveries reveal why growing children need foods rich in animal fats and cholesterol throughout their growing years. These foods are essential for development of the brain and nervous system. Parents who want their children to grow into adults who can reason and think creatively must ignore the dietary advice of the “experts” and provide their growing children with rich traditional foods.

### MORE ON BRAIN FOOD

Brain function in baby rats was enhanced by feeding extra choline during the equivalent of the third trimester of pregnancy, according to a study at Duke University Medical Center. The offspring performed significantly better on memory tests than those of mothers with the normal intake of choline. Researchers found that choline enhanced a brain function responsible for paving the path between nerve cells, allowing electrical messages to travel more easily. The improved brain wiring persisted in the rats through early adulthood. (*Neurophysiology*, April 1998) Choline is an amino acid found in egg yolks, milk, nuts, liver and other meats—that is, in all those high-fat items the Diet Dictocrats want us to avoid.

### IRREVERSIBLE DAMAGE

A case reported recently underlines the dangers of a strict vegan diet, one that excludes all animal products. It involved a 33-year-old patient who had been a vegan since the age of 20. He did not eat meat, eggs, dairy products or fish. He had no history of alcohol abuse, did not smoke cigarettes and was not taking any supplements. The patient was diagnosed with severe optic neuropathy in both eyes with poor vision of 20/400 in each eye. There was no evidence for an infectious cause of this severe vision loss, but blood samples revealed deficiencies in B<sub>1</sub>, B<sub>12</sub>, A, C, D, E, zinc and selenium. The patient was treated with intramuscular and oral multivitamins



# Caustic Commentary

until his blood levels normalized but his eyesight did not recover—the damage to the optic nerve from lack of nutrients was irreversible. The moral: beware of claims that veganism has no downside. (*New England Journal of Medicine*, March 23, 2000 342:897-898)

## TOXIC OILS

Scientists at the University of Basque Country have made a discovery that is bad news to the vegetable oil industry. They found that oxidation or thermal degradation causes deterioration of vegetable oils in foodstuffs and the generation of toxic substances. Heating to 70 degrees C created first hydroperoxides and then aldehydes, which are geno- and cytotoxic (poisonous to cells). In foods that were microwaved, the aldehydes were produced immediately. Among the oils tested, virgin olive oil took the longest to produce toxic compounds, and produced them at lower concentrations. More unsaturated vegetable oils produced more toxic compounds (*foodnavigator.com* May 26, 2005). Just what we've been telling folks for years—vegetable oils are bad news.

## PLASTICS BAN?

Assemblywoman Wilma Chan has introduced a bill in the California state legislature that would ban bisphenol A, a chemical used in liners inside canned food and water supply pipes, some water containers and, most importantly, numerous products that are intended for use by infants including baby bottles, pacifiers and teething rings. The chemical is also an ingredient in dental sealants coated on children's teeth for the "prevention of cavities." The bill, AB319, would also ban certain forms of plastic softeners called phthalates in toys and child care articles. Chan became aware of the possible hazards of these chemicals to hormone balance and the nervous system through her work on the Select Committee on Children's Health and School Readiness. It was Chan's legislation that led to the banning of two forms of flame retardant two years ago. Naturally, the industry, which produces about two billion pounds of bisphenol A yearly in the US, opposes the bill. "You can't make polycarbonate without it," says spokesman Steve Hentges, adding, ". . . the weight of evidence supports the

conclusion that bisphenol A is not a risk to human health at the extremely low levels to which people might be exposed." However, a study published February 2005 in the journal *Endocrinology* showed that exposure of lab animals to bisphenol A altered the ability of thyroid hormone to correctly regulate brain development. Other studies indicate that at very low doses the chemical inhibits the positive role of estrogen in enhancing neural connections in the hippocampus, the part of the brain involved in the formation and retention of memory (*San Francisco Chronicle*, March 31, 2005).

## SOY TO THE RESCUE

Food manufacturers that use eggs extensively in products like baked goods, mayonnaise and salad dressings have seen profits threatened by fluctuations in egg prices. The decimation of millions of birds through avian flu led to an increase in yolk prices from £1700 per ton in 2002 to £2250 per ton in 2003. Alleggra Foods is seizing the opportunity to promote its new soy-based egg replacer, Alleggra, developed by food scientists at Unilever. The product is composed of soy protein, whey proteins, vegetable oil (sunflower oil but can be varied) and egg white and will be marketed as a "fully functional replacer of egg" with "seventy-five percent less saturated fat than an egg and 10 percent more protein." "Alleggra has clear advantages in terms of cost and health," says Gavin Hays, chief executive for Alleggra Foods. "Alleggra is not only cholesterol-free, but is actively cholesterol-lowering." The product is currently in two development trials with food makers for muffin and quiche products and aimed at replacing eggs in other products later in the year. In 2004, the firm signed a £350,000 contract with Britain's Ministry of Defence for Alleggra to replace powdered egg rations for the military (*Ingredients.com*, 20/04/2005). Expect to see this ingredient in a grocery store or PX near you.

## FROM THE FRYING PAN TO THE FIRE

Clothed in good intentions, a nutrition program spearheaded by the St. Louis-based Parents as Teachers and St. Louis University's School of Public Health, "seeks to improve the lives of preschoolers" by promoting a High-5 Low-Fat nutri-



# Caustic Commentary

tion program among families in the St. Louis area. Funded in part by the National Cancer Institute and designed to address “diet-related cancer disparities among the black population,” the program encourages “strategies on buying food cheaply while boosting nutrition.” Susie Nanney, manager of the Obesity Prevention Center at the university and the original project manager for High-5 Low-Fat calls the program “realistic.” “We’re not telling people to clean out their cupboards and throw out the candy bars. We’re not saying line your refrigerator with just broccoli and tofu,” she said. “If a family enjoys macaroni and cheese, they can be taught how to make it with less fat and to add a vegetable to it. Or a boxed meal might be prepared with skim milk and less butter” (*WebMD*, January 14, 2005). In other words, the program doesn’t teach people how to make simple, wholesome meals, but how to remove the few real foods they are still incorporating into a diet of processed foods.

## VITAMIN A AND THE BRAIN

The most important conclusion of Dr. Price’s research is that the fat-soluble vitamins A and D are key to human development and optimal health. In spite of the many voices urging lowfat and vegetarian diets, modern scientists have actually corroborated Price’s conclusions in many studies. The most recent was performed by the Salk Institute for Biological Studies, located in San Diego, California. Scientists found that removing vitamin A from the diets of mice diminishes chemical changes in the brain considered the hallmarks of learning and memory. Lack of vitamin A interferes with optimal function of the hippocampus, the main seat of learning. Earlier work indicated that mice born without receptors for vitamin A in the hippocampus performed under par in standardized learning tests. When vitamin A is added back to the diets of the mice, the impairment is reversed (although the researchers have not yet determined whether removal of vitamin A during embryonic development leads to permanent learning disabilities.) These studies confirm what we have been saying all along—that children need cod liver oil, organ meats, butter from grass fed cows and other foods rich in vitamin A in utero and throughout their growing years, not only for optimal physical development but also for the kind of mental development that yields human beings who can learn quickly

and think clearly (The Salk Institute for Biological Studies, San Diego, California).

## AUTISM AND THE AMISH

One in every 166 children born in the United States is afflicted with autism, a living-death condition characterized by “markedly abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activities and interests.” While most parents of autistic children have reported the onset of symptoms immediately or shortly after a dose of vaccines, the pharmaceutical industry denies any connection between this epidemic and the load of childhood vaccinations to which modern children are subjected. What’s needed in this debate is a look at the rates of autism in an unvaccinated population and one reporter, Dan Olmsted, has done just that. Among the unvaccinated Amish of Lancaster County Pennsylvania, there should be well over 100 children with some form of the disorder if autism has nothing to do with vaccination. What he found is that in all the Amish schools, there is one classroom with about 30 “special needs” Amish children and of these, one is autistic. Another autistic Amish child does not go to school and a third is a pre-school-age girl. Olmsted found that all three had actually been vaccinated: two were born to Amish parents who gave in to the constant pressure to vaccinate their children. The third and worse case was a girl adopted from China, who received many vaccinations in one day, at age 15 months (*UPI*, April 18, and June 7, 2005).

## MORE LOWFAT HYPE FOR KIDS

A recent Finnish study on children’s diets received headline coverage. Researchers divided 496 children into two groups. The parents in one group were asked to put their youngsters on a lowfat diet, with a goal of limiting fat to no more than 30-35 percent of calories. Specific recommendations included nonfat milk after the children were weaned and the addition of 2-3 teaspoons soft margarine or canola oil to their food until they reached two years of age. The parents of the children in the other group were advised to give them cow’s milk containing at least 1.9 percent fat starting at age one, but otherwise received no specific guidelines on fat intake. At age five, children on a “reduced-fat” diet and those on the “regular” diet performed

# Caustic Commentary

similarly on tests of speech, language, motor functioning and visual skills. “Study Finds No Neurological Harm in Young Kids’ Lowfat Diets,” said the headlines (*Associated Press*, August 22, 2000). But the fine print revealed that the difference in fat consumption for the two groups was no more than 3 percent. And neither of the two groups was compared with children who were given a truly adequate diet, one containing lots of quality dairy fat and cod liver oil. The recent decline in test scores and great increase in learning disabilities tells us that modern diets—either lowfat diets or diets in which vegetable oils are substituted for animal fats—have tragic effects on the neurological development of our children.

## NOT FULLY WIRED

Scientists have always blamed the surge of hormones at puberty for reckless adolescent behavior but neuroscientists have come up with a different explanation. Beginning around age 11, the area of the brain associated with social behavior and impulse control actually sprouts a tangle of nerve cells. After puberty, this thicket of nerve sprouts is “pruned.” About half the new nerve fibers are cut away to create an efficient network of circuits. The new wiring allows the adult to manage “executive functions” such as goal-setting, priority-setting, planning, organization and impulse inhibition (*Washington Times*, January 7, 2001). Now consider the fact that most American children are denied the kind of fats the brain needs when they are put on lowfat milk and margarine at the age of two. How does the brain get fed during this period of delicate rewiring? The answer is that many teenagers enter adulthood not fully wired, and unable to participate in those kinds of activities that give pleasure and a sense of meaning to adults—goal-setting, priority setting, planning, organization and the kind of patient follow-through based on mature impulse inhibition.

## IT’S A SCREAM—KETCHUP THAT’S GREEN

The latest funny food to hit the marketplace is green ketchup, an invention by the food engineers at H. J. Heinz. In development for nearly a year, the green ketchup is aimed squarely at children. It comes in a softer, “child-friendly” bottle which lets kids draw or write on their food, decorate each French fry and make patterns on their burgers. Red ketchup is also being sold in the new bottle. “It’s the first step in making ketchup fun,”

said a Heinz spokesman, who did not rule out other colors in the future. What makes the new ketchup green is Yellow No 5 (associated with Attention Deficit Disorder) and Blue No. 1 Aluminum Lake. (Aluminum ties up magnesium and has been associated with Alzheimer’s disease and kidney problems.) Then there are all those other ingredients in ketchup not fit for man nor beast, including high fructose corn syrup and “natural flavors,” a source of MSG. Another thing: the only way to make ketchup green is to get rid of the red color first, which makes us wonder whether they started with tomatoes bleached white (*New York Times* October 22, 2000)

## VACCINE DAMAGE

As the number of required vaccinations increases, and the use of protective fats rich in vitamin A declines, the numbers of vaccine injuries in our children is soaring. According to the Federal Centers of Disease Control and Prevention, of the four million children each year who receive multiple vaccines, about 10,000 have adverse reactions, including high pitched screaming, bowel blockage, seizures, autism, bizarre neurological disorders and complete paralysis. Doctors are discouraged from reporting reactions so this number is probably low. This year a record number of families have filed cases with the nation’s Vaccine Compensation Fund on behalf of children who’ve suffered side effects from their immunizations. Recently a New Jersey girl whose mental development stopped at two months old after an immunization received a \$4.7 million settlement from the Fund. Of course, no amount of money can compensate parents for the heartbreak of lifelong brain damage. ☹☹

## FOR SCIENTISTS AND LAYMEN

Please note that the mission of the Weston A. Price Foundation is to provide important information about diet and health to both scientists and laymen. For this reason, some of the articles in *Wise Traditions* are necessarily technical. It is very important for us to present the science that supports the legitimacy of our dietary principles.

In articles aimed at scientists and practitioners, we provide a summary of the main points and also put the most technical information in sidebars. These articles are balanced by other pieces that explain our principles in simpler terms and provide practical advice to our lay readers.

# Modern Baby Books: Full of Bad Advice

By Lisa Bianco-Davis

**W**alk down the “Baby & Childbirth” section of any bookstore or library and you will be faced with a bewildering array of books aimed at the pregnant woman. These books are written by doctors, obstetricians, midwives, mothers. . . and others. Unfortunately none of the authors appears to have read the work of Weston A. Price.

My husband and I are expecting our first child later this year. Being a first-time mom who is familiar with the work of Dr. Price, I was naturally curious to see what the pregnancy books had to say on the matter of nutrition. So I went to our local library and checked out an armload of books. I was surprised, not by the variety of the advice between the different books, but by the consistency of the message. Many of the pregnancy books included the USDA food pyramid, and parroted government recommendations. And while some of their advice is useful, much of it is misleading or just plain wrong.

When Weston Price studied healthy traditional societies, he found that they placed a strong emphasis on the nutrition of couples prior to pregnancy and of women during pregnancy and lactation. The foods these societies considered absolutely essential for producing healthy children were seafood (fish and shellfish, fish organs, fish liver oils and fish eggs), organ meats, insects, animal fats, egg yolks, whole milk, cheese and butter from cows eating green grass. When studied in the laboratory, Price found these foods to be high in minerals and vitamins, particularly the fat-soluble vitamins, A, D and Activator X. He determined that these traditional diets provided ten times the amount of fat-soluble vitamins compared to the American diet of the 1930s.

Let's look at the modern pregnancy books' recommendations regarding these foods that were considered essential to traditional societies.

#### SEAFOOD

The modern books generally recommended some seafood, and rightly state that fish is a good

source of the important Omega-3 fatty acids. However, they suggest limiting the amount of fish due to fears about mercury contamination. (One of the books specifically recommended farm-raised fish containing chemical colorants and fed on artificial diets, in order to protect children from mercury contamination of wild fish!<sup>9</sup>) None of the books mentions the nutrient-dense seafood—shellfish, fish organs, or fish eggs. Although some authors mention cod liver oil, none of the books I reviewed recommended it. One book strongly cautioned against fish oils due to worries about “excessive” levels of vitamins A and D. “Fish oils (e.g., cod liver oil) and liver are not recommended as safe sources of vitamin D for pre-pregnancy or pregnancy.”<sup>8</sup>

#### ORGAN MEATS

A few of the modern pregnancy books mentioned the fact that organ meats are rich sources of iron and vitamin A. However, none recommended them. In fact, most contained misleading or outright false statements about vitamin A. “Vitamin

A few of the modern pregnancy books mentioned the fact that organ meats are rich sources of iron and vitamin A. However, none recommended them.

#### THE BOOKS I REVIEWED

1. *The Complete Book of Pregnancy and Childbirth* by Sheila Kitzinger, Knopf, 2003.
2. *Nutrition for a Healthy Pregnancy* by Elizabeth Somer, MA, RD, Owl Books, 2002.
3. *Nine Months and a Day: A Pregnancy, Labor and Delivery Companion* by Linda Hughey Holt, MD, FACOG and Adrienne B. Lieberman, Harvard Common Press, 2000.
4. *The Everything Pregnancy Nutrition Book* by Kimberly A. Tessmer, RD, LD, Adams Media Corporation, 2005.
5. *Mothering Magazine's Having a Baby, Naturally* by Peggy O'Mara (editor of *Parenting* magazine) and others, Atria 2003.
6. *The Gift of Health* by Karin B Michels, ScD, MSc, MPH and Kristine Napier, MPH, RD, LD, Pocket, 2001.
7. *Listening to Your Baby* by Jay Gordon, MD, Perigee Books, 2002.
8. *Before Your Pregnancy* by Amy Ogle, MS, RD and Lisa Mazzullo, MD, Ballentine, 2002.
9. *The Complete Idiot's Guide to Pregnancy and Childbirth* by Michele Isaacs Glicksman, MD with Theresa Foy DiGeronimo, Alpha, 1999.
10. *What to Expect When You're Expecting* by Arlene Eisenberg, Heidi E Murkoff & Sandee E Hathaway, BSN, Workman Publishing Company, 2002.

A good project for Weston A. Price members would be to pick one of these books and place a critique of the diet section on Amazon. Start with Number 10, which is ranked 108. The others are showing lackluster sales, but all have five-star reviews. This would be an excellent way to make expectant mothers aware of our teachings.

Modern books tell expectant mothers to meet their vitamin A needs from beta-carotene, claiming that beta-carotene will be converted into vitamin A “as needed.”

A is found in orange and leafy green vegetables, liver and other organ meats; butter and whole and fortified milk.”<sup>3</sup> The truth is, fully formed vitamin A is *not* found in orange and leafy green vegetables, it is only found in animal sources. Some books warn against consuming “too much” vitamin A, claiming that more than 10,000 IU per day increases the risk of birth defects. A couple of the books do make the important distinction between natural vitamin A in foods and synthetic vitamin A from supplements. Synthetic vitamin A—in multi-vitamin pills and processed food like margarine—has been linked to birth defects and is best avoided by everyone. A couple of books said that you couldn’t overdose on food sources of vitamin A, but one book in particular cautioned several times against consuming liver or other organ meats. “Liver, which can be extraordinarily high in fully formed vitamin A, is one of the best sources of iron and sometimes is recommended for women with iron-deficiency anemia. It’s also a nutritious, inexpensive source of folic acid and other nutrients. However, due to its excessive vitamin A content, we recommend that liver not be consumed in any appreciable quantity beginning in the month before pregnancy.”<sup>8</sup>

Weston Price emphasized the fact that neither protein, minerals nor water-soluble vitamins can be utilized by the body without vitamin A and that only animal sources can provide adequate amounts of this vital nutrient. But instead of encouraging pregnant women to consume natural sources of true vitamin A such as liver and other organ meats, cod liver oil and eggs, butter and cream from pasture-raised cows, the modern books tell expectant mothers to meet their vitamin A needs from beta-carotene, claiming that beta-carotene will be converted into vitamin A “as needed.” These authors do not seem to understand the fact that the conversion of beta-carotene to vitamin A is dependent on many factors, including sufficient fat in the diet, and that the production of vitamin A from plant pre-cursors is difficult for a large portion of the population, including those with digestive and thyroid problems.

#### INSECTS

Although insects were valued by traditional societies, not many modern women would be willing to eat this nutrient-dense food. Since we

have eliminated insects from the modern diet, it makes the other foods that were considered essential by traditional societies that much more important.

#### ANIMAL FATS

When comparing the advice of the modern pregnancy books with the wisdom of traditional societies, the differences are nowhere more apparent than on the subject of fats. The various books contained copious warnings to avoid fat in general and saturated fat in particular. Some examples of the modern advice are:

- ♦ “Your body’s need for fat is minimal, reduce your intake by trimming fat off meat, using less butter, drinking low-fat milk, boiling or steaming foods...”<sup>1</sup>
- ♦ “Limit total fat intake to 25 to 30 percent of total calories by cutting back on saturated fats in fatty meats and dairy products...”<sup>2</sup>
- ♦ “You can’t eat butter because its high saturated fat content increases the risk for heart disease...”<sup>2</sup>
- ♦ “Choose lean meats and trim fat from meat before cooking. With poultry, remove skin.”<sup>4</sup>
- ♦ “Saturated fats are the least healthy (fat) and are best used in small amounts. Go easy on butter, fat found in meats, coconut, coconut oils, and palm oil.”<sup>5</sup>
- ♦ “Babies don’t need any oil...”<sup>7</sup>

These views are typical of modern fat-phobia, but supported neither by the evidence of healthy traditional societies nor by the discoveries of modern science.

Readers of *Wise Traditions* know that saturated fat is not to blame for heart disease, cancer or the myriad other ills that are frequently attributed to it. In fact, saturated fats play many important roles in the body chemistry. Many of the healthy peoples Weston Price studied went out of their way to obtain saturated fat, such as hunting specific animals during the season that would maximize that animal’s fat content; and these cultures preferred the fattiest portions of the animals, often throwing the lean muscle meats away.



## EGG YOLKS

The modern pregnancy books misunderstand the nutrient value of eggs. Most of the books do recommend eggs but advise no more than 2 per day, and a few books say to have eggs no more than 2 or 3 times per week, or consume whites only. Most of the books recommend eggs for their protein content, and many of the books encourage consuming egg whites without the yolks to avoid their naturally occurring fat content. The books also contain mistaken information about cholesterol, claiming that diets high in cholesterol cause heart disease, and consequently recommend egg whites only (throwing away the nutrient-dense yolks). One author even recommends egg substitutes (which caused rapid death in test animals). “Egg yolks contain a significant amount of fat and cholesterol. The refrigerated egg substitutes available at your grocery store offer a cholesterol-free and lower-fat option.”<sup>4</sup>

In the recipe section of one book every recipe calling for eggs uses egg whites only. The recipe for “Creamed Eggs” uses egg whites, olive oil, skim milk, white flour, salt, pepper, sugar and whole-wheat English muffins. The author notes that it was her husband’s grandmother’s favorite

egg dish, “of course she used cream and put the egg yolk on top.”<sup>6</sup> I say, we need to return to the traditional recipes and include the cream and egg yolks! While it is true that eggs do contain fat and cholesterol, these are valuable natural substances, especially needed in the diets of growing children.

Egg whites *are* a great protein source, but the yolks are even more valuable as a food for the growing baby, supplying vitamins A, D and E along with nutrients that are critical for brain development, namely EPA, DHA and choline.

Many of the books also caution against consuming raw or lightly cooked eggs out of fear of salmonella or listeria. In fact, it is fine to consume the yolks raw (as in smoothies or salad dressings). The whites, however, should usually be cooked to neutralize enzyme inhibitors that can interfere with digestion.

## WHOLE MILK, CHEESE AND BUTTER

Nearly every modern pregnancy book I looked at recommended consuming milk and dairy products to ensure an adequate calcium supply. However, not one of the authors points out the fact that calcium from typical store-bought

Egg whites are a great protein source, but the yolks are even more valuable as a food for the growing baby, supplying vitamins A, D and E along with nutrients that are critical for brain development, namely EPA, DHA and choline.

## OUR RECOMMENDED DIET FOR PREGNANT AND NURSING MOTHERS

Cod liver oil to supply 20,000 IU vitamin A daily (mixed with water or a little fresh juice)  
2 8-ounce glasses whole milk daily, preferably raw and from pasture-fed cows  
4 tablespoons butter daily, preferably from pasture-fed cows  
2 or more eggs daily, preferably from pastured chickens  
Additional egg yolks daily, added to smoothies, salad dressings, scrambled eggs, etc.  
3-4 ounces fresh liver, once or twice per week  
Fresh seafood, 2-4 times per week, particularly wild salmon, shellfish and fish eggs  
Fresh beef or lamb daily, always consumed with the fat  
Oily fish or lard daily, for vitamin D  
2 tablespoons coconut oil or 1/2 cup coconut milk daily, used in cooking or smoothies, etc.  
Lacto-fermented condiments and beverages  
Bone broths used in soups, stews and sauces  
Properly prepared whole grains  
Fresh vegetables and fruits, preferably organic

### AVOID

Trans fatty acids (e.g., hydrogenated oils)	Soft drinks
Junk foods	Caffeine
Commercial fried foods	Alcohol
Sugar and high fructose corn syrup	Cigarettes
White flour	Drugs (even prescription drugs)
Soy foods	Synthetic vitamins (in multi-vitamins for pregnant women)

Skim milk has none of the fat-soluble vitamins in milk fat that Weston Price found to be so important to maintaining superb health.

pasteurized milk is poorly absorbed. Nor do they mention the fact that too little phosphorus also inhibits calcium absorption, but the complete destruction of the enzyme phosphatase (needed to assimilate phosphorus) is the standard test for the pasteurization of milk. But instead of recommending raw milk—Nature’s perfect food—they all warn against it! “Drink and eat only pasteurized milk products, and avoid all soft cheeses such as brie, Camembert, Roquefort, feta, and Mexican varieties. These cheeses, as well as unpasteurized milk and raw foods made from it, can give you a form of food poisoning called listeriosis.”<sup>3</sup>

“Pregnant women should completely avoid . . . raw (unpasteurized) milk or foods that contain unpasteurized milk.”<sup>4</sup>

Actually, raw milk is safer than pasteurized milk. Raw milk from healthy, pasture-fed cows has been a staple in many cultures for centuries, and has contributed to fabulous health, not caused disease.

Most of the books recommended using skim milk, reduced-fat cheese, and avoiding butter, in a misguided attempt to keep women from gaining too much weight or to restrict saturated fat and cholesterol—oblivious to the fact that cholesterol and saturated fat are needed for brain develop-

#### INFANT FEEDING ADVICE FROM THE PAST

*Nutrition and Diet Therapy: A Textbook of Dietetics*, by Farifax T. Proudfit, published throughout the 1930s and 1940s (the eighth edition came out in 1945), provided dietary recommendations to physicians for a variety of disease conditions. Chapter 13, “Artificially Fed Infants,” gives us a good example of the collective wisdom of the period, and while some of his suggestions appear to us ill-advised, his advice on the whole is vastly superior to any found in today’s infant nutrition texts. “Nature does not always confer upon a woman the important capacity for nursing her baby, but the women who are able should do so. . . the logical substitute for human milk is cow’s milk (or goat’s milk).” Proudfit recommends a formula of cow’s milk diluted with equal amounts of water and the addition of a small amount of sugar. His first choice for the formula is certified raw milk, “the purest form of raw milk obtainable.” He also recommends beef juice, liver and egg yolk as some of baby’s first foods. According to Proudfit, baby should receive a few drops of cod liver oil daily, beginning at two weeks, and gradually increasing to 2 teaspoons by the age of three months.

Unfortunately, he also endorses infant formula made with pasteurized, sterilized, powdered and condensed milk and suggests introducing cooked cereals at the age of four months.

*Baby and Child Care*, by Benjamin Spock, first published in 1945, specifically warns against raw milk and, if the milk comes from Guernsey cows, suggests pouring off some of the cream. The emphasis is on formula made with evaporated or powdered milk, with sugar added, and skimmed milk when the baby has diarrhea, because “milk is easier to digest when there is no cream in it.” He makes no mention of cod liver oil but recommends “vitamin drops” to provide vitamins A, C and D. Empty calories get introduced early in Dr. Spock’s regimen, either as orange juice (fresh, frozen or canned) or sugar water given in the bottle. The best weaning food for baby, according to Spock, is cereal, followed by fruit, vegetables, egg yolk and meats. (Baby does not get butter on his vegetables—there is not a single mention of butter in the whole book.) Puddings made of milk, egg and starch (tapioca, rice or cornstarch) can be given to the baby “for lunch or supper any time after 6 months. . . supper can be fruit and pudding, or vegetable and pudding.” Spock has nothing against puddings “in jars or cans for babies” except for the fact that “saliva introduced into the container can spoil food rapidly,” so baby should not be fed pudding directly out of the can or jar.

Babies can transition to pasteurized milk at nine months, says Spock, but in answer to the question, “When do you change from evaporated to pasteurized milk?” he gives the following startling reply: “The really sensible answer would be ‘Never.’ Evaporated milk is sterile, cheaper, easier to store, easier to digest, less likely to cause allergy. It’s only slightly less convenient to serve. When the baby is off formula, you merely mix equal parts of evaporated milk and boiled water in the cup or bottle just before feeding. . . there’s no medical reason why a baby needs to change, so keep him on evaporated milk as long as you are willing to.”

Much of *Baby and Child Care* deals with the emotional development of the child. Spock has been criticized for ushering in an era of permissiveness, but most of today’s readers will find these sections of the book infused with common sense. “A boy needs a friendly, accepting father,” says Dr. Spock, “You can be both firm and friendly.” The bitter legacy of Dr. Spock has more to do with his prejudice against dairy fat and his emphasis on highly sweetened, sterile, cheap and easy convenience foods and the ensuing behavior problems, which even the best “firm and friendly” parenting cannot solve.

Sally Fallon

ment. “Opt for lower-fat versions of the dairy foods that offer such great nutrition benefits: low-fat or nonfat yogurt and milk, nonfat cream cheese and sour cream, reduced-fat cheeses (search out those that are 50% fat reduced).”<sup>6</sup>

“Because they are an animal source, dairy foods can also contribute to saturated fat and cholesterol intake, so choosing lower-fat or fat-free versions of these foods can help keep your levels down.” They claim that “Skim milk has all the important nutrients in the same quantity as low-fat or whole milk.”<sup>4</sup> But skim milk has none of the fat-soluble vitamins in milk fat that Weston Price found to be so important to maintaining superb health.

A few of the books noted that some people do not digest lactose (milk sugar) in milk well, so they recommend getting calcium from soybeans, tofu, nuts, seeds, broccoli, dark leafy greens, soy-milk and fortified orange juice. These authors do not understand that consuming milk in its natural raw state and/or fermented allows many of these so-called “lactose intolerant” people to digest dairy products. They also fail to mention rich bone broths, another excellent source of calcium and other minerals used by many cultures that do not drink milk.

One book, when discussing feeding children, advised against all milk, saying, “Children do not need whole milk. They do not need that for the developing brain. That myth is old, was never true and has been discredited.”<sup>7</sup> I can see how someone could come to that conclusion. It would seem like an old myth to read that even as late as the 1920s doctors were recommending milk for the treatment of many diseases, and that milk has been viewed as a healthful food far back into antiquity. But at the same time you can find studies in the late 20th century that have linked milk consumption to asthma, frequent ear infections, diabetes and a host of other illnesses. It would seem logical to conclude that milk was never a healthy food, but this conclusion would overlook several important changes that happened to the production of milk during that time frame.

The first important change took place in the late 1800s and early 1900s, when people in cities began confining cows into concentrated feedlots, and feeding them cheap waste material instead of allowing them to graze on green pastures. This led

to illness in the cows, and in the people who drank their milk. The second important change was instituted in order to combat the disastrous health effects of these confinement dairies. Around 1910 most American cities required pasteurization and by 1950 most milk was pasteurized. These changes, coupled with homogenization, have changed milk from a health-giving food into a disease-producing substance.

In contrast, Dr. Price found several cultures that relied heavily on the whole raw milk from cows grazing on green pastures. The mountain Swiss and the Masai are prime examples of healthy primitive cultures that depended on the nutritive value of whole raw milk products. Weston Price observed traditional people going to great lengths to obtain foods high in fat-soluble vitamins for pregnant women. “Among the primitive Masai in certain districts of Africa,” Dr. Price wrote, “the girls were required to wait for marriage until the time of the year when the cows were on the rapidly growing young grass and to use the milk from these cows for a certain number of months before they could be married.” In the Swiss Alps, the butter from cows eating rapidly growing green grass was a sacred food, considered very important for pregnant women. When cows eat rapidly growing green grass, the butterfat they produce contains the highest levels of vitamin A, D and Activator X, all important catalysts for growth and nutrient assimilation. Traditional societies always consumed their milk, cheese and butter raw and often cultured them, and they valued the bright yellow butter from grass-fed animals.

Some of the other nutritional topics the pregnancy books covered were the basic food categories, vitamin supplements and the subject of vegetarian diets.

## CARBOHYDRATES

All of the books I reviewed encouraged using carbohydrates as the primary source of calories. Since they want everyone to limit their fat (and to some degree protein) intake, they have to rely on carbohydrates for the needed calories. Many of them followed the food pyramid guidelines of 6-11 servings of grains and cereal per day. And while they do recommend whole grains rather than refined flours, not one of the books mentions that the digestibility and nutrient content of

The modern books claim that in order to have healthy children, a woman needs to get 45-65 percent of her daily calories from carbohydrates

Many of the books recommend limiting meat consumption, preferring vegetarian sources of protein. Many also say that it is possible to obtain all the necessary protein from vegetable sources such as legumes, whole grains and soy foods.

those whole grains would be greatly improved by soaking, sprouting or sour leavening. Traditional societies used these methods in order to deactivate the enzyme inhibitors, and anti-nutrients, such as phytic acid, contained in whole grains, nuts, seeds and legumes.

The modern books claim that in order to have healthy children, a woman needs to get 45-65 percent of her daily calories from carbohydrates. This is patently untrue, and would come as a surprise to the healthy Eskimo women studied by Dr. Price. Reports show that Eskimos consuming their native diets obtain about 80 percent of their calories from fat, with the remainder primarily from protein and very little from carbohydrates. About Eskimos, Dr. Price wrote, "One does not get a conception of the magnificent dental development of the more primitive Eskimos," Price wrote, "simply by learning that they have freedom from dental caries. The size and strength of the mandible, the breadth of the face and the strength of the muscles of mastication all reach a degree of excellence that is seldom seen in other races."

#### PROTEIN

The modern pregnancy books rightly stress the importance of protein in the diets of pregnant women. Adequate protein is necessary for the formation of tissues (including the baby and placenta), hormones, increased blood volume, and milk during lactation. Some of the books suggest good whole sources of protein such as eggs, red meat, poultry, fish, cheese and milk. However, many of the books recommend consuming these foods without their naturally occurring fat component, as in skim milk, egg whites, skinless chicken breasts and extra lean meat. Many of the books recommend limiting meat consumption, preferring vegetarian sources of protein. Many also say that it is possible to obtain all the necessary protein from vegetable sources such as legumes, whole grains and soy foods.

#### VEGETARIAN DIETS

All of the healthy cultures studied by Dr. Price ate some animal foods; in some of them (such as the Eskimo and Masai) animal foods comprised almost 100 percent of their diets. None of the healthy traditional societies he

studied were vegetarian, yet most of the modern books would have us believe that we would all be healthier if we eliminated animal foods from our diets. No, thanks; I tried that for several years, and I feel healthier now that I have reintroduced animal foods into my diet.

#### SOY

Only one of the books I reviewed gave any sort of warning against soy foods, noting that recent controversy questions its "safety during pregnancy."<sup>4</sup> The rest encouraged the use of soy foods such as tofu, soy nuts, soymilk, TVP, cooked soybeans, soy powder, soy flour, etc. They recommend soy as a protein source because it is low in saturated fat and cholesterol, without mention of the tremendous amount of phytoestrogens the baby will be receiving through its mother's diet. One author even claimed that tofu may be the perfect food!<sup>2</sup> The pregnancy and childcare magazines are even worse, especially any of the ones that focus on "natural" or "alternative" health. They have ads for all kinds of soy foods, promoting soymilk, and soy yogurt as healthy foods for growing children.

#### SUPPLEMENTS

Most of the books advised obtaining vitamins and minerals from food sources, using dietary supplements only as a safeguard. But I had a hard time believing the stupidity of some of the statements I read. For example, one author says to turn first to food for your nutrient needs, and only to supplements as a last resort, and yet in the next sentence she seems to see no contradiction in recommending consuming "fortified" foods.<sup>2</sup> The author doesn't seem to be aware of the fact that "fortified" just means that while processing the food manufacturers have added a synthetic vitamin or mineral supplement. That is not the same as getting your nutrition from the food itself. Drinking "calcium fortified" orange juice is the same thing as drinking a glass of orange juice and taking a calcium tablet!

#### SOME GOOD

Not all of the nutritional advice in these books is bad. To their credit, these authors do encourage the use of dark green leafy vegetables, whole grains, fruits, nuts, colorful vegetables, and



fish, and warn against trans fatty acids. Many of them also caution against over-the-counter medications, smoking, drinking alcohol or caffeinated beverages, and exposure to toxins. The sad fact is that the average modern woman would improve her diet if she followed the recommendations in these books, simply because she would cut back on the refined sugar, white flour and hydrogenated vegetable oils and eat more vegetables. But nowhere in their recipes or meal plans did I find any substantial source of the fat-soluble vitamins that Dr. Price found to be so essential to good health. Their meals did not include organ meats, dairy or animal fats, fatty fish, fish eggs, or whole eggs.

piled high with raw butter and raw cheese. I try to get at least two tablespoons of coconut oil a day, in addition to the two tablespoons or more of raw butter, and the one-tablespoon of cod liver oil. The rest of my diet is composed of fruits, vegetables, and nuts. Hardly a fitting diet for the USDA food pyramid! But I challenge anyone to find one traditional society that produced healthy robust children on such diets as recommended in these books. ☺☺

#### HEART ATTACKS FOR PREGNANCY BOOK AUTHORS

My pregnancy diet would likely give most of these authors a heart attack. I eat two or more whole eggs a day. All of my milk is whole, raw and often fermented. I have meat (beef, pork, lamb, chicken, turkey, fish, shellfish or liver) two or more times per day, always consumed with the fat. I use lard when I cook, and I eat some of the beef and fish raw. I eat only a small amount of grains, usually one slice of sprouted whole grain bread,

*Lisa and her husband John live in Eugene, Oregon and own a small business making signs for local companies. Lisa also organizes a monthly meeting for Eugene people interested in the teachings of Weston A. Price. For information about the meeting, contact Lisa at uncommon\_interests@yahoo.com or (541) 344-8796.*

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# FAQs on Homemade Baby Formula

By Marie Bishop, with Sally Fallon and Mary G. Enig, PhD

**T**he advice to make homemade baby formula as an alternative to commercial formula has been one of the most controversial positions taken by the Weston A. Price Foundation—and also one that has elicited the most grateful praise. While government officials and orthodox pediatricians are often appalled at the thought of a parent mixing up baby formula—and one based on raw milk, no less—the feedback we have received from parents has been extremely positive.

Some breastfeeding advocates have also criticized our stance, claiming that by providing a more healthy alternative to commercial formulas, we are discouraging breastfeeding. Make no mistake: the best food for baby is breastmilk from a healthy mother. However, many situations call out for a good substitute: adopted and orphaned babies, babies born to mothers with serious health problems, and babies whose mothers do not have enough milk (a situation that *does* happen occasionally) deserve to receive something better than commercial formula.

The following questions have been compiled by the authors over a period of several years and should cover most situations encountered by parents giving homemade formula to their babies.

## Baby really does need extra vitamin C

### MIXING THE FORMULA

Q: When I give the formula to my baby, the oils float to the top and the baby ends up getting a lot of oil that makes him gag. So he ends up not getting all the oil in the formula.

A: Try this: gently warm the amount of formula you are going to give the baby, and then blend in the blender. (See also, Jen Allbritton's suggestions, page 24.) The baby most likely will finish taking the formula before the oils separate. You can also give the cod liver oil separately, with an eye dropper, to ensure he is getting all he needs.

### USING THE LACT-AID

Q: In order to continue to nurse while I am giving formula to my baby, I am trying to use the Lact-Aid device (which carries the formula through a small tube that the baby takes in his mouth while also suckling on the breast). But the formula is too thick and keeps clogging up the tube.

A: Be sure that the formula is well blended (in a blender) before putting it in the Lact-Aid and also that it is warm enough. It is best to use the Lact-Aid with raw milk, not cultured milk, as the latter tends to be thicker. You may also try leaving out the gelatin. One other option is to add about 1/4 cup more water to the formula. The nutrients will be less concentrated, but he is also getting your breast milk.

### ADDITIVE IN ACEROLA POWDER

Q: I notice that the NOW brand acerola powder for the formula contains maltodextrin. I am concerned about giving any additives to my baby, especially one derived from corn.

A: At the moment, the only acerola powder available to us is the NOW brand, which contains maltodextrin as a flowing agent. Acerola powder really does get caked up without some kind of agent. So, until we find a brand with a better flowing agent, this is the best we can do. Baby really does need extra vitamin C and the amount of maltodextrin is very small.

### REACTION TO THE FORMULA

Q: My baby threw up repeatedly from the formula. Through a process of elimination, I found that my baby was having a severe reaction to the added nutritional yeast. My baby was born with a very weak system and we, her parents, are very sensitive also. What does a parent do for what's missing without the nutritional yeast?

A: The yeast is not absolutely necessary in the cows milk formula but it is in the goat milk formula. If goat milk is the only milk available to you, then switch to the liver-based formula (see the next question).

### SPITTING UP

Q: What modifications do I make if my baby is spitting up frequently?

### ONCE SCRAWNY, NOW RIPPED

My son was born at 6 pounds, 4 ounces. By the time I got him home and weighed again, he was down to 5 pounds, 12 ounces. Scrawny! The first week of his life I attempted to nurse, but my milk never came in sufficiently enough to satisfy him. He was starving and got lighter before I got smarter. First I tried a store-bought organic powdered baby formula. It was thin and I felt terrible giving it to him. I tried adding oils, but felt terrible not knowing what was the best thing to add to help him grow. I had known about the baby formula recipe, but in rural Alaska could not get all the ingredients. Then I learned I could get them from Radiant Life.

At week three of Brody's life he got his first shot of real, healthy, food. We noticed an immediate difference. He stopped fussing. He slept better. His color improved. His hair started coming in. He acted happy. He gained weight, not the doughy, roly, fatty weight but a perfectly proportioned body with extra girth at the joints. When he was 3 1/2 months old we began giving Brody organic, 3-minute egg yolks.

Brody is a healthy, happy, smart, inquisitive little guy. He is cute and funny and has a natural charisma that draws people's attention to him. Everyone always comments on how tall he is and how handsome. Most people think he is at least 2 years old when he is barely a year. He has defined biceps and triceps. His calf muscles are firm and long. Once when strolling him through the Anchorage airport a young man walked up to me and said to Brody "Hey, little man!" Then he turned to his 20-something buddies and said, "Dudes! Check him out. He's one ripped up little dude." They then all fussed over him and told him how buff he was. I can only attribute it to his wonderful nutrition.

Lynn Harris, Fairbanks, Alaska

## THE HOMEMADE FORMULA RECIPES

### MILK-BASED FORMULA - Makes 36 ounces

Our milk-based formula takes account of the fact that human milk is richer in whey, lactose, vitamin C, niacin, and long-chain polyunsaturated fatty acids compared to cow's milk but leaner in casein (milk protein). The addition of gelatin to cow's milk formula will make it more digestible for the infant. Use only truly expeller-expressed oils in the formula recipes, otherwise they may lack vitamin E.

The ideal milk for baby, if he cannot be breastfed, is clean, whole raw milk from old-fashioned cows, certified free of disease, that feed on green pasture. For sources of good quality milk, see [www.realmilk.com](http://www.realmilk.com) or contact a local chapter of the Weston A. Price Foundation.

*2 cups whole milk, preferably unprocessed milk from pasture-fed cows*

*1/4 cup homemade liquid whey (See recipe for whey, below.)*

*Note: Do not use powdered whey or whey from making cheese (which will cause the formula to curdle).*

*4 tablespoons lactose\**

*1/4 teaspoon bifidobacterium infantis\**

*2 or more tablespoons good quality cream (not ultrapasteurized), more if you are using milk from Holstein cows*

*1/2 teaspoon plain fermented cod liver oil\**

*1/4 teaspoon high-vitamin butter oil (optional)\**

*1 teaspoon expeller-expressed sunflower oil\**

*2 teaspoons coconut oil\**

*1 teaspoon extra virgin olive oil\**

*2 teaspoons gelatin\**

*2 teaspoons Frontier brand nutritional yeast flakes\**

*1/4 teaspoon acerola powder\**

*1 7/8 cups filtered water*

*\*Available from Radiant Life 888-593-8333*

Place 2 cups filtered water into a pyrex measuring pitcher and remove 2 tablespoons (to give you 1 7/8 cups water). Pour about half the water into a pan and place on a medium flame. Add the gelatin and lactose to the pan and let dissolve, stirring occasionally. When the gelatin and lactose are dissolved, remove from heat and add the remaining water to cool the mixture. Stir in the coconut oil and optional high-vitamin butter oil until melted.

Meanwhile, place remaining ingredients into a blender. Add the water mixture and blend about three seconds. Place in glass bottles\* or a glass jar and refrigerate. To serve, pour 6 to 8 ounces attach nipple and set in a pan of simmering water. Heat until warm but not hot to the touch, shake bottle well and feed baby. (Never, never heat formula in a microwave oven!)

### VARIATION: GOAT MILK FORMULA

Although goat milk is rich in fat, it must be used with caution in infant feeding as it lacks folic acid and is low in vitamin B12, both of which are essential to the growth and development of the infant. Inclusion of nutritional yeast to provide folic acid is essential. To compensate for low levels of vitamin B12, if preparing the Milk-Based Formula (above) with goat's milk, add *2 teaspoons frozen organic raw chicken liver, finely grated* to the batch of formula. Be sure to begin egg-yolk feeding at four months.

### LIVER-BASED FORMULA - Makes about 36 ounces

Our liver-based formula also mimics the nutrient profile of mother's milk. It is extremely important to include coconut oil in this formula as it is the only ingredient that provides the special medium-chain saturated fats found in mother's milk. As with the milk-based formula, all oils should be truly expeller-expressed.

*3 3/4 cups homemade beef or chicken broth*

*5 tablespoons lactose\**

*1/4 cup homemade liquid whey (See recipe for whey, below)*

*1/2 teaspoon high-vitamin cod liver oil\**

*2 teaspoons extra virgin olive oil*

*1/4 teaspoon high-vitamin butter oil (optional)\**

*2 ounces organic liver, cut into small pieces*

*1 teaspoon bifidobacterium infantis\**

*1 tablespoon coconut oil\**

*1 teaspoon unrefined sunflower oil\**

*1 teaspoon acerola powder\**

Simmer liver gently in broth until the meat is cooked through. Liquefy using a handheld blender or in a food processor. When the liver broth has cooled, stir in remaining ingredients. Store in a very clean glass or stainless steel container. To serve, stir formula well and pour 6 to 8 ounces in a very clean glass bottle. Attach a clean nipple and set in a pan of simmering water until formula is warm but not hot to the touch, shake well and feed to baby. (Never heat formula in a microwave oven!)

**FORTIFIED COMMERCIAL FORMULA** Makes about 35 ounces

This stopgap formula can be used in emergencies, or when the ingredients for homemade formula are unavailable.

*1 cup Mead Johnson low-iron, milk-based powdered formula\**

*29 ounces filtered water (3 5/8 cups)*

*1 large egg yolk from an organic egg, cooked 3 1/2 minutes (See recipe for egg yolk, below)*

*1 teaspoon cod liver oil or 1/2 teaspoon high-vitamin cod liver oil*

Place all ingredients in a blender or food processor and blend thoroughly. Place 6-8 ounces in a very clean glass bottle. (Store the rest in a very clean glass jar in the refrigerator for the next feedings.) Attach a clean nipple to the bottle and set in a pan of simmering water until formula is warm but not hot to the touch, shake well and feed to baby. (Never heat formula in a microwave oven!)

*\* In 2006, the Mead Johnson low-iron formula was discontinued. All formula makers have discontinued low-iron formula "due to FDA standards." Mother's milk is low in iron for a reason—iron interferes with zinc absorption, needed for neurological development of the infant. And the iron added to the formulas can make infants constipated. Instead used a milk-based powdered formula that contains lactose—and only for emergencies!*

**EGG YOLK FOR BABY**

Egg yolk should be baby's first solid food, starting at 4 months, whether baby is breastfed or formula-fed. Egg yolks from pastured hens will contain the special long-chain fatty acids so critical for the optimal development of the brain and nervous system. The whites may cause an allergic reaction and should not be given to baby until he is at least one year old.

*1 organic egg from a pasture-fed hen*

*1/2 teaspoon grated raw organic liver, frozen for 14 days (optional)*

*pinch seasalt*

Boil egg for 3 1/2 minutes. Place in a bowl and peel off shell. Remove egg white and discard. Yolk should be soft and warm, not hot, with its enzyme content intact. Sprinkle with salt.

If you wish to add liver, grate on the small holes of a grater while frozen. Allow to warm up and stir into egg yolk.

**HOMEMADE WHEY** Makes about 5 cups

Homemade whey is easy to make from good quality plain yoghurt, or from raw or cultured milk. You will need a large strainer that rests over a bowl. Line the strainer with a clean linen kitchen towel or several layers of cheesecloth.

If you are using yoghurt, place 2 quarts in the strainer lined with a tea towel. Cover with a plate and leave at room temperature overnight. The whey will drip out into the bowl. Place whey in clean glass jars and store in the refrigerator.

If you are using raw or cultured milk, place 2 quarts of cultured milk, or 2 quarts raw milk plus 2 tablespoons yoghurt, in a glass container and leave at room temperature for 2-4 days until the milk separates into curds and whey. Pour into the strainer lined with a tea towel and cover with a plate. Leave at room temperature overnight. The whey will drip out into the bowl. Store in clean glass jars in the refrigerator.

A: If you are using the cows milk formula, first try eliminating the nutritional yeast, which may be causing the problem. If that does not work, then switch to the goat milk formula; if the problem persists, try the liver-based formula. We can cite several examples of babies who had extreme reactions to any milk-based formula (including projectile vomiting) who did beautifully on the liver-based formula.

#### COMMERCIAL FORMULA BRANDS

Q: Is it possible to use other commercial brands of formula when making the Fortified Commercial Formula recipe? I've seen other suggestions made on mercola.com.

A: The only formula brand we recommend is the one made by Mead Johnson. It is the only commercial formula that we know of that uses lactose and it also contains coconut oil. The recipe should be made up for one day only. The Mead Johnson formula is only a stop gap formula to be used in emergencies or when the ingredients for homemade formula are temporarily unavailable.

#### POWDERED WHEY

Q: Can I use dry milk powders from high quality sources like Garden of Life's Goatein, if I can't find a good source of raw or organic milk?

A: We *do not* recommend powdered goat whey—it is lacking in casein. And no matter how carefully it is processed, whey proteins are very fragile and the proteins are going to be altered in processing—that is why scientists do not use whey-based feed in animal experiments. Instead, they use dried casein, which is a much less fragile protein. We heard from one parent in California who was using Goatein, when she could have gone out

to the store and bought raw milk. If you can't get raw milk, you should make the meat-based formula. Powdered whey is not appropriate—this is a *whole foods* formula.

#### MAKING WHEY

Q: I'm having trouble getting raw milk to separate to make fresh whey. Basically it sours but never separates. One recipe for whey calls for bringing milk with added salt to a boil, adding 2 tablespoons lemon juice and stirring until it is curdled. Is it OK to make whey this way.

A: It takes longer to make fresh whey from raw milk than it does from yoghurt, sometimes up to 5-6 days for the milk to really separate, especially in cooler weather. Set raw milk on the counter in an airtight glass container. When the milk looks really awful, then you know that it has separated. If you are still having trouble, make whey out of already cultured milk (yoghurt or kefir) or with a top brand of commercial whole milk yoghurt, such as Seven Stars Farm or Brown Cow. With yoghurt you can make whey overnight. Making whey by adding lemon juice to boiled milk negates all the good things about your raw milk, and you will not be putting back any good enzymes or bacteria which is what happens in yoghurt making.

#### HEALTHY AFTER A ROUGH START

The Weston A. Price Foundation teachings, my pregnancy and the birth of our son Seth are infinitely tied together. I had first learned about the principles from a chiropractor just weeks before I found out I was pregnant. I had been having abnormal paps that just wouldn't clear up. I'm sure now the reason was due to the raw vegan-fruitarian diet I was eating at the time. After 4-5 months on a nourishing traditional diet my paps finally tested normal. However, being malnourished and pregnant before that time affected our unborn son; he was born with hypospadias. I later learned that the penis is formed around the 8th week of pregnancy and I was still eating a fruitarian diet at the point.

Seth was born via cesarean section after a failed water-birth at home. My C-section resulted in a punctured bladder and heavy blood loss requiring 6 units of blood and ending up in the ICU. I was in the hospital for almost a week before returning home. Needless to say, nursing didn't get off to a good start and bottles were given. I continued to try breast feeding Seth, but between the pain from the cesarean, dealing with my bladder and the catheter I was sent home with, etc., I couldn't handle nursing Seth on demand. He was a big boy, 9 pounds, 10 ounces at birth, and his weight bothered my tummy and aggravated my myofascial pain in my neck and shoulder region from an earlier accident.

In order for my family to help with the feedings we adopted the milk-based formula. Nursing fell off completely after 3 months, as Seth preferred the formula to me and the formula became his main-stay.

Seth is now 2 1/2 years old and has been extremely healthy. He was sick for the very first and only time this past winter with an ear infection. He never had so much as a snuffle when he was on the formula. I didn't have to worry about him being well enough for his hypospadias surgery at 10 months old, because he was so strong and robust. We couldn't be happier with the results that good nutrition has had on him, even though we had a rough start of it.

Robin Leuenberger, Michigan



## FORMULA CURDLING

Q: When I make the formula, it curdles. Am I doing something wrong?

A: The formula will curdle if you use whey from making cheese. You need to make your own whey from yoghurt, kefir or sour raw milk.

## FREEZING THE FORMULA

Q: Can I freeze the formula? What is the best method to thaw? I am guessing warm water. I would freeze the formula in mason freezer jars that are 8-ounce capacity.

A: We recommend making the formula fresh daily—this is part of your new baby routine. The exception might be when you are traveling and yes, you can set the jars in warm water to thaw. However, raw milk may be frozen with no ill effects. Many parents must drive long distances

to pick up their raw milk, and the solution to this is to obtain it in large quantities and freeze it. When the raw milk thaws, there will be small clumps of cream that can be smoothed out with a whisk or by putting the milk in a blender.

## MODIFYING THE FORMULA

Q: My daughter has 5-month-old twins and we're in the process of weaning them off of infant formula. I have ordered milk from one of the dairy farmers mentioned on the Weston A. Price Foundation's website. This particular farmer does pasteurize his milk but only to a degree that does not destroy the enzymes in the milk. My question to you is what variations can be made in the formula that would make this affordable as well as a good formula for the twins. My daughter and her husband are on a budget that won't allow a large monthly expense for the ingredients. Is there some way that the formula can be varied so that it won't cost that much for them? Also, I know my daughter won't have the time to make the easy whey recipe. Please give suggestions as to how to make this work affordably for them. My daughter is on the WIC program and the *only*

## MAKING HOMEMADE BABY FORMULA

My adopted son Tate started on the homemade raw milk formula when he was three days old—and has thrived on it. Since I knew I would be making formula for my baby, I was able to prepare ahead of time. I love to cook, but like most people, I took one look at the raw milk formula in *Nourishing Traditions* and was a little apprehensive with the long list of ingredients. Actually, I added one other ingredient—1-2 tablespoons cow colostrum to each batch.

I knew that sleep deprivation was in my future! Nevertheless, I forged ahead with optimism, and to my great delight, after the first few times of making the formula, it became easy as baby-pie! It only takes 20 minutes to make from start to finish, including clean up!

Here are some of my tricks. First, before Tate arrived, I made ice-cube portions of the whey, cream and colostrum. My raw milk dairy farm has the most wonderful milk, but cream is hard to come by. I also opted to not make my own whey since my husband and I enjoy drinking the milk. So I ordered several gallons of whey, one gallon colostrum and one gallon of cream from Organic Pastures in California ([www.organicpastures.com](http://www.organicpastures.com)). It comes frozen and they assured me it was perfectly fine to thaw and freeze again in the ice cube trays. A typical cube section in a tray equals two tablespoons. This is the perfect amount for the formula; four tablespoons or two cubes for the whey and two tablespoons or one cube for the cream and colostrum.

Here's my early morning routine. First I rinse off everything with hot water to make sure there is nothing foreign on my utensils. I fill an 8-cup glass measuring bowl with a pour spout with 2 cups of filtered water, then scoop out 2 tablespoons to make 1 7/8 cups. I pour this into a stainless steel pot and add the gelatin. I turn the stove on between low and medium to just warm the ingredients, not boil. Then I add 2 frozen cubes of whey, and 1 each of cream and colostrum. I also add the coconut oil to the pot so that it melts sufficiently. In the same measuring bowl I used for the water, I add the milk and the rest of the oils and dry ingredients (which are available at most health food stores and/or [www.radiantlifecatalog.com](http://www.radiantlifecatalog.com), (888) 593-8333). By the time I am done with that, the frozen ingredients are melted and I add them together in the big glass measuring bowl. At this point I blend the formula in the blender. I found when left unblended the oils in the formula do not combine well enough. Be sure not to blend for too long, as the cream may curdle.

Then I pour the formula back into the measuring bowl, divide it into glass baby bottles, add the nipples and tops, and that's it! Even with sleep deprivation, I find this process to be easy and doable. For the actual feedings, I use a bottle warmer that heats with steam instead of going to the stove to boil water each time. When you have a hungry baby, as many of you know, warming a bottle is something you want to happen sooner rather than later.

Once you do it a few times, it's easy. . . and our baby has thrived on the formula!

For those adoptive parents out there, please feel free to contact me for extra support and encouragement. ([jen@nourishingconnections.org](mailto:jen@nourishingconnections.org)).

Jen Allbritton, CN, Evergreen, Colorado

## BREAST MILK AND HOMEMADE FORMULA NUTRIENT COMPARISON CHART

Based on 39 ounces.

	Breast Milk	Cow's Milk Formula	Goat Milk Formula	Liver-Based Formula
Calories	766	856	890	682
Protein	11.3 g	18 g	18 g	15 g
Carbohydrates	76 g	79 g	77 g	69 g
Total Fat	48 g	52 g	54 g	36 g
Saturated Fat	22 g	28 g	30 g	16 g
Mono Fat	18 g	16 g	16 g	12 g
Poly Fat	5.5 g	5.6 g	5.7 g	5.6 g
Omega-3 FA	.58 g	1.3 g	1.2 g	1.0 g
Omega-6 FA	4.4 g	4.2 g	4.4 g	4.5 g
Cholesterol	153 mg	137 mg	166 mg	227 mg
Vitamin A*	946 IU	5000 IU	5000 IU	20,000 IU
Thiamin-B1	.15 mg	1.05 mg	1.1 mg	.19 mg
Riboflavin-B2	.4 mg	1.2 mg	1.2 mg	1.9 mg
Niacin-B3	1.9 mg	2.5 mg	4.4 mg	14.2 mg
Vitamin B6	.12 mg	.51 mg	.60 mg	.65 mg
Vitamin B12	.5 mcg	1.9 mcg	2.8 mcg	39 mcg
Folate	57 mcg	236 mcg	284 mcg	159 mcg
Vitamin C	55 mg	57 mg	59 mg	62 mg
Vitamin D	480 IU	450 IU	525 IU	460 IU
Vitamin E***	9.9 mg	6.2 mg	4.7 mg	4.9 mg
Calcium	355 mg	686 mg	756 mg	NA**
Copper	.57 mg	.38 mg	.58 mg	1.9 mg
Iron	.33 mg	1.4 mg	2.2 mg	5.4 mg
Magnesium	37.4 mg	91.3 mg	96.1 mg	34.5 mg
Manganese	.29 mg	.034 mg	.12 mg	.24 mg
Phosphorus	151 mg	616 mg	729 mg	344 mg
Potassium	560 mg	949 mg	1228 mg	750 mg
Selenium	18.8 mcg	15.4 mcg	18.7 mg	31.1 mg
Sodium	186 mg	308 mg	320 mg	NA**
Zinc	1.9 mg	2.8 mg	2.7 mg	2.5 mg

These nutrient comparison tables were derived from standard food nutrient tables and do not take into account the wide variation in nutrient levels that can occur in both human and animal milk, depending on diet and environment.

\* Vitamin A levels in human milk will depend on the diet of the mother. Nursing mothers eating vitamin A-rich foods such as cod liver oil will have much higher levels of vitamin A in their milk. Commercial formulas contain about 2400 IU vitamin A per 800 calories.

\*\* Calcium and sodium values for homemade broth are not available.

\*\*\* Vitamin E values are derived from commercial vegetable oils. The vitamin E levels for homemade formulas will be higher if good quality, expeller-pressed oils are used.

### BRAINWASHED

Breast milk is best. Cow's milk is for baby cows. Breast milk boosts your baby's immune system. Formula can cause your baby to have allergies to food.

I was brainwashed (in a good way, mostly) by multiple sources, including my Lamaze teacher/lactation consultant, health articles, etc. I was so adamant that I would not use formula—until little Zachary at two months old was not thriving and almost admitted to the hospital because I did not have enough milk to feed him. When I realized this I went to the store and bought formula to save my baby's life. At the same time, a friend ordered the ingredients for homemade formula for me from Radiant Life. Zachary took commercial formula while I got educated and brave enough to trust raw milk for my baby. I started slowly, gradually increasing the ratio of the homemade formula and eliminating the commercial one. It took about two months to have Zachary exclusively on the homemade formula. He loved it then and he loves it now! Just on the formula and an occasional raw egg yolk he reached 23 pounds at one year! I am so grateful to have witnessed this miracle. My baby was starving but he not only made it to his year birthday, but he got such a wholesome formula that even when my other children got sick, he did not. If he did it was almost not noticeable.

So maybe breast milk is best, but when it is not possible cow's milk can be for babies if you apply it to the homemade formula using raw milk. This formula did boost my baby's immune system and so far he has no allergies to any food we have given Zachary. I recommend this formula to anyone and for any baby. It is amazing!

Bernadette Gewondjan, Livermore, California

formula approved is the Similac (which is what the twins are on now).

A: We do not recommend altering the formula to save money. You could be compromising a child. The recipe was formulated to exact specifications to mimic nutrient-rich human mother's milk. If you find that raw milk with shipping is too expensive, then do the meat-based formula, which is less expensive.

The homemade formula ingredients cost just under \$4 per day, through mail order with shipping charges, or when purchased locally with sales tax. This does not include the cost of the milk and cream, which varies widely. Similac costs around \$4 per day, including average local sales tax. So while the initial homemade formula cost including milk and cream will be higher, over the long run it is much cheaper considering the typical health challenges and costs that come with conventional formula. This, of course, says nothing about creating a superior foundation for your child's optimal development and lifelong health.

If your daughter must rely on the only formula that WIC allows, she should use the fortified formula recipe. Unfortunately, from reports we receive from parents, Similac is one of the most problematic formulas for babies. In fact, virtually every parent we've heard from, who has had their baby on commercial formula before using the homemade formula, reports very unfortunate stories. We recommend fortifying commercial formula only as an emergency back up. We have hundreds of customers report to us that when they get their babies off commercial formula, their health issues disappear and the babies thrive. They become radiant babies with

vibrant health and beautiful dispositions.

I can really appreciate the circumstances of your daughter, and not with just one baby, but two! As far as the quick way to make whey, if she doesn't have time to take a container of yogurt, pour it into a strainer lined with cheese cloth and collect the liquid after it drains, she really doesn't have time to be doing any part of this recipe. Once you get into the routine, it is very easy. Parents report that it's very fast and easy to make up the formula. Just think of how time-consuming it will be when these twins are age 2 and eat solid food and meals have to be prepared for them! Draining whey from yogurt will look easy!

#### REFRIGERATED INGREDIENTS

Q: Which of the added ingredients should be refrigerated?

A: Sunflower oil and bifidum; keep the cod liver oil in a cool, dark place.

#### IS BIFIDUM INFANTIS NECESSARY?

Q. Would you need to put bifidus in the formula if you were using cultured milk? Wouldn't cultured milk contain bifidus?

A. No, *bifidum infantis* is a beneficial gut flora that predominates in the infant until age 7. Infants can't get it except from the mother in the birth canal, and then it's still helpful to get more.

#### IS RAW MILK SAFE?

Q. If I'm not comfortable using the raw milk in the formula because the woman at the farm I spoke to did not recommend giving their raw milk to infants; she said that not every single container could be tested, so there was no guarantee that every container was bacteria-free. What could be

Parents report that it's very fast and easy to make up the formula.

#### MEAT-BASED FORMULA

Having been a personal fitness trainer for a number of years I started on a paleolithic diet in 1999. I couldn't find any conventional baby formula for my first child (a son) who is now six years old. We had to go with a lacto-free brand and did not get to start him on a totally paleo diet until he turned one year old. With my second son (who will be three in August) I made sure I was prepared. I used the meat-based baby formula in *Nourishing Traditions*. This was very easy to make and soon my wife and I had a great system worked out to stay stocked up.

My first son Jimmy has a fairly strong immune system, but my second Tyr has an even stronger immune system. Tyr used to love his meat-based formula, finishing a bottle in less than a minute sometimes. Tyr is a very healthy, energetic and loving little guy.

I just love the fact that there are alternatives to the unhealthy (and unnatural) products out there.

Jim Smith, Yorktown, Virginia

We do not recommend using any kind of milk, even raw milk, from cows kept in confinement, especially when the diet is based on grain and includes such additives as citrus peel cake and bakery waste.

some acceptable substitutes? I would think that if I cultured the raw milk with kefir powder or kefir grains, then the beneficial bacteria would kill any bad bacteria that might be in the milk. Another alternative that I thought of was to pasteurize the milk from the farm myself and then culture it. My only concern is that what if I don't pasteurize properly, will the beneficial bacteria from the kefir powder take care of any mistakes I made. (I already experimented with this and it was difficult, even with constant stirring, to keep the top layer of milk at the right temperature.) A third alternative that I thought of is to use some good quality yogurt from the health food store. What do you think of these ideas? Can you help alleviate any of my fears about bad bacteria? I don't want to take any unnecessary chances with my child.

A. Farmers need to be careful when speaking to the public, but you can be assured that if basic sanitation measures are followed, raw milk is completely safe, in fact, safer than pasteurized milk. Raw milk contains many bioactive components that get rid of bad bacteria. When bad bacteria such as *E. coli* are added to raw milk, these components get rid of them.

Of course, this marvelous system for getting rid of pathogens can be overwhelmed if the cows are very unhealthy and the milk gets dirty. Basic sanitation measures include testing of the cows to make sure they are disease free; washing the teats with iodine solution before milking; using a milking machine; and storing the milk in a stainless steel bulk tank, glass bottles or hard plastic bottles at a cool temperature.

Most important, the cows should be on

pasture as much as possible, and in the winter, in a well ventilated barn and fed mostly hay. We do not recommend using any kind of milk, even raw milk, from cows kept in confinement, especially when the diet is based on grain and includes such additives as citrus peel cake and bakery waste.

We recommend using cultured pasteurized milk only when raw milk is unavailable and in this case, the meat-based formula is probably preferable, given the way milk is processed today. We do not recommend pasteurizing your own milk, it is too risky.

#### PASTEURIZED COWS MILK OR RAW GOAT MILK?

Q: If you have a choice of cow's organic, pasteurized unhomogenized milk that you have cultured or raw goat's milk supplemented with raw liver, which would you choose? We do not have access to organic liver.

A: Use the raw goat milk plus liver recipe. Just use the best that you can find. Probably in this case, you should use calves liver or lambs liver, which would be a cleaner product than chicken. Another solution is to use desiccated liver (Carlson's brand is good).

#### SAFETY OF RAW LIVER

Q. I am afraid to use the raw liver, as called for in the raw goat milk formula.

A. As long as you freeze the liver for 14 days, it is safe; however if you are concerned, you can simmer the liver before adding it. An alternative is the liver-based formula which calls for simmering the liver in broth.

### FEELS GOOD TO MAKE MY OWN DECISIONS

I needed to supplement my breastfed baby at about four months. My nutritionist showed me the homemade formulas in *Nourishing Traditions*. There was a concern in making my own baby formula for a variety of reasons including sterile conditions, proper measuring and vast uncertainty. I thought about it for a long time. In the end, I knew this was my decision to make. I realized that I have a hard time letting anyone take care of my child because I don't think anyone will care for him like I do. It just took me a little bit longer to carry that thinking over to feeding my baby.

My son is now 13 1/2 months old. At his 12-month check-up, the doctor said he was advanced to that of an 18-month-old. He already has about 15 different words that he says. Strangers tell me he's a smart baby just by looking at him, as he's alert and attentive to his surroundings. Everyone tells me what a good boy he is no matter where we go. After all that worry and uncertainty, making my own baby formula seems so natural, so normal. I can't begin to tell you how good it feels to make my own decisions for my baby.

Allison, Annapolis, Maryland

#### DRY KEFIR CULTURE

Q: Is Body Ecology's dry kefir culture just as acceptable as the piima culture or culturing with kefir grains? G.E.M. cultures has been a real problem for people—sometimes it takes six weeks to get their cultures. Do you like the powdered kefir culture?

A: We hear that the powdered kefir gets really thick—like yoghurt—so it does not work in the formula. G.E.M. cultures was initially overwhelmed by orders, but has now caught up and is shipping as soon as people order.

#### TAXING THE KIDNEYS

Q: I've read that the high solute load in goats milk results in a taxing of the kidneys. Can you explain this to me? What can I do to avoid this? Is just diluting the goats milk enough?

A: Yes, this is why we dilute both the cow and goat formula with water.

#### CREAM IN THE LIVER FORMULA

Q: Why is there no need for cream (or nutrients thereof) in the liver formula? Does the liver take care of what the other oils don't?

A: This is supposed to be a casein-free formula. The coconut oil supplies the saturated fats. Coconut oil is essential in this formula.

#### MAXIMUM STORAGE TIME

Q: Is 24 hours the maximum you would consider storing mixed formula in the refrigerator?

A: Yes, to be safe, you should mix up the formula fresh every morning.

#### BEEF OR CHICKEN LIVER

Q: Is there a preference for beef or chicken liver? The goat formula recommends chicken liver but the meat formula just states "liver."

A: We used chicken liver for the goat milk formula because that gave us the best equivalent to the nutrients in mother's milk. For the liver formula, beef or lamb liver give the best equivalents. However, for babies older than six months, you can use chicken, beef or lamb in either formula.

#### SOY FEEDING OF ANIMALS

Q: If a cow or chicken is eating soy, is there a concern for that with the liver?

A: Of course, it would be better if the chickens were completely pastured and not getting soy but this is very rare. However, the estrogens would be stored mostly in the chicken fat and not in the liver. Beef is not fed much soy so the beef liver is also OK.

#### CONSTIPATION

Q: My baby has become constipated on the goat milk formula.

A: Goat milk is more likely to be constipating than cows milk, which is one reason we recommend a formula based on cows milk as the first choice. A small amount of diluted prune juice may help and one parent had good luck adding a little warmed molasses to the formula. The Digestive Tea in *Nourishing Traditions* is also a good remedy. It is very important that baby's stool not become impacted. A baby suppository should help him evacuate his bowels if the other methods do not work.

Goat milk is more likely to be constipating than cows milk, which is one reason we recommend a formula based on cows milk as the first choice.

#### SPECTACULAR RESULTS

With our first child we had every intention of breastfeeding our daughter but through a series of bad nurses, the difficulty of nursing, fatigue of my wife and the stubbornness of my daughter to not breastfeed we had to find an alternative. Lucky for us we had a good source of raw milk and the recipe for an alternative formula.

Rachel will be three in June 2005 and for the first 18 months only had the milk formula. The results were spectacular, bordering on unbelievable. She was never sick, slept through the night starting at about eight weeks, ate well and had a happy disposition. We were warned about typical childhood problems; these problems never materialized. For example, we bought things to help with teething before she had teeth but we never used it because her teeth came in with no pain or disruption to her sleep patterns. We were excited about the results and shared it with the staff at the hospital and the pediatrician: our reward was a stern warning about the dangers of raw milk and we can no longer see either unless we stop feeding Rachel raw milk. What we have observed in the medical system in Canada is that no one wants to see a healthy little girl who drinks raw milk.

Patrick and Michelle, Toronto, Canada



Q: I have been making the milk-based formula for 10 days and realize that it makes the baby constipated and she only has 1-2 bowel movements per day as opposed to the regular 4-6 she had on formula and they are more solid than liquid.

A: Actually 4-6 liquid bowel movements per day is not normal and the 1-2 more solid bowel movements per day is appropriate. The stool should be firm enough to be shaped, but not hard.

#### FEEDING JUICE

Q: A popular juice book recommends giving juices to a baby after 5 months. What do you think of this idea?

A: It's a terrible idea! Apart from a little prune juice in cases of constipation, babies should not be given juice. There is no real nourishment for babies in juice—the vegetable juices are difficult for babies to digest and many contain a variety of anti-nutrients; and the fruit juices will be too sweet. And this rule applies right through the growing years. Do not get your child in the juice habit—these juices are very high in sugar and difficult-to-digest carbohydrates and can take away their appetite for nourishing foods.

#### LOST WEIGHT ON THE FORMULA

Q: My 6-month-old baby was doing fine on the cows milk formula but suddenly broke out in a rash and lost three pounds. Should I switch to the liver-based formula?

A: Whenever there is a sudden weight loss after doing well on the formula, parents should look for other causes. In this case, with questioning, it emerged that the weight loss occurred after the baby had been given four vaccinations in one day! Exposure to pesticides or toxins is another culprit. If a cause like this can be pinpointed, then it would be best to stay on the formula that is working for the child. If no other cause can be determined, then try switching to another formula.

#### WHEN TO SWITCH TO PLAIN RAW MILK

Q: At what age can we switch from formula to plain raw milk?

A: The answer to this depends on the age, weight and maturity of the child. A child that was premature, very small or delayed in development

may benefit from taking the formula in a bottle well past the first year. But a child who is growing well, sitting up, eating solid foods and able to sip from a cup can probably transition to raw milk sometime after the 8th month.

#### FORMULA FOR OLDER CHILDREN

Q: I have a 3-year-old and a 5-year-old who suffer from asthma, bronchitis, eczema and other chronic issues. Can I use the formula as a supplement? I want a way to get really good nutrition into my kids.

A: This is worth a try. You may want to give the cod liver oil separately. (You can do this with an eye dropper.)

#### FEEDING TUBE

Q: We have a child who is being fed with a feeding tube. Can we use the formula in this case?

A: Yes, the formula would be very appropriate and would supply the child with good whole nutrition while he heals.

#### YAHOO GROUP FOR PARENTS

Q: Where can I go to get advice and communicate with other parents using the homemade formula?

A: A new Weston A. Price Healthy Babies Yahoo Group has been formed. Subjects will include preconception diets, pregnancy diets, breastfeeding, health issues and homemade formula. Anyone is welcome. To register, go to <http://health.groups.yahoo.com/group/waphb>.



#### ADOPTED CHILD

When my husband and I adopted our daughter Claire as a newborn, we were looking for a healthy alternative to nursing, as I was unable to do so. I felt very discouraged with what I was reading and hearing about in regards to commercial infant formula and was looking for something that would come as close to breast milk as possible. I was already familiar with the Weston A. Price Foundation and regarded it as a trusted resource.

We started Claire on the milk-based formula as soon as we brought her home from the hospital and have never looked back. She is now one year old, and a strong, healthy toddler. We had her on the formula for one full year, and she never had one ear infection, flu, fever, allergic reaction or colic. She had three minor colds the whole year, less than most babies from my observations. She has been in the 95th percentile for length and weight and has rosy cheeks and sparkly eyes. Her pediatrician has commented on how strong and healthy she is. She has a pleasant, calm disposition and is rarely fussy. One of the most amazing things has been that she has slept soundly through the night, consistently, since her third week. We have never experienced sleep deprivation.

We are planning to adopt another baby soon, and will be making the NT formula again, since our experience and Claire's health outcome has been so positive. We are so grateful this information was made available to us.

The Ellingtons, Wilson, North Carolina

## FEEDING TWINS

Five years after my son was born I gave birth to boy-girl twins, via Cesarean section. Even though my twins were seven weeks premature, they each weighed over five pounds and were sent home from the hospital after one week. The hospital gave them soy formula a few minutes after they were born, which they quite understandably threw up. This caused the staff to believe the twins needed to be immediately attached to feeding tubes.

I was very upset that they had been given soy and arranged to have them given a milk-based hypoallergenic formula instead, which I purchased outside the hospital and delivered to the NICU. This hospital was very unfavorable to breastfeeding. (Perhaps they believed it was impossible with twins.) When the babies came home after one week, it became evident to me that I would not be able to breastfeed them exclusively. However, I took measures to increase my supply and was eventually able to provide about half of their needs with breast milk, and the rest with hypoallergenic formula.

When the babies were six months old, I took them off commercial formula and switched to the raw milk formula provided in *Nourishing Traditions*. They are now three years, nine months old and still drinking a modified version of the formula, along with plain raw milk and a variety of whole foods. My boy twin self-weaned from the breast at 10 and a half months, but my girl twin still nurses a couple of times a day.

The twins took to the raw milk formula immediately and had no digestive distress. They seem to have no allergies of any kind. My girl twin is the healthiest of the three and very rarely gets a cold. My boy twin is not quite as healthy. In his early months, he breastfed quite a bit less than his sister did, and received more commercial formula. However, he is very strong and well built, with exceptionally beautiful white teeth.

There are severe problems with all other formulas, in my view. Standard dairy-based formulas are too difficult for children to digest and can cause allergies to develop. Soy formula is terrible in every way. Apart from concerns over long-term damage, this formula smells and tastes awful and causes otherwise healthy children to smell terrible as well. It causes intestinal distress and is generally very bad news. I found that the hypoallergenic milk-based formulas were the least harmful of the commercial formulas, but there are serious problems with them as well. They are horrendously expensive and not available in many hospitals and pharmacies. Furthermore, they are also full of MSG-like neurotoxins.

I put off giving my twins home-made formula for six months, because of all the dire warnings I had seen against giving unprocessed cow's milk to infants. The medical establishment now warns against giving milk before one year, but I can no longer accept that idea. My mother was switched from breast milk to raw cow's milk at three months and did not suffer any ill effects.

Above all, I believe that fresh raw cow's milk is the best substitute for mother's milk, because it is also a living food, full of enzymes and antibodies to disease. It is probably superior even to frozen mother's milk from a breast milk bank, which these days is delivered after being pasteurized.

I wish I had been confident enough to give my twins the homemade formula from the first day they were home. I also wish I had been able to breastfeed them exclusively, as I eventually did with my older son, but it simply wasn't possible for me. However, I feel good knowing I did the best I could. My children are growing very well.

Another good thing about the homemade formula is that it caused me to overcome my fear of raw milk. I started to drink it myself, and it helped me to recover from a difficult pregnancy and delivery. Thank you for providing this wonderful information to mothers and their babies.

Name Withheld, Los Angeles, California

## NO MORE INFECTIONS

My son Joey was born December 15, 2002. I had planned to breastfeed exclusively and felt brokenhearted when I couldn't produce enough milk to feed him. I didn't know there were any alternatives so I had to give him commercial formula. He suffered from constipation and when he was three months old he came down with bronchitis and an ear infection. The doctor put him on antibiotics and we had to give him respiratory therapy twice a day for several weeks.

About this time my nutritionist suggested the homemade baby formula. I started making the formula immediately. The difference in Joey's health has been like night and day! He has never had another ear infection or any more respiratory problems. No digestive problems either. He is happy, smart and physically active. He runs, jumps, climbs and turns a great somersault. May God bless you for the work that you do!

Barbara Finn Figluilo, Frankfort, Illinois

# Vaccinations

## Parents' Informed Choice

By Lynne Born

**B**ecause the misinformation surrounding vaccination is so extensive, many parents don't even question whether or not they should vaccinate their child, overlooking one of the most important decisions a parent can make. Since medical authorities say vaccination is safe, most parents simply go ahead with vaccination, completely unaware of the potential dangers and unable to recognize a serious reaction when it does occur.

And since government health departments and school authorities give the impression that vaccination is mandated for every child in the United States, most parents believe they are legally required to vaccinate their child. But in all 50 states, you are free to decline vaccination entirely, or adopt a partial vaccination schedule, an important decision about the health and welfare of your child.

However, parents face tremendous pressure from doctors, the media, schools and even other parents, to follow the standard vaccination schedule and subject their child to an ever-escalating protocol of multiple injections at various stages of their young lives, even including injections with several vaccines in the same shot.

## MISINFORMATION

Because vaccines are used predominately on our precious children, most people assume that the many vaccines have been subjected to thorough trials and rigorous studies proving that vaccines are safe and effective. Parents have been told that mass vaccination campaigns ended multiple epidemics around the world, that vaccines are effective at preventing the illnesses they are targeted against, that side effects are rare and generally consist of sore arms or mild fevers that pass quickly, and that the few serious negative reactions are carefully tracked and monitored, keeping adverse reactions to a minimum.

However, parents who take the time to dig deeper and pierce this veil of misinformation find that these assertions lack solid scientific backing. Not only has there never been a single long-term study comparing the health and welfare of vaccinated to unvaccinated children, multiple examples can easily be found of vaccinated children acquiring the very illness they have been vaccinated against. Furthermore, there is overwhelming evidence that vaccines can be extremely harmful, permanently disabling and even deadly to our children. And the current system for tracking and reporting adverse reactions to the FDA is sloppy, poorly executed and voluntary rather than mandatory, even when a child has been permanently disabled or killed by a vaccine.

## VACCINATION PREVENTS NATURAL IMMUNITY

When a baby becomes infected with a communicable disease, his immune system responds through a sophisticated web of interlocking reactions that can produce immunity for life to naturally acquired childhood diseases. These miraculous defenses exist, in part, to keep invading microbes and viruses from taking hold in the deeper systems and organs of the body.

But vaccines, which contain both live and dead viruses, killed bacteria, genetically engineered DNA and chemical preservatives, are injected directly into the bloodstream, bypassing the natural immune response. This deprives the body of the ability to naturally develop life-long immunity in all its multifaceted complexity to normal childhood diseases like measles, mumps

and chicken pox. Mass vaccination is a manmade attempt to remove the natural infection response from human development and replace it with a series of artificially imposed infections and immune responses determined by the doctor's vaccination schedule.

## SO MANY SHOTS

Thirty years ago, children received a total of four vaccines, but today a fully vaccinated child receives a whopping 37-50 vaccines during the early, formative years of life, when his developing immune system is most vulnerable. Even an adult immune system would be challenged by so many vaccines given during such a short period of time. While unvaccinated children will never develop every disease for which children are given a vaccine, their bodies are forced by the Center for Disease Control's (CDC) vaccination schedule to respond to them all. Furthermore, the DPT vaccine forces an immune response to diphtheria, tetanus and pertussis on the same day, an event that would never happen in real life. Plus, there are virtually no studies or scientific research on the effects of multiple viral and bacterial vaccines given in combination or in close succession, and how they affect the human body.

## EVIDENCE OF VACCINE HARM

The medical profession is extremely reluctant to acknowledge adverse reactions to vaccination, even when the reaction is instantaneous or occurs within a few hours, and even with adults who can clearly verbalize their negative reactions, which infants are unable to do. And since no studies have ever tracked negative effects that occur over the long term, reactions that occur days, weeks or years later are almost never attributed to the vaccine.

It is a little-known fact that not a single study exists to prove that vaccines are safe over the long term. "It would be such an easy study to organize. Use three groups of children—the first group fully vaccinated, the second group partially vaccinated, and the third group no vaccinations. Then follow them for up to 10 years and we would be able to see the kinds of problems that are manifesting from these vaccines," says Barbara Loe Fisher, President of the National Vaccine Information Center.<sup>1</sup> However, evidence

There is overwhelming evidence that vaccines can be extremely harmful, permanently disabling and even deadly to our children.

Thirty years ago, children received a total of four vaccines, but today a fully vaccinated child receives a whopping 37-50 vaccines during the early, formative years of life, when his developing immune system is most vulnerable.

of vaccine harm is not really a secret—hundreds of published medical studies have documented both vaccine failure and vaccine harm, even though most pediatricians continue to vaccinate and most parents remain completely unaware of these studies.<sup>2</sup>

One well known example of a long term negative vaccine reaction occurred with the polio vaccine used in the late 1950s into the early 1960s. This vaccine was later found to be contaminated with a monkey virus, SV40, which had tainted the vaccine during production. And even though the virus was discovered in 1960, the contaminated vaccine continued to be given to American children for three more years with the full knowledge of government health authorities, until it was withdrawn in 1963. Thirty years later, SV40 has been isolated in bone, brain and lung cancers of disabled and deceased adults. The SV40 vaccine debacle proves a direct connection between a vaccine and a slow-growing cancer which developed decades after the vaccine.<sup>3</sup> Unfortunately, authorities made no effort to find and track adult recipients of the vaccine, study and catalog their health status, or note their rate of cancer, even though a clear opportunity exists to study long term effects of a vaccine in a very direct and concise way.

Delayed negative reactions have also been confirmed by the work of Dr. Viera Scheibner, who developed a baby monitor in an effort to prevent Sudden Infant Death Syndrome (SIDS). Her monitor sounded an alarm if the baby stops breathing or shows patterns of stress breathing during sleep. In designing the monitor, she had no preconceived intention of specifically tracking vaccination reactions, as she had never conceived of the fact that vaccinations were in any way problematic or harmful.

In due course of tracking infant breathing at night, she recorded the breathing patterns of babies following the DPT injection. She found that the vaccine caused babies a great deal of stress and that this stress showed a remarkable uniformity, with stress flare-ups immediately following the vaccine on day 2 or 5, or delayed reactions on the 15-16th or 20-25th day in babies who recovered and those who subsequently died from SIDS. Scheibner's monitor proved that death from the vaccine sometimes occurs weeks

after the injection, in correlation with the stress patterns it identified. However, the longer time frame gives doctors and health authorities every excuse not to attribute it to the DPT shot.

#### ADVERSE EVENTS NOT REPORTED OR TRACKED

One of the great dangers is the fact that negative vaccine reactions are very rarely reported to the adverse event reporting system, a system rife with problems. When a vaccine is released onto the market, post-marketing surveillance is supposed to track any negative reactions from the millions of people taking the newly released vaccine. However, not only is the adverse reporting system entirely voluntary, 90 to 99 percent of all adverse reactions are never reported, according to David Kessler, head of the FDA for most of the 1990s.<sup>4</sup> And no oversight of any kind ensures that reports made directly to the pharmaceutical companies are then forwarded to the FDA—the process is run entirely by the “honor system.”

A very clear example of poor adverse event documentation occurred during President Bush's recent Smallpox Vaccination Program of 2003. Before the program, the public was repeatedly told to expect death rates from the vaccine of one to two per million. In fact, there were three deaths (that we know of) among the approximately 36,000 civilians and few hundred embedded reporters who were vaccinated.<sup>5</sup> This makes the actual death rate *80 times higher* than that which the CDC told the public to expect. Serious adverse reactions such as brain swelling, heart inflammation, heart attacks, uncontrolled ulceration of the skin, among others, were one in 583, seven times higher than the CDC's original guesstimate of one in four thousand. And yet medical authorities and mainstream news continue to use the old, inaccurate numbers rather than update the risk estimate as they should.

However, it is certain that even these numbers were vastly underreported since, just like childhood vaccination reactions, reporting adverse reactions during the smallpox vaccine was not mandatory and was also limited to an arbitrary and ill-defined time frame of 2-4 weeks. What was the rate of death and injury from the vaccine over the next few months and years? All of these important risks should have been studied



and tracked for an honest assessment of the true risk of this vaccine, but researchers missed this valuable opportunity due to the usual shoddy and incomplete tracking system that reflects the poor science behind vaccine development.

#### HEPATITIS B VACCINE AT BIRTH

Let's look at the hepatitis B vaccine as a way to examine problems with the development and introduction of any new vaccine.

Hepatitis B is primarily an adult disease transmitted through blood and body fluids. High risk populations include drug users, heterosexuals and homosexuals with many sexual partners, health care workers exposed to blood, and babies born to infected mothers. In 1996, 270 children under the age of 14 were infected with hepatitis B, with only 54 cases reported in the 0-1 age group.

In spite of the low risk for children in general, and in spite of the ability to target at-risk children by specifically testing their mothers before birth, the CDC added the hepatitis B vaccine to the recommended vaccination schedule in 1991, with the first of three doses to be administered on the very day of birth before leaving the hospital.

In 1986, Merck & Co. began marketing the first genetically engineered hepatitis B vaccine. In another example of the poor science behind vaccination development, the FDA approved the vaccine for use after only 1636 doses of Recombivax HB were administered to only 653 children who were subsequently monitored for only 5 days after each dose.<sup>6</sup> Since the vaccine is recommended for the first day of life, Merck was asked for safety data on newborns. They replied, "We have none. Our studies were done on 5- and 10-year-olds."<sup>7</sup> Further, Merck admitted in 1996 that no data is "available for the simultaneous administration of Recombivax HB with other vaccines" even though children are routinely given other vaccines along with Recombivax HB vaccine.

Since the introduction of this vaccine, there have been hundreds of reports in the medical literature (mostly published in international medical journals outside of the United States) citing central nervous system diseases, multiple sclerosis, Guillain-Barre syndrome, arthritis, severe rashes, fever, chronic fatigue, and Sudden Infant

Death Syndrome (SIDS) as a direct result of the vaccine. Parents have filed tens of thousands of adverse event reports with the Vaccine Adverse Event Reporting System, including emergency room visits, hospitalization and deaths. A study in New Zealand reported a 60 percent increase in juvenile diabetes after a massive campaign to vaccinate babies from 1988 to 1991 with the hepatitis B vaccine.<sup>8</sup> Even Merck itself admits to systemic complaints such as fever, joint pain, fatigue and weakness in up to 17 percent of all hepatitis B injections. And perhaps most telling of all, over 50 percent of the doctors surveyed in the UK refused to take the hepatitis B vaccine themselves, citing the known dangers from the vaccine, even though as medical professionals working in hospitals, they belong to a high risk group exposed to blood products and needles in the daily course of their work.

But most disturbing is the fundamental question of why this vaccine was recommended for infants in the first place. In 1996, there were 1,080 reports of adverse reactions among 0-1 year olds from the vaccine, including 47 deaths. If only 10 percent of the true deaths and injuries are being reported—an extremely conservative estimate—this means that there were actually over 10,800 adverse reactions and 470 deaths from the vaccine. Yet in that same year, there were only 54 cases of the disease reported in the 0-1 year old group. The frightful logic here is that for every child that acquires hepatitis B, the vaccine kills 9 babies and injures 200.

Why subject tens of millions of infants to the known dangers of this vaccine when the few babies actually at risk for the disease can be identified by simply screening the mother?<sup>9</sup> And finally, even if parents opt to include this vaccine in their child's vaccine schedule, why is the vaccine given on the day of birth? Parents need time to get to know their child first, so they can compare the baby's health status before and after vaccination, so any harm can be noticed, tracked and treated.

In addition to problems with genetically engineered vaccines, many vaccines—notably the MMR, chickenpox and Sabin polio vaccines—inject live viruses into the body. Various stabilizers and preservatives are added including formaldehyde, lead, aluminum and MSG. Un-

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Time and again, vaccines have simply not worked against the disease they are targeted to prevent.

known amounts of RNA and DNA from animal and human cell tissue culture have been found as well. And even though concerned parent groups have fought for the removal of the mercury-based preservative thimerisol from childhood vaccines, the pharmaceutical industry still uses mercury in flu vaccines, a new addition to the recommended yearly vaccination schedule for children starting at age 6 months. Additionally, the medical industry has continued to use old lots of thimerisol-containing vaccines until supplies are exhausted, rather than pull them from the market immediately, as they should.

#### FAMILIES “COMPENSATED” FOR LOSS OF THEIR CHILD

Because of the dramatic increase in the number of injuries from childhood vaccines over the past decades, Congress enacted the National Childhood Vaccine Injury Act of 1986, setting up a fund to compensate parents for injured or dead children (as if a parent could ever be “compensated” for the loss of their child due to vaccination). This fund is the first step parents must take when their child has been harmed and serves to shield the pharmaceutical company from all initial liability. To date, the fund has paid out over \$1.2 billion to parents with over 12,000 reports made every year. This is a staggering number considering how many reactions occur that medical authorities refuse to attribute to the vaccine. And if David Kessler is correct and 90-99 percent of all injuries are not even reported, the true number of children injured or killed by vaccines would be 1.2 million or more per year.

The many excellent organizations<sup>10</sup> that work to inform doctors and parents of the risks of vaccines describe the anguished phone calls they receive, recounting the devastation, guilt, confusion and distress that follow.<sup>11</sup> Parents describe babies who within hours or days of their vaccination, run fevers, become restless or listless, fall into deep sleeps interspersed with piercing screams, arch their backs strangely while they cry, fall into comas or repetitive seizures, twitch, jerk, or stare into space blankly. Or, parents describe a general decline in overall health with constant ear infections, sudden sensitivities to foods and food allergies, sleep disturbances, asthma, unexplained

rashes, and loss of developmental milestones replaced instead with repetitive head banging or body rocking.

Many parents and doctors believe the staggering increase in chronic childhood illness is a reaction to the dozens of vaccines that are now part of the standard vaccination schedule. Fifty years ago, autism affected less than 1 in 10,000 families, but now 1 in every 68 families have an autistic child. The rate of schoolchildren with autism has increased 1700 percent nationally from 1992 to 2002, creating a huge drain on families, school resources and social services that can never be remedied if the root cause turns out to be vaccination as many suspect, and the true solution is never addressed. Childhood asthma, diabetes, attention deficit disorder, and obesity have skyrocketed as well. As the SV40 polio debacle proved what can happen, “We may be trading mumps and measles during childhood, for cancer and leukemia in adults,” says Barbara Loe Fisher.

#### DO VACCINES EVEN WORK?

Even if parents find out about the risks of vaccines on their own, their doctors usually assure them that the risk is worth the almost certain benefit of freedom from infectious disease that their child receives. However, time and again, vaccines have simply not worked against the disease they are targeted to prevent. A 1978 survey of 30 states showed that more than half of all children who contracted measles had been fully vaccinated. Sweden abandoned its whooping cough vaccine after it examined 5,140 cases of whooping cough in 1978 and found that 84 percent had been vaccinated three times. A 1990 *Journal of American Medicine Association* article stated that “Although more than 95 percent of school-aged children in the US are vaccinated against measles, large measles outbreaks continue to occur in schools and most cases. . . occur among previously vaccinated children.” The medical literature is filled with example after example of the failure of vaccination to furnish protection against common childhood diseases.

But rather than accept the premise that the entire system of vaccination is fundamentally flawed, the medical industry calls for “booster” shots and re-vaccination, without any solid, long-

term studies to see whether immunity is actually achieved and, if so, for how long.

#### VACCINATION DID NOT END EPIDEMICS

While we have all been taught that vaccination ended the world's many deadly epidemics, an honest and careful review of original historical medical sources, publications and statistics from the past two hundred years reveals that infectious diseases declined 90 percent before mass vaccination was ever introduced.

Experts attribute the cessation of epidemic diseases not to mass vaccination, but to a major sanitation reform movement that swept Europe during the 1800s. These reforms included mov-

ing human waste out of streets via plumbing systems; regularly cleaning streets and stables of horse manure and human waste; improving roads so that meats, vegetables and raw milk could be distributed in cities while still fresh; and upgrading water distribution systems to prevent bacterial contamination.<sup>12</sup>

All the old terror diseases of plague, black death and cholera responded to these reforms, and epidemics declined throughout the 1800s, long before the advent of vaccinations. Even the CDC reported in 1999 that infectious diseases declined in the past century due to improvements in sanitation, water and hygiene. Vaccination against whooping cough, diphtheria, measles and polio all occurred only at the very end of the life

Epidemics declined throughout the 1800s, long before the advent of vaccinations.

#### MERCURY IN VACCINES AND AUTISM

The mercury-autism connection has surfaced to the public's attention with the publication of "Deadly Immunity," by Robert F. Kennedy, Jr. in the July issue of *Rolling Stone* magazine, simultaneous with publication in *Salon*. Kennedy describes a Center for Disease Control and Prevention meeting held June 2000 at which CDC epidemiologist Tom Verstraeten presented evidence to industry and government officials that thimerosal, the mercury-based preservative in vaccines, was responsible for the epidemic of autism in America's children. Instead of taking immediate steps to alert the public and rid the vaccine supply of thimerosal, the attendees spent the rest of the meeting discussing ways to cover up the damaging data.

Subsequently, powerful friends in Congress have tried to protect vaccine manufacturers with legislation to shield them from more than 4000 pending lawsuits. Senate Majority Leader Bill Frist, who has received \$837,000 in contributions from the pharmaceutical industry, quietly slipped a rider known as the "Eli Lilly Protection Act" into the homeland security bill. The measure was repealed by Congress in 2003 but earlier this year, Frist slipped another provision into an anti-terrorism bill that would deny compensation to children suffering from vaccine-related brain disorders. "The lawsuits are of such magnitude that they could put vaccine producers out of business and limit our capacity to deal with a biological attack by terrorists," says Andy Olsen, a legislative assistant to Frist.

More than 500,000 children suffer from autism, with 40,000 new cases diagnosed every year. The disease was unknown until 1943, when it was identified and diagnosed among eleven children born after thimerosal was first added to baby vaccines in 1931.

The CDC counters parental anger and negative publicity by citing studies that vindicate thimerosal, studies opponents claim are doctored and highly suspect. "You couldn't even construct a study that shows thimerosal is safe," says Dr. Boyd Haley, one of the world's authorities on mercury toxicity and head of the chemistry department at the University of Kentucky. "It's just too darn toxic. If you inject thimerosal into an animal, its brain will sicken. If you apply it to living tissue, the cells die. If you put it in a petri dish, the culture dies. Knowing these things, it would be shocking if one could inject it into an infant without causing damage."

Internal documents reveal that Eli Lilly, which first developed thimerosal, knew from the start that its product could cause damage. Yet the lure of profits proved greater than the company's concern for the public. Thimerosal enables the pharmaceutical industry to package vaccines in vials that contain multiple doses. The larger vials cost half as much to produce as smaller, single-dose vials, and are needed to make in mass vaccination programs cost effective.

The introduction of thimerosal into vaccines coincided with an increase in the number of vaccines given to children. Infants who receive all their vaccines, plus boosters, by the age of six months are exposed to levels of ethylmercury, injected directly into the bloodstream, 187 times greater than the EPA's limit for daily exposure to methylmercury, a related neurotoxin.

Kennedy describes a burgeoning scandal that has the potential to bring down the pharmaceutical industry. To read his article, see [www.rollingstone.com/politics/story/\\_/id/7395411](http://www.rollingstone.com/politics/story/_/id/7395411). But getting thimerosal out of vaccines will not completely solve the problem as vaccines contain numerous other toxins required for producing and preserving them.

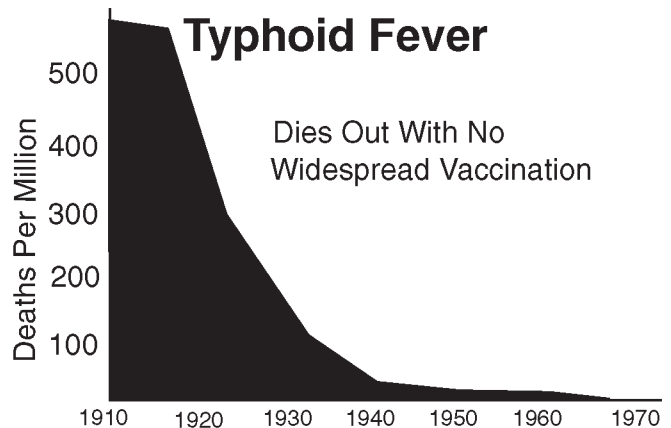
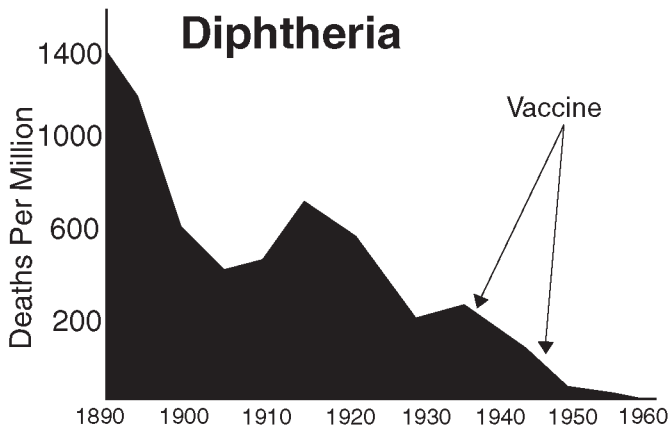
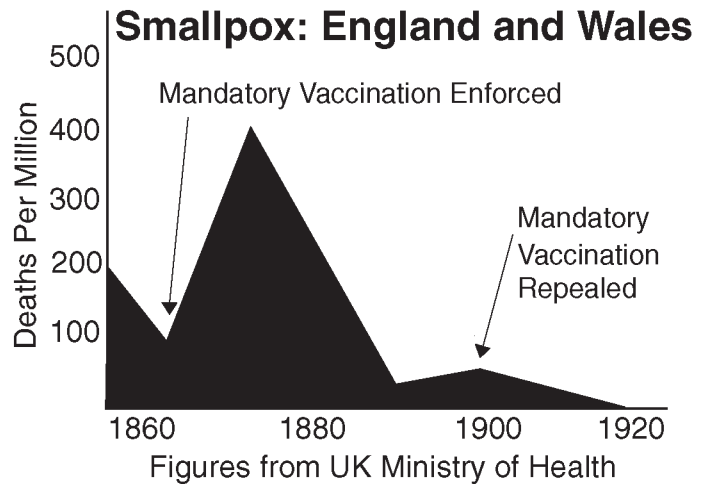
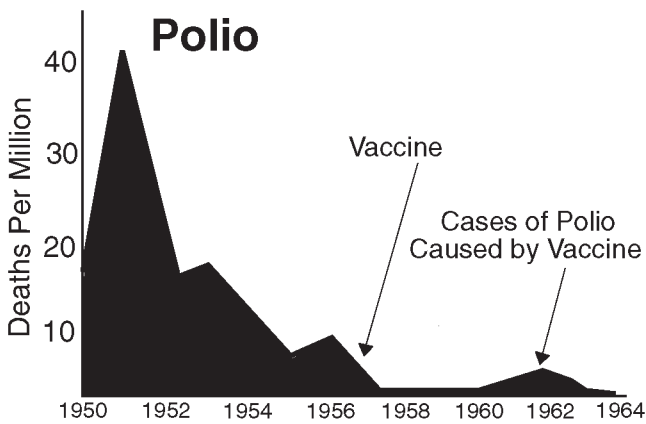
The children of the United States represent the most highly vaccinated population in the world.

cycle of each epidemic, exposing the fallacy of the claim that vaccination ended epidemics.

The only exception to this decline in epidemic disease is smallpox, which, contrary to all we have been taught, actually increased with the advent of mandatory vaccination and decreased only after an organized uprising by parents and doctors forced European governments to end their mandatory vaccination programs.<sup>13</sup> Even though the World Health Organization claims credit for the eradication of smallpox worldwide through vaccination, the fact is that smallpox declined in countries around the world whether the population had been vaccinated or not. As Dr. Glen Dittman said in 1986, “It is pathetic and ludicrous to say we vanquished smallpox with vaccines, when only 10 percent of the population were ever vaccinated.”

**BIG BUSINESS CREATES PRESSURE TO VACCINATE**

The children of the United States represent the most highly vaccinated population in the world. Millions of dollars are provided by the multi-national pharmaceuticals to create front organizations like “All Kids Count” and “Immunization Action Coalition,” groups with friendly, neutral names that disguise the pharmaceutical funding behind their mandate to promote vaccination. Vaccines produce billions of dollars a year for the drug companies, in part because the federal government funds massive vaccination drives by buying vaccines with our tax dollars and then giving state health departments millions of dollars with the goal of achieving 100 percent vaccine compliance. If they fail, the money can be withdrawn from the state. With all this money



Polio, smallpox and diphtheria were in decline before the introduction of vaccinations. Mandatory smallpox vaccination in England and Wales resulted in a huge increase in the disease. Typhoid fever died out with no vaccination program.

available to state health authorities, enormous pressure is then applied to the schools, which in turn pressure parents by requiring proof of vaccination for entry into school at every level of a child's development.

## RESISTANCE

Yet resistance to the mandatory vaccination schedule is growing and millions of parents are questioning both the underlying science of vaccination and expressing concerns about side effects. A 2003 study found that 93 percent of pediatricians and 60 percent of family physicians reported at least one family that had refused a vaccine for their child.

When a parent chooses to limit or opt out of the vaccination schedule, a wide variety of official responses have been reported ranging from no difficulties at all, to the opposite extreme—official threats of medical child neglect charges. It is an unfortunate fact that parents who decline vaccination have been thrown out of their doctors' offices and children have been refused entry into school. In extreme cases, officials have charged parents with medical child neglect and forced them to go to court to retain the right to raise their child.<sup>14</sup> Parents receiving benefits such as welfare, food aid and medical care risk the loss of such aid when they wish to opt out of vaccination.

Yet it is also true that many parents experience no resistance from authorities with their right of vaccination refusal unchallenged, as long as they follow the various state laws for exemption.

## HOW TO OPT OUT

Since this short article cannot examine every vaccine, if you have questions about a specific vaccine, please see the footnotes and recommended reading list at the end of this article to help you decide which, if any, vaccines you feel are safe for your child. While vaccines may be "mandated" by the CDC, they are not "legally required." No one has the legal authority to vaccinate your child against your wishes.

If the birth will take place in a hospital, you can amend the medical treatment forms or your birth plan, and clearly state that you do not want any vaccines for your baby while in the hospital. You should also communicate your request verbally with the staff on all shifts, either yourself or by having your spouse or advocate communicate your wishes clearly and directly.

Once your child is born, the pressure to vaccinate comes from two sources—medical authorities and school authorities. Medically, you are free to make any decision at any time you feel is best regarding your child's vaccination schedule. However, if you opt out of vaccination, many doctors may lie about vaccines being mandatory or frighten you with exaggerated statistics about the dangers of not vaccinating and refuse to treat your child. Unfortunately, the "bread and butter" of pediatric practice are the many "well baby" visits that include vaccination throughout your child's development.<sup>15</sup>

However, it is the entry into day care or school that triggers the need for legal exemptions. There are three types of exemptions—philosophical, medical and religious. There are medical

If the birth will take place in a hospital, you can amend the medical treatment forms or your birth plan, and clearly state that you do not want any vaccines for your baby while in the hospital.

## IF YOU MUST VACCINATE

- ♦ Wait until the child is at least 2 years old.
- ♦ Do not give more than one vaccination at a time.
- ♦ Never vaccinate when the child is sick.
- ♦ Be sure that the vaccines are thimerosal-free.
- ♦ Supplement the child with extra cod liver oil, vitamin C and B<sub>12</sub> before each shot.
- ♦ Obtain a medical exemption if the child has had a bad reaction to a vaccination before or if there is a personal or family history of vaccine reactions, convulsions or neurological disorders, severe allergies and/or immune system disorders.



Above all,  
remember  
that no  
authority has  
the legal right  
to vaccinate  
your child  
without your  
permission.

exemptions in all 50 states, religious exemptions in all but two states (West Virginia and Mississippi), and philosophical exemptions in 16 states. You can check the laws for your particular state at [www.thinktwice.com](http://www.thinktwice.com) or [www.909shot.com/state-site/legal-exemptions.htm](http://www.909shot.com/state-site/legal-exemptions.htm)

Private schools have their own rules and may reject children that have not been vaccinated. Public schools, however, are required by law to accept your exemption, when properly prepared according to the laws of your state. Home schooling sidesteps the issue entirely.

Once you check the laws for your particular state, you can choose the exemption type that is best for your situation. It is very important to submit the appropriate paperwork to the school so that your refusal to vaccinate cannot be interpreted as parental neglect. A philosophical exemption generally requires a short letter simply stating that you object to vaccination. The religious exemption also requires a letter, but some states stipulate that you actually belong to, and are a practicing member of, a religion that specifically objects to vaccination. The medical exemption is usually the most difficult to obtain because doctors are subject to review and censure by state medical authorities when they grant exemptions. In some cases medical exemptions may be obtained from the school nurse—and are often easier to obtain than from a physician.

Happily, simply signing and submitting the exemption is generally all that is needed. Some exemption letters must be notarized or drafted as a signed affidavit. And some School Immunization Records have an exemption section on the form itself, that you simply fill out. Here is an example for California: [www.dhs.ca.gov/publications/forms/pdf/pm286b.pdf](http://www.dhs.ca.gov/publications/forms/pdf/pm286b.pdf). For examples of exemption letters for all possible scenarios and all states see [www.vaclib.org/pdf/exemption.htm](http://www.vaclib.org/pdf/exemption.htm)

When discussing your decision to opt out, it is best to remain calm, courteous and diplomatic, even in the face of ignorance or resistance from authorities. Do not enter into arguments with authorities and draw attention to your decision. There is no need to attach documents to your exemption proving evidence of the problems with vaccination or explaining your reasons for opting out—you simply want an exemption for

your child. If you encounter belligerent or arrogant authorities who intimidate you with threats of sending you to jail or taking your child away, try to sidestep their resistance in a non-confrontational manner and leave the situation as soon as possible. If you run into this kind of resistance, you should put your wishes in writing, escalate your exemption request to someone above that official, and demand a written response. You'll be surprised how quickly resistance from authorities can fade once they must put their illegal statements and intimidations in writing.<sup>16</sup>

Above all, remember that no authority has the legal right to vaccinate your child without your permission. Should they do so, they open themselves up to legal liability and you have all the resources of the law behind you. While you may experience resistance, they are breaking the law, not you. Do not be coerced or intimidated into vaccinating your child—it is your choice and your right to do what you feel is best.

#### NATURALLY DERIVED IMMUNITY


Those of us involved in the Weston A. Price organization have an intimate understanding of the lies and distortions that various government and corporate forces use to control our food choices. The grassroots Campaign for Real Milk started with research into the facts of the situation, analyzed how the media and agribusiness distorted the true history of raw and pasteurized milk, organized a drive for freedom of choice, and supported the farmers committed to producing raw milk.

It is these same kinds of distortions and propaganda regarding drugs and vaccines that are sometimes overlooked in the natural food community. The doctor who tells parents that raw milk will give their child TB is the same doctor who assures parents that vaccines are safe, effective and nothing to be concerned about.

We know that children of the many cultures that Weston Price studied needed no vaccination—they grew up vibrant, healthy and strong, able to fight off infectious disease as long as they maintained their original, native diets. Should a child be in any danger from an infectious disease, we have many powerful tools available to us—nutrient-dense healing foods along with homeopathy, acupuncture, herbalism and natu-

ropathy, all systems of earth-based healing that take into account the full well being of the whole person to restore and maintain true health.

The recent avalanche of drug scandals exposing death and injury from drugs fully approved by the FDA demonstrates harm far greater than specific problems with individual drugs. Western medicine operates under the assumption that synthetic, genetically engineered drugs and vaccines heal the sick and protect the young from disease, an assumption that parents are expected to accept without question.

But when it comes to your child, you are the expert most qualified to decide what is best for your child, using your intelligence and common sense in the same way we fight for our right for real food. 

*Lynne Born has been an alternative health care activist, writer and independent medical researcher for over 20 years. She is a longtime member of the Weston A. Price Foundation and enjoys a diet based on homemade full-fat foods, bone broth, raw milk and fermented foods.*

#### RECOMMENDED BOOKS AND WEBSITES

*Vaccines: Are They Really Safe and Effective?* by Neil Z. Miller, 2002. Check his website for additional books, [www.thinktvice.com](http://www.thinktvice.com).

National Vaccination Information Center, [www.909shot.com](http://www.909shot.com). Check [www.908shot.com/ResourceCenter/Resource\\_Center.htm](http://www.908shot.com/ResourceCenter/Resource_Center.htm) for recommended reading.

*Immunization, The Reality Behind the Myth*, by Walene James, 1995.

*Vaccination: 100 Years of Orthodox Research Shows that Vaccines Represent a medical Assault on the Immune System*, by Viera Scheibner, Ph.D., 1007, New Atlantean Press, (505) 983-1856.

*How to Raise a Healthy Child in Spite of Your Doctors*, by Robert Mendelsohn, MD

#### ENDNOTES

1. Barbara Loe Fisher, National Vaccination Information Center, <http://www.909shot.com>. Nevada County, California, has the highest percentage of unvaccinated children in the state of California, providing a perfect setting for this simple study. <http://www.sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/2003/05/25/CM171959.DTL>.
2. For their excellent collection of hundreds of peer reviewed, published articles on the dangers, side effects, and inefficacy of vaccination, see *Vaccination: 100 Years of Orthodox Research shows that Vaccines Represent a Medical Assault on the Immune System*, by Viera Scheibner, Ph.D., 1997. Available from New Atlantean Press, 505-983-1856. See also any of the excellent books by Neil Z. Miller, including *Vaccines: Are They Really Safe and Effective?*, 2002. Check his website for additional books, <http://www.thinktvice.com>.
3. Even Dr. Jonas Salk who developed the first polio vaccine admitted under oath that most cases of polio in the USA since 1961 were actually caused by the vaccine.
4. David Kessler, "Introducing MedWatch: A new approach to reporting medication and device adverse effect and product problems," *Journal of American Medical Association*, July 2, 1993, 269(21): 2765–68.
5. As the deaths followed one after another in March and April 2003, headlines read "First death: Nurse dies after smallpox vaccination"; "Second worker dies of heart attack after smallpox vaccination"; and "Coroner rules [smallpox] vaccinations contributed to reservist's death." (An internet search easily reveals these articles.) Yet, by June 2003, mainstream media articles were not only ignoring the earlier deaths, they continued to use the old, inaccurate figures of one or two deaths per million rather than the newly updated, more truthful numbers that had become apparent during this vaccination program.
6. Merck & Co. 1993 product insert for Recombivax HB.
7. 1997 Illinois Board of Health hearing, *The Congressional Quarterly*, August 25, 2000, pg. 647.
8. Barthelo Classen, M.D., CEO of Classen Immunotherapies Inc. Epidemiologic study in the *New Zealand Medical Journal*, 1996.
9. See <http://www.909shot.com/History/Newsletters/hepbnlr.htm> for more detailed information about the dangers and risks of the Hepatitis B vaccine.
10. National Vaccination Information Center, <http://www.909shot.com>; Think Twice Global Vaccine Institute, <http://www.thinktvice.com>.
11. See <http://www.thinktvice.com/stories.htm>, [http://www.mothing.com/articles/growing\\_child/vaccines/wake.html](http://www.mothing.com/articles/growing_child/vaccines/wake.html).
12. The concept that epidemic diseases were ended by sanitation reforms is reinforced when natural disasters destroy sanitation systems and roads, bringing epidemic diseases with the collapse of the infrastructure. Vaccination does not end these epidemics – only the restoration of basic services restores health..
13. For an in-depth study of the unscientific and fraudulent development of the smallpox vaccine, see my article referenced <http://zmagsite.zmag.org/Aug2003/born0803.html>, July/August 2003.
14. See *Immunization, The Reality Behind the Myth*, by Walene James, 1995, Chapter 10 "Appointment with Tyranny" for a story of a court battle over the right to not vaccinate in 1981.
15. See *How To Raise a Healthy Child In Spite of Your Doctors*, by Robert Mendelsohn, M.D. for an excellent resource on parenting without vaccination.
16. Dr. Joseph Mercola has written an excellent article that details how to handle resistance in your state: *How to Legally Avoid Unwanted Immunizations of All Kinds*, [http://www.mercola.com/fcgi/pf/article/vaccines/legally\\_avoid\\_shots.htm](http://www.mercola.com/fcgi/pf/article/vaccines/legally_avoid_shots.htm).

# Rethinking Reproductive Health

By Katie Singer

Recently, in a medical journal, I read that oral-contraceptives are useful “in establishing regular menstrual cycles”<sup>1</sup> for women with polycystic ovarian syndrome (PCOS). For years, I’ve observed that western medicine’s primary treatment of common gynecological problems is the birth control pill; still, I was dismayed to read this misinterpretation of what a menstrual cycle is and what oral contraceptives do to it.

A healthy menstrual cycle includes the maturation of about a dozen follicles, unripe eggs that emit estrogen; production of cervical fluid (which can keep sperm alive for up to five days); buildup of a new uterine lining; ovulation (also known as the release of one ripe egg, which will live for 12-24 hours); production of progesterone; and, when pregnancy does not occur, release of the uterine lining.

Oral contraceptives suppress many of these functions. The bleeding that occurs on the Pill results from taking sugar pills and withdrawing artificial hormones. This is not a menstrual period but a “withdrawal bleed” since it does not (with most prescriptions) follow ovulation.

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author of  
*The Garden  
of Fertility  
and  
Honoring  
Our Cycles.*

Fertility drugs like Clomid, which are often prescribed “like water”<sup>2</sup> when pregnancy is desired, hyperstimulate the ovaries to mature many more follicles than they normally do. In turn, the follicles produce three to four times more estrogen than they do in pretreatment cycles.

Are these pharmaceuticals dangerous to the women who take them? To their offspring? Are they changing the way we think about reproductive health? Are safer alternatives available to those who seek to prevent pregnancy or to become pregnant?

What can a woman do if she feels that her health has been compromised by taking the Pill or a fertility drug?

I imagine that people take hormonal drugs for several reasons: it’s become normal to take them; information about their hazards is usually posted in fine print; doctors (including alternative practitioners) are typically not taught natural methods of family planning in medical school—and they cannot give clients what they don’t know; and consumers frequently take prescription drugs and vitamins without researching their effects—because “they worked for my neighbor.”

Advertising is another factor. Barr Laboratories is currently engaged in a multi-million dollar campaign to promote Seasonale, their new oral contraceptive, which gives women “the convenience of only four periods [sic] each year” with just “all of the warnings and contraindications. . . identical to any other oral contraceptive.” There are currently sixteen million women on oral contraceptives in the US; Barr Labs aims to secure 90 percent of this market.<sup>3</sup>

#### SOME PROBLEMS WITH HORMONAL CONTRACEPTIVES

Oral contraceptives are made from artificial steroids that mimic the effects of estrogen and progesterone. The Pill works by:

- ♦ Suppressing the release of hormones that trigger ovulation;
- ♦ Stimulating production of thick cervical mucus, which prevents sperm survival and ability to travel to a ripe egg in the fallopian tube in the event that ovulation does occur;
- ♦ Disrupting the ability of the cilia (whip-like

cells that line the fallopian tube) to move a fertilized egg toward the uterus in the event that conception does occur;

- ♦ Preventing buildup of the uterine lining, and thereby inhibiting implantation of a fertilized egg in the event that one arrives in the uterus.<sup>4</sup>

It’s worth noting that the mini-Pill, a progestin-only pill, may not suppress ovulation or conception from occurring.<sup>5,6</sup>

In The Breast Cancer Prevention Program, Sam Epstein, MD, writes, “more than 20 well-controlled studies have demonstrated the clear risk of premenopausal breast cancer with the use of oral contraceptives. These estimates indicate that a young woman who uses oral contraceptives has up to ten times the risk for developing breast cancer as does a non-user, particularly if she uses the Pill during her teens or early twenties; if she uses the Pill for two years or more; if she uses the Pill before her first full-term pregnancy; if she has a family history of breast cancer.” Thus, a woman who takes the Pill for two years before she’s 25 and before she’s had a pregnancy to term increases her risk of breast cancer tenfold.

A study conducted by the World Health Organization found that women who carry the human papilloma virus (HPV) and who have taken the Pill for five to nine years are nearly three times more likely than non-Pill users to develop cervical cancer.<sup>7</sup> (HPV affects a third of all women in their twenties.) Women with HPV who’ve taken the Pill for more than ten years are four times more likely than non-users to develop the disease.

Women who have a history of migraine headaches and who take combined oral contraceptives are two to four times more likely to have a stroke than women who have migraines and don’t take the Pill.<sup>8</sup>

Women who use low-dose oral contraceptive pills have a two-fold increased risk of a fatal heart attack compared to non-users.<sup>9</sup> Women who take oral contraceptives and smoke have a 12-fold increase in fatal heart attacks and a 3.1-fold increase in fatal brain hemorrhage.<sup>10</sup> Women who use the Pill after the age of 45 have a 144 percent greater risk of developing breast cancer than women who have never used it.<sup>11</sup>

A woman who takes the Pill for two years before she’s 25 and before she’s had a pregnancy to term increases her risk of breast cancer tenfold.

Taking oral contraceptives depletes users of key nutrients. . . critical for the development of the baby, including the optimization of baby's intelligence.

Because of blocked hormone production, women who take the Pill have decreased sensitivity to smell. Because sexual interest is communicated through smell, the Pill may decrease women's sex drives.<sup>12</sup>

In *Solved: The Riddle of Illness*, Dr. Stephen Langer writes that "the Pill. . . can cause severe bodily damage in hypothyroidism."

Oral contraceptives may aggravate insulin resistance and longterm risk of diabetes and heart disease.<sup>13</sup>

Other hormonal contraceptives may also be problematic. Depo-provera, an injectable contraceptive, requires a shot every three months. Even one shot before a woman is twenty-one can result in bone loss. Adolescent women who use Depo may be more likely to suffer fractures when they reach menopause than those who never took the injections.<sup>14</sup>

Women who take Depo-provera shots for two years or more before they're twenty-five have an almost tripled risk of breast cancer.<sup>15</sup>

Dagmar Ehling, a doctor of Oriental medicine, explains that "In its listing of the side effects of oral contraceptives, the *Physician's Desk Reference* includes increased blood clotting, uterine bleeding, and carcinoma of the breast and endometrium. In Oriental medicine, these conditions could be categorized as Blood Stasis, a kind of 'pattern of disharmony.' Blood Stasis describes sluggish blood circulation, which might manifest as blood clotting, varicose veins, tumors, nodules or cysts. While acupuncture and herbs can address these conditions, from an Oriental perspective, the longer a woman stays on the Pill, the more she increases her risk for these kinds of problems."

Many women taking the Pill have reported weight gain—a sign of estrogen dominance and/or insulin resistance—as well as depression and even psychosis.

If you have taken hormonal contraceptives and feel they have taken your cycles out of sync and negatively affected your health, eating a traditional diet with emphasis on vitamin A-rich foods, and sleeping primarily in the absence of light (a technique that I described briefly in the Spring, 2004 issue of *Wise Traditions* and more fully in *The Garden of Fertility*), has helped numerous women to return to health and normal cycles.

#### ASSISTED REPRODUCTIVE TECHNOLOGY

In *The Elusive Embryo: How Women and Men Approach New Reproductive Technologies*, anthropologist Gay Becker describes couples who pursue their desire for a child "until emotional and financial resources are exhausted." She observes that with the proliferation of assisted reproductive technologies, the emphasis has shifted from diagnosing and correcting abnormal physiology to achieving a pregnancy in the fastest and most direct manner possible, regardless of the cost or invasiveness. This approach aggressively augments the natural reproductive cycle, or bypasses it altogether, and aims for results regardless of the underlying infertility diagnosis.

If you are considering using reproductive technology to help you conceive, please first research its potential hazards—to yourself and to your potential offspring.

Clomiphene citrate, also known as Clomid, a common drug prescribed when a woman has

#### THE PILL AND NUTRITIONAL DEFICIENCIES

Taking oral contraceptives depletes users of key nutrients including folic acid, vitamins B<sub>2</sub>, B<sub>6</sub>, B<sub>12</sub> and vitamin C.<sup>22</sup> These nutrients are critical for the development of the baby, including the optimization of baby's intelligence. Thyroid hormones are also depleted by the Pill;<sup>23</sup> they are crucial to optimal development of intelligence in the fetus. Drug companies include a warning statement in their handouts about the Pill that women should avoid conceiving within six months of discontinuing it.

To ensure a healthy baby (and a healthy mother), women who have taken the Pill need to favor foods rich in vitamins A and E, B vitamins, essential fatty acids, magnesium and zinc.<sup>23,24</sup> Foods containing iodine and vitamin D are also recommended. We have constantly urged that for six months or longer before trying to conceive, parents-to-be should eat liberally of superfoods like cod liver oil, butter from grass-fed cows, raw milk, liver, eggs from pastured chickens and wild seafood. This advice is especially important for women who have been on the Pill.



difficulty conceiving, works by binding itself to estrogen receptors in the brain so that naturally occurring estrogen cannot be detected by the body. Clomid tricks the body into producing more and more Follicle Stimulating Hormone, causing more follicles (unripe eggs) to grow than normally would. In turn, more estrogen is produced by the follicles, and more eggs are matured. Typically, a woman taking this drug produces double or triple the amount of estrogen (and releases more eggs at ovulation) per cycle compared to pretreatment cycles. In *Our Stolen Future*, the pivotal work about how pesticides threaten animal and human ability to reproduce, Theo Colburn and her co-authors report that “numerous studies have linked estrogens, even those occurring in the body, to cancer, suggesting that the greater a woman’s lifetime exposure, the greater the risk.”

According to a package insert (available from your pharmacist, by request) about Clomid from Merrell Pharmaceuticals Inc., one of the drug’s manufacturers, “The majority of patients who are going to ovulate will do so after the first course of therapy. If ovulation does not occur after three courses of therapy, further treatment with clomiphene citrate tablets USP is not recommended. . . . If menses does not occur after an ovulatory response, the patient should be re-evaluated. Long-term cyclic therapy is not recommended beyond a total of about six cycles.” Merrell Pharmaceuticals also recommends that the first dose of Clomid be 50 mg.

Unfortunately, I know many women who have taken Clomid for as many as twelve cycles; I know others who took the drug at double the dosage recommended by Merrell Pharmaceuticals in their first use of it.

Essentially, Clomid hyperstimulates one aspect of the reproductive system—which then requires the rest of the system (which was perhaps out of sync before the drug was administered) to grasp for health and wholeness in response to being overstimulated.

Educate yourself as much as you can before using reproductive technology. Studies show that treatments like Clomid and *in vitro* fertilization (wherein conception takes place outside of the woman’s body) increase a woman’s risk of ovarian cancer (especially if she never conceives)<sup>16,17</sup>

and her offspring’s risk of birth defects.<sup>18-20</sup> Also, Clomid can dry up cervical fluid, which makes it difficult for sperm to reach the mature egg easily.<sup>21</sup>

Leah Morton, a family physician, observes, “Some women want to be pregnant immediately once they start trying. I see this desire as part of a wider idea in our culture that we can and should be able to control our lives. We should be able to control crime, pollution, educational discrepancies, gender inequalities, our finances, and our fertility. Indeed, technology now may be used to help us control lovemaking, pregnancy prevention, conception, labor and delivery, even raising a child. But really, technological controls have nothing to do with fertility, with being in the unknown, the mystery of life. It’s up to us to respond to the joy, darkness, and awe that we experience.”

Dr. Morton also says, “If a couple is having difficulty conceiving or sustaining a pregnancy, my first concern is whether or not they’re eating food that’s not genetically modified, that is organic, whole and low glycemic (this means with little or no refined sugars or starches). Improving one’s diet is one of the hardest things to do in our culture. It also makes for healthier parenting!”

#### REAL WOMEN IN THE 21ST CENTURY

Most women in our culture have taken hormonal drugs at some point in their lives to prevent or achieve pregnancy; and, young women are commonly prescribed the Pill when they have acne, painful menstrual cramps, PCOS, and/or mild depression. Learning the hazards of these drugs can be discomfiting, to say the least.

I know very few people who have not taken some kind of risk-increasing drug. A while ago I read that women who have taken antibiotics every day for a year or more significantly increase their risk of breast cancer. *What kind of dumb woman would take antibiotics every day for a year?* I wondered—and then realized: a woman like me. As a teenager, I took antibiotics every day for probably two or three years to ward off acne. The drugs didn’t help, but all my girlfriends were treating their acne with antibiotics, and my parents and I didn’t know alternatives.

Indeed, when most of us experience some kind of problem with our menstrual cycles, or

Studies show that treatments like Clomid and *in vitro* fertilization (wherein conception takes place outside of the woman’s body) increase a woman’s risk of ovarian cancer (especially if she never conceives) and her offspring’s risk of birth defects.

If she learns Fertility Awareness and daily charts her waking temperature and cervical fluid changes, a woman of childbearing age can know when she's ovulating and whether she is prone to miscarriage, poly-cystic ovarian syndrome, low thyroid function and other problems.

we want to prevent pregnancy, or we want to get pregnant, the most readily available option is usually pharmaceutical.

The good news is that there are alternatives. My first recommendation is to learn how the body works. If she learns Fertility Awareness and daily charts her waking temperature and cervical fluid changes, a woman of childbearing age can know whether she's ovulating and whether she is prone to miscarriage, poly-cystic ovarian syndrome, low thyroid function and other problems.

If you identify a problem or a trend toward a problem, you may wonder what you can do to strengthen your health. Diet can be a great place to start. I know many young women who, in addition to discontinuing hormonal drugs, charted their fertility signals, identified problems with their cycles, gradually switched to a nutrient-dense diet, and found their health steadily improved. Indeed, in many of the groups he studied, Weston Price found that "girls were not allowed to be married until after they had had a period of special feeding. In some tribes, a six-month period of special nutrition was required" to ensure the health of a couple's offspring.

Night-lighting techniques, herbs, homeopathy, or acupuncture can also strengthen reproductive health. So can meditation and yoga.

Regardless of the options you're considering (for a health problem, to prevent pregnancy, or to get pregnant), research the risks and benefits involved. Keep researching until you find something that works for you.

#### THE SIX STEPS OF HEALING

In the late 1970s, after studying scientific medicine, herbalism, various diets, homeopathy and other alternative healing methods, herbalist and author Susun Weed became increasingly confused—in regard to healing—about what to do *first*. Once she phrased her question, she realized the reply: *First, do no harm*.

Weed began to group healing techniques and remedies based on the likelihood of a technique or remedy harming or even killing her. In her books, including *Wise Woman Herbal for the Childbearing Year* and *The New Menopausal Years the Wise Woman Way*, she describes The Six Steps of Healing, which outline a way to increase health and decrease harm. The Six Steps

encourage us to connect with our body's wisdom and healing mechanisms and to address problems at their root.

If you suffer from menstrual cramps, mild depression or acne, or are wanting to get pregnant, consider Weed's six steps as an alternative to taking the Pill. Here they are applied in the context of menstrual cramps:

**Step 0:** Do nothing. Weed describes this as "a vital, invisible step." She explains, "You must actively do no-thing." Essentially, Step 0 is about taking time for yourself. Unplugging your phone and your TV, meditating and resting are included in Step 0.

**Step 1:** Collect information. Talk with friends and health care providers, read, search the internet. Learn Fertility Awareness and chart your fertility signals—your waking temperature and cervical fluid. Keep a record of your questions and observations (e.g., Does eating less sugar affect my menstrual cramps?).

**Step 2:** Engage the energy. Notice what emotions come up around menstruation. Attend to your dreams. Write out a conversation between your period and you. Find out what it wants; find out what you want from your period and see whether there's a happy medium. Take a bath or try a homeopathic remedy. Give thanks for your interest in your own wellness. Pick one remedy from Step 2, and set a time limit for working with it. Weed says it's vital to set time limits for every step. If your problem worsens, try another Step 2 remedy, or go on to Step 3.

**Step 3:** Nourish and tonify. Feed yourself well. Replace processed, sugary fast-foods and drinks with freshly made, nutrient-rich meals. Prepare herbal infusions (which you can learn about from books or an herbalist). Keep your body and mind toned with regular physical activity. Take a yoga class. Grow some of your own food. Take a daily walk. If your problem worsens or is not relieved within your time limit, add another Step 3 or go on to Step 4.

**Step 4:** Sedate and stimulate. Acupuncture, chiropractic, Swedish massage, and most herbal tinctures fall into this category. Susun Weed cautions that "There is always risk of developing dependence on Step 4 remedies. Be aware of the frequency, dosage and duration of your treatments—and your time limits."

**Step 5-A:** Use supplements. In this step, Weed includes all concentrated, extracted, and synthesized substances—including vitamin and mineral supplements, standardized herbal tinctures and all herbs in capsules. (Supplements can be synthesized or, if made from foods grown with pesticides, include concentrations of pesticides.)

**Step 5-B:** Use drugs. Over-the-counter and prescription drugs as well as all hormonal medications (including progesterone creams) are included in this step.

**Step 6:** Break and enter. Besides surgery, Weed includes psychotropic drugs, “fear-inspiring language,” shots, diagnostic tests such as laparoscopy and surgery in Step 6. “If all other steps fail and you are a woman with severe menstrual cramps,” she says, “a hysterectomy is a reasonable choice.”

Susun further explains, “When you do nothing, collect information, engage the energy, and nourish and tonify (Steps 0-3), then functioning and joy increase: you build health. True healing takes place in these early steps. Whether your problem is chronic or acute, Steps 0-3 (along with realistic expectations of the time healing takes) are worthy of your attention.

“Although the impulse in our culture is to jump to Step 4 or 5, each step up increases the possibility of severe side effects. While healing can and does take place with the aid of drugs and surgery, once you get to Step 5, you can damage or destroy health. Drugs might get rid of menstrual cramps, but they don’t address the cause or nourish your body. Drugs mask symptoms. Even common over-the-counter drugs like aspirin can injure health. In the Wise Woman Tradition, symptoms are not enemies to be destroyed but cherished messengers who encourage us to take good care of ourselves.”

#### LIFE IN ALL ITS FULLNESS

All women want to enjoy good health, loving relationships and, if they choose, healthy offspring. The medical model proposes drugs that disrupt natural processes as a way to achieving these goals. Others in the western world understood that fulfillment can only be achieved by working with natural processes, not suppressing them. Francis Bacon (1561-1626) put it

this way: *Nature is not to be governed except through obeying her.* Similarly, Weston A. Price (1870-1948) told those who wish a long and meaningful life: *Life in all its fullness is Mother Nature obeyed.* These words take on enhanced meaning for women facing decisions about how to have healthy children and achieve long-term reproductive health.

Menstrual cycle by menstrual cycle, Fertility Awareness provides women and men a way to work in concert with nature and their bodies—whether they aim to conceive or to prevent pregnancy. Further, Fertility Awareness does no harm to a woman’s hormonal system or her nutrient stores. The method does take time and effort to learn—just like cooking nutrient-dense meals. And, like knowing how to cook, it is a basic life skill worth passing on to the next generation.



#### RESOURCES

Singer, Katie, *The Garden of Fertility: A Guide to Charting Your Fertility Signals to Prevent or Achieve Pregnancy—Naturally—and to Gauge Reproductive Health*, Avery/Penguin, 2004. Includes chapters on breastfeeding, food and reproductive health, night-lighting, and healing childbearing losses. The website [www.Gardenof-Fertility.com](http://www.Gardenof-Fertility.com) includes fertility charts that can be downloaded for free.

Singer, Katie, *Honoring Our Cycles: A Natural Family Planning Workbook for Knowing Which Days You Can and Can't Get Pregnant*, NewTrends Publishing, 2006. Written in simple language, the book includes fertility charts and information on nutrition.

The Fertility Awareness Network. PO Box 1190, New York, NY 10009; 800.597.6267; 212.475.4490. Provides a Fertility Awareness resource packet (for a suggested donation of \$5) that includes a list of teachers who offer classes and private consultations with a secular orientation. Offers *The Garden of Fertility* for people who don’t use credit cards. [www.FertAware.com](http://www.FertAware.com).

The Couple To Couple League. POB 111184, Cincinnati, OH 45211; 800.745.8252. Offers classes and literature about Natural Family Plan-

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ning with a Catholic orientation. www.ccli.org.

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Weed, Susun, *Wise Woman Herbal for the Childbearing Year*, Ash Tree Publishing, 1985. A classic.

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# Know Your Fats

## VITAMIN A FOR FETAL DEVELOPMENT

By Mary G. Enig, PhD

True vitamin A is a vitamin that occurs only in animal fats. In primitive societies, pregnant women consumed special foods rich in vitamin A—such as liver, spring butter and fish eggs—in a conscious effort to produce healthy, well-formed children. Modern research completely validates these traditions.

In a recent paper,<sup>1</sup> Maija H. Zile, of the Department of Food Science and Human Nutrition, Michigan State University, details the role of vitamin A in fetal development. Working with bird and mouse embryos, she and other researchers have determined that the vitamin A requirement begins at the time of formation of the primitive heart and circulation, and the development of the hindbrain, a period that corresponds to weeks 2-3 in humans. Without vitamin A, the embryo succumbs to gross abnormalities of the heart and is aborted.

Each organ system begins development during a specific window of time. Vitamin A regulates the differentiation of the primitive cells into cells specific to each organ system, in essence signaling to the genes their marching orders so they “know” where to locate themselves and what kind of tissues to become. If vitamin A is lacking during any of these windows, the organs develop abnormally or not at all.

The major target tissues of vitamin A deficiency include the heart, central nervous system, the circulatory, urogenital and respiratory systems, and the development of the skull, skeleton and limbs. Vitamin A deficiencies during the period when any of these systems begin specialization can result in abnormalities and defects.

According to Zile, even partial vitamin A deficiency affects the sensitive developing central nervous system; it plays a key role in the development of the visual system, the retina, the inner ear, the spinal cord, the craniofacial area including the pharyngeal and branchial arches and the thymus, thyroid and parathyroid glands.

During mid-gestation, vitamin A is required for fetal lung development. In vitamin A-deficient animals, congenital malformations in the urogenital system occur.

Most interesting is new research on the effect of vitamin A on kidney development. Vitamin A deficiency results in a reduced number of nephrons in the kidney. Lower numbers of nephrons mean the kidneys will not work at optimal levels and may doom the individual to dialysis later in life.<sup>2</sup>

Another fascinating avenue of research has shown that vitamin A holds the key to what scientists call the “holy grail” puzzle of developmental biology: the existence of a mechanism that ensures that the exterior of our bodies is symmetrical while the inner organs are arranged asymmetrically. Researchers at the Salk Institute have found that vitamin A provides the signal that buffers the influences of asymmetric cues in the early stages of development, and allows these cells to develop symmetrically. In the absence of vitamin A, the exterior of our bodies would develop asymmetrically, with the result being that our right side would be shorter than the left side.<sup>3</sup>

After the formation of all the organ systems, vitamin A supports their growth. Chronic vitamin A deficiency during pregnancy compromises the liver, heart and kidney and impairs lung growth and development during the last weeks of gestation.<sup>4</sup>

Unfortunately, FDA and other agencies warn pregnant women to avoid foods like liver and cod liver oil, claiming that too much vitamin A from these foods can cause birth defects. The study usually cited in support of these warnings was carried out in 1995 at the Boston University School of Medicine and published in the *New England Journal of Medicine*.<sup>5</sup> In the study, researchers asked over 22,000 women to respond

(Continued on page 53)

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# Doctor's Corner

## TREATING FEVERS IN CHILDREN

By Tom Cowan, MD

Some pediatricians and oncologists have postulated the modern epidemic of cancer in children as the predictable outcome of our mania for preventing fever in our children.

There is a curious phenomenon that goes on in science: as we study the physical world, inevitably we uncover facts that contradict old assumptions. As scientists are seekers after the truth wherever it may be found, one would expect that they would quickly revise or even discard old, unproven theories when new facts and discoveries emerge. In fact, in many cases just the opposite occurs; “the scientific community” often circles the wagons and protects its pet theories.

Consider, for example, the pyramids of Egypt. The current “scientific” theory holds that modern civilization has reached the pinnacle of engineering achievement. However, recently discovered facts about the Great Pyramid of Giza reveal that somehow, someone lifted precision cut granite “bricks” weighing over 70 tons each over 150 feet in the air and then precisely fitted them into a complex geometrically engineered structure, an achievement which we can’t even begin to match in 2005.

Or how about the fact that modern scientists maintain the theory that the DNA contains separate genes, each of which codes a distinct protein. One DNA sequence, one protein; that is the central dogma of genetics. However, with the completion of the human genome project we learned that humans have about 200,000 or more proteins, and only about 30,000 genes. The central dogma is flawed, in fact the proteins rearrange the DNA sequences to “code” for what “they” want, a phenomenon that has been shown in many studies. Unfortunately, we still teach the old “truths,” ignoring the contradictory facts.

In discussing how to treat children who are sick, we encounter a number of discoveries contradict which our current view of infectious illness. Our current view of infectious illness in children is that these episodes are caused by unseen viruses and bacteria that invade us,

overwhelm our immune systems, and should be prevented, avoided, or gotten rid of as quickly and as aggressively as possible. In other words, our philosophy of illness pretends that these episodes of sickness are more or less unrelated chance episodes and there is no good outcome from being sick.

### THE PURPOSE OF FEVER

The facts, however, tell a different story. For example, all the pediatric textbooks tell us that a child who has nephrotic syndrome, a disease in which the kidneys begin to leak out protein, will most likely be cured if he simultaneously contracts measles. In fact, measles is the only known cure for nephrotic syndrome, which is otherwise treated with the misery of long-term prednisone. Interestingly, giving a measles vaccine doesn’t work, it doesn’t cure nephrotic syndrome.

Those who have read my book *The Fourfold Path to Healing* know that the whole history of the treatment of cancer is intimately related to the phenomenon of infectious disease. There are numerous recorded cases of cancers going into remission when the patient contracts an infectious disease, strep being the most likely candidate to cure the patient of cancer. Strep has been used in cancer vaccines, most particularly by the surgeon John Coley, MD who reported an almost 40 percent remission rate in patients with cancer who received his cancer vaccine. In modern oncology, the tuberculosis bacillus is still used in bladder cancer as it is injected into the bladders of those with this form of cancer. In fact, some pediatricians and oncologists have postulated the modern epidemic of cancer in children as the predictable outcome of our mania for preventing fever in our children, by giving them aspirin, tylenol and anti-biotics.

Clearly, there is more to the story of infec-

tions than just bad luck, something to be got rid of at all costs. Let's look deeper into this story. When a child becomes sick with a fever, a number of processes are activated in his body, processes that we can see and experience without the use of special insight or fancy instruments. First, there is increased warmth, both locally (at the site of the "infection," such as the tonsils) and systemically. This systemic response is measured by the elevated temperature on the thermometer. Second, there is pain, again both locally and sometimes body aches that are felt everywhere. Third, there is swelling. Finally, there is redness. The last two are mainly at the site of the infections, but to a certain extent we see the child's whole face becoming slightly more red and even a bit swollen. Pathology textbooks identify these changes as the four cardinal signs of inflammation.

In *Fourfold* I discuss the theory that we actually have four "bodies," each of which participates in every inflammation and each of which is activated when we are sick. The physical or earth body becomes red, the fluid or etheric body takes on more fluid which we call swelling, the emotional body or astral body experiences a heightened sense of feeling, which we call pain, and the warmth body or mental body gets involved and raises our temperature. This activation of the four bodies is particularly acute in children because the whole process of being a child is to grow into and reshape our bodies to "fit" our individual purpose in life.

Another way to put this is that when a child encounters an impediment, say a foreign protein or an organ that is not being formed quite right, he goes into "remodeling mode." The remodeling is done by tearing down the old, misshapen matter, taking it out to the dumpster, and then rebuilding a more suitable house to inhabit. This is exactly what is done through illness. Take measles: the temperature goes up to 104, the eyes water, the nose runs, the lungs cough up mucus, the kidneys excrete extra broken down proteins, the bowels are loose and the child aches all over. These symptoms herald the construction of a newer, healthier body, one that is more individualized to the dynamics of the child. This is a profoundly healing and spiritual process, and like everything of such gravity, it has its risks and dangers. The

risk of a snake shedding its skin, of a caterpillar transforming into a butterfly, of striving to do something that has never been done before, is that you can fail and fall into the abyss. Not trying, however, is even worse. Our job as parents and doctors is to help the child cross the bridge of illness with our loving, caring, intelligent guidance as we experience the natural processes that are at work as our children struggle with their illnesses.

#### THE PARENTS' ATTITUDE

In my twenty plus years as a doctor, the most important thing I have observed in determining the outcome of a child's illness is the attitude of the parents. If the parents have a deep belief that their child is strong and that the illness, if it doesn't become too severe, will serve the child in his future development, their attitude of resolve and confidence will translate into an environment of peacefulness and effectiveness that truly allows the child to rest and to comfortably go through the process. The child must know that the parents are watching for any indication that the illness is becoming too strong and requires more help; the child must know that he can relax and that everything will be okay.

#### STAY WARM

First and foremost, a child with a fever must stay in bed or in a comfortable, relaxed place. To encourage the elimination through the kidneys, he should take warm liquids as often as possible. The child should be kept warm as the fever needs to do its job and be allowed to "burn out" the illness. The bowels should be kept open if need be with a gentle laxative or herbs that encourage bowel movements.

A sick child can listen to stories read out loud, but otherwise the only other appropriate activity is rest. The less mental stimulation in the form of computer games, movies, etc., the better. Illness is a serious and energy-consuming task; there is no room for anything else in their lives, only rest and recovery. If parents followed just this simple advice, nothing to bring down the fever, just warmth, calm resolve, careful observation, lots of fluids, keeping the bowels open, and rest, we would have far fewer problems with chronic disease than we have now.

In my twenty plus years as a doctor, the most important thing I have observed in determining the outcome of a child's illness is the attitude of the parents.

## REMEDIES

There are also other interventions that we can use that work with the processes I just described. The first is an anthroposophical medicine called Erysidoron 1. This medicine which is made from the honeybee (*Apis*) and the plant *Atropa belladonna* (deadly nightshade) works with the four bodies that are involved with inflammation. The whole activity of the bees speaks of its relationship to warmth and physical structure. It is said that the temperature in the center of a naturally made beehive is exactly 98.6 degrees, the same as the healthy human temperature. The hive, which encases this warmth, is made of perfect hexagonal crystals. It is as though the bees are saying to us, “We are the picture in nature of the perfect relationship to warmth encased in the perfect physical structure. You, my friend, are struggling to find this relationship, I will help you find the way.”

Belladonna is a plant that lives in the damp, dark swampy undergrowth, and out of this fluid realm it develops a poison that makes us wake up. It was given the name belladonna because women used it to instill an extract of the berries into their eyes to cause their pupils to dilate, which was considered a sign of beauty, hence *bella* (beautiful) *donna* (lady). The poison literally wakes us up, opens our eyes, and makes our emotions and feelings more acute. Belladonna treats the emotional body struggling with the damp, fluid realm of the swamp to bring a resolution of all that swelling, mucus, pus and other wateriness that is the hallmark of so many childhood illnesses. This medicine is given in the dose of 5 to 10 drops every 2 hours in the case of a fever and serves as our basic aid to guide the child through the illness.

Remember that the common thread in treating any inflammatory illness is to help the child work off the infection. Just as in a compost pile, or a pond that has had some garbage or pollution dumped into it, an infection is nature’s way of digesting unwanted debris. If you put the wrong stuff in a compost pile, it will get an “infection” as the new, probably more powerful bacteria try to digest this unwanted stuff. Similarly, a polluted pond will produce algae growth to digest the pollution. We call the algae an “infection” but it is really a kind of digestive process. In the child with a fever, the white blood cells do the internal digestion, helped along with the fever. Our task is mainly to keep the elimination channels—sweat glands, kidneys and the bowel—open to allow the body to efficiently remove digested debris. When this goes wrong, the child becomes “congested” and ends up with more serious infections, even pneumonia.

We can help prevent an “infection” getting out of hand by increasing elimination. The first step is to increase the sweating, a major avenue our bodies use in eliminating any debris. In former times, sweating herbs such as peppermint, yarrow and elder flower teas were given to all sick children as these diaphoretic (sweat inducing) herbs help the child to “sweat it out.” We all know that many illnesses are gone the morning after a good sweat. These herbs should be given in hot water as the warmth further encourages the sweating process. We also know that the elder flower has its own anti-viral, immuno-stimulating effect while yarrow helps the liver detoxify poisons and peppermint soothes the GI tract. These herbs and other diaphoretics are found in the formulation called Diaco by Mediherb, which is given at the dose of 1/8 to 1 teaspoon every 2-4 hours to encourage sweating.

The next herbal combination I give to most sick children is *Andrographis comp*, a mixture of *Andrographis*, *Echinacea angustifolia* root, and Holy Basil. (If they can’t swallow tablets, I use plain *Echinacea* liquid.) *Andrographis comp* is *Andrographis*, otherwise known as “king of the bitters,” which helps activate a very important principle of natural medicine, that is to support what the body is already doing. We help the sweating along with warmth and herbs, we encourage elimination with gentle laxatives. *Andrographis* enhances the normal exit strategy of the body for poisons, which is to conjugate (make soluble) the poison in the liver and then excrete it through the bile. It is sort of like bagging garbage and then taking it out to the curb. Bitter herbs help stimulate the flow of bile, thereby making it easier to eliminate the poisons and the bacteria that our white blood cells have digested. This is why bitters are included in virtually every traditional herbal formula. All healing involves elimination and *Andrographis* is the king of this process. (It is also very bitter!)

*Echinacea* is an immune enhancer that helps our white blood cells recognize and move to the site of the infection. It should be used in virtually all infections at any site.

Holy Basil is known as an adaptogenic herb, that is, an herb that helps us adapt to stress, including the stress of an illness. Adaptogenic herbs work by increasing cortisol production, which has a mild anti-inflammatory effect, thereby keeping the inflammation from getting too intense. The dose of *Andrographis comp* is 1-2 tablets every 2 to 4 hours depending on the intensity of the illness. For those children who can’t swallow tablets it can be dissolved first in hot water and then disguised by honey or apple sauce. If this doesn’t work, use plain *Echinacea* possibly mixed with licorice root to sweeten it. My experience with treating children with nasty-tasting medicine is that when they need it, they will take it as long as the parents are convinced it is right. When they get better, they refuse to take any more, as if to say, “Now I don’t need the help, I’m OK on my own.” That is when I stop the medicine.

The other medicine I routinely give to sick children is *Congaplex* from Standard Process. This preparation is a mixture of natural, whole food sources of vitamin C, which helps the activ-

ity of the white blood cells. I also give thymus extract, as the thymus is the organ that makes T cells, which participate in overcoming infections. This preparation helps keep the illness brief as the thymus gland is responsible also for making the antibodies that are part of the recovery process. The dose here is 1-2 tablets every 2 hours for about 1 week, or until completely better.

The rest of the medicines that I use are specific to the site of the infection. There is Bronchafect for bronchitis/pneumonia, Urico for infections of the urinary tract, Apis/Levistecum for ear infections, and Euphrasia comp for throat and sinus infections. These herbs are available through Mediherb.

#### FOOD AND DRINK

Finally, a few notes on the diet for sick children. The food and drink should all be warm to hot, to encourage the warmth principle. During sickness, the protein content should be reduced because the waste that we are eliminating during illness is coming from the protein in our diets. However, fats encourage the healthy production of needed warmth. Fat transports vitamin A, the main nutrient needed to help our immune system. Healthy fats and soup broth should be the mainstays of our “sick” diet. Hot chicken soup, based

on homemade broth—the famous “Jewish penicillin”—with cooked vegetables and a bit of cream or coconut milk is perhaps the ideal sick meal. Generally sick children are not very hungry so the warmth and nourishment of frequent bowls of hot soups is the perfect diet for them. Smoothies made with egg yolks, fresh fruit and whole yoghurt, cream or coconut milk are another good choice, although they should not be served cold. Of course, children should be given 1/2 to 1 teaspoon high-vitamin cod liver oil at all times, but especially when they are sick. It can be mixed with a little water or fresh orange juice, or given with an eye dropper.

We started this exploration of the proper treatment of illness in childhood by examining the difficulty in changing some of the ways in which we think, or in today’s parlance, the paradigms in which we believe. In my view, there is perhaps no paradigm that is in such urgent need for revision as our approach to the illnesses of children. In our almost messianic quest to wipe out childhood disease—through vaccinations, antibiotics and fever-reducing drugs—we have produced a wasteland of children who are literally chronically sick and tired, spending lives feeling uncomfortable in their untransformed skins. It is as if we have prevented caterpillars from becoming butterflies because the time of immobility as a chrysalis can be dangerous. Well it is dangerous, at least a little, but it is more dangerous—in fact deadly—to never allow a child to fulfill his or her destiny and become a butterfly. We urgently need to respect the transformative power of illness, to pluck up our courage and not succumb to those who promise better health through injecting us with poisons, or harsh anti-life medicines that become less and less effective. And more than anything we need to believe in the healing powers of our children’s bodies, so we can give them the gift of confidence in their own strength as they embark on the challenges of adulthood. ☯☯

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(Fetal Development, continued from page 49)

to questionnaires about their eating habits and supplement intake before and during pregnancy. Researchers found that cranial-neural crest defects increased with increased dosages of vitamin A; but neural tube defects decreased with increased vitamin A consumption, and no trend was apparent with musculoskeletal, urogenital or other defects.

This study is a poor rack on which to hang the myriad warnings that have kept pregnant women from eating liver and taking cod liver oil. Researchers made no distinction between synthetic vitamin A derived from multivitamins and processed food like margarine, and natural vitamin A from food; nor did they take blood samples to determine vitamin A status. Food recall surveys are a notoriously inaccurate method of determining nutrient intake.

Subsequent studies found that high levels of vitamin A did not increase the risk of birth defects. A 1998 study from Switzerland looked at vitamin A in pregnant women and found that a dose of 30,000 IU per day resulted in blood levels that had no association with birth defects.<sup>6</sup>

A 1999 study carried out in Rome, Italy found no congenital malformations among 120 infants whose mothers consumed an average of 50,000

IU of vitamin A per day.<sup>7</sup> Some participants consumed up to 300,000 IU vitamin A daily during pregnancy with no birth defects in the offspring. An average of 50,000 IU vitamin A per day is consistent with our recommendation of cod liver oil to supply 20,000 IU per day plus additional vitamin A in liver, butter, seafood and egg yolks. ☯☯

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# All Thumbs Book Reviews



## *The Fluoride Deception* by Christopher Bryson Seven Stories Press

One of the attractions of exploring the Weston A. Price nutritional principles is the happy frenzy of touting butter's benefits to friends and family. There is a real joy in sharing kefir cultures, sauerkraut tricks and new soup recipes. Introducing loved ones to the idea that they (and their trusted doctors) have been duped by industry is a decidedly less agreeable aspect of our expanding awareness.

Fluoride's long history in America is confusing and emotional. Most people won't even question fluoride's role as a dental health aid. Enter Bryson's exposé, *The Fluoride Deception*, which reads like a mystery novel, and unflinchingly marches us through a scientific examination of fluoride's known and suspected toxicity over the past 80 years. The story is exciting, appalling, and at times simply incredible. It would be comforting to write off such a longstanding industry and government cover-up as a fanciful conspiracy. Yet, fully a third of the book is devoted to meticulously noted references to published, suppressed, and recently declassified documents.

With so many wonderful new book titles clamoring for our attention the question arises: why should I read a book so potentially depressing—or enraging—depending upon my constitution? The answer quite simply: knowledge is power. If it weren't, industry wouldn't have spent billions of dollars over the years shaping public opinion to convince us that fluoride is beneficial and even perhaps "essential." Bryson thoroughly documents the successful tactics of industry to withhold safety information from workers, to protect itself from litigation, to skew govern-

ment science, and to eventually change public opinion despite gruesome evidence of fluoride's toxicity.

Before the days of environmental awareness, factories simply spewed their pollutants directly into the surrounding air, water and soil. The industries essential to WWII created vast amounts of toxic, fluoridated byproducts. The Manhattan Project itself provided medical investigators with mounting evidence of fluoride's toxicity. Though patriotic farmers wouldn't sue for damages during WWII, after the war farmers tried to get some compensation for such problems as "something is burning up the peach crops around here, poultry died after an all-night thunderstorm, fields sometimes strewn with dead cattle, and workers who ate the produce vomited all night and into the next day." Some cows became so crippled by the wartime pollution that they "grazed by crawling on their bellies."

Workers in wartime industries were not protected from "gross violations of safety" so that most were exposed to dangerous levels of fluoride compounds. In fact, by the end of 1944, two DuPont employees had died from fluoride overdoses. The workers all knew these plants were causing severe health problems like fibrotic lungs and chemical burns, but it was all kept quiet officially. Industry was terrified that the workers would find out how dangerous their jobs really were.

Close to my home—where dentists are pushing hard for mandatory water fluoridation this year—one farming family sued Reynolds Metals in Portland, Oregon in the 1950s for the devastating health problems they experienced on their Troutdale ranch. Paul Martin's cattle were dying and decimated; they had badly mottled teeth, a clear sign of fluoride poisoning. His

Bryson presents many examples of shattered lives and shattered careers of those scientists who dared to speak honestly about the demonstrated hazards of ingesting fluoride in any form.



young daughter became sore from walking and her ankles clicked. The whole family suffered from “pains in their bones, serious digestive problems, bleeding gums, a fearful anxiety that kept them awake at night and a strange asthma-like exhaustion.” The cattle and the family had been in perfect health until they moved to their new home. Even their window was etched by toxic emissions from the nearby Reynolds Metals aluminum plant. The plant was belching almost 4,000 pounds of fluoride into the air daily. Daily!

Bryson presents many examples of shattered lives and shattered careers of those scientists who dared to speak honestly about the demonstrated hazards of ingesting fluoride in any form. But the most distressing aspect for me as a patriotic American is the collusion between our government, our major cold war era industries (aluminum and steel and atomic), and our military. Although Bryson documents the history of fluoride pollution in America going back to the World War II race to make the bomb, the consistent failure of our public agencies to protect the public, and especially industrial workers, even after the war, is astonishing.

To those familiar with EPA, FDA, US Public Health Service or CDC in other realms, it will come as no surprise that industry leaders were often put in charge of our government regulatory agencies. Our tax dollars funded the US Public Health Service as it officially exonerated industrial polluters while fighting against claims of agriculture and personal health damage made by US citizens.

Maybe some people could justify low level poisoning of people and environment if there were any proven benefits. Fluoridation, however, has failed to prevent dental crises in cities and states across America (and the globe). Many cities that have been adding fluoridation chemicals to their drinking water for decades have serious dental crises (Detroit, Boston, Cincinnati). According to the CDC, tooth decay is concentrated in low income populations who need access to dental care (not more fluoride). In fact, it has been shown that dental fluorosis, (tooth mottling and a sign of chronic low level over exposure to fluoride) actually makes the tooth more brittle, leading to yes, more cavities. Almost all Euro-

pean nations stopped the fluoridation experiment years ago and they have rates of decay no worse than ours. This stuff simply does not work to benefit anyone.

But don't say “uncle” yet; there are also important bright spots to highlight. As long as there have been shady cover-ups there have been beacons of truth. The history of the fluoride deception is also about the brave souls: doctors, scientists, citizen activists, reporters who investigate with an open mind and report the truth with open heart. It's an honor to join the ranks. Given the extreme nature of fluoride's toxicity, making the effort to avoid fluoride in your water, food and toothpaste may be no less important for the health of your family and the planet than buying and preparing real food.

There's another reason for hope. As fluoride is such a potent toxin, researchers have linked it to everything from cancer, arthritis, and asthma/emphysema to Alzheimer's, ADHD and lowered IQ. So if we make a concerted effort now to limit our fluoride exposure, it can only help reverse many of our worst public health nightmares. The relief for those suffering from these chronic illnesses will keep us educating for truth as long as necessary.

Even if you've been investigating water fluoridation for several years as I have, *The Fluoride Deception* packs a mighty wallop. If you're new to the topic, you may want to go slow. It can feel overwhelming. But the tide is turning. Those of us who know the hidden truth instead of the industry-serving propaganda are becoming the critical mass we need to make permanent change in our culture.

If you're drinking fluoridated water or giving your children fluoride in any form, read this book today. If your community is considering water fluoridation, buy a copy for every member of your city council. Hand it to them in person and look them in the eye while respectfully obtaining their promise to read at least the first chapter. After that they'll be hooked. ☺☺

Review by Claire Darling.

As fluoride is such a potent toxin, researchers have linked it to everything from cancer, arthritis, and asthma/emphysema to Alzheimer's, ADHD and lowered IQ.

# Food Feature

## NOURISHING A GROWING BABY

By Jen Allbritton, CN

Food is what nourishes the body and makes us healthy and strong—especially when one’s weight hovers around 20 pounds! Infant nutrition is critical for ensuring proper development, maximizing learning capacities and preventing illness. At no other time in life is nutrition so important. But which foods are best? The research clearly points in the direction of Weston A. Price Foundation principles.

### BREAST OR BOTTLE

Numerous studies support the benefits of breastfeeding. For example, breastfed babies tend to be more robust, intelligent and free of allergies and other complaints like intestinal difficulties.<sup>1</sup> Other studies have shown that breastfed infants have reduced rates of respiratory illnesses and ear infections.<sup>2,3</sup> Some researchers believe breastfed infants have greater academic potential than formula-fed infants, which is thought to be due to the fatty acid DHA found in mother’s milk and not in most US formulas.<sup>4</sup>

However, other studies show the opposite. In 2001, a study found breastfed children had more asthma than bottle-fed.<sup>5</sup> A Swedish study found that breastfed infants were just as likely to develop childhood ear infections<sup>6</sup> and childhood cancer as formula-fed babies.<sup>7</sup>

So, what is best for baby? It comes down to nutrition! Hands down, healthy breast milk is perfectly designed for baby’s physical and mental development, but this is only true when mom supplies her body with the right nutrients.

The typical modern diet is filled with products based on sugar, white flour, additives and commercial fats and oils, which do not nourish and build. The proper nutrients are necessary to create breast milk that will provide all a growing baby needs. These include good quality proteins from foods such as grass-fed meats and organ meats, good quality fats from butter, coconut oil,

olive oil, cod liver oil and egg yolks, as well as complex carbohydrate-rich foods like vegetables, whole grains and legumes—think whole food, natural and seasonal, with a big emphasis on healthy fat

Bottom line, in a perfect world, with perfect nutrition, every woman would breastfeed. Unfortunately, we don’t live in a perfect world. What about low milk supply, an unwell mother or adoption? Luckily, it is possible to make a wholesome whole food baby formula. (See page 19 in this issue.)

### AFTER (OR WITH)

#### THE BREAST OR BOTTLE

Ideally, breastfeeding should be maintained for a year, with a goal of six months for working mothers. The first year of life requires a full spectrum of nutrients, including fats, protein, cholesterol, carbohydrates, vitamins and minerals. Once breast milk is no longer the sole source of these nutrients, where should one go?

There are three concepts to keep in mind. First, make your little one a “whole foods baby”! Avoid processed and refined foods as much as possible, including many brands of baby food; they are usually devoid of nutrients and have added “undesirables.” It is always best to make your own baby food from organic, whole foods. (You can freeze it in one-serving sizes for later use.) Better-quality, additive-free, prepared brands of baby food, like Earth’s Best, do exist, but it is still better to make your own baby food to be assured of the quality—plus making baby food puts mom on the right track for home food preparation for the years to come.

Second, go slowly and be observant; every baby will have an individual response to different foods. Introduce new foods one at a time and continue to feed that same food for at least four days to rule out the possibility of a negative reaction.

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Signs of intolerance include redness around the mouth; abdominal bloating, gas and distention; irritability, fussiness, over-activity and awaking throughout the night; constipation and diarrhea; frequent regurgitation of foods; nasal and/or chest congestion; and red, chapped or inflamed eczema-like skin rash.<sup>8</sup>

Finally, respect the tiny, still-developing digestive system of your infant. Babies have limited enzyme production, which is necessary for the digestion of foods. In fact, it takes up to 28 months, just around the time when molar teeth are fully developed, for the big-gun carbohydrate enzymes (namely amylase) to fully kick into gear. Foods like cereals, grains and breads are very challenging for little ones to digest. Thus, these foods should be some of the last to be introduced. (One carbohydrate enzyme a baby's small intestine does produce is lactase, for the digestion of lactose in milk.<sup>1</sup>)

Foods introduced too early can cause digestive troubles and increase the likelihood of allergies (particularly to those foods introduced). The baby's immature digestive system allows large particles of food to be absorbed. If these particles reach the bloodstream, the immune system mounts a response that leads to an allergic reac-

tion. Six months is the typical age when solids should be introduced,<sup>9,10,11</sup> however, there are a few exceptions.

Babies do produce functional enzymes (pepsin and proteolytic enzymes) and digestive juices (hydrochloric acid in the stomach) that work on proteins and fats.<sup>12</sup> This makes perfect sense since the milk from a healthy mother has 50-60 percent of its energy as fat, which is critical for growth, energy and development.<sup>13</sup> In addition, the cholesterol in human milk supplies an infant with close to six times the amount most adults consume from food.<sup>13</sup> In some cultures, a new mother is encouraged to eat six to ten eggs a day and almost ten ounces of chicken and pork for at least a month after birth. This fat-rich diet ensures her breast milk will contain adequate healthy fats.<sup>14</sup>

Thus, a baby's earliest solid foods should be mostly animal foods since his digestive system, although immature, is better equipped to supply enzymes for digestion of fats and proteins rather than carbohydrates.<sup>1</sup> This explains why current research is pointing to meat (including nutrient-dense organ meat) as being a nourishing early weaning food.

#### IS CEREAL THE BEST FIRST FOOD?

Remember, the amount of breast milk and/or formula decreases when solid foods are introduced. This decrease may open the door for insufficiencies in a number of nutrients critical for baby's normal growth and development. The nutrients that are often in short supply when weaning begins include protein, zinc, iron and B-vitamins. One food group that has these nutrients in ample amounts is meat.

Unfortunately, cereal is the most often recommended early weaning food. A recent Swedish study suggests that when infants are given sub-

FOODS BY AGE			
4-6 Months	6-8 Months	8-12 Months	Over 1 Year
Minimal solid foods as tolerated by baby	<b>Organic liver</b> —grated frozen and added to egg yolk	Continue to add variety and increase thickness and lumpiness of the foods already given from 4-8 months	<b>Grains and legumes</b> —properly soaked and cooked
<b>Egg yolk</b> —if tolerated, preferably from pastured chickens, lightly boiled and salted	<b>Pureed meats</b> —lamb, turkey, beef, chicken, liver and fish	<b>Creamed vegetables soups</b>	<b>Crispy nut butters</b> —see recipes in Nourishing Traditions
<b>B a n a n a</b> —mashed, for babies who are very mature and seem hungry	<b>Soup broth</b> —(chicken, beef, lamb, fish) added to pureed meats and vegetables, or offered as a drink	<b>Homemade stews</b> —all ingredients cut small or mashed	<b>Leafy green vegetables</b> —cooked, with butter
<b>Cod liver oil</b> —1/4 teaspoon high vitamin or 1/2 teaspoon regular, given with an eye dropper	<b>Fermented foods</b> —small amounts of yoghurt, kefir, sweet potato, taro, if desired	<b>Dairy</b> —cottage cheese, mild harder raw cheese, cream, custards	<b>Raw salad vegetables</b> —cucumbers, tomatoes, etc.
	<b>Raw mashed fruits</b> —banana, melon, mangoes, papaya, avocado	<b>Finger foods</b> —when baby can grab and adequately chew, such as lightly steamed veggie sticks, mild cheese, avocado chunks, pieces of banana	<b>Citrus fruit</b> —fresh, organic
	<b>Cooked, pureed fruits</b> —organic apricot, peaches, pears, apples, cherries, berries	<b>Cod liver oil</b> —increase to 1/2 teaspoon high vitamin or 1 teaspoon regular dose	<b>Whole egg</b> —cooked
	<b>Cooked vegetables</b> —zucchini, squash, sweet potato, carrots, beets, with butter or coconut oil		

stantial amounts of cereal, they may suffer from low concentrations of zinc and reduced calcium absorption.<sup>15</sup>

In the US, Dr. Nancy Krebs headed up a large infant growth study that found breastfed infants who received puréed or strained meat as a primary weaning food beginning at four to five months grew at a slightly faster rate. Krebs's study suggests that inadequate protein or zinc from common first foods may limit the growth of some breastfed infants during the weaning period. More importantly, both protein and zinc levels were consistently higher in the diets of the infants who received meat.<sup>16</sup> Thus, the custom of providing large amounts of cereals and excluding meats before seven months of age may short-change the nutritional requirements of the infant.<sup>17</sup>

Meat is also an excellent source of iron. Heme iron (the form of iron found in meat) is better absorbed than iron from plant sources (non-heme). Additionally, the protein in meat helps the baby more easily absorb iron from other foods.<sup>18</sup> Two recent studies<sup>19,20</sup> have examined iron status in breastfed infants who received meat earlier in the weaning period. While researchers found no measurable change in breastfed babies' iron stores when they received an increased amount of meat, the levels of hemoglobin (iron-containing cells) circulating in the bloodstream did increase. Meat also contains a much greater amount of zinc than cereals, which means more is absorbed.<sup>21</sup> These studies confirm the practices of traditional peoples, who gave meat—usually liver—as the first weaning food. Furthermore, the incidence of allergic reactions to meat is minimal and lower still when puréed varieties are used.<sup>17,22,23,24</sup>

## DON'T FEAR FATS!

Pediatric clinicians have known for some time that children fed low-fat and low-cholesterol diets fail to grow properly. After all, a majority of mother's milk is fat, much of it saturated fat. Children need high levels of fat throughout growth and development. Milk and animal fats give energy and also help children build muscle and bone.<sup>1</sup> In addition, the animal fats provide vitamins A and D necessary for protein and mineral assimilation, normal growth and hormone production.<sup>27</sup>

Choose a variety of foods so your child gets a range of fats, but emphasize stable saturated fats, found in butter, meat and coconut oil, and monounsaturated fats, found in avocados and olive oil.

## FOODS TO INTRODUCE

Egg yolks, rich in choline, cholesterol and other brain-nourishing substances, can be added to your baby's diet as early as four months,<sup>1</sup> as long as baby takes it easily. (If baby reacts poorly to egg yolk at that age, discontinue and try again one month later.) Cholesterol is vital for the insulation of the nerves in the brain and the entire central nervous system. It helps with fat digestion by increasing the formation of bile acids and is necessary for the production of many hormones. Since the brain is so dependent on cholesterol, it is especially vital during this time when brain growth is in hyper-speed.<sup>25</sup> Choline is another critical nutrient for brain development. The traditional practice of feeding egg yolks early is confirmed by current research. A study published in the June 2002 issue of the *American Journal of Clinical Nutrition* compared the nutritional effects of feeding weaning infants 6-12 months of age regular egg yolks, enriched egg yolks, and an otherwise normal diet. The researchers found that both breastfed and formula-fed infants who consumed the egg yolks had improved iron levels when compared with the infants who did not. In addition, those infants who got the egg yolks enriched with extra fatty acids had 30 percent to 40 percent greater DHA levels than those fed regular egg yolks. No significant effect on blood cholesterol levels was seen.<sup>26</sup>

Thus, the best choice for baby is yolks from pasture-fed hens raised on flax meal, fish meal, or insects since they will contain higher levels of DHA. Why just the yolk? The white is the part that most often causes allergic reactions, so don't give egg whites until after your child turns one.<sup>1,11</sup>

## FOODS TO AVOID<sup>28</sup>

**UP TO 6 MONTHS:** Certain foods, such as spinach, celery, lettuce, radishes, beets, turnips and collard greens, may contain excessive nitrate, which can be converted into nitrite (an undesirable substance) in the stomach. Leafy green vegetables are best avoided until 1 year. When cooking vegetables that may contain these substances, do not use the water they were cooked in to purée.

**UP TO 9 MONTHS:** Citrus and tomato, which are common allergens.

**UP TO 1 YEAR:** Because infants do not produce strong enough stomach acid to deactivate potential spores, infants should refrain from eating honey.<sup>1</sup> Use blackstrap molasses, which is high in iron and calcium. Egg whites should also be avoided up to one year due to their high allergenic potential.

**ALWAYS:** Commercial dairy products (especially ultra-pasteurized), modern soy foods, margarines and shortening, fruit juices, reduced-fat or low-fat foods, extruded grains and all processed foods.



Don't neglect to put a pinch of salt on the egg yolk. While many books warn against giving salt to babies, salt is actually critical for digestion as well as for brain development. Use unrefined salt to supply a variety of trace minerals.

Around four months is a good time to start offering cod liver oil, which is an excellent source of the omega-3 fatty acids DHA and EPA (also important for brain development) as well as vitamins A and D. Start with a 1/4 teaspoon of high-vitamin cod liver oil or 1/2 teaspoon regular dose cod liver oil, doubling the amount at 8 months.<sup>12</sup> Use an eye dropper at first; later baby can take cod liver oil mixed with a little water or fresh orange juice.

If baby is very mature and seems hungry, he may be given mashed banana during this period. Ripe banana is a great food for babies because it contains amylase enzymes to digest carbohydrates.<sup>1</sup>

#### AT SIX MONTHS

Puréed meats can be given at six months (or even earlier if baby is very mature). Meats will help ensure adequate intake of iron, zinc, and protein with the decrease in breast milk and formula.<sup>17</sup>

A variety of fruits can be introduced at this time. Avocado, melon, mangoes and papaya can be mashed and given raw. High-pectin fruits such as peaches, apricots, apples, pears, cherries and berries should be cooked to break down the pectin, which can be very irritating to the digestive tract.

As time goes by, move up in complexity

with food and texture. At about six to eight months, vegetables may be introduced, one at a time so that any adverse reactions may be observed. Carrots, sweet potatoes and beets are excellent first choices. All vegetables should be cooked (steamed preferably), mashed and mixed with a liberal amount of fat, such as butter or coconut oil, to provide nutrients to aid in digestion.

Early introduction to different tastes is always a good plan to prevent finickiness. Feed your little one a touch of buttermilk, yogurt or kefir from time to time to familiarize them with the sour taste. Lacto-fermented roots, like sweet potato or taro, are another excellent food for babies to add at this time.<sup>1</sup>

#### AT EIGHT MONTHS

Baby can now consume a variety of foods including creamed vegetable soups, homemade stews and dairy foods such as cottage cheese, mild harder raw cheese, cream and custards. Hold off on grains until one year, with the possible exception of soaked and thoroughly cooked brown rice, which can be served earlier to babies who are very mature.

#### ONE YEAR

Grains, nuts and seeds should be the last food given to babies. This food category has the most potential for causing digestive disturbances or allergies. Babies do not produce the needed enzymes to handle cereals, especially gluten-containing grains like wheat, before the age of one year. Even then, it is a common traditional practice to soak grains in water and a little yogurt or buttermilk for up to 24 hours. This process jump-starts the enzymatic activity in the food and begins breaking down some of the harder-to-digest components.<sup>1</sup> The easiest grains to digest are those without gluten like brown rice. When grains are introduced, they should be soaked for at least 24 hours and cooked with plenty of water for a long time. This will make a slightly sour, very thin porridge that can be mixed with other foods.<sup>29</sup>

After one year, babies can be given nut butters made with crispy nuts (recipe in *Nourishing Traditions*), cooked leafy green vegetables, raw salad vegetables, citrus fruit and whole egg.

#### MAKING HOMEMADE BABY FOOD

Making homemade baby food may not be as easy as opening a can, but once you have organized a cook-and-freeze routine, it is a snap. This gives you the control over food choices and cooking methods, and allows you to avoid synthetic preservatives. With careful preparation, you will maximize the nutrient and enzyme content of your baby's food. This will make for easier digestion and better overall nutrition. One timesaving method is to cook and purée a selection of fruits, vegetables, and meats in adult quantities, and freeze them in glass custard dishes or porcelain ramekins, or just clumps on a baking sheet. These cubes can be placed in freezer bags, labeled and sealed, available for quick thawing and reheating. Thawing in the refrigerator is the most nutrient-saving method. Simply place a covered dish containing food cubes in the fridge; they will thaw in three to four hours. It only takes one to two hours at room temperature. When on the go, put the cubes in a glass container and add hot water or place the container in hot water to thaw.

Little attention is necessary to seasoning baby foods, but texture is important. Besides the basic taste, the smoothness or thickness of a food concerns baby most. To thin purées, use milk or formula. Puréed potatoes, winter squash, bananas, carrots, yogurt, nut or seed paste, and peas make great thickeners.

The only special equipment you need is a food processor, blender or a baby food mill and a simple metal collapsible steamer basket. Don't forget the unbreakable bowls, baby spoons, and bibs. Two-handed weighted cups for drinking lessons are also a must.



### EXTRA FEEDING BABY TID-BITS

- ♦ How do you know when it's time to add solids? Observe your baby's signs. When infants are ready for solids they start leaning forward at the sight of food and opening their mouths in a preparatory way. In addition, babies should be able to sit up and coordinate breathing with swallowing. Finally, infants will stop pushing their tongue out when a spoon or bit of food is placed in their mouth—a reflex common in infants that disappears at around four months of age.<sup>30</sup>
- ♦ Keep in mind, all babies are different and will not enjoy or tolerate the same foods or textures. Experiment by offering different foods with various textures. Remember, just because your baby doesn't like a food the first time it is introduced does not mean he will not like it the second time. Continue to offer the food, but never force.
- ♦ Baby's food should be lightly seasoned with unrefined salt, but there is no need to add additional seasonings, such as herbs and spices in the beginning. However by 10-12 months, your baby may enjoy a variety of natural seasonings.
- ♦ To increase variety, take a small portion of the same food you are preparing for the rest of the grown-up family (before seasoning), or leftovers, and purée it for baby (thin or thicken accordingly).
- ♦ To gradually make food lumpier, purée half of the food, roughly mash the other half and combine the two.
- ♦ Frozen finger foods are a great way to soothe a baby's teething pain
- ♦ Keep a selection of plain yogurt, cottage cheese, eggs, fresh fruit, and fresh or frozen vegetables handy to prepare almost instant natural baby food any time—even when vacationing or traveling.
- ♦ Organic foods have minimal toxicity, thus placing a smaller chemical burden on the body. This is particularly a benefit for our youngsters. They are more vulnerable to pesticide exposure because their organs and body systems are not fully developed and, in relation to body weight, they eat and drink more than adults. Furthermore, the presence of these chemicals in the environment leads to further contamination of our air, waterways and fields.
- ♦ There are different ideas concerning when to offer babies water. Many resources suggest giving water about the same time solids are introduced. This is often in combination with cup drinking or sippy-cup training. Keep in mind, breast milk and formula are providing the majority of nutrients in the first 6-9 months, so it is important not to allow a baby to get too full on water. When solids become a larger part of the diet, more liquid may be needed for hydration and digestion. Also, extreme heat, dehydration, vomiting, and fever may also indicate a need for extra water. Bottom line: follow your baby's cues. Always serve filtered water to your baby. You can add a pinch of unrefined salt to the water for minerals.
- ♦ Let baby eat with a silver spoon—the small amount of silver he will get from this really does help fight infection!

### JUST SAY NO

One important warning: do not give your child juice, which contains too much simple sugar and may ruin a child's appetite for the more nourishing food choices. Soy foods, margarine and shortening, and commercial dairy products (especially ultra-pasteurized) should also be avoided, as well as any products that are reduced-fat or low-fat.

By the way, baby fat is a good thing; babies need those extra folds for all the miraculous development their bodies are experiencing. Chubby babies grow up into slim, muscular adults.

Common sense prevails when looking at foods that best nourish infant's. A breastfeeding mother naturally produces the needed nutrition when she consumes the necessary nutrients. The composition of healthy breast milk gives us a blueprint for an infant's needs from there on out.

Finally, be an example. Although you won't be able to control what goes into your child's

mouth forever, you can set the example by your own excellent food choices and vibrant health.

### EGG YOLK (4 months +)

Boil an egg for three to four minutes (longer at higher altitudes), peel away the shell, discard the white and mash up yolk with a little unrefined sea salt. (The yolk should be soft and warm, not runny.) Small amounts of grated, raw organic liver (which has been frozen 14 days) may be added to the egg yolk after 6 months. Some mothers report their babies actually prefer the yolk with the liver. From *Nourishing Traditions* by Sally Fallon.

### PUREED MEATS (6 months +)

Cook meat gently in filtered water or homemade stock until completely tender, or use meat from stews, etc., that you have made for your family. Make sure the cooked meat is cold and is in no bigger than 1-2 inch chunks when you puree. Grind up the meat first until it's almost like a clumpy powder. Then add water, formula or breast milk, or the natural cooking juices as the liquid.

### BABY PATE (6 months +)

Place 1/4 pound organic chicken livers and 1/4 cup broth or filtered

water in a saucepan, bring to a boil and reduce heat. Simmer for eight minutes. Pour into a blender (liver and liquid) with 1-2 teaspoons butter and a pinch of seasalt and blend to desired consistency.

#### VEGETABLE PUREE (6 months +)

Use squash, sweet potatoes, parsnips, rutabagas, carrots or beets. Cut vegetables in half, scoop out seeds from squash and bake in a 400 degree oven for about an hour, or steam them (in the case of carrots and beets) for 20 to 25 minutes. Mix in butter when puréeing. You can cook these vegetables for your own dinner and purée a small portion in a blender or food mill for your baby. From *Natural Baby Care* by Mindy Pennybacker.

#### FRUIT SAUCE (6 months +)

Use fresh or frozen peaches, nectarines, apples, blueberries, cherries, pears, berries or a combination. Note: Whenever possible, use organic fruit, and peel the fruit if it is not organic. Cut fruit and put in a saucepan with 1 cup filtered water for every 1/2 cup of fruit. Bring to a boil; reduce to a simmer about 15 minutes or until the fruit is cooked. Purée the mixture in a

blender or food mill and strain if necessary. Don't add sugar or spices but you can stir in a little butter or cream. From *Natural Baby Care* by Mindy Pennybacker.

#### DRIED APRICOT PUREE (6 months +)

Bring 2 cups filtered water to a boil with 1 pound unsulphured dried apricots and simmer for 15 minutes. Reserve any leftover liquid to use for the puree. Puree, adding the reserved liquid as necessary to achieve a smooth, thin puree. May be blended with some butter.

#### FERMENTED SWEET POTATO (6 months +)

Poke a few holes in 2 pounds sweet potatoes and bake in an oven at 300 degrees for about 2 hours or until soft. Peel and mash with 2 teaspoons seasalt and 4 tablespoons whey. Place in a bowl, cover, and leave at room temperature for 24 hours. Place in an airtight container and store in the refrigerator. From *Nourishing Traditions* by Sally Fallon.

#### BABY CUSTARD (6 months +)

Mix 1 cup raw milk or whole coconut milk, 1 cup raw cream, 6 egg yolks, 1/2 teaspoon vanilla and a pinch of stevia powder. Pour into buttered ramekin dishes. Place ramekins into a Pyrex dish filled part-way with water. Preheat oven to 310 degrees and cook for about 1 hour.

#### SMOOTHIE FOR BABY (8 months +)

Blend 1 cup whole yoghurt with 1/2 banana or 1/2 cup puréed fruit, 1 raw egg yolk (from an organic or pastured chicken) and a pinch of stevia.

### HOW MUCH AT EACH MEAL?

With the rough outline below, one food portion is equal to approximately one tablespoon, depending on the type of ice cube or other food trays you may be using for freezing baby food. Start out slowly. Prepare a teaspoon-sized portion of whatever food you have chosen to begin with. Your baby will most likely only eat half of that small portion for the first few attempts with solids. Ultimately, baby will tell you how much he should eat. Your main concern should be making what he does eat as nutritious as possible. As your baby becomes accustomed to eating solids, you can gradually increase the portion size. Once you have ruled out sensitivities/allergies to different foods, be sure to rotate the acceptable foods in the diet—meaning, try to avoid having the same food day in and day out. The following are guidelines for 6-8 months:

- ♦ Breakfast: Breast milk or formula, 1 egg yolk, 1 cube meat, 1-2 tablespoons cottage cheese or smoothie
- ♦ Lunch: Breast milk or formula, mashed banana or 1 cube fruit or vegetable
- ♦ Snack/Dinner: Breast milk or formula and 1 cube of meat, 1-2 tablespoons fermented taro or sweet potato

Portions increase for 8-10 months:

- ♦ Breakfast: Breast milk or formula, 1 egg yolk, 1-2 cubes fruit or vegetable, and 1 cube meat
- ♦ Lunch: Breast milk or formula, 1-2 cubes meat, 1-3 cubes vegetable, optional dairy such as yogurt or cheese
- ♦ Dinner: Breast milk or formula, 2 cubes meat, 1-3 cubes fruit and vegetables, yogurt or cheese
- ♦ Snacks: Finger foods or smoothie

Remember, not all babies will be eating the same amounts or foods. This portion outline is just an example. Some infants are not ready to eat 3 "meals" per day until well into the 9-10 month range. You should use the above information

## COCONUT FISH PATE (8 months +)

Place 1 cup leftover cooked fish, 1/4 teaspoon seasalt, 1/4 teaspoon fresh lime juice in a food processor and process with a few pulses. Add 1/2-1 cup coconut cream or whole coconut milk to obtain desired consistency.


## CEREAL GRUEL FOR BABY (1 year +)

Mix 1/2 cup freshly ground organic flour of spelt, kamut, rye, barley or oats with 2 cups warm filtered water mixture plus 2 tablespoons yoghurt, kefir or buttermilk. Cover and leave at room temperature for 12 to 24 hours. Bring to a boil, stirring frequently. Add 1/4 teaspoon salt, reduce heat and simmer, stirring occasionally, about 10 minutes. Let cool slightly and serve with cream or butter and small amount of a natural sweetener. From *Nourishing Traditions*.

## SALMON AND RICE MOUSSE (1 year +)

Heat 2 cups chicken broth to a slow boil and add 1/4 cup soaked brown rice. Lower the heat, cover tightly, and let cook for 30 minutes or until it is almost done. Wash 3 ounces salmon thoroughly and remove all bones carefully. Add the salmon to the rice, cover, and let it poach for 10 minutes or until done all the way through. Allow the salmon and rice to cool enough that it can be puréed safely in the blender or food processor. If it is too thick, add just enough water to obtain the consistency you want. Season with a little seasalt. Serve with a puréed vegetable. From *The Crazy Makers* by Carol Simontacchi.

## CRISPY NUT BUTTER (1 year +)

Purée equal amounts of crispy nuts, raw honey and coconut oil. Add salt to taste. Serve at room temperature. 

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NOT A GOOD IDEA FOR BABIES! (OR THEIR PARENTS OR BROTHERS AND SISTERS EITHER!)

ALMOND BREEZE VANILLA (ALMOND MILK): Purified water, evaporated cane juice, almonds, tricalcium phosphate, natural vanilla flavor and other natural flavors, sea salt, potassium citrate, carrageenan, soy lecithin, d-alpha tocopherol (natural vitamin E), vitamin A palmitate, vitamin D2.

RICE DREAM "HEARTWISE" RICE DRINK ORIGINAL: Filtered water, brown rice (partially milled), gum arabic, expeller pressed high oleic safflower oil, tricalcium phosphate, Corowise™ phytosterol esters, sea salt, vitamin A palmitate, vitamin D2, vitamin B12.

365 ORGANIC RICE MILK VANILLA: Filtered water, partially milled organic rice, organic expeller pressed canola oil, tricalcium phosphate, natural vanilla flavor with other natural flavors, sea salt, carrageenan, vitamin A palmitate, vitamin D.

# Gut And Psychology Syndrome

## The GAPS in our Medical Knowledge

By Natasha Campbell-McBride, MD

Natasha Campbell-McBride is a physician trained in Russia with a private practice in the UK. She is the author of *Gut And Psychology Syndrome: Natural Treatment for Autism, Dyspraxia, ADD, Dyslexia, ADHD, Depression and Schizophrenia.*

**F**ifteen or twenty years ago, the majority of doctors never saw an autistic child. It was a rare disorder that most people had never heard of, afflicting about one child in 10,000. Today, on average in this country, one child in 150 is diagnosed with autism. With a 40-fold increase in newly diagnosed cases of autism, we have an absolute epidemic.

Autism is a devastating disorder. It not only ruins the life of the child, it ruins the life of the family. The siblings have to carry this cross for the rest of their lives and the parents and grandparents do also.

Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD) is another epidemic. One child in three in every classroom in this country, in Britain, in Australia and in Canada and many other countries is diagnosed with this condition.

If there is a hyperactive child in the classroom, about 80 percent of the teacher's time is spent on that child, meaning the rest of the class is losing out dramatically. These children are disruptive and fidgety; their attention span is short and their memory is poor. Teaching a child like that is very difficult.



Autistic children are unable to function in society, to play sports, to make friends, to fit in.

We also have an epidemic of dyslexia and dyspraxia. Dyslexia is defined as a disorder when the child cannot read or write properly. However, when you start examining a dyslexic child, you find that there is much more to dyslexia than just reading and writing. These children are socially clumsy: they find it very difficult to fit into society, to make friends and to be adequate in various social situations. About 50 percent of children with dyslexia are also dyspraxic. Dyspraxia can be described as a physical clumsiness—poor gross motor skills and fine motor skills. These children are poor at sports: many of them take a long time to learn to catch a ball or to peddle a bike.

When you start looking at the children with so-called mental disorders, you find that they are physically ill. The majority of them suffer from allergies to foods, chemicals, animals, pollen, dust—to anything in the environment. They suffer from digestive disorders, asthma and eczema, frequent ear infections and chest infections. They cannot digest and absorb their food properly and have severe nutritional deficiencies. As a result they are unable to learn, unable to function in society, to play sports, to make friends, to fit in.

#### GAPS IN MEDICAL KNOWLEDGE

To understand what is going on, let me introduce you to the Gut And Psychology Syn-

drome or GAP Syndrome. These children fall into the gap in our medical knowledge. They don't receive the correct treatment because the medical profession is not aware of what exactly causes these conditions or what to do with them. The diagnostic labels of ADD, ADHD, autism, dyslexia and dyspraxia are created on a purely descriptive basis; we take a bunch of symptoms, which we describe in the child, we put them in one box and we call it autism. We take another bunch of symptoms and put it in another box and call it ADHD, and so on. In a clinical setting, however, no child fits neatly into any diagnostic box because all these conditions overlap. So now doctors talk about a continuum of disorders. What this means is that we in the medical practice are missing an underlying disorder that causes all these conditions. Having worked with these children for many years, I have named this underlying disorder Gut And Psychology Syndrome.

The trouble with our medicine is that most of our doctors are specialized. We have cardiologists, neurologists, gastroenterologists, all sorts of "ologists" who only look into their particular area and don't examine the whole patient. Have you ever met a psychiatrist or a neurologist who looked at your digestive system?

Yet I have never met an adult or child with so-called mental conditions who did not have digestive problems. In some cases they are so severe that this is the problem the patients start

#### THE GAPS ADULT

When children with autism and attention deficit problems grow up, unless something seriously is done to help them, they become GAPS adults—the symptoms don't go away. Substance abuse is very common among these children when they grow up, because they have got serious physical, biochemical and physiological reasons for it. They also have psychological reasons: throughout their childhood they were told by their peers they were stupid. They found it difficult to make friends and to fit into any social environment. They saw that they were not doing well academically compared to other children so their self-worth took a battering. When they come to the teenage years, they would do anything to be accepted, to be invited to the parties, to have friends, and substance abuse is usually one of the avenues they take.

One tragic outcome for these children is that they may react unusually to cannabis (marijuana). I'm sure you all have heard that cannabis can trigger the first episode of schizophrenia. The British government made a mistake a few years ago when it classified cannabis as a less dangerous substance, making it far more available to our teenagers. Now all the psychiatrists are up in arms, reporting on television and in the newspapers and peer reviewed journals about a surge in newly diagnosed cases of schizophrenia in teenagers after smoking cannabis. I'm sure you know lots of teenagers who smoke cannabis at every party and don't become schizophrenic. The children who fall into psychosis after smoking cannabis are GAPS children. They have a predisposition to this condition and cannabis triggers it.

Other psychiatric conditions, such as endogenous depression, obsessive-compulsive disorder, manic-depression or bipolar disorder, and the already mentioned schizophrenia, are typically GAPS conditions. Patients with these conditions do very well on the GAPS nutritional program. These conditions can be curable; in most cases they are caused by our environment and our diet.



talking about first. When parents bring me an autistic child, quite often the first thing they talk about is profuse diarrhea, bloating, reflux, severe constipation, or some other digestive problem.

In a portion of patients the digestive problems are not so severe, not so pronounced, but when you start asking direct questions you find the patient has got a digestive disorder or has suffered from a digestive disorder sometime in his or her life.

Allergies are universally present among these patients, and eczema is extremely common among the infants and babies. Asthma and eczema are two sides of the same coin because they stem from a particular underlying problem in the immune system. If asthma flares up, eczema gets a little bit better; if eczema flares up, then the asthma gets a little bit better.

Malnutrition is also universally present among GAPS patients. The majority of these children and adults look malnourished, pale and pasty. A lot of the children look like those African children—very skinny with those bulging tummies. Some of them may look well-nourished or even be overweight but when we test for nutritional deficiencies, we find they are deficient in the most vital nutrients, in amino acids, essential fats, minerals and vitamins.

#### BED-WETTING AND THRUSH

Bed-wetting, thrush and chronic cystitis are universally present in GAPS children and adults. These three conditions are connected with each other because the core of GAPS is abnormality in the gut flora. Abnormal gut flora produces a lot of toxins and when these toxins are absorbed into the blood stream, the body has to get rid of them somehow. One of the main venues for getting rid of these toxins is our urine.

When this toxic urine comes into the bladder, it irritates and causes a chronic underlying inflammation in the mucous membranes of the bladder and urethra. As a result, the urge is quite strong to go and empty frequently. GAPS adults have to get up a few times during the night to go and relieve themselves and GAPS children are the ones who wet themselves. If the child is in a deep sleep and this toxic urine accumulates in the bladder, which is already inflamed and sensitive and sore, the bladder wants to get rid of the urine.

So the child doesn't wake up, but just wets the bed.

An adult with this condition might be diagnosed with chronic interstitial cystitis. Or, the doctor might do a urine analysis, find no infection and tell the patient there is nothing wrong with her. As the doctors do not recognize the condition, in many patients the problem is pronounced to be psychosomatic.

Thrush is an overgrowth of yeast in the groin area, the vagina and around the sexual organs. A lot of small children suffer from this condition. Their hand is always there scratching, and the area is red and sore. The condition is caused by the lack of normal flora in that area. There are trillions of bacteria living in the groin area and they have to be the right kind of bacteria. If that area is populated by beneficial flora, it will not allow anything else to grow there, including yeast, which causes thrush. These children do not have good beneficial bacteria in the groin area so anything that comes along grows there. As a result they have severe nappy rashes. Girls have red itchy vulvas and boys end up needing circumcision.

When these children become adults they may suffer from chronic cystitis and chronic thrush regardless of how many local preparations they use. These remedies may clear the yeast temporarily but because the beneficial flora is not there, the yeast will come back.

#### ALL DISEASES BEGIN IN THE GUT

“All diseases begin in the gut.” This is a wonderful phrase coined by Hippocrates more than two thousand years ago and the more we learn, the more we realize just how right he was. Every disease begins in the gut and we have to look at the digestive system when we try to treat any degenerative disease no matter how unrelated it may seem to to the condition.

About 70 percent of the children in my clinic have severe digestive problems. In babies, this manifests as colic—a condition considered nearly “normal” by the health officials simply because the majority of our babies have colic. These babies have abnormal gut flora leading to an overproduction of gases in the digestive tract. As a bubble of gas accumulates in a particular part of the baby's digestive tract, it stretches the

I have never met an adult or child with these so-called mental conditions who did not have digestive problems.

Colic is the result of abnormal gut flora and should serve as an alarm bell for parents to take serious steps to normalize the gut flora in the baby.

gut wall and at the same time the abnormal flora causes inflammation in the gut wall, so the gut wall is sore. Stretching by gas bubbles creates pain so the baby cries until that gas dissipates or moves on to some other area of the digestive system. That is why a lot of moms say that when they put their baby on the tummy or stroke the tummy gently clockwise, the colic stops and the baby stops crying.

Colic is the result of abnormal gut flora in the baby and it should serve as an alarm bell for parents to take serious steps to normalize the gut flora in the baby—because the problems that might develop down the line are very serious.

Overproduction of gas leading to bloating and flatulence is very common among GAPS children, teenagers and adults. Diarrhea and constipation are usually interchangeable: the patient may have periods of each. Constipated children are far more severely at risk than children with diarrhea. I have seen children who could not pass a stool for a week to 14 days. That is usually followed by something one mom described as child labor as her child tried to pass enormous, compacted feces. This can be very painful and distressing and often tears the anus, adding a psychological component: the child becomes afraid to pass the stool, holding on as long as he or she can, making the whole problem worse.

#### MALABSORPTION AND OSTEOPOROSIS

Malabsorption is a universal problem in

GAPS children and adults. Their digestive systems are not in a fit state to digest or absorb food well. As a result they develop multiple nutritional deficiencies. The brain and immune system cannot function properly without adequate nutrition.

As a result of nutritional deficiencies, these patients often develop osteoporosis. When they go on the GAPS nutritional program, the children begin putting on weight before they start growing. This is because the bones are getting heavier, the bone structure is being rebuilt. The child will first replace the missing nutrients in the body before he begins to grow. The same is true for adults: they are malnourished in spite of the fact that they may look overweight.

#### THE GUT FLORA

When we talk about the digestive tract we have to talk about what lives in there and what takes care of it; we have to talk about our gut flora.

Gut flora is the mass of bacteria, yeasts, viruses, worms, one-cell structures, all sorts of little critters that live in our digestive tract. This mass of microbes in different adults can be two to three kilograms (four to six pounds), depending on where you live. There is a symbiotic relationship between these microbes and our body. In fact, there are more cells and more genetic material in your digestive tract than in the rest of your body.

#### FEEDING TIME

Feeding difficulties are universally present among autistic children and among siblings of autistic children. They have solid physiological reasons for being finicky eaters. They get stuck in a vicious cycle of cravings and dependency because the abnormal microbes that grow in their digestive systems favor certain foods. These microbes convert the food into hundreds of toxins. Many of these toxins have endorphin-like structures. They give the brain a pleasure signal and the brain then wants more—a process similar to drug addiction.

Finicky eating develops usually in the second year of life. Autistic children tend to limit their diets to the very foods that harm them. They develop cravings for those foods that feed abnormal microbes in the gut and will remove all other foods from their diet. The diet is usually limited to starchy sweet things, breads, breakfast cereals, bananas, cookies, cakes, sugar and perhaps sweet yogurts. I've seen some children who would eat one or two foods and who would not touch anything else.

In *Gut And Psychology Syndrome*, I describe a structured approach for introducing foods into a finicky child's menu. Using this method, you can introduce pretty much everything. I had one patient recently who lived on crackers for most of his life. This three-year-old boy would not put anything else in his mouth and he looked like one of those starving children from Ethiopia. The parents kept taking the child to the hospital, to a clinical nutritionist who told them, "It's okay, he is eating. Give him some crackers, eventually he will change." Following the GAPS method for introducing new foods, in a matter of two months the child was eating everything—meats, fish, eggs, vegetables and fruit. He was on a full menu and began recovering. Obviously you cannot expect a child to be healthy living on crackers.

What do they do, why do we have them? They are so vital to life that if somebody tried to sterilize our digestive systems, we probably wouldn't survive. So let's have a look at their functions.

Digestive health cannot happen without healthy well-functioning gut flora, which has to be dominated by specific species of bacteria, yeasts and viruses—what we call the beneficial or probiotic microbes. We have a lot of research on the bacteria of probiotic bacteria. We have not got that much on yeasts yet but it is coming in. We have even less on viruses but I do believe there are beneficial viruses because the most severe damage to the gut flora comes after antiviral medication that people use for herpes and other viral infections.

The surface of the digestive tract would cover a tennis court if it were stretched out flat. It is a perfect gate for anything harmful to get inside your temple. So nature covered every little square millimeter of this tennis court with bacteria, a thick bacterial band covering every little bit of it. These beneficial microbes produce every antibiotic under the sun and every anti-fungal and antiviral substance we know of, thus protecting

us from pathogenic microbes coming with food and drink.

Apart from protecting us from infections, healthy gut flora protect us from carcinogenic and toxic substances by neutralizing them or “grabbing them” and holding tight. Our stools are largely—over 90 percent—comprised of bacteria, and as they are eliminated they take these toxins out. One recent study I've seen looked at two groups of animals, one treated with antibiotics, another served as a control. They were given organic mercury in their food and water, huge amounts of mercury. In animals not treated by antibiotics, who had healthy, robust gut flora, only one percent of that mercury managed to get into the body from the digestive tract. In animals treated by antibiotics which wiped out the beneficial flora in these animals, about 95 percent of the mercury got into their bodies and their blood stream and bones and muscles and everywhere else.

So the major and number one barrier for anything toxic in this world—and we do live in a polluted world, eating polluted food, drinking polluted water, breathing polluted air and taking all sorts of toxins willingly into our systems—the

Digestive health cannot happen without healthy well-functioning gut flora.

## THE BACKLASH

Before recent times, doctors generally didn't look at the digestive system in autism and related conditions. However, now and then we would see case studies published in peer-reviewed journals where the patient went to a gastroenterologist and the doctor performed an inexpensive test involving a barium enema with an X-ray of the bowel. In most cases in these patients they would find a condition called fecal compaction with an overflow syndrome. This is what happens when the old compacted feces are literally glued to the gut wall, in some places almost obstructing the lumen (the space inside) of the digestive tract. Whatever new food would come along would have to slip through a narrow channel, through these compacted feces. In one case, the doctor described the mass of the compacted feces in the child's rectum as the size of a cantaloupe melon. Can you imagine how painful it would be for that child to pass a stool!

Then in 1998 Dr Andrew Wakefield, a consultant gastroenterologist at the Royal Free Hospital in London, and his team published their research, suggesting a connection between chronic inflammatory bowel disease and autism. They performed endoscopy and biopsy on a group of autistic children who were referred to them with gastrointestinal symptoms. Dr. Wakefield called the condition autistic enterocolitis. In addition to inflammation, abscesses filled with pus, ulcers, erosions and lots of fecal compaction, Dr. Wakefield found that the lymph nodes which are present in the wall of the bowel and lower part of the intestines, which normally should be the size of a bean, were swollen, large and painful. In some cases they were so large they almost obstructed the lumen of the digestive tract.

So Dr. Wakefield took samples of these lymph nodes and found measles virus there. He looked further and found that the specific strain was coming from the vaccine. And that was when the whole thing became very political. A huge campaign was launched by the British government to promote the measles vaccination and the medical profession in Britain turned its back on Dr. Andrew Wakefield and his work. Today he is working in this country privately, carrying on with his research.

The problem now is that many gastroenterologists in Britain do not dare examine an autistic child. They are scared the same thing will happen to them. So I see family after family that has to fly to the US or another country and pay huge amounts of money just to have their child examined by a gastroenterologist. This is how politically charged the whole situation is.

The major barrier for anything toxic in this world is your own gut flora.

first and most important barrier is your own gut flora. If you have solid, healthy gut flora you can eat plenty of fish and will be protected to a large degree from the mercury and other pollutants in fish. You can be exposed to all sorts of things and be protected. If the bacteria cannot destroy the toxic substances, they will grab hold of them and not let go until they are excreted. They take the toxins out of your body.

If you have healthy, strong gut flora you will never develop cancer in your digestive system. The gut flora will not allow that to happen. So the basis for any cancer in your digestive system is the damage to your gut flora that begins many years prior to developing a tumor in that area.

Appropriate digestion and absorption simply cannot happen without participation of these healthy bacteria and other microbes. They produce every enzyme under the sun, they break down proteins, they break down carbohydrates, they break down fats, they break down fiber, they release minerals, vitamins and other nutrients and ensure that these substances get transported through your gut wall. They produce a lot of transporting molecules.

Healthy gut flora produces one particular group of substances known as humic acids, which are also produced by soil bacteria. These are the acids that give all the ground water a slightly brownish tinge. These acids have an ability to grab hold of inorganic minerals and transport them through the gut wall and make them available to the body. Your own gut flora produces these substances. Normal absorption relies on the presence of these beneficial microbes in your gut.

As if these functions were not enough, our gut flora actively synthesizes a whole host of nutritious substances for us. Why? Because a lot of vitamins that we require every second are water-soluble. They do not stay in the body for long, so in spite of eating a diet that is very rich in these vitamins there will be periods during the day when you will be deficient. But Mother Nature has a perfect solution to this problem. She provided us with our own little factories inside the digestive tract, factories that are constantly producing these nutrients and then releasing them in just the right amounts into our blood stream through our gut lining, making sure we

are never deficient in the nutrients we need. These are all our B vitamins—B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>6</sub>, B<sub>12</sub>, folic acid, pantothenic acid, biotin and many other active substances without which we cannot live. The main source of vitamin K<sub>2</sub> is our own gut flora.

When we lose our gut flora through a course of antibiotics, or a prolonged course of other modern medications or other influences, the first thing that happens is the person becomes pale and pasty. The energy levels go down as the person becomes deficient in all these vitamins. And no matter how many supplements of these B vitamins we might give to the person, they'll still stay pale and pasty and be deficient until we restore their gut flora. The first thing you have to do for B vitamin deficiencies is to restore gut flora. And if a patient has B vitamin deficiencies, it is a clear indication that the gut flora is abnormal.

#### GUT FLORA AND THE IMMUNE SYSTEM

There is a tight connection between immunity and our gut flora. In fact, about 84 percent of our immunity is located in the gut wall.

Our gut flora is the right hand of our immune system. Without it, our immune system simply cannot function. Without beneficial gut flora, the two major arms of the immune system get out of balance—the Th<sub>1</sub> immunity and Th<sub>2</sub> immunity. These two arms have to work in the right balance. The Th<sub>1</sub> is responsible for normal reactions to anything in the environment. You may have seen photographs of magnified pollen in the spring, ghastly looking things. If your Th<sub>1</sub> works well, you will breathe in millions of particles of the pollen and you will not even know about it because your Th<sub>1</sub> immunity will deal with it.

Th<sub>1</sub> is present everywhere in your body that gets in contact with the environment—on your skin, in your eyes, tears, saliva, mucous secretions, digestive system and in your sexual organs. However, when the gut flora is disabled, this arm of the immune system cannot function. So the second arm of immunity, which is responsible for allergic type reactions, becomes hyperactive as it tries to compensate for the disabled Th<sub>1</sub> arm. That's when the person starts to react to everything in the environment, to dogs, to makeup, to



different foods. People who never had allergies often become allergic after having sustained damage to the gut flora. They had a course of antibiotics or something else has happened to disrupt the gut flora and that is where it all starts. All allergies and auto-immune conditions stem from abnormalities in the gut flora. Other physical conditions connected to abnormalities in the gut flora include multiple sclerosis, fibromyalgia, chronic fatigue syndrome, rheumatoid arthritis, lupus and type-1 diabetes.

When we test the GAPS patients, we always find that they do not have normal gut flora. The beneficial bacteria in these patients have been replaced by all sorts of pathogens. In a healthy individual with normal gut flora, we find about 500 different species of downright disease-causing, bad pathogenic bacteria and fungi happily existing next door to our beneficial bacteria. As long as the beneficial bacteria predominate, they control those creatures; they do not allow them to do us any harm. However, when we wipe out the beneficial bacteria—and they are extremely vulnerable to broad spectrum antibiotics, to the contraceptive pill, to steroid medications prescribed on a long term basis, in fact to the majority of modern drugs that are used on a repeat prescription basis—we end up with what is called gut dysbiosis (damaged gut flora).

Drug-induced dysbiosis is the most difficult to treat. However, there are other factors in our modern world that can damage gut flora including the modern junk food diet, prolonged periods of stress, infections, travel diarrhea, salmonella, typhoid, cholera, radiation and other environmental influences. In all those situations it is very important to take good quality probiotics in order to replace the beneficial bacteria in the digestive tract.

#### WHEN GUT BACTERIA GO BAD

In patients with gut dysbiosis, the most commonly present pathogenic type of microbes is the ubiquitous candida species. This is a large family of yeast with about 200 different species known to science so far. As long as your body is protected by beneficial microbes, candida and other yeasts remain in the single-cell form and cannot cause harm. But if your body is not protected by beneficial flora, these yeasts can settle on your

mucous membranes and transform into their secondary state, which is a long stringy micelle. These can be literally several feet long, growing through any tissue and organ in the body and causing absolute havoc and devastation.

What is the principal thing these yeasts do? They produce alcohol. They like eating glucose and carbohydrates. The only thing they know what to do with a piece of bread or a spoonful of sugar is engage in alcoholic fermentation. Candida converts sugars into alcohol. And this can happen in babies and children, with devastating consequences for the child's development.

The clostridia species is another pathogen found in the gut of GAPS patients. It is a large family of bacteria, with about 100 species known. The most commonly known member in this family is *Clostridium tetani* which causes tetanus. Clostridia are spore-forming bacteria that are pretty much impossible to eradicate because the spores can survive almost anything—freezing, boiling, pasteurizing. They are strict anaerobes. They are difficult to test for because you need specific equipment to detect them. Clostridia produce important neurotoxins, substances that are toxic to our nervous systems. All the soils on our planet test positive for *Clostridium tetani*. If you get a wound or a scratch contaminated by soil, and the clostridia proliferate and start producing this neurotoxin, it can cause death in a matter of hours.

Yet we all have them in our digestive systems. Healthy people have plenty of clostridia living in their digestive tracts, but as long as they are kept in check by the beneficial flora, they do us no harm. Only when the beneficial flora get wiped out do these creatures start causing trouble, damaging the digestive tract and producing their neurotoxins.

Sulfate-reducing bacteria comprise another very large group of bacteria. These bacteria like to eat sulfur, a ubiquitous mineral in our bodies. Sulfur is essential for hundreds and hundreds of biochemical reactions, the most important of which is detoxification. In order for your liver to deal with any toxin that gets in your body, it needs lots of sulfur. However, an overgrowth of sulfate-reducing bacteria will eat all the sulfur and leave the body deficient.

Autistic children are commonly severely

Clostridia produce important neurotoxins, substances that are toxic to our nervous systems.



deficient in sulfur, not only because the sulfate-reducing bacteria consume it but also because the body overuses it in dealing with all the toxins. The first thing we see in these patients is that neurotransmitters, the chemicals the body uses between brain cells—serotonin, dopamine and others—cannot be properly destroyed. After they complete their function, these brain chemicals are transported to the liver to be destroyed or recycled. That process requires lots of sulfur and if the body is deficient, it cannot do this. So the body fills up with debris of these neurotransmitters, partially damaged neurotransmitters. They still react with the brain cells and cause a lot of neurological and mental symptoms.

Viruses have been found in autistic patients. Andrew Wakefield found measles virus. Another is herpes virus, and there is a proliferation of many other viruses as well. As long as your gut is populated by beneficial viruses, these pathogenic viruses should not take hold.

Nature likes to fight like with like. In order to deal with bad bacteria, you have to have good bacteria; in order to deal with bad yeast you have to populate the gut with good yeast; in order to deal with bad viruses, you have to populate the gut with good viruses.

## TOXIC BRAINS

What happens when these pathogenic species of bacteria, yeast, viruses and other microbes overgrow in the digestive tract? They transform the gut from a source of nourishment to a source of toxicity. The food that comes along gets digested by this abnormal mass of microbes, they convert it into hundreds of toxins that flow into the blood stream through the damaged gut wall.

What happens in autistic children or children with other learning disabilities? These toxins get into their brains. Depending on the type,

these toxins attach to particular brain structures, particular proteins, particular fats, particular lipoproteins, and as a result they will cause different symptoms depending on which part of the brain is clogged with these toxins.

The brains of autistic children are loaded with toxins. These children are born with normal brains and they have normal eyes, ears and other sensory organs. These sensory organs collect information from the environment. Little babies stare at you, they touch everything, they are like little sponges, they collect information and then the information is sent to the brain to be processed. When the brain processes the sensory information, the child learns: this is mommy, this is daddy, this is a spoon, this is a toy. I play with this toy like that and not any other way—I don't eat it or destroy it, but play with it.

If the brain of the child is clogged with toxicity, all this sensory information cannot be processed properly, it turns into a noise, a mush. Highly functioning autistic individuals tell us they can hear some frequencies but not others. Some people's voices sound to them like they are under water. Some of these sounds hurt. Or, they can hear frequencies of their mom but not their dad. Some sounds are painful, some are pleasurable, some are stimulating, some are an-

## TOXINS PRODUCED BY YEASTS

**ALCOHOL:** The production of alcohol by candida and other yeasts results in what is called auto-brewery syndrome, first described by a Japanese doctor in the 1970s. Today, this phenomenon is well known. Gut dysbiosis can result in a chronic state of semi-drunkenness, which is particularly devastating to young children.

**ACETALDEHYDE:** The liver converts alcohol into acetaldehyde, an extremely toxic substance. Anyone who has experienced a hangover knows what acetaldehyde does. It causes hundreds of devastating effects on the body. Acetaldehyde attaches itself to various proteins in the body and changes that protein's structure. Then the immune system comes along and looks at the protein and says, "You are foreign, you are not mine" and starts attacking it and producing antibodies. So acetaldehyde in the body creates auto-immunity. And because acetaldehyde attaches itself to a lot of proteins that are the working sites for various nutrients in the body, these nutrients cannot fulfill their functions. The most common deficiency that can result is vitamin B<sub>6</sub> deficiency. Tests show that B<sub>6</sub> is present in the bloodstream, but the receptors for it do not work. Vitamin B<sub>6</sub> deficiency is linked to the problems we see in autistic children—learning disabilities, hyperactivity and dyslexia—and in schizophrenics as well.

**DERMORPHIN AND DELTORPHIN:** A New York biochemist named Alan Freedman found these two frightening substances in the urine and blood of autistic children. These are identical to the toxins found on the skin of those colorful Amazonian frogs. The local tribes dip the end of their darts on the skin of these frogs in order to paralyze their enemies—these are extremely potent neurotoxins that cause paralysis. The interesting thing is that it is not the frog that produces the toxin but a fungus that grows on the skin of the frogs. The suspicion is that the autistic child grows that fungus in his digestive system and the fungus produces the toxin. This may account for some characteristic muscle tone abnormalities seen in many autistic children.

noying, because all the sensory input turns into complete disorder in their heads, and the child cannot learn from that mush.

This usually happens in the second year of development, often when breast feeding stops. The second year of life is when the vital communication functions develop: the receptive language skills, the expressive language skills, the social skills, along with gross motor skills and fine motor skills. Autistic children develop some of these but in an abnormal way. If you look at what is happening in their brains, and how the toxicity interferes with all their sensory input coming from their sensory organs, you would understand why these children are so strange. It is perfectly logical that they develop the way they do.

#### TOXIC HERITAGE

Where does the gut flora come from? Babies are born with sterile bodies and sterile digestive systems. During birth, as the baby goes through the birth canal, she swallows the first mouthfuls of bacteria and that becomes the baby's gut flora. So whatever is in the mom's birth canal and lives in mom's vagina, becomes the baby's gut flora.

What lives in mom's vagina? Until the era of antibiotics and the contraceptive pill, the majority of women had normal vaginal flora, they had healthy flora and that is what they passed on to their children. However, now we have had decades of antibiotics overuse. And the contra-

ceptive pill has a particularly devastating effect on gut flora. Whatever lives in the woman's bowel will live in her vagina and that is what women pass on to their babies.

In my clinic, before I talk about the health of the child, I collect a thorough health history of the parents, grandparents and siblings. Almost one hundred percent of moms with autistic children have abnormal gut flora themselves, and that is what they pass to their children right from birth. These children start their lives with a disadvantage.

In a handful of cases, where mom was perfectly healthy and there were no symptoms, dad was the one with abnormal gut flora. Fathers share their bodily flora with the mom on a regular basis through sexual intercourse.

So moms with gut dysbiosis pass abnormal gut flora to the newborn baby and as a result, the baby doesn't develop normal gut flora. The first thing that happens is the immune system becomes compromised. That's because the establishment of normal gut flora in the first few days of life in the baby plays a crucial role in proper maturation of the immune system and if that doesn't happen or goes wrong as it does in many cases now, the child is left immune compromised. This sets the child up for eczema, colic, asthmatic episodes, blocked nose, and other allergic, atopic reactions, because their immune system, that arm of the immunity Th<sub>1</sub>, does not develop. It is disabled right from the start.

Because the immune system is not functioning well, the mucous membranes—mucus production is an immune function—start overproducing mucus. As a result, the children develop glue ear and constant ear infections. In the West, ear infections constitute about 80 percent of all visits to family doctors. And what does the family doctor do for these ear infections? He prescribes antibiotics—despite the fact that numerous studies have shown that children who are left alone, who are not treated at all, do just as well as children treated with antibiotics. These antibiotics will wipe out the precious little beneficial bacteria the child still has. Many GAPS children go from one ear infection to another until grommets (ventilation tubes) are inserted to drain the mucus from the middle ear to the outer ear canal.

#### GLUTEOMORPHINS AND CASOMORPHINS

Gluteomorphins and casomorphins are partially digested proteins. Gluteomorphins come from gluten found in grains and casomorphins come from the casein found in dairy foods. Gluten and casein are large molecules that are hard for even normal people to digest. In children with damaged, porous and leaky gut walls, these proteins do not get digested properly but are partially broken down into peptide chains whose structure is very similar to heroin, morphine and other opiates. These substances are absorbed in that form and have a similar effect on the brain as heroin and morphine would have.

Autistic children are often put on a gluten-free/casein-free (GFCF) diet. It is a tragedy that this diet has been pronounced as "the" diet for autism and schizophrenia because removing grains and dairy foods only removes two toxic substances from the body—gluteomorphins and casomorphins. The GFCF diet doesn't deal with all the other toxins, it doesn't heal the gut and it doesn't change the gut flora. In my clinic about 30 percent of children show initial improvement with a gluten- and casein-free diet. The majority do not show any improvement at all and those who show some improvement then plateau and the parents end up in a nightmare situation where if the child gets hold of even a crumb of bread or steals a cracker there is a huge regression. This happens because the gut is still damaged, the gut flora is still abnormal, the gut wall is still leaky and porous. All the toxins are still flowing into the body. The gluten-free/casein-free diet is inappropriate for GAPS patients. It is not enough. (For an effective dietary plan for autistic and ADD children, see *Gut and Psychology Syndrome*.)

There is a theory that vaccinations are the cause of autism, but they do not cause any of these disorders. However, vaccinations have been designed for children with healthy immune systems.

Chest infections are the number two problem in these children. Antibiotics are prescribed again, causing further damage to the gut flora and the immune system. Antibiotics are a double whammy for the immune system.

Vaccinations join the bandwagon. There is a theory that vaccinations are the cause of autism, but they do not cause any of these disorders. However, vaccinations have been designed for children with healthy immune systems. We have a growing population of children who do not possess healthy immune systems. They are not fit to be vaccinated. In a child with a compromised immune system, vaccinations cause damage to that immune system, putting the child closer to disaster. In some children they provide the last straw that breaks the camel's back. In my clinic, about 15 percent of the children started their autistic symptoms after MMR vaccinations and about the same number started after DPT vaccinations. But the majority of parents see no connection.

Now with the whole controversy with vaccinations, I see many autistic children who have not been vaccinated at all because their parents were aware of the harm. But despite having no vaccinations, they are autistic. So vaccinations are not the cause of autism. They just bring the child closer to the problem.

Next comes the weaning diet based on wheat and pasteurized dairy products, processed dairy and dry powders. These all feed abnormal flora in the gut. So the child ends up with a gut dysbiosis or abnormal gut flora. The gut becomes a major source of toxicity. The toxins start flowing into the blood stream and get distributed around the body. They get into the brain and cause brain dysfunctions. That is how learning disabilities develop.

And there are other factors: what toxic load was the child born with? We used to think that the placenta protected the baby but now we know better. For example, we know that mercury actually targets the fetus and the gut lining. In one interesting study, researchers gave mercury to pregnant ewes. They found that the largest accumulation of mercury was in their gut lining and in their fetuses.

And mercury is just one of the toxins pregnant women are exposed to. Every personal care product the mother exposes herself to, makeup,

perfume, domestic cleaning chemicals, chlorinated swimming pools, processed foods with hundreds of chemicals—they will all go into the baby, so our babies are already born with a toxic load. If the child is less toxic the child will be far more robust and have a better constitution; if the child is more toxic then the child will be far more vulnerable. And depending on the genetic makeup and many other environmental factors, different children will manifest a different set of symptoms: some will be diagnosed with autism, others with ADD, others with terrible mood swings, or obsessions, or depression, etc.

#### HOPE

Autism is a serious disorder, yet it is perfectly curable. The younger the child when treatment begins, the better results I see. If you catch the autistic child under the age of three, there is about a 60-70 percent chance of full recovery. My own son was autistic but was treated early. He is 15 years old now and is a normal teenager, for which I am very grateful.

So what do we do? First and foremost, treat the digestive disorder. Every so-called psychological and mental disorder is a digestive disorder at its core—whether it is schizophrenia, bipolar, obsessive-compulsive behavior, substance abuse, depression or just a cranky teenager—look first at their digestive system. The healthy teenager is sweet and nice and respectful unless some serious mistakes have been made in the upbringing of the child.

The digestive system is a long tube, and what you fill that tube with has a direct effect on its well-being. That is why ninety percent of the treatment is diet! An effective probiotic is absolutely paramount because we have to introduce beneficial bacteria into the digestive systems of these children. Nutritional deficiencies have to be addressed and detoxification is an important part of the treatment.

Fermented foods are an excellent source of probiotic bacteria. We used to consume trillions of good bacteria on a daily basis when we fermented our foods and these beneficial organisms got built into our physiology. We need them, we cannot live without them. Since we invented refrigeration we stopped eating fermented foods so we stopped providing our bodies with something

vital. However in GAPS children and adults, just eating fermented foods is not enough. They have to have a strong, aggressive, therapeutic-strength probiotic that eats candida and clostridia, and that eats the old, compacted putrefaction in the gut and removes it. That kind of probiotic causes a so-called die-off reaction because when you introduce the beneficial bacteria, they will kill the pathogens and when these critters die, they release toxins, the same toxins that make the child autistic, hyperactive or dyslexic. So you have to start a therapeutic-strength probiotic at a tiny amount and build it up slowly to a therapeutic level in order to control this die-off reaction. Unless you start slowly, you can throw the patient into such a crisis that they would never touch the probiotic again.

## NUTRIENTS

I don't like supplements. I believe people should get their nutrition from food, not from pills. However, some food-based supplements are essential.

Vitamin A is critical for the autistic child and cod liver oil is the best way to receive it, because the vitamin A in cod liver oil comes in combination with another fat-soluble vitamin—vitamin D—and these two vitamins work as a team.

Many commercially available fat-soluble vitamin supplements contain synthetic vitamins. These do not work the same way as the natural ones and it is easy to overdose on them. It is best to receive these vitamins in a food form.

Autistic children tend to be severely deficient in essential fatty acids. We have to provide both the parent essential fatty acids which come from nut and seed oils and their derivatives, which come from fish, animal fats and some plant oils. Normally in a healthy body and in a perfect environment, those parent fatty acids can get converted into the derivatives: EPA, DHA, DGLA and arachidonic acid. However GAPS patients are so toxic and so deficient in nutrients that they cannot complete these steps of conversion. They have to receive these essential fatty acids in a ready-made form. That is why, apart from nut and seed oils, consuming fish oils, natural animal fats and a source of DGLA (such as evening primrose oil) is important for these children.

I am very careful with multi-vitamin, mineral and amino acid supplements. With the majority of patients, I don't give it at all. I just tell them to implement the diet fully. Once the diet is fully implemented, the nutritional deficiencies just go away because the body knows what to do with vitamins, minerals and amino acids when they come as food. When they come as supplements the majority are synthetic. They don't come with the right kind of co-factors, the right kind of friends holding hands, so the body doesn't recognize them. And for most of the common supplements on the market today, the absorption rate is very low.

So you have to know what kind of supplements to prescribe and I prescribe those on an individual basis in particularly debilitated cases, not as a blanket policy at all. Digestive enzymes can be helpful as well, but these are a temporary crutch, prescribed on an individual basis.

Finally, detoxification is a very important part of the process. There are very natural and good ways to detoxify the child gently without causing any detox reactions.

Autism is a symptom and a sign of our times, the final tragic result of a toxic world, an industrial food system and a medical system that relies on antibiotics rather than the legions of friendly helpers that populate the normal gut. Autistic children have an important lesson to teach us, one that urges us to temper learning with wisdom and industrial progress with respect for the natural world. ☯☯

*Practical treatment and dietary plans for the child with autism, ADD and similar disorders can be found in Dr. Campbell-McBride's book Gut and Psychology Syndrome, available in the US from The Healthy Gut, Inc. (404) 786-7661, labetter@aol.com. Dr. Campbell-McBride will present an all-day workshop on the Gut And Psychology Syndrome at Wise Traditions 2008, the ninth annual conference of the Weston A. Price Foundation, to be held at the Hyatt San Francisco Airport, Burlingame, California, November 7-10, 2008.*

Vitamin A is critical for the autistic child and cod liver oil is the best way to receive it.

# Vitamins for Fetal Development: Conception to Birth

By Chris Masterjohn

**H**uman life begins, biologically speaking, at conception. This is the moment at which the new organism possesses its own unique combination of some 20,000 genes and the moment at which it becomes capable of growth and cell division. The days and weeks following conception form a critical window within which the nutritional environment of the womb sets the tempo for fetal growth. But nothing more clearly illustrates the continuity between the new life within the womb and the adult he or she will become than the fact that the quality of nutrition during these nine months produces lifelong effects on the brain, kidneys, and the cardiovascular system; determines the risk of degenerative disease; and profoundly influences the quality of life that persists through adulthood and into old age.



Every human cell within a given human being has an identical set of genes, called a genome. These genes come in pairs: one copy from the mother and one from the father. Sperm and egg cells are the exception to the rule and carry only one from each pair. By shuffling the maternal and paternal genes into different combinations to produce each sperm or egg, a single man or woman could theoretically generate an incomprehensibly greater number of combinations than the number of atoms that make up the known universe, thus ensuring that no two human beings on the face of the earth—save identical twins—will carry the exact same genome.<sup>1</sup>

### EMBRYONIC AND FETAL GROWTH

During ovulation, an egg is released from the ovary and moves into a tube called the oviduct. At conception, the sperm and egg combine within the oviduct to form a zygote. The genes from each parent combine into pairs and the zygote possesses a new, unique genome that every cell into which it divides will inherit.

Over the course of the first seven days, the zygote divides into a hollow ball of cells as it moves through the oviduct toward the uterus. By the seventh day, it becomes embedded in the uterine wall. At this point it is called an embryo.

The heart of the embryo heart by day 23; its brainwaves can be recorded at day 40; in the

seventh week it begins sucking, touching its face, hiccupping, frowning and making various other spontaneous movements.

At eight weeks, all organ systems are present and functioning at which point the growing organism is called a fetus. Out of 4,500 body structures present in the adult, 4,000 are present at this eight-week point. The fetus has a firm grip, sucks its thumb, and somersaults by four months; in the beginning of the sixth month it nestles into position to sleep, stretches upon waking and can hear.<sup>2</sup>

At the turn of the third trimester, a dramatic increase in the likelihood that the infant will survive outside the womb if born prematurely takes place—from 15 percent at 23 weeks to 79 percent at 25 weeks.<sup>3</sup> In the last half of this trimester, rapid growth takes place, especially in the skeletal system. Infants born six weeks prematurely have only half the calcium and phosphorus laid down as infants carried to term.<sup>4</sup>

None of this growth and development can take place without nutrients. Fats and carbohydrates fuel the growth. Fats and cholesterol form cell membranes. Amino acids form structural proteins and enzymes. Vitamins and minerals act as cofactors for those enzymes or as regulators of the entire process of growth. These nutrients are uniquely supplied by the mother's diet.

The heart of the embryo beats by 23 days; its brainwaves can be recorded at 40 days.

### ARTICLE SUMMARY

- Good maternal nutrition during pregnancy can protect the offspring from diabetes, stroke, heart disease, kidney disease, and memory loss later in life.
- Special preconception and pregnancy diets emphasizing foods dense in particular nutrients were universal among the traditional groups that Weston Price studied.
- Modern science has shown that fat-soluble vitamins are necessary for growth and development; the omega-3 fatty acid DHA is necessary for brain development; the need for biotin during pregnancy increases; folate boosts growth and decreases the risk of birth defects; choline causes a lifelong increase in memory and attention; and the amino acid glycine is required for growth.
- WAPF recommends a dose of high-vitamin cod liver oil per day to yield 20,000 IU of vitamin A, 2,000 IU of vitamin D, and 2 grams of omega-3 fatty acids (about 1 3/4 teaspoon per day).
- Grass-fed animal fats supply vitamins E and K<sub>2</sub>; palm oil, fresh fruits and vegetables, nuts, and freshly ground grains are also sources of vitamin E; fermented foods are also sources of vitamin K<sub>2</sub>. Leafy greens supply vitamin K<sub>1</sub>.
- Biotin can be obtained from liver and egg yolks. Raw egg whites should be strictly avoided and cooked egg whites should be consumed in moderation. Egg yolks can be added to smoothies and ice cream to boost biotin status.
- Folate can be obtained from liver, legumes, beets, and greens. Choline can be obtained from grass-fed dairy, egg yolks, liver, meat, cruciferous vegetables, nuts, and legumes. Figure 7 on page 32 provides examples of how to meet the folate and choline requirements.
- Muscle meats and eggs should be liberally matched with the above folate-rich foods and with skin, bones, and bone broths to obtain glycine.

The provision of special pregnancy and preconception diets to mothers-to-be was a universal characteristic of the healthy traditional groups studied by Weston Price. In some cases, these groups provided special preconception foods to fathers-to-be as well.

#### PRIMITIVE PREGNANCY DIETS

The provision of special pregnancy and preconception diets to mothers-to-be was a universal characteristic of the healthy traditional groups studied by Weston Price. In some cases, these groups provided special preconception foods to fathers-to-be as well.

All groups that had access to the sea used fish eggs; milk-drinking groups used high-quality dairy from the season when grass was green and rapidly growing. Some groups used other foods such as moose thyroids or spider crabs, and African groups whose water was low in iodine used the ashes of certain plant foods to supply this element.<sup>5</sup> These foods were added against the backdrop of a diet rich in liver and other organ meats, bones and skin, fats, seafood and the local plant foods.

Fish eggs are especially rich in cholesterol, vitamin B<sub>12</sub>, choline, selenium, calcium, magnesium, and omega-3 fatty acids. They contain a modest amount of most fat-soluble vitamins but their vitamin K<sub>2</sub> content is unknown (see Figure 1).<sup>6</sup>

The Maasai only allowed men and women to marry after spending several months consuming milk from the wet season when the grass was especially lush and the milk much denser in nutrients. Maasai milk is higher in fat and cholesterol and lower in sugar than commercial American milk. The highest quality Maasai milk used for preconception diets, however, is even richer: compared to commercial American milk, it has over twice the cholesterol, nearly three times the fat, and over five times the quantity of phospholipids (see Figure 2).<sup>7</sup> The phospholipid

content is particularly important. Since most of the choline in milk is contained in phospholipids,<sup>8</sup> this means that high-quality Maasai milk is probably about five times richer in choline than the milk you would find in the grocery store.

Compared to grain-fed milk, grass-fed milk is much higher in fat-soluble vitamins, pigments, conjugated linoleic acid (CLA) and omega-3 fatty acids.<sup>9</sup> Price showed that the content of vitamin A, activator X (which we now believe to be vitamin K<sub>2</sub>), and essential fatty acids markedly increased in butterfat during the rainy lush season.<sup>10</sup> As the quality of grass increases, we can presume that the content of other grass-related nutrients—such as pigments, vitamin E and CLA—will also markedly increase in the milk.

Although modern science still has much research to accomplish in order to fully elucidate the value of traditional wisdom, it has already confirmed the fact that many of the nutritional factors that we now recognize as the most important to healthy embryonic and fetal development are the same ones emphasized in traditional pregnancy and preconception diets.

#### VITAMIN E

Vitamin E was originally named “Fertility Factor X” in 1922 because rats could not reproduce without it. Two years later, researchers dubbed it “tocopherol” from the Greek τόκος (tokos), meaning “childbirth,” and φερειν (ferrein), meaning “to bring forth.” Its precise role in rat fertility remains unclear and scientists have yet to conclusively demonstrate its essentiality to human reproduction.<sup>11</sup>

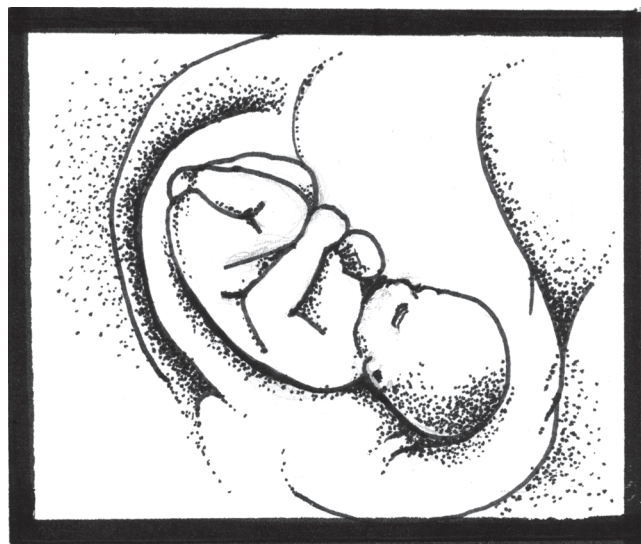
Mice lacking the gene for the protein that

FIGURE 1. IMPORTANT NUTRIENTS FOUND IN FISH EGGS  
Nutrient Content per 100 grams (% pregnancy RDA)

Cholesterol	588 mg
Vitamin B <sub>12</sub>	20.0 mcg (770%)
Choline	491 mg (109%)
Selenium	65.5 mcg (109%)
Calcium	275 mg (28%)
Magnesium	300 mg (83%)
EPA (omega-3)	2,741 mg
DHA (omega-3)	3,801 mg
Total omega-3	6,789 mg (485%)
Vitamin A	905 IU (35%)
Vitamin D	232 IU (116%)

transports vitamin E across the placenta conceive offspring that die within 11 to 15 days. The nutritional transport system of the placenta is observably malformed by the ninth day. The human placenta makes the same protein, so the role of vitamin E in constructing the nutritional transport system of the human placenta is probably similar. Vitamin E, then—despite the lack of published proof—is almost certainly essential to human reproduction.<sup>11</sup>

Vegetable oils are high in vitamin E, but they are also high in polyunsaturated fatty acids (PUFA), which deplete the body of this nutrient.<sup>12</sup> Palm oil is a much better source, having a vitamin E-to-PUFA ratio that is 8 times higher than that of soybean oil and 13 times higher than that of safflower oil.<sup>13</sup> The vitamin E content of grass-fed animal fats is four times higher than that of grain-fed animal fats.<sup>14</sup> Nuts, seeds, fresh fruits and vegetables and freshly ground grains also contain vitamin E.



eye defects including the complete absence of eyes; defects of the snout, dental arches and lips; displacement of internal organs including the kidneys, ovaries and testes; and deafness due to degeneration of the nervous system.<sup>15</sup>

We now know that vitamin A is necessary for the differentiation and patterning of all of the cells, tissues, and organs within the developing body. It is especially important for the development of the communication systems between the sense organs and the brain.<sup>16,17</sup> Even mild vitamin A deficiency compromises the number of functional units called nephrons in the kidneys, which could predispose a person to poor kidney function

later in life.<sup>18</sup> Vitamin A is also necessary during fetal development and through adult life to maintain the presence of cells lining the lungs that are covered in hair-like projections called cilia.<sup>19</sup> These hairs sweep away debris and foreign material, protecting the lungs from pollutants and infectious diseases. During and after the formation of all these systems, vitamin A is necessary for their continued growth.

The RDA of vitamin A for pregnant women is 2,600 IU—just 300 IU more than the RDA for women who are

## VITAMIN A

In the years following the discovery of the role of vitamin E in rat fertility, researchers quickly began to realize that vitamin A was even more important to reproduction. In *Nutrition and Physical Degeneration*, Price described the early work on vitamin A deficiency during pregnancy and the preconception period. In diverse species of laboratory animals, this deficiency produced spontaneous abortion; prolonged labor and death of the mother and her offspring during labor;

not pregnant. There are several problems with this figure, described in the sidebar on page 28. We do not have exact figures for the vitamin A content of the preconception and pregnancy diets used by the groups that Price studied, but they were certainly higher than 2,600 IU per day. These groups prized organ meats, especially liver, and used them on a regular basis. Preconception and pregnancy diets added additional foods rich in fat-soluble vitamins.

The Weston A. Price Foundation recommends 20,000 IU per day from cod liver oil and additional vitamin A from milk, butter, eggs, and three to eight ounces of liver per week. Yet the medical profession warns pregnant women that this quantity of vitamin A increases the risk of birth defects. This

FIGURE 2. COMPARISON OF COMMERCIAL U.S. MILK AVAILABLE IN 1970 TO MAASAI MILK IN DRY AND WET SEASONS IN NAROK DISTRICT OF KENYA

Nutrient	American	Maasai – Dry	Maasai – Wet
Fat	3.8 g/100 mL	6.5 g/100 mL	10.4 g/100 mL
Cholesterol	11 mg/100 mL	16.4 mg/100 mL	24.2 mg/100 mL
Phospholipids	21 mg/100 mL	78 mg/100 mL	109 mg/100 mL
Sugar	4.9 g/100 mL	3.4 g/100 mL	3.4 g/100 mL

A study of over 10,000 infants in Finland showed that direct supplementation of 2,000 IU vitamin D per day to infants in the first year of life virtually eradicated the risk of type 1 diabetes over the next 30 years.

belief can be traced to a single study published in 1995 that purportedly found an increase in the risk of birth defects among mothers consuming more than 10,000 IU per day. As discussed in the sidebar on page 29, there are several important flaws in this study. Every other published study on this subject shows this amount of vitamin A to be safe—indeed, one major study of over 25,000 births showed that daily doses of vitamin A up to 40,000 IU cut the risk of birth defects in half.

Considering the ubiquitous role of vitamin A in the development of every organ system of the body and how tightly the body regulates the level of the activated form, we should expect a generous helping of vitamin A-rich organs and animal fats to help perfect fetal development, not to throw it off course. The preponderance of the evidence suggests that this is the case.

#### VITAMIN D

In the late third trimester, the fetal skeleton enters a period of rapid growth that requires calcium, phosphorus and vitamin D. An infant born six weeks prematurely has laid down only half the calcium into its bones as an infant carried to term.<sup>28</sup> There is evidence that vitamin D plays a role in lung development,<sup>29</sup> and it probably plays a much larger role in fetal development in general due to vitamin D's interaction with vitamin A. At birth, the infant's blood level of vitamin D is closely correlated to that of the mother.<sup>30,31</sup> Adequate levels of vitamin D protect the newborn from tetany, convulsions and heart failure.<sup>29</sup>

The rapid skeletal growth that occurs in late pregnancy taxes the vitamin D supply of the mother and her blood levels drop over the

course of the third trimester. One study conducted in Britain showed that 36 percent of new mothers and 32 percent of newborn infants had no detectable vitamin D in their blood at all; another showed that 60 percent of infants born to white mothers in the spring and summer had levels under 8 nanograms per milliliter (ng/mL), a level that is overtly deficient.<sup>32</sup>

In 1963, the American Academy of Pediatrics acknowledged the increased need for vitamin D during the third trimester of pregnancy. The Academy lamented the lack of data elucidating the precise amount of this need and suggested that 400 IU per day would cover the requirements of mother and fetus.<sup>28</sup>

In 1997, however, the Institute of Medicine declared that the transfer of vitamin D from the mother to the fetus is so small that the mother's vitamin D status is not affected. Citing a 1978 study showing that the average vitamin D level of pregnant women consuming small amounts of vitamin D at high latitudes was 9.1 ng/mL (25 percent under the level required to protect against overt deficiency) the Institute concluded that "there is no additional need to increase the vitamin D age-related [adequate intake] during pregnancy above that required for non-pregnant women." This conclusion is strange, not only because many of the mothers in this study must have had vitamin D levels below the average, but because the average level itself was already deficient. The Institute set the recommended intake at 200 IU, which it rather dubiously supposed "may actually represent an overestimate of true biological need."<sup>33</sup>

In 2003, the American Academy of Pediatrics' Committee on Nutrition and its Section on

#### IS THE PREGNANCY RDA FOR VITAMIN A ADEQUATE?

The RDA of vitamin A for pregnant women is only 2,600 IU—just 300 IU more than the RDA for women who are not pregnant. To obtain this figure, the scientists at the Institute of Medicine (IOM) made the following calculation: first, they ascertained from previous reports the amount of vitamin A stored in the livers of fetuses that were spontaneously or voluntarily aborted between 37 and 40 weeks; second, they doubled this figure, assuming that half of the fetal vitamin A stores exist in the liver; and third, they divided this amount over the number of days in the last trimester, during which they presumed this vitamin A would accumulate.<sup>20</sup>

There are several problems with this calculation. Since the fetuses were aborted, we have no idea what their future health would have been like—their visual acuity, their hearing, their intelligence, their facial and dental features, their reproductive health, or their length of life. And the function of vitamin A, of course, is not to be stored but to be used. The fetus does not simply hold on to vitamin A to use it after birth, but rapidly uses and metabolizes it to regulate the entirety of its growth and development. Granted, the IOM acknowledges that it has only used this data because better data do not exist—yet it is important to emphasize just how little the data tell us.



Breastfeeding issued a joint statement in which they overturned the 40-year position of the Academy advocating 400 IU in favor of adopting the lower so-called “overestimate” of the Institute of Medicine.<sup>34</sup>

In the second part of this statement, the Academy directed mothers to keep their infants out of the sun, dress them in protective clothing, and liberally cover them in sunblock. In the last part of the statement, it emphasized that breast milk is deficient in vitamin D—making no mention of the fact that the low intake of vitamin D during pregnancy and lactation that it advocates and the practice of keeping infants out of the sun are the precise factors responsible for low vitamin D levels in breast milk and infant vitamin D deficiency.

The Weston A. Price Foundation recommends 2,000 IU per day of vitamin D from cod liver oil, and small additional amounts from fatty fish, shellfish, butter, and lard. Although no studies have directly assessed the use of this dose during pregnancy, a study of over 10,000 infants in Finland conducted between 1966 and 1997 showed that direct supplementation of 2,000 IU per day to infants in the first year of life virtually eradicated the risk of type 1 diabetes over the next 30 years.<sup>35</sup>

#### VITAMIN K

Compared to vitamins A and D, very little is known about the role of vitamin K in embryonic and fetal development. The enzyme that uses it to activate vitamin K-dependent proteins first shows up in the skeletal and nervous tissue of the embryo.<sup>36</sup> Two vitamin K-dependent proteins, bone Gla protein and matrix Gla protein, are present in the first trimester.<sup>37</sup> These proteins help lay down calcium salts in bone tissue and keep calcium out of the soft tissues where it does not belong.

In 1997, an infant was born to a mother who took Warfarin during

#### VITAMIN A AND BIRTH DEFECTS

The claim that intakes of vitamin A over 10,000 IU per day can increase the risk of birth defects can be traced back to a 1995 paper published by a group of researchers led by Dr. Kenneth Rothman of Boston University.<sup>21</sup> The researchers followed almost 23,000 women over the course of their pregnancies and found that women who consumed more than 10,000 IU of vitamin A during the first trimester gave birth to offspring with a 2.4-fold greater risk of total birth defects and a 4.8-fold greater risk of cranial-neural-crest defects (a rather broad group of defects whose classification is controversial).

Among the 188 women who consumed this amount of vitamin A from “food” alone, there was an 80 percent increase in the risk of total birth defects and two times the risk of cranial-neural-crest defects. Because there were so few women consuming vitamin A from “food” alone, however, the researchers could not conclusively distinguish the association from the effect of chance.

This study has a number of important flaws. Most of the vitamin A came from multivitamins. The authors did not distinguish between various food sources—and most “food” vitamin A comes from fortified breakfast cereals. Three groups of experts wrote to the journal questioning the authors’ classification of cranial-neural-crest defects.<sup>22,23,24</sup> Perhaps most important, the authors may have underestimated the rate of certain types of birth defects. The rate of total birth defects among the 20,000 women consuming less than 10,000 IU was only 1.5 percent; by contrast, the generally accepted background rate is 3-4 percent. The rate of defects among the 3,000 women consuming more than 10,000 IU of vitamin A was 3 percent—on the lower end of normal.<sup>24</sup>

The most important objection to this study is the fact that it conflicts with all the other evidence:

- An earlier 1990 study conducted in Spain found that among 25,000 births, doses of vitamin A over 40,000 IU per day carried a 2.7-fold higher risk of birth defects, but doses of vitamin A up to 20,000 IU or between 20,000 and 40,000 IU both carried a 50 percent lower risk of birth defects compared to no supplementation.<sup>25</sup>
- A 1996 study of 522,601 births found that the children of women supplementing with at least 10,000 IU of vitamin A in addition to a multivitamin had a lower risk of birth defects than those of women who did not supplement, although the association could not be distinguished from the effect of chance.<sup>26</sup>
- A 1997 study of 1,508 births found no relationship between birth defects and use of vitamin A supplements, fortified breakfast cereals, organ meats or liver.<sup>27</sup>
- A 1999 prospective study of 311 mothers who consumed between 10,000 and 300,000 IU of vitamin A in the first trimester and a similarly sized group that did not supplement with vitamin A found no evidence of an increased risk of major malformations with increasing dose. The median dose was 50,000 IU. The group as a whole had a 50 percent lower risk of major malformations than those who did not supplement, and there were no major malformations in offspring born to mothers consuming more than 50,000 IU.

The preponderance of the evidence clearly favors the view that 20,000-25,000 IU of vitamin A during pregnancy is safe and may even reduce the risk of birth defects.<sup>63</sup>



A double-blind, placebo-controlled study showed the use of cod liver oil during pregnancy and lactation to increase the child's IQ at the age of four years.

pregnancy. This drug interferes with the normal clotting mechanism of the blood by creating an effective vitamin K deficiency. During the early development of the middle third of her face, the cartilage of her septum calcified; at birth, her nose was a stub. Since only twenty percent of the septum protrudes from the face, a mere ten percent reduction in its length can cut the length of the nose in half. She also had cavities and plaques in her spinal cord; she required oxygen due to respiratory distress at birth; and she was quadriplegic by twenty months.<sup>37</sup>

This tragic case of severe deficiency illustrates the essential role of K vitamins in the development of proper facial proportions and the much more important and fundamental development of the nervous system.

Vitamin K<sub>2</sub> has a higher rate of transport across the placenta than vitamin K<sub>1</sub>.<sup>38</sup> When mothers receive injections of vitamin K<sub>2</sub>, the placenta rapidly accumulates it and then releases it slowly to the fetus over time.<sup>39</sup> Vitamin K<sub>1</sub> is found in leafy greens while vitamin K<sub>2</sub> is found in fermented foods and grass-fed animal fats—especially natto, goose liver, cheese, and to a lesser extent butter and egg yolks.<sup>40</sup>

#### DHA

The fetus, infant and adult can all convert the omega-3 fatty acid found in plant oils, alpha-linolenic acid (ALA), into docosahexaenoic acid (DHA)—but the rate of this conversion is no more than one percent at all ages and stages of development. DHA may be necessary for the formation of neurons and for the synthesis of the important brain lipid phosphatidylserine; it is also the precursor to an important compound that protects neurons when they are assaulted by oxidative stress. The fetus hoards DHA from the mother and incorporates it into its brain at ten times the rate at which it can synthesize it.<sup>41</sup>

DHA can be obtained primarily from cod liver oil and fatty fish and in small amounts from grass-fed animal fats.

#### COD LIVER OIL

The best source of DHA and vitamins A and D is high-vitamin cod liver oil. Cod liver oil also provides another omega-3 fatty acid, eicosapentaenoic acid (EPA). A number of studies have

demonstrated the benefits of using cod liver oil during pregnancy and lactation.

Rats that are fed cod liver oil during pregnancy give birth to offspring that have higher cognitive performance than controls at six months. If rats are fed a protein-deficient diet during pregnancy, their offspring have disturbed glucose metabolism; if they are also fed cod liver oil, however, the glucose metabolism of their offspring is normal.<sup>42</sup>

The benefits of cod liver oil during pregnancy have been verified in humans as well. Use of cod liver oil during pregnancy is independently associated with birth weight.<sup>43</sup> A double-blind, placebo-controlled study showed the use of cod liver oil during pregnancy and lactation to increase the child's IQ at the age of four years. In this study, the control group received the same amount of fat-soluble vitamins as the cod liver oil group, so the effects are most likely due to the DHA.<sup>44</sup> In Norway, use of cod liver oil during pregnancy was associated with a 70 percent reduced risk of type 1 diabetes.<sup>45</sup>

The Weston A. Price Foundation recommends 20,000 IU of vitamin A and 2,000 IU of vitamin D from cod liver oil during pregnancy. This can be obtained from 1¾ teaspoons of the high-vitamin variety. This amount also supplies about two grams of omega-3 fatty acids—the same amount shown in one study to prevent premature delivery.<sup>46</sup>

#### BIOTIN

Biotin is a B vitamin but has also been called “vitamin H.” Researchers have studied its role

FIGURE 4. BIOTIN CONTENT OF FOODS

FOOD	BIOTIN CONTENT (mcg)
Liver (3 ounces)	27
1 egg yolk	25
Baker's yeast (1 packet)	14
Whole wheat bread (1 slice)	6
Cheese (1 ounce)	2-6
Avocado	6
Salmon (3 ounces)	4
Chicken (3 ounces)	3
Pork (3 ounces)	2
Artichoke (medium)	2
Raspberries (1 cup)	2

in pregnancy for decades but only recently have discovered that marginal biotin deficiency during this critical period is the norm.

Several years ago investigators tracked the biotin status of thirteen pregnant women through the course of their pregnancies, measuring a marker of deficiency in their urine. The deficiency marker increased during both early and late pregnancy in all thirteen women; in nine, it increased above the upper limit. These women, however, had none of the traditional symptoms of deficiency such as skin problems or depression.<sup>47</sup>

In pregnant rats, a five percent egg white diet produced a marginal biotin deficiency. The activity of biotin-dependent enzymes declined 10 percent in the mother. Yet in the fetus, the activity of these enzymes decreased a full 50 percent. Although the mother had no obvious symptoms herself, her offspring suffered an increased risk of limb and palate defects. These effects were all reversed when biotin was added to the diet in addition to egg whites.<sup>47</sup>

Whether marginal biotin deficiency causes birth defects in humans is an open question, but the results of the rat studies merit attention to increasing one's intake during pregnancy. Most foods contain some of this vitamin, but it is primarily found in liver and egg yolks (see Figure 4).<sup>48</sup>

Egg whites contain a glycoprotein called avidin that strongly binds to biotin and prevents its absorption. Cooking neutralizes avidin, but not completely. Frying destroys 67 percent, boiling the egg white directly for two minutes destroys

60 percent, and poaching only destroys 29 percent.<sup>49</sup> Raw egg whites, then, should be strictly avoided, and cooked egg whites should be consumed in moderation—and never without the yolk. The addition of pure egg yolks to smoothies and ice cream will help boost biotin status.

## FOLATE

Folate is probably the vitamin whose essential role in pregnancy is most widely known. It is necessary for the production of new DNA, and new DNA is needed for new cells. The growing life within the womb engages in constant cell division, and the mother must expand her blood supply with the production of new red blood cells as well—these activities demand a generous supply of folate.<sup>50</sup>

Adequate folate intake prevents neural tube defects (defects of the brain and spinal cord) and increases birth weight. It may also prevent spontaneous abortion, mental retardation and deformations of the mouth, face, and heart.<sup>50</sup>

The pregnancy RDA for folate is 600 micrograms (mcg) per day. This figure is based on the amount needed to prevent the folate concentration of the mother's red blood cells from dropping during pregnancy and on urinary markers indicating the amount of folate being used.<sup>51</sup> It assumes that only half of the vitamin is absorbed from food, although this figure is just an average; the rate of folate absorption is dependent on zinc status.

Synthetic "folic acid" is a chemical that is not normally found in foods or the human body. It can be converted into usable forms of folate, but this conversion is limited to about 200 mcg per single dose in healthy volunteers;<sup>52</sup> it may be even more limited during long-term exposure or in certain people. Synthetic "folic acid" does not cross the placenta; folate crosses the placenta as the naturally occurring 5-methyl-tetrahydrofolate.<sup>50</sup> Since the synthetic supplements do prevent neural tube defects, pregnant women should use them if they are not going to eat folate-rich diets; whenever possible, however, it is best to meet the folate requirement from foods. Folate-rich foods include liver, legumes, and greens (see Figure 5 and Figure 7).

FIGURE 5. MEETING THE DAILY FOLATE REQUIREMENT

The folate requirement for pregnancy can be met by one of any of the following (volume after cooking):

- Chicken liver 3.7 ounces
- Calf's liver 2.8 - 6.4 ounces
- Beef liver 8.2 ounces
- Lentils 1.7 cups
- Other legumes 2.0-3.0 cups
- Spinach 2.3 cups
- Asparagus 2.3 cups
- Beets 4.4 cups
- Most greens 3.0-6.0 cups

FIGURE 6. MEETING THE DAILY CHOLINE REQUIREMENT

The RDA for choline during pregnancy can be met by one of any of the following:

- 2.5 8-ounce glasses high-quality Maasai milk\*
- 3.5 egg yolks
- 3.8 ounces beef liver
- 5.5 ounces chicken liver
- 10.6 ounces wheat germ
- 13 ounces bacon
- 1.25 pounds beef
- 1.4 pounds cod, salmon or shrimp
- 1.5 pounds chicken
- 2.2 pounds crucifers, nuts or legumes

\* This figure assumes that Maasai milk during the wet season is five times higher in choline than commercial American milk, as discussed on page 26.

FIGURE 7. FOLATE- AND CHOLINE-RICH MEALS AND SNACKS

Any combination of three meals and one snack and most combinations of three meals will exceed the pregnancy RDA for both nutrients. Folate from raw milk is accompanied by a protein that doubles its absorption. Absorption of folate from food in general is dependent on zinc status. High-quality grass-fed milk may be three to five times richer in choline.

FOOD	FOLATE mcg (% RDA)	CHOLINE mg (% RDA)	FOOD	GLUTEN-FREE CASEIN-FREE (GFCF)	
				FOLATE mcg (%RDA)	CHOLINE mg (% RDA)
3 eggs	71	378			
2 pieces ww toast	43	24	3 eggs (omelet)	71	378
8 ounces milk	12	35	1/2 cup onion	15	5
TOTAL	126 (21%)	437 (97%)	1/2 cup tomato	14	6
			1/2 cup broccoli	84	31
1/4 cup dry lentils	80	23	4 ounces bacon	~	47
1/2 cup chop onion	15	5	1 potato	14	23
1 medium carrot	12	5	TOTAL	198 (33%)	490 (109%)
1/2 cup broccoli	84	31			
Stock	~	~	100 g chicken liver	560	327
8 ounces milk	12	35	1/2 cup cooked brown rice	4	9
TOTAL	203 (34%)	99 (22%)	1 cup cooked spinach	263	36
			TOTAL	827 (138%)	372 (83%)
100 g salmon	29	66			
1 cup asparagus	268	47	SNACKS		
1 potato	14	23	1/2 cup crispy almonds	23 (4%)	36 (8%)
8 ounces milk	12	35			
TOTAL	323 (54%)	171 (38%)	1/2 cup hulled sunflower seeds	159 (27%)	77 (17%)
100 g beef liver	253	426	SMOOTHIE		
3 ounces bacon	~	35	3 egg yolks	75	348
1 cup onion	30	10	1 banana	24	12
1 potato	14	23	8 ounces milk	12	35
8 ounces milk	12	35	TOTAL	111 (19%)	395 (88%)
TOTAL	309 (52%)	529 (117%)			

## CHOLINE

Choline is related to folate because the body can turn it into a compound called betaine that can be substituted for folate in certain chemical reactions. Perhaps for this reason, a low intake is associated with a four-fold increased risk of neural tube defects.<sup>53</sup>

Choline has a much more direct role, however, in the development of the brain. It is especially important for the formation of cholinergic neurons (neurons that use the neurotransmitter acetylcholine), which takes place from day 56 of pregnancy through three months postpartum; and for the formation of the connections between these neurons, called synapses, which occurs at a high rate through the fourth year of life.<sup>53</sup>

Rats fed three times the normal choline requirement during pregnancy give birth to off-

spring with remarkably resilient nervous systems. These offspring have a lifelong 30 percent increase in visuospatial and auditory memory; they grow old without developing any age-related senility; they are protected against the assaults of neurotoxins; they have an enhanced ability to focus on several things at once; and they have a much lower rate of interference memory. Interference memory is when a past memory interferes with an immediate memory—for example, when a past memory of where you parked your car interferes with your ability to find it when you exit the store.<sup>53</sup>

The RDA for non-pregnant women is 425 milligrams (mg) per day. The RDA for pregnant women is 450 mg per day, only 25 mg more. The increase is based on the typical transfer of choline to and accumulation in the fetus.<sup>54</sup> Rat studies, however, suggest that an amount two to three times this may provide the offspring with lasting benefits. Choline can be obtained from liver, egg yolks, and high-quality grass-fed dairy; it can be obtained to a lesser extent from meats, crucifers, nuts, and legumes (see Figure 6 and Figure 7).

## GLYCINE

The amino acid glycine is conditionally essential during pregnancy. Usually, we are able to make enough of it ourselves to meet our basic survival needs; during pregnancy, however, it must be obtained from food. It is the limiting factor for protein synthesis in the fetus, and thus almost certainly a limiting factor for fetal growth.<sup>55</sup>

The fetus can obtain glycine from two sources: the placenta transports glycine from the mother's blood, and it uses folate to manufacture it from another amino acid called serine. The mother can obtain glycine primarily from collagen-rich foods such as skin and bones or bone broths (see Figure 8).<sup>56</sup>

Glycine is depleted in the detoxification of excess methionine, another amino acid. Eggs and meat are the main sources of methionine—it not only constitutes a greater percentage of their total protein but these foods are also higher in total protein than plant foods (see Figure 9).<sup>56</sup> It is important, therefore, for the expectant mother to liberally match her eggs and muscle meats with glycine-rich skin and bones and folate-rich liver, legumes and greens.

## THE DEVELOPMENTAL ORIGINS THEORY

The scientific community is showing increasing interest in what is called the “developmental origins theory.” This theory postulates that the nutritional environment in the womb affects not only the risk of defects immediately apparent at birth, but also the lifelong risk of degenerative disease.

Weston Price supported an early version of this theory in the 1930s and 1940s. In *Nutrition and Physical Degeneration*, for example, he proposed that an increased risk of tuberculosis was largely determined by a deformation of the chest cavity that began taking shape in the womb and

paralleled the deformation of the dental arch that causes crowded teeth. He also demonstrated an association between delinquent behavior and deformities of the dental arch and found the same association with non-delinquent but mentally retarded children as well. In one case, he induced puberty and rapid mental development in a teenager by surgically broadening his maxilla to stimulate his pituitary. The maxilla is the upper jaw bone; it is one of the bones of the middle third of the face, which Price so often found underdeveloped in people who grew up on modern foods.<sup>57</sup>

The modern developmental origins theory (described in greater detail in the sidebar on page 34) observes that birth weight is determined in part by embryonic and fetal nutrition; and low birth weight is in turn associated with an increased risk of heart disease, stroke, high blood pressure, diabetes and kidney disease. To explain these observations, the theory proposes that poor nutrition during pregnancy causes changes in the growth and development of the internal organs, which in turn affects the lifelong risk of degenerative disease. Since poor nutrition during this period can result in lower birth weight, an indirect association between birth weight and the risk of degenerative disease arises.<sup>58</sup>

The ideal birth weight according to these studies appears to be between 8.5 and 9.5 pounds. These figures exclude infants whose birth weights are low because of premature delivery; it is the rate of fetal growth, not the birth weight itself, that counts.<sup>59</sup> The theory does not suggest that the risk of disease is affected only by the rate of growth within the womb—simply that the nutritional environment during this period makes an incomplete yet permanent contribution to that risk.

## NUTRITION FOR FETAL GROWTH

Genetics has little if anything to do with birth weight. A 1995 study examined 62 cases of egg donor pregnancies. The birth weight of the baby was not correlated with the donor's weight, the donor's birth weight, or the birth weights of the donor's other children; it was, however, correlated with the recipient's weight.<sup>61</sup> This study shows that birth weight is determined by the environment that the womb provides rather than the genome present at conception.

An intake of meat protein below 25 grams per day during late pregnancy and an intake of carbohydrate above 265 grams per day during early

FIGURE 8. PERCENTAGE OF TOTAL PROTEIN AS GLYCINE

Glycine is found primarily in skin and bones.

- Chicken Breast 5%
- Chicken Skin 16%
- Chicken Stock 31% (estimate)

FIGURE 9. PERCENTAGE OF TOTAL PROTEIN AS METHIONINE

Animal products have a higher percentage of their total protein as methionine than plant products. Although not shown in the chart, they also contain much more protein per unit of weight or volume. The main sources of methionine in the diet, then, are eggs and muscle meats.

ANIMAL FOODS		PLANT FOODS	
Bacon	2.3%	Almonds	0.8%
Ground Beef	2.5%	Lentils	0.8%
Chicken	2.8%	Tofu	1.3%
Eggs	3.0%	Walnuts	1.9%

pregnancy are associated with a decrease in birth weight. A low intake of animal protein relative to carbohydrate is also associated with an increase of blood pressure at forty years of age.<sup>62</sup> In order to obtain adequate glycine for growth, meat and egg protein should be balanced with the liberal use of liver, skin, bone broths, legumes and green vegetables.

The use of cod liver oil is independently associated with birth weight.<sup>43</sup> Seven out of twelve trials have shown folic acid supplementation to increase birth weight.<sup>50</sup> Iron deficiency compromises fetal growth,<sup>46</sup> and a major deficiency in any vitamin or mineral is likely to do the same.

In general, the role of vitamins and minerals in providing for robust fetal growth is understudied and probably much more important than the scarcity of the available literature would suggest.

## QUALITY, NOT QUANTITY

Although the quantity of growth is a useful marker for the risk of disease, the determining factor is the *quality* of growth. Choline may confer remarkable benefits to the developing nervous system without having much of an impact on head circumference, and vitamin A may provide for robust kidney function without having much of an impact on the size of the waist or torso.

We must take the same care in preparing the human womb for the seed of life to be planted therein that we take to prepare the womb of the earth for the seeds of the plant life from which we and our animals will take nourishment. A generous intake of all nutrients—especially the fat-soluble vitamins, essential fatty acids, biotin, folate, choline and glycine—will supply the soil of the womb with everything the life developing within it needs for robust and vigorous growth and a long, healthy life to come. ☯☯

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## THE DEVELOPMENTAL ORIGINS THEORY

The British researcher David J. Barker first proposed the developmental origins theory in the 1980s to explain a puzzling paradox: as British prosperity increased, so did heart disease; yet geographically, the most heart disease was found in the poorest places in Britain. Barker found geographical associations of heart disease with infant mortality, but not with smoking or dietary fat. Yet even infant mortality had declined over the course of the century, just as prosperity had gone up. When he accounted for a time lag between cause and effect of more than 50 years, however, the paradox was resolved—something was determining the risk of disease at or near birth, not late in life when the disease develops.<sup>58</sup>

Barker and his team of researchers then studied the birth weight of individuals born between 1911 and 1930 in Hertfordshire, UK. This allowed them to study the association at the level of individuals rather than local districts. Infants carried to term with birth weights between 8.5 and 9.5 pounds had a 45 percent lower risk of heart disease than infants carried to term weighing less than 5.5 pounds; they had a similarly lower risk of stroke, a nearly 70 percent lower risk of insulin resistance, and a slightly lower blood pressure in the seventh decade of life. The risk declined steadily and evenly between 5.5 and 9.5 pounds and began increasing thereafter. Later, other researchers found similar trends in the United States and southern India.<sup>59</sup>

Data from the three-month Dutch famine that occurred during World War II suggests that specific types of diseases are associated with specific windows of development during pregnancy. Women who were exposed to this famine during their first trimester gave birth to offspring with an increased risk of cardiovascular disease; women exposed during their second trimester gave birth to offspring with an increased risk of kidney disease; women exposed during their third trimester gave birth to offspring with an increased risk of insulin disorders.<sup>60</sup>

Developmental origins theorists have offered several explanations for these associations: poor nutrition could alter the development of the pancreas, which secretes insulin, and the liver, which secretes cholesterol and blood clotting proteins; muscle tissue could program itself for insulin resistance in order to spare glucose and amino acids for the brain when the supply of these materials is limited; overgrowth of the left ventricle of the heart—which itself is independently associated with cardiovascular disease—could be a response to the need to supply a greater volume of blood to the brain at the expense of the other tissues.<sup>59</sup>

Just as Weston Price had associated the skeletal defects that occur because of poor prenatal nutrition with the risk of disease in childhood and adolescence, researchers are now associating the defects of the internal organs that occur due to poor nourishment with the risk of disease in adulthood and old age.



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# Traditional Remedies for Childhood Illness

By Sarah Pope

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**T**homas Jefferson once said that if people let the government decide which foods they eat and which medicines they take into their bodies, they will find themselves in as sorry a state as the souls of those who live under tyranny.

From the moment our children are born, they are put on the cradle-to-grave medical path. The baby has to have the well-baby checkup and a slew of vaccinations. We are taught that if our children have the slightest sniffle or tummy ache, they should be taken to the doctor right away. Antibiotics and immunizations dominate the practice of modern medicine; dietary and herbal remedies, and plain old common sense, have been stuffed into the closet like a bunch of grandma's clothes, fusty and old-fashioned, not worth considering in this enlightened scientific age.

When we take the power back into our own hands as mothers and parents, and use the wisdom of home remedies to treat our children, we are adhering to that responsibility for health to which Thomas Jefferson referred. Instead of bequeathing the health of our children to a governmental body, parents need the knowledge and confidence to be primary care givers.

My father is a doctor. He was an old-time country doctor who would make house calls in the middle of the night with his black bag. He was the kind of doctor you could call at two in the morning if your child had a fever of 105, and he would come over. Those doctors don't exist much any more. I grew up watching him practice medicine in a traditional way. Even though he was a conventional doctor, he still practiced very traditionally. When I was a little girl, I would often go on house calls, go to the hospital with him and make his rounds. A lot of my expertise comes from the wisdom I observed growing up watching my dad in his medical practice.

#### ADVANTAGES

On reflection, the advantages of home remedies are obvious. First of all they are non-toxic. Recently, we have been hearing about cold remedies pulled off pharmacy shelves. Some of them have been on sale for decades and suddenly in the last month or so we learn that these should not be given to children under six years old. That news was a shock even to myself, jaded as I am about over-the-counter medicines and pharmaceutical drugs. At least with home remedies, you know you are not going to poison your children.

These remedies are also low in cost. Many of the best home remedies don't cost any money at all.

Another advantage concerns speed of treatment. You don't have to call anybody or wait for a call back.

Home remedies prevent your child from being used as a guinea pig. With home remedies, your child is not going to be one of the statistics from a toxic over-the-counter medicine or a pharmaceutical drug that was never approved

for children but is now prescribed for children—something that happens often these days.

Home remedies work with the immune system rather than suppressing it. Acute illness—manifesting as diarrhea, runny nose, vomiting, headache, and so forth—is actually good for your child. Managed properly, acute illness can give your child more vitality and prevent chronic illness—which is not good for your child.

Home care also strengthens the bond between parent and child. When my nine-year-old son is not feeling well, he comes to me and tells me how he feels. He trusts me, he knows I can make him feel better. He is not afraid of me. Most children are afraid of doctors. But they have a relationship with their parents and when their parents are able to make them feel better at a time when they are at their weakest and most vulnerable, the bond with their parents is strengthened.

With these advantages in mind, let's turn to some traditional remedies for common childhood illnesses.

#### EAR INFECTIONS

Childhood ear infections are intimately connected to diet. Well-fed children do not get ear infections and breastfed children whose mothers have a good, traditional diet simply do not get ear infections. If you are breastfeeding and the your baby is getting ear infections, then you need to reexamine your own diet.

The most common dietary culprit is pasteurized milk—both in the infant and in the breastfeeding mother.

If, despite your best efforts, an ear infection occurs, a warm wheat bag on the ear provides enormous pain relief. A warm wheat bag is made of fabric filled with plain unground wheat ker-

Home care also strengthens the bond between parent and child.

#### WHEN HOME REMEDIES ARE NOT APPROPRIATE

**TRAUMA:** If your child has a serious injury, head for the emergency room. Our trauma doctors are wonderful gifts to our society and we need to make use of them when bad things happen. When your child falls out of a tree and a bone is sticking out through his skin, you don't want to treat that at home.

**EXTREMELY HIGH FEVER:** Most fevers play a beneficial role in your child's health but an extremely high fever (over 104 degrees) can be a dangerous situation for a young child and you may need to get emergency care.

**TROUBLE BREATHING:** This is another situation that calls for quick action. If a child is unresponsive, limp in your arms, or has glazed eyes, you need to get help. Dial 911 or hurry him to the emergency room.

## MODERN MEDICINE FROM DAY ONE

Modern medical intervention begins the moment a child is born—baby's umbilical cord is quickly severed, he is separated from mom, is poked and prodded, gets things squirted in his eyes, fed sugar water and stabbed with vaccination needles. Both parents need to be prepared in advance to prevent these unnecessary and often harmful practices. Here's a checklist to use for guidance:

**BIRTH CENTER:** Most of these modern practices can be avoided if you have your baby at a birth center. You have a lot more control about what goes on there and can usually prevent these interventions unless they are absolutely necessary. If you are going to have your baby at a hospital, you should discuss your wishes with your obstetrician beforehand, backed up with a typed and signed list of your instructions to give to hospital staff.

**UMBILICAL CORD:** The umbilical cord should not be cut until all the cord blood has drained back into the baby. This cord blood serves as an important source of iron during the first six months of life.

**MATERNAL SEPARATION:** Baby should not be separated from mom at birth. If you have had a natural birth, both you and your baby will be on high-adrenaline mode for an hour or so afterwards. This is a very special bonding time that should not be interrupted by poking and prodding.

**NO SUGAR WATER!** Baby will begin breastfeeding immediately if you put him to your breast—you will be amazed at his rooting and sucking reflexes. Immediate breastfeeding stimulates the production of colostrum, Nature's wonderdrug for the immune system. Baby does not need sugar water!

**VITAMIN K SHOT:** Just say no! This is actually a vaccination that has been linked to childhood leukemia. The vitamin K is synthetic and it comes in a liquid that contains benzyl alcohol, carbolic acid, propylene glycol (which is antifreeze), acetic acid, hydrochloric acid, lecithin and castor oil—all these injected into the blood of your newborn. The rationale for the shot is that infants don't have vitamin K—needed for blood clotting—in their bloodstream for the first eight days of life, so if there is bruising during delivery, or if he is in a car accident on the way home from the hospital, he might bleed to death. But if Mom's blood level is very high in vitamin K during pregnancy, some will go through the placenta and into the infant. Goose liver, cheese and egg yolks are excellent sources—and these are foods Mom should be eating anyway. A cup or two of nettle tea each day starting about 36 weeks gestation is another way to build vitamin K stores.

**EYE DROPS:** Even birth centers have to be dissuaded from putting silver nitrate eyedrops into a newborn's eyes. The rationale for this practice is the prevention of blindness due to infection encountered in the birth canal. But we know that a diet containing lots of fermented foods ensures the right flora in the birth canal, flora that actually protects the baby against infection. While the drops may not be particularly harmful, they obscure baby's vision during the critical first hour of bonding. If baby gets a little infection, express a few drops of colostrum into a cup and put one drop in each eye—this will clear it right up.

**JAUNDICE:** Most babies are jaundiced a few days after birth; if they are boys and breastfed the likelihood of jaundice is high. This happened with my first son when I took him to the pediatrician for his 48-hour check up. He was quite jaundiced and the doctor read me the riot act on all the bad things that can happen with jaundice. He wanted to send me home with special equipment that required blindfolding and putting him under lights for a certain period of time every day, to break down the bilirubin in his blood. I called my country-doctor dad, who was incredulous. He explained that the baby's liver doesn't work well until about day four. Put his crib by the window, he told me, and the baby will be fine in about five days. In the vast majority of cases, jaundice is nothing to worry about but the doctors will try to frighten you anyway. This was an important new-mom lesson for me—never make a medical decision quickly on the basis of fear.

**VACCINATIONS:** Whether or not you decide to vaccinate your child, vaccinations should not be given before the age of two. To ensure that no vaccinations are given just after birth, present your obstetrician and the hospital with a signed and notarized statement, preferably accompanied by a letter from your lawyer, that your child is not to be vaccinated in the hospital. Just to make sure, do not allow your newborn to be separated from you or your partner during your hospital stay.



nels—you can make your own if you want. These are widely used in Australia. The only reason we have ever used the microwave in our house is to heat the wheat bag. You put it in the microwave with 1/2 cup of water for a minute or two so that it becomes just hot to the touch. These are really comforting for the child.

Drops of warm olive oil in the ear provide relief although it may be difficult to get your children to agree to this.

Ear candling also provides relief. This is how we healed the double ear infection my son had at 15 months (this was before we discovered the WAPF diet). Ear candles don't really clean out your ear—that is misinformation—but they blow warm smoke into your ear that helps dry out any moisture that may be in there.

## HEADACHES

Many kids are getting them these days. Once again, diet plays a big role. If your child is eating right, he just won't get headaches. Headaches often occur when blood sugar is low, so three

solid meals a day, with adequate animal protein and plenty of fat, form the basis of prevention. Avoid sugar and MSG—both will cause headaches.

They only time my children get headaches is when they are dehydrated—often after playing soccer. Coconut water, kombucha and other fermented drinks are the best way to rehydrate; they are much better than plain water. We use canned coconut water at sporting events. If none of these types of beverages is available, have your child drink plain water, but not more than two four-ounce drinks every 30 minutes; otherwise it will just go to the kidneys.

Another remedy is a mild cup of green tea, but this should only be used as a last resort. Small amounts of caffeine and caffeine-like substances found in tea can have a medicinal effect but obviously should not be given to children on a regular basis.

## FEVERS

Many parents panic when their child has a fever. I did too the first time my child had a high fever. Rule number one: don't try to lower a fever, and certainly don't use Tylenol or ibuprofen. It would be best if you just threw these drugs away. Instead of panicking, honor your child's fever—it is accomplishing important things in his body.

My father never brought down our fevers. I am one of seven children, so we had a lot of fevers. He taught me that bringing down a fever only prolonged the illness and weakened your vitality for the next illness to come.

## DIET BASICS FOR PREVENTING CHILDHOOD ILLNESS

Children need a diet of basic, wholesome foods. They need these foods three times a day. They need meals prepared by a real person, not a machine in a factory. It doesn't matter whether the meals are plain or fancy. To keep things simple, just remember these basics:

**RAW MILK:** You can make a lot of mistakes and still have healthy children if raw milk is included in their diet. Do not give pasteurized milk to your children—it is associated with frequent ear infections, allergies, digestive problems and lots of other maladies. If you cannot get raw milk, then use raw cheese and bone broths as sources of calcium.

**USE BUTTER LIBERALLY:** Butter is a healthy food. Butter substitutes are poison.

**COD LIVER OIL:** Children should receive a dose of cod liver oil that provides about 5000 IU vitamin A and 500 IU vitamin D daily. Use an eyedropper or mix the cod liver oil with a little water or fresh juice. Cod liver oil can be started as early as three months.

**EGG YOLKS:** Very important for neurological development. Children can have the whites also after the age of one year, but the yolks are the important part. Fix eggs the way your child likes them—the important thing is that they get those yolks. Do not feed raw egg whites.

**LIVER:** Introduce puréed calf, chicken or duck liver early so your child becomes familiar with the taste. If older children refuse liver, chop it up very fine and add it to soups, chili, ground meat dishes, etc. Be sneaky!

**FERMENTED FOODS:** Yogurt or kefir, sauerkraut and other fermented foods will provide beneficial bacteria, so critical for physical and emotional health.

**AVOID:** Do your best to avoid junk food, fast food, microwaved food, breakfast cereals, soft drinks, sugar and white flour.

I remember him saying, “No, I can’t bring down your fever because you’ll get sicker quicker and next time it will be worse.”

Repeated forced reduction of childhood fever has been linked to childhood cancer. And eliminating fever will usually cause a secondary infection. When you bring down a fever you start a domino effect toward antibiotic use. If you want to avoid antibiotics, don’t bring down the fever. Fever reduction suppresses the immune system. Your child is trying to get well himself with the fever and when you bring it down you are opening him up to a secondary bacterial infection that will further entrench the virus or bacteria. It cannot be stressed enough that fever has an important role to play in your child’s overall wellbeing.

Why do our bodies produce fever? One reason is that fevers slow down pathogens. The germ, bacteria or virus causing the child’s distress wants to replicate every few minutes and the fever slows this process down. It slows down the spread and severity of the illness. So when you bring the fever down you are giving free license to the virus or bacteria to run amuck. And don’t panic if your child’s temperature gets to 102-103 degrees—this is the ideal range for a fever.

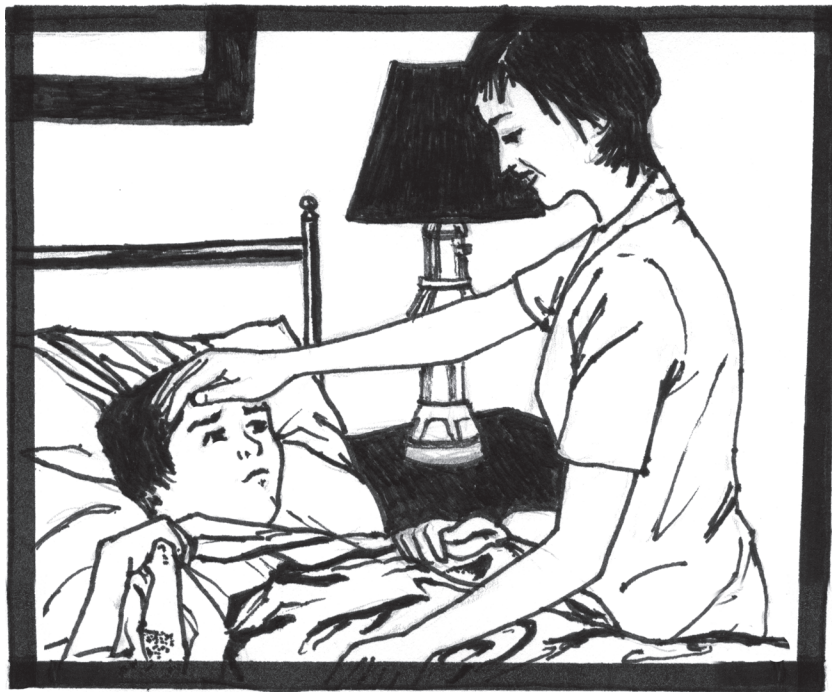
I find that holding your child is the best home remedy for fever. When they are feverish, they want to be with you. Put on a light robe and crash on the couch with your child and hold her for hours if you need to. If you let the fever go and just let the child’s body do what it is trying to do, the fever won’t last very long – just a few hours.

You can take their temperature if you want to, but it is not necessary. Put your lips on their forehead, and if the child seems hot, you know they have a fever. I can tell within a point or

two what their temperature is. My dad taught me that—he never took our temperatures. He knew the temperature.

Sometimes a fever will go for three days. It will go up and down, with peaks and valleys, and it usually peaks about 4-6 in the afternoon. If your child has a fever in the afternoon followed by a good night’s sleep and no fever in the morning, that doesn’t mean he is over it. Don’t send him to school until you know what happens at 4-6 in the afternoon. The fever is likely to come back in a lot of cases. Until you’ve passed a late afternoon with no fever, your child is not yet on the road to recovery.

Should you feed or starve a fever? My father taught me that food will naturally drop a fever within about 20 minutes and this drop will last for an hour or two. My father always believed that it was fine to feed a child with a fever if the child was willing to eat. But don’t force food if he doesn’t want it. And you don’t have to give your child a lot of food. Just a few bites of scrambled egg or a few sips of broth can bring that fever down a bit. It will



not make the fever go away but will manage it hopefully within the 102-103 degree range.

If a child’s fever is very high—over 103 degrees—then you need to take steps to bring it down. A cool water enema is one good way to do this. Enemas have such a bad rap. Nobody likes them but they are a very effective remedy for many things. You can get an enema bag from any pharmacy for about ten dollars and they’re easy to

administer. If the fever is getting really high, just get a thick beach towel and put it in the tub. Lay your child on his side without taking clothes off. Slide their pajamas down a little. Place 1/2 to 1 quart warm filtered water in the bag and insert the enema nozzle. Your child will start to feel pressure and will want to go to the bathroom—the water usually doesn’t run out. Then gently put him on the toilet and let him go. This will usually bring the fever down by a degree or two.

High fevers—those that range between 104 and 105 degrees—are not dangerous in themselves, but they make the metabolism run very fast and increase the risk of dehydration. Blood sugar often drops, which can lead to convulsions. Your child can sip 50 percent diluted fresh fruit juice to keep tissues hydrated and blood sugar levels in the normal range. If your child will not take anything, you can administer about 4 ounces diluted fruit juice rectally using a bulb syringe. The body will absorb it rectally.

It won't run out. This may save your child a trip to the emergency room.

Fever also depletes vitamin A so be sure to give your child drops of cod liver oil under the tongue while the fever is high.

On the other hand, if your child is running a low-grade fever day after day, you can help her generate a fever by giving her a fever bath. Put her in the tub. Fill it with water as hot as she can stand. You can get it hotter for them if you put them in it while you are filling it. You want it pretty hot, but still comfortable. Leave her in the bath for 10-12 minutes, then get her out, dry her quickly and wrap her up tight. Put her into bed, well covered up. This should help the fever rise to the point where it can be effective and by morning, she may have a normal temperature.

#### TUMMY TROUBLE

This usually happens when we travel. Slippery elm tincture is my favorite home remedy. We have in our medicine cabinet and always take it with us. Give a few drops in a little water and the tummy ache is gone in about 10 minutes. This helps for a little bit of gas. You can purchase a glycerin-based, non-alcohol tincture of slippery elm at the health food store. Follow the directions on the bottle for the dose.

Also, a wheat bag on the stomach or a warm bath will do wonders for a tummy ache.

#### VOMITING

Here's a country doctor tip: once your child starts vomiting, don't give him food, water or liquids for two hours. The stomach wants to rest and if you give food or liquids, it will prolong the vomiting. This can be hard because after vomiting, children are thirsty. Wait as long as you can before giving liquids—two hours is best. If the child is very thirsty, he can suck on an ice cube, but even that may be too much.

I once contracted salmonella and experienced severe vomiting. Even sucking on ice chips made me vomit. I was dangerously dehydrated. In cases like this, administer 50 percent diluted fresh fruit juice rectally with a bulb syringe.

#### DIARRHEA

Nothing works better than broth for stopping diarrhea—what a wonderful, wonderful food!

However, many parents give it in the wrong way—as an 8-ounce serving all at once, and then again several hours later. Instead give broth a few tablespoons at a time and much more frequently.

Broth works because the gelatin in broth binds up the liquid in the colon. It gives bulk and helps to stop the loss of fluids.

With really severe diarrhea, you can give an enema to counteract dehydration.

#### PINK EYE

Place a drop or two of raw milk or colostrum in each eye—this works wonders. Frequent pink eye may be a sign of vitamin A deficiency, so pay attention to the daily dose of cod liver oil.

#### CHICKEN POX

Let the illness run its course; and let any fever do its work. The main thing is to relieve itching, which can be done with baking soda baths. Use a one-pound box per bath.

#### BOILS

Boils are another way the body gets rid of toxins. Don't give antibiotics—honor the boil!

The best way to treat a boil is to apply a compress of gently warmed cabbage leaves, cooked onion, slices of tomato, plantain leaves, chickweed or crushed garlic. Cover with a piece of plastic wrap and tape the edges with surgical tape. This will keep the poultice wet. Change the poultice several times per day. This can help bring the boil to a head. Then it can be gently pricked with a sterilized needle, drained and allowed to heal.

#### SORE THROAT

My father refused to prescribe antibiotics for sore throat but insisted on letting it run its course, even if it was very painful. The best remedy for sore throat is a fever. If fever is not developing, use the method described above.

A gargle with hot salt water or hot water with honey and slices of ginger can help, and a hot lemon-honey drink can also be soothing. Broth and cod liver oil are very important in treating soar throats.

A prolonged and severe sore throat may be cultured and diagnosed as a strep throat, but these diagnoses mean little as every throat contains the strep organism. Strep can have complications and you may be tempted to give an antibiotic—this is your decision based on how strong you gauge your child to be and how long you have followed the dietary principles.

#### WHOOPIING COUGH

This is a terrible illness but a vital strong child can handle it. The harsh cough lasts an average of seven weeks. It is contagious so they can't go out. On whooping cough.net you can play a recording of a cough to know whether this is what your child has.

My three children had whooping cough for a month. I never used antibiotics. My children blew out so many toxins that not one had a cold or even a runny nose for over a year. And children who have whooping

The goal of home remedies is not to stop the symptoms, just reduce their severity.

cough never get asthma.

Remedies that work for whooping cough are lacking. Drosera, a homeopathic preparation, is often suggested but my experience is that it is not very effective. Elderberry syrup is another traditional remedy for the cough, but I found it of very little help. Even antibiotics don't do much at all except eliminate the chance of spreading whooping cough. Once the cough starts, it must run its course and nothing much can reduce its severity.

The one thing we found that helped with whooping cough was purchasing a (very expensive) HEPA filter for the kids' rooms. This helped to reduce the frequency of coughing fits, as anything can set off a coughing fit, from eating, to getting a tickle in the throat to simple dust in the air.

Be sure to keep up the cod liver oil during the illness as vitamin A helps lung function.

#### HONORING THE ILLNESS

The goal of home remedies is not to stop the symptoms, just reduce their severity. Honor what the body is trying to do and facilitate the conclusion of the process without complications that might land your child in the emergency room. Let the child be sick to its conclusion.

There are many other home remedies, such as echinacea, garlic, oil of oregano, grapefruit seed extract, and what I call the master tonic, a fermented brew of garlic and onion, for infections. These all can be useful but I find even holistically-minded parents use them too quickly. The first sign of a runny nose, out comes the echinacea. My dad taught me that if you always give the body a crutch, it is always going to expect one. If you can avoid giving the body a crutch, don't give it. Let the body do the work itself.

Once when I was 15, I got hives from the top of my head to my feet. My father wouldn't give me anything. I suffered for four days with horrific hives—all he needed to do to relieve the suffering was give me Benadryl. But after that horrible experience, I have never gotten hives again in my life. Coincidence? I don't think so.

Over time, even natural antibiotics can weaken the body's ability to generate an acute illness. An example is a child who gets a 103.7 fever every time she teethes. What an incredible

vitality that allows this child to generate such a nice high fever! You don't want to keep bringing it down to the point where the body gives up and doesn't generate a fever like that any more, because fever can be so beneficial to health.

#### CHRONIC DISEASE

When your body gives up and stops generating acute illness, you have set the stage for chronic illness. Many cancer patients have not had a cold in years. My dad used to see that. He had a patient come in who hadn't been sick in years and tests showed he had cancer everywhere. When your body has become too weak to generate an acute illness, the toxins are going to build up and result in chronic disease.

Nephritic syndrome in children is a condition where the kidneys leak protein. The only known cure for this serious condition is contracting measles—the measles vaccine does not work. Somehow when the child has nephritic syndrome and contracts measles, the acute symptoms blow out the nephritic syndrome.

Cancer remission is frequently triggered by getting strep. Doctors have known about this for years. In some cases, using strep, they have triggered a 40 percent remission rate.

#### THE COMPASSION TO ALLOW SICKNESS

In summary, when your child gets ill, don't panic. Children fed a traditional diet are well able to meet the challenges of an acute illness. Children that are allowed to get sick and then recover under their own power end up infinitely stronger as adults.

Can we have the compassion it takes to just let our child be sick? Our tendency is to jump on it, squash it, fix things and get them back to normal right away. Instead, take a step back, take a deep breath and ask what you can do to help your child weather the challenge? Because acute illness can be a real gift. ☯☯



# Soy Alert!

## THE EFFECTS OF ANTENATAL EXPOSURE TO PHYTOESTROGENS ON HUMAN MALE REPRODUCTIVE AND UROGENITAL DEVELOPMENT

By Bernard Poggi

Recently in the news we have been hearing about declines in male fertility and increases in reproductive birth defects in males. We have discovered substitutes and replacements for products that have been part of our culture for hundreds of years, and we readily embrace new developments and technologies that make our lives easier. Now more than ever consumers are being exposed to many factors that may disrupt our delicate hormonal balances.

In the review entitled “A Sea of Estrogens,” author John Biggs warns us about the introduction of a whole range of endocrine disrupters into our food and the environment.<sup>1</sup> Endocrine disruptors, including pesticides, industrial chemicals, pharmaceuticals and even plant hormones are having fundamental effects on immune function and the reproductive system. These compounds mimic hormones produced and regulated by the body’s delicate hypothalamic-hypophyseal-gonadal axis. Some of the most common industrial hormones are those that mimic the effects of estrogens, including dichlorodiphenyl-trichloroethane (DDT), bisphenol A, diethylstilbestrol (DES), genistein and enterodiol. When ingested, these estrogen-mimicking compounds (EMC) alter the normal levels of estrogen in both females and males by binding to and activating estrogen receptors.

### CONSEQUENCES FOR MEN

Since elevated estrogen levels are not normal for men, scientific investigators have been raising questions about the effects of these environmental estrogens on the male endocrine system. Many scientists have noted a host of consequences that accompany elevated estrogen levels. In men who ingest these EMCs, common symptoms include low semen concentrations, poor semen quality,

lack of sperm motility, and eventually a reduced sexual appetite,<sup>2</sup> problems that can usually be reversed when exposure to estrogens is terminated. For the developing male fetus, however, these environmental estrogens can have severe and life-long detrimental consequences to reproductive and urogenital development.

Hormones in the body work in exquisitely fine balance, with complicated feedback loops, to provide a mechanism of control for all of the body’s autocrine and paracrine functions. Early anatomists described the hypothalamus and pituitary glands as the “masters” of bodily functions,<sup>3</sup> viewing the intricate synergy of these organs as the driving force of the entire body. Since the times of classical anatomy in the late 1800s and in the early 1900s, scientists have confirmed the importance of these organs through ablation procedures. It was easy for them to remove the pituitary gland, for example, and observe how the animal would cope without it. They were able to see how this little organ influenced almost every component of life, and how its removal was detrimental to the longevity of the animal. Later, scientists tested the effects of these “master organs” by observing the effects of artificial supplementation of certain hormones released by, produced at, or controlled by the various hypothalamic-hypophyseal axes.

Early on, they were able to define the interplay between the parts of these axes at which the action of change would take place. They determined the role of the gonad, for example, in the release of sex hormones such as testosterone in males and estrogen in females. This led to the recognition of the hypothalamic-hypophyseal-gonadal axis, where sex hormone levels in the blood feedback negatively to halt synthesis and secretion of the hormones until blood levels be-



For the developing male fetus, however, these environmental estrogens can have severe and life-long detrimental consequences to reproductive and urogenital development.

The development of the male body plan, and hence the process of de-feminization, depends on the presence of androgens along with the absence of estrogens.

come stabilized. We now know that this kind of mechanism allows normal function in every organ system encapsulated by our body.

#### SEXUAL DIFFERENTIATION

Early in life, a bipotential gonad develops, and within the medullary (central) region of that gonad lies the key to gender determination. At the inception of the embryo, as sperm meets egg, sex chromosomes from the mother (X) and from the father (either X or Y) are combined to provide the potential of gender—but not the key to sexual differentiation. Sexual differences are determined by a gene on the Y chromosome called the SRY gene. The SRY gene, acting like a transcription factor, mediates chromatin crossing over, which is vital in sexual differentiation. As a result of the presence of that specific gene, the female program of development, which is the *modus operandi* of biology, is suppressed and the growth of a testis is allowed to occur. In the absence of the SRY gene, a gonad develops into an ovary even if the genetic makeup of the embryo is XY.<sup>4</sup>

As a function of the SRY gene, cells of the normal gonad differentiate to produce the hormones and factors that allow for masculinization or feminization. In males, the presence of SRY together with testis-determining factor causes two main cell types to develop in the gonad, namely the sertoli and leydig cells. Leydig cells work in conjunction with the hypothalamal-hypophyseal axis and begin to produce the appropriate hormones for reproductive and urogenital formation. In the testis, testosterone will begin to be the predominantly produced hormone. The presence of testosterone has a twofold effect on the developing fetus: first, testosterone helps to further the development of the wolffian ducts (the embryonic antecedents of the vas deferens and ureter); and secondly, testosterone is converted into androgens (dihydro-testosterone) via 5-alpha-reductase. The presence of mullerian inhibiting substance (MIS) along with androgens causes the degeneration of the mullerian ducts (the embryonic antecedents of the upper vagina, cervix, uterus and oviducts) and spurs the development of the wolffian ducts, the penile shaft, the glans, and the descent of the testicles from the abdominal cavity.

In females, however, the absence of the SRY gene causes the bipotential gonad to continue

developing into an ovary. The ovary does produce testosterone, but most of that testosterone is quickly aromatized (converted by enzymatic action) into estrogens, none of which can be converted back into androgens. The lack of MIS, the lack of significant androgen levels, and the presence of estrogens allow the formation of the ovaries, fallopian tubes, uterus, cervix, upper and lower vagina and clitoris. Together these organs form the main components for reproduction later in life and for the elimination of wastes in the form of urine upon birth.<sup>5</sup>

Significant deviations in the levels of the appropriate sex hormones can cause severe consequences in reproductive and urogenital development, especially at the time of fetal growth and the pre-pubertal period. In humans, the process of masculinization or feminization is not a black and white proposition but a process that takes place on a continuum over the years. The Prader scale measures a person's development on that continuum by looking at the development and at the location of the urethral opening, clitoral hypertrophy, and the location of the testicles or labia compared to the glans or clitoris, respectively.<sup>6</sup> The development of the male body plan, and hence the process of de-feminization, depends on the presence of androgens along with the absence of estrogens, while the development of the female body plan, and hence the process of de-masculinization, depends on the presence of estrogens along with the lack of androgens. Humans differ from other animals in this regard, as animals do not develop so gradually along this continuum and the importance of sexual self-identification for animals is much less significant than it is for humans.

Research performed on human males with androgen insensitivity syndrome compared to the classical sexual development models which were created from research on rats, indicates that the rat model does not account for the sensitivity of the hypothalamal-hypophyseal-gonadal axis with fluctuations in hormonal levels, namely androgens and estrogens.<sup>7</sup>

#### PROBLEMS WITH DES

Over the years, several researchers have attempted to investigate the extent to which estrogen-mimicking chemicals affect the development

of male children *in utero*. The first of such papers, published in 1976, detailed the negative effects of the EMC diethylstilbestrol (DES).<sup>8</sup> Researchers looked at how treatment of pregnant women with DES affected their male offspring. They found that male offspring of women who had received DES as treatment prior to fertilization or were receiving DES post-implantation for prevention of miscarriage had much higher rates of severe reproductive and urogenital abnormalities. This important double blind study looked at 119 control males and 134 DES-exposed males ages 21-23 via physical examination, urine cytology (pre and post ejaculation), prostate fluid cytology and biopsies (for cyst diagnosis). Researchers compared urogenital pathologies, blood hormone levels and complete semen analysis and found results consistent with their original hypothesis of increased abnormalities in the DES-exposed males. Findings included increased unilateral and bilateral epididymal cysts, increased unilateral and bilateral testicular hypertrophy, decreases in flaccid penis length (hypoplastic penis length less than 4 cm), slight decreases in blood follicle stimulating hormone (FSH) and testosterone levels, and severely decreased sperm count and sperm motility. The authors concluded, "Administration of DES during pregnancy appears to be followed by latent effects on the male genital tract. . . impair[ing] fertility in a certain number of patients."

A paper published in 1983 detailed the extent to which DES caused problems for children and adults whose mothers were treated with DES during pregnancy.<sup>9</sup> Researchers found that male children who were exposed to DES during gestation were 80 percent more likely to be born with a genital deformation. Even males who were born with normal-appearing genitalia had decreased testicular volume when fully matured.

#### ESTROGENS IN SOY

A number of studies have focussed on the effects of the phytoestrogen genistein, found in soy foods, on males. In 1995, researchers demonstrated the effects of exposure *in utero* to genistein on the rat endocrine system.<sup>10</sup> They injected groups of rats with various EMCs during gestation days 16-20 out of the total 23 days. Groups were injected with EMCs in the following

manner: group 1 received 25000 micrograms of genistein; group 2 received 5000 micrograms of genistein; group 3 received 5 micrograms of DES; and group 4 received 50 micrograms of estradiol benzoate. A fifth group served as a control and received plain corn oil. The team looked at a long list of urogenital and endocrinological effects, including anogenital distance (AGD) or the length of tissue separating the anus and genitalia, volume of the sexually dimorphic nucleus in the preoptic area of the hypothalamus (SDN-POA) and the age of onset of puberty. Results of this study provided evidence that exposure to genistein *in utero* can influence markers known to be sensitive to estrogens. The findings also showed that the time of exposure during gestation, and the amount of the phytoestrogen ingested, are important factors in determining the extent of the pathology exhibited at birth and during the pubertal years. Although genistein did not adversely affect pregnancy, survival or delivery, exposure *in utero* caused a shortening in AGD and overall feminization of external male genitalia, even at low doses.

Another study demonstrated that genistein in soy products causes a decrease in SDN-POA volume in the hypothalamus, resulting in smaller differences in dimorphic behaviors (behaviors that differ according to sex) in the rats.<sup>11</sup> Low-dose genistein also proved to delay puberty as the necessary hypothalamic-hypophyseal-gonadal axis surges were decreased, resulting in mixed signals for development of masculinization in young rats.

From these findings the researchers were able to conclude that genistein, at high and low levels, influences the hypothalamic-hypophyseal-gonadal axis-dependent aspects of development by modifying both "morphologic and neuroendocrine endpoints." In other words, genistein caused changes in thinking and behavior patterns, as well as in reproductive development.

Further research by the same team demonstrated how serious these morphological changes can be to male subjects.<sup>12</sup> This research showed conclusively that low levels of genistein decreased sexual dimorphism in rats, causing both males and females to act in the same manner during courtship, sexual arousal and during intercourse. In effect, male rats were expressing

Although genistein did not adversely affect pregnancy, survival or delivery, exposure *in utero* caused a shortening in AGD and overall feminization of external male genitalia, even at low doses.

When estrogen levels are elevated during the time of testicular descent, the androgens that reduce gubernacular turgidity are not produced and secreted at the right levels for descent to take place.

female sexual behaviors including lordosis, the typical female mating stance. In essence, exposure to genistein in the womb rendered the males non-receptive to typical female behaviors.

This research provides proof that phytoestrogens are strong enough to affect the endocrine system of the developing fetus and that they are not regulated or broken down by the mother's hypothalamic responses.

Many papers written on the topic of organic estrogens and endocrine disrupters speak about a general feminization of male genitalia as the main visible pathology. This feminization includes undescendence of the testes from the abdominal cavity as is seen in cryptorchidism, reduced number and quality of semen, and a dramatic decrease in penile size as is seen in hypospadias, a birth defect of the penis. These pathologies are becoming more and more frequent in number during the various stages of development, from fetal growth to post-puberty.<sup>13</sup>

During normal fetal development, the testicles descend as a result of a reduction in gubernacular turgidity and intra-abdominal pressure which pushes the testis into the scrotum.<sup>14</sup> When estrogen levels are elevated during the time of testicular descent, the androgens that reduce gubernacular turgidity are not produced and secreted at the right levels for descent to take place.

This means that the child is born and grows with either one or both testicles undescended. After birth the undescended testicle is either surgically lowered from the abdominal cavity into the scrotum or it remains in the abdomen where it stops functioning as a reproductive and endocrine gland. If both testicles remain undescended and they are not surgically lowered within the first few months of life, then the male is rendered impotent and will require removal of the testicles because of an increased cancer risk.

#### SPERM COUNTS

Sperm counts have seen significant decreases worldwide, falling 50 percent from levels measured in the 1930s.<sup>15,16,17</sup> Statistics such as these are a nightmare to today's man. In a comprehensive review of 61 studies on the topic of worldwide sperm count reductions published in 1996, researchers found an association with

agriculture and low sperm count.<sup>18</sup> Areas with the lowest average sperm counts include the state of Iowa, and the countries of Thailand and Nigeria. In New York sperm counts decreased from 120.6 x 10<sup>6</sup> sperm per ml of ejaculate in 1938 to 79.0 x 10<sup>6</sup> sperm per ml of ejaculate in 1976.

A Japanese researcher, M. Fukutake, makes a connection between consumption of soy products and a decrease in sperm counts.<sup>19</sup> In his 1996 paper, he noted the fact that affluent nations with increasing reductions in sperm counts have been importing more and more soy and soy-products, which historically have been consumed only in the Orient.

More recent findings show that the numbers of functional sperm are even lower than those cited above and researchers are finding a large number of immobile, double-headed, double-tailed, and broken sperm that have no real function because of their inability to fertilize an egg, even in close proximity.<sup>20</sup> The scientific explanation for this reduction in sperm quality has to do with an overall reduction in androgens that occurs when there are significant levels of estrogen in the body. The reduction in androgens causes sertoli cell function to be disturbed, leading to impaired germ cell differentiation.

#### SERIOUS IMPLICATIONS

The final, and perhaps most troubling trend is that of a significant decrease in penile size. Studies show an alarming number of men who, post puberty, never develop an increase in the flaccid size of their penis.<sup>21</sup> Patients with hypospadias have a total flaccid penile length of less than 4 centimeters. This has serious implications in reproduction and in self-esteem for males. In reproduction, when the shaft of the penis is longer, sperm have less of a distance to travel post ejaculation. This is a problem that comes to fruition only after puberty; thus, ingestion of phytoestrogens even after birth, during the pre-pubertal years, can cause reduced development of the penile shaft.

In the post-pubertal years, exposure to high levels of genistein, as is seen in strict vegetarians who replace animal proteins with soy-based foods, has general feminizing effects on their male anatomy, including reduced sperm production, a decrease in viable sperm, breast develop-



ment and a reduction in sex drive due to an overall decrease in androgens.<sup>22</sup>

#### SOY INFANT FORMULA

In a July 2002 article published in *Vegetarian Times*, author Maria Rabat strongly defended the use of soy infant formula, claiming that it has no negative impact on the child due to its ease of decomposition in the body and that negative feedback in the mother's endocrine system will not allow increases of plasma estrogen concentrations, thus protecting the child in utero from negative impact.<sup>23</sup> This defense follows an article published a year earlier in the *Journal of the American Medical Association*.<sup>24</sup> Lead researcher Brian Strom concluded that the use of soy-based formulas during infancy is safe and has no negative endocrinological impact on the hypothalamic-hypophyseal-gonadal axis of the male, citing a lack of significant phytoestrogen concentrations in the highly processed infant formulas.

However, these two sources of information have reason for severe bias in favor of increased consumption of soy products. *Vegetarian Times* magazine is significantly supported by the multi-million dollar soy industry in the US. And Brian Strom's research was funded directly by The Society for the Consumption of Soy Products. A major flaw in Strom's research was the fact that he relied on data from rat studies, citing the similarity of the rat and human endocrine system. As it has been noted previously, the developing rat is less responsive to long-term changes in physiology due to moderate variations in hormone levels.

Both Rabat and Strom ignore a damning paper published in early 1997.<sup>25</sup> Researchers found that circulating concentrations of isoflavones in infants fed soy-based formula were 13,000-22,000 times higher than plasma estradiol concentrations in milk formula-fed infants. The authors noted that these levels of estrogens would be sufficient to exert biological effects, whereas the contribution of isoflavones from breast-milk and cow-milk were found to be negligible.

#### SUMMING UP

We now have an impressive body of work on the issue of phytoestrogens and male reproduction. These studies have spanned three generations and have taken into account both

the human and the rat model of endocrine function. In summary, males exposed to genistein have a shorter ano-genital distance and testis size, and delayed preputial separation. Perinatal exposure to genistein also contributes to long-term dysfunction in reproductive behavior. Adult male rats exposed to genistein are less likely to mount, intromit and ejaculate during mating tests. Male rats exposed to genistein also have lower testosterone concentrations in adulthood. Perinatal genistein exposure resulted in transient and lasting alterations in masculinization of the reproductive system.

The best way to avoid complications in the reproductive health of male offspring is to avoid foods and chemicals that act as estrogen mimics. This starts with mothers, prenatally limiting their exposure to estrogen-containing products in their diets, from birth control pills and from other sources such as pesticides. During pregnancy, the mother's diet should be quite restrictive of phytoestrogens and therefore of soy-based products. Once the child is born, the best form of nutrition which can be given to the child is breast milk. While breast feeding, mothers should continue to avoid birth control pills and soy foods. Most importantly, soy-based infant formula should be avoided. These formulas, despite common claims to safety, are dangerous to the reproductive health of the male infant.

The endocrinological axes that dictate so many of the body's processes are in fact very delicate. Despite the many variations that our bodies can handle, significant and prolonged variations of gonadal hormones will cause an effect at target tissues. The balance between androgens and estrogens is of fundamental importance in determining normal or abnormal development of the male reproductive tract.<sup>26</sup>

In so many cases children who are genetically healthy are subjected to avoidable morphologies due to our unwillingness or indifference to limiting estrogen-containing products in our everyday lives. One Canadian professor, when he was asked why he dedicated his time and interest to this topic of male genital feminization, put it this way: "We should be thinking at this point of our children and grandchildren. What are we going to tell them if they are sterile or have an altered sexual development?"<sup>27</sup>

The best way to avoid complications in the reproductive health of male offspring is to avoid foods and chemicals that act as estrogen mimics.

We owe it to our children to offer them the reproductive health that will allow them to have a normal sex life and to father children, simply by limiting amounts of organic estrogens in their diets.

We owe it to our children to offer them the reproductive health that will allow them to have a normal sex life and to father children, simply by limiting amounts of organic estrogens in their diets. Above all else, we owe it to ourselves to be the best possible parents in truly caring for the future of our children by ensuring that our children, and therefore we, truly have a future.



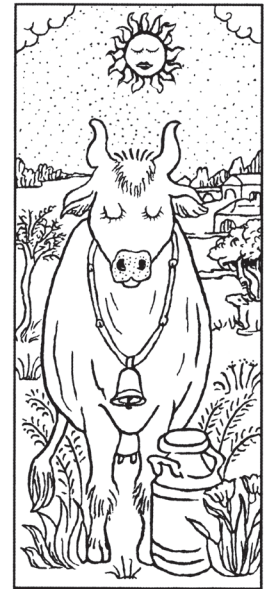
*At the age of five, Bernard Poggi underwent three years of intensive chemotherapy for leukemia and suffered many years of side effects. At the age of 16 he started a program for gang youth in northern California for which he received several awards on both the state and national levels. He graduated from San Francisco State University with a major in biology (physiology) and a minor in Business Administration in 2003. He currently works doing office management and volunteers with several community faith-based and cultural organizations which help new immigrants and those in need. His ethos: to serve humanity in order to reduce human strife—physically, socially and spiritually.*

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# A Campaign for *Real Milk*

RECENT RESEARCH ON HUMAN MILK  
by Sally Fallon



Not since the 1940s have scientists carried out any significant research on raw cows milk, a lamentable situation attributable most probably to the influence of the powerful dairy industry. The fact that we must refer to old studies showing the safety and superior health benefits of raw milk versus pasteurized has been a source of criticism for the raw milk movement.

Fortunately, much recent research exists on the qualities of human milk, and these results are applicable to the milk of other domesticated mammals—cows, goats, sheep, camels, water buffalo and reindeer.

## NOT STERILE

For many years, scientists believed that human milk was safe because it was sterile. This notion has given way to the realization that human milk contains many pathogens. For example, scientists in Finland detected several strains of *Staphylococcus aureus* “known as a causative agent of maternal breast infections and neonatal infections” in human breast milk samples.<sup>1</sup> Scientists in Canada report that breast milk “is a body fluid capable of transmitting blood-borne pathogens when ingested.”<sup>2</sup> In fact, in a screening program for expressed breast milk in China, testing revealed “the alarming fact that our study group had the highest rate of contamination ever reported.”<sup>3</sup> Pathogenic bacteria in the milk included *enterococci* and *Staphylococcus aureus*. The research team speculated that the high rate of contamination “could be due to the Chinese tradition of avoiding bathing for one month after childbirth.” Pathogens are transferred to the suckling infant via breast milk from the skin.

## ANTI-MICROBIAL MECHANISMS

The discovery of pathogens in human milk has coincided with the discovery of multiple, redundant anti-microbial mechanisms in the milk of all mammals, which protect the infant by building immunity and by binding or destroying pathogens. “Protective factors in milk can target multiple early steps in pathogen replication and target each step with more than one antimicrobial compound. The antimicrobial activity in human milk results from protective factors working not only individually but also additively and synergistically.”<sup>4</sup>

These protective factors include immunoglobulins, mucins, lactoferrin, lactoperoxidase, oligosaccharides and short- and medium-chain fatty acids.

## SPECIFIC TO DIFFERENT PATHOGENS

Compounds containing a sugar molecule, such as glycoconjugates and oligosaccharides, are synthesized by the mammary gland. They protect the nursing infant by inhibiting pathogen binding. These compounds are specific to different pathogens. For example, “a fucosyloligosaccharide inhibits infection by *Campylobacter jejuni*. Binding of *Streptococcus pneumoniae* and of enteropathogenic *E. coli* to their respective receptors is inhibited by human milk oligosaccharides. The 46-kD glycoprotein, lactadherin, inhibits rotavirus binding and infectivity. . . a mannosylated glycopeptide inhibits binding by enterohemorrhagic *E. coli*. A glycosaminoglycan inhibits binding of gp120 to DC4, the first step in HIV infection.”<sup>5</sup>

The protective factors in milk inhibit not only the currently present pathogens but also “anticipate new mutations and new pathogens

A Campaign for *Real Milk* is a project of the Weston A. Price Foundation. To obtain some of our informative *Real Milk* brochures, contact the Foundation at (202) 363-4394. Check out our website, [www.RealMilk.com](http://www.RealMilk.com) for additional information and sources of *Real Milk* products.

The research on human milk applies equally well to the milk of other mammals. In fact, because baby animals are born in muck and manure, the protective mechanisms in the milk of cows, goats, sheep, etc., are often even more concentrated.

...<sup>6</sup> The immunological factor IgA, for example “appears to reflect long-term maternal immunologic memory.”<sup>6</sup> This explains the Chinese wisdom—shocking to investigators—of not bathing for a month after giving birth. When the infant suckles from dirty skin, the immunological factors in milk can program the infant for protection against a myriad of pathogens for life! Medical science has had the tendency to foster a man-can-do-things-better-than-nature attitude, but these studies can only inspire awe and wonder at the exquisite processes that support biological life.

#### DISRUPTION BY HEAT

The protective components in mammalian milk are mostly molecules of exceeding complexity, many of them involving protein compounds with precise but fragile folding. Heat disrupts and inactivates most of them, especially the rapid and/or prolonged heating of pasteurization.<sup>7</sup>

That heating reduces the ability of milk to protect against infections is more than just speculation. In 1984, researchers in India carried out a randomized controlled trial involving 226 high-risk newborns given combinations of formula and raw and pasteurized human milk. The highest rate of infection occurred in the group given pasteurized human milk plus formula (33 percent). Those given raw human milk plus formula had a 16 percent rate of infection and those given pasteurized human milk alone had a 14.3 percent rate of infection. The lowest rate of infection was 10.5 percent in the group given raw human milk.<sup>8</sup>

#### SAFER WHEN NOT PASTEURIZED

Researchers in Africa looked at ways of storing human milk. No growth of pathogens was observed in raw human milk stored 4 hours at high temperature (30-38 degrees C), 8 hours at room temperature (15-27 degrees C) and 24 hours at refrigerator temperature (4-10 degrees C).<sup>9</sup> They concluded that “although freezing temperature (0-4 degrees C) seemed safest for breast milk storage, short-term storage in a freezer is not recommended due to the likely hazards of the thawing process.” Another study found that raw human milk was safe for human consumption for up to 72 hours refrigerated.<sup>10</sup> Longer-term storage by freezing did not cause safety problems.

Unfortunately, human milk donated to breast milk banks is routinely pasteurized before freezing, thereby destroying the many protective mechanisms that human milk can confer on premature babies.

#### MORE PROTECTION IN ANIMAL MILK

The research on human milk applies equally well to the milk of other mammals. In fact, because baby animals are born in muck and manure, the protective mechanisms in the milk of cows, goats, sheep, etc., are often even more concentrated. For example, lactoperoxidase, an enzyme in raw milk that kills pathogens using small amounts of hydrogen peroxide and free radicals, is ten times higher in goat milk than human milk!<sup>11</sup>

While research on human milk has revealed the fact that raw milk provides strong protection against disease, the bureaucrats in our US dairy and health departments are mired in 40-year-old science. Next time one of these unenlightened souls tells you that the milk you give your children has to be pasteurized for their protection, ask them whether the pathogen-loaded breast milk you give your infant has to be pasteurized, too.



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