Impact Colostrum Supplement

Impact contains dried ***bovine colostrum*** with added ***lactoferrin*** and ***lactoperoxidase***.
Feed to newborn mammals as a colostrum replacer or to marsupial joeys as a milk supplement.

About Colostrum

Colostrum is the first milk produced after birth and contains high levels of immunoglobulins[1]. These are proteins that protect against harmful micro-organisms such as bacteria & viruses. Newborns that don't receive adequate colostrum have a weakened immune system and increased risk of disease & mortality[2]. Colostrum also contains antibacterial proteins such as lactoferrin and lactoperoxidase which help protect the gut by inhibiting the growth of intestinal pathogens[3]. In most species colostrum is only produced for a few days following birth. After this time intestinal closure prevents absorption of immunoglobulins into the bloodstream[2]. This occurs within about 24 hours in cows, horses, cat & dogs, but may be longer for other species. The presence of milk in the gut can hasten intestinal closure, so we recommend allowing at least 12 hours before feeding milk replacer to maximise colostrum absorption.

Is bovine colostrum suitable for other species? Bovine colostrum has been demonstrated as effective against many common pathogens that affect newborn animals (eg *rotavirus, E. coli*, which can cause acute diarrhoea). Studies show the efficacy of bovine colostrum in species as diverse as dogs, cats, horses, sheep, pigs, camels, mice & ferrets[4]. There are no reported side effects or drug interactions, making it a safe and useful nutritional supplement.

Is dried colostrum effective? It has been demonstrated that spray-drying produces a colostrum powder in which immunoglobulin quantity and function are preserved[5]. When fed reconstituted colostrum powder as their sole source of immunoglobulins, newborn calves achieved normal blood levels of immunoglobulins.

Can colostrum be used for older animals? Although there is no longer absorption into the bloodstream, colostrum still has a local benefit to the gut of older animals. Dietary supplementation with bovine colostrum showed improved immune response and gut function in weaned dogs[6] and rabbits[7]. Effective dose rates are around 0.5g/kg BW/day.

Immunity in Marsupials

Marsupials produce immunoglobulins in their milk for an extended period of time and the young can absorb these up until pouch emergence[8,9]. Evidence suggests that there are low levels of immunoglobulins in the milk for much of lactation, with a spike just before initial pouch emergence[8]. This protects the young when they leave the pouch and are exposed to new pathogens in the external environment. When a young joey is orphaned, immunity derived from the mother's milk can deplete significantly after 7 days and may be virtually absent by 4-6 weeks[9]. This loss of immune function may be a contributing factor to disease in hand-reared joeys, and provides a sound basis for the use of Impact Colostrum Supplement for orphaned marsupials.

References

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5. Chelack et al. (1993). Evaluation of methods for dehydration of bovine colostrum for total replacement of normal colostrum in calves. *Can. Vet. J.,* 34(7), 407.
6. Satyaraj et al. (2013). Supplementation of diets with bovine colostrum influences immune function in dogs. *Br. J. Nutr.*, 110(12), 2216-2221.
7. Nagaraja et al. (2011). Bovine colostrum as immunomodulator for prevention of *E. coli* diarrhea in weaned rabbits. *Afr. J. Agric. Res.*, 6(22), 5066-5072.
8. Adamski & Demmer (2000). Immunological protection of the vulnerable marsupial pouch young. *Dev. Comp. Immunol.*, 24(5), 491-502.
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Directions for Newborns

Includes puppies, kittens, lambs, foals, calves, piglets, cria & zoo animals.
Newborns should receive at least 2 doses of Impact within 48 hours of birth.

First 12 hours: Feed an **Impact Dose**, as described below. If required, this may be divided over several feeds, spaced 2-3 hours apart. **Do not feed milk during this time**.

12 + hours: Commence feeding milk. Feed a second **Impact Dose** ensuring at least 2 hours between milk feeds and Impact feeds. **Do not mix or feed Impact with milk**.

To make an Impact Dose: Weigh the animal and select the amount of **Impact** powder from the table below. Mix with the required volume of warm, pre-boiled water to make up an **Impact Dose**. Prepared **Impact** may be kept refrigerated for one day, or stored frozen for up to 2 weeks.

Body Weight	Powder (g)	Warm Water (ml)	Impact Dose (ml)	Species example
Up to 20g	0.5	1.5	2	Rat, Ferret
20 - 50g	1	3	4	
50 - 125g	2	6	8	Kitten, Toy Breed Puppy, Rabbit, Guinea Pig
125 - 250g	4	13	16	Small Breed Puppy
250 - 400g	6	19	24	Medium Breed Puppy
400 - 700g	8	25	32	Large Breed Puppy
700 - 1000g	10	32	40	
1 - 2kg	15	50	60	Piglet, Tiger Cub
2 - 3kg	20	65	80	
3 - 4kg	25	80	100	Goat Kid
4 - 6kg	30	100	120	Lamb, Deer Fawn
6 - 10kg	60	200	240	Alpaca Cria
10 - 20kg	100	320	400	Llama Cria
20 - 30kg	150	480	600	
30 - 40kg	200	650	800	Camel
Over 40kg	250	800	1000	Foal, Calf

1 moderately heaped spoon = 1g

Directions for Marsupials

Includes kangaroos, possums, wombats, koala & echidna.
Impact may be fed as either a daily Maintenance Dose or a short-term Concentrated Dose.

Maintenance Dose: Add 1g of Impact powder (1 moderately heaped spoon) per 100mL of milk fed, repeated daily as required.
Use as a preventative measure to provide a constant low-dose of immune support during care.

Concentrated Dose: Add 5g of Impact powder per 100mL of milk fed. Repeat for up to 5 days, every 4 weeks, as necessary. Ensure joeys are well hydrated prior to feeding.
*Use when animals initially come into care, for sick or stressed animals or just prior to first pouch emergence (Wombaroo Age Factor of **0.6**).*