

Supporting Longevity by Addressing Inflammaging at Its Source

Longevity is increasingly shaping pet food innovation. Pet parents want more than complete nutrition. They want diets that help their pets age well.

Aging is associated with chronic, low-grade inflammation, often referred to as inflammaging. This gradual accumulation of inflammation influences long term health status, including mobility, metabolic efficiency, immune resilience, and cognitive function.

Managing longevity means reducing the cumulative inflammatory pressures that shape how pets age.

Inflammaging Begins in the Gut

The gastrointestinal tract is a central regulator of inflammatory response. With most of the immune tissue located in the gut, it serves as the primary interface between diet, microbes, and immune signaling.

When gut barrier integrity weakens or microbial balance shifts, immune activation increases. Over time, sustained activation contributes to the low-grade systemic inflammation associated with aging.

Because the gut communicates with joints, muscle, and neural tissue through immune and metabolic pathways, inflammatory signals originating in the gastrointestinal tract can influence tissues beyond the local area.

Mobility is one of the earliest and most visible indicators of aging. As inflammatory load accumulates, joint comfort, gait stability, and overall activity levels may decline. Because inflammatory signaling often originates in the gastrointestinal tract, nutritional strategies that stabilize gut health may play a role in supporting mobility as animals age.

If inflammaging begins in the gut, formulation strategies that stabilize gut integrity may influence long-term outcomes, including mobility and cognitive function.

Plasma's Role in Reducing Inflammatory Load

Plasma is supported by more than 700 peer reviewed publications across species. Beyond providing highly digestible protein, plasma contains growth factors, transferrin, lysozyme, cytokines, immunoglobulins, and other bioactive proteins that interact directly with the mucosal immune system.

Mode of action research shows that orally fed plasma:

- Preserves intestinal barrier integrity by maintaining tight junction proteins¹
- Reduces pro inflammatory cytokine signaling while supporting anti-inflammatory pathways²
- Supports balanced microbial populations³
- Reduces systemic inflammatory markers during stress²
- Supports comfort and gait parameters in mobility models⁴
- Attenuates markers of neuroinflammation in aging models⁵

In inflammatory challenge models, spray dried plasma prevented disruption of intestinal barrier function and reduced epithelial deterioration by maintaining tight junction proteins¹.

By supporting mucosal integrity and moderating immune activation, plasma reduces excessive inflammatory signaling before it contributes to systemic burden that can influence mobility, cognition, and metabolic function.

Canine Evidence: Functional Outcomes

These mechanisms translate into measurable outcomes in dogs.

In adult canine feeding studies evaluating plasma inclusion in extruded diets⁶:

- Overall nutrient digestibility was maintained
- Fecal short chain fatty acids increased with higher plasma inclusion
- Indole related metabolites were reduced
- Beneficial genera including Lactobacillus and Streptococcus increased
- Fecal IgA concentrations were higher in plasma fed dogs, indicating support of mucosal immune balance
- Blood urea nitrogen decreased, suggesting improved protein utilization

Together, these findings demonstrate support for gut integrity, microbial balance, immune homeostasis, and metabolic efficiency.

From Gut Stability to Healthier Lifespan Across Systems

Dietary plasma supplementation has been shown to support gait parameters and comfort in mobility models⁴, suggesting that modulation of inflammatory signaling may positively influence movement and physical function.

Emerging research in senior dogs also suggests plasma supplementation may support inflammatory indicators, antioxidant capacity, and joint health associated with mobility during aging⁷.

In aging models, plasma has also been shown to attenuate cognitive decline and reduce phosphorylated tau protein accumulation⁵, suggesting preservation of neuronal integrity linked to inflammatory modulation.

Reducing inflammatory load at the gut level may therefore influence broader long-term outcomes, including mobility, cognitive resilience, and overall vitality.

Strategic Opportunity for Manufacturers

Longevity focused nutrition represents a meaningful growth opportunity. Ingredients that address foundational drivers of aging provide differentiation beyond standard protein claims.

Plasma offers:

- Functional immune support backed by decades of research
- Stability during extrusion
- High digestibility and palatability
- Flexibility across life stage and condition specific formulas
- Support for mobility as part of a comprehensive longevity strategy

By targeting inflammaging at its source, manufacturers can position products around resilience, vitality, mobility, and long-term wellbeing.

Supporting longevity is not simply about extending years. It is about supporting more healthy, active years.

And that story begins in the gut.

Selected Mode of Action Studies

- ¹ Pérez-Bosque, et al., Dietary spray-dried plasma preserves intestinal barrier function during inflammatory challenge in rats. *Journal of Nutrition*. 2006;136:2838–2843.
- ² Pérez-Bosque, et al., Spray-dried plasma prevents inflammatory cytokine response and modulates immune function in a rat model of intestinal inflammation. *Journal of Nutrition*. 2010;140:25–30.
- ³ Moretó M, et al., Spray-dried plasma improves gut microbiota composition and intestinal barrier function. *Scientific Reports*. 2020;10:2926.
- ⁴ Coverdale, et al., Effects of bioactive proteins on gait kinematics in horses. *Journal of Animal Science*. 2014;92(Suppl 2):599.
- ⁵ Garcia-Just, et al., Dietary plasma supplementation attenuates cognitive decline and reduces neuroinflammation and oxidative stress markers in aging mice. *Journal of Nutrition*. 2020;150:303–311.
- ⁶ Mito, et al., Effects of spray-dried plasma on nutrient digestibility, fecal metabolites, microbiota, and immune and inflammatory biomarkers in adult dogs, *Journal of Animal Science*, Volume 103, 2025, skaf373
- ⁷ Sun et al., Effects of spray-dried animal plasma on inflammatory indicators, antioxidant capacity and joint health in senior dogs. Accepted for publication 2026.