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## **Feeding Babies**

Written by Sally Fallon and Mary G. Enig, PhD

Any effort to ensure optimal nutrition of your baby must begin long before he or she is conceived. The wisdom of primitive peoples is vastly superior to our own in this regard, in that a common practice among isolated groups is the feeding of special foods to both men and women for a period of time before conception occurs. Dr. Weston Price's studies revealed that these foods—including organ meats, fish heads, fish eggs, shell fish, insects and animal fats—were rich in fat-soluble vitamins A and D as well as macro and trace minerals. Couples planning to have children should eat liberally of organic liver and other organ meats, fish eggs and other seafood, eggs and the best quality butter, cream and fermented milk products they can obtain for at least six months before conception. A daily cod liver oil supplement is also advised. (See note on cod liver oil, page 616.) Organic meats, vegetables, grains and legumes should round out the diet, with a special emphasis on the leafy green vegetables rich in folic acid, which is necessary for the prevention of birth defects like spinal bifida.

A good rule for pregnant women is liver once a week, at least two eggs per day and 1 teaspoon cod liver oil daily. A daily ration of superfoods, such as evening primrose oil, bee pollen, mineral powder, wheat germ oil and acerola, will provide optimal amounts of nutrients for your unborn child. Beet kvass (page 608) and kombucha (page 596), with their liver cleansing properties, are useful in preventing future morning sickness—as are foods rich in vitamin B6, such as raw fish and raw meat (pages 231-242).

A cleansing fast, undertaken six months or more before conception, is a good idea; but during the six months before conception and nine months of pregnancy it is vital to consume nutrient-dense foods. Every attempt should be made to enhance the digestibility of the diet through meat broths and the inclusion of lacto-fermented grains, beverages and condiments. All empty calories and harmful substances should be eliminated—sugar, white flour, hydrogenated and rancid vegetable oils, excess of polyunsaturated oils, tobacco, caffeine and alcohol. Oral contraceptives should be avoided during this preparatory period as these deplete many nutrients, particularly zinc, the "intelligence mineral."

The importance of breast-feeding your baby, especially during his first few months, cannot be overemphasized. Breast milk is perfectly designed for your baby's physical and mental development. Breast-fed babies tend to be more robust, more intelligent and freer from allergies and other complaints, especially intestinal difficulties, than those on formula. In addition, colostrum produced by the mammary glands during the first few days of a baby's life helps guard him against colds, flu, polio, staph infections and viruses.

It must be emphasized, however, that the quality of mother's milk depends greatly on her diet. Sufficient animal products will ensure proper amounts of vitamin B12, A and D as well as all-important minerals like zinc in her milk. Lactating women should continue with a diet that emphasizes liver, eggs and cod liver oil. Whole milk products and stock made from bones will ensure that her baby receives adequate calcium.

Pesticides and other toxins will be present in mother's milk if they are present in the diet, so all care should be taken to consume organic foods of both plant and animal origin during pregnancy and lactation. Organic foods also provide more omega-3 fatty acids needed for baby's optimal development. Hydrogenated fats should be strictly avoided as these result in reduced fat content in mother's milk. Trans fats accumulate in mother's milk and can lead to decreased visual acuity and learning difficulties in the infant.

Breast-feeding should ideally be continued for six months to a year. If mother's milk is not adequate or of good quality, or if the mother is unable to breast feed for whatever reason, a homemade baby formula, rather than a commercial formula, can be used. Commercial infant formulas are highly fabricated concoctions composed of milk or soy powders produced by high-temperature processes that over-denature proteins and add many carcinogens. Milk-based formulas often cause allergies while soy-based formulas contain mineral-blocking phytic acid, growth inhibitors and plant forms of estrogen compounds that can have adverse effects on the hormonal development in the infant. Soy-based formulas are also devoid of cholesterol, needed for the development of the brain and nervous system.

Fortunately, it is possible to compose a formula that closely resembles mother's milk. Whenever possible this formula should be based on raw organic milk, from cows certified free of tuberculosis and brucellosis. The milk should come from cows that eat food appropriate to cows, which is green grass in the warm months and hay and root vegetables in the winter, not soy or cottonseed meal. Ideally, the milk should come from Jersey or Guernsey cows, rather than Holsteins, so that it has a high butterfat content. This may be purchased at the farm in some states. Of course, such milk should be produced under the cleanest possible conditions and stored in sterilized containers. But the milk should be unheated. Properly produced raw milk does not pose a danger to your baby, in spite of what numerous public health propagandists may assert. Raw milk contains enzymes and antibodies that make it less susceptible to bacterial contamination than pasteurized milk, while many toxins that cause diarrhea and other ailments survive the pasteurization process. Your nose will tell you if raw milk is contaminated or spoiled—but pasteurized milk may be seriously contaminated with no telltale warning odor. Raw milk is easier for your baby to digest than pasteurized and less likely to cause cramps, constipation and allergies. If it is not possible for you to obtain certified raw milk, begin with the best quality pasteurized whole milk you can find, milk that is not homogenized, and culture it for 12 hours with piima culture or kefir grains to restore enzymes lost through pasteurization (pages 83 and 88). Or, you may prepare a milk-free formula made from organic liver. Organic liver should also be added to formula made from goat milk, as goat milk is deficient in iron, folic acid and vitamin B12.

Both our milk-based and meat-based formulas have been designed to provide maximum possible correspondence with the various components of human milk. Our milk-based formula takes account of the fact that human milk is richer in whey, lactose, vitamin C, niacin, manganese and long-chain polyunsaturated fatty acids compared to cows milk but leaner in casein (milk protein). The addition of gelatin to cow's milk formula will make it more digestible for the infant. The liver-based formula also mimics the nutrient profile of mother's milk. Use only truly expeller-expressed oils (see Sources) in the formula recipes, otherwise they may lack vitamin E.

A wise supplement for all babies—whether breast fed or bottle fed—is an egg yolk per day, beginning at four months. Egg yolk supplies cholesterol needed for mental development as well as important sulphur-containing amino acids. Egg yolks from pasture-fed hens or hens raised on flax meal, fish meal or insects are also rich in the omega-3 long-chain fatty acids found in mother's milk but which may be lacking in cow's milk. These fatty acids are essential for the development of the brain. Parents who institute the practice of feeding egg yolk to baby will be rewarded with children

who speak and take directions at an early age. The white, which contains difficult-to-digest proteins, should not be given before the age of one year. Small amounts of grated, raw organic liver may be added occasionally to the egg yolk after six months. This imitates the practice of African mothers who chew liver before giving it to their infants as their first food. Liver is rich in iron, the one mineral that tends to be low in mother's milk possibly because iron competes with zinc for absorption.

An unfortunate practice in industrial societies is the feeding of cereal grains to infants. Babies produce only small amounts of amylase, needed for the digestion of grains, and are not fully equipped to handle cereals, especially wheat, before the age of one year. (Some experts prohibit all grains before the age of two.) Baby's small intestine mostly produces one enzyme for carbohydrates—lactase, for the digestion of lactose. (Raw milk also contains lactase.) Many doctors have warned that feeding cereal grains too early can lead to grain allergies later on. Baby's earliest solid foods should be animal foods as his digestive system, although immature, is better equipped to supply enzymes for digestion of fats and proteins rather than carbohydrates.

Carbohydrate in the form of fresh, mashed banana can be added after the age of six months as bananas are rich in amylase enzymes and, thus, are easily digested by most infants. Some preindustrial societies give a gruel of cereal grains, soaked 24 hours, to babies one year or older. Soaking in an acidic medium neutralizes phytates and begins the breakdown of carbohydrates, thus allowing children to obtain optimum nourishment from grains. It also provides lactic acid to the intestinal tract to facilitate mineral uptake.

At the age of about ten months, meats, fruits and vegetables may be introduced, one at a time so that any adverse reactions may be observed. Carbohydrate foods, such as potatoes, carrots, turnips, etc., should be mashed with butter. (Don't overdo on the orange vegetables as baby's immature liver may have difficulty converting carotenoids to vitamin A. If your baby's skin develops a yellowish color, a sign that he is not making the conversion, discontinue orange vegetables for a time.) Lacto-fermented taro or other roots (page 102) make an excellent carbohydrate food for babies. It is wise to feed babies a little buttermilk or yoghurt from time to time to familiarize them with the sour taste. Above all, do not deprive your baby of animal fats—he needs them for optimum physical growth and mental development. Mother's milk contains over 50% of its calories as fat, much of it saturated fat, and children need these kinds of fats throughout their growing years.

It is unwise to give baby fruit juices, especially apple juice, which provide only simple carbohydrates and will often spoil an infant's appetite for more nutritious foods. Sorbitol, a sugar-alcohol in apple juice, is difficult to digest. Studies have linked failure to thrive in children with diets high in apple juice. High -fructose foods are especially dangerous for growing children.

Remember that babies should be chubby and children should be sturdy and strong, not slim. Babies need body fat to achieve optimum growth. The fat around their ankles, knees, elbows and wrists is growth fat that ensures adequate nourishment to the growth plates at the ends of the bones. Fat babies grow up into sturdy, well-formed adults, neither too tall nor too short and either slender or stocky depending on genetic heritage.

Keep your baby away from processed junk foods as long as possible—but do not think that you can do this indefinitely. Unless you lock your child in a closet—or live in a closed community of like-minded parents—he will come in contact with junk foods sooner or later. His best protection is the optimal diet that you have given him during his infancy and your loving example and training in later years.

## Raw Milk Baby 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.

If the only choice available to you is commercial milk, choose whole milk, preferably organic and unhomogenized, and culture it with a piima or kefir culture to restore enzymes.

### Ingredients

- **2 cups whole raw cow's milk**, preferably 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). Use only homemade whey made from yoghurt, kefir or separated raw milk.
- **4 tablespoons lactose** (In NZ, Fonterra will sell you a 25kg bag. For smaller quantities, order directly from overseas. The best sources we've found are [www.gpawholefoods.com.au](http://www.gpawholefoods.com.au) in Au or <http://organicpharmacy.org/products/Lactose> in the US. Check current freight and exchange rates to see which is the best deal.)
- **1/4 teaspoon bifidobacterium infantis** (other versions of this recipe called for 1 tsp, but this was a typo. In NZ, look for Natren Life Start powder in your health food shop. If they can't get it for you, it's available online from <http://www.probiotics.co.nz/item.asp?itemid=32>)
- **2 or more tablespoons good quality cream** (preferably not ultrapasteurized), more if you are using milk from Holstein cows
- **1/2 teaspoon unflavored Green Pastures fermented cod liver oil** (in NZ, available from [www.naturefoods.co.nz](http://www.naturefoods.co.nz))
- **1/4 teaspoon high-vitamin butter oil** (optional) (in NZ, available from [www.naturefoods.co.nz](http://www.naturefoods.co.nz))
- **1 teaspoon expeller-expressed sunflower oil** (Available from health food shops)
- **1 teaspoon extra virgin olive oil** (Most NZ brands are good quality)
- **2 teaspoons coconut oil** (in NZ, available from [www.naturefoods.co.nz](http://www.naturefoods.co.nz) or health food shops)
- **2 teaspoons organic nutritional yeast flakes** (In NZ, Quantum nutritional flakes are primary grown, high quality. Available from [www.naturefoods.co.nz](http://www.naturefoods.co.nz) or health food shops)
- **2 teaspoons gelatin** (In NZ, Davis supermarket brand is the only one we've found so far)
- **1-7/8 cups filtered water**
- **1/4 teaspoon acerola powder** (In NZ, acerola is available from Lifestream. Or camu camu powder can also be used, but reduce the quantity as it has about 3x the Vit C as acerola)

### Instructions

- Put 2 cups filtered water into a pyrex measuring pitcher and remove 2 tablespoons (that will give you 1-7/8 cups water).
- Pour about half of 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 and stir 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.
- Before giving to baby, warm bottles by placing in hot water or a bottle warmer. NEVER warm bottles in a microwave oven.

## **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.

If you are using yoghurt, place 2 quarts in a strainer lined with a tea towel set over a bowl. 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 the milk 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 set over a bowl 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.

Source: *Nourishing Traditions* by Sally Fallon with Mary G. Enig, PhD.

## **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 organic raw chicken liver, frozen for 14 days, finely grated to the batch of formula. Be sure to begin egg-yolk feeding at four months.

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## **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.

### **Ingredients:**

- 3-3/4 cups homemade beef or chicken broth
- 2 ounces organic liver, cut into small pieces
- 5 tablespoons lactose
- 1/4 teaspoon bifidobacterium infantis
- 1/4 cup homemade liquid whey (See recipe for whey, above)

- 1 tablespoon coconut oil
- 1/2 teaspoon unflavored Green Pastures fermented cod liver oil
- 1 teaspoon unrefined sunflower oil
- 2 teaspoons extra virgin olive oil
- 1 teaspoon acerola powder

(See raw milk based recipe for where to source each item)

### **Instructions:**

- 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!)

## **FAQ about Homemade Baby Formulas**

Written by Marie Bishop, Sally Fallon and Mary G. Enig, PhD

2005-Sep-22

<http://www.westonaprice.org/FAQ-Homemade-Baby-Formula.html>

The 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. Refer to these Q&A when using our Recipes for Homemade Baby Formula.

### **Iron Supplementation?**

Q: Does there need to be iron supplementation with cow's milk formula? My son's pediatrician freaked out when I told him I had my son on homemade formula (I didn't tell him it was raw milk however to avoid another discussion). He told me my son needed to be on iron supplements because he wasn't on commercial iron fortified formula. There is no mention of needed iron supplementation with the cow's milk formula only the goat formula. Also reading I have read that iron from cow's milk is not easily digestible for infants. I did notice there is 4% iron in the nutritional yeast.

A: Mother's milk is low in iron for a reason--iron competes with zinc, which is needed for neurological development. However, the lacto-ferrin in raw milk helps the baby absorb all the iron that is there in the milk. If you will look at the nutrient charts for our formula recipes (see below) you will see that there is actually more iron in the homemade formulas than there is in breast milk, so there is no need whatsoever to add additional sources of iron up to the age of six months. At that time, the baby does need additional iron. This should be given in the form of egg yolks and liver--liver is the first weaning food in traditional cultures for this very reason--because at the age of six months, the baby does need additional iron.

### **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. 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.

Q: Once I heat the gelatin until it dissolves it's still hot and I mix it with the cold dairy ingredients and blend -- should I let it cool off before mixing it with the dairy products in the blender?

A: In my experience, the gelatin did not get hot enough for it to matter about adding it to the colder ingredients. In fact, I melted all the ingredients that I had previously frozen. Above is my process, which may offer a little help.

Q: After I've blended the ingredients I'm left with quite a bit of foam on top of the mixed formula. I've been tossing out the foam -- is that correct or should the foam settle to blend in with the liquefied formula underneath?

A: About the foam, I do remember there being a little that formed after blending, but once I poured it into the bottles and let them sit for a little bit it seemed to dissolve back into the formula. I would try leaving it and see what happens, if anything it is one less step you have to do.

### **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 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 cow's 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?

A: If you are using the cow's 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.

### **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 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 backup. 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 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 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 Cow's 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.

### **Dry Kefir Culture**

Q: Is Body Ecology's dry kefir culture just as acceptable as the piima culture or culturing with kefir grains? GEM 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 very well in the formula. GEM 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 goat's 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 goat's 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 cow’s milk, which is one reason we recommend a formula based on cow’s 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.

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 cow’s milk formula but suddenly broke out in a rash and lost 3 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 4 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/newwaphb/> .

### **Nutrient Comparison**

Q: Do you know the nutrient profile for breast milk vs. your homemade formulas?

A: See our nutrient comparison chart at the end of our Recipes for Homemade Baby Formula page.

### **Liver-Based Infant Formula**

Q: When making the liver-based formula, can I use chicken broth made with just the chicken or do I have to make it with vegetables and spices?

A: You can use just chicken or chicken bones.

Q. Should the chicken broth be made daily and should I only use organic chicken?

A. You can make a big batch of chicken broth and refrigerate or freeze. Organic chicken would be best, but you can use non organic if that is all you can find. You can also use the bones left from baked or broiled chicken.

Q. What is the shelf life of the formula? Do I have to prepare it daily?

A. Daily is better but you can make it every other day if you need it while traveling or if your baby only takes a small amount.

Q. I would like to supplement my breast milk with about 10 ounces a day. How do I figure the amount?

A. I would make up the full batch and give half each day.

Q. What type of liver should I use, lamb or chicken?

A. Either is fine.

Q. How do you include the coconut oil without it solidifying or clumping?

A. The coconut oil is very important, be sure to warm it gently before adding.

### **Cod Liver Oil in Formula/Too Much EPA?**

Q. I recently ordered the ingredients for home made infant formula and I have one concern. Although my wife and I take cod liver oil daily, I have read that fish oils contain too much EPA for babies. It is suggested that the EPA competes with DHA and can cause stunting of growth. The commercial formulas use an algal sourced DHA/ARA, but it doesn't seem to be available to consumers. I could buy Neuromins supplements and break them open, but that would not provide the ARA. Is the EPA a real concern?

A. We do NOT recommend fish oil, not for babies nor adults, but high vitamin or fermented cod liver oil, which supplies A and D without giving too much EPA and DHA. The EPA in cod liver oil will not compete with the DHA--these two always occur together in food. And do not use the synthetic DHA/ARA, we have heard bad reports from this. The baby will get ARA from the butterfat in the milk.

We have had nothing but good reports on growth from babies on our homemade formula

### **Raw Milk Formula**

Q. I have a question about the raw milk infant formula. My two month old adopted daughter has been taking the formula since she was about three weeks old, when we ran out of breast milk donated by a friend. She is doing very well on this but the pediatrician has concerns about the "low" iron in the formula. I have seen the comparison chart that shows about 3-4 times the iron content of breast milk. The pediatrician is comparing it to the high iron formulas that have about 10 times the amount of iron as the raw milk formula. Do you have any information or opinion whether I should supplement with more iron?

A. You should NOT give extra iron in the first six months. Iron competes with zinc, needed for neurological development. Besides, the lactoferrin in raw milk helps the baby efficiently absorb the iron that is there. By 6 months, the baby does require extra iron and that is why the first weaning food in almost all cultures is liver. Egg yolks are also a good source of iron. So don't give supplements, but start with iron-rich foods by six months.

Q. I have a 5-month-old baby whom I primarily breastfeed but also supplement with 8 ounces daily. I want to do your formula but am confused. I was told that babies should not have any oils added to their diet and that raw milk alone is sufficient to meet the baby's needs. The same person told me fish oil is toxic because of the extraction process and should not be consumed by anyone (her information is taken from the work of Aajonus Vonderplanitz). She said the oils are solvent reactive, binding to toxins therefore pushing detoxification in the infant. Is this information correct?

A. If you do our formula, please follow the recipe exactly. It was designed to provide the same fatty acid profile as mother's milk, hence the addition of the oils. The cod liver oil is VERY important to add; it is not toxic, but provides much needed vitamins A and D. Aajonus is not right about everything, he is not a scientist. Mary Enig, who formulated these recipes, is a highly trained scientist. Go to the following links to read about the formula and the testimonials:

### **Egg Yolks for Infants**

Q. My 6 months old son is vomiting after eating egg yolk; what do you suggest?

A. If your son is having trouble with the egg yolk, just hold off and try to introduce it later. We did have one mother who was having this problem, but when she added a small amount of liver and salt to the egg yolk, the baby was fine. Remember to also add the salt.

Q. I have a 4-month old whom I'd like to introduce to solid foods. Your article indicates that egg yolk and bananas are a great start. How many servings of each should I offer per day?

A. It depends a lot on the baby, but 1 egg yolk and then perhaps 1/2 banana?

Q: How do you suggest feeding my child egg yolk when he cannot sit?

A: I would wait until the baby is sitting up before feeding the egg yolk. Give it on a spoon. You will have a mess the first few times, but then he will get used to it.

Q: My son, now 11 months, doesn't seem to be able to tolerate egg yolk and liver. I have tried giving him the yolk (less than a ¼ tsp) at 5.5 months, 7 months, and 9 months and each time he threw up about 3 hours after eating it. Then same thing happened with chicken liver. My doctor said that he might have developed hyper-sensitivity to them if I ate too much of these while pregnant. What can I feed him to give him enough fat-soluble vitamins?

A: Please don't blame yourself for this. Are you giving him cod liver oil? This is the first thing I would try--using an eyedropper. Use the fermented cod liver oil from Green Pasture--this seems to be the best tolerated brand. How about other foods? At nine months, he really should be getting other foods such as pureed meats, mashed banana, whole yogurt, etc.

Q: I read that removing the gelatin from the formula makes the formula flow better through the Lactaid. QUESTION is, what's lost in removing the gelatin? (I.e. nutrition-wise?) Is the gelatin just for texture or does it have important nutritional value?

A: The gelatin makes the formula easier to digest. If the baby is not having any problems digesting it then you can leave the gelatin out.

Q: At times we will have to freeze the formula. I know it's posted that you are supposed to make it fresh every day but there will be times (at least for us) when this won't be possible and I'd still prefer using thawed WAP cow's formula to anything commercial. Therefore, QUESTIONS is:

Which ingredients lose nutritional value or potency when freezing? (I could leave a few ingredients out and add before serving). Some say that you cannot freeze the formula if the probiotics and acerola are mixed in—these must be added separately after the formula is thawed. Is this correct information or is it okay to freeze the probiotics and acerola...

A; I would add the probiotics after thawing. I don't think the freezing will hurt the acerola.

Q: I am an anesthetist and regularly provide pain relief to women in labor. My impression is that the ability to give birth has changed over the last decades, in large part probably due to changes in nutrition. Overall, it is more difficult, and more women require interventions such as epidural, forceps or caesarean sections.

My question is, could you point out to me publications researching this topic, the influence of nutrition on the related anatomy and physiology of childbirth, links between nutrition and problems with deliveries.

A: I wish I could point out research that looks at diet and the resulting anatomy--isn't it shameful that nothing has been done since Dr. Price?

Probably the best book on this is an old (1930s) book called Safe Childbirth by Dr. Kathleen Vaughn, which Dr. Price mentions in Chapter 19 and also on page 412 in Nutrition and Physical Degeneration. I was able to read this book in England, but unable to obtain a copy, so we don't have it in our library. She shows the different pelvic shapes, which Price believes correspond to the facial shape--i.e. narrow face = narrow, oval pelvic opening = difficult childbirth. Round face = round pelvic opening = easy childbirth. (Unfortunately, she misses the mark on diet, but nevertheless it is a very interesting book.) So you can see why there are so many Caesarians necessary today, with so many ending up with narrow face and consequently a narrow pelvic opening.

Probably the best research today is the research on vitamin K--we now think that vitamin K2 (the animal form) is the same as Dr. Price's Activator X. (See the Spring 2008 issue of Wise Traditions) A sign of vitamin K deficiency is lack of development in the middle third of the face (that is, a narrow face), so lack of vitamin K would be expected to contribute to narrowing of the pelvic opening.

I also think that diet has something to do with how we can deal with pain. Mary Enig believes that MSG makes us very susceptible to pain, (this is her own personal experience) and I would guess that many nutrients (particularly vitamins A, D and K2) contribute to an ability to deal with pain.

What I can say is that our mothers who get on our diet for pregnant women usually report an easy childbirth. See (<http://westonaprice.org/children/dietformothers.html>) . This would be a very good study to do--looking at the relationship between maternal diet and difficulty of labor.

Q: I have a question about the baby formula, specifically the goat milk variation. My son is 8 months old and I had to put him on soy formula at 6 months after breastfeeding because he was not

gaining enough weight. I am slowly transitioning to the goat milk formula but he has developed a rash on his face which I think may be caused by the lactose. I have been very careful not to introduce new foods during this process. Is it possible to omit the lactose from the formula or to use it at half strength? If so, would I need to make sure there is more goat milk in the formula? In place of the cow's cream I am using coconut milk already. I did a trial before starting the homemade formula and gave him some raw goat milk with a little whey (made from homemade goat milk yogurt). He did fine on this without rashes breaking out.

A: How much does the baby weigh? Is he sitting up? If he is mature enough, you could probably just give him raw goat milk now, and not do the formula. But you should also be giving him cod liver oil, egg yolks and pureed liver, so that he does not develop folic acid deficiency. These will help mitigate any potential problems with the soy. See the link below for an article on infant feeding, and be sure to order our Healthy Baby Issue from the Foundation.

Use only our recommended brand of cod liver oil (Green Pastures)

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## **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.

Ingredients:

- 1 organic egg from a pasture-fed hen
- 1/2 teaspoon grated raw organic liver, frozen for 14 days Note: It is VERY important that the liver be frozen for 14 days before using.

Instructions:

- 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.
  - 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.
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