



Statement on 'whole cows' milk' claims for infant formula and follow-on formula

Some infant milk manufacturers have replaced some of the skimmed milk in their products with whole milk, and are making claims that this benefits infant health. This is not a new concept as 20th century infant milks were predominantly based on whole milk, but regardless of the milk or milk component used in manufacture, all infant formula and follow-on formula must meet the same criteria for fat content and fatty acid content. It is important to note that the fat content of breastmilk is highly variable: depending on stage of lactation, time of day and the mother's diet, and is highly complex, providing the primary energy source and having a range of metabolic and physiological functions important for growth and development. It is not possible for infant formula manufacturers to recreate the fat profile of human milk, but regulations require a fatty acid composition which provides sufficient fat and fatty acids for adequate growth.

Infant formula brands making claims for 'whole milk' content

Kendamil and **Castlemil** infant formula and follow on formula make significant claims related to their products whole milk content. Kendamil has a 'whole milk' symbol on the can and the Red Tractor logo with MILK written beneath. Castlemil has a graphic of a cow and refers to 'whole milk produced in the heart of the UK' on the label. It also suggests this milk is 'free range' in its marketing material.



Kendal Nutricare make the following claims for their Kendamil milks:

'Milder and more natural taste than formulas made from skimmed milk'

'...are closer to Mother Nature due to their full cream milk content'

'Retains all the natural goodness and benefits of whole milk'

These claims are not substantiated by reference to either scientific or anecdotal evidence.

Castlemil state on their website that:

'Cow's whole milk is regarded as one of the most nutritionally complete foods available and provides an excellent source of calcium as well as being rich in essential fatty acids'.

On Amazon where Castlemil milks are marketed it is claimed that infant formula contains:

'Whole milk contains high levels of calcium, which is great for your Baby's developing teeth and bones. It is also an abundant source of natural fatty acids and because of this, less manufactured vegetable oil needs to be added to our formulas to reach the required fat content'.

All infant formula contain similar amounts of calcium and the calcium content of cows' milk is not determined by the amount of fat the milk contains, so this is a false claim. The use of the word 'natural' is misleading here.

On their website, Castlemil describe their infant milks as 'whole milk baby formula' and their packaging is heavily branded with logos that refer to whole cows' milk. The dominant presence of whole milk branding could confuse families into thinking that 'whole milk' is a suitable choice for infants. Whole cows' milk should only be given infants from 1 year of age. These milks are being predominantly produced for the export market to countries where this confusion over the use of dried cows' milk powders could lead to families giving inappropriate milks to infants.

How much whole milk is present in infant formula that makes a whole milk claim?

Whilst 'whole milk' occupies first place on the ingredients list in these milks, only 16% of the total dry weight of Kendamil infant milk powder is from whole milk, and Castlemil infant formula has 11% whole milk in the dried infant formula powder.

Are there any benefits to replacing vegetable oils with dairy fats?

If some of the skimmed milk powder used in infant formula manufacture is replaced with whole milk then less vegetable oil is needed to achieve the required energy content for growth and development. Whilst manufacturers are keen to point out that less vegetable oil is used - there are no claims made to suggest that this in itself is beneficial for infants. Danone have added dairy fats to their Aptamil Profutura milks rather than whole milk, and

they claim that at least 50% of the fats in their Aptamil Profutura Infant and Follow-on milks is from anhydrous milk fat. The proportion of dairy fat in Kendamil and Castlemil milks is much lower.

Claims made for milks containing whole milk dairy fats

Claims made for the use of whole milk and dairy fats in infant milks focus on the differences in fatty acid composition and structure between dairy fat and vegetable oils. Whilst there are more compositional similarities between dairy milk fat and breastmilk fat than vegetable oils and breastmilk fat, there is no evidence to suggest any nutritional benefits for products using some dairy milk fat. Current UK compositional regulations ensure that all infant formula provide sufficient amounts, and proportions, of fatty acids for the proper growth and development of infants regardless of the source of fats. Danone claim that their Aptamil Profutura milks:

'Contain milk fat to provide a fatty acid profile closer to that of breastmilk'

No claims are made for any associated clinical benefits and the references given to support the claim are not relevant.

Structure of fatty acids

The majority of clinical benefits claimed for the use dairy milk fats in infant milks are based on differences in the structure of the fatty acids. In dairy milk fats, and to a greater extent in human milk, the majority of the saturated fatty acid palmitate occupies the middle or sn-2 position on the triacylglycerol molecule. In vegetable oils palmitate mainly occupies the outer or sn-1 and sn-3 positions. The palmitate in vegetable oils has suggested as being 'less easily digested' due to this positional difference and some manufacturers have previously chosen to use structured vegetable oils which have been enzymatically or genetically modified to increase the proportion of palmitic acid in the sn-2 position in some of their products. Manufacturers who have increased the amount of palmitic acid in the sn-2 position in their products make claims about the digestibility of their milks. Kendamil who use whole milk in their products make the following unsubstantiated claims for their milks:

'The full cream milk is more wholesome and satisfying, comfortable on tummies, leading to improved sleep'

'Better suited for sensitive babies digestive systems than skimmed milk products'

Danone do not make direct claims for any clinical benefits associated with a greater proportion of palmitate in the sn-2 position from cows' milk fat, but refer to studies by Carnielli et al 1996 and Kennedy et al, 1999 to support claims that the sn-2 rich structured vegetable oils used in their comfort milks help to produce softer stools and aid absorption of fat and calcium

The EFSA Scientific opinion on the essential composition of infant and follow-on formulae (2014) reviewed all the evidence in this area and concluded **there was no convincing**

evidence for a beneficial effect of the use of palmitic acid predominantly esterified in the sn-2 position in infant or follow-on formula.

Our Conclusions

Branding infant milks as 'whole cows' milk formula' may confuse families and suggest to them that whole cows' milk is a suitable choice for infant feeding. We do not believe a 'whole milk' statement should be allowed on infant formula and follow-on formula.

There is currently no evidence to suggest that adding cows' milk or dairy fats to infant formula offers any nutritional advantage over vegetable oils. The fats in all artificial infant milks will be significantly different to those in breastmilk.

The assertion that a formula milk has a fatty acid structure similar to that of breastmilk does not in itself mean that this provides any clinical advantage.

There is currently no recommendation for the addition of whole cows' milk or cows' milk fat as a source of fatty acids in infant formula and the compositional requirements are based on an adequate supply of energy and essential fatty acids for growth and development which may be sourced from fats of dairy or vegetable origin.

The metabolic and physiological functions of fatty acids and more complex lipids in breastmilk are currently the focus of a great deal of scientific attention and it is likely that in the near future changes to infant formula will be focused on dairy fats and the addition of more complex lipid fractions.

References

Carnielli V, Luijendijk I, Van Goudoever J, et al (1996). Structural position and amount of palmitic acid in infant formulas: effects on fat, fatty acid, and mineral balance. *Journal of Pediatric Gastroenterology and Nutrition*, 23, 553-560.

European Food Safety Authority (2014). Scientific opinion on the essential composition of infant and follow-on formulae. *EFSA Journal*, 12 (7), 3760. Available at <http://www.efsa.europa.eu/en/efsajournal/doc/3760.pdf>

Kennedy K, Fewtrell M, Morley R, et al (1999). Double-blind, randomized trial of a synthetic triacylglycerol in formula-fed term infants: effects on stool biochemistry, stool characteristics, and bone mineralization. *American Journal of Clinical Nutrition*, 70, 920-927.