

# Green Tea and Matcha

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Tea is the world's second most popular drink, after water. Nearly four-fifths of the world's tea consumption is consumed as black tea - only about one-fifth of people prefer green tea, primarily in Asia. Yet, Green tea is increasingly becoming more popular in the West - and for good reason.



## What is Green Tea?

The key difference between black tea and green tea, is that for green tea the tea leaves of the tea plant are not fermented, but only heated briefly after harvesting by steaming or roasting. This stops the fermentation process. The tea leaves retain their green colour and almost all of the valuable active ingredients contained in the fresh leaves. After cooling and drying, the leaves are rolled.

## The History of Green Tea and Matcha



China is considered the country of origin of the tea plant. Buddhist monks then introduced the tea plant to Japan, where today the world's best quality Matcha tea is produced. Matcha is a Japanese word which means "ground tea". Matcha is probably the ultimate form of green tea enjoyment. In addition, the flesh of specially selected tea leaves of cultivated and processed varieties is ground very slowly and carefully with granite mills. Importantly, any heat is avoided which could result in the loss of valuable ingredients. The Matcha powder is mixed with a little hot water and gently whisked with a bamboo whisk. More water is then added to the mixture and the resulting suspension is then enjoyed with care. In the 16th & 17th century green tea was also introduced to Europe.

## What does Green Tea contain?

There are wide variations in prepared green tea. The following factors play an important role:

- Green tea variety
- Soil quality in the production area
- Cultivation method (e.g. conventional or organic method; in direct sunlight or occasionally under shade nets - shading 30 days before harvesting is common for Matcha and causes an enrichment of the content of chlorophyll, caffeine & theanine)
- Harvest time (the first harvest provides the most tender and finest leaves)
- Processing method of the tea leaves
- Type and age of the plant parts used (e.g. only leaf flesh or also leaf trips; buds etc.)
- Age of the tea product and the length of its storage
- Method of preparation by the tea drinker (e.g. water temperature; brewing time)

Green and black tea both contain caffeine. Depending on the type of tea and how it is prepared, the caffeine content varies considerably! Unlike coffee, caffeine in green tea is bound to tannins. In green tea, the special combination of active ingredients caffeine, L-theanine (an amino acid) increase both the health benefits and the tolerance to caffeine are raised. In this form, caffeine has a slower and longer lasting effect. For some people, a green tea/Matcha is a better alternative to an Espresso.

### **Why is green tea beneficial to health?**

Green tea contains many beneficial ingredients. The most important ingredients in green tea are the so-called catechins (tea polyphenols). There are many such as epigallocatechin gallate (EGCG), epigallocatechin (EGC), epicatechin gallate (ECG), epicatechin (EC) etc.

Regularly drinking green tea, Matcha or taking green tea extracts has a health-promoting effect. Numerous studies on green tea prove this. The main positive effect is attributed to epigallocatechin gallate (= EGCG). EGCG (a potent antioxidant) has a soothing effect on numerous complaints and illnesses. In a first-class green tea product, epigallocatechin gallate (= EGCG) accounts for up to 10% of the dry mass.

### **A few positive effects of green tea**

#### **Green tea contributes to the relief from arthritis pain.**

With this disease, the joints become inflamed. The pain is usually felt in episodes. The patients are often prescribed anti-inflammatory drugs and strong painkillers. However, epigallocatechin gallate in green tea can help to reduce these pain episodes as recently shown in a medical study.<sup>1</sup> The inflammation of the cells treated with green tea was considerably reduced. Enzymes that contribute to the degradation of cartilage also appear to be blocked by green tea and the swelling of the joints decreased (with 50 mg of EGCG per kg body weight). To achieve this level of EGCG, green tea extracts in capsules or Matcha tea must be used. Green tea alone will not eliminate arthritis - but it can provide significant relief!



#### **Green Tea Extract for Myomas and Endometriosis**

Many women suffer with this ailment. Endometriosis and myomas often lead to sequelae (consequence of previous illness) such as heavy menstrual bleeding and pain. In naturopathy, green tea extracts have been under consideration for some time to treat these two conditions. Green Tea Extracts are natural and well tolerated.

Endometriosis: As early as 2013, it was shown in mice, in a study<sup>2</sup> in Brazil that epigallocatechin gallate (EGCG) and Resveratrol can reduce the extent and number of growths. Both these polyphenols have antioxidant and anti-cancer properties.

<sup>1</sup> Quelle: <http://www.fegt.org/gruente-hilft-bei-arthritis/>

<sup>2</sup> <https://academic.oup.com/humrep/article/28/1/178/596389>

Myomas: The effect of green tea extract has also been scientifically investigated in this regard. A group of patients were given either 800 mg green tea extract with 45% EGCG content or a placebo for 4 months. The following was shown: In the group given a placebo, the myomas grew on average by a good 24%. In the women who took the green tea extract, the myoma size decreased by an average of 32%. In addition, the participants reported a significant improvement in their quality of life: less pain, lighter menstrual bleeding and a reduction in anaemia were reported by these affected women - all without side effects! In autumn 2018, the Berlin Charité is recruiting participants for an application study "Green Tea Extract for Myomas" - the trial seems to be promising great results.

### Green tea extract helps with weight loss

Being overweight is a very common problem. This is caused by an excess of carbohydrates and alcohol as well as a lack of exercise. The accumulation of abdominal fat is particularly risky because it increases both appetite and cholesterol levels. In addition, fat around the abdomen produces numerous hormones, which are associated with an increased risk of cardiovascular disease and diabetes. The risk of asthma and dementia also increases. In the USA, much research has been conducted into how to reduce the annoying abdominal fat.<sup>3</sup> To investigate this, mice were fed a high-fat diet for four months. One group received decaffeinated green tea extract, a second group completed running training. The combination of both measures was tested in the third group and the fourth group received only high calorie food as a control. The combination of green tea extract and sport proved to be the best: These mice showed the lowest increase in abdominal fat, blood sugar levels dropped (by 17%) and energy metabolism was boosted.

Two facts as to why green tea helps with slimming down and reducing belly fat:

- Green tea accelerates the metabolism! This is achieved without additional exercise and yet the body burns more energy/calories.
- Green tea helps to reduce the blood sugar levels. This regulates the insulin level. Lower insulin means abdominal fat can be reduced. Too high an insulin level inhibits the breakdown of fat.

You need to drink 5-10 cups of green tea a day in order to achieve this effect.



### Green tea enhances the effect of antibiotics

A scientist from Egypt (Dr. Mervat Kassem) made a further discovery: "If patients drink green tea at the same time as taking antibiotics, the antibiotics have a significantly better effect!"<sup>4</sup>This was

the case with all 28 infection variants tested. It was also taken into account that antibiotic-resistant germs in combination with green tea became more susceptible to the antibiotics.

<sup>3</sup> <https://onlinelibrary.wiley.com/doi/abs/10.1002/mnfr.201300621>

<sup>4</sup> <https://www.sciencedaily.com/releases/2008/03/080330200640.htm>

## Green tea extract for cancer prevention and cancer treatment

Preventive foods against cancer should be readily available, inexpensive, easily consumed, non-toxic and have an impact across a broad spectrum - this is what cancer scientists see as important criteria and it is against these criteria, green tea performs very well!

Green tea has a variety of effects in terms of cancer prevention:

- a) strengthens the immune system
- b) helps to mitigate numerous carcinogenic factors
- c) acts directly against tumours

At the cellular level (effect against tumours) components from green tea act as follows:

- Cell division is increasingly inhibited,
- the survival rate of the cancer cells is reduced,
- the cell death program (Apoptosis) is promoted,
- Angiogenesis (supply of cancer cells with blood vessels) is impaired,
- and metastasis (tumour scattering) is beneficially influenced.

BUT: Despite encouraging discoveries, cancer research still has a long way to go to gain a comprehensive understanding of these relationships...

Of interest is the information about free radicals. Free radicals enter our body from the environment, through our food and also from within the body. They can cause damage, e.g. cell degeneration, which can lead to cancer. Green tea, a supplier of highly effective antioxidants (primarily EGCG), neutralises free radicals and thus helps to reduce the risk of cancer. One speaks of "anti-mutagenic effect". Prof. Joshua Lambert and his team were able to show how EGCG affects healthy cells and cancer cells.<sup>5</sup> It was found that thanks to green tea, healthy cells became more resistant to oxidative stress caused by free radicals.

It was very interesting to observe that EGCG in cancer cells appears to work exactly the opposite way around: oxidative stress and thus the formation of free oxygen radicals was only triggered within the cells. These oxygen radicals attacked the energy supply apparatus (mitochondria) of the diseased cell, which ultimately led to the death of the diseased cell. This mechanism was supported by the simultaneous suppression of anti-oxidative genes within the cancer cells by the EGCG. In other words: the diseased cells could no longer defend themselves against the increased free radicals.

Important: Green tea alone does not cause the cancer to disappear. However, regular consumption of green tea promotes good health. Comparisons of cancer rates in Asia with those in Western societies give us a clear indication!



<sup>5</sup> <https://www.ncbi.nlm.nih.gov/pubmed/25329972>

NOTE: Cancer treatment should always be entrusted to experienced doctors.

Regular consumption of green tea/green tea extract can have a preventive or healing effect on the following diseases (among others!):

- arthritis
- endometriosis
- myomas
- Obesity
- cancer
- diabetes
- inflammations
- Parkinson's
- Alzheimer's
- heart disease



#### Recommended Dosage / Side effects

- 5 cups of green tea per day. Preparation: Brew 2-4 g tea with 300-400 ml hot water. Any brewed tea not consumed should be discarded.
- Or: Daily, add 1 teaspoon of high-quality Matcha powder to approx. 60 ml of hot water and stir thoroughly before consuming.
- Whether you consume tea or Matcha, the added water should be a maximum of 80°C, otherwise valuable ingredients in the green tea could be destroyed.
- Or: 3 x 1-2 green tea capsules daily - higher doses can also be taken if required.
- Care should be taken with green tea during pregnancy/breastfeeding as well as where problems with iron absorption are present.

One of the best Matcha powders available, is supplied by the company Aiya from Japan. The green tea is placed in the shade before harvesting and then very gently processed.

