

How Colostrum Can Benefit Your Immune Health

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Rich in enzymes, hormones, growth factors, cytokines and immune cells, all mammals, including humans, produce colostrum for the first three or four days after giving birth
- › Colostrum is packed with nutrition to meet the needs of the growing newborn during the first days of life
- › Cytokines, immunoglobulins, growth factors, antimicrobial compounds and maternal immune cells are transferred when colostrum is fed, supporting immunity
- › Colostrum is so beneficial it's often referred to as "liquid gold" or "immune milk;" colostrum is used for a variety of immunity-related disorders, including allergies and autoimmune disorders, as well as microbial and viral infections
- › Colostrum may help prevent influenza and upper respiratory tract infections while supporting gastrointestinal health and physical performance

For the first three to four days after giving birth, all mammals, including humans, produce colostrum, also known as initial milk or first milk.¹ Rich in enzymes, hormones, growth factors, cytokines and immune cells, this thick, yellow substance is produced only in small quantities, but is packed with so much nutrition that it easily meets the needs of the growing newborn during the first days of life.

About 250 active compounds have been identified in colostrum, but there are likely many others.² Colostrum contains beneficial bacteria, as well, and acts directly on the baby's tissues, ensuring optimal growth and development of the nervous, digestive and

immune systems. As explained by researchers with Hirszfeld Institute of Immunology and Experimental Therapy in Wroclaw, Poland:³

"The nutrients and regulatory substances ensure normal growth, differentiation, maturation and function of the digestive system, protect against damage and allow it to heal, control the development of a normal intestinal microbiota and shape the local (gut-related) and systemic immune response."

Given the immense benefits of colostrum to newborns, it's also been harnessed for its disease prevention, wellness and antiaging potential, particularly as it relates to immune system function.

Colostrum for Immune System health

Bovine colostrum contains similar bioactive components as human colostrum, albeit in different concentrations.⁴ Given its widespread availability, it's been used for health purposes for thousands of years, including to heal wounds and protect against infection.⁵

It's believed that cytokines, immunoglobulins, growth factors, antimicrobial compounds and maternal immune cells are also transferred when colostrum is fed, supporting immunity.⁶ In fact, colostrum is so beneficial it's often referred to as "liquid gold" or "immune milk."⁷ "Naturally produced bioactive components, immunoglobulins lay the foundation of life-long immunity," researchers explained in Food Bioscience.⁸

Immunoglobulin G (IgG) is the most common antibody in bovine colostrum (BC), making up 80% to 85% of the immunoglobulin present. The Food Bioscience team noted:⁹

"Before the invention of all the artificial antibodies, colostrum was used as a key to unlock all mechanisms to prevent microbial infections. Immunoglobulins are well known for their health benefits to humans in terms of immunogenic response. When hosts are exposed to foreign bodies (antigens), these antibodies bind, recognize, and destroy the bacteria, toxins, viruses, and other antigens."

Then, the next time when an antigen enters the body; it stimulates the production of identical antibodies to wipe out the infection from the body. The immunoglobulins (Igs) present as the major group of immune components in BC are around 100-fold greater than in mature milk.

However, the concentration of immunoglobulin IgG in BC and mature milk ranges from 15 [to] 180 g/L versus 0.35 g/L, respectively. The elevated levels of IgGs in BC exhibit numerous immuno-modulatory properties based on their immunoprotective actions reported by several investigators."

In Ayurveda, bovine colostrum is used to irrigate the eyes and treat eye infections, while consuming colostrum is used for a variety of immunity-related disorders, including allergies and autoimmune disorders, as well as cardiovascular disease and microbial and viral infections.¹⁰

Further, bovine IgG is known to bind to human pathogens and allergens, and to neutralize infection in human cells during trials. It also limits gastrointestinal inflammation. Writing in *Frontiers in Nutrition*, scientists added:¹¹

"Furthermore, bovine IgG binds to human Fc receptors which, enhances phagocytosis, killing of bacteria and antigen presentation and bovine IgG supports gastrointestinal barrier function in in vitro models. These mechanisms are becoming more and more established and explain why bovine IgG can have immunological effects in vivo.

The inclusion of oral bovine immunoglobulins in specialized dairy products and infant nutrition may therefore be a promising approach to support immune function in vulnerable groups such as infants, children, elderly and immunocompromised patients."

Colostrum Works Better Than Flu Shot for Flu

In another example of colostrum's antiviral potential, researchers looked at a combination of colostrum and Bifivir – a supplement containing five strains of bacteria

and prebiotic fiber – compared to flu vaccination for flu prevention.¹²

Four groups of individuals were matched for age and sex distribution. In the control group, participants did not receive any preventive measures, which resulted in eight major episodes and 12 minor episodes of flu.

Those who received only the vaccine showed a similar response with eight major episodes and 13 minor episodes. In the group receiving the flu vaccine and the immunomodulators Bifivir and colostrum, there were four who had a major episode and nine with a minor episode.

But the group that received only the immunomodulators fared the best. There were three with a major episode and eight with a minor episode. The researchers found the groups who received vaccinations and the immunomodulator and the group that received only the immunomodulators showed significantly lower rates of flu when compared against the other two groups.

"In conclusion, the administration of immunomodulators is very cost effective and appears to be more effective than vaccination to prevent flu," the researchers explained.¹³

In another example of colostrum's benefits for immunity, 29 road cyclists took either a placebo or bovine colostrum after normal training or a period of intense exercise – five consecutive days of high-intensity training. Low-dose bovine colostrum protein concentrate supplementation modulated immune parameters after both events, and likely contributed to reduced upper respiratory illness seen in the colostrum group.¹⁴

Colostrum Helps Prevent Upper Respiratory Tract Infections

It's not only athletes who may benefit from colostrum's beneficial effects against upper respiratory tract infections. Another study gave medical university students bovine colostrum or placebo for 45 days, then again over a seven-day period starting at day 87.¹⁵ Both a "high stress" medical student group – considered at increased risk of developing infection – and a lower risk peer group were included.

The colostrum group had significant protection from upper respiratory tract infections, including fewer symptomatic days and less severe symptoms. However, colostrum supplementation was particularly beneficial in warding off respiratory infection, and improving well-being, in those under a lot of stress and therefore at higher risk of developing such infections. No adverse effects were reported.

Bovine colostrum also raises the percentage of natural killer (NK) cells in the body.¹⁶ NK cells are a type of white blood cell and part of the innate immune system that helps control microbial infections and tissue damage. They also play a role in organ transplant, immunotherapy and autoimmune disorders.

In a 2012 study on mice, oral administration of skimmed and concentrated bovine late colostrum was shown to activate the immune system and protect against influenza infection by boosting NK cell activity.¹⁷

Colostrum for Gastrointestinal Health

Colostrum's ability to heal the mucosal barrier in the gut also makes it ideal for gastrointestinal health, especially in disorders that involve failure of the mucosal barrier, such as inflammatory bowel disease, infectious diarrhea, necrotizing enterocolitis and damage caused by nonsteroidal anti-inflammatory drugs (NSAIDs).

"In human trials, there is substantial evidence of efficacy of bovine colostrum in inflammatory bowel disease and in infectious diarrhea," researchers wrote in a *Nutrients* review,¹⁸ adding:¹⁹

"Bovine colostrum is a complex biological fluid replete with growth factors, nutrients, hormones, and paracrine factors which have a range of properties likely to contribute to mucosal healing in a wide range of infective, inflammatory, and injury conditions. Evidence is building that these properties may be employed in several disorders to promote recovery or in prevention."

Among children, colostrum supplementation significantly reduced stool frequency and diarrhea due to rotavirus or *E. coli*. In adults, it was also effective in protecting against

travelers' diarrhea.²⁰

Colostrum also shows promise for reducing inflammatory markers and protecting against intestinal damage caused by chemotherapy treatment and NSAIDs, while also improving symptoms in patients with IBD when used in enema form.²¹

What Else Is Colostrum Good For?

There are more than 120 clinical trials underway looking into colostrum's effects on human health.²² It's receiving increased attention as a supportive supplement for athletes, particularly during periods of high-intensity activity to benefit body composition, physical performance, recovery and immune function, reducing illness risk and gut damage.²³

Colostrum is also being studied for use in skin care due to its anti-inflammatory effects and ability to stimulate repairs in the skin. In an animal study, a combination of colostrum and honey effectively reduced scars and pain while protecting against infection and stimulating the growth of granulation tissue in wounds.²⁴

Colostrum is also a rich source of lactoferrin, a glycoprotein with antibacterial, antifungal, antiviral, antiparasitic, antitumor and immunomodulatory effects,²⁵ which also plays a role in bone regeneration.²⁶ Overall, colostrum has the potential to influence the human body on a systemic level, offering benefits to the following conditions:²⁷

Brain – depression, anxiety, attention deficit hyperactivity disorder, neurobehavioral dysfunctions

Colon – leaky gut, constipation, diarrhea

Cardiovascular disorders – atherosclerosis and heart disease

Wound healing – repairing DNA and RNA, growth of nerve cells, skin

Neuroendocrine system – hypothalamic-pituitary axis, HIV-associated

Antiaging – healing process, antioxidant

immunomodulation

Athletic performance – ligament and muscle healing, increased lean muscle mass

Other – Type 2 diabetes, Alzheimer's disease

When choosing a colostrum supplement, look for a source that comes from grass fed, pasture-raised cows. Start with a lower dose of a few grams per day and increase as needed. While some people use colostrum daily, others use it for more targeted purposes or cycle on and off it.²⁸

Sources and References

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