

Supplementing Commercial Milk Replacement Formulas with Whipping Cream for Juvenile Wild Mammals

Juvenile wild mammals have nutritional and dietary needs specific to their species. These needs also can be influenced by various factors, such as age and health. Wildlife rehabilitators who feed young mammals must first understand the nutritional needs of the animal based on a milk composition analysis for that species. Secondly, rehabilitators using commercial milk replacement products must then create formulas that reasonably match the milk composition of the mother animal.

Published references on the milk composition analysis of common North American species are available from a variety of sources. The National Wildlife Rehabilitators Association (NWRA), for instance, includes a chapter with this information in their *Principles of Wildlife Rehabilitation, 2nd Edition*. These analyses serve as a general guide and must be evaluated in practice.

In many cases, milk replacement products designed for use with domestic species should be modified to more closely match the milk composition of the mother wild animal. Rehabilitation publications and rehabilitators experienced with the specific species may provide help with various diets and recipes, as well as with the effectiveness of these in both the short and long term.

Not a Wildlife Rehabilitator?

There are many requirements to care for orphaned or injured wildlife besides formula. Please take injured or orphaned wildlife to a wildlife rehabilitator. Contact veterinarians, humane societies, or wildlife agencies for the name of a local wildlife rehabilitator.

When additional fats are needed

Several milk replacement companies manufacture supplements that are designed to help rehabilitators enhance milk replacement products, such as MultiMilk® by PetAg or Ultra Boost by Fox Valley Animal Nutrition. Fats contained in these supplementary products may be from single or multiple sources and may include butterfat, vegetable fats, corn oil, soybean oil, coconut oil, and lard (pork fat). The list of product ingredients and the Guaranteed Analysis are printed on package labels. A more detailed Typical Nutrition Analysis, along with the source of ingredients such as fats, is available from the manufacturers. Contact them for this more complete and current information.

When wildlife formula made with a milk replacement product needs the addition of fat, some rehabilitators prefer using cream as the fat source instead of a manufactured supplement. They believe that cream is more digestible than some of the fats in commercial products, such as lard. It must be emphasized that cows' milk does not meet the nutritional needs of wild mammals and often may cause serious and sometimes fatal problems. Cows' milk should not be used as a primary diet for wildlife species. That said, supplementing a commercial milk replacement formula with an extremely small amount of cream to help the product meet the nutritional milk composition for a specific wild species has been done successfully for over twenty years. The following provides a short review of some considerations in selecting creams to be added to milk replacement formulas.

Producers/Manufacturers

While all mammals lactate, most species do not produce enough milk for commercial purposes. Since cows readily give large amounts of milk, they are the primary source of dairy products. Milk with a high butterfat content, especially the milk from Jersey and Guernsey cows, may be made into cream.

There are many factors that can influence the actual composition of milk, such as where cows are located and what they are fed. A cow's diet may vary during the year, which impacts on the composition of its milk, yield amount and overall quality. A cow's health also affects the quality of the milk and cream she produces.

Thousands of dairies process milk into cream, ranging from nationwide commercial enterprises to small dairies that target specific markets. A few commercial dairies produce and distribute certified organic cream. Some rehabilitators prefer organic cream or particular producers or brands, while others do not have preferences. Information on the levels of fat is on each package of cream. Contact the manufacturer for the Typical Nutritional Analyses of these products.

Cream processing

Creams are processed in different ways. Pasteurized whipping cream has been heated to reduce the number of pathogenic microorganisms that can cause food to spoil and transmit disease. Pasteurized whipping cream is considered safer and will have a longer shelf life than cream that was not heated. Pasteurization methods are standardized and controlled by food safety agencies, such as the USDA.

Ultrapasteurized whipping cream is the same as pasteurized whipping cream, but has been heated briefly at temperatures up to 280° F in order to kill more of the microorganisms that cause cream to spoil. As a result, the ultrapasteurized product has up to a 3 week longer shelf life than pasteurized cream when refrigerated. Homogenized cream has been treated so that the fat does not separate to the top.

Different types of cream

There are different types of cream that can be added to a milk replacement formula. The choice of cream type depends on several factors, such as the amount of butterfat and pasteurization process. The following describes some of the common types of cream and the range of fat in these products. Consider the amount of fat that must be added to supplement the fat already in the milk replacer product. The nutritional requirements of the species, age of the animal (some need, or are able to digest, different amounts of fats at different life stages) and health of the animal also should be considered. While WildAgain's Nutrition Calculator can help calculate the affect of using these creams with their varying butterfat levels, it is helpful to consult with experienced rehabilitators about the decision on types of cream, amounts to add, and when and how cream may be used with specific species.

Heavy Cream contains not less than 36% butterfat. It is pasteurized or ultrapasteurized, and may be homogenized.

Light whipping cream (whipping cream) contains not less than 30%, but not more than 36%, butterfat. It is pasteurized and may be homogenized. It is often ultrapasteurized to increase storage time.

Light cream (table cream, coffee cream) often has about 20% fat, with at least 18%, but not more than 30%, butterfat. It is pasteurized or ultrapasteurized, and may be homogenized.

Half-and-Half often contains about 12% fat, but must contain between 10.5% and 18% butterfat according to federal regulations. It can be pasteurized or ultrapasteurized, and may be homogenized.

Fluid Milk Cream Products	Milkfat Range	Typical Composition	
		Fat	Solids
Heavy cream	36% or greater	36.8%	42.7%
Light Whipping cream	30 - 36%	30.5%	37.1%
Light (table) cream	18 - 30%	18.3%	26.0%
Half-and-half	8.4% or greater	11.5%	19.8%

Source: Chandan R. (1997), Dairy-Based Ingredients, Eagen Press, St. Paul, MN.

Amounts of cream

It also is critical to consider the amount of cream added to the milk replacer products. As mentioned previously, the amount of cream added tends to be small in proportion to the milk replacer product. Rehabilitators are strongly encouraged to consider how the addition of the cream affects the nutrition of the product, including kcals. WildAgain's Nutrition Calculator (available for downloading at www.ewildagain.org) makes it quick and easy to perform these calculations.

Cow's milk does NOT meet the nutritional needs of wild mammals and often may cause serious and sometimes fatal problems – it never should be used as a primary diet.

Decisions

Rehabilitators considering adding cream or any supplement to milk replacement formulas should assess these and other factors, as well as the needs of the species, age and health of the animal. In addition, rehabilitators must consider all the factors affecting nutrition, digestion, hydration, calcium-phosphorus ratio, growth, health and wellbeing of an animal. As always, each rehabilitator should continue their normal practice of closely monitoring every animal's health and development and make adjustments as needed. Frequent communication with other rehabilitators, reviewing research and on-gong continuing education also can help with making effective rehabilitation decisions.

Resources

- Casey, Allan. 2002. Mammal Nutrition: How Cookbooks Can Be Harmful. Wildlife Rehabilitation, Vol. 19. NWRA Symposium: Selected Papers. NWRA, St. Cloud, MN.
- Casey, Shirley and Allan Casey. 2003. *Squirrel Rehabilitation Handbook*. WildAgain Wildlife Rehabilitation: Evergreen, CO. Available at www.ewildagain.org
- Moore, Adele and Joosten, Sally. 2002. *NWRA Principles of Wildlife Rehabilitation, 2nd Edition*. NWRA, St. Cloud, MN.
- Nutrition calculator. Provides nutrition and kcal information on milk replacement products and a downloadable calculator in Excel for easy use. Download at www.ewildagain.org.
- WildAgain Wildlife Rehabilitation, Inc. 2005. Mammal Nutrition: Good Wildlife Nutrition is Critical. <http://www.ewildagain.org/Nutrition/nutrition.htm>

Authors

Shirley and Allan Casey, co-founders of WildAgain Wildlife Rehabilitation, Inc. in Evergreen, Colorado, have been licensed rehabilitators since 1986. The Casey's conduct research on a variety of rehabilitation related subjects, including nutrition, squirrel health, wildlife regulations, and rehab trends. They co-authored the *Squirrel Rehabilitation Handbook*, as well as 100+ articles, and present at many rehab conferences.

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