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What Are the Wide-Ranging Health Benefits of Colostrum?

Analysis by Dr. Joseph Mercola | January 08, 2024

STORY AT-A-GLANCE

- Among the most important compounds in colostrum are antimicrobial factors that stimulate immune system development
- The gastrointestinal tract also benefits from colostrum intake, as do the metabolic and endocrine systems; it's also useful for muscular-skeletal repair and growth
- Colostrum is a rich source of antibodies, including immunoglobulins that "lay the foundation of lifelong immunity"
- Colostrum's ability to heal the mucosal barrier in the gut makes it ideal for gastrointestinal health, especially in disorders that involve failure of the mucosal barrier, such as inflammatory bowel disease
- Lactoferrin in colostrum promotes the production of anti-inflammatory cytokines that may help prevent infections and sepsis; lactoferrin also has antibacterial, antifungal, antiviral, antiparasitic, antitumor and immunomodulatory effects

Colostrum, or first milk, is the substance that all mammals produce in the first few days after giving birth. Designed to provide a rich, concentrated source of nutrition to the newborn, colostrum has a different composition from mature milk, including more fat, protein, peptides, vitamins, hormones and growth factors, along with less lactose.[1]

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from colostrum intake, as do the metabolic and endocrine systems. It's also useful for muscular-skeletal repair and growth.

As such, while colostrum is well known as a critical form of nutrition for infants, many cultures regard colostrum as a medicinal food that's useful for overall health support.[2] Colostrum is so beneficial it's often referred to as "liquid gold" or "immune milk."[3]

Antibodies Make Colostrum an Immune System Ally

Colostrum is a rich source of antibodies, including immunoglobulins (Ig) IgA, IgM and IgG, the latter of which is typically most abundant,[4] making up 80% to 85%of the immunoglobulin present. "Naturally produced bioactive components, immunoglobulins lay the foundation of lifelong immunity," researchers explain in Food Bioscience.[5]

In terms of immune function, bovine colostrum affects multiple immune cells, including natural killer cells, T helper cells, regulatory T cells, macrophages, B cells and the gut microbiome.[6]

In cases of common variable immunodeficiency, a largely undiagnosed immunodeficiency disease characterized by a decrease in immunoglobulin levels, colostrum may be beneficial. While it affects the respiratory tract, it also causes gastrointestinal complications, and a case study found bovine colostrum supplementation boosted local gut immunity and improved gastrointestinal symptoms. According to the paper:[7]

> *"Bovine colostrum is rich in proteins and immunoglobulins, colony-stimulating factors, transforming growth factors, anti-inflammatory cytokines, interferon-gamma, and proline-rich polypeptides lactoperoxidase-thiocyanate xanthine oxidase and peroxidase enzymes, vitamins minerals, amino acids, essential oils, lactoferrin, lysozyme, trypsin, and orotic acid.*
>
> *These components reduce the inflammatory activity and exert a trophic effect on the cells … We presume that immunoglobulins, trophic factors for the cells, and various factors that reduce the inflammation, infection, and leaky gut in*

bovine colostrum capsules were responsible for the positive outcome in this case."

Further, bovine IgG is known to bind to human pathogens and allergens, and neutralizes infection in human cells during trials. It also limits gastrointestinal inflammation.

Writing in Frontiers in Nutrition, scientists explain, "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."[8]

The amount of IgG in colostrum is significantly higher than in mature milk. For instance, the concentration of IgG in bovine colostrum ranges from 15 [to] 180 g/L compared to 0.35 g/L in mature milk.[9] According to the Food Bioscience team:[10]

"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 … The elevated levels of IgGs in BC exhibit numerous immuno-modulatory properties based on their immunoprotective actions reported by several investigators."

Colostrum Supports a Healthy Gut

Trillions of microorganisms live in your intestinal tract. Their makeup plays a profound role in your health, affecting everything from mental health[11] and heart disease[12] to

obesity[13] and sleep problems.[14] Colostrum is just one dietary player that supports a healthy microbiome for overall and gastrointestinal health.

Bovine colostrum contains oligosaccharides, prebiotics that may promote the growth of bifidobacteria in the gut. In humans, bifidobacterial flourishes in the guts of healthy breastfed infants and is known to improve gut barrier integrity and reduce inflammation.

Further, the immunoglobulins, lactoferrin and cytokines in colostrum resist digestion in order to be biologically active in the gut, where they can modulate the microbiota and the immune system, according to research published in PLoS One.[15]

In a study of children with autism and gastrointestinal symptoms like constipation, diarrhea and irritable bowel syndrome, a combination probiotic and bovine colostrum supplement improved GI symptoms,[16] even leading to improvements in chronic GI symptoms that hadn't responded to other common treatments.[17]

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 write in a Nutrients review.[18] Many bioactive compounds in colostrum support gut health, including healing leaky gut syndrome, which is common in athletes. A systematic review published in Nutrients found that colostrum:[19]

- Has antimicrobial and endotoxin-neutralizing effects that suppress gut inflammation and promote mucosal integrity and tissue repair
- Helps resolve inflammatory bowel disease due to localized anti-inflammatory effects
- Contains lactoferrin, a glycoprotein with strong antimicrobial activity and supports the growth of beneficial gut bacteria

- Is a rich source of insulin growth factor-1 (IGF-1), which stimulates the growth and reconstruction of cells and tissues and may help reduce intestinal permeability
- Contains short-chain fatty acids, conjugated linoleic acid and omega-3 fats, which may help improve the integrity of the intestinal inner cell membrane

Additional research suggests bovine colostrum may be a therapeutic option for a variety of GI conditions, including chemotherapy induced mucositis, short bowel syndrome Clostridium difficile infection, possibly by modulating the gut microbiome.[20]

Colostrum Helps Fight Infections, Including Flu

Lactoferrin in colostrum promotes the production of anti-inflammatory cytokines that may help prevent infections and sepsis.[21] Lactoferrin also has antibacterial, antifungal, antiviral, antiparasitic, antitumor and immunomodulatory effects, which may inhibit the growth of disease-causing yeasts, bacteria and viruses.[22]

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.[23] 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 faired 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 explain.[24]

In another study, medical university students took either bovine colostrum or placebo for 45 days, then again over a seven-day period starting at Day 87.[25] 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 are at higher risk of developing such infections. No adverse effects were reported.

Colostrum Supports Metabolic Health, Skin and Bones

Compared to mature milk, colostrum is a richer source of vitamins and minerals, including vitamins B2, B12, E, and D, as well as calcium, copper, zinc, magnesium, manganese and phosphorus.[26] Its nutrition content and additional bioactive compounds may support diabetes and nonalcoholic fatty liver disease, as colostrum may lower high glucose and lipid levels.

"The beneficial effects of BC for these conditions are likely to be due to multiple constituents that affect interaction with luminal bacteria and lipopolysaccharide (LPS), mucosal integrity, and innate and adaptive immune responses," researchers explained in Nutrients.[27]

Colostrum may also help increase bone density, according to animal studies, while a clinical trial on humans found it increased leg press strength and reduced bone resorption in older adults when used during resistance training. For skin health, topical application may help reduce inflammation caused by exposure to allergens.[28]

In another 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.[29] Overall, there are more than 120 clinical trials underway looking into colostrum's effects on human health.[30] It has the potential to influence the human body on a systemic level, offering benefits to the following conditions:[31]

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 immunomodulation	**Antiaging —** Healing process, antioxidant
Athletic performance — Ligament and muscle healing, increased lean muscle mass	**Other —** Type 2 diabetes, Alzheimer's disease

When to Avoid Colostrum

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.[32]

Athletes may use colostrum to boost performance, and it may be useful for wound healing or fighting off infection during times of stress. However, if you're fasting, colostrum is best avoided due to the growth factors it contains.

Fasting induces autophagy, a process your body uses to help to clear damaged cells, including old cells no longer serving a functional purpose. The use of colostrum during

this process is contraindicated because the growth factors increase growth at the same time your body is attempting to clear old cells.

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