

Background Information: 2012 Update to *How Does Formula Compare to Breastmilk?*

In March of 2011, four blocks labeled, *Prebiotics*, *Probiotics*, *Disease Fighting Stem Cells*, and *Anti-Cancer (HAMLET)*, were added to the breastmilk tower and two blocks labeled, *Prebiotics and Probiotics*, were added to the formula tower.

In the latest update, an asterisk has been added to Prebiotics and Probiotics in the formula tower. The footnote associated with the asterisk reads, "Not all formulas have prebiotics and probiotics."

This background information is provided as a reference to use when participants ask questions about the components of breastmilk and formula. It is expected that the facilitator WILL NOT routinely discuss this information at the group sessions unless the topic comes up.

Components of Breastmilk and Formula

Let's start from the bottom and work our way up!

Water

You might think that the water in formula and breastmilk is the same; but it isn't. Water used from the tap is often treated with chemicals like chlorine.

Protein

The proteins in breastmilk are made for human babies. These proteins do more than just help the baby grow; they help with cell development and immunity. In addition, the proteins in breastmilk increase absorption of important nutrients like iron and zinc.

The proteins in cow's milk formula are made for baby cows. These proteins form tough chunks in the stomach that are harder to digest. Soy formula is made from soy beans. Soy beans have proteins, but they are not complete. So, other proteins must be added to the formula to help babies grow.

Carbohydrates

The carbohydrate in breastmilk is lactose. Babies' brains grow best on lactose.

Formula may have lactose or it may have table sugar, corn syrup, or other sugars.

DHA/ARA

DHA (docosahexaenoic acid) and ARA (arachidonic acid) are fatty acids that are present in breastmilk in balance with other important fatty acids (like EPA).

Babies are better able to absorb these fatty acids because of the special way they are put together in the molecule. Formula manufacturers are not able to put the molecules together like they are in breastmilk. The DHA and ARA added to formula come from fungus and algae. It is unknown how these added ingredients affect babies' growth and development.

Fat

Breastmilk is full of polyunsaturated fats that are good for babies. Breastmilk also is rich in cholesterol, something that is actually healthy for babies. Breastfed babies have higher cholesterol levels during the first eighteen months of life. This higher level is believed to be protective later in life. We know that children and adults who were breastfed have lower cholesterol levels.

Formula does not have as many polyunsaturated fats as breastmilk. Formula does not have any cholesterol.

Vitamins

Breastmilk has the vitamins a baby needs.

The amount of vitamins found in formula is recommended by the FDA. These amounts are based on current information and can change with new research.

It is recommended that both breastfed and formula fed babies receive a vitamin D supplement.

Minerals

Babies are able to use the minerals found in breastmilk much more easily than babies fed formula. The minerals in breastmilk are "packaged" in a way that is easier for babies' bodies to use. Also, this breastmilk packaging keeps bad bacteria from stealing the minerals for themselves.

Prebiotics

Breastmilk naturally has over 80 different types of prebiotics. Prebiotics help get rid of bad bacteria and help healthy bacteria grow.

Some WIC formulas have prebiotics added.

Probiotics

Breastmilk naturally contains probiotics. Probiotics are the healthy bacteria that babies need to help prevent infection with bad bacteria. A few formulas have probiotics added, but that makes them more expensive. WIC formulas do not contain probiotics.

The Breastmilk Only Club

Anti-Parasites

Protect babies' digestive system.

Anti-Allergies

Protect babies from developing allergies throughout their lives.

Anti-Viruses

Protect babies from various diseases such as the flu, stomach viruses, and colds.

Hormones

Help with growth and development.

Disease Fighting Stem cells

Help fight disease.

Enzymes

Help babies' digestion.

Growth factors

Help with overall growth and help the digestive tract to mature.

Anti-cancer (HAMLET-- Human Alpha-lactalbumin Made Lethal to Tumor cells),

Anti-cancer activity that causes the cancer cell to destroy itself and not spread to the rest of the body.

Antibodies

Protect against disease.