

A top-down view of a white ceramic tea set on a bamboo mat. The set includes a teapot with a lid and two handles, two teacups, and a rectangular tray containing loose-leaf tea. The background is a light green fabric. A red arrow points from the left edge towards the text.

Just a Cuppa!

Taking a “steep” look below the surface of TEA...

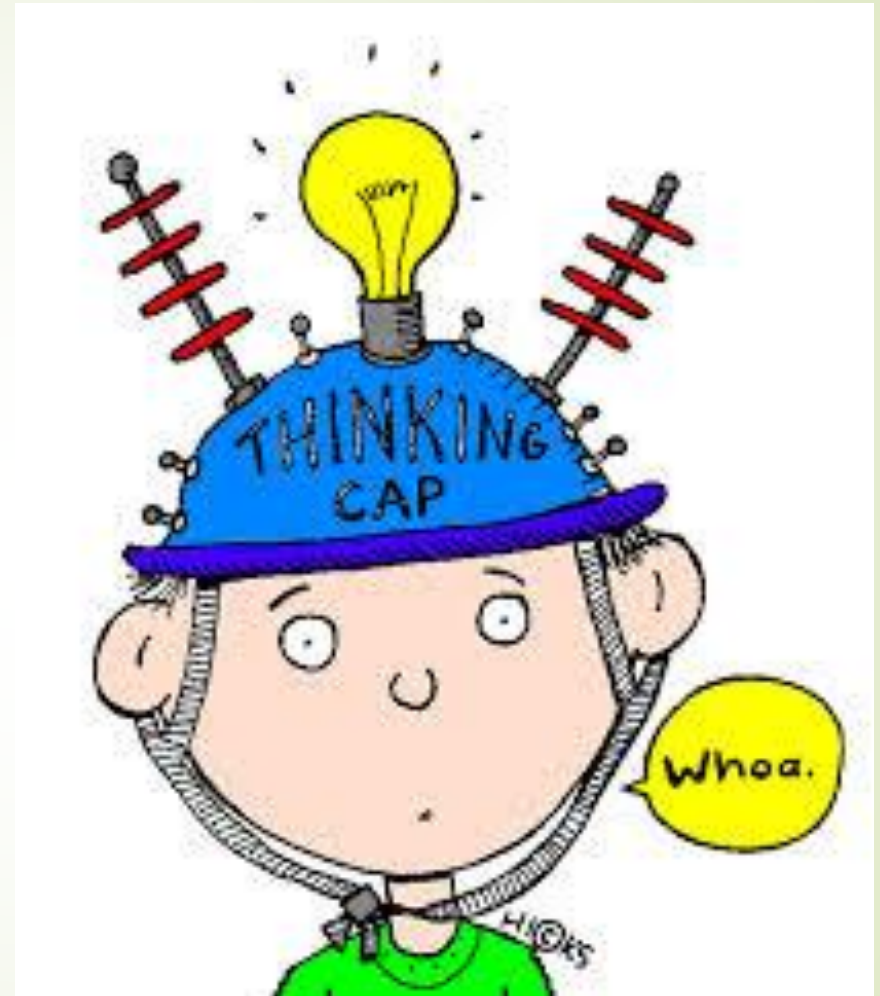


Hmm...I am wondering...

- What makes tea **tea**?
- What makes one tea different from another?
- Where does tea come from?
- Is drinking tea good for me?

► These questions are just some that come to the curious mind, and my mind is almost always curious about one thing or another.

► Let me share with you some of the “**mystery**” of tea!



“Red Tea, White Tea, Green Tea, Black Tea!”

➤ “Can someone please explain this to me!”

➤ “Yes... I thought you’d never ask!”



Camellia sinensis

► **Black, Green, White,**
and **Oolong** Teas all
come from the same
plant.

► What distinguishes
one from another is
the way they are
**handled after
picking...**



But I am
getting
ahead of
myself!!
Let's back
up for a
second...



A little tea history...

Tea was first discovered in China, it is told, in 2737 B.C., by Chinese emperor **Shen Nong**, who was known as the “*Divine Healer.*”





According to the story, a ***Camellia sinensis*** leaf blew into his pot while he was boiling water in his garden; when he sipped the resulting infusion, he declared it to have medicinal powers. In his medical book, the ***Pen Ts'ao***, Shen Nong said tea...

“...quenches thirst, lessens the desire for sleep, gladdens and cheers the heart...”

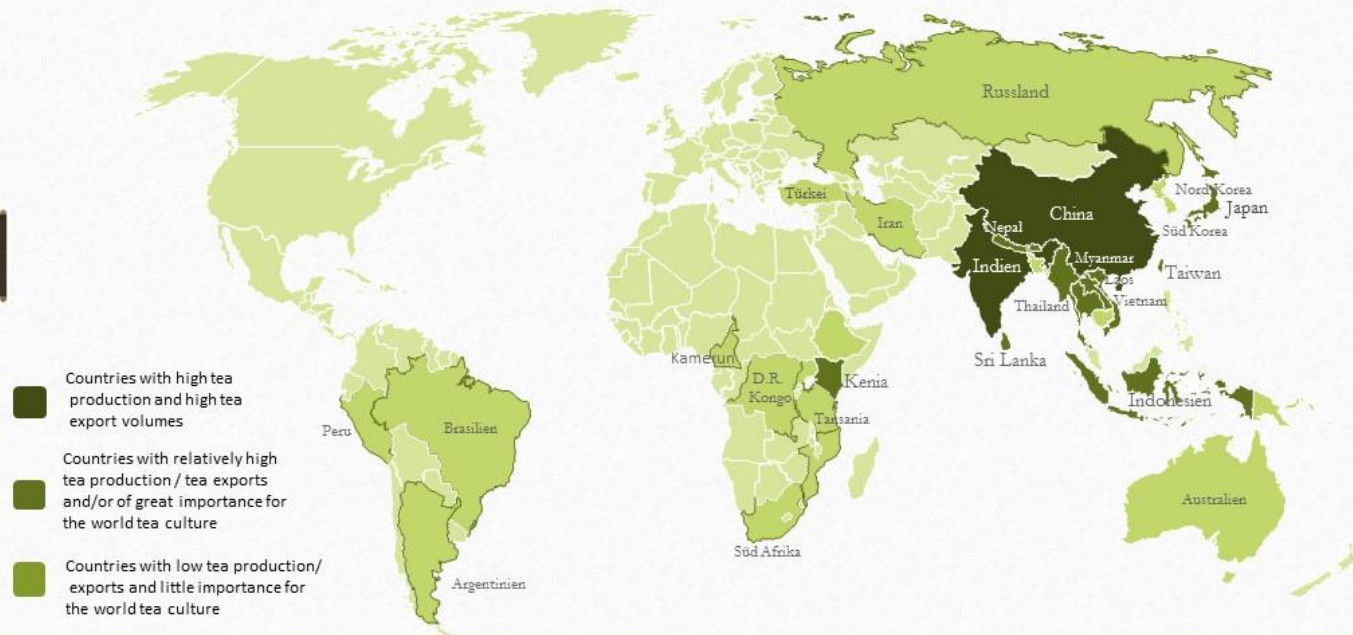




Where is Tea Grown?

Camellia sinensis is indigenous to that part of the world we now call **China, Tibet, and northern India**, but today it is successfully cultivated within a geographic belt that runs between the Tropics of Cancer and Capricorn – from the equator to 42° north.

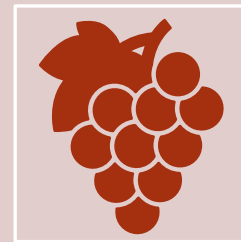
- WORLD MAP OF TEA -



WHERE tea is grown...



MAKES ALL THE DIFFERENCE IN
THE DISTINCTIVE
CHARACTERISTICS OF EACH
CUP.



Think of **WINE** as a good comparison;
though every glass of wine –
chardonnay, merlot, cabernet, pinot
noir, sauvignon blanc, etc., - Comes
from just one species, **Vitis vinifera**, there
are many varieties and many different
production techniques.

The *Camellia sinensis*



➤ ...bush can grow to be as tall as 60 feet, but cultivated bushes are pruned to between three and five feet.





The plants thrive in
tropical
temperatures, but...

...the teas that come from more mountainous areas are considered to be the finest...





Darjeeling, India

Darjeeling tea...

...for example, from the mountains of India, is grown in a cooler environment. Because of this, the bush does not flourish but concentrates its flavor and power in the **very tips of the leaves**... small differences in elevation, even on the same plantation, may produce leaves of utterly different character.





Generally speaking...

...The **higher** the tea is grown...

The **thinner** the body...

And the **more concentrated** the
flavor.



Astonishing!



The very tips of the leaves are all that are used for tea! only the first inch or two. Fine, full-leaf teas are made only from the top-most shoots – **AT THE MOST – a single bud and two leaves!!**

How do they *DO* this?

► **WOMEN**, usually (of course!), wind gracefully through the bushes, expertly plucking the first inch of the bush with their fingertips & tossing the leaves & buds into baskets carried on their backs.



Where efficiency is more important than tradition...



...Harvesting machines do the work (operated by **MEN**, usually!). They are clumsy compared to the skilled **WOMEN**, sometimes taking an entire branch rather than the “*two leaves and a bud.*”



Oh dear, I am **CONFUSED!!!!**

If the **SAME PLANT** can be **BLACK, GREEN, WHITE, OR OOLONG** tea...



What does make them different?

It's all in the *PROCESSING*...

After the leaves are picked, how they are handled affects their various constituents; i.e., caffeine, polyphenols, flavonoids, catechins, etc.

Black tea, for example, is higher in caffeine content and lower in polyphenol content because of the way it is processed after the harvesting.



Black Tea accounts for some 90% of tea enjoyed in the US...

- ▶ **Stage 1 – WITHERING** Withering is done to remove moisture from the leaves so they can be rolled. Leaves are spread on trays or racks in a cool room for 18-24 hours.
- ▶ **Stage 2 – ROLLING** Rolling the leaf readies it for “transformation.” The best teas are hand-rolled, each leaf curled through its length and twisted slightly. The cells of the leaf are broken apart in the process, releasing enzymes that will interact with the air and cause oxidation (fermentation is the traditional term but an inaccurate description of what is taking place).
- ▶ **Stage 3 – OXIDATION** Oxidation changes the chemical structure of the tea leaf, allowing key flavor characteristics to emerge. The rolled leaves are spread on cement or tile floors and tables in a cool, humid room. They are expertly monitored by sight and smell to determine how much is enough and how much is too much. It is during this oxidative process that the caffeine of the tea increases and polyphenol content decreases, making black tea one of the less healthful teas, though it is still very good for your health. MORE ABOUT THAT LATER!
- ▶ **Stage 4 – FIRING** Firing is the step that stops the “fermentation.” The leaves are placed in hot pans or woks or fed into drying chambers. The leaves turn black and lose all but one percent of their moisture.

Green Tea

- ▶ **Stage 1 – STEAMING** Steaming or pan-frying occurs immediately after the leaves are plucked. The leaves are placed in a metal pan over a hot flame to render them soft and pliable. The sudden exposure to heat destroys the enzymes that would otherwise lead to oxidation. Because green tea is not oxidized – or fermented – its caffeine content is less than that of black tea. The caffeine content of a cup of black tea is around 80 mg, while green tea contains somewhere around 21 mg. The lack of oxidation also ensures that the leaves retain more of their nutritive properties.
- ▶ **Stage 2 – ROLLING**
 - ▶ As described above.
- ▶ **Stage 3 – FIRING** As with black tea – fired green tea retains only two percent of its original moisture.

White Tea...

...or “*bai-cha*” in Chinese, is produced from buds and leaves that are simply **steamed** and **dried** without being rolled or fired. This type of tea has virtually no caffeine and a subtle, grassy flavor. The rarest of white teas is made from leaf buds that are plucked on the day before they open. White tea has the greatest health promoting benefits because of this method of processing.

But I am getting ahead of myself again!

Oolong (Wu long) Tea

A wooden tray with a teapot, a bowl of tea leaves, and two cups of tea. The teapot is a reddish-brown color with a textured, ribbed surface. The bowl is filled with dark, crumpled tea leaves. The two cups are white with a reddish-brown rim and contain a light-colored tea. The tray is set on a wooden surface.

Its origin is in **Taiwan** and most comes from Taiwan, although some is grown in China today.

OO LONG tea sort of falls somewhere in between black tea and green tea in its processing and resulting nutritional breakdown. It is a tea with very large leaves and is perhaps the sweetest tasting.



Now for
the BEST
PART!

Not only tasty,
soothing, &
enlightening...





The Many Health Benefits of TEA!

- **46 Percent Lower Ovarian Cancer Risk**
Researchers at Sweden's National Institute of Environmental Medicine, Karolinska Institute, examined the association between tea consumption and risk of ovarian cancer in 61,057 women 40 to 76 years of age who took part in the population-based Swedish Mammography Cohort.
- The researchers found **tea consumption of two or more cups of tea per day** had a significant inverse association with risk of ovarian cancer.
- Specifically, women who drank two or more cups of tea per day experienced a **46 percent lower risk of ovarian cancer**, compared with women who drank no tea. Each additional cup of tea was associated with an **18 percent** decreased risk of ovarian cancer.

Additional Tea Health Bennies

A multitude of research studies suggest that drinking tea may contribute to overall health. Potential benefits include the following:

- ▶ **Cardiovascular** - Reduced risk of heart attack and stroke, and improved blood vessel function;
- ▶ **Less risk of certain cancers**, including colorectal and skin cancers.
- ▶ **Decreased levels of oxidative DNA damage** and increases in antioxidant levels in the bloodstream; and
- ▶ **Oral health benefits** -- researchers believe certain compounds in tea may inhibit bacteria that cause bad breath and plaque, and the natural fluoride content in tea supports healthy tooth enamel.

Benefits of BLACK TEA

- ▶ **Flavonoids** in black tea, which are highly concentrated, have been associated with a number of health benefits that include **reduced risk of stroke and heart disease.**
- ▶ There are research studies that link flavonoids, which are present in all blends, to **lowering cholesterol levels, reducing inflammation, improving blood flow, and even helping the body maintain proper blood sugar levels.**
- ▶ According to the USDA flavonoid database, both black and green contain 150 to 190 milligrams of flavonoids per cup. They also provide **trace amounts of healthful minerals, such as potassium and fluoride.**



Benefits of GREEN TEA

- ▶ Scientific findings have linked green tea consumption to the **slowing or prevention of cancer** (specifically cancer of the bladder, colon, esophageal, stomach, and pancreas), **heart disease, rheumatoid arthritis, impaired immune disease, and liver disease.**
- ▶ Health benefits of green tea have even been proven to aid **tooth decay** and **dieting.**
- ▶ The tea's medicinal properties -- whether consumed hot or over ice -- are attributed to its rich concentration of catechin polyphenols, particularly **epigallocatechin gallate (EGCG)**, which act as powerful antioxidants that ward off disease and improve health.
- ▶ The limited oxidation or fermentation of tea leaves during processing protects these antioxidant properties from breaking down, making **the health benefits of green tea more significant than the black or oolong varieties.**

Health Benefits of WHITE TEA

- ▶ The **demand for white tea** has soared since the release of early-stage research suggesting white tea benefits a bevy of health-related concerns and includes properties that boost immune systems, prevent dental plaque, provide colon cancer protection, and guard against skin cell damage.
- ▶ While the tea has been around for thousands of years in Asia, scientists have only recently found that white tea benefits are linked to **stronger antioxidant properties than other teas.**
- ▶ A 1984 study at Pace University revealed that white tea extract **may help slow viruses and bacterial growth, thus reducing the incidence of staphylococcus and streptococcus infections, pneumonia, fungus growth, and even dental plaque.**
- ▶ Findings from another study conducted at the Skin Study Center at University Hospitals of Cleveland and Case Western Reserve University reveal indicators that white tea **helps skin cells by boosting immune systems when exposed to harmful sun rays.**



Health Benefits of OOLONG

- ▶ Research studies on the health benefits of wu long tea reveal the brew's potential to **reverse signs of aging, facilitate weight loss, and promote overall wellness.**
- ▶ **Weight Loss** Scientists from Japan's University of Tokushima School of Medicine found that **people who regularly consumed oolong tea experienced more than twice the calorie-burning results compared to those who drank green tea.**
- ▶ A study published in the *Journal of Medical Investigation* found **that women who consumed wu-long tea directly after a meal increased energy expenditure by 10%. This compared to an energy expenditure of 4% for green tea drinkers or for water drinkers. WOW.**
- ▶ Researchers at the Suntory Research Center in Osaka, Japan found that **drinking wu long tea 15 minutes before eating foods high in carbohydrates curbed rises in insulin, thus reducing some of the fattening effects of carbohydrate intake. Wow. Wow.**
- ▶ **Better Skin Condition** Researchers from Japan's Shiga University of Medical Science found that drinking wu long each day helps to clear up **skin problems** within one month.
- ▶ Dr. Kenichi Yanagimoto and colleagues from the University of California found that people who drank wu long tea on a daily basis experienced **a fifty-percent reduction in free radicals within 15 days. Free radicals** are damaging substances in the body that contribute to signs of aging, including wrinkles and dark spots that are caused by ultra-violet rays, chemical food additives, pollution and stress.
- ▶ **Healthy Teeth** A study by the Department of Dentistry at Japan's Osaka University showed that regular consumption of oolong tea strengthens teeth and helps prevent tooth decay by inhibiting the build-up of plaque.
- ▶ **Stronger Immune System** According to a study published in *Antioxidants & Redox Signaling*, test subjects who consumed wu long were found to **have stronger immune systems and a reduced risk for infections.**

“But what about *RED* tea???”

“Oh, yeah; I almost FORGOT!”

Rooibos Tea - or **Red Bush**, as it is also known – is not a “true tea” but an herb, which is indigenous to the Cedarburg area of **South Africa**.

Because of widely publicized health benefits, the herb has grown into a billion-dollar export industry since the mid twentieth century.

This herbal tea or infusion has **no caffeine** and only half the tannin of ordinary brew.

Apart from being refreshing to drink, in place of ordinary tea and coffee, Rooibos has the advantage of containing **minerals and powerful antioxidants**.





Health Benefits of “Red Tea”

- ▶ Japanese scientists, who did studies in the 1960's, discovered Rooibos contains powerful antioxidants that are thought to **retard aging** and have **potent anti-inflammatory properties**.
- ▶ In addition, the herb is also found to contain the flavonoid aspalathin, which **counteracts the atherosclerotic processes that result in heart disease**.

And that's not all!

- ▶ Additional research by the French revealed that hair lotion containing Rooibos **promoted faster hair growth with improvement in the hair condition** -- and caused no allergic reactions.
- ▶ South African researches found that the polyphenol content in Rooibos is similar to green tea. Polyphenols help protect the body from damage by free radicals.
- ▶ Other studies link Rooibos tea to helping relieve **digestive problems, nausea, vomiting, stomach cramps and constipation**. In addition, drinking the brew can have a **calming effect** and has been shown to help with **irritability, insomnia and depression**.



Finally, the BREW-HA-HA

For each cup of tea you prepare, you will want to heat 6 ounces of water. So, if you are making a pot of tea, be sure you have pre-measured the amount of water the pot holds. The water temperature and length of steeping time varies by the blend of tea you are brewing.

Here are some general tea brewing guidelines for water temperature and steeping times. Adjust the heat and time based on your individual preferences.

The time it takes to brew tea

correlates to the size of the leaf in your blend. This means the larger the leaf the longer the brewing time.

Black

Water Temp: 195-210 F

Steeping Time: 3-5 minutes

Oolong

Water Temp: 185-200 F

Steeping Time: 2-3 minutes

Green

Water Temp: 165-185 F

Steeping Time: 2-3 minutes

White

Water Temp: 160-175 F

Steeping Time: 2-3 minutes

Herbal/Tisanes

Water Temp: 205-210 F



How *much* TEA?

To maximize taste, it is preferable to brew tea leaves in loose form rather than using a small tea ball or infuser (yet these accessories are popular, convenient, and yield tasty brews). This allows the leaves to fully open and release all their flavor.

Use **1 teaspoon of whole leaf tea** for each **6-ounce cup** you are brewing. This is the standard for compact blends. If you are brewing tea that has a lot of volume, consider using up to **two tablespoons per serving**.

Tea Bags vs. Loose Leaf?

The tea in commercially produced bags is typically comprised of small pieces of leaves or “**fannings**” that are susceptible to becoming stale faster than the well-stored loose-leaf variety.

However, there are millions of wonderful tea-cups full of tea brewed from high-quality “tea bags.”



SERVING!



When your tea is done steeping, immediately remove the loose tea from the strainer or the tea bag and lightly stir. Then, serve while fresh and hot.



If your tea gets too cool, it is best to enjoy it over ice verses re-heating the brew (or, like every woman worth her salt, learn to enjoy it lukewarm! 😊)



And the Credit Goes to...

- Credit for most of this information goes to:
- **Tea Chings:** *Appreciating the Varietals and Virtues of Fine Tea and Herbs*; Rubin, Ron and Gold, Stuart Avery; New Market Press, New York; 2002.
- **Learn-About-Tea.com**
- **Stuff** in my head from... **somewhere!**

