Infant Health


Buescher, ES, McWilliams-Koeppen, P. Soluble tumor necrosis factor-alpha (TNF-alpha) receptors in human colostrum and milk bind to TNF-alpha and neutralize TNF-alpha bioactivity. *Pediatric Research* 44(1):37-42 (1998). The ability of colostrum to modulate the inflammatory response is unique. One of the ways in which it does this is through TNF-a receptor proteins, which are found in colostrum. These bind to TNF-a, which inactivates the TNF-a. TNF-a is the activator of the entire inflammatory cascade, so by controlling its activity, colostrum controls the degree of the inflammatory response and can shut it off altogether.

Buescher, ES, McIlheran, SM. Antioxidant properties of human colostrum. *Pediatric Research* 24(1):14-19 (1988). Colostrum reduces ferricytochrome C in polymorphonuclear leucocytes (PMNs) and also disrupts other metabolic and enzymatic activities of PMNs which are crucial in PMN respiratory burst mediation of acute inflammation, showing that colostrum is a powerful antioxidant.


Blättler, U, et al. Feeding colostrum, its composition and feeding duration variably modify proliferation and morphology of the intestine and digestive enzyme activities of neonatal calves. *Journal of Nutrition* 131(4):1256-1263 (2001). A similar study done on calves either receiving or not receiving colostrum. This study concentrated on the development and health of the gastrointestinal epithelium and found that the development and health of this epithelium was markedly superior in those receiving colostrum. Colostrum also influenced the production of lipase enzyme by the pancreas.

Brüssow, H., et al. Bovine milk immunoglobulins for passive immunity to infantile rotavirus gastroenteritis. *Journal of Clinical Microbiology* 25(6):982-986 (1987). Protection against rotavirus, a dangerous pathogen which can cause serious, even fatal diarrhea in infants, can be passed orally through milk or colostrum safely and effectively.


Carver, JD, Barness, LA. Trophic factors for the gastrointestinal tract. Clinical Perinatology 23(2):265-285 (1996). Factors in colostrum which promote the development of the GI tract in newborn infants also help protect against such diseases as Crohn's disease, colitis, necrotizing enterocolitis and diarrhea.


Ebina, T, et al. Passive immunizations of suckling mice and infants with bovine colostrum containing antibodies to human rotavirus. Journal of Medical Virology 38:117-123 (1992). Another study that confirmed that oral immunization via colostrum or milk against rotavirus was possible, safe and effective.


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Ogra, PL, et al. Colostrum derived immunity and maternal neonatal interaction. Annals of the New York Academy of Sciences 409: 82-92 (1983). Peyer's patches are found throughout the intestinal tract, and groups of similar immunoactive cells are found in the bronchial mucosa. Both the intestinal...
and bronchial immunoactive cell groups respond to allergens, antigens and pathogens by neutralizing or destroying them. In newborns, these special cell groups are not immediately operative but protection is provided by a variety of immune factors from the mother’s colostrum. Antibodies found in colostrum protect against Eschericia coli, Salmonella, Shigella, Vibrio cholera, Bacteriodes fragilis, Streptococcus pneumoniae, Bordetella pertussis, Clostridium diphtheria, Clostridium tetani, Streptococcus mutans and Candida albicans.


Sirota, L, et al. Effect of human colostrum on interleukin-2 production and natural killer cell activity. Archive of Diseases in Childhood: Fetal and Neonatal Edition 72(3):F99-102 (1995). Colostrum stimulates or inhibits the production of IL-2 depending on its concentration. It also inhibits the activity of natural killer cells, but the production of IL-2 reverses this effect. This is thought to be another way that colostrum modulates the immune system response.


Solomons, NW. Modulation of the immune system and the response against pathogens with bovine colostrum concentrates. European Journal of Clinical Nutrition 56(Suppl.3):524-528 (2002). The ability of colostrum to protect infants against pathogens, specifically those which cause gastroenteritis and severe diarrhea, makes it an ideal, cheap, safe and effective means of protecting children in those parts of the world where medical assistance is lacking or substandard and could save thousands of lives each year.


Satue-Gracia, MT, et al. Lactoferrin in infant formulas: effect on oxidation. Journal of Agriculture and Food Chemistry 48(10):4984-4990 (2000). Commercially modified infant formulas based on cow's milk have significantly less lactoferrin than whole milk, and soy formulas contain none, even though lactoferrin acts as an iron transporter protein. Adding lactoferrin to infant formulas results in the dual benefit of increased iron absorption and acts as an antioxidant and antimicrobial to extend the shelf life of the formulas.


"Colostrum contains non-specific inhibitors that inhibit a wide range of respiratory illness, notably influenza viruses. Colostrum is specifically cited for its unique effectiveness against potentially deadly outbreaks of Asian flu viruses that emerge from animal/human mutations." This was published by Dr. Shortridge, et al, in the Journal of Tropical Pediatrics.