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Our July 2018 Newsletter for Healthy Living

The Power of Matcha

You've probably heard of matcha, a type of green tea that's been around since the 12th century, but only recently gained significant popularity. Matcha-infused recipes have become the trend nowadays. But what exactly is this bitter, green powder, and what can it do for your health? Read on to find out why matcha green tea deserves all the hype that it gets.

Known for its vibrant green color, rich grassy taste and numerous health benefits, matcha is the powdered form of green tea that's traditionally used in Japanese tea ceremonies. Zen monasteries favored matcha because of its ability to help enhance mental alertness and presence of mind, while promoting a calm, meditative state at the same time. It's said that the best organic matcha green tea powder comes from southern regions of Japan, particularly Uji, Nishio, Shizuoka and Kyushu.

Similar to other tea varieties, matcha green tea is also made from the leaves of the *Camellia sinensis* plant, which is native to Southwest China. What sets these tea varieties apart are their processing methods and degree of oxidation. Even



matcha and the regular green tea have several distinct differences when it comes to cultivation, harvest, production and nutritional profile. To produce organic matcha green tea, the tea bushes must be shaded from sunlight 20 to 30 days before harvest. Protecting the

leaves from direct sunlight stimulates the production of amino acids and increases the chlorophyll levels, which makes the leaves turn dark green. After the finest leaves are harvested by hand, they are steamed to stop fermentation, which preserves their color and health benefits, and then their stems and veins are removed. The leaves are then dried and aged in a cold storage before being

(EGCG), which is a catechin that may help fight the negative effects of free radicals to protect your cells and tissues against damage. It's also found to be helpful in reducing inflammation. **Provides a calming effect:** The L-theanine content of matcha improves the production of alpha waves in the brain, which helps induce mental relaxation and reduce stress levels. **Boosts energy levels**

“The unique cultivation and production of matcha are responsible for... its nutritional value.”

stone-ground on a granite block until they turn into fine powder. Unlike other tea variants, which are served by soaking the tea leaves in hot water, matcha green tea is prepared by whisking the powder in hot water until a layer of froth is formed. The entire leaves are basically ingested in powdered form when drinking, which is exactly what makes matcha more beneficial versus regular green tea.

The unique cultivation and production of matcha are not just responsible for its rich flavor and vibrant coloring, but also for its nutritional value.

Here are some of the health benefits of matcha green tea: **Enhances cognitive function and concentration:** Matcha contains high amounts of L-theanine, an amino acid that may help improve your memory and concentration by increasing the production of serotonin and dopamine in the brain. **Provides a significant amount of antioxidants:** Matcha is an excellent source of antioxidants, especially epigallocatechin gallate

and endurance: Matcha contains a healthy form of caffeine, which may help improve energy levels and endurance without any adverse side effects. **Detoxifies the body:** Matcha has high levels of chlorophyll, which helps flush out heavy metals and toxic chemical from your body. **Improves eye health:** A study published in the Journal of Agricultural and Food Chemistry found that the catechins in matcha green tea may also be absorbed by different parts of the eyes, reducing your risk of glaucoma and other eye diseases. In addition to the benefits mentioned above, research also suggests that matcha green tea can help fight different illnesses, including heart diseases, Type 2 diabetes, liver disorders and several types of cancer.

As with other types of tea, matcha contains caffeine. A half-teaspoon of matcha powder has 35 milligrams of caffeine, which is slightly higher than the content of regular green tea but still lower

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Exercise for Your Heart

Participating in exercise 4-5 days per week is necessary to keep your heart young, according to new research published in *The Journal of Physiology*. These findings could be an important step to develop exercise strategies to slow down such aging.

The optimal amount of exercise required to slow down aging of the heart

over 60 years old, with a consistently logged lifelong exercise history. Detailed measures of arterial stiffness were collected from all participants, who were then categorized in one of four groups depending on their lifelong exercise history: Sedentary: less than 2 exercise sessions/week; Casual Exercisers: 2-3 exercise sessions per week; Committed Ex-

ercise. The research may have been limited by the fact that individuals were allocated to groups based on past exercise frequency, as opposed to other components of exercise programs such as intensity, duration or mode, all of which could have large impacts on vascular adaptations. Furthermore, additional unmeasured factors such as dietary intake and social background could influence arterial compliance indirectly through reduced adherence, or by non-exercise related means.

Benjamin Levine, one of the authors of the study, is excited to investigate this in the future: "This work is really exciting because it enables us to develop exercise programs to keep the heart youthful and even turn back time on older hearts and blood vessels. Previous work by our group has shown that waiting until 70 is too late to reverse a heart's aging, as it is difficult to change cardiovascular structure even with a year of training. Our current work is focusing on two years of training in middle aged men and women, with and without risk factors for heart diseases, to see if we can reverse the aging of a heart and blood vessels by using the right amount of exercise at the right time".

Reference: <https://www.eurekalert.org/pub.releases/2018-05/tps->

“...this research shows different sizes of arteries are affected differently by varying amounts of exercise.”

and blood vessels has long been a matter of vigorous debate. As people age, arteries - which transport blood in and out of the heart - are prone to stiffening, which increases the risk of heart disease. While any form of exercise reduces the overall risk of death from heart problems, this new research shows different sizes of



arteries are affected differently by varying amounts of exercise. 2-3 days a week of 30 minutes exercise may be sufficient to minimize stiffening of middle sized arteries, while exercising 4-5 days a week is required to keep the larger central arteries youthful.

The authors performed a cross-sectional examination of 102 people

exercisers: 4-5 exercise sessions/week and Masters Athletes: 6-7 exercise sessions per week. An exercise session was defined to be at least 30 minutes.

Upon analyzing the results, the research team found that a lifelong history of casual exercise (2-3 times a week) resulted in more youthful middle sized arteries, which supply oxygenated blood to the head and neck. However, people who exercised 4-5 times per week also had more youthful large central arteries, which provide blood to the chest and abdomen, in addition to healthier middle sized ones. The fact the larger arteries appear to require more frequent exercise to remain youthful will aid the development of long-term exercise programs. They also enable the research team to now focus on whether or not aging of the heart can be reversed by exercise training over a long period of



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Reference: <https://www.eurekalert.org/pub.releases/2018-05/tps->

The Power of Matcha

than that of coffee. Even though both coffee and matcha green tea contain caffeine, their effects on your energy level and mental clarity are different. Unlike coffee, which may cause energy crashes, nervousness and jitteriness, matcha green tea may help improve brain function without any adverse side effects, thanks to its catechins and L-theanine content. The larger catechin molecules tend to bind with caffeine, slowing down its release into the bloodstream. This leads to stabilized energy levels and prolonged energy-boosting effects. L-theanine also helps sustain the release and counteract the negative effects of caffeine, while inducing mental clarity and alertness at the same time.



As mentioned above, matcha is

prepared differently than other types of tea. Preparing a traditional bowl of matcha may seem difficult, but it's actually quite simple. In the traditional Japanese way, a bamboo spoon called shashaku is used to measure the amount of tea that will be mixed with hot water in a heated tea bowl. The mixture is then whisked using a special bamboo whisk, which is known as a chasen, until it becomes frothy. If you don't have these accessories, a small conventional whisk and a ceramic bowl will do.

There are three different ways to prepare matcha: standard, usucha and koicha. The standard matcha tea involves mixing one teaspoon of matcha powder with 2 ounces of hot water. Usucha is a thin concoction that you can make by mixing a half teaspoon of matcha with 3 to 4 ounces of hot water. Koicha, on the other hand, is a thicker

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form of matcha green tea that's made by mixing 2 teaspoons of matcha in 1 ounce of hot water — this type of matcha is commonly used in Japanese tea ceremonies.

The typical shelf life of unopened matcha green tea is one year. However, its lifespan decreases once you've opened its packaging, so it's best to consume it as soon as you can. In case you want to save some for later, make sure that you store it properly to preserve its nutritional value. Keep in mind that this delicate powdered tea should not be exposed to heat, air and sunlight. Transfer it to a dry, airtight container, and then put it in the fridge or a dark and cool cabinet.

Reference: *World of Tea, Matcha – An initial Encounter. The Book of Matcha* December 2016. *Journal of Herbal Pharmacotherapy*, 2006; 6(2):21-30. *Journal of Agriculture and Food Chemistry*, 2010 Feb 10; 58(3):1523-34. *Food and Function*, 2016 Jan; 7(1):294-300. *Got Matcha, Matcha and Caffeine. Tea Ceremony: Explore the Unique Japanese Tradition of Sharing Tea* July 2004. *WebMD Vitamins and Supplements, Green Tea*

The Value of B12

According to the U.S. Department of Agriculture (USDA), nearly 40 percent of the U.S. population have marginal vitamin B12 status and 9 percent are deficient. Vitamin B12 insufficiency and deficiency increase your

lieve most people really need to take a B12 supplement to ensure healthy B12 status. Interestingly, research shows no association between B12 blood levels and consumption of meat, poultry and fish — the primary sources of B12. Ac-

augment their B12 intake by stocking up on nutritional yeast, coconut oil and fortified coconut milk, a strict vegan or even vegetarian diet may be lacking. A deficiency can be corrected by weekly shots of vitamin B12 or daily high-dose B12 supplements. Mild cases may also be corrected by increased intake of vitamin B12-rich foods. A detailed list of the B12 amounts of different foods can be found on the NIH website. Some of

“The body requires B12 to make the protective coating surrounding the nerves.”

risk of serious health problems, many of which mimic more serious neurological diseases and can easily lead to misdiagnosis and improper treatment. Neurological problems, in particular, are a possibility even at the “low normal” range at or just below 258 picomoles per liter (pmol/L). A level of 148 pmol/L or less is considered a deficiency state.

As noted by the USDA:

“Deficiency can cause a type of anemia marked by fewer but larger red blood cells. It can also cause walking and balance disturbances, a loss of vibration sensation, confusion and, in advanced cases, dementia. The body requires B12 to make the protective coating surrounding the nerves. So, inadequate B12 can expose nerves to damage.”

Indeed, vitamin B12 is vital for many functions throughout your body. B12 is required for: producing adrenal hormones; digestion and metabolizing fat and carbs; iron absorption; reproductive health; nervous system function; synthesizing of DNA; metabolizing folate; formation of red blood cells; proper blood circulation; modulation of gut microbial ecology; nerve growth and function, and regulation and coordination of cell growth. B12 deficiency can look exactly like multiple sclerosis, Alzheimer’s disease and autism. Deficiency also raises your risk of heart disease.

Vegans or strict vegetarians who abstain from animal products and do not supplement their diet with vitamin B12 will typically become anemic. Nervous and digestive system damage can also result. Claims that B12 is present in certain algae, tempeh and brewer’s yeast fail to take into account that the B12 analogues present in these foods are not bioavailable. The only reliable and absorbable sources of vitamin B12 are animal products.

However, even animal foods have become a questionable source thanks to modern farming practices and, for this reason, many experts now be-

lieve most people really need to take a B12 supplement to ensure healthy B12 status. Interestingly, research shows no association between B12 blood levels and consumption of meat, poultry and fish — the primary sources of B12. According to the researchers, rampant B12 insufficiency is not due to lack of meat consumption. Rather, the vitamin simply isn’t being properly absorbed. B12 is tightly bound to proteins and high acidity is required to break this bond. In essence, a lot of people simply do not have sufficient stomach acid to separate the B12 from the protein.

The researchers also note that factory-farmed meat simply does not contain the B12 levels we’re used to. The reason for this is because animals raised in concentrated animal feeding operations (CAFO’s) aren’t fed their natural diet. Cows are fed corn and grains, most of which are genetically engineered (GE) and loaded with pesticides, rather than grass. The same goes for chickens, the natural diet of which are insects, worms, seeds and berries, not GE corn.

“It is true that animal products contain B12, and strict vegetarians/vegans are at risk for B12 deficiency, but absorbing B12 from animal products is a very complex process and people who eat meat may be at equal or greater risk for B12 deficiency,” researchers noted. The reason CAFO animals don’t produce as much B12 is because B12 is made by bacteria that live in both soil and the guts of animals. Cows and chickens raised on pasture obtain the vitamin from the dirt on their food. Pesticides also kill off soil bacteria, which is why conventionally grown grains are not a good source of B12, and CAFO animals are routinely given antibiotics, which also kill off these beneficial microbes. In order to maintain meat as a source of B12 the meat industry now adds it to animal feed; 90 percent of B12 supplements produced in the world are fed to livestock.

Even if you only eat grass-fed organic meat, you may not be able to absorb the B12 attached to animal protein. It may be more efficient to just skip the animals and get B12 directly from supplements. While vegans are urged to

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the richest sources include clams, beef liver, wild rainbow trout and wild sockeye salmon.

The recommended dietary allowance for vitamin B12 is: 0.4 to 1.8 micrograms (mcg) for newborns and children up to 13, depending on their exact age; 2.4 mcg for people age 14 and older; 2.6 mcg for pregnant women; 2.8 mcg for breastfeeding women. Fortunately, you don’t need to worry about overdosing on B12 because it’s water-soluble, so your body will simply flush out any excess. The type of B12 you use, however, is an important consideration.

A far better form of B12 — especially for the support of nervous system health and healthy vision — is methylcobalamin, which is the naturally occurring form found in food. It’s more absorbable and your body retains it in greater amounts than cyanocobalamin. Considering the many health risks associated with B12 deficiency, and the fact that CAFO animal products tend to be low in B12, it may be wise for most people to take a high-quality methylcobalamin supplement.

Reference: USDA, Vitamin B12 Deficiency. *Eating Our Future*, Vitamin B12 Deficiency. *Cell Metabolism* November 4, 2014; 20(5):768-78. *PNAS* February 14, 2017; 114(7): E1205-E1214. *The Nutrition Almanac*, 3rd Edition, p. 32-33. *European Journal of Nutrition* 2017 Feb; 56(1):283-329. *NIH.gov*. Vitamin B12 Fact Sheet.



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