

NUCLEOTIDES - EFFECTS ON IMMUNE RESPONSE

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A brief summary

During the past decade, extensive worldwide research has focused on health maintenance and disease prevention by means of enhancing natural immune response. The key to natural immunity is to assist the body's ability to facilitate the production of particular cells that target malignancies, infections, viruses, fungi, and other invading microorganisms. When a body is under challenge from any of the above listed conditions, it responds by producing the raw materials necessary to replicate its DNA, which is necessary to produce millions of these special cells in order to mount an effective attack against a specific pathogen or errant cells, such as cancer. These raw materials are called NUCLEOTIDES and consist of various compounds that form the basic constituents of DNA and RNA.

Under normal conditions these nucleotides are produced by the body itself, and are additionally obtained from food. However, considering the fact that it takes approximately 3 billion nucleotides for just one cell to be duplicated, it is readily apparent that the availability of enough nucleotides is paramount to a healthy and efficient immune reaction. Scientific research has established that in the absence of sufficient nucleotides, the body is unable to mount an adequate natural immune response when it experiences an assault by disease producing microorganisms or malignancy. Alternately, extensive scientific research has repeatedly confirmed that by supplying the body with supplemented nucleotides, its natural immune response was substantially enhanced, resulting in accelerated recovery from illness. Nucleotides are also essential in the recovery of impairment resulting from injury, physical and environmental stress in much the same manner as an immune response.

They facilitate the accelerated production of special cells to affect repair to damaged tissue and organs or overcome a debilitating condition. Unfortunately, the technology to produce a concentrated nucleotide formula that would be cost effective while delivering positive results proved to be elusive until the early 1990's. At that time, a group of Swiss scientists discovered a unique and economical method to extract nucleotides from ordinary brewer's yeast. After they produced a nucleotide formula of sufficient quality and strength, it evolved into a special product which is currently used in animal agriculture and aquaculture. Today, the success of this product is well known and documented, is used around the world, and has resulted in a multimillion dollar industry.

More recently, the Swiss developed a very similar, but more refined nucleotide blend for human use, which has proven to be of similar value and efficacy.

As with animal formulas, this product, when taken as a dietary supplement, intensifies and accelerates the human body's natural immune response and repair mechanisms.

University and clinical studies have been sponsored by both government and industry to determine the efficacy of supplemented nucleotides as a treatment for the symptoms of the common Cold and Influenza as well as Irritable Bowel Syndrome and Inflammatory Bowel Disease. The obtained results are sufficiently positive to intensify the focus on dietary supplemented nucleotides as an effective, safe, economical and advanced method to combat human disease and maladies through enhancing the body's own immune system. Furthermore, this scientific evidence, combined with ten years of anecdotal verification of the efficacy of supplemented nucleotides in the treatment of symptoms of the Common Cold, IBS and IBD, has resulted in several products which are marketed worldwide for these conditions.

Websites: For IBS and IBD - www.ibsaid.com For Athletes: www.nubound.net,

Nucleotides and animal nutrition

Today, the inclusion of dietary nucleotides in animal feeds is a universally common practice not only due to the continually demonstrated benefits to animals, but because of the economic advantages to the feed manufacturers as well as their clients. The other important reason for the escalating use of exogenous nucleotides is the mounting evidence of efficacy to both animals and humans which has been verified by thousands of scientific studies, university trials and field research over the past 20 years. By example, the Journal of Nutrition, alone, published over 1300 studies on this topic in their publications since the 1990's.

All of this scientific inquiry, combined, has concluded that the use of exogenous nucleotide formulas in the diet may provide following benefits:

- increased resistance to challenge to bacterial and viral infections
- acceleration of antibody production
- increase in the number of neutrophils
- increase in the number of macrophages
- reversal of malnutrition and starvation-induced immunosuppression
- increase in natural killer (NK) cell activity and interleukin-2 production
- modulation of T-Cell responses toward type 1 CD4 helper lymphocytes or TH1 cells
- increase of plasma HDL cholesterol
- decrease in the concentration of LDL cholesterol
- accelerated recovery of the liver after injury
- positive effects on the intestines:
 - . villi height and crypt depth
 - . stimulating the growth of beneficial bacteria and inhibiting pathogens
 - . intestinal repair after diarrhea
 - . increase mucosal thickness and protein levels
- positive effects of recovery from stress

Human studies have verified that nucleotide supplementation benefits:

- adolescents or children who are experiencing growth spurts
- those healing from injury
- those experiencing stress
- those healing from disease or illness
- those recovering from surgery
- those interested in disease prevention
- those who are under nutritional stress
- those who hope to achieve improved athletic performance and recovery

The use of nucleotides in companion animal food is now on the increase. Several companies in the USA and Europe are already marketing and selling nucleotide-enhanced dog and cat diets and treats while others, including well-recognized international brands, are planning to do so in the near future. The prime motivator for using this technology is for these companies to distinguish themselves with products that provide a 'point of difference' in what has become a highly competitive market.

Websites: www.dssglobal.com; www.psbcomplex.com; www.cell-rate.com;
www.cellarator.com; www.youngagainpetfood.com