Impact is a food supplement made from bovine colostrum powder, with added lactoferrin, lactoperoxidase, whey protein, omega-3 & 6 fatty acids, vitamins and minerals. Feed Impact to newborn mammals as a colostrum replacement or to marsupial joeys as an adjunct to milk replacers.

About Colostrum

Colostrum is the first milk produced after birth. It is high in protein, much of which is immunoglobulin. Immunoglobulins provide immunity against pathogenic micro-organisms such as bacteria and viruses. Most animals are born without immunity and initially acquire their immunoglobulins from colostrum. Newborns that do not receive colostrum have a weakened immune system and increased risk of infection and mortality. Colostrum contains other proteins with antibacterial activity such as Lactoferrin, Lactoperoxidase and Lysozyme. These act to inhibit the colonisation of the intestine by pathogenic micro-organisms via the following mechanisms:

Lactoferrin binds iron and facilitates its uptake from the intestine\(^2\). Due to its iron-binding capacity, lactoferrin inhibits many micro-organisms that require iron for growth\(^3,4\). When Lactoferrin is hydrolysed by gastric enzymes it releases a peptide that is highly bactericidal to several species of pathogenic organisms\(^5\).

Lactoperoxidase is bacteriostatic to a wide range of bacteria in the presence of thiocyanate and hydrogen peroxide-generating enzymes in the gut\(^3,4\).

Lysozyme destroys bacteria by hydrolysing the muramic acid in the bacterial cell wall\(^3,4\).

In most mammals, colostrum is only produced for a short time after birth. During this time the intestine is open to the absorption of the large immunoglobulin molecules. However, intestinal closure occurs rapidly as the mammary secretions change from colostrum to normal milk\(^1\). This occurs within 24 hours in cows, horses, cats & dogs, 2 days in guinea pigs and 3 days in pigs. Feeding milk too early may hasten intestinal closure, and thus reduce the ability to absorb immunoglobulins.

Bovine colostrum provides immunity against a wide range of pathogens that are present in the environment (eg rotavirus, which can cause acute diarrhoea\(^6\)). As these pathogens are common to most animal species, bovine colostrum has been successfully used to improve the immune response in a diverse range of newborn mammals.

Immunity in Marsupials

Intestinal closure occurs later in marsupials, and immunoglobulins are present in the milk at varying levels for much of lactation\(^7,8\). A joey’s immune system is not fully developed until pouch emergence, so young animals rely on immune transfer from mother’s milk for an extended period of time. In the Brushtail Possum, it has been shown that two peak phases of immune transfer occur\(^9\). The first is a colostral phase, immediately after birth, which helps protect the young from common organisms found inside the pouch. The second major transfer of immunity occurs just prior to pouch emergence. This protects the young when they first leave the pouch and become exposed to new pathogens in the external environment.

References

### Feeding Chart for Impact

<table>
<thead>
<tr>
<th>Body Weight (g)</th>
<th>Impact Powder (g)</th>
<th>Warm Water (ml)</th>
<th>Impact Dose (ml)</th>
<th>Body Weight (kg)</th>
<th>Impact Powder (g)</th>
<th>Warm Water (ml)</th>
<th>Impact Dose (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50</td>
<td>0.5</td>
<td>2</td>
<td>2</td>
<td>1 - 2</td>
<td>15</td>
<td>48</td>
<td>60</td>
</tr>
<tr>
<td>50 - 100</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>2 - 3</td>
<td>20</td>
<td>64</td>
<td>80</td>
</tr>
<tr>
<td>100 - 200</td>
<td>2.5</td>
<td>8</td>
<td>10</td>
<td>3 - 4</td>
<td>25</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>200 - 300</td>
<td>4</td>
<td>13</td>
<td>16</td>
<td>4 - 5</td>
<td>30</td>
<td>96</td>
<td>120</td>
</tr>
<tr>
<td>300 - 400</td>
<td>5</td>
<td>16</td>
<td>20</td>
<td>5 - 10</td>
<td>60</td>
<td>190</td>
<td>240</td>
</tr>
<tr>
<td>400 - 500</td>
<td>6</td>
<td>19</td>
<td>24</td>
<td>10 - 20</td>
<td>100</td>
<td>320</td>
<td>400</td>
</tr>
<tr>
<td>500 - 600</td>
<td>7</td>
<td>22</td>
<td>28</td>
<td>20 - 30</td>
<td>130</td>
<td>420</td>
<td>520</td>
</tr>
<tr>
<td>600 - 700</td>
<td>8</td>
<td>26</td>
<td>32</td>
<td>30 - 40</td>
<td>160</td>
<td>510</td>
<td>640</td>
</tr>
<tr>
<td>700 - 850</td>
<td>9</td>
<td>29</td>
<td>36</td>
<td>40 - 50</td>
<td>200</td>
<td>640</td>
<td>800</td>
</tr>
<tr>
<td>850 - 1000</td>
<td>10</td>
<td>32</td>
<td>40</td>
<td>50 +</td>
<td>250</td>
<td>800</td>
<td>1000</td>
</tr>
</tbody>
</table>

1 moderately heaped spoon = 1 g

**To make an Impact Dose** | Weigh the animal and select the appropriate weight range from the chart above. Mix the amounts of Impact powder and warm, pre-boiled water. Prepared Impact may be kept refrigerated for one day, or stored frozen for up to 2 weeks.

**Directions for Newborn Mammals** | Including cats, dogs, rabbits, rats, guinea pigs, horses, alpacas, cows, sheep, pigs, deer, zoo animals and eutherian wildlife (eg flying foxes & microbats).

Impact should be fed as soon as possible after birth, and preferably before milk is fed. Impact may be absorbed for several days after birth, depending on the species, but is most effective in the first 12 hours. Newborns that have not received maternal colostrum should receive at least 2 doses of Impact within 48 hours of birth.

**First 12 hours after birth** | Prepare an Impact Dose as described above and feed ¼ of the amount every 2 hours. Do not feed milk during this time.

**12 to 48 hours after birth** | Commence feeding milk. Prepare an Impact Dose as described above and feed ¼ of the amount every 4 hours, in between milk feeds.

*Do not mix or feed Impact with milk.*

**Directions for Marsupials** | Including kangaroos, possums, wombats, koalas, bandicoots, carnivorous marsupials and monotremes (echidna and platypus).

Impact is ideally fed to pouch-bound marsupials within a week of first coming into care, as immunity from the mother’s milk can deplete significantly after 7 days and may be completely gone by 4-6 weeks. Impact may be fed as either a concentrated 5-day course or a less-concentrated maintenance dose.

**Concentrated 5-day course** | Select the amount of Impact powder for body weight from the chart. Mix the powder directly into the daily volume of milk and feed as usual. If too thick, dilute with a small amount of extra water. This procedure may be repeated for up to 5 days, every 4 to 6 weeks, as necessary. 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).

**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 immunoglobulins during care.

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