



THE SCIENCE BEHIND ROUGHAGE™

Synergy of 38 Healthy Fruit and Green Ingredients

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Very few people are able to eat a perfectly balanced diet containing everything the body needs. Professional athletes and celebrities have personal nutritionists, dieticians and even chefs to ensure they get all the right nutrients. Nature indeed contains all the nutrients your body needs but most people are not getting the variety of foods necessary to consume all the nutrients, phytonutrients and other constituents in raw whole foods.

From the individual who enjoys processed and refined foods on a daily basis and is constantly becoming more and more deficient in essential nutrients, to the individual who follows a very strict and limited diet, the lack of attention to a variety of natural whole produce items is causing negative effects on overall metabolic, gastrointestinal and cardiovascular health.

Finding all the right nutrients in different food items is difficult to do. The typical individual who is trying to eat all the right foods will still unknowingly overlook key nutrients for optimal health. Paying attention to only the macronutrients may be a good way to manage your weight, but it may also be a way to let your overall general health slip under the radar.

Roughage™ contains 38 all-natural whole food powders in six distinct health promoting complexes. No standardized extracts. Only the pure raw constituents of a wide array of foods from nature, intended to be consumed, but rarely are.

FIBER COMPLEX

The FDA recommends that the average 2000-calorie diet contain at least 28 g of fiber. Meaning that if you're an individual who's eating more than 2000 calories, then you should be consuming even more. The real problem is that most items in the American food supply have had the fiber removed. Removing fiber from foods lengthens the shelf life and increases convenience for consumers and to the retailer. In fact, processed foods are easier to freeze due to the removal of fiber. So if fiber is removed from most grocery items in the food supply, the average person will have a difficult time meeting the 28 g minimum, let alone more for higher caloric diets.

Fiber is a type of carbohydrate that can assist with caloric restriction and fat loss as it can be deducted from your total calorie count. More than just simply reducing net calories, fiber can be used for reducing cholesterol and triglycerides and assisting with fat loss. The reduction in cholesterol from dietary fiber can reduce the risk of heart disease. Every single scoop of Roughage™ contains 5 grams of added fiber in addition to the natural fiber from most of the other vegetable ingredients to ensure you're not only

getting the most variety of nutrients, but you're also taking one large step closer to meeting your dietary fiber needs.

The bulk of fiber in the fiber complex consists of oat fiber, but additional fiber comes from inulin, flax seed, apple pectin, agave leaf and psyllium seed. Inulin is a specific type of fiber that is not digested or absorbed in the stomach. Inulin goes to the bowels where a special type of bacteria, that are associated with improving bowel function and general health, are able to use it to grow. Inulin has been shown to decrease the body's ability to make certain kinds of fats. Research shows that taking inulin seems to lower TG on average by 7.5% and decreases body weight in those who are overweight. Inulin has been noted to increase mineral absorption in the colon due to increasing pH in the colon. Other benefits include normalizing plasma glucose, and improving insulin sensitivity. Nearly everybody can benefit from added fiber in the diet.

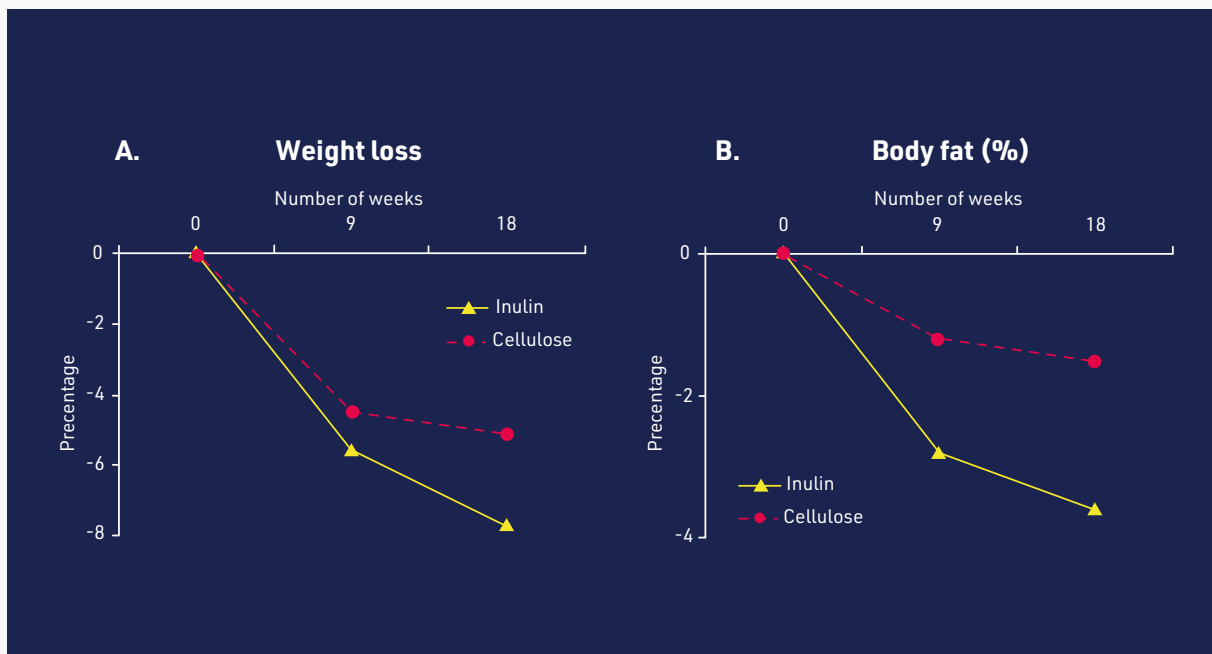


Figure 1. Comparison of inulin versus cellulose ingestion on **A.** weight loss and **B.** body fat percentage.

Agave leaf is not to be confused with agave nectar. The leaf of agave is fiber. **Psyllium seed** is a soluble fiber mainly grown in India. It can lower blood sugar levels and it may boost satiety and aid weight loss. It can also lower cholesterol levels. It seems to be good for your heart, as it has been shown to reduce triglycerides and reduce systolic blood pressure. Psyllium is considered to have prebiotic effects. **Flax seed** is high in fiber and antioxidants. Maybe the biggest flax seed benefits come from its ability to promote digestive health. The ALA in flax can help protect the lining of the digestive tract and maintain GI

health. More than just rich in fiber, **apple** is also an abundant source of quercetin, which has been shown to improve neurological health. The intake of apples is related to a decreased risk of thrombotic stroke, lowers levels of LDL and raises HDL cholesterol.

ANTIOXIDANT COMPLEX

Free radicals are constantly being produced by the body during any number of scenarios and situations including stress, exercise, the consumption of toxins or the exposure to different physiochemical conditions or pathological states. The production of free radicals is a natural biochemical process but the body also needs to efficiently clear them away. A balance between free radicals and antioxidants is necessary for proper physiological function. If free radicals overwhelm the body's ability to regulate them, a condition known as oxidative stress ensues. Free radicals adversely alter lipids, proteins, DNA and can trigger a number of human diseases. The application of exogenous antioxidants can assist with reducing oxidative stress however, synthetic antioxidants have been reported to be dangerous. Thus, eating whole foods rich in antioxidants is the ideal method to manage free radical concentrations. The antioxidant complex contains fourteen ingredients devoted to improving the antioxidant capacity.

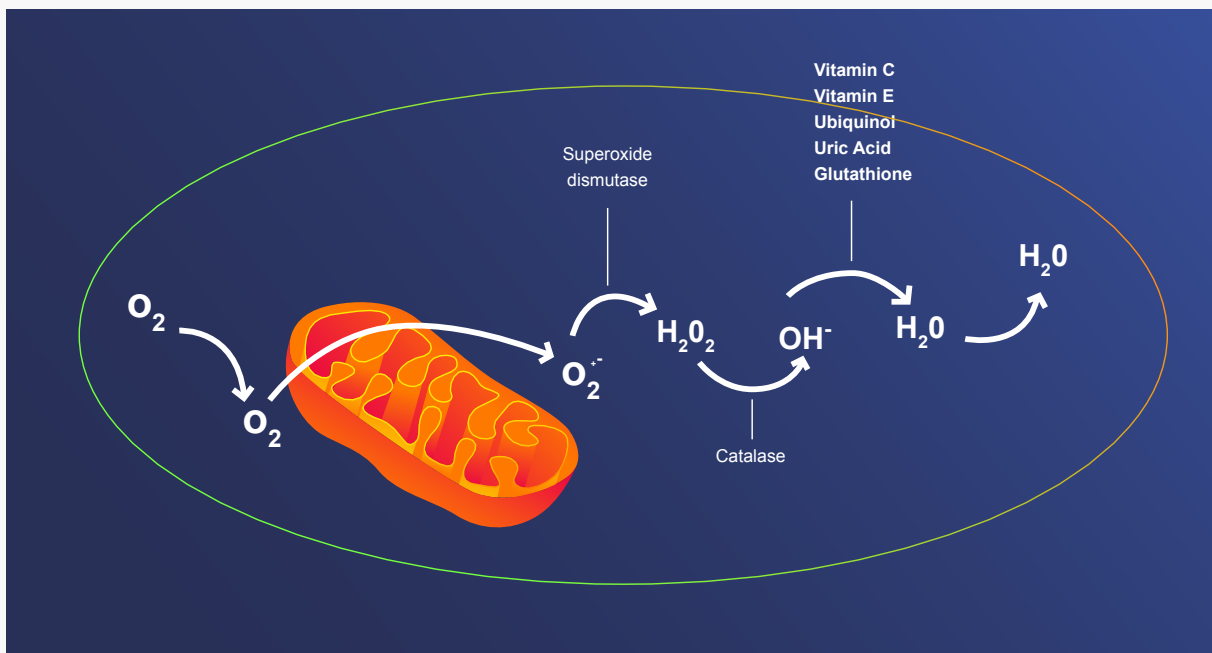


Figure 2. Dangerous cellular oxidants such as superoxides (O_2^-) and hydrogen peroxide (H_2O_2) produced by the mitochondria can be safely reduced by antioxidants into water.

Kale is a popular vegetable of the cabbage family. It's loaded with powerful antioxidants like quercetin kaempferol, vitamin C and polyphenols. These have powerful cardio protective, blood pressure lowering, and anti-inflammatory effects. Kale is also one of the world's best sources of vitamin K.

Kelp is a large brown seaweed that grows in shallow, nutrient-rich saltwater. Kelp is one of the best natural food sources of iodine, an essential component in thyroid hormone production; a major player in determining metabolic rate. Kelp is an abundant source of other minerals like potassium, magnesium, calcium and iron. These promote healthy hair and skin. Kelp is naturally high in antioxidants including carotenoids, flavonoids and alkaloids, which help to fight against diseases.



Rob Riches

Blue Star Nutraceuticals® Athlete

Aronia berry is an antioxidant superstar. The superfood status is largely attributable to its very strong antioxidant properties. Full of fiber and promotes gut health, Aronia berries are also rich in vitamin C. Lab studies rank the **Maqui berry** as the top source of antioxidants. In 2006, Chilean scientists published a compelling study in the Latin American Archives of Nutrition comparing the antioxidant power of fruits and vegetables in Chile. The scientists discovered that no other food in this study had as much antioxidant power. Antioxidant compounds such as anthocyanins found in maqui powder made from the dried berries help protect your body from the toxic effects of free radicals. Maqui berries may promote cardiovascular health. A study published in 2008 in the Journal of Food Chemistry found that maqui extract protected test animals from heart damage.

Lychee berry contains quercetin, a powerful antioxidant with anti-inflammatory properties. The flavonoids, fiber and antioxidants in lychees may support heart health. In addition, oligonol derived from lychee fruit has been shown to increase nitric oxide levels. This helps to improve blood flow and lower blood pressure. The nutrients in lychee, including magnesium, copper, iron, vitamin C, manganese and folate are required for blood circulation and formation. Lychees have one of the highest concentration of polyphenols among fruits. Among them is rutin, a bioflavonoid known to strengthen blood vessels. **Baobab** is high in vitamin C, fiber, antioxidants. Pronounced “Bey-Oh-Bab”, it’s a superfood that has been slowly making mark on the world in recent months. Excellent source of vitamin C, potassium, thiamin, fiber and vitamin B6. Baobab has been hailed for centuries as being a source of natural wellbeing which benefits skin, hair and general health.

Tart Cherry is unique because it provides high levels of some novel anthocyanins that are absent from a number of other anthocyanin-rich foods such as blueberries or bilberries. The unique composition of tart cherries goes far beyond anthocyanins. Tart cherries are shown to contain much higher amounts of total phenolics than even other cherries. Tart cherry is known to accelerate muscle recovery and support joint health and joint recovery. There are two unique substances in **pomegranates** that are responsible for most of their health benefits. Punicalagins are extremely powerful antioxidants They are so powerful that pomegranate juice has been found to have three times the antioxidant activity of red wine and green tea. Punicic Acid also is the main fatty, a type of CLA with potential biological effects. Pomegranate has been shown to be beneficial in increasing blood flow and erectile response. Pomegranates may help improve memory and exercise performance. **Zucchini** is an outstanding source of manganese and vitamin C that helps keep the heart strong. Many researchers concluded that this fruit has certain properties that support prostate health.

Zucchini is said to be extremely useful in decreasing prostatic hypertrophy. **Broccoli** exerts anti-estrogen properties and supports testosterone production. Additionally, its high potassium content maintains a healthier nervous system. Eating **spinach** may benefit eye health, reduce oxidative stress, and keep blood pressure in a healthy range.

Blackberry is full of fiber and anti-oxidants. Data supports that blackberries can help maintain motor and cognitive skills with age. The study indicated that berries improved balance and coordination improved over a stretch of time. Blackberries kill illness-causing oral bacteria. They contain gallic acid, rutin and ellagic acid, a natural phenol antioxidant that has antibacterial properties. Blackberry supports a healthy heart, boosts the immune system, and supports healthy bones.

Blueberry contains the unique, phenol-like antioxidants pterostilbene and resveratrol. Blueberries are a very good source of vitamin K, vitamin C and manganese. Blueberries are also a good source of fiber and copper. There is exciting new evidence that blueberries can improve memory. Given the wide variety

of antioxidant nutrients present in blueberries, it is not surprising to find research studies showing improved antioxidant defenses in body systems that need protection from oxidative stress. There is new evidence that damage to muscles following overly taxing exercise can be reduced through consumption of blueberries. There is also evidence that protection of the nervous system can be accomplished by regular consumption of blueberries.



James Johnson

Blue Star Nutraceuticals® Athlete
IFBB® Pro

Coffee berry is the fruit from the coffee plant. Coffee berries are believed to be exceptionally rich in antioxidants because the plants grow near the equator and at high altitudes where the sun's oxidizing rays are strongest. Coffee berries are high in polyphenols and phenolic acids including chlorogenic acid, proanthocyanidin quinic acid and ferulic acid. In the coffee berry, the polyphenols are very concentrated.

IMMUNE SUPPORT COMPLEX

There is a strong correlation between being malnourished and being vulnerable to infectious diseases. A healthy immune system is highly dependent on a healthy diet of fruits and vegetables. For example, deficiencies of zinc, selenium, iron, copper, folic acid and vitamins A, B6, C and E all can alter the immune system. The immune support complex contains nine ingredients focused to help boost the immune system among many other ancillary benefits.

Pineapple is high in vitamin C to protect against free radicals and support the immune system. Pineapple is also an excellent source of manganese, which is an essential cofactor in a number of enzymes in energy production. In addition to manganese, pineapple is a good source of thiamin, a b-vitamin that acts as a cofactor in enzymatic reactions central to energy production.

Brown seaweed contains iodine, needed for normal metabolism, and fucoidan, a substance thought to possess immune-stimulating properties. Some proponents claim that brown seaweed can also help promote weight loss, as well as aid in skin care.

YOU SHOULD KNOW

Finding all the right nutrients in different food items is difficult to do. The typical man who is trying to eat all the right foods will still unknowingly overlook key nutrients for optimal health. Paying attention to only the macronutrients may be a good way to manage your weight, but it's also how many men let their overall general health slip under the radar.

Amla is one of the most important foods in Ayurvedic medicine with an incredible list of health benefits. Amla has been used in Ayurveda as a rejuvenator of many of the body's organs and functions to boost the immune system, slow down the aging process and promote good general health and longevity. It is considered especially beneficial for the digestive system, improving the absorption and assimilation of the food you eat. The benefits of amla are also believed to include improving liver function, reducing inflammation and having a cooling effect throughout the body. Amla is said to be good for your appearance, improving skin tone, protecting the eyes, preventing hair loss and grey hairs and aiding in weight loss.

Mangosteen, also known as *Garcinia mangostana*, has been a part of the traditional medicine of various Asian countries for a very long time. It is a storehouse of essential nutrients, which are required for normal growth, development and overall nutritional well-being. Mangosteen aids in promoting the production of red blood cells and prevents against anemia. It improves blood flow by causing dilation

of blood vessels, which helps to protect against certain diseases like atherosclerosis, high cholesterol, heart congestion and severe chest pains. Mangosteen fruit contains strong antibacterial and antifungal properties besides being highly effective in boosting weak immune systems. This is also beneficial for repairing skin cells and fighting acne. The vitamins in **goji berry** may be able to boost and support the immune system. Early testing in laboratories shows that goji berries help enhance the effectiveness of flu vaccinations and may prevent subsequent infections. Studies have cited the high level of antioxidants in goji berries especially zeaxanthin. Goji berries have a long history tied to sexual fertility. Evidence supports sexual ability and recovery of testosterone levels.

Sea Buckthorn berry is touted as one of the most nutritious and vitamin-rich foods in the world and offering benefits both internally and externally, it contains at least 190 bioactive compounds. At one-third the size of a blueberry, it can pack 12 times the amount of vitamin C as an orange. The vitamin K in **parsley** aids in bone health, while the wealth of vitamin C makes it a great immune booster. It is also an excellent source of beta-carotene. Evidence suggests that parsley can support healthy kidney function. It has anti-inflammatory properties, is high in iron, relaxes stiff muscles and encourages digestion.

Maca has been shown to reduce prostate size. Maca has also been shown to improve sperm production, mobility and volume. Clinical trials have shown that maca has positive effects on energy, stamina and mood. Maca benefits also include regulating the hypothalamus, helping the pituitary gland to properly function, which is another key element in balancing focus and energy. Maco causes an increase in focus, energy and mood which enables people to concentrate better and therefore improve memory and the ability to complete tasks.

Camu Camu is loaded with vitamin C, manganese and carotenoids, helping boost the immune system, detoxify the liver, support bone health, help fight diseases, and boost physical and mental health. Camu camu's powerful antioxidants and antiviral ability can help fight against gum diseases like gingivitis. Camu camu can also have a positive effect on eye health.

DIGESTIVE SUPPORT COMPLEX

The digestive system is responsible for breaking down and absorbing nutrients from the diet to sustain life. Like all complicated machinery, the digestive tract doesn't always run smoothly. What you eat can have a direct impact on the overall digestive health. Common ailments include heartburn, ulcers, irritable bowel syndrome, constipation and diarrhea among others. In some cases, the immune system mistakenly attacks the digestive system causing various digestive problems. The digestive support complex contains five ingredients focused on maintaining the digestive system.

Flax oil predominantly contains omega-3 fatty acids. Several studies have found that flax oil seems to be able to calm the inner lining of inflamed intestines. It's also beneficial in helping to reduce high cholesterol. 62% of the oils in **coconut** are made up of 3 healthy fatty acids (MCFAs). These fatty acids reduce inflammation and arthritis, boosts the immune system, improves energy and endurance, improves digestion and reduces stomach ulcers. According to research published in the medical journal of food and function, coconut oil improves antioxidant levels and can slow aging. Coconut oil works by reducing stress on the liver and by lowering oxidative stress.



Rob Riches

Blue Star Nutraceuticals® Athlete

Pumpkin seed oil reduces inflammation. It is good for prostate health as it has been shown to reduce the size of an enlarged prostate. The cucurbita maxima compound of this oil improves memory, while its tryptophan content is an effective treatment for social anxiety disorder. A 2014 study showed an increase of hair count by an average of 40% in men taking it over the course of just 24 weeks.

Prune maintains normal bowel function. A 2011 study found that prunes are more effective than psyllium at relieving constipation. It is also a good source of vitamin K and beta-carotene. A study from 2011 showed that prunes and plums are the most effective fruit in preventing and reversing bone loss due to rich sources of phenolic and flavonoid compounds.

Papaya contains several unique protein digesting enzymes including papain and chymopapain. These enzymes have been shown to help lower inflammation and to improve healing from burns. Also promotes digestive health. Papayas may be very helpful for the prevention of atherosclerosis and diabetic heart disease. It is also an excellent source of vitamin C and vitamin A carotenoid phytonutrients. These nutrients help prevent the oxidation of cholesterol. Only when cholesterol becomes oxidized is it able to stick to and build up in blood vessel walls, forming dangerous plaques that can eventually cause heart attacks or strokes.

DETOX COMPLEX

The average person encounters hundreds of toxins on a regular basis. This becomes even worse with a bad diet, and worse again if that diet is full of unnatural and processed foods full of added chemicals. The detox complex contains three ingredients dedicated to help detoxify the body.

Spirulina is a type of blue-green algae that is rich in vitamins, minerals, carotenoids and antioxidants that can help protect cells from damage. Studies suggest spirulina may boost the immune system and help protect against allergic reactions. **Alfalfa leaf** has been used and appreciated all over the world for centuries. Common benefits attributed to alfalfa include detoxification of the urinary tract, purifying the blood and liver, promotes bowel movement regularity, lowers cholesterol, increases HDL, and supports healthy blood sugar levels.

Chlorella is a superfood rich with phytonutrients including amino acids, chlorophyll, beta-carotene, potassium, phosphorous, biotin, magnesium, and the b-vitamins. Chlorella is a blue-green algae that benefits the entire body by supporting healthy hormonal function, promoting cardiovascular health, lowering blood pressure and cholesterol, and aiding in the detoxification of our bodies.

CHOLESTEROL SUPPORT COMPLEX

Cholesterol is a necessary component to many aspects of human health. It possesses a number of important benefits including synthesizing bile, vitamin D and steroid hormones. It serves a role in aiding fat absorption in the small intestine and it is also stored in cell membranes for a number of important functions. However, too much cholesterol is negatively correlated with cardiovascular health as it is a main driver for atherosclerosis. Dietary restriction of cholesterol in fact does not help control cholesterol levels since most of it is produced within the body. Instead a diet low in saturated fat along with these three ingredients in the cholesterol support complex will keep your cholesterol levels under control.

Lecithin contains phosphatidylcholines and thus, is a source of choline, an essential nutrient. Clinical studies have shown benefit in acne, improving liver function and in lowering cholesterol. **Cinnamon** is loaded with antioxidants to prevent the body from oxidative damage caused by free radicals. Cinnamon has anti-inflammatory properties, which may help lower the risk of disease. It reduces the risk of heart disease and can improve sensitivity to insulin. The main active component of cinnamon, cinnamaldehyde, may help fight various kinds of infections. It can inhibit the growth of certain harmful bacteria.

Sunflower oil contains linoleic acid, which is an omega-6 polyunsaturated fatty acid that is an essential part of a healthy diet and low in saturated fat. A substantial amount of linoleic acid is very good to keep cholesterol levels low. It also contains carotenoids, vitamin E and selenium. Consequently, sunflower oil plays a role in boosting heart health, improving the immune system and skin care.

CONCLUSION

Although contained in six independent ingredient complexes focused on meeting your daily value of fiber, fighting oxidative stress, supporting the immune and digestive systems along with detoxifying your body, the 38 all-natural ingredients in Roughage™ play overlapping roles in taking care of the plethora of specific health needs that go under the radar and unnoticed for most people. One daily dose of Roughage™ takes control of your health, so that you don't have to worry as much about all the specifics. Roughage™ only contains all whole food powders and no standardized extracts to make sure you are getting the most out of every single food ingredient. Altogether, it is also naturally sweetened and colored with no artificial colors or sweeteners.



Rob Riches
Blue Star Nutraceuticals® Athlete

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