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Lactoferrin Supports Balanced Immune Responses in the Tonsils

Lactoferrin (LF), a naturally occurring protein found in tears, saliva, nasal secretions, and milk, plays an important role in maintaining the balance of immune activity at mucosal surfaces. The palatine tonsils act as one of the body's first lines of immune defense, recognizing invading pathogens in the oral cavity through receptors such as Toll-like receptors (TLRs).

Recent work explored how bovine lactoferrin influences immune responses in tonsillar cells when exposed to signals that mimic viral (TLR7) or bacterial (TLR9) infections.



Researchers isolated immune cells from the tonsils of patients with recurrent tonsillitis or immunoglobulin A (IgA) nephropathy and exposed them to lactoferrin alongside TLR7 or TLR9 ligands.

Under conditions simulating viral exposure (TLR7 activation), lactoferrin enhanced the activity of key immune cells, including plasmacytoid dendritic cells, cytotoxic T cells, and B cells, without triggering the release of pro-inflammatory cytokines. In contrast, when cells were stimulated to mimic bacterial signals (TLR9 activation), lactoferrin reduced activation across multiple immune cell types and suppressed production of inflammatory markers such as TNF- α and IL-6.

Lactoferrin also lowered levels of factors associated with B-cell activation (BAFF and APRIL) and reduced the production of galactose-deficient IgA1, which is linked to IgA nephropathy risk.

Overall, these findings suggest that lactoferrin may help support a balanced immune response in the tonsils—enhancing defenses against viruses while promoting tolerance to non-harmful bacteria. This dual action may have potential implications for managing cold-like symptoms, recurrent tonsillitis, and IgA-related conditions.

[Yago et al. Int J Mol Sci. 2026 Mar 6;27\(5\):2442](#)

Casein Shows Advantage in Supporting Performance During Fasting Periods

How different protein sources consumed at sahur influence anaerobic power and strength in trained male combat athletes during Ramadan fasting was recently assessed. In a randomized, single-blind, placebo-controlled crossover design, 24 national-level athletes completed four conditions: non-fasting control, fasting with placebo (maltodextrin), fasting with whey protein isolate (WPI), and fasting with micellar casein (MC). Each condition included a standardized pre-dawn meal and protein or placebo supplementation (0.4 g/kg body weight).



Performance was assessed 11–13 hours after sahur (or 3–5 hours after lunch in the non-fasting condition) using the Wingate anaerobic test, bench press, leg press, countermovement jump, and handgrip strength. Ramadan fasting resulted in significant reductions in peak and mean anaerobic power, as well as bench press strength, compared with the non-fasting control.

Micellar casein partially mitigated these declines, resulting in higher peak and mean power compared with both whey protein and placebo, and improved bench press strength compared with placebo. However, performance did not return to non-fasting levels. No significant differences were observed in lower-body strength, jump performance, or handgrip strength across conditions.

Overall, the findings suggest that protein type and timing at sahur may help limit performance declines during fasting, with slower-digesting casein showing some advantage over whey protein. However, further research is needed to define optimal nutritional strategies for athletes training and competing during Ramadan.

[Demirli et al. PLoS One. 2026 Mar 13;21\(3\):e0340961.](#)

Lactoferrin Supplementation Linked to Fewer Respiratory Symptoms in Healthy Adults

Lactoferrin supplementation has been shown to improve various aspects of immune functioning. This study evaluated the effects of daily bovine lactoferrin (LF) supplementation on respiratory health and overall physical condition in healthy adults. In a randomized, double-blind, placebo-controlled trial, participants consumed either lactoferrin (200 mg/day) or a placebo for 12 weeks.

A total of 157 individuals were enrolled, with 145 completing the study. The primary outcomes were self-reported respiratory and systemic symptom scores, while a secondary measure assessed the activity of plasmacytoid dendritic cells (pDCs), an important component of the body's antiviral immune response.

Participants in the lactoferrin group reported significantly lower overall respiratory and systemic symptom scores compared with those receiving placebo over the 12-week intervention. In addition, markers of pDC activation (CD86 and HLA-DR expression) were significantly higher in the lactoferrin group at the end of the study, indicating enhanced immune responsiveness. Safety outcomes were comparable between groups, with no adverse reactions attributed to lactoferrin.

Overall, these findings suggest that oral lactoferrin supplementation may support immune function by maintaining pDC activity and may help reduce the frequency or severity of mild respiratory and systemic symptoms in healthy adults.

[Oda et al. Nutrients. 2023 Sep 13;15\(18\):3959.](#)



Milk Proteins May Offer Small Benefits for Heart Health Markers

This systematic review and meta-analysis assessed the effects of milk protein supplementation—including casein, whey, and total milk protein—on key markers of cardiovascular health in adults. Researchers conducted a comprehensive literature search across major scientific databases and identified 65 randomized controlled trials evaluating outcomes related to lipid profiles, blood pressure, oxidative stress, and liver function.

The pooled analysis used a random-effects model to account for variability across studies. Overall, milk protein supplementation was associated with modest but statistically significant reductions in total cholesterol (-4.03 mg/dL), triglycerides (-6.11 mg/dL), and systolic blood pressure (-1.99 mmHg) compared with control groups. These findings suggest a small but measurable benefit for select cardiovascular risk markers. No significant effects were observed for other outcomes, including diastolic blood pressure, HDL or LDL cholesterol, apolipoproteins (Apo A and Apo B), markers of oxidative stress, or liver enzyme levels. This indicates that the impact of milk protein supplementation may be limited to specific aspects of cardiometabolic health rather than broader systemic effects.

Heterogeneity across studies was evaluated using standard statistical approaches, reflecting differences in study populations, intervention durations, and protein dosages. While the overall direction of effect was consistent for some outcomes, variability suggests that individual responses may depend on factors such as baseline health status, dietary context, and protein type.

In summary, milk protein supplementation may contribute to modest improvements in lipid profiles and systolic blood pressure. These findings support a targeted, rather than universal, role for milk proteins in cardiovascular risk management.

Mohammadi et al. Nutr Rev. 2026 Apr 1;84(4):706–733.

IN THE NEWS



What the new DGAs mean for food and ag

New U.S. dietary guidelines prioritize minimally processed foods, higher protein intake, and a shift in how fats and dairy are positioned.

These recommendations could drive meaningful shifts in food policy, product formulation, and agricultural demand.

Confused about protein? Here's how to figure out your optimal intake

Protein is increasingly emphasized in both public messaging and updated dietary guidelines, but individual needs vary based on factors like body weight, activity level, and age, with a general recommendation of 1.2–1.6 g/kg/day. Meeting protein needs supports muscle maintenance, metabolism, and overall health, and can be achieved through either animal or plant sources when intake is appropriately balanced.



Mississippi Moves First To Ban Lab-Grown Dairy

Mississippi is proposing legislation to ban the manufacture and sale of cell-cultured dairy products, reflecting a broader state-level push to protect traditional agriculture and restrict alternative proteins.

This content is provided for informational and educational purposes only and does not constitute medical advice, diagnosis, or treatment. Readers should consult a qualified healthcare professional for individual guidance.

We support the World Health Organization's recommendation that breastfeeding is the optimal source of nutrition for infants. When breastfeeding is not possible or not sufficient, infant formula can provide an appropriate alternative.