

# Enthu-AL

## Instant Energy Drink Powder ( Orange & Lemon Flavour )

### Composition

Energy.....	136.00kcal
Carbohydrate.....	34.00gms
Protein .....	0.00gms
Fat.....	0.00gms
Dextrose.....	17.5gms
Sucrose.....	14.0gms
Vit.C.....	50mg
Zinc.....	7.5gms

### Clinical Pharmacology

#### Vitamin C:

Vitamin C is an essential micronutrient for humans, with pleiotropic functions related to its ability to donate electrons. It is a potent antioxidant and a cofactor for a family of biosynthetic and gene regulatory enzymes. Vitamin C contributes to immune defense by supporting various cellular functions of both the innate and adaptive immune system. Vitamin C supports epithelial barrier function against pathogens and promotes the oxidant scavenging activity of the skin, thereby potentially protecting against environmental oxidative stress. Vitamin C accumulates in phagocytic cells, such as neutrophils, and can enhance chemotaxis, phagocytosis, generation of reactive oxygen species, and ultimately microbial killing. It is also needed for apoptosis and clearance of the spent neutrophils from sites of infection by macrophages, thereby decreasing necrosis/NETosis and potential tissue damage. The role of vitamin C in lymphocytes is less clear, but it has been shown to enhance differentiation and proliferation of B- and T-cells, likely due to its gene regulating effects. Vitamin C deficiency results in impaired immunity and higher susceptibility to infections. In turn, infections significantly impact on vitamin C levels due to enhanced inflammation and metabolic requirements. Furthermore, supplementation with vitamin C appears to be able to both prevent and treat respiratory and systemic infections. The exact mechanism of action of Vitamin C for the treatment of symptoms and signs of scurvy (a disorder caused by severe deficiency in vitamin C) is unknown; however, administration of Vitamin C in patients with scurvy is thought to restore the body pool of ascorbic acid.

### **Benefits of Vit.C**

- **Boosts Energy:** Vitamin C helps convert glucose into energy.
- **Antioxidant Properties:** Protects cells from oxidative stress and damage.
- **Immune System Support:** Enhances immune function and defense.
- **Anti-Inflammatory Effects:** Reduces inflammation and muscle soreness.
- **Cardiovascular Health:** Supports blood vessel function and blood pressure.

### **Zinc :**

Zinc an essential trace mineral, is required for the metabolic activity of 300 of the body's enzymes, and is considered essential for cell division and the synthesis of DNA and protein. Zinc ions ( $Zn^{2+}$ ) are closely involved in the normal development, differentiation, and function of immune cells, thus considered critical for generating both innate and acquired (humoral) antiviral responses. Zn is involved in various cellular processes and possesses a variety of direct and indirect antiviral properties. It was demonstrated that Zn deficiency is associated with reduced antibody production, affected function of the innate immune system (e.g., low natural killer cell activity), decreased cytokine production by monocytes, and the chemotaxis and oxidative burst of neutrophil granulocytes. It also results in thymic atrophy, altered thymic hormones production, lymphopenia, and defective cellular- and antibody-mediated responses that lead to increased rates and duration of infection. In particular, Zn deficiency reduces the number of peripheral and thymic T cells, their proliferation in response to phytohemagglutinin, and the functions of T helpers and cytotoxic T cells. In addition, Zn deficiency acts indirectly by reducing the levels of active serum thymulin, a zinc-dependent nonapeptide hormone that regulates the differentiation of immature T cells in the thymus and the function of mature peripheral T cells. On the other hand, Zn can affect several aspects of monocyte signal transduction and secretion of pro-inflammatory cytokines, and interfere with the binding of leukocyte function-associated antigen-1 to ICAM-1, thus suppressing inflammatory reaction. Zinc is also critical to tissue growth, wound healing, taste acuity, connective tissue growth and maintenance, immune system function, prostaglandin production, bone mineralization, proper thyroid function, blood clotting, cognitive functions, fetal growth and sperm production.

### **Benefits Of Zinc:**

- An antioxidant.
- Increased immunity.
- Balancing hormones.
- Increased fertility.
- Helps in muscle growth & repair.

- Mental health support.
- Protection against diabetes

**Contraindications:**

Vitamin C supplementation is contraindicated in blood disorders like thalassemia, Sickle cell disease, and hemochromatosis

**Precautions and Warnings:**

**Oxalate nephropathy and Nephrolithiasis:** Vitamin C has been associated with development of acute or chronic oxalate nephropathy following prolonged use of high doses of ascorbic acid infusion. Patients with renal disease including renal impairment, history of oxalate kidney stones, geriatric patients, and pediatric patients less than 2 years old may be at increased risk.  
**Hemolysis:** Patients with glucose-6-phosphate dehydrogenase deficiency are at risk of severe hemolysis; a reduced dose is recommended

Do not exceed recommended

**Drug Interactions:**

**Antibiotics:** Vitamin C may decrease the activities of erythromycin, kanamycin, streptomycin, doxycycline, and lincomycin. Bleomycin is inactivated in vitro by ascorbic acid.

**Amphetamine and Other Drugs Affected by Urine Acidification:** Vitamin C may cause acidification of the urine and result in decreased amphetamine serum levels and affect excretion and plasma concentrations of other drugs sensitive to urine pH.

**Adverse effects:** Adverse effects include headaches, flushing, nausea or vomiting, and dizziness

**Route of administration:** Oral

**Flavour:** Delicious Orange and Lemon flavour

**Storage:** Store in a cool, dry place. Avoid direct sunlight.

**Pack Size:** 3 sachets (1 x 3)



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