**Table 8: Ingredient Profile**

The ingredients contained in DNA are known as branch chained amino acids (BCAAs) and are readily obtained through a protein rich diet. The low likelihood of adverse reactions from intake of BCAAs as well as their safe profile has earned the ingredients contained within DNA generally regarded as safe (GRAS status) from the FDA. This makes for a very tolerable product whose potential pharmaceutical nature is outlined below by Magnum Nutraceuticals. This information should give consumers a better understand at the proposed science behind the supplement.

**Magnum’s DNA Ingredient Profile -** Serving Size: 8 capsules

Recommended Dose: Take 8 capsules on an empty stomach 15 to 20 minutes prior to training

**BCAA's In General**

These three amino acids—Valine, Isoleucine, and Leucine—account for one third of the protein in muscle tissue. This significant contribution makes them important for helping build muscle and increase energy in muscle cells. They are also converted to other amino acids when deficiencies arise.

**1) L-Isoleucine Proprietary Blend 1,000mg** **(L-Isoleucine Ethyl Ester HCI, L-Isoleucine)**

Isoleucine is an essential branched-chain amino acid (BCAA). A building block of protein, isoleucine plays a vital role in protein synthesis, muscle building, and preventing muscle loss.

Isoleucine, like all BCAA's, is used by athletes whose muscles are excessively stressed by overtraining to promote healing of injured tissues, speed recovery, protect against muscle-tissue breakdown, and possibly increase lean mass.  Isoleucine also stabilizes blood sugar to regulate energy levels during exercise and is needed for the formation of hemoglobin, which carries iron in the blood. In addition, Isoleucine is used as fuel by muscle cells and may spare other amino acids from being burned.

**2) L-Valine Proprietary Blend 1,0000mg** **(L-Valine Ethyl Ester HCI, L-Valine)**

Valine, an essential branched-chain amino acid (BCAA), is an energy source for muscles and helps repair tissues. A building block of protein, Valine also plays a vital role in muscle building, immune-system function, and balancing natural levels of water and nitrogen.  Valine also supplies exercising muscles with fuel, sparing other amino acids and is a unique essential amino acid in that it may act as a stimulant and is stored largely in muscle tissue - where it is used as an energy source when our muscles are activated.

**Ingredient Profile**

**3) L-Leucine Proprietary Blend 1,000mg (L-Leucine Ethyl Ester HCI, L-Leucine)**

**L-Leucine Alpha Ketoisocaproate Calcium 1:1** - **1,000mg**

Leucine is an essential branched-chain amino acid (BCAA) used as an energy source for muscles. A building block of protein, Leucine plays a vital role in immune-system function as well as muscle protection, fuel, and repair.  Leucine boosts gains in muscle mass by increasing available fuel for muscle cells and preserving muscle energy stores since our muscles use Leucine directly for fueling any work they perform.  Researchers estimate that up to 90% of dietary Leucine is used for energy during exercise and consider it the limiting amino acid when athletes don't consume additional amounts to make up for what's used by the body.  With the addition of Alpha-Ketoisocaproic acid (α-KIC) to further enhance the buffering of lactic acid (muscle toxin) and increase the levels of L-Leucine at the site of muscle, DNA’s proprietary Leucine formulation aims to increase strength gains and cellular energy beyond all other BCAA formulations.

**4) Glycine-L-Arginine -** **1,000mg**

When Arginine is combined with Glycine, it's been shown to increase muscle Creatine content - boosting performance during anaerobic training sessions (like weight training), and enhancing muscle and strength capacity.  It also increases cellular energy by controlling blood sugar levels, protecting against ATP depletion, and by shuttling toxic substances such as lactic acid out of the body.  The combination of these two ingredients has been clinically proven to be superior (versus either ingredient separately) at improving muscular growth before and after trauma, and increasing nitrogen retention following trauma.  Further evidence has shows that during rapid growth phases (such as weight training), the body demands even more Glycine and some studies have indicated that Glycine causes an increase in strength, perhaps attributable to its effects on growth-hormone levels and/or cell volume.

**5) Vitamin B3 (Niacin) - 3.0mg**

B3 or niacin plays a key role in over 100 functions necessary for health and is especially important for energy production and, as a vasodilator-  increasing blood circulation.  It aids in the production of enzymes that convert carbohydrates, glucose, and fats into useable energy and regulates blood glucose levels and supports the body's response to insulin

**6) Vitamin B6 - 0.3mg**

Vitamin B6 plays a key role in converting the proteins you eat into the amino acids that make up your muscles. In addition, it assists in the availability of energy and the formation of important neurotransmitters (like serotonin) and the maintenance of a healthy immune system. It is a powerful precursor to positive physical and mental well being.

**Ingredient Profile**

**7) Vitamin B12 - 1.0mcg**

Vitamin B12 is one of the most intriguing vitamins and also one of the most complex. It plays many critical roles in our bodies, including maintenance of our nervous systems, formation of red blood cells, energy metabolism, and the proper functioning of our brains. Its importance to our bodies' optimal performance defines the meaning of the word "essential."

Vitamin B12 has the capacity to increase energy, and a deficiency of B-12 will have a debilitating effect on performance and energy. While serious deficiencies are not a common occurrence in normally healthy people, an athlete's body is taxed by intense workouts and dietary modifications that remove them from the average/normal population.

**8) Folic Acid - 50.0mcg**

Folic acid or folate, one of the B-complex vitamins, is necessary for the synthesis of DNA and SAMe — which keep our cells healthy and able to replicate, as well as enhance mood. It is also necessary to keep homeocysteine levels in check, which is needed for our bodies' metabolism of both amino acids and sugars.

Deficiencies are common and can lead to a wide range of symptoms, including fatigue, depression, and even acne. Plus, it's necessary for the metabolism of amino acids, the building blocks of protein, and to transform sugars into useable energy. It's important to stave off any deficiency of folic acid, as lacking enough of this vitamin can inhibit both muscular and nervous system function.