



Colostrum Bovine colostrum

Common Indications:

- Immune regulation
- Exercise-induced immune responses
- Gastrointestinal permeability issues
- Anti-diarrheal
- Antibacterial/Antiviral

General Comments:

Colostrum is a thick yellow fluid, rich in protein, growth factors, and immune factors. It is secreted by the mammary glands of all female mammals during the first few days of lactation. It also contains essential nutrients and protease inhibitors that keep it from being destroyed by the

processes of digestion. Humans produce relatively small amounts of colostrum in the first two days after giving birth, but cows produce about 9 gallons (36 L) of colostrum. Bovine colostrum can be transferred to all other mammals and is four times richer in immune factors than human colostrum. The major components of colostrum include the following substances:

- Immunoglobulins to support immune function.
- Lactoferrin, a protein that transports iron to red blood cells and helps to deprive viruses and harmful bacteria of iron.
- Proline-rich polypeptide (PRP), a hormone that regulates the thymus gland.
- Growth factors, including insulin-like growth factors (IGF-1 and IGF-2), an epithelial growth factor (EGF), transforming growth factors (TGF-A and TGF-B), and a platelet-derived growth factor (PDGF). Growth factors stimulate normal growth as well as the healing and repair of aged or injured skin, muscle, and other tissues. In addition, growth factors help the body to burn fat instead of muscle for fuel when a person is dieting or fasting.
- Growth hormone, important in the aging processes.
- Leukocytes, white cells that stimulate production of interferon.
- Enzymes - colostrum contains three enzymes that oxidize bacteria.
- Cytokines and lymphokines
- Vitamins, including vitamins A, B₁₂, and E.
- Glycoproteins, protease inhibitors, are complex proteins that protect immune factors and growth factors from being broken down by the acids in the digestive tract.
- Sulfur

Benefits & Mechanism of Action:

Immune regulation

Bovine colostrum supplementation has been reported to support immune balance. Improvements in serum insulin-like growth factor I (IGF-I), cytokine production and salivary IgA are reported.¹

Exercise-induced immune regulation

Colostrum has been reported to help in exercise-induced immune changes, especially in those participating in strenuous training (i.e. endurance athletes).² Other studies in marathon runners and cyclers have reported similar results.³ However, a small clinical study reported no effect on post-exercise immune suppression when using colostrum supplementation after short-term intense exercise.⁴ A clinical study in 2011 reported that bovine colostrum reduced gut permeability caused by heavy exercise and has a preventative effect due to the growth factors present within colostrum.^{5,6,7,8,9}

Antibacterial and antiviral effects

Targeted bovine colostrums have been used as a prophylaxis against rotavirus, *Shigella flexneri*, *Escherichia coli*, *Clostridium difficile*, *Streptococcus mutans*, *Cryptosporidium parvum*, and *Helicobacter pylori*.^{10,11,12} It does so by destroying cell walls and agglutinating with bacteria.^{13,14} It has also been shown to reduce bacterial and viral load in the lungs within 24 hours when introduced to the mucosal membrane through a rapid and immediate increase in the phagocytic activity of monocytes and subsequent triggering of new natural killer cells into systemic circulation.^{15,16} It has also been shown to decrease the incidence of upper respiratory tract infections in general by increasing the levels of IgA in the saliva and can be used in the treatment of failure to thrive.^{17,18,19,20} Colostrum may also be used as an influenza prophylactic and was shown to be three times more effective than the flu vaccination.²¹

Reduces NSAID-induced intestinal damage

Bovine colostrum improves the integrity of intestinal villi and prevents NSAID-induced increases in small intestine permeability. Studies have shown that it stimulates both cell migration and proliferation to increase the natural repair mechanism in the body and prevents overgrowth of enteric aerobic bacteria seen with NSAID use.^{22,23,24,25}

Antioxidant activity

Bovine colostrum has been shown to reduce oxidative stress and reduce nitric oxide overproduction by increasing glutathione peroxidase and superoxide dismutase levels.²⁶ Rat studies have shown that it may reduce damage in brain ischemia or reperfusion injuries.²⁷

Dose:

- 500 – 1,000 mg, 1-3 times a day
- Colostrum supplements should be taken on an empty stomach, either 1 hour before or 2 hours after food.
- It is recommended to always use New Zealand bovine supplements for purity and quality.

Symptoms of Depletion:

Deficiency of human colostrum in infants is reported to lead to immune imbalances and to increase gut permeability.

Cautions & Side Effects

- With the exception of allergic reactions in persons who are known to be allergic to cow's milk, colostrum does not produce any major side effects at any level of consumption.
- Use with caution in pregnancy and lactation.
- In the United States, colostrum is taken from dairy cows within 24 hours after the birth of a calf. Only dairy cows that meet USDA health standards and have been raised on a feed supplemented with nutrients are used to supply colostrum. The calf needs four gallons of the nine that the cow produces. A USDA-certified dairy collects the remaining five gallons.
- Human mother's milk and cow's milk (from the first few days after birthing).

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Immune regulation

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Exercise-induced immune regulation

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