

# MTN OPS YETI™

## PRODUCT INGREDIENT BENEFITS

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### **L-Arginine:**

Through a process involving an enzyme called nitric oxide synthase, L-arginine is converted to nitric oxide in the innermost lining of the arteries known as the endothelium. L-Arginine is well known to promote vasodilation during exercise or hypercholesterolemia (**Definition: condition of very high levels of cholesterol in the blood**) (Penberthy, 2012). Vasodilation is hindered by this condition and L-arginine has been found to promote smooth muscle relaxation through nitric oxide production (Creager et al., 1992).

### **L-Citrulline:**

L-Citrulline yields more L-arginine and nitric oxide. This important process helps optimize blood flow, promotes healthy energy levels, and helps maintain optimal levels of nitric oxide for a longer period of time. L-citrulline prevents inflammation and oxidative stress induced muscle cell wasting (Ham et al., 2015). L-citrulline plus L-arginine supplementation results in a more rapid increase in plasma L-arginine levels and marked enhancement of nitric oxide (NO) bioavailability than when dosing with these amino acids individually (Morita, 2014). In addition, studies have shown that L-citrulline supplementation has been proven to be safe and psychologically well accepted by patients in its role as an alternative treatment for mild to moderate erectile dysfunction (ED) (Cormio et al., 2011).

### **Vitamin C:**

Vitamin C may lower the risk for some cancers, including those of the stomach, esophagus, mouth and breast. Long-term use of supplemental vitamin C may protect against cataracts. It helps make collagen, a connective tissue that knits together wounds and supports blood vessel walls. In addition, it helps make the neurotransmitters serotonin and norepinephrine, thus increasing alertness and well-being. Vitamin C acts as an antioxidant, neutralizing unstable molecules that can damage cells and boosts the immune system (Harvard Medical School, 2009).

### **Vitamin D3:**

Many people don't get enough of this nutrient. While the body uses sunlight to make vitamin D, it cannot make enough if you live in northern climates or don't spend much

time in the sun. This vitamin supports healthy cardiovascular function and inflammatory response. It helps maintain normal blood levels of calcium and phosphorus, which strengthen bones. It helps form bones and teeth. Supplementing with this vitamin can reduce the number of non-spinal fractures (Harvard Medical School, 2009).

### **Vitamin K:**

An essential vitamin that is needed by the body for blood clotting and other important processes. Vitamin K keeps the calcium in the bones and out of the arteries, and it may help prevent hip fractures (Harvard Medical School, 2009).

### **Vitamin B12, B6 and Folate:**

**B12:** Some people, particularly older adults, are deficient in vitamin B12 due to having trouble absorbing this vitamin from food. A lack of vitamin B12 can cause dementia, memory loss and numbness in the arms and legs. This vitamin aids in lowering homocysteine levels (*linked to heart attack and stroke through plaque formation in arteries*) and may lower the risk of heart disease. In addition, vitamin B12 assists in making new cells, to include red blood cells, and breaking down some fatty acids and amino acids, and protects nerve cells and encourages their normal growth. (Harvard Medical School, 2009).

**B6:** B6 aids in lowering homocysteine levels and may reduce the risk of heart disease. This vitamin helps convert tryptophan to niacin and serotonin, a neurotransmitter that plays key roles in sleep, appetite, and moods. It helps make red blood cells and influences cognitive abilities and immune function (Harvard Medical School, 2009).

**Folate:** This vitamin is vital for new cell creation. It helps prevent brain and spine birth defects when taken early in pregnancy and should be taken regularly by all women of child-bearing age since women may not know they are pregnant in the first weeks of pregnancy. It too can lower levels of homocysteine and may reduce heart disease risk. May reduce risk for colon cancer. Offsets breast cancer risk among women who consume alcohol (Harvard Medical School, 2009).

### **Magnesium:**

The majority of magnesium in the body is found in bones. If your blood levels are low, your body can tap into those magnesium reserves to correct the problem. This mineral is needed for many chemical reactions in the body as it works with calcium in blood

clotting, regulation of blood pressure and muscle contraction. In addition, magnesium helps build bones and teeth (Harvard Medical School, 2009).

### **Chromium:**

Chromium assists in keeping blood sugar levels healthy, and it also helps build lean, muscular bodies (Campbell et al., 2002). Enhances the sensitivity of insulin, helps maintain normal blood glucose levels, and is needed to free energy from glucose (Harvard Medical School, 2009).

### **Black Pepper Extract:**

Black pepper extract has a positive effect on absorption of nutrients from the intestine. This effect is known as "bioenhancement.". Piperine may be useful for people who suffer from conditions that cause malabsorption of nutrients and people suffering from malnutrition. Black pepper has been used for centuries to treat gastrointestinal distress, inflammation, pain and other disorders (Park et al., 2012).

### **Niacin:**

Niacin, also known as vitamin B3, plays a role in metabolism of carbohydrates, fats and proteins. This means it helps convert food into energy. Getting an adequate amount of niacin helps ensure your metabolism of nutrients is at its best and aids in maintaining your energy levels. Niacin has been prescribed for the treatment of various cardiovascular conditions and cholesterol deficiencies (Dib & Dedeyan, 2004).

Niacin may also play a role in decreasing migraine and tension-type headaches (Prousky & Seely, 2005). One study even suggested that all schizophrenia patients should be treated with niacin as quickly as possible and for the duration of their lives as quality of life would be improved and some patients may even achieve clinical remission (Prousky & Hoffer, 2008).

Side Effects: common side effects include flushing of the skin, itching, skin rashes, dry skin.

### **Beta Alanine:**

Beta alanine increases muscle carnosine concentrations. This means that supplementation with this amino acid ultimately increases your ability to perform high-intensity exercise. Beta Alanine has been proven to improve fatigue resistance and performance to exhaustion. As a summary, supplementing with beta alanine increases carnosine concentrations in muscles which will positively affect your strength, power, lean body mass and endurance gains (Gross, Bieri, Hoppeler, Norman, & Vogt, 2014).

Side Effects: beta-alanine in a single dose has been shown to cause mild burning or flushing of the skin.

### **Glutamine:**

L-glutamine prevents muscle breakdown and improves your body's ability to recover during sleep. It may accelerate the recovery of muscle strength following intense exercise, resulting in less muscle damage and strength loss over a duration of time (Legault, Bagnall, & Kimmerly, 2015). This amino acid combats osteoarthritis, has positive effects on human growth hormone maintenance, immune system function, cell volume, and protein substrate recycling for increased protein synthesis. Doctors have even started using l-glutamine against illnesses such as cancer and Crohn's disease because it can alleviate symptoms and lead to a faster recovery (Papanikolopoulou, Syrigos, & Drakoulis, 2015).

### **Caffeine (Anhydrous):**

Caffeine improves reaction time, vigilance and logical reasoning during extended periods with restricted opportunities for sleep (Kamimori, McLellan, Tate, Voss, Niro, & Lieberman, 2015). After in-depth review over the past 15 years, it was shown that caffeine intake between 38 to 400mg per day could maximize benefit and minimize risk in relation to mood, cognitive function, performance and hydration (Ruxton, 2008). Caffeine has been shown to enhance long-term memory (Borota et al., 2014). In addition, there may also be an association between caffeine consumption and lower risk of suicide (Lucas et al., 2013).

### **Creatine Monohydrate**

One of the most researched supplements in the history of supplements and nutrition (over 200 studies to date, over the last decade), creatine's effectiveness is irrefutable. Creatine enhances the body's capacity to perform high intensity workouts and physical activity and also assists in building greater muscle size and performance gains (Tarnopolsky & Safdar, 2008). Creatine is used to supply the muscle fibers with immediate energy, ensuring these muscles do not prematurely fatigue. It has been well established that creatine can increase strength performance and improve overall body composition through reduction of body fat (Galvan et al., 2016).

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