The Connection Between Immunity and Nutrition

By: Andrew G. Yersin, PhD
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The interactions between immunity, the immune system, nutrition and nutrients are complex and extremely important for companion animal health. Let’s review some simple concepts that might generate further discussion.

In general, immunity simply means having adequate resources to prevent, avoid, limit or overcome an infection, disease or other uninvited attack. The immune system includes the structures, organs, and processes that allow an animal to protect himself, and is typically comprised of two unique divisions – the innate and the adaptive. Both divisions have additional capabilities for providing overall protection and allowing the body to communicate internally at a physiological level. Briefly, the innate system is considered nonspecific and utilizes surface barriers, inflammation, complement cascade, cellular barriers and natural killer cells. The adaptive system is a learned system, and utilizes lymphocytes, killer and helper T cells, antibodies and passive and active memory.

Nutrients are the components of food, supplements, and nutraceuticals that the animal may utilize to develop, grow, support and balance overall wellness. Nutrients provide the key inputs to drive metabolic systems and the various and critical co-factors for metabolic functions. Nutrients in general influence the entire physiology of the animal, and ultimately, homeostasis. Nutrients include proteins (amino acids), fats (glycerol and fatty acids), carbohydrates (simple and complex sugars), vitamins, minerals, water and oxygen.

NUTRITION AND NUTRIENTS:

• play a role in the development of the immune system
• provide substrates to support the immune system during a challenge

• influence pathogen proliferation

• provide building blocks for effector and signaling molecules

• influence regulatory action

• influence the level of pathology

• interact with the physical and chemical actions in the gastrointestinal tract.

Specifically, Omega fatty acids, vitamins (A, D, E, C, K), various amino acids, organic minerals (zinc, selenium, iron), and enzyme co-factors all contribute to assisting and supporting the immune system. Additionally, engagement of the immune system also impacts the nutritional status of the animal. Inflammatory reactions and cytokine interactions can influence protein, fat and carbohydrate metabolism, infection and disease conditions, appetite, the physiological wellness of the animal, and can depress growth responses.

Nutritional physiology can impact the immune system and its functioning just as the activity of the immune system can influence metabolism.

1. Reviewing the nutritional status, vaccination program, diet and environment of the animal allows for best practice care.

2. Reviewing the literature on active and inactive ingredients, checking labels for nutrient composition, and understanding nutrient and supplement interactions are all important factors to consider.

3. Lastly, education and discussion with the pet parent in order to identify the animal’s responses to health and well-being related to what he is consuming, is critical.

The connection between immunity and nutrition needs to be understood and recognized. The good news is that taking this connection into consideration can have very positive results on the overall well-being of the animal.

Andrew G. Yersin, PhD, is president of the companion animal health division of Kemin Industries.