

# Exploring the Whole-Body Benefits of Matcha

Analysis by [Dr. Joseph Mercola](#)

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## STORY AT-A-GLANCE

- › Matcha is a powdered Japanese green tea made from shade-grown *Camellia sinensis* leaves. It contains high levels of chlorophyll, amino acids and theanine due to its unique growing and harvesting processes
- › Unlike coffee, matcha provides sustained energy through caffeine-theanine synergy, creating "calm alertness" while containing three times more antioxidant catechins than regular green tea
- › Scientific studies show matcha improves cognitive function, emotional perception and sleep quality in elderly adults, while reducing stress and anxiety when consumed regularly
- › Matcha supports weight loss by increasing thermogenesis up to 43%, while improving gut health by promoting beneficial bacteria growth and maintaining proper bile acid balance
- › The tea's high EGCG content demonstrates anticancer properties by disrupting tumor blood supply development. It also supports heart health by improving cholesterol levels and lipid metabolism

Matcha's popularity has surged in recent years, with many cafés and restaurants now unveiling matcha-infused specialty beverages and snacks. Even coffee aficionados are switching to the green side, replacing their espressos and cold brews with matcha lattes and smoothies. The demand for this product is so great that even centuries-old tea companies like Ippodo Tea are experiencing shortages of their matcha supply.<sup>1</sup>

But what exactly is matcha and what are the benefits you'll get from this vibrant and "instagrammable" beverage? Let's take a deep dive into the advantages you'll reap from this delicious and wholesome drink.

## Matcha 101

Made from the young, bright green leaves of the *Camellia sinensis* plant, matcha is a fine powdered Japanese tea with a vibrant green color. This plant is actually the same one used to make green and black tea; however, what sets these teas apart from each other is how they are grown and processed.

Green and black teas are harvested from plants that are fully exposed to the sun. To make green tea, the leaves are picked, heated and then dried. With black tea, after the leaves are harvested, they are exposed to air, leading to oxidation and turning the leaves black and giving them a different flavor.<sup>2</sup>

On the other hand, tea plants that are used for matcha production are grown in shade. The bushes are covered with a bamboo mat to protect them from excessive sunlight. Once harvested, the leaves, called "tencha," are then ground carefully at a controlled temperature, creating a fine powder. Harvesting matcha leaves occurs only once a year.

Many think the vibrant green hue of the tea comes from additives, but it's actually 100% natural, and a result of the increased chlorophyll content in the leaves. A 2021 review published in *Molecules* explains:<sup>3</sup>

*"In the course of this process, plants are able to produce higher amounts of amino acids and bioactive compounds, including chlorophyll and theanine, responsible for the unique, non-bitter taste and the characteristic, vibrant color of matcha. As a result, matcha is highly valued for its quality and regarded as the most aromatic green tea."*

The traditional way to make matcha is by whisking the powder in a stone bowl to produce a thick, vibrant green tea. Every matcha brew is different, as tea producers try to

balance the different flavors – umami, sweetness and bitterness – and fragrance in their product.

There are also different grades, with ceremonial grade matcha having the highest quality, and being the most expensive. It's used in traditional tea ceremonies and Buddhist temples, having a deep green appearance, soft, powdery texture, and gentle balanced sweetness. Meanwhile, reasonably priced varieties like culinary grade matcha are used in baking and brewing matcha lattes.<sup>4</sup>

## Matcha's Nutrients Are Unmatched

The unique growing process is responsible for matcha's impressive nutritional profile; every sip of this drink provides you with high amounts of amino acids and bioactive compounds, including chlorophyll and theanine. According to an article in The Conversation:<sup>5</sup>

*"There's some evidence chlorophyll may have health benefits – including anti-inflammatory, anticancer and antiobesity effects – due to its antioxidant properties.*

*Antioxidants neutralize free radicals, which are unstable molecules that harm our cells. Theanine has been shown to improve sleep and reduce stress and anxiety. The only other known dietary source of theanine is mushrooms."*

Matcha also contains caffeine; however, it doesn't cause the side effects that some people experience when they drink coffee. This is mainly due to the theanine in matcha. A Style Rave article explains:

*"L-theanine works synergistically with the caffeine in matcha to create what many describe as a state of 'calm alertness.' While matcha does contain caffeine, it releases more slowly into the bloodstream compared to coffee, providing a smoother and more sustained energy boost."<sup>6</sup>*

However, what gives matcha most of its health benefits is its high antioxidant content in the form of polyphenols, which account for as much as 30% of the tea's dry weight. "Polyphenols are believed to be exceptionally powerful antioxidants, with effects comparable to those of vitamins, such as vitamins C and E, carotene and tocopherol," the study notes.

The phenolic compounds in matcha are called catechins, which help scavenge free radicals and protect against harmful UV light. They're also said to have anti-allergenic, anti-inflammatory, antimicrobial, antiviral and anticancer properties.<sup>7</sup> Catechins are also found in regular green tea, however, studies say that matcha offers as much as three times more catechins per serving compared to green tea. In matcha, 90% of the polyphenols are composed of catechins.<sup>8</sup>

There are four primary catechins found in matcha, namely epicatechin (EC), epicatechin-3-gallate (ECG), epigallocatechin (EGC) and epigallocatechin-3-gallate (EGCG). Of these four, EGCG is the most active and abundant, offering a wide range of benefits.<sup>9</sup>

*"Catechins derived from tea demonstrate outstanding antioxidant activity due to their ability to neutralize free radicals and boost the detoxification activity of enzymes, including glutathione peroxidase, catalase and glutathione reductase ... [C]atechins have greater antioxidant capacity than glutathione, vitamin C and flavonoids, which attests to their key role in maintaining cellular redox homeostasis,"* according to the researchers.<sup>10</sup>

## **Matcha Supports Optimal Cognitive Function**

If you're finding it difficult to concentrate on tasks and are struggling to maintain focus, sipping on matcha could provide you with a brain boost, thanks to its theanine, caffeine and catechins.

Recent studies support these findings; for example, a 2024 randomized controlled trial published in PLoS One<sup>11</sup> found that drinking matcha improved social acuity scores and

sleep quality among elderly participants who have cognitive decline and mild cognitive impairment.

*"The present study suggests regular consumption of matcha could improve emotional perception and sleep quality in older adults with mild cognitive decline. Given the widespread availability and cultural acceptance of matcha green tea, incorporating it into the daily routine may offer a simple yet effective strategy for cognitive enhancement and dementia prevention,"* the study authors said.<sup>12</sup>

A critical review published in the Current Research in Food Science journal<sup>13</sup> looked at five experimental human studies and evaluated the effects of matcha when consumed daily. The participants ingested around 2 to 4 grams (or 1 to 2 teaspoons) of matcha powder daily. The result found that compared to a placebo, matcha was more efficient in decreasing stress and anxiety while improving memory and cognitive function.

*"Additionally, recent studies on EGCG, the main catechin in matcha, demonstrated that it has potential neuroprotective effects against neurological disorders by acting as an active compound that ameliorates cognitive defects,"* the researchers added.<sup>14</sup>

## **Dealing with a Sluggish Metabolism and Excess Weight? Sip on Matcha**

If you're struggling to lose a few pounds, sipping on matcha tea could be to your advantage. According to studies, the catechins in matcha, particularly EGCG, have been found to significantly reduce body weight, body mass index (BMI) and abdominal fat.<sup>15</sup> For example, a study published in the American Journal of Clinical Nutrition found that it increases thermogenesis (the process by which the body burns calories to produce heat) by as much as 43%.<sup>16</sup>

A 2022 animal study published in the Frontiers in Nutrition journal<sup>17</sup> also highlighted that matcha helps support metabolism and inhibit obesity by targeting the gut-liver axis;

basically, it maintains the balance of both good bacteria and fat-digesting bile acid in the gut, helping digest more fats.

*"In particular, matcha treatment enriched SCFAs [short-chain fatty acid] producers such as Faecalibaculum, Alloprevotella, and potential probiotics such as Akkermansia muciniphila and provide useful information for excavating functional probiotics with hypolipidemic activity," the study authors concluded.*<sup>18</sup>

## **Recent Studies Highlight EGCG's Anticancer Benefits**

EGCG, found abundantly in both matcha and green tea, has recently gained attention for its ability to protect against cancer as well.<sup>19</sup> According to researchers:

*"EGCG has been found to exhibit anti-proliferative, anti-angiogenic and pro-apoptotic effects in numerous cancer cell lines and animal models. EGCG has demonstrated the ability to interrupt various signaling pathways associated with cellular proliferation and division in different cancer types. EGCG anticancer activity is mediated by interfering with various cancer hallmarks."*<sup>20</sup>

Simply put, EGCG hinders cancer from developing and growing by affecting cell signaling pathways. Another mechanism of action that EGCG affects is angiogenesis – the process through which tumors develop their own blood supply. By hampering angiogenesis, tumor cells do not receive enough blood, meaning they get less oxygen and nutrients required for these cells to thrive. This stunts their growth and reduces tumor size.<sup>21</sup>

## **Other Whole-Body Benefits of Matcha**

Matcha's flavor is described to be like green tea, but slightly more bitter.<sup>22</sup> If you're used to loose-leaf teas and tea bags, switching to matcha could take some getting used to. Because it's in powder form, your tea can be slightly grainy if you don't whisk it enough or don't use the correct water-to-powder ratio.

It takes some practice to brew matcha, but don't worry – the effort will be worth it, considering the many benefits associated with this beverage, which include:

- **Supporting your immune system health** – Rutin, a polyphenol compound found in matcha has anti-inflammatory properties, supports your immune system and seals blood vessels.<sup>23</sup>
- **Easing stress and anxiety** – Animal models and human trials have demonstrated the relaxing benefits of L-theanine in tea.<sup>24</sup>
- **Promoting healthy gut microbiome** – A 2022 study looked at the effects of drinking matcha on the fecal microbiota and found that it helped increase beneficial bacteria like Coprococcus while decreasing pathogenic Fusobacteria in the gut, which have profound long-term effects on gut and digestive health.<sup>25</sup>
- **Supporting detoxification of toxic chemicals from your system** – Chlorophyll, found abundantly in matcha tea, helps enhance the detoxification process and support liver health. According to one study:

*"The liver plays a crucial role in metabolizing and eliminating endocrine-disrupting chemicals from the body. Chlorophyll promotes liver function and aids in the detoxification of these compounds, thereby reducing their accumulation and potential impact on the endocrine system."*<sup>26</sup>

- **Promoting optimal heart health** – The catechins in matcha promote cardiovascular health by lowering blood levels of triglycerides and low-density-lipoprotein (LDL) cholesterol in the blood while increasing high-density lipoprotein (HDL) cholesterol. According to a study, matcha "leads to improved lipid metabolism and therefore, improvement in body weight and cardiac health."<sup>27</sup>

In particular, EGCG inhibits gene expressions that are involved in lipid metabolism, such as FAS, SCD1 and SREBP1, which trigger the excretion of free fatty acids.<sup>28</sup>

## How to Make a Cup of Matcha

In Japan, the birthplace of matcha, special ceremonies revolve around properly brewing this tea. If you want to give traditional matcha a try, you'll need a few tools, namely a chawan (tea bowl), chasen (bamboo whisk) and chashaku (tea ladle).<sup>29</sup> If you want to keep it simple, you can skip these and use whatever kitchen items you have. However, you'll still need a whisk; a typical egg whisk will suffice.

The Ippodo Tea website<sup>30</sup> offers several matcha recipes to guide you. Here's a simple recipe for classic matcha (usucha).

### Directions

1. Sift the matcha into the tea bowl/cup. Use 1 level teaspoon (or 1.5 heaping tea ladles/chashaku).
2. Add 2 ounces (60 milliliters) of water. It should be around 176 degrees F (80 degrees C). To do this, pour just boiled water into a separate cup, allow to cool down for a while and then pour into your tea bowl/cup.
3. Whisk the tea vigorously, making a zigzag or "M" shape. Do this for 15 seconds, or until the tea is frothy. Enjoy your freshly prepared matcha tea!

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