

EFI'S
Master Guide
S E R I E S

Your Ultimate Master Guide to Tea



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Your Ultimate Master Guide to Tea

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Introduction

Tea: The Second Most Popular Beverage in the World!

What is the second most popular beverage worldwide, after water?

Tea!

Global tea production amounts to about 6.1 million metric tons, according to the latest available data. In 2021, Americans consumed nearly 85 billion servings of tea, or more than 3.9 billion gallons. About 84 percent of that was black tea, 15 percent was green tea, and the remaining was oolong, white, and dark tea. (Herbal teas were not included.)

The U.S. is the third largest importer of tea in the world after Russia and Pakistan. On any given day, more than half of the American population drinks tea. The industry anticipates continued growth, driven by tea's variety, convenience, health benefits, availability, and innovation.



So, what is the big deal with tea, and why is it so popular?

Tea Has Grown in Popularity in the U.S.

Though tea has been available for thousands of years, its popularity in the U.S. has more than quadrupled over the past twenty-plus years. Between 1990 and 2014, the tea market grew from just under \$2 billion to over \$10 billion.

By weight, Americans now drink almost 20 percent more tea than they did in the year 2000, with the beverage infiltrating most Americans' everyday routines. According to the U.S. Tea Association, about 80 percent of American households have tea in their kitchens.

Interestingly, iced tea is much more popular in America than hot tea. Around 75-80 percent of tea consumed in the country is chilled. Ready-to-drink tea bags are the most popular form, with sales of these growing for years.



Black tea accounts for more than half of all tea consumed, while fruit and herbal teas account for just over a quarter of consumption. Consumers say they drink tea to ease stress, relax, calm, and center themselves. Many also like that it tastes good but contains no sugar, sodium, or fat (as long as you drink only tea without additional ingredients). Naturally calorie-free, it's something people can enjoy without having to worry about ruining their diets.

Next to water, tea is also the cheapest beverage humans consume. Of course, there are many tea combinations and ready-made drinks that can be more expensive, but plain tea is one of the cheapest flavored drinks available.

While tea has been growing in popularity, coffee consumption has remained around the same, suggesting that tea may be replacing coffee in some families. But the most likely reason for the increasing popularity of tea is its connection to several health benefits.

Consumers Turn to Tea for Health Benefits and Taste

Tea draws on its place in a healthy diet as a major selling point across all markets. There's no doubt consumption has increased because of a rising awareness of tea's anti-inflammatory, antioxidant, and potential weight-loss effects. Though drinking tea has been considered to be a health-promoting habit since ancient times, it's only in recent decades that its health benefits have been highlighted in the modern Western world.

Researchers note that while tea consumption has increased, consumption of other beverages like soda pop, milk, and fruit beverages has declined. People now know that these beverages contain sugar and calories that may negatively affect their health, while tea is a low-calorie beverage that they can enjoy as much as they like.

Tea also offers a large array of flavors, which is another reason for its popularity. With so many flavors on the market, consumers have a lot to choose from and can explore a variety of flavors to keep it interesting.

According to Packaged Facts, great taste is still by far the most important factor for people ordering tea at restaurants. It's also why more manufacturers are testing out unique combinations, such as different flavors of tea in one bag, tea mixed with fruit, and tea infused with energy drinks. Businesses selling blends and specialty drinks entice consumers in the same way that some wineries and local microbreweries do.

Green Tea Has Found Its Place

For a long time, black tea has been the most popular type of tea in America. That hasn't changed, but over the past decade or so, green tea has gained some ground. This is mostly because of its purported health benefits, which in some studies, have shown to be greater than those linked to black tea.

Indeed, most consumers say they choose green tea because they associate it with health benefits and because they think it will help more when they are sick or stressed out. A lifestyle survey by the Tea Council of the USA found that green tea consumption is growing at a higher rate than black tea, and was up 60 percent between 2004 and 2014. The increase has leveled out in recent years, though, as some newer studies have found that both green and black tea have similar health benefits.



Market researchers also believe that because green tea comes in so many varieties, it has served as a gateway for consumers to experience new cultures. This is a macro trend influencing food and beverages that has helped to shape green tea consumption. Consumers can try green tea from Darjeeling, for instance, or green tea from the north Vietnamese region.

Green teas are manufactured differently as well. Some are steamed while others are fried, which can give consumers different tastes to try. Some are very astringent, while others are smooth. Combinations appeal to those who don't care for green tea straight—they often like it better mixed with lemon, peach, orange, or chamomile.

There's no doubt we are still a nation of black tea drinkers, but meanwhile, green tea has found its place among about 15 percent of us.

Tea vs. Coffee in America

Despite the rise in the popularity of tea in the United States, coffee is still more popular overall. According to a 2018 study, tea and soda are the most popular caffeine-containing beverages in African, Asian, and Pacific countries, but coffee and soda are preferred in Europe, North America, Latin America, and the Caribbean.



In the U.S., 44 percent of adults consume two to three cups of coffee on average per day. By comparison, only 25 percent of American adults drank two tea beverages per day.

As to why Americans may prefer coffee, there are many theories. Some believe it's because of what the drinks do for us. While coffee is thought to be energizing and stimulating, tea is often seen as relaxing and calming. With our busy lives and long to-do lists, Americans may feel they need that extra jolt from coffee more often.

Some researchers point to America's history as well. Back in the 1700s, tea was seen as a way that England

enslaved America, particularly because of the tea-related taxes Britain forced on the colonies before the Revolutionary War. The Tea Act, passed in British Parliament in 1773, granted the British East India Tea Company a monopoly on tea sales in the colonies.

This act was essentially the last straw that started a series of revolutionary movements in America, culminating in the Revolutionary War. This history may have contributed to America's view of tea, whereas coffee has no such troubled history in the country. In fact, in the early 1800s, President Andrew Jackson abolished the tax on coffee, making it look even more attractive.

So, while things may be gradually changing, the United States remains mainly a coffee country. There's no doubt, however, that tea is gaining ground. Who knows what the future may hold?

What You Can Expect from This Ebook

In this ebook, we seek to answer all your questions about tea. We'll explore in particular its health benefits, examining both the physical and mental benefits found in studies. We'll look at what affects the quality of the tea you drink, from how it's cultivated, to how it's processed, to help you choose the types that are best for you, depending on your goals.

How tea is packaged can also make a difference in whether or not it retains its health benefits so we'll talk about that as well, letting you know whether tea bags, loose tea, or instant tea is best, or whether it matters at all what your tea comes in.



For those of you sensitive to caffeine, we have a chapter exploring the caffeine in certain types of tea, and whether it positively or negatively affects health. We'll compare iced tea to hot tea to determine what the differences are, and which is better for you. We'll also warn you about the possible negative effects of drinking too much tea, and check into those teas that may be bad for your health in some situations.

Finally, we'll help you learn how to make the best cup of tea, so you'll come away from this ebook knowing everything you need to know to become a true tea connoisseur.

Ready to know more? Read on!

Chapter 1

What is Tea and Where Does It Come From?

Tea has been around for so long that it's become just a part of our lives. Most of us that enjoy it don't think too much about its history or where it comes from.

It can be interesting, though, to go back and trace the origins of tea. Who first invented it? And where do we get most of the tea that we drink today?

What is Tea?

True tea, or what is considered "real" tea, comes from a plant scientifically called the *Camellia sinensis*. This is a sub-tropical, evergreen shrub or small tree native to Asia but now grown around the world.



Slow-growing and easily maintained, the plant is heat tolerant and can perform well in full sun. It has dense dark-green serrated leaves and small yellow-white flowers that make it a good choice for screening, foundation planting, hedge decoration, or patio plants.

Also called the tea plant or tea shrub, the *Camellia sinensis* leaves are used to produce white, green, oolong, black, and dark (pu-erh) tea. These teas are considered the only "true" teas. (They are different from herbal teas, which we'll talk about in a later chapter.)

The tea plants will grow into trees if left to their own devices, so farmers typically prune them back to waist height for ease of plucking. They also prevent flowering by harvesting the leaves, which forces the plant to make more buds.

If the plant is allowed to flower, it produces white flowers with bright yellow stamens, as well as fruit with a hard green shell and a single round, brown seed. These seeds can be used to make tea oil.

Varieties of Tea

Today, the two major varieties of the tea plant cultivated specifically for making tea are known as *Camellia sinensis* var. *sinensis* and *Camellia sinensis* var. *assamica*. The *sinensis* version is from China and is usually used to make green and white teas.

Some black and oolong teas are also made from this variety. It grows best in cool temperatures on steep mountain slopes and thrives at elevations up to 9,500 feet. Because of the climate, the growing season for this plant is usually only a half-year, as it will be dormant during the winter months.

The *assamica* strain—also called the “broad leaf” variety because of its larger leaves—is native to the Assam region in India and is usually used to make black and pu-erh tea. It enjoys high humidity, generous rainfalls, and warm temperatures, which help it to create a more robust tea variety.



The *assamica* tea plant will grow between 30 and 60 feet if left unattended, though farmers usually trim it into bushy rows. The mild climate allows it to continue producing all year long, and it can be harvested every 8 to 12 days of the year.

Then there are thousands of cultivars of these tea varieties, resulting in as many different tea options.

What is the Origin of Tea?

Humans have made tea for thousands of years. Legend has it that almost 5,000 years ago, around 2737 BC, Chinese Emperor Shen Nong was sitting under a tree while his servant boiled drinking water. When a tea leaf fell into his cup, he drank the infusion and immediately noticed the restorative properties. Identified as the father of Chinese medicine, he is said to have first discovered this magical beverage.

Though there’s no way for sure to know if there is any truth to this story, we do know that tea drinking was established in China for many centuries before it spread to the rest of the world. Archaeologists have found containers for tea in tombs dating from the Han dynasty (206 BC – 220 AD). Under the Tang dynasty (618-908 AD), tea was firmly established as the national drink of China.

During the late eighth century, a Chinese writer named Lu Yu wrote the first book entirely about tea, the *Ch’a Ching*, or “Tea Classic.” Japanese Buddhist monks who had traveled to China to study are thought to have brought tea back to Japan sometime around the 6th century AD. It didn’t take long for it to catch on there. It is now a vital part of Japanese culture.

Tea Goes to Europe

Tea didn't make its way to Europe until the latter half of the sixteenth century when scholars found the first brief mention of it as a drink among Europeans. It is believed that the Dutch were the first to ship



tea back to port, with a ship of the Dutch East India Company bringing green tea leaves to Amsterdam from China. The Portuguese were also thought to be among the first to import tea.

France became aware of tea in the 1600s, when it became popular in Paris, around the same time that Russia began drinking it, though it wasn't as quickly favored there. Tea made its way to England in the same century, when King Charles II married the Portuguese princess, Catherine of Braganza.

Britain's new queen brought tea with her as part of her dowry and began serving it to her aristocratic friends at Court. Word of the exotic royal beverage spread quickly.

In 1657, Thomas Garway, an English proprietor, decided to offer tea to the public, and it quickly became the drink of choice, far outpacing wines and liquors. During America's early days, tea was shipped in from Great Britain, but it had a troubled beginning because of arguments over the tea tax.

Once independent, the USA traded more directly with China for its tea, and later with Japan.

Where Does Tea Come from Today?

Tea is mainly grown in Asia, Africa, South America, and around the Black and Caspian Seas. The four biggest tea-producing countries are China, India, Sri Lanka, and Kenya. Together, they represent about 75 percent of world production.

In China, each region has its own expertise. Green tea makes up nearly 75 percent of production, with the remaining 20 percent dedicated to black and dark teas, and 5 percent to oolong teas.

India produces a wide variety of tea due to the climate and local conditions, which can vary greatly from one region to another. Plantations exist in mountainous regions as well as plateaus or plains and may use different varieties of the plant. Darjeeling teas, for instance, are high-altitude teas, cultivated on plantations situated between 400 and 2,500 meters above sea level.

The province of Assam, which is situated in northeast India, is a low-lying region, by contrast, and produces more than half of India's tea. These types are vigorous, spicy, and astringent in taste, as well as very dark.

Sri Lanka is so immersed in tea production that it's called "the tea island." Teas there come from six regions located in the south of the island at altitudes ranging from sea level up to 2,200 meters. These teas typically have a rich copper color and a lively, piquant scent, with taste varying from one region to the other. High-altitude teas are considered the best.



Today, a dozen African countries produce black tea, with Kenya contributing the most. Almost all teas from this country are produced by a method called "crushing, tearing, curling,"—a mechanical process that transforms the tea leaf into tiny pearls used mainly for tea bags.

Though the USA is not known for its tea production, there are some plantations in the country. Bigelow Tea has a commercial tea plantation in South Carolina. There is a small tea-producing operation in Washington State and some small crops in Alabama, Hawaii, Oregon, and Washington. The U.S. League of tea Growers reports that there are around 60 farms in 15 states. Most started in the year 2000 or later.

It was long believed that the U.S. didn't have the right climate for tea, but NPR reports that there is a growing interest in domestic tea production. "While U.S. tea-makers are not as skilled as those in more established tea regions," said Rie Tulali, spokeswoman for the U.S. League of Tea Growers, "their teas still have a distinct character found nowhere else in the world, thanks to the unique climates and environments on these U.S. farms."

This interest hasn't led to an increase in domestic tea production yet. It takes at least three years for a *Camellia sinensis* plant to mature and harvest. But there is interest in purchasing American-made tea, and it will be interesting to see where the market goes in the future.

America is a major producer of herbal teas, but as mentioned earlier, these are different from "true teas." True tea is made from the leaves of the *Camellia sinensis* plant, whereas herbal teas are made using a combination of flowers, spices, bark, and leaves from other edible, non-tea plants

Looking Ahead to How Tea is Made

Now that you have a better idea of the history of tea and where it comes from, you may be wondering about how it's made. What happens to turn the plant into the tasty beverage you enjoy? We'll talk about that in the next chapter.

Chapter 2

How Is Tea Made?

The tea that you enjoy in your cup is the result of a long process of growing, cultivating, harvesting, and processing. Let's look more closely at what happens along the journey to create the final product.

Tea Growing and Production

Tea plants grow best in cooler climates with rainfall amounts of at least 40 inches per year. The best tea is usually produced in regions that have dry days and cool nights. The plants prefer acidic soils (tea cannot be grown in alkaline soils) and can be cultivated at different altitudes. Plants at higher elevations tend to grow more slowly and develop more complex flavor profiles, but they may also have lower yields.



Tea is similar to wine in that the atmosphere in which it is grown can determine much of the flavor and quality. Mass-produced tea is grown on large plantations in more than 30 countries. The plant is cultivated mostly for the leaves. The mature leaves of the tea plant range from 1.5 to 10 inches long, the smallest being the China variety and the largest one of the Assam varieties (Lushai). They may be serrated, bullate, or smooth.

Workers collect the leaves as many times per year as possible, with tropical areas having plants that produce year-round, whereas more mountainous regions have months where the plants are dormant. Scientists study every aspect of the plant's growth to increase the average yield per acre.

You can grow your own tea if you live in the right sort of climate and have access to acidic soil. For best results, grow it in a partially shaded spot beside a wall, which will protect it from any harsh winter weather. Avoid exposure to strong morning sun and cold dry winds. Make sure to keep the soil moist and feed with a balanced fertilizer in spring and early summer.

Growers typically prune the plants to about waist height to make it easier to pluck the leaves. Young bushes are typically planted about 1.5 meters apart in rows with a distance of one meter between each row. In the higher altitudes, these rows follow the contour of the hills to avoid erosion. Each plant takes 3-5 years to mature, though that depends on the altitude.

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Pests and Diseases

The tea plant is subject to attack from at least 150 insect species and 380 fungus diseases. In northeast India, losses from pests and diseases have been estimated at 67 million pounds of tea per year. In Japan, more than 100 pests and 40 diseases occur in the tea fields. Sri Lanka, too, where estates are close together, has recorded many blights and suffered serious losses. Africa has little trouble with blights but does have to watch out for mosquitoes.



The most common diseases affecting tea plants include:

- **Petal blight:** A fungal disease that causes the flowers to turn brown.
- **Canker:** Another fungal infection that causes the branches to wilt and creates gray-colored blotches in the bark. The infected bark usually splits open, giving way to pinkish cankers.
- **Leaf gall:** The result of fungus due to overly moist conditions. The leaves become enlarged and fleshy with small greenish-white galls on the undersides.
- **Root rot:** Another fungal disease, causing leaf yellowing, poor growth, and wilting followed by death. Often results from overwatering or poor drainage.
- **Camellia yellow mottle leaf virus:** A virus transmitted through infected stock, this infection causes irregular yellow patterns or mottling on the leaves. There is no cure.

The plant can also be affected by other pests, including:

- **Scale bugs:** Tiny insects that attach to the underside of leaves. They can cause yellowing of the leaves and even the death of the plant.
- **Sunscald:** The result of too much direct sunlight, it can turn leaves brown and scorched. The plant usually doesn't recover.
- **Bud drop:** If the plant receives too little water or is exposed to extremely cold temperatures, the unopened buds may drop off plants before blooming.
- **Sooty mold:** Often the result of sucking insects like aphids and scale, this covers the leaves with black mold and causes them to drop.

Planting the shrubs where they will be most happy—in the right type of soil and climate—can prevent many of these problems. So too can purchasing disease-free plants. Growers also use pesticides to keep plants healthy. Northeast Indian scientists have issued a list of 40 approved pesticides appropriate for tea crops.

How Tea is Harvested

Tea leaves need to be picked carefully. If they are too big, they will be too tough. Too small and they are not economically viable. They must be just right. That's why most tea is picked by hand for better quality—machines tend to damage too many leaves.



Not all leaves are picked during harvesting. Workers pick only a few young and juicy leaves with a portion of the stem on which they have grown and the so-called bud (or tip)—an unexpanded leaf at the end of the shoot. Generally, the buds near the end of a branch are considered to be of the best

quality. Those nearer the branch are of lower quality.

A few leaves, part of the stem, and a tip are together called "flush." Flushes are collected with two, three, four, and even five leaves. Workers fling them over their shoulders into baskets strapped onto their heads and backs. Once they gather enough quantities of tea leaves, they take the basket to a collection point where it is weighed before being taken on to the factory, which is usually located on the plantation. This is where the leaves are processed.

There are generally two harvests throughout the year—the "first flush" in early spring and the "second flush" in summer. Growers keep the plant in the early stage of growth with constant pruning and by picking only a few leaves and a bud from the tops of the plants each time.

How Tea is Processed

Most tea is processed in large multistory buildings that often look like giant wooden sheds. Workers bring the tea in by truck and move it through the factory on conveyor belts and elevators. The final product is placed in large bags that are moved again by truck, train, or ship.

Tea processing proceeds in five steps. Some teas don't utilize all of these steps, while others may repeat them.

1. **Plucking:** Workers pluck the leaves from the plant.
2. **Withering:** Tea leaves are spread out in large groups and left to wither, losing some of their moisture. During this process, they are gently fluffed, rotated, and monitored to ensure even exposure to the air.
3. **Rolling:** The softened leaves are rolled, pressed, or twisted to break the cell walls, wringing out the juices inside. Traditionally, this was done by hand, but today machines are often used to roll and shape the leaves.

4. **Oxidizing:** The leaves are spread out again in a cool, damp atmosphere to allow oxygen to interact with the cell tissues. Over time, this turns the leaves a copper brown, similar to how they may look in the fall. This step has the greatest impact on the creation of the many wonderful and complex flavors in tea.
5. **Firing:** The leaves are dried with hot air in large ovens or drying machines to halt oxidation and lock in the final flavor.



Though this is the most common method of processing different types of tea, the “cut, tear, curl” or CTC method may also be used. It is done more rapidly by machine, which chops the tea leaves into tiny pieces. This creates more of a dust-like substance.

The CTC method was invented during the Second World War to try to increase the weight of tea that could be packed into a sack or chest. The resulting tiny granules are perfect for tea bags. It is only used to produce black tea quickly.

The process cannot produce a wide range of teas and tea flavors, though, so the flavor is typically one-dimensional. It’s typically not as popular with tea enthusiasts as the more traditional hand-picking method.

CTC cannot be used to make any other type of tea but black tea.

The Type of Tea Depends on the Process

Different types of tea—green, white, oolong, black, and dark—are processed in different ways to produce the final product.

White tea is the least processed of all the true teas. The leaves are harvested and simply sun-dried. This preserves the chemical compounds in the tea and results in a lightly colored tea with a delicate flavor profile. Tea leaves are withered for 72 hours in direct sun or under sun shades, then dried to stop the oxidation process from taking place.

Green tea is put in a steamer and heated immediately after it is picked. This softens it for rolling and stops the oxidation process. It is then rolled and dried. In Chinese teas, this process is altered slightly as they roast the leaves in pans over open fires or in large ovens after they’re harvested, then move on to rolling and drying.

Black tea leaves are typically withered, rolled, and oxidized. Oxidation is a key step in the process as it is what differentiates black tea from white or green tea. Once oxidation is complete, the leaves are dried which further reduces the moisture content.



Oolong tea undergoes a similar process, but it is only semi-oxidized, which means it's oxidized for a shorter time than black tea. It may also go through rolling and oxidation multiple times to create its more complex flavor.

Pu-erh teas undergo a process that is a little different. First, the leaves are withered in the sunlight, then dry-roasted and shaped before being left to dry in the sun. The sun-dried leaves are then kept in a warm, humid environment and exposed

to controlled bacterial and fungal fermentation for an extended period. (This is a process similar to that used to make Kombucha tea.)

Once the leaves have reached “ripeness,” they are mechanically pressed into shapes like squares, bricks, or spheres. Then they are “aged” much like wine is—a process that can last a few months to several years. Very old, well-stored pu’erhs are considered “living teas” just like wine and are prized for their earthy, woody, or musty aroma and rich, smooth taste.

The Tea In Your Cup

All of these steps along the way—growing, harvesting, and processing—affect the final taste of the tea that you drink. That’s why it can help to learn more about it, as the knowledge can inform the type of tea you buy and enjoy.

Chapter 3

10 Factors that Affect the Quality of Your Tea

When you're looking for the perfect cup of tea, you have to take into account more than the flavor or the brand. Several different factors can affect the quality. We explain what those are in this chapter.

1. Where the Tea is Grown

If you look at the label of the tea you're buying, you may be able to see where it was grown. If not, check the manufacturer's website or give them a call. They should be able to tell you where the original tea leaves came from.

By checking on this, you can get a hint of the leaf quality. Most serious brands will tell you exactly where the tea comes from—not just the country. Tea growing in various locations can have unique qualities.

This is because the composition of the soil, the quality of the water, the weather, and the atmosphere where the tea is grown can all affect how it tastes. Abundant sunlight, torrential rain, ocean mist, heat, and cold have varying impacts on the leaves as they grow.

The local ecosystem matters too. A mountain covered in flowers is going to impart floral elements to a tea simply because the leaves absorb the aroma over time.

This is something wine growers have known for a long time, and the idea is becoming more familiar among tea and coffee connoisseurs.

2. Elevation

Tea drinkers have long prized leaves cultivated at high elevations. In general, high mountain teas are known for having a more complex flavor, less bitterness, and a creamier finishing texture.

At higher elevations, the air is colder, the soil rockier, and there is less available rainwater because of the land gradient. Sunshine and nutrients are less abundant, so the budding process is stunted and slower than at lower elevations.





These factors reduce crop yield and create a longer and slower growing process. The colder temperatures also naturally protect the plant from insects, which can reduce the need for pesticides and lower the bitterness in the leaf. (Most bitter flavors in tea come from compounds in the leaf that develop as natural pest control.)

The result is that the tea plant sends more carbohydrates to the leaves for their growth, which increases the natural

sweetness as well as the aroma.

3. Cultivars

A cultivar is a plant variety created by selective breeding. Growers take strains from the *Camellia sinensis* plant and breed them with other strains to get the desired characteristics. AV2, for example, is a prominent cultivar grown and marketed as "Clonal Tea" from Darjeeling, India.

Because varieties can be different from one another on a molecular level, the cultivar can have an impact on the final quality and flavor of the tea. Some brands put more emphasis on cultivars than others. Wuyi oolongs, for instance, are typically named for the cultivar used, with each variety carrying expectations for certain tasting notes. In the case of white teas, there are only two cultivars traditionally used to make them. Some farmers may experiment with others, but only leaves from the *da bai* (big white) or *xiao bai* (small white) varieties are considered true white teas.

In some cases, the cultivar may have less of an impact on flavor, such as with most green teas. But a reputable vendor should still be able to identify the variety of most teas they carry.

4. Pesticides Used

It is very difficult to grow tea without using pesticides because the plant is so vulnerable to pests. Some growers try other methods, but most tea available on the market was exposed to pesticides at some point.

How much does this affect quality? There has been much debate about it.

Scientists examined pesticide residues in tea water during the infusion process for a 1991 study. They found that depending on the solubility of the chemical (how well it dissolves in water), significant transfer of the pesticide into the tea is possible.

Later studies, however, have gotten more specific. One looked at 13 pesticides frequently used in growing tea and found that chemical transfer was very low because most were not highly soluble. Extended brewing time resulted in a higher transfer of pesticides.

In 2007, researchers reported that many of the steps taken when processing tea reduced pesticide content. Roasting at high temperatures, for instance, caused the complete dissipation of two chemicals. Solar withering reduced residues by 25-40 percent for two common pesticides. A later study found similar results.



Washing the fresh leaves before picking also helps. According to a 2020 study, when new tea shoots are sprayed with water seven days before harvest, it reduced pesticides by 16-89 percent.

To lower your exposure to pesticides from tea, choose from conscientious companies that do their part to reduce pesticide residue on the tea. (Keep in mind that organic growers use pesticides too—they just use those derived from natural rather than synthetic sources. As these often don't work as well, they can be applied more frequently and liberally.)

You can also rinse dried tea leaves before brewing yourself. Quickly infuse your tea (for about 30 seconds), then throw away the first infusion (preserving the leaves) before making your final cup.

5. Plucking Process

There are two ways to pluck the leaves from the tea plant: by machine or by hand.

Mechanical or machine harvesting results in an uneven harvest. The machines gather some young and some older leaves, reducing selectiveness. They can also damage the leaves, which speeds up degradation.

Hand plucking generally creates a higher quality tea, but the type of plucking matters. With fine plucking, for instance, only the tender two leaves and the bud are plucked, which is considered to create the best balance between yield and quality. With coarse plucking, 3-4 leaves and the bud are plucked which can create a greater yield but may result in a lower-quality tea. The resulting beverage is typically more bitter and astringent.

The worker's experience also makes a difference. An experienced plucker is selective and gentle with the leaves. An inexperienced one can damage more leaves and cause faster degradation.

6. Harvest Timing

When are the leaves harvested? The timing can influence quality.



In general, spring harvests tend to create better tea than later harvests since the cool weather slows the hardening of the tender leaf. There's often a week or so that's ideal when the tea leaves can be harvested without over-maturing from sun exposure and warmer temperatures.

Tea leaves harvested in the later spring or summer will generally have larger leaves, which can affect the quality and taste. You may be able to find information on the harvest date of the tea you're

purchasing, either on the label or by contacting the manufacturer.

Note that harvest dates vary by location. Teas grown at higher elevations will naturally have later harvest dates.

7. Processing

How is the tea processed? This can have a great effect on the final quality and taste of the tea.

Mass-scale mechanical processes, in general, are thought to create lower-quality teas than the age-old orthodox practice, in which more steps are completed by hand. But mass-scale production results in less expensive teas, whereas more labor-intensive processes will be reflected in the price.

Tea leaves are delicate after harvest. If you're looking for the best-tasting teas, you'll probably want to purchase them from companies that take more care in processing. Those that employ people to help roll and handle the leaves can help reduce damage to them so they taste better.

The timing of each step in the process also matters. When are the leaves withered, rolled, and fired or dried, and for how long? Too little heating of the green tea leaves, for instance, can create uneven heating and partially oxidized leaves. Too much heating can add a burned taste to the tea. Uneven drying, as well, can rob tea of its freshness.

It can be difficult to find out how your tea is processed, but buying from more conscientious companies is a good way to increase the odds that your final tea will be of a higher quality.

8. Storage and Packaging

Once the tea has gone through processing, how is it packaged and stored? These steps can have a big impact on the final quality and taste.

Exposure to light, for instance, isn't good for tea leaves, as it can rob them of their vitality, taste, and aroma. Aluminum lining in packages can tint the taste. An air-tight seal is critical for protecting the tea leaves from the air (oxidation) and moisture.

How you store the tea once you bring it home can also matter. Keep it in a cool, dry, and dark place for a longer shelf life and a more flavorful experience. Do not store it in the refrigerator, as that can introduce moisture and prematurely age your tea.



We'll talk more about packaging in a later chapter, but for now, it's important to know that how your tea is contained and shipped to you can make a difference in its quality.

9. Additives

Some commercial products marketed as tea can contain a wide range of different additives. Pure tea made only from the leaves of the *Camellia sinensis* plant doesn't contain any additives. Many herbal tea blends, as well, are made only from whole ingredients. But flavored teas may contain additives.

The most common ones are flavorings, which may include natural flavors and artificial flavors. Citric acid, often a manufactured form of citric acid found naturally in fruits, is another common additive used as a flavoring and preserving agent.

Most natural flavorings are safe and pose no health risks, but they can mask low-quality ingredients. Some companies, for instance, may buy low-quality tea and then blend it with inexpensive natural flavorings to create a marketable tea for a high profit.

Artificial flavorings are synthetically made and are also considered safe, but again, they can contribute to a flat, artificial quality in your tea. Citric acid can add sourness and increase the acidity of the tea.

In summary, it's best to choose teas without additives if you want the highest quality. You can usually tell by looking at the ingredient list.

10. Water Temperature and Quality

Finally, when you brew your tea, consider the water you're using. In general, soft water is considered better than hard water. Hard water contains minerals like calcium and magnesium, which can make the tea bitter or create a flat flavor. Signs like the formation of scum or cloudiness indicate that your hard water is interacting with the tea.



Soft water contains fewer minerals so it will have little effect on the final flavor.

It's also important to use fresh water. A high amount of oxygen in the water—characteristic of fresh water—helps your tea to taste fresh too. Don't leave the water standing for long before brewing a cup.

What about temperature? There is some debate about it, but it's thought that boiling "just enough" is the best approach. Too little may result in a weak flavor. Boiling too robustly may dull the taste.

It also depends on the type of tea. White tea, being the most delicate, may be scalded with temperatures that are too hot, so it's best to brew carefully at around 160 degrees Fahrenheit. Black tea, because of its higher oxidation, does best with higher temperatures (190-200 degrees Fahrenheit).

Chapter 4

What are the Different Types of Tea?

All true teas come from the *Camellia sinensis* plant, but then there are other beverages called “tea” as well.

In this chapter, we’ll look at the difference between “true teas” and other teas, and explore the varying types of true tea.

5 Types of True Tea

True tea is that which comes from the *Camellia sinensis* plant. This tea is made when you steep the leaves of the plant in water to create a beverage. There are different types of true tea, but they differ only in how they're processed. They are all made with the leaves of the same plant, and they all contain caffeine, though the level varies depending on the type.

1. White Tea

The least processed of all true teas, white tea has a delicate flavor, light body, and crisp, clean finish. Workers pick only the youngest, baby leaves to make it, which means that harvesting takes place over just a few days in springtime.

Considered one of the healthiest of the teas because it’s not processed—the leaves are simply dried—it tends to be very low in caffeine (lower than any other true tea) and is highly sought after by tea connoisseurs. The most popular types are Silver Needle and White Peony.



White tea is produced primarily in China, with some specialty teas coming from countries like Nepal, Taiwan, and Sri Lanka.

2. Green Tea

The most popular tea worldwide, green tea has a light body and mild taste, though a tad stronger than white tea. When brewed, it typically has a light green or yellow color. It contains about half the caffeine as black tea, and about a quarter of the caffeine in a cup of coffee. Popular types of green tea include jasmine, gunpowder, and Moroccan mint.



Green tea is more likely processed than black tea, but more so than white tea. It undergoes minimal oxidation, as it is stopped quickly when the leaves are steamed or pan-fired shortly after harvest. Stopping oxidation is what gives green tea leaves their bright green color and their light taste. The leaves are then rolled or pressed into their final shape and dried.

Green tea is primarily produced in China and Japan.

3. Oolong Tea

Oolong tea leaves are partially oxidized—more than green tea leaves, but not as much as black tea leaves. It's understandable then, that oolong tea is often described as having blended characteristics of both green and black tea.

The process of making oolong tea is one of the most time-consuming in the tea world. Some of the steps, such as oxidation and rolling, may be performed multiple times. The result is typically a medium green or deep amber-colored tea with an even, full-bodied flavor. There are different varieties of that flavor—some have hints of chocolate and burnt sugar, while lighter ones are smooth with a hint of a floral taste.

Oolong leaves are cultivated primarily in Southeastern China and Taiwan, which is why this type of true tea is often more expensive than the more common green and black teas.

4. Black Tea

Black tea is the most popular type of tea in the United States, and one of the most common teas used all around the world. Many tasty blends are made with black tea, including English Breakfast, Darjeeling, and Earl Gray.

As mentioned in the previous chapter, black tea undergoes the longest oxidation process of any of the true teas. This is what gives it its dark color and its bold, robust flavor, though of course there are flavor variations depending on the cultivar and where the tea is grown.



Black tea also has the most caffeine of any of the true teas.

5. Pu-erh Tea

Pu-erh tea is quite different from the other true teas. That's because it goes through an extra step in processing: fermentation. The end product is an inky brown-black color and has a full body with a rich, earthy, and deeply satisfying taste. Pu-erh teas contain about the same amount of caffeine as black tea.

Though workers start out making pu-erh tea much like green tea—they harvest the leaves and steam or pan-fry them to halt oxidation—after the leaves dry, they are put through a fermentation process. Some undergo a longer fermentation period than others. After fermentation and roasting, pu-erh tea is aged, often for many years.

Traditionally produced in the Yunnan province in China, this tea is often made from the Dayeh strain of the *Camellia sinensis* plant. Popular varieties include sheng (raw) and shou (ripe).

Some Other Varieties of True Tea

Though most true teas can fall under one of the categories above, some fringe styles have popped up in different regions that are known by different names.

1. Chai Tea

This type of tea originated in India. It is often made with the Indian *Camellia sinensis assamica* variety of the tea plant, though the Darjeeling variety may also be used. Though technically a black tea, it's typically blended with aromatic spices like ginger, cardamom, cloves, and cinnamon. The spiced tea mixture is typically brewed with strong milk and sweetened with sugar or honey.

2. Yellow Tea

This is a niche but traditional style of true tea in China. It's made with a process similar to that used to make green tea, but the leaves are dried more slowly so that they take on a yellow color. It also involves extra steps like wrapping the leaves in wet paper to allow for mild oxidation. This creates a less sharp, more rounded flavor. This is the rarest type of tea.

3. Purple Tea

Purple tea is brewed from a strain of *Camellia sinensis* that grows in Kenya. The leaves contain a unique mutation that produces the same antioxidant as blueberries, giving the tea its unique purple color as well as powerful health benefits. Purple tea typically has less caffeine than black tea and green tea.



4. Matcha Tea

Matcha tea is a distinct type of Japanese green tea. It's grown in the shade with the leaf matter removed from the veins and stems. The leaf material is then milled into a fine powder called Matcha. That powder is then whisked into hot water to make tea. It is not steeped and removed from the water like other true teas. Because of how it's made, it contains more caffeine than regular green tea.

5. Dark Tea

Dark tea may refer to any type of tea that undergoes a fermentation process. So pu'erh tea qualifies, and it is often considered the most popular type of dark tea. There are other versions of dark teas, however.

These include the Anhua dark tea from the Hunan Province in China; the Fuzhuan brick tea that originates in Jingyang, Shaanxi Province in China; and Tibetan tea (also called Zang Cha).

What About Herbal Teas?

Herbal teas are called tea, but they're not made from the tea plant, so they're not considered true teas. Also called "tisanes," herbal teas are usually caffeine free and are made with spices, flowers, and leaves of a variety of other plants, including fruits and herbs. Sometimes, manufacturers will blend true teas with herbal tea to create unique flavors.

Examples of herbal tea include mint, chamomile, ginger, lemon, and valerian, among many others. There are several differences between true tea and herbal tea.



1. Skill

There is much work and skill that goes into making true tea. From picking the leaves to drying and curling them and treating them with heat, there are a lot of steps to complete. How much time is spent in each step also makes a big difference in the final product.

Herbal teas can be produced much more easily and cheaply and don't require near the expertise that true teas do.

2. Processing

In herbal teas that use leaves and flowers, these ingredients aren't processed as they are in true tea. Often, the ingredients in herbal teas aren't processed at all but simply left to air dry or dry in the sun. Manufacturers can produce large amounts of herbal tea at a time, and the production costs are typically much lower than with true tea.

3. Steeping Time

Herbal teas and true teas are both steeped in water, but the time it takes for maximum flavor varies. True tea leaves are also very sensitive, and the degree of processing determines how long they should be steeped. White tea, for instance, needs only a short steep time of about two minutes. Black tea takes slightly longer.

Steeping time with herbal teas varies greatly depending on the ingredients. Dried leaves like those in mint tea steep faster than dried flowers like chamomile or lavender, and much faster than roots or bark like cinnamon, ginger, or valerian.

4. Caffeine Content

As mentioned above, true teas always have caffeine unless they have been stripped of it. Though white and green tea typically have low levels, they still have some. This is because the *Camellia sinensis* plant naturally produces caffeine as a defense mechanism against pests and diseases.

Herbal teas typically contain no caffeine at all (aside from yerba mate, which is considered a different type of drink).



5. Flavors

Herbal teas come in a wide range of flavors, whereas with true tea, the flavor is more limited. Special blends, cultivars, processing methods, and oxidation time can create different flavors of true tea, but the differences are subtle on the whole.

Herbal teas, on the other hand, are made from a variety of plants, fruits, roots, and spices, so there are endless flavor possibilities.

Read Labels to Find the Tea You Want

Now you have a better idea of the various types of tea that are available. You may also find flavored and blended varieties on the market but read the labels. Some of these contain perfumes, flavorings, dyes, sweeteners, and oils, and many aren't as healthy for you as true tea or herbal tea.

The next decision you'll have to make, once you decide on the type of tea you want, is how you want it packaged. Will you go for loose-leaf tea, tea bags, tins of tea, or some other option? We go over these in the next chapter.

Chapter 5

What Is the Best Way to Package Tea?

Once the tea has been harvested, processed, and dried, what happens to it?

This is when producers package the tea so they can get it to their customers. How they package it, though, varies.

In this chapter, we'll look at all the different types of packaging that may be used in the tea industry, and which types are best for preserving flavor and health benefits

A Short History of Tea Packaging

Packaging tea isn't as simple as finding a container to put it in. It's important to use the right materials so that the tea can be stored with minimal degradation over time.



Tea leaves are delicate and need to be packaged with caution so that their aroma and healthful ingredients are maintained. The right packaging seals in the flavor and quality, shuts out moisture and air, and allows the tea to be stored on the shelf for long periods while maintaining its freshness. Excessive heat and permeating odors can negatively affect the quality of the tea, so the best packaging must help protect from these elements.

Thousands of years ago, China tea was processed into cakes and bricks, so it was easy to store and transport. The solid slabs didn't disintegrate or lose their flavor. With the change to loose-leaf tea, however, that was no longer the case. At first, these were carried in bamboo baskets, but they offered little protection. Later, they were sealed in earthenware jars (that were very heavy) or in lacquered chests.

As trade increased between Europe and America, these storage methods were no longer practical. So, producers switched to bamboo crates lined with wax paper, rice paper, bamboo paper, or mulberry paper. For finer quality teas, they used decorated lacquer chests.

Later improvements to packaging included specially made chests that were cut to the required length with lead sheets to form a lining and sheets of silver foil to cover the tea. The lead lining—thought to contaminate the tea—was later changed to aluminum foil.

Tea chests, though they're less popular than they used to be, are still used today for transportation of larger leaf teas that would easily break up in other packages. Other types of teas are placed in paper sacks made from layers of tough paper with a layer of aluminum foil as the innermost ply to protect the tea from moisture. These sacks have made transportation of teas easier, lighter, and more efficient, and have reduced the need for timber. The sacks are also recyclable.

The first prepackaged tea sold to customers was introduced by John Horniman, a tea producer, in 1826. Before that, customers would buy loose-leaf tea in whatever quantity they wanted and take it home in a paper ball. It would take several more decades for Horniman's idea to catch on, with companies using more prepackaged products by the 1880s.

How Tea is Packaged Today

There are four basic packaging types used today for tea production.

1. Pouches

These are particularly popular for loose-leaf tea and are widely used today for tea packaging. Manufacturers have their choice of three materials.

- **Plastic Pouches**

These pouches are made from plastic materials like propylene (PP), polyethylene (PE), and oriented polypropylene (OPP). They are durable and lightweight and help preserve tea for a long time. They can work well for long overseas transportation.

Plastic ingredients like those used to make these pouches, however, have lately been linked to some potential health problems, which has caused this type of packaging to fall out of favor with today's consumers.



Plastic pouches are also bad for the environment, as they are difficult to decompose and can end up in our waterways.

- **Aluminum**

Aluminum pouches are made from two or more layers of film in which pure aluminum film is part of the structure. The pouches have a long shelf life—up to 3 years—and can be used in a variety of environments. They are also thought to be the best of these three materials at maintaining the freshness of the tea.

Foil stand-up pouches can stand upright on the shelf and are also tightly sealed. Made of



of aluminum, they are easy to use and very durable. They also protect the tea from UV light, oxidation, and moisture. Most come with a way to reseal them so you can extend the freshness as you use your tea.

Foil gusset bags are similar to the pouches except they don't have the extra space at the bottom to help them stand. Instead, they have a flat rectangular bottom. Each has a seal so that the bag can

be resealed after use. The seal may be placed in different locations on the bag—on the top or the side, for instance. Side seal bags have seals up to the corners of the bag to give them a better base. Otherwise, they are the same in terms of their seal ability, protection, and convenience.

- **Paper Pouches**

Paper pouches are made of thick paper with an airtight seal at the top. They have a square bottom, stand well on the shelf, and are easy to pack.

Paper pouches are more environmentally friendly than other materials, as they can be 100 percent recycled or biodegradable. They also contain no toxic ingredients—something many customers like—and they are easy to print and design.

They don't protect the tea as well, however, so they're not typically used to store tea for long periods. They are particularly vulnerable when transported long distances. Manufacturers may choose to pack the pouches in more protective bags or cartons for shipping.

2. Paper Boxes

You may find your loose-leaf tea today in what is called a duplex paper box. These are made from paper material, so they're eco-friendly. They can also be very eye-catching because they can be easily printed. Manufacturers can more effectively show information, details, and highlights of their products on these boxes, which helps consumers in their purchasing decisions.

As noted above, however, paper is not as protective as other materials. To better preserve the quality of the tea, manufacturers may pack the leaves in a nylon bag, paper bag, or aluminum bag inside the box.

3. Tea Canisters

Premium tea products typically come in some sort of canister, made with either tin or paper materials.

- **Paper Canisters**

These may come in round, hexagonal, or octagonal shapes. They are convenient for shipping, and because the paper is thick (basically cardboard) it can be fairly protective, though not as protective as tin. These are good for the environment and safe for human health, but they are typically expensive to produce and are not as hardy as tin canisters.

- **Tin Canisters**

These come in a larger variety of shapes and sizes, from round to square. Because they are made with tin, they are stronger than paper canisters and less likely to break. They are typically densely packed to block air contact with the tea and prevent exposure to moisture and light. Tin is also considered to have no distinct taste or odor, so it will not affect the tea.



This type of canister is expensive to produce and brand, which is why it is more commonly used for premium teas. Tin canisters are typically recyclable.

4. Tea Bags

Tea bags are hugely popular because they are so easy to use for single-serve cups of tea. They are convenient and can be placed inside other containers such as boxes, bags, and foil pouches to help preserve the quality of the tea.

Tea bags are typically made with filter paper, silken food-grade plastic, or cotton muslin. Then they are either sealed with a staple or glue or just tied with a string. Most are flat in square or round shapes, but some come in a 3-D or pyramid style (called tea sachets) and have a string for easy dipping in the mug. Most also come with a tea label tag at one end.

What Kind of Packaging for is Right for You?

When choosing tea packaging, you have a lot of options. Those listed above are the most popular, but manufacturers can get creative with combinations of these or other unique choices.



In general, loose-leaf tea is considered the highest quality tea, producing the best taste and aroma. If you purchase loose-leaf tea, you should see whole tea leaves in the package. If you like brewing loose-leaf tea, find those that come in protective containers that protect the leaves as much as possible. This will result in the highest quality cup of tea.

When tea is put into smaller containers like bags and sachets, the leaves are broken, usually by machine. When that happens, they can lose some of their flavor. Tea sachets with their pyramid shapes are typically filled with a mix of broken and whole tea leaves, so they are often considered to create a better-tasting and more healthful tea than regular tea bags. The pyramid shape also allows more room for

the tea to expand, creating a more flavorful tea.

Tea bags contain the lowest quality tea. That's because the leaves are broken down more to fit into the bag. The resulting mixture contains small, broken leaves and tea dust. That process robs the tea even more of its flavor and health components, resulting in a flatter flavor that lacks depth and nuance. Tea bags are the most convenient package, however, for making tea in a hurry.

Higher-grade teas are never put into bags. If you want the best-tasting tea with the highest level of health-promoting ingredients, choose loose-leaf tea in a protective package. Otherwise, go with your preferences when it comes to packaging, taking into consideration convenience, shelf-life, and eco-friendliness.

Chapter 6

Healthy Plant Chemicals in Tea

Tea has grown ever more popular over the past several years mainly because of its health benefits. Studies have linked regular tea drinking to a reduced risk of heart disease, a stronger immune system, better brain functioning, and much more.

We'll look more closely at how tea positively affects health in the next chapter, but first, you may want to know what exactly is *in* the tea that creates these benefits. After all, it's just a watery beverage. How can it be *that* good for you?

What Ingredients Are Good for You in Tea?

In this chapter, we'll be talking about the healthy ingredients in true teas—black, green, oolong, white, and dark. There are many healthy ingredients in herbal teas as well, and we'll examine those in a future chapter. But for now, let's look at the main components found in tea from the plant *Camellia sinensis*.

1. Caffeine

All true teas have caffeine. White tea has the least, and black tea the most (dark tea typically has as much as black tea).

Caffeine occurs naturally in the tea plant as it does in other plant-based foods, including coffee beans, kola nuts (used to flavor soft drink colas), and cacao pods (used to make chocolate products). There is also synthetic (man-made) caffeine, which is added to some medicines, foods, and drinks, but the caffeine in tea is all-natural.



Caffeine serves a couple of different purposes in tea plants. First, it acts as a pesticide that helps deter bugs from nibbling on the plant. Second, the tea plant's flowers also contain some caffeine, which scientists believe may help encourage bees to make repeat visits, increasing the odds of pollination.

All parts of the plant contain at least some caffeine except for the seed. The buds have the highest concentration, while the first leaves have slightly less than the buds. Leaves further down the stem have less still.

How much caffeine is in tea? It depends on many factors:

Where the tea is grown. Since caffeine is part of the plant's natural defense mechanisms, where the plant grows can affect how much caffeine it produces.

Which part of the tea is harvested. Buds, along with the uppermost and young leaves, contain more caffeine than older leaves.

Harvest time. Leaves plucked during the first harvest in the spring have a little more caffeine than those harvested later.



Cultivation practices. Some growing practices slightly increase caffeine content. Hard pruning (repeatedly heading back the young plants) increases the caffeine in leaves when they re-sprout. Growing tea plants in the shade also increases caffeine levels.

Type of plant. Some variations have more caffeine than others. *Camellia sinensis* var. *assamica*, for instance, which creates a darker tea, has higher levels than *Camellia sinensis* var. *sinensis*.

Processing. Tea that is dried and stored over several months typically has a higher caffeine content than freshly manufactured tea. Dried tea leaves have more caffeine than fresh. How long the tea is oxidized can also make a difference. Halting oxidation early helps reduce caffeine. This is part of the reason why white and green tea have less caffeine than black tea. Fermentation—which occurs with dark teas like pu'erh tea—also cuts down on tea's natural caffeine content but doesn't eliminate it.

Powdered tea has a higher caffeine content because the tea is more concentrated.

Brewing methods. How you prepare your tea can affect the final caffeine content in your cup. Shorter brewing times result in less caffeine in the tea. Hotter water increases the caffeine that leaches into the beverage. And the number of tea leaves matters too—use more, and you'll consume more caffeine.

Is Caffeine Healthy?

Some people are sensitive to caffeine and will experience negative effects from it. We'll talk about this more in a future chapter.

In general, however, studies have found that caffeine is a healthy substance when consumed in moderate amounts. Studies have linked it to enhanced alertness, elevated mood, increased metabolism, brain health, and a reduced risk of heart disease, among others.



2. Minerals

True tea includes important minerals such as copper, manganese, iron, zinc, magnesium, calcium, sodium, and potassium. How much of these minerals are in your cup of tea varies depending on all the reasons listed above that affect caffeine levels.

In one 2021 study, scientists found that potassium was the most plentiful mineral, followed by magnesium, then sodium and calcium. Other minerals were found at lower levels.

In an earlier study, scientists compared the mineral profile of black and green tea as well as five herbal teas and found they all had different mineral profiles. Teas are not usually rich sources of these minerals—drinking tea alone will not give you as much as you need—but regular consumption can contribute to your daily dietary requirements.

3. Polyphenols

Polyphenols are healthful compounds we get from plants. Like caffeine, they are present in plants for protection, as they can deter pests and protect against ultraviolet radiation. Most work as antioxidants in the body, which means they neutralize free radicals.

Free radicals are unstable atoms that can damage our cells, causing illness and aging. The body makes them naturally during normal cell metabolism, and we are also exposed to them through radiation (UV rays, X-rays), ozone, cigarette smoke, air pollutants, certain drugs, pesticides, and industrial chemicals.

Free radicals aren't all bad. We need some for proper physiological function. But we need to maintain a balance between free radicals and antioxidants. If free radicals overwhelm the body's ability to regulate them, a condition called "oxidative stress" occurs.



This stress is what damages proteins, DNA, and cells and is what can trigger diseases like heart disease, stroke, Alzheimer’s disease, Parkinson’s disease, certain cancers, and the process of aging itself.

Antioxidants naturally neutralize free radicals, rendering them harmless in the body. By doing so, they can help prevent or delay cell damage and thereby prevent disease and premature aging. Recent studies have shown that tea consumed with a balanced diet helped improve the

overall antioxidant status and protect against oxidative damage in humans.

In addition to acting as antioxidants, polyphenols may have other health benefits, such as offering protection against the development of disease on their own—outside of their action as antioxidants.

Let’s look at the specific types of polyphenols found in tea.

- **Catechins**

Catechins are a type of polyphenol that is abundant in tea as well as in cocoa and berries. Powerful antioxidants, they are known to protect cells from damage caused by free radicals, and to have the potential to fight disease. Studies have linked regular consumption to a reduced risk of heart disease and neurological disorders, among others.

Brewed tea is typically high in catechins, though the actual amount per serving varies. Processing and oxidation can affect catechin content, which suggests that white and green tea are likely to have higher levels than oolong, black, or dark tea. But as for how these levels affect health—it's not so clear cut. Various factors can affect how tea acts in the body. For now, know that all teas contain beneficial catechins.

The four main catechins in tea include:

- Epigallocatechin gallate (EGCG)
- Epicatechin (EC)
- Epicatechin gallate (ECg)
- Gallic catechin (GC)

When you consume tea, these healthful catechins are easily distributed through the body, where they may help boost overall health.

- **B. Flavonols**

Flavonols are polyphenols in tea belonging to the flavonoid family. They are colorless molecules that accumulate mainly in the outer tissues—the skin and leaves. They act as antioxidants in the human body, but they can also help reduce inflammation, deter cancer cell growth, and regulate different signaling pathways to help prevent disease.

Catechins fall under the flavonol category, but they are so important to tea’s health benefits that they are typically separated into their own group. The tea plant contains other healthful flavonols, though. One of the main ones is quercetin, which you may have heard of. Black tea is particularly rich in quercetin, which has anti-inflammatory and antihistamine effects and may help protect against heart disease and cancer.



Quercetin also works together with catechins, helping to improve their absorption in the body. It has some of the same neuroactive abilities as caffeine, though it is less potent.

- **Theaflavins**

Theaflavins contribute to the bitterness and astringency of black tea. According to a 2018 study, these are the primary red pigments in black tea leaves that possess several health benefits, including glucose-lowering abilities and anti-cancer, anti-inflammatory, antiviral, antibacterial, and other properties.

These compounds are produced by key enzymes in the tea leaf that are present in fresh leaves. These enzymes undergo changes during processing that produce theaflavins.

4. Amino Acids

Amino acids are molecules that combine to form proteins. They are often called “the building blocks of life.”

Tea contains an amino acid called L-theanine. This ingredient, when combined with caffeine, is believed to help improve brain function. That's because, like caffeine, it can cross the blood-brain barrier and positively affect the cells there.



L-theanine is found in tea plants and has a unique taste component that can alleviate the bitterness of caffeine. It is also thought to be one of the main sources of tea flavor. In humans, it increases the formation of brain waves called alpha waves, which are associated with alert relaxation (as opposed to sleepy relaxation). This is why you may feel calmer after drinking a cup of tea.

L-theanine is also thought to affect neurotransmitters in the brain, such as GABA and dopamine. Studies have indicated that it has a direct effect on the brain, potentially helping to reduce stress, improve mood, and enhance cognitive function.

All types of true tea contain some l-theanine. It is unclear so far which type of tea may contain the most.

5. Methylxanthines

These are plant chemicals called alkaloids that the tea plant produces to help protect from insects and other attacks. They also contribute to the bitter taste of tea, and they all have stimulating properties. The three methylxanthines in tea include caffeine (discussed above), theobromine, and theophylline.

The latter two types are both related to caffeine, though they have slightly different effects. Theophylline relaxes smooth muscles in the airway, while theobromine can stimulate the heart, improving blood flow around the body.

The amounts of theobromine and theophylline are less than that of caffeine, so their effect on the body is thought to be negligible. The levels in the cup of tea that you drink vary depending on the cultivar used, the climate where the tea was grown, the age of the leaves, and the processing method.

Still More to Learn

This is a general overview of the ingredients in tea that can have beneficial effects on human health. There are other specific ingredients we didn't mention—other types of flavonols, for instance—but the ones that have the most research behind them are listed here. We are likely to learn more as scientists continue to research the extraordinary chemical makeup of tea and how its different components interact with our cells and tissues.

Chapter 7

Top 10 Health Benefits of Tea

You already know that drinking tea is good for you. It's been an integral part of traditional medicine for centuries and is even promoted in Western medicine as a way to encourage optimal health.

In this chapter, we'll review some of the research-backed benefits of true teas. This chapter doesn't include herbal teas—we'll look at those next.

1. May Protect Heart Health

If you're a regular tea drinker, you may have a healthier heart than your non-tea-drinking cohorts. Several studies have shown that consuming a cup or more of tea a day can lower the risk of heart problems.

The American Heart Association (AHA) reported in 2018, for instance, that regular tea drinkers had a slower age-related decrease in HDL "good" cholesterol levels. That decline was linked to an eventual 8 percent decrease in cardiovascular risk. Green tea had a slightly stronger effect than black tea, but the difference was small.



In a more recent 2020 study involving more than 100,000 Chinese adults, scientists found that compared to people who drank fewer than three cups of tea a week, those who drank more had a 20 percent lower risk of a heart attack or related problem and a 22 percent lower risk of dying of heart disease.

Scientists also noted in a 2022 review of the literature that the polyphenols found in both green and black tea may play a primary role in the reduction of cardiovascular disease risk.

2. May Help Reduce the Risk of Diabetes

The American Diabetes Association (ADA) reports that in 2019, 37.3 million Americans, or 11.3 percent of the population, had diabetes. Another 1.4 million are diagnosed with it every year.

Tea may be able to help with that. In a recent review of 19 studies, scientists found that drinking at least four daily cups of black, green, or Oolong tea lowered a person's risk of developing type 2 diabetes by 17 percent over the span of a decade. Just one to three cups per day only lowered the risk by 4 percent.



An earlier review showed similar results—that drinking four or more cups of tea a day may help lower risk.

As to how tea may help, studies suggest it may enhance the action of insulin—the hormone that delivers glucose from the foods we eat into our cells—as well as improve insulin resistance. It is also known to decrease inflammation, which plays a role in diabetes. Black tea was found to reduce blood sugar levels after a meal—for up to 120 minutes after consumption.

In a 2022 study, participants who consumed green tea extract with a meal for 28 days reduced their fasting glucose levels, which was associated with improvements in fasting insulin.

3. Boosts Energy

All true teas contain at least some caffeine, which is a natural energy booster. Some contain more than others. All teas contain less caffeine than coffee, though, so if you find that you are sensitive to the caffeine in coffee, you may still be able to regain your focus with a cup of tea.

Tea also has an amino acid known as L-theanine (discussed in the last chapter). It helps slow the absorption of caffeine, giving you a steadier supply over time rather than a quick jumpstart.

That means that the energy boost you get from tea is likely to last a while.

4. Reduces Inflammation

Chronic inflammation—a type of internal inflammation that continues at a low level inside the body for long periods—is involved in creating many health problems. These include Alzheimer’s disease, cancer, heart disease, type 2 diabetes, rheumatoid arthritis, and more.

Tea can help tame that inflammation, which is very helpful, as we all tend to deal with rising inflammation levels as we age. In one study, researchers noted that one of the major changes that occur as we get older is that the immune system becomes "upregulated" or more active. This can lead to a chronic inflammatory state throughout the body.

As our cells and tissues age, they can trigger the immune system to try to “fix” them. When this happens all over the body, you have chronic inflammation.

Few of us escape aging without some wear and tear in our cells. That means most of us will likely have to deal with rising rates of inflammation.

Several studies have shown that green and black tea have anti-inflammatory properties. In 2012, researchers found that they both had a marked anti-inflammatory effect, though green tea was a bit more active than black tea. In a 2016 review, scientists found that human studies “indicated the beneficial effects of green tea and tea catechins against inflammatory diseases.”



The polyphenols in tea seem to regulate signaling pathways among immune cells, which is why they may be able to improve how the immune system reacts to aging cells and tissues. In a 2021 study, researchers found this anti-inflammatory action may be beneficial against inflammatory bowel diseases like Crohn’s disease and ulcerative colitis.

5. Boosts the Immune System

Going into cold and flu season, it may be wise to up your tea intake to 2-4 cups a day. That’s because tea can help boost the immune system, increasing your protection against infection.

Research presented at the Sixth International Scientific Symposium on Tea and Human Health showed that drinking tea can give your immune system a boost. The catechins in tea help you fight off pathogens (germs) by decreasing the ability of the virus or bacteria to infect you. It also helps the immune system spring to action more quickly when it detects invaders.

Tea also has a natural anti-viral effect, inhibiting viral absorption, penetration, and replication in the upper respiratory tract.

An earlier study found that drinking tea may help keep the doctor away. It boosted the body’s defenses against infection and helped prime the immune system to attack invading bacteria, viruses, and fungi. In 2020, researchers also suggested tea as an “important source of nutritional immunity” that could enhance the immune response to the COVID-19 pandemic.

6. Promotes Healthy Bones

If you want to avoid osteoporosis and bone fractures as you age, make sure you're drinking tea every day. Studies have suggested that it can reduce the risk of both bone loss and bone fractures.



In a 2017 review of 17 journal articles, for instance, researchers concluded that tea consumption could reduce the risk of osteoporosis. An earlier review found the same with green tea, showing that might decrease the risk of fracture by improving bone mineral density (BMD) and supporting the growth of new bone while discouraging the destruction of old bone.

In a 2022 study, scientists compared regular tea with fermented tea, like pu'erh tea. Participants over the age of 40 who drank fermented tea were compared with those who drank non-fermented tea from 2008 to 2015. The results showed that in men over 60 years, the risk of developing osteoporosis decreased by 79 percent for those who drank non-fermented tea than those who drank fermented tea.

The scientists concluded that drinking non-fermented tea like green tea “could be suggested, especially for those with a family history of osteoporosis.”

7. May Improve Brain Health

The brain, like the rest of the body, can suffer wear and tear over the years which can increase the risk of problems like dementia and Alzheimer's disease. Studies suggest that regularly drinking tea may reduce your risk of these issues.

In a 2019 study, scientists from the National University of Singapore found that participants who drank either green, oolong, or black tea at least four times a week for about 25 years had brain regions that were interconnected more efficiently. This means that the individuals could process information more efficiently, resulting in improved cognitive function.

An earlier study review found that green tea not only benefited memory and attention but also helped reduce anxiety because of its effects on the brain. In a study of people over the age of 55, scientists found that those who drank as little as one cup of tea per week performed better at memory and information-processing tasks than did non-tea drinkers.

Other studies have shown that the catechins in tea can pass through the blood-brain barrier to act directly on the brain, potentially improving the health of blood vessels and boosting the supply of nitric oxide—both of which can benefit cognitive function. Scientists reported in 2021 that drinking coffee and tea separately or in combination were associated with a lower risk of stroke and dementia.



In 2022, researchers reported that tea drinkers were 16 percent less likely to develop dementia compared with non-drinkers. Moderate consumption (1-6 cups per day) exerted significant protective effects. An earlier review supported the idea that green tea intake could reduce the risk of dementia, Alzheimer's disease, and cognitive impairment.

8. Parkinson's Disease

Tea also has neuroprotective properties, which means it can protect the nerves in your body from attack. As Parkinson's disease affects the nervous system, scientists wondered if tea could help.

In a 2012 review of eight articles, they found that yes, drinking tea could lower the risk of Parkinson's disease. A 2019 review showed similar results. In a later 2020 review, scientists looked at how tea might offer such protection. They suggested that it protects against free radicals, inflammation, and neuro-damage, which altogether, can reduce the risk of the disease.

Scientists also wondered if drinking tea could help people who had already been diagnosed with Parkinson's. They analyzed data gathered from studies of green tea intake and found that it was significantly associated with a slower progression of the disease to dementia. A higher intake of green tea was also associated with a slower progression to depression and insomnia—both common symptoms of Parkinson's disease.

9. Antioxidant Protection

Can drinking tea help protect you from cancer?

Scientists aren't sure yet. What they do know is that tea is filled with healthy antioxidants—and that antioxidants help protect against the type of cellular damage that can lead to cancer.

We talked earlier in the book about free radicals and how they can damage cells and DNA in the body. As long as they are kept in check by antioxidants, they can benefit our health, but if they gain the upper hand and become too plentiful, they can cause oxidative damage that can hurt your health—and potentially cause cancer.



Free radicals are produced in the body as a natural byproduct of metabolism, and we are also exposed to them daily via UV radiation, pollution, cigarette smoke, and more. Antioxidants like those in green tea help neutralize free radicals. So, can they reduce our risk of cancer?

Some studies have shown that they can, but others have been inconclusive. A 2020 database review of 142 epidemiological and experimental studies in humans produced inconsistent results. Animal and test tube studies, on the other

hand, have suggested that tea can have positive impacts on several types of cancer, including breast, bladder, ovarian, colorectal, lung, prostate, esophageal, skin, and stomach cancers.

Even if tea can't protect you from cancer, however, its powerful antioxidants are good for you. Researchers have found that tea consumption consistently leads to a significant increase in the antioxidant capacity of the blood.

10. May Help You Live Longer

Tea drinkers may live longer than non-tea drinkers. At least, some studies seem to suggest that.

In a recent study of half a million tea drinkers in the United Kingdom, for instance, researchers found that higher tea intake was associated with a modestly lowered risk of death. Those who drank two or more cups a day had a 9-13 percent lower risk of death from any cause than those who didn't drink tea at all. Higher tea consumption was also associated with a lower risk of death from cardiovascular disease, ischemic heart disease, and stroke.

In an earlier study, researchers found that drinking tea at least three times a week was linked with a longer and healthier life. Compared with never or non-habitual tea drinkers, habitual drinkers had a 20 percent lower risk of incident heart disease and stroke, a 22 percent lower risk of fatal heart disease and stroke, and a 15 percent decreased risk of all-cause death.

Tea Is Good for You!

You can see from the extensive research that's been done on tea that it has a range of possible health benefits—perhaps more than any other beverage you may choose, outside of coffee and water. If you haven't already, you may want to consider making tea a regular part of your daily life!

Chapter 8

10 Tasty Herbal Teas and Their Benefits

Herbal tea is not technically a true tea, as it doesn't come from the *Camellia sinensis* plant. Instead, it is an infusion or blend of various other leaves, fruits, bark, roots, or flowers belonging to almost any edible, non-tea plant, sometimes combined with spices.

In Europe and other areas of the world, herbal teas are commonly known as tisanes. Tisane (pronounced tea-zahn) is the French word for “herbal infusion.”

Tisanes are caffeine-free, can be served hot or cold, and are usually named for the plant that most (or all) of the ingredients come from. A tea made mainly with lemon balm leaves, for instance, would typically be called lemon balm herbal tea. There are also fruit tisanes, such as raspberry or peach tea, as well as bark ones, such as cinnamon and slippery elm teas.



Like true tea, herbal tea has a long history dating back to ancient China and Egypt, when it was used for both enjoyment and medicinal purposes. Brewing times and proportions for herbal teas vary widely, with some requiring only two minutes of steeping time and others needing as long as 15 minutes to achieve their full flavor and health benefits.

If we were to list every herbal tea and its benefits, this book would be much longer than it is! But in this chapter, we take a look at some of those that have shown in studies to have promising health benefits.

1. Ginger Tea

Made from ginger root, ginger tea has a slightly sweet, spicy flavor. Long used to treat nausea and indigestion, it is also a powerful anti-inflammatory action that provides many health benefits.

In a 2019 review, researchers found that the compounds in ginger could reduce inflammation leading to certain degenerative conditions, including diabetes, high blood pressure, Alzheimer's disease, and heart disease.

Since inflammation is a primary factor in many pain conditions as well—such as joint and muscle pain—ginger is often used for pain relief. Studies have indicated that supplementing with ginger may improve

inflammatory joint conditions like osteoarthritis and rheumatoid arthritis. You aren't likely to get enough ginger by drinking tea for this effect, but a cup of ginger tea may prove soothing for pain.

Potential side effects: Ginger has the potential to slow blood clotting. People who are approaching surgery, have bleeding disorders, or are taking anticoagulant medications (like warfarin or aspirin) should avoid drinking too much.

2. Chamomile Tea

Chamomile tea is made by infusing the flowers from the daisy-like flowers of the Asteraceae plant family. The flowers are dried and then infused into hot water. Used as a traditional folk remedy for a wide range of health issues, chamomile contains healthful flavonoids and terpenoids that contribute to its medicinal properties.



Most people today enjoy chamomile to relax or to help them fall asleep. We don't have a lot of research on this effect so far, but what we do have suggests that the herb may act like a benzodiazepine. These are prescription drugs that reduce anxiety and induce sleep. It seems that

chamomile may bind to benzodiazepine receptors in the central nervous system to provide its calming effects.

Some studies suggest that chamomile may also help promote digestive health, reducing acidity in the stomach and inhibiting the growth of "bad" bacteria. It may also benefit blood sugar and blood pressure levels, but we need more research to be sure. As an anti-inflammatory, it has been found in a research review to help women who suffer from premenstrual syndrome.

Chamomile-derived ingredients are common in skin care products, as the herb has been found to help assist wound healing, ease eczema, and tame mild inflammatory skin conditions.

Potential side effects: Widely accepted as safe, chamomile has few potential side effects. Some people may be allergic to it, however, so it's best to try a little bit at first to be sure.

3. Lavender Tea

Lavender tea is made by brewing the purple buds of the *Lavandula Angustifolia* plant in hot water. The aroma alone can help improve your mood as it's so lovely, but lavender has many additional benefits.

Perhaps the most well-known is that lavender, like chamomile, can help calm you down so you can fall asleep at night more easily. Interestingly, it can also help battle fatigue. Studies have shown that it can help reduce depression and anxiety, as well, making this a great all-around calming and centering tea.

Some studies also suggest that lavender can help digestive issues like nausea and vomiting, and may offer some relief from headaches, toothaches, and menstrual pain.



Potential side effects: Lavender tea is generally safe for most adults when consumed in moderation. If you drink too much of it, though, you may experience headaches, constipation, and an increased appetite. If you are allergic to flowering plants, a small test may be wise. If you are undergoing surgery, avoid lavender tea as it can slow the central nervous system, which when used alongside anesthesia or other similar medications, may be dangerous.

4. Peppermint Tea

Made by infusing peppermint leaves into hot water, peppermint tea is often enjoyed strictly for its flavor. It has several potential health benefits, though—the main one being that it may ease digestive upset.

Studies have found that it has a calming effect on the digestive system, reducing spasms and easing pain. A review of nine studies involving 926 people with irritable bowel syndrome (IBS) found that those treated with peppermint oil for at least two weeks experienced significant symptom relief.

Several other studies have shown that peppermint can reduce abdominal pain, nausea, and vomiting.

But its benefits go beyond that. Peppermint can relax muscles elsewhere in the body too, which may help relieve headaches, muscle pain, and menstrual cramps. It has natural antibacterial effects, which is why it's helpful in mouthwash and toothpaste.

Potential side effects: Peppermint is generally very safe, but some people find that drinking peppermint tea can trigger or worsen symptoms of heartburn and gastroesophageal reflux disease (GERD). It's also possible to be allergic to peppermint leaves.

5. Hibiscus Tea

Take the colorful flowers of the hibiscus plant and infuse them in hot water and you have a refreshing, tart tea that can be enjoyed hot or iced.



This tea provides powerful antioxidant power, which may help promote heart health. Indeed, several studies have suggested it may help lower blood pressure.

A natural anti-inflammatory, hibiscus may play a role in preventing the development of Alzheimer's disease, arthritis, and other inflammatory conditions. Several studies have suggested it may also help keep the liver

healthy, protecting it from a variety of toxins.

Potential side effects: This is another safe tea for most people, but it's possible to have an allergic reaction to the plant. Avoid drinking it if you take the diuretic medication hydrochlorothiazide because the two may negatively react. As a natural blood thinner, hibiscus may also interfere with the effects of aspirin. Consume the two about 3-4 hours apart.

6. Echinacea Tea

One of the most popular teas during cold and flu season, echinacea is made from the flowers and leaves of the echinacea plant, commonly known as the American coneflower or pale purple coneflower.

This tea is packed with vitamin C and other compounds that help promote overall health and well-being. It's long been used to boost the immune system and ward off infections. It also offers antibacterial properties to prevent pathogens from making you sick. Should you catch a cold anyway, it will help soothe your sore throat while minimizing aches and pains.

In one review of 14 studies, researchers found that echinacea helped reduce the odds of developing the common cold by 58 percent and decreased the duration of symptoms by 1.4 days. In another study of nearly 500 people with the flu, drinking an echinacea-based beverage was as effective as an antiviral medication in treating symptoms.

Echinacea also contains compounds that may relieve pain and reduce inflammation.

Potential side effects: Generally safe, echinacea has been associated with potential side effects like stomach pain, nausea, and allergic reactions.

7. Lemongrass Tea

Lemongrass is an herbal tea made from the stalks or leaves of the *Cymbopogon citratus* plant. This plant belongs to a grass family and has an intense lemony scent. The tea is refreshing and citrusy, and even though it has “grass” in the name, it’s not sour. Instead, its scent and flavor are delicate and pleasant.

In traditional medicine, lemongrass was used for treating digestive disorders, inflammation, and fever. It may also help relieve pain and anxiety, lower blood pressure, and fight off bacteria. A 2012 study found that volunteers given lemongrass tea experienced a moderate drop in systolic blood pressure and a lower heart rate than those given green tea.



A cup of lemongrass tea is another potential remedy for upset stomach and stomach cramping. Studies have found that the oil in the lemongrass leaves can help protect the stomach lining from damage from aspirin and alcohol.

Like some of the other herbal teas here, lemongrass can also be used to ease menstrual cramps, bloating, and hot flashes.

Potential side effects: Aside from potential allergies, lemongrass is considered generally safe. It can act as a natural diuretic, though (flushing fluid out of the body), so it’s best not to consume it with a diuretic medication. Those with a low heart rate should also avoid it.

8. Rooibos Tea

Made from the leaves of the rooibos or red bush plant, rooibos tea is a deep red tea that comes from South Africa. Also called “red tea,” it has a mild, slightly sweet flavor with a full body.

This tea has become more popular around the world in recent decades because of its flavor and potent antioxidant activity. These antioxidants are linked with heart health, and there is promising evidence that rooibos may help improve cholesterol levels, particularly in overweight adults.

Rooibos tea is also a natural source of the antioxidant aspalathin, which may have anti-diabetic effects. We need more research to know for sure, but animal studies suggest the tea may help balance blood sugar levels and improve insulin resistance.

Potential side effects: Negative effects of rooibos tea are extremely rare.

9. Dandelion Tea

Dandelion tea is made from the root of the dandelion plant. The roasted dandelion root makes a beverage that is dark and rich and has some resemblance to coffee in its taste. Many people like using it as a coffee substitute (or even to replace black tea) because it has no caffeine.



Though most dandelion tea is made from roasted plant roots, there are some varieties made from the tender green leaves. This tea tastes more like green tea.

Dandelion has been used for centuries as a health aid, typically for detoxifying the body and reducing inflammation. According to the National Institutes of Health, dandelion was used in traditional medicine to treat health problems related to the liver, gallbladder, and

bile duct. The root has also been shown in animal studies to reduce the extent of liver damage.

Dandelion acts as a natural diuretic, meaning that it encourages urination and reduces water retention in the body. Dandelion extract may reduce levels of the influenza virus, which means it may be a good tea to enjoy during cold and flu season. It is a natural anti-inflammatory, helps soothe the stomach lining, may stabilize blood sugar levels, and helps prevent the formation of kidney stones.

Finally, dandelion contains an enzyme that eliminates the most common cause of urinary tract infections (UTIs). A 2018 study suggested that dandelion extracts could be used to develop more effective treatments for UTIs.

Potential side effects: Dandelion is generally safe, though it is possible to be allergic to it. Allergic reactions are more common in people allergic to related plants like ragweed, marigolds, and daisies. Still, the root may be safer than the greens.

10. Fennel Tea

Fennel tea is made from dried fennel seeds, which have a mild licorice flavor. The tea is potent and strong-smelling and can have a bitter aftertaste.

The ancient Greeks and Romans thought fennel could bring strength and fortitude and lead to a longer life. Today, the most popular reason people may drink fennel tea is its digestive benefits. It's known to help relax the smooth muscles in the gastrointestinal system, reducing gas, bloating, and stomach cramps.

For this reason, fennel has been recommended as an effective treatment for irritable bowel syndrome (IBS), often in combination with turmeric.

Taking fennel has also proven useful in the management of painful periods, premenstrual syndrome, polycystic ovarian syndrome, and menopause. The tea has natural antibacterial and antifungal properties and may help relieve the pain of arthritis. The pooled results of seven trials showed that fennel has an effect similar to conventional drug therapies in relieving pain.



Potential side effects: Some studies have found that fennel has an estrogenic effect, which means that it mimics the effects of the female hormone estrogen. People with cancers that are sensitive to estrogen may want to avoid it. It's also possible to be allergic to it, particularly if you are allergic to carrots.

Other Health-Promoting Herbal Teas

Though the herbal teas listed above have strong evidence behind them showing their potential health benefits, there are many other healthy herbal teas as well. We've listed several below along with some of their most popular uses:

- **Rosehip:** to reduce inflammation in those with arthritis
- **Lemon balm:** to support heart and skin health
- **Sage tea:** to improve cognitive function and memory
- **Eucalyptus:** to improve respiratory conditions like asthma and bronchitis
- **Rosemary:** to improve mood and memory
- **Passionflower:** to relieve anxiety and improve sleep
- **Turmeric:** to relieve inflammatory conditions like joint pain
- **Ashwagandha:** to help the body deal with stress

Chapter 9

Best Teas for Mental Health Benefits

The Centers for Disease Control and Prevention (CDC) states that one in five Americans will experience



a mental illness in any given year. More than 50 percent will be diagnosed with a mental illness or disorder at some point in their lifetime.

There are some teas—true teas and herbal teas—that can provide mental health benefits.

These teas may help alleviate things like depression, stress, and anxiety. Of course, tea is no replacement for prescription medications or cognitive therapy, but it can help mitigate some

symptoms associated with daily mental health challenges.

1. Teas to Ease Stress

A recent 2022 poll by the American Psychological Association shows that people are more stressed than ever, suffering at the highest recorded levels since 2015.

Chronic stress is harmful to our physical and mental health, and coping techniques like eating too much or drinking alcohol are common.

Drinking tea is a much better option. The simple process of making a hot cup of tea can help ease stress on its own. Then if you choose one of the following types of tea, you're likely to feel your stress dwindling.

- **Green Tea**

Green tea contains an amino acid known as l-theanine. This acid helps slow the absorption of caffeine while producing a natural calming effect. It works directly on the nervous system to induce calm.

In a 2017 study, researchers found that students who consumed green tea had stress levels that were significantly lower than those who consumed a placebo. The level of a certain enzyme associated with stress also decreased, suggesting that green tea helped suppress the stress response.

- **Lemon Balm**

Lemon balm tea belongs to the mint family and offers a vibrant, lively flavor with lemon undertones. Research has found that when you drink it, it helps increase GABA levels in the brain while decreasing cortisol. GABA is a neurotransmitter that helps promote calm while cortisol is a stress hormone.



In a small study of 18 volunteers, scientists found that lemon balm extract helped reduce stress while increasing calmness and alertness.

2. Teas to Calm Anxiety

Stress and anxiety often go together, but they are not exactly the same. Whereas stress is a response to some type of change, demand, or threat, anxiety is defined by persistent, excessive worries that don't go away. Both can cause irritability, fatigue, muscle aches, digestive problems, and insomnia.

The following teas can all help calm anxiety, making it easier to set your worries aside.

- **Lavender**

Lavender has long been used to treat anxiety in Ayurvedic medicine and other holistic regimens. Germany has even approved it for the treatment of anxiety disorders and depression.

Two components of lavender—called linalool and linalyl acetate—may produce an anti-anxiety effect on the nervous system. Several studies have found that it not only reduces anxiety but helps stabilize mood and ease pain.

In a 2019 review, researchers found that simply inhaling lavender (as in aromatherapy) could significantly reduce anxiety levels. So, once you fix that cup of tea, take a moment to enjoy the scent before you sip!

- **Holy Basil**

Holy basil tea is made from the leaves, stems, and seeds of the *Ocimum tenuiflorum* or *Ocimum sanctum* plants, which are similar but not exactly the same as the basil used to make the culinary spice. It has a flavor profile that includes hints of clove and peppery notes.

Studies show that holy basil tea may be as effective in treating anxiety as diazepam and other calming medications. One specific study of 500 people found that those who took 500 milligrams of holy basil extract each day felt less anxious and more social.



- **Valerian**

Valerian tea is made from the roots of the valerian plant and has a potent, earthy flavor with a refreshing aroma. It may be too strong for some—if so, add a little honey.

Long known to have a calming influence, valerian is most often used to induce calm before sleep. Scientists aren't sure how it works, but some think that the main active component in valerian root called valerenic acid may bind to GABA receptors in the brain. This is the same way that prescription drugs like diazepam work to ease anxiety.

3. Teas to Boost Your Mood

On those days when you're feeling irritable, blue, or just sort of out of it, try these teas to boost your mood.

- **Ginger Tea**

Made from ginger root, ginger tea is deliciously spicy and a little sweet. It has many health benefits—including easing digestive upset and reducing inflammation—but it also enhances circulation, which can help improve mood.

Ginger can also increase the levels of good-mood neurotransmitters in the brain like serotonin and dopamine. Serotonin is critical for sustaining a positive mood, while dopamine helps you focus and be productive.

- **Rosemary Tea**

Rosemary is a perennial plant, popular in gardens and also used to make essential oils and spices. Rosemary tea is typically made from the leaves of the plant and has a distinctive pine flavor that is invigorating and refreshing.

Studies on rosemary have found that it has a lot of benefits for mental health, including reducing anxiety and boosting mood. In a recent 2020 review, researchers found that it could also help improve memory.

In another 2020 study, scientists performed a 4-week experiment in which they found that intake of rosemary extract improved mood, fatigue, and cognitive function.



4. Teas to Help Lift Depression

Major depressive disorder is one of the most common mental disorders in the U.S. An estimated 21.0 million adults have experienced at least one major depressive episode in their lives. Still, more may feel sucked in by "the blues" on occasion.

Therapy and medications can help, but so too can the right teas.

- **St. John's Wort**

This medicinal plant has been used for centuries to treat depression, along with other conditions. The tea is made from the flowers. It has a mildly bitter taste that is similar to black tea and is often flavored with honey.

Several studies have found that St. John's wort—often in supplement form—can be effective in treating depression. A 2017 analysis of 27 studies, for instance, showed that St. John's wort had similar effects on mild to moderate depression as antidepressants did. A year earlier, scientists analyzed 35 studies and came to the same conclusion.

If you're already taking antidepressants or anxiety medications, talk to your doctor before using St. John's wort. It may interfere with your medication.

- **Black Tea**

Because of the caffeine content and other healthy plant chemicals, black tea (and green tea) may both help ease the symptoms of depression.

In a 2019 review, scientists found that the constituents found in all true teas—predominantly l-theanine and polyphenols (like catechins)—are capable of functioning through multiple pathways in the brain and body to help reduce the risk of depression.



In another study, scientists found that depression was lower in participants who consumed between 1-4 cups of black tea per day.

- **Green Tea**

Like black tea, green tea has caffeine, which can boost energy and mood, and it also has l-theanine to help ease anxiety and induce calm. In a 2009 study, researchers found that green tea consumption was associated with a lower prevalence of depressive symptoms. A later 2022 study found similar results.

- **Ashwagandha Tea**

Ashwagandha is a popular herb in Ayurvedic medicine, where it's been used for thousands of years to improve brain function. The tea is derived from the ashwagandha plant, typically from the root, though the leaves may be used as well. It has a slightly bitter, earthy taste that can be overwhelming, so it is often consumed with buttermilk, honey, and cardamom.

Studies have shown ashwagandha to exhibit anti-stress and anti-anxiety activity. It also has demonstrated an ability to improve symptoms of depression and insomnia. It's classified as an adaptogen, which means it helps the body cope with stress, so if you believe your depressive symptoms may be associated with stress, try this tea.

5. Teas to Energize You

According to a recent survey, three out of five adults in the U.S. say they feel more tired now than ever. The COVID-19 pandemic had a lot to do with it, but ongoing stress levels related to other issues have played their part as well, leading over half of the respondents to say they felt unfocused or disjointed.

Here are some teas you can enjoy on those days when you're dragging.

- **Pu-erh Tea**

Pu-erh is a fermented tea type, made from the leaves of the true tea plant. It has a deeper, earthier flavor than black tea, and contains more caffeine than white, oolong, or green tea. Like black tea, it can help energize you while delivering enough L-theanine to provide lasting results.



- **Green Tea**

Any of the true teas can help energize you as they all contain caffeine, though at varying levels. The catechins in tea also seem to help battle fatigue. Since green tea typically has the most catechins, it's often the best choice for boosting energy.

In a 2017 study, researchers found that epigallocatechin-3-gallate, which is highest in green tea, had a powerful anti-fatigue effect, helping participants to swim longer than they usually would.

- **Black Tea**

Black tea typically has the most caffeine of all the true teas and can help boost energy. It has less caffeine than coffee, though, so if you fear you've had too much caffeine in one day, try black tea instead.

- **Yerba Mate**

Native to South America, yerba mate is popular in countries like Brazil, Argentina, and Chile. It's made from the leaves of the holly plant. It's not related to the true teas, but it does contain caffeine and is known for its energizing effects. Many people experience the caffeine in this tea differently than the caffeine in coffee, finding it energizing without the jitters or nausea that can come from consuming too much coffee.

- **Ginseng Tea**

Ginseng is a well-known herb often used in energy drinks for its natural energy-boosting properties. A traditional Korean tea made from the ginseng plant's root, it has a unique, bitter taste with earthy, warm notes.



Many studies have examined ginseng and its effect on energy. In a 2018 review, researchers found that it was a promising treatment for fatigue, and in an earlier study, they found that

ginseng supplements helped improve mental performance and reduce mental fatigue.

6. Teas that Improve OCD Symptoms

Obsessive-compulsive disorder (OCD) is a mental health disorder that affects about 2.3 percent of the U.S. population. It causes uncontrollable and recurring obsessions where people feel the urge to repeat certain behaviors over and over. It can also cause compulsive thoughts and behaviors.

Scientists have been exploring natural treatments for OCD and have found that some teas may help.

- **Green Tea**

Green tea has high levels of l-theanine, an amino acid known for its calming and relaxing properties. It supports neurocognitive functioning in several ways, supporting neurotransmitter function and brainwave activity. In OCD, it can help calm the brain, increasing alpha-wave activity.

L-theanine also increases levels of good mood neurotransmitters like serotonin, dopamine, and GABA. It reduces anxiety and stress and can improve focus and alertness. Though the research on green tea and OCD is limited, a small number of studies suggest that it may play a role in easing the symptoms.

- **Turmeric Tea**

Turmeric tea is made from turmeric root, which gives the curry spice its yellow color. Inside turmeric is a compound called curcumin that has been shown in research to help significantly improve symptoms of OCD.

In a 2010 animal study, for instance, researchers found that curcumin treatment showed a protective effect on OCD with considerable influence on neurotransmitters, helping subjects to reduce obsessive-compulsive symptoms.

We still need more research on this connection, but if you suffer from OCD, turmeric tea may be worth a try.

- **Valerian Tea**

Because of its calming effects (examined above), valerian may also be a good option for those living with OCD. In one study, supplementing with 750 mg of valerian for eight weeks reduced symptoms by 25 percent in people diagnosed with the disorder. Researchers said that the results suggested valerian may have some anti-obsessive and compulsive effects.



A cup of tea won't give you that much valerian, but you may not need that much.

7. Teas to Help You Feel More Alert

There are some days when it's harder to concentrate than others. You may be experiencing a little brain fog or be struggling because you weren't able to sleep the night before.

On days like these, try these teas for a refreshing boost in alertness that can help you more easily focus on your tasks.

- **Peppermint**

Peppermint has a powerful invigorating scent, which may be part of the reason why it helps you feel more alert. Made by infusing the leaves of the peppermint plant in water, it has a pale green color and a tingling flavor.

Studies have shown that simply inhaling the scent of peppermint can help enhance memory, increase alertness, and induce calm, so if anxiety is behind your mental fatigue, this is the tea for you. In a study of 180 volunteers, researchers found that peppermint enhanced and aroused mood and cognition, helping to improve long-term memory, working memory, and alertness.

- **Matcha Green Tea**

Matcha green tea contains a slightly higher caffeine content than standard green tea because it's made with ground tea leaves. It also has higher l-theanine levels than regular green tea, which helps boost cognitive function and focus.



In a 2020 study, researchers found that volunteers who consumed a test drink containing 3 grams of powder from fresh Matcha every day for 12 weeks experienced significant cognitive enhancement.

- **Ginkgo Biloba**

This is a popular memory and concentration herb that's been used in Chinese medicine and Ayurvedic practices for centuries. It's known to stimulate blood flow, which may be why it helps improve focus and alertness.

Made from the dried leaves of the ginkgo tree, ginkgo Biloba tea has a mild, earthy, slightly bitter taste. Many manufacturers blend it with other herbs like blackberry leaf to help tame this bitterness.

In a 2011 study, researchers found that ginkgo Biloba leaf extract helped improve working task memory, and showed a direct effect on the brain.

- **Black Tea**

Good old black tea may be the simplest way to improve your focus on a long workday. It contains the most caffeine of any of the true teas, which will help promote alertness. It also contains some l-theanine, which may further improve cognitive function, calmness, and memory.

In a 2013 review, researchers found that tea consumption consistently improved attention, self-reported alertness, and arousal. An earlier study found similar results for black tea, specifically.

8. Teas to Calm a Busy Mind

It can be hard to relax and fall asleep when your brain is running 100 miles per hour with thoughts and worries about your day or the week ahead.

If you're experiencing this type of stress—particularly when going to bed at night—try these calming teas.

- **Passionflower**

Passionflower tea is made from the petals of the passionflower plant. This plant has long been used to treat anxiety, seizures, and hysteria.

If you're looking for a tea that will help you calm your rushing thoughts before sleep, try this one. A 2011 study found that it helped to improve sleep quality, likely by boosting GABA levels in the brain, which induces relaxation.



Passionflower seems to be milder than other herbs used for their calming effects, such as valerian or kava. You may find it in combination with valerian, lemon balm, or other calming herbs.

Studies have shown that patients given passionflower before surgery had less anxiety than those given a placebo.

- **Chamomile**

Popular for its relaxing properties, chamomile tea has a simple floral flavor that is pleasant and calming, particularly for relaxing your mind before bed. If you have rushing thoughts that keep you up at night, this tea may be perfect for you.

In a 2009 study, researchers found that anxious patients who consumed chamomile extract daily experienced a significant improvement over an eight-week period. And according to Natural Mental Health, chamomile has an antioxidant called apigenin, which binds to specific receptors in the brain that may decrease anxiety and help induce sleep.

- **Kava**

Kava has a long history of use in alternative medicine and has a calming, euphoric effect. The tea is made from the root and rhizome of the kava kava plant which is native to the islands of the South Pacific.



Kava has mind-altering compounds in it called kavalactones. These compounds have been found in studies to help reduce anxiety and induce calm and relaxation. They act similarly to the way a muscle relaxant might act and have a similar effect to alcohol in how they may cause talkativeness, relaxation, and euphoria, though without affecting mental clarity.

Studies have found kava to help with anxiety, stress, and insomnia, as well as menopausal symptoms, so it may be the perfect tea to enjoy before bed when you need it. Researchers do urge caution as taking kava in higher doses can cause dizziness and stomach upset. Start with the lowest dose possible, and do not mix kava with alcohol or other anxiety or depression medications.

Though we have listed several teas under certain conditions above, keep in mind that those used for anxiety relief may also help ease stress, and vice-versa. The same could be said about those used to ease symptoms of depression—they may also help with stress.

You Can Use Some of These Teas for Other Purposes

Feel free to experiment with the various types to see what works best for you!

Chapter 10

What About the Caffeine in Tea?

Most everyone knows that coffee has caffeine, but tea can be a little more confusing.



In general, all true teas have caffeine, but some have more than others. Most, however, have less caffeine than coffee. Herbal teas usually have no caffeine at all.

Those looking for an alternative to coffee often turn to tea for a milder morning pick-me-up. Or you may be trying to avoid caffeine altogether, in which case herbal tea is a better choice for you.

Whatever your unique situation, this chapter will help you learn more about the caffeine content in tea and its

potential health benefits.

What Is Caffeine?

Caffeine is an alkaloid, which is defined in chemistry as any of a class of nitrogenous organic compounds from plants that have pronounced physiological actions on humans. Other alkaloids include drugs like morphine and quinine, as well as poisons like strychnine.

Caffeine is found in more than 60 different types of plants, including coffee, tea, and cocoa plants. It's there to act as a natural pesticide and to help encourage pollination. All parts of the plant, except for the seed, contain at least some caffeine.

You may be surprised to learn that in its dry form, coffee has less than half the amount of caffeine as tea. When brewed, however, the same size serving of coffee has from one-half to two-thirds more caffeine than a cup of tea.

Caffeine is absorbed quickly in the body and has a rapid effect that is largely gone within five hours. What makes tea different than coffee is that it contains theanine. This is an amino acid—a building block for protein—that helps moderate the effect of caffeine.

As a result, the caffeine in tea is released more slowly in our systems than the caffeine in coffee. It also lasts longer—up to 10 hours. You get a longer, more subtle stimulation.

How Much Caffeine is In Tea?

How much caffeine is in your cup of tea depends on several factors. Most of these you, as the consumer, have no control over.

- **Part of the plant harvested:** Buds and the uppermost leaves contain more caffeine than older leaves and those lower on the stem.
- **Harvest time:** The earlier the harvest, the more caffeine.
- **Cultivation process:** Hard pruning and growing tea plants in the shade increases the caffeine content.
- **Type of plant:** Some cultivars have higher levels of caffeine than others.
- **Amount of tea leaves:** The more leaves infused, the higher the level of caffeine.



Some factors affecting caffeine content are under your control. These include which type of tea you choose, what water temperature you use for brewing, and how long you allow the tea to steep. Black teas, hotter water, and longer infusion times will all increase the caffeine content.

- **Black Tea** contains a moderate amount of caffeine—about half that of a cup of coffee. It is typically considered to have the highest level of caffeine of any of the true teas.
- **Pu-erh Tea** also contains a moderate level of caffeine, similar to that of black tea.
- **Oolong teas** have varying amounts of caffeine, but usually contain slightly less than black tea, but slightly more than green or white tea.
- **Green tea** is generally lower in caffeine than the previous three teas, containing about half that of black tea and a quarter that of a cup of coffee. Shade-grown green teas, however, have a caffeine level similar to that of black tea, or sometimes even higher. Matcha green tea, made from shade-grown powdered green tea, has an even higher caffeine content.
- **White tea** usually has the lowest level of caffeine of all the true teas. Some Silver Tip and Jasmine Silver Needle white teas, though, are higher in caffeine as they are produced from the first buds of the plant and harvested in early spring.
- **Herbal tea** or tisanes are naturally caffeine-free.
- **Rooibos tea** or red tea is also caffeine-free.
- **Yerba mate**, which is not a true tea but not an herbal tea either, is high in caffeine, containing almost as much as coffee.

How Does Caffeine Affect You?

How caffeine affects you may be different from how it affects someone else. It depends on your genes.



Some people, for example, can drink a cup or two of coffee and feel a slight energizing response. Others, however, may suffer from the jitters and experience anxiety if they drink too much. Then some say that coffee doesn't affect them at all.

When you drink a cup of coffee, the caffeine in it is absorbed into your bloodstream. It circulates through the body, linking up with “receptors” that are open to receiving it. These receptors

typically link to a molecule called adenosine.

Throughout the day, adenosine accumulates in the brain, binding to receptors and causing us to feel sleepy. During sleep, levels of adenosine go down, so we feel more awake in the morning.

Caffeine is similar to adenosine, which means that it can bind to the same receptors. When it does, it blocks adenosine from doing so, which can help us feel more awake and alert. It also triggers the production of adrenaline, giving us more energy, and makes the brain more responsive to dopamine, the feel-good hormone, which can improve mood.

But each person’s receptors are different. Some will happily bind well with caffeine, while others will not. Those whose receptors bind well with caffeine will feel more symptoms than those whose receptors are not so well suited to caffeine. That’s why you may be able to enjoy a cup of black tea at night with no ill effects on your sleep, while your friend who does so may be up all night.

Eventually, the caffeine makes its way to the liver where it is metabolized. Some people have enzymes in the liver that quickly process the caffeine, so the caffeine “buzz” leaves them quickly. Others have fewer of those enzymes, so the effects of caffeine will last longer.

Scientists have conducted some interesting experiments demonstrating these differences. Some twin studies, for instance, showed that genetics play a role in how different people respond to caffeine consumption, including whether they experience symptoms like anxiety, caffeine-induced insomnia, or withdrawal symptoms.

In a 2016 study, researchers found several genes that play a role in how caffeine affects us, including how the body metabolizes it and whether or not we seek it out. In other words, your desire for a caffeinated beverage may be tied to your genes!

In a more recent 2021 study, researchers found that how coffee, tea, and dark chocolate taste to us can also be determined by our genes. This could explain why some people love the taste of coffee or black tea and others, not so much.

What all this means is that you need to trust your body. If you find that you're sensitive to caffeine and that the symptoms can quickly become overwhelming, choose herbal teas, white tea, and green tea for your preferred beverages. Those who find caffeine less of an issue are likely to enjoy all teas but may have a preference for black and pu-erh varieties.



Health Benefits of Caffeine

Though caffeine is generally considered safe and has been tied to many health benefits, whether it will benefit you is again, dependent on your unique makeup. If you tend to process caffeine slowly, for instance—because of fewer caffeine-metabolizing enzymes in your liver—you may be less likely to experience the health benefits of drinking more.

There is even some evidence that those who metabolize caffeine slowly may have an increased risk of high blood pressure with higher intake levels. In a 2009 study, for instance, scientists discovered that heavy coffee drinkers with a certain gene tied to caffeine metabolism had a higher risk of high blood pressure than those without this gene.

So again, follow your body's clues as to how much caffeine you should have. But if you enjoy it, that's good news, as scientific studies have linked regular caffeine consumption to the following potential health benefits.

- **Higher energy:** Caffeine is a central nervous system stimulant that can fight fatigue and increase energy levels.
- **Alzheimer's disease:** Lifelong caffeine consumption has been shown in some studies to help reduce the risk of developing Alzheimer's disease.
- **Enhanced memory:** A team of scientists from Johns Hopkins University found that caffeine has a positive effect on our long-term memory. It seemed to strengthen the memories and make participants resistant to forgetting.
- **Reduced risk of cataracts:** Some studies suggest that caffeine has a protective effect against cataract formation because of its ability to protect against damage from UV rays.

- **Reduced risk of skin cancer:** Other studies have found a similar protective effect on the skin. In 2012, scientists reported that compared to individuals who consumed caffeinated coffee less than one cup per month, women who consumed more than three cups a day had the lowest risk of skin cancer. Caffeine from other sources (including tea and chocolate) was also associated with a lower risk.
- **Protection against kidney stones:** If you're prone to kidney stones, it may help to drink more caffeinated tea. In a 2014 study involving over 217,000 participants, scientists found that caffeine intake was associated with a lower risk of kidney stones. It's best to go with hot green tea, though, as the oxalates in black and iced tea can contribute to kidney stones. (More on this in the next chapter.)
- **Decreased appetite:** Some research has shown that caffeine can decrease appetite and slightly reduce weight gain.
- **Reduced risk of depression:** In moderate doses, caffeine has been found in some studies to decrease the risk of depression and suicide.

Potential Dangers of Caffeine

Most studies showing potential harm from caffeine focus on high intakes. At low and moderate intakes, caffeine is usually associated with healthy effects unless you're sensitive to it. But at high intakes, caffeine can cause problems.

At high doses—or in sensitive individuals—too much caffeine may lead to the following:

- Anxiety
- Nervousness
- Insomnia
- Addiction
- High blood pressure
- Rapid heart rate
- Fatigue (from a rebound effect)
- Increased urination

As to how much is too much, it depends on the person. Up to 400 milligrams of caffeine a day seems safe for most people. That's about the amount of caffeine in four cups of brewed coffee or 8 cups of black tea.

If you're experiencing side effects such as those listed above, you may want to cut back on how much caffeine you're consuming per day. Remember to consider all sources of caffeine in your diet—including tea, coffee, soda, energy drinks, supplements, and dark chocolate.

Chapter 11

10 Possible Side Effects of Drinking Too Much Tea

So far, we've been talking about all the wonderful ways tea can benefit your health and your life. This could lead you to believe that you could drink it all day and feel even better than before!

It is possible, though, to drink too much tea. In this chapter, we review the potential drawbacks of consuming this tasty beverage a bit too often.

1. Too Much Caffeine Can Give You the Jitters

Particularly if you're drinking black tea or pu'erh tea most of the time, you could wind up consuming too much caffeine. If you're sensitive to caffeine, this will happen sooner for you.

We typically turn to tea as a lower-caffeine alternative to coffee, but if you're consuming multiple cups throughout the day, that caffeine can add up. Depending on what type of tea you're drinking and your genetic makeup, you may start to feel the effects anywhere from 2-10 cups.



Watch for symptoms like anxiety, nervousness, insomnia, headaches, and heartburn. They could be telling you to cut back a little.

2. Lots of Tea May Reduce Your Iron Absorption

Tannins—the polyphenols in tea that make it taste bitter—can inhibit your body's ability to absorb iron when consumed in excess (more than 4 cups). In one 2012 study, scientists found that blood levels of iron were significantly reduced after tea consumption, particularly in women who already had low iron levels.

In a 2021 study, researchers found that between 1999 and 2018, the average American adult's intake of iron dropped by 6.6 percent (males) and 9.5 percent (females). This was linked to a lower intake of beef, as well as the falling level of iron in meat and plant foods.

Tannins in tea bind with iron, particularly the type of iron found in plants like spinach and nuts. When they do so, they can affect how well your body absorbs the iron in your blood. We don't have enough research to know if this can have an impact on your overall health.



In most cases, you're probably getting enough iron in your diet, so you don't have to worry about it. But recent research has found that about 17 percent of premenopausal women and 10 percent of children in the U.S. are considered iron deficient.

Symptoms of low iron levels include fatigue, impaired physical performance, and decreased work productivity. Check with your doctor if you feel you may be affected, then make sure you're getting

enough iron in your diet.

3. Too Much Tea Could Make You Feel Nauseous

Certain compounds in tea can cause nausea when consumed in large quantities or on an empty stomach.

Again, we can blame this on the tannins in the tea. In some cases, they can irritate the tissues in your digestive system, which can lead to uncomfortable symptoms like nausea or upset stomach. How much tea it takes to cause this type of symptom depends on the person.

Those who are sensitive to tannins' effects may suffer from a stomachache after only a couple of cups of tea. Others will be fine unless they drink five cups or more.

Adding a little milk to your tea can help, as can drinking your tea with a meal.

4. Lots of Tea Could Cause Heartburn

Heartburn is another digestive issue that may come up when you drink a lot of tea. In this case, it's the caffeine that causes it. Particularly, if you regularly suffer from heartburn or have gastrointestinal reflux disorder (GERD), you may be more likely to have this symptom if you drink too much tea.

Research shows that caffeine can relax the sphincter that separates your esophagus from your stomach. In some people, that can allow the acid in your stomach to come back up into your esophagus, causing that burning sensation. Caffeine may also increase total stomach acid, contributing to a higher risk of heartburn.

As with the other symptoms, it depends on the person. But if you notice that you're experiencing heartburn after drinking a cup of tea, consider choosing a variety that contains less caffeine, like white tea or herbal tea.

5. Tea Could Lead to Headaches

In people who are sensitive to caffeine, consuming caffeinated tea can lead to headaches.

This can be confusing, as typically caffeine helps alleviate headaches. It's often included in migraine pain relievers for this reason. But if you're sensitive to it or you simply consume too much, it could cause headaches.

If you regularly consume caffeinated tea and then you stop for a while, you may also suffer from headaches as a type of withdrawal symptom. If you have recurrent headaches that you think could be tied to your caffeine intake, try consuming herbal tea instead.



6. Drinking A Lot of Tea Could Expose You to Toxins

Though this is true of almost any food or beverage, it's worth mentioning. Consuming a lot of tea could expose you to toxins in the tea. These toxins may come from the soil the tea plant was grown in, or from various harvesting or processing methods.

In a 2013 study, researchers tested 30 different teas by analyzing the tea leaves, tea steeped for 3-7 minutes, and tea steeped for 15-17 minutes. The results showed that all brewed teas contained lead with 73 percent of teas brewed for 3 minutes and 83 percent brewed for 15 minutes having lead levels considered unsafe for consumption during pregnancy and lactation. Aluminum levels were also above recommended levels in 20 percent of the brewed teas.

Independent lab testing by *CBS News Canada* also found that many tea brands contain pesticides over levels permitted in that country.

There are no existing guidelines for routine testing or reporting of toxin levels in “naturally” occurring products like tea. Still, the health benefits of tea typically outweigh any concerns about toxicity.

You can lower your levels of toxins in tea by buying loose-leaf teas (they are typically of higher quality), brewing for less time, and straining with a stainless-steel strainer.

7. Too Much Tea May Cause Pregnancy Complications

Studies have linked high caffeine consumption (more than 200 milligrams a day) during pregnancy to some pregnancy complications, including low birth weight, miscarriage, stillbirth, and childhood acute leukemia.



In a 2020 review, researchers found that 32 studies indicated that caffeine intake increased the risk of these issues, while 10 studies suggest no or inconclusive associations. That means not all studies showed a negative effect of caffeine. Still, the researchers recommended that pregnant women and those contemplating pregnancy should avoid caffeine.

New research published in 2021 also showed that caffeine consumed during pregnancy could change important brain pathways in the fetus which could lead to behavioral problems later in life.

8. Excess Tea Could Lead to Constipation

Many things can cause constipation. Your daily diet and exercise regimens are two of the main ones. But if you typically eat healthily—including foods with a lot of fiber—you drink water regularly, and you exercise every day, and you're still struggling with constipation, consider your tea intake.

Tea contains theophylline, a chemical that can lead to a dehydrating effect during digestion. This could rob the stools of moisture, leading to constipation. Drinking tea (or coffee) in the morning can help inspire a bowel movement but drinking too much tea could lead to the opposite effect.

9. Too Much Tea May Increase Prostate Cancer Risk

Though tea typically protects from the development of cancer, recent studies have suggested that when men drink too much of it, it may increase their risk of prostate cancer. The studies are mixed, however, so we need more research to be sure.

In one study of over 6,000 men aged 21 to 75 years who were followed for up to 37 years, researchers found that overall, 6.4 percent of those who drank the most tea (7 or more cups per day) had developed prostate cancer during the study period, compared to 4.6 percent who consumed the least (0 to 3 cups a day). The type of tea was not specified.

Another study, however, of over 27,000 men, found no association between daily green tea intake and prostate cancer risk.

If you're a man concerned about prostate cancer risk, consider choosing green tea as your preferred tea type.

10. Too Much Iced or Black Tea May Increase the Risk of Kidney Stones

Several studies have suggested that too much tea may increase the risk of kidney stones, particularly for those who are prone to kidney stone formation. Other studies have not found an association. This is another area where we need more research.

The problem is the high oxalate content and oxalic acid in tea—iced tea, specifically, as it has more of these compounds. Kidney stones form when abnormally high concentrations of minerals, like calcium, accumulate in the urinary tract and clump together to form crystals and potentially painful stones. The most common type of stone is calcium oxalate.



Again, if you're vulnerable to kidney stones, choose hot green tea rather than iced tea or black tea. Chinese researchers found that green tea bonds to oxalate and makes it less likely to clump and form kidney stones. Other studies have found that drinking green tea does not increase the risk of kidney stones.

Another option is to add milk to your black tea. The milk has calcium that will bind to the oxalate, reducing the amount your body absorbs.

Chapter 12

Top 5 Teas for Health

No matter which kind of tea you choose, you're going to enjoy some health benefits. They all have plant chemicals and antioxidants that protect your cells and may, when consumed regularly, help prevent disease.

But what if you want the healthiest teas available? Then this chapter is for you! We've collected what we think are the top five healthiest teas you can drink.

1. Green Tea

By far, green tea is the king (or queen!) of healthy teas. Out of all of them, it seems to have the most research behind it with consistently positive results. Scientists attribute this to the fact that green tea is less processed than most of the rest (except for white tea), and to the fact that it's chock full of polyphenols and antioxidants to help boost heart and brain health.

Green tea also contains a catechin called epigallocatechin-3-gallate (EGCG), a natural antioxidant that is responsible for much of green tea's health-boosting powers.

Here's just a glance at all the ways green tea can benefit you.

May improve brain function.

Several studies have indicated that green tea can benefit cognition, mood, and brain function. In a 2017 review, for instance, scientists reported that it helped reduce anxiety and improve memory and attention. Brain imaging scans showed it working directly on the memory centers of the brain.

In a more recent 2021 study, researchers noted that EGCG can cross the blood-brain barrier to reach certain areas of the brain where it can work its positive mojo. They also reported that the amino acids theanine and arginine in green tea have stress-reducing effects and may even suppress the aging of the brain.



Boosts heart health.

Regularly drinking green tea may help you reduce your risk of heart disease. In a study of over 40,000



Japanese adults, those who drank more than five cups of green tea a day had a 26 percent lower risk of death from a heart attack or stroke and a 16 percent lower risk of death from all causes.

A recent meta-analysis of 18 studies found that those who drank the most green tea had a 28 percent lower risk of coronary artery disease than those who drank the least. Other studies have suggested that green tea may help lower LDL “bad” cholesterol and

triglyceride levels.

Other benefits.

Though the evidence showing green tea to benefit heart and brain health is the strongest we have to date, there are also some studies suggesting that green tea may help improve insulin sensitivity and reduce blood sugar levels, reducing the risk of type 2 diabetes. It may also increase your body’s ability to burn fat and help reduce your risk of certain types of cancer.

2. Black Tea (and Other True Teas)

Coming in at a close second to green tea is black tea, along with the other true teas like oolong and white. Since they all come from the tea plant, they all have similar antioxidants and polyphenols that benefit health. Black tea also has more caffeine, which as we noted in a previous chapter, has many health benefits on its own.

Scientists have studied black tea about as much as they have green tea and have consistently found positive results. Sometimes green tea comes out ahead, but many times the two are near equal in how they benefit human health.

Perhaps where black tea really shines is as a lower-caffeine option to coffee. It has a similar robust taste, but a little less caffeine, which may be perfect for those sensitive to caffeine or who have already had their coffee quota for the day.

May help you live a longer life.

As with green tea, black tea seems to have a slew of protective benefits that may help you live longer. A recent 2022 analysis involving half a million tea drinkers in the United Kingdom found that higher tea intake was associated with a moderately lower risk of death. People who consumed two or more cups of tea per day had a 9-13 percent lower risk of death from any cause than those who did not drink tea.



Reduces risk of heart disease.

Like green tea, black tea can also reduce your risk of heart disease. Many studies have found evidence of this, often because black tea reduces cholesterol levels, even in those who are overweight or obese, and helps reduce inflammation. Long-term consumption of black tea also results in the improvement of blood pressure levels.

May help you lose weight.

Though no replacement for a diet, both black and green tea can contribute to your weight loss efforts. Studies show that the polyphenols in black tea, specifically, can help suppress the digestion and absorption of fats and complex sugars, while reducing the proliferation of fat cells.

Reduces risk of stroke.

In a study of over 74,000 stroke patients over the course of about 10 years, scientists found that drinking four or more cups of black tea daily inhibited the risks associated with stroke. A review of nine studies involving over 194,000 adults concluded that drinking three cups of black tea per day reduced the risk of stroke.

Other health benefits.

Like green tea, black tea has also been found to help improve the status of insulin in diabetes patients, and to improve blood sugar levels in normal and pre-diabetic adults. Studies at the National Cancer Institute suggest that the polyphenols in black tea may decrease the risk of cancerous tumor growth, particularly with skin, lung, and prostate cancers.

3. Ginger Tea

Best known for its digestive benefits, ginger tea offers many other benefits as well, making it one of the healthiest teas you can drink.

Made from the root of the ginger plant, ginger tea has been used for centuries to treat a host of ailments, including arthritis, diabetes, colds and coughs, and nausea. Today's evidence indicates that it may help with the following.



Eases digestive ailments.

Whether you're suffering from nausea after surgery or due to medical treatments, motion sickness, after-meal indigestion, or some other type of tummy ache, ginger is likely to help. Studies have found that it makes an effective alternative to traditional anti-nausea medications in people who are pregnant or undergoing chemotherapy.

Other research shows that ginger was more effective than a standard drug at preventing postoperative nausea and vomiting caused by general anesthesia. Studies are limited on ginger and motion sickness, but in research on 80 naval cadets, scientists found that ginger helped reduce vomiting and cold sweating from sea sickness.

Reduces risk of heart disease.

Like green and black tea, ginger tea may also help reduce the risk of heart disease. Studies have found that it can lower blood pressure and cholesterol levels, helping to prevent heart attacks. In a recent 2021 study, researchers found that it helps protect the heart and improves blood flow, reducing the risk of blood clots.

Soothe arthritis pain.

Because it's such a powerful anti-inflammatory, ginger can help ease various types of pain. Several studies have found that it can be effective against arthritis pain. In one study from the University of Miami, scientists noted that ginger extract could one day be a substitute for non-steroidal anti-inflammatory drugs (NSAIDs) like aspirin because it was so effective. The ginger reduced pain and stiffness in the knee joints by 40 percent over the placebo.

4. Rooibos Tea



Though it's not a true tea, this tasty red tea has a wide range of polyphenols and antioxidants—different ones than you'll find in true teas. Aspalathin, for instance—a type of flavonoid—is found only in rooibos tea.

Made from the leaves of a shrub called *Aspalathus linearis*, rooibos is also caffeine-free for those who are sensitive. Traditional rooibos is made by fermenting the leaves, which turns them a red-brown color. Green rooibos, which is not fermented, is also available. It has a

grassier flavor but contains more antioxidants.

Rooibos contains no tannins, which can interfere with the absorption of iron, so it's a good alternative for those who may be iron-deficient. Finally, it contains no oxalic acid, making it perfect for those who are vulnerable to kidney stones.

Reduces the risk of diabetes.

Studies on aspalathin—the unique flavonoid in rooibos tea—have found that it can help reverse insulin resistance while lowering blood sugar levels. In a 2019 study, researchers suggested further research on the potential use of aspalathin to improve insulin signaling and reduce diabetes-related complications.

Improves cholesterol levels.

If you're struggling with high cholesterol—which can hurt your heart health—rooibos tea can help. In a study of 40 overweight adults at a high risk of heart disease, six cups of rooibos tea daily for six weeks decreased “bad” LDL cholesterol while boosting HDL “good” cholesterol.

May improve allergy symptoms.

One of the other unique flavonoids in rooibos tea is known as chrysoeriol, which has anti-inflammatory and antioxidant effects. In a 2006 study, scientists found that rooibos tea worked as a bronchodilator, helping to relieve wheezing and coughing symptoms caused by allergic rhinitis and asthma.

Another flavonoid in rooibos called quercetin helps prevent allergies by blocking mast cells, which are responsible for releasing histamine. In other words, it acts as a natural antihistamine.

5. Hibiscus Tea

If you haven't tried this herbal tea, now may be the time to get some. It's made by steeping hibiscus flowers in hot water. You can enjoy it on its own, or find it mixed with other types of tea like ginger and chamomile.

Studies have shown that hibiscus tea can provide a myriad of health benefits—partly because it's a rich source of EGCG, just like green tea.



Reduces blood pressure.

Like the other teas listed here, hibiscus can help prevent cardiovascular disease. Since this remains the number-one cause of death in both men and women, it's good to do everything you can to stay heart-healthy!

In a 2015 review, researchers found that hibiscus helped lower blood pressure levels. A later study also found that patients with stage one hypertension who received two cups of hibiscus tea a day for one month significantly reduced their blood pressure levels by the end of the study period.

Prevents tumor growth.

Help keep cancer away by enjoying a cup of hibiscus tea today. Studies show that the antioxidants in the tea have anti-tumor properties. In 2015, scientists reported that hibiscus extract showed specific activity against leukemia cancer cells. And in a 2019 study, scientists found that hibiscus flower extract helped induce cancer cell death in breast cancer.

May help reduce body weight.

It seems hibiscus has a metabolic-regulating action that may help to reduce body fat. In a 2014 study, researchers found that overweight participants who regularly consumed it for 12 weeks reduced their body weight, body mass index (BMI), body fat, and waist-to-hip ratio. In a later 2019 review, results showed that bioactive compounds from hibiscus “are potent in the treatment of obesity with evident reduction in body weight...”

Supports kidney/urinary tract health.

Hibiscus seems to be a good friend to the entire urinary tract. In a 2017 study, researchers found that 10 mg of Hibiscus-derived anthocyanins was significantly effective in improving blood pressure values and increasing urine volume as the typical drug treatment Lisinopril. An earlier study found that hibiscus helped reduce the elevation in nonenzymatic kidney markers, meaning that it helped protect kidney health in those with kidney disease.



Researchers have also found that hibiscus can help prevent kidney stones. It's long been used for this purpose in traditional medicine, but modern-day research has also found that it can help. In a 2008 study, for instance, scientists found that a cup of hibiscus tea twice daily for 15 days reduced the risk of kidney stones by reducing the number of compounds related to stone formation in the urine.

Finally, some early studies suggest that using hibiscus—sometimes in combination with D-mannose—may help to reduce the risk of urinary tract infections in women.

Other Favorites

With all the healthy teas out there, it's hard to choose a favorite! So, in addition to the heavy hitters above, we'd also recommend these teas. They all have some exciting research behind them in terms of their health benefits.

- Chamomile
- Peppermint
- Lemon verbena
- Jasmine tea

Chapter 13

Hot Tea Vs. Iced Tea—Which is Better and Why?

Hot and iced tea are basically the same thing, right?

Well, yes, and maybe no. They're both made from true teas, but there may be some key differences between them—and we're not talking temperature.

Turns out that the benefits of drinking hot and cold tea may be slightly different, though the research on this is still new. In this chapter, we examine these more closely.

How Hot Tea is Made

Let's start by looking at how these two different types of tea are made. In general, it takes less time to make hot tea.

The leaves are brewed in hot water at a temperature ranging from 158 degrees to 200 degrees Fahrenheit. It usually takes only about 3-5 minutes for your cup to be ready to drink. Black teas are often infused for a slightly longer time than other teas, as this increases the caffeine content and results in a dark, full-bodied cup. Those who add milk or sweetener to their tea usually prefer a longer steep.

You can make your cup of hot green tea even more quickly, steeping for only 1-2 minutes. Green tea can become bitter if you

leave it too long, so it's usually better to err on the side of caution and employ a shorter brewing time.

A typical steep time for white tea is about 2-3 minutes. It has a light body and delicate flavor, so a little longer steep time than green tea helps create the result you're looking for. If you don't steep it long enough, the tea may taste much like plain water. Most oolong teas take about the same amount of time.

Pu-erh tea, the fermented tea, takes about the same amount of time to make as black tea—about 4-5 minutes. A rich, full-bodied tea, it doesn't tend to become bitter as easily as other types of tea with longer steep times.



Hot herbal teas typically need more time for the leaves and spices to infuse into the water. They are typically made with boiling water and left to steep for five or more minutes. Rooibos tea, as well, can be infused for five or more minutes without growing bitter.

Keep in mind that the longer you steep a tea, the stronger the taste will be. In most cases this is fine, but with some teas like green tea and hearty black teas, it can result in an unpleasant, bitter taste. On the other hand, steeping for too little time will result in a mellower, weaker cup of tea.

Iced Tea vs. Cold Brewed Tea

The recipes for iced tea differ in one key way: some are made as hot tea first and then chilled, while others are made with either lukewarm or cold water in the first place.



The common way to make iced tea is to brew it as you would hot tea, then chill it in the refrigerator. You boil the water, steep the tea as you normally would for hot tea, then put it in the refrigerator to chill. If you're in a hurry, you can immediately add cold water to the brew or strain the tea over ice. This method works well for black and full-bodied herbal teas.

Many tea enthusiasts prefer what is called cold brewing, which means that the water is at a lower temperature throughout the process and is never boiled. One way is to brew the tea in room temperature water for about an hour, then chill it further in the refrigerator before adding ice.

If you're using loose-leaf tea—which is considered the best way to get the health benefits and flavor—you can choose to strain the leaves before you put the tea in the refrigerator or leave them in. Leaving the leaves can enrich the flavor, and there is less risk of bitterness with cold brewing than with hot methods.

Still another option is to put the leaves in the cold water and transfer the pitcher directly to the refrigerator for 8-12 hours. This keeps the temperature low for the entire brewing process. Cold brewing is usually best for lighter teas like white tea and some herbal teas, as it emphasizes subtle flavors.

The boom line is to realize that iced tea and cold-brewed tea are not the same things. Iced tea is usually made by steeping the tea in hot water and then cooling it afterward, while a cold brew is made by leaving the leaves to brew in regular (or cold) water temperatures for hours.

Some Differences Between Hot Tea, Iced Tea, and Cold-Brewed Tea

Before we talk about health benefits, let's review some of the other ways that these teas differ from one another.

The first is the aroma. The temperature at which you drink your tea can affect its aroma, no matter what kind of tea you're drinking. In general, cold foods and beverages aren't as flavorful as warmer ones. A warm cup of tea will release more flavor-carrying vapors, giving it a stronger, more noticeable aroma.

This can be a nice benefit, as it gives you aromatherapy effects while you're sipping, which can help improve focus, concentration, and mood, as well as relaxation, depending on what type of tea you're drinking.



Second, the teas are likely to taste different. The colder a beverage is, the more difficult it is for your taste buds to determine the subtleties in the flavor. Warm tea is clearly recognizable on your tongue, giving you a broader taste experience than cold tea.

Iced tea, as well, will typically taste stronger than cold brew. Cold brew is more delicate and smooth because the cold water is not as conducive to the release of bitter-tasting tannins.

Healthy Components in Iced Tea Vs. Hot Tea

The health-promoting power of your cup of tea depends a lot on how many health-promoting compounds you can pull out of the tea leaf (or powder) into the water. Hot water pulls these compounds out faster than cold water, which is why it takes less time to make. Hot water can also degrade and destroy some of the more fragile compounds, however, which is why it's important not to steep it too long.

Cold water is gentler in terms of how it treats the healthy components, but it also takes much longer to pull those components out of the leaf or tea bag that you're using.

In a 2015 study, scientists compared three infusion methods to see how they affected the number of healthy compounds in the tea.

- **Standard hot water infusion:** water at 194 degrees (black tea), 167 degrees (green tea), and 185 degrees Fahrenheit (oolong tea), with tea steeped for 3-4 minutes.
- **Cold water infusion:** water at 39.2 degrees left to brew for 12 hours.
- **Hybrid tea infusion:** steeped in hot water first (176 degrees Fahrenheit) for 3-5 minutes, then ice is added to the tea.



The results showed hot infusion had rapid extraction power, but it also was more likely to degrade the compounds. Cold infusion extracted a higher level of healthy molecules. The hybrid method, interestingly enough, was similar to the cold in terms of antioxidant power. Scientists believe this was because the hot water extracted the compounds quickly, but then the fast cooling prevented them from degrading.

The researchers also looked at caffeine levels. They found that for all teas, the hybrid infusion created the highest level of caffeine. This was followed by the hot method and finally the cold method, which created the lowest level of caffeine.

Which Should You Choose?

In general, both hot tea and iced tea are healthy beverages, and you can feel free to enjoy whichever you prefer. Both are likely to provide the health benefits mentioned in other chapters of this book.

But if you're looking for some guidance on which may be better for you, consider the following points.

Hot Tea is Better For:

- **Weight Loss**

In a study of over 6,000 adults, researchers found that women who drank hot tea lost weight, while women who drank iced tea gained weight. More specifically, increased iced tea consumption was associated with a higher body mass index (BMI), greater waist circumference, and greater skinfold thickness. Hot tea was associated with a lower waist circumference and lower BMI.

Other studies have shown conflicting results, however, so we need more research on this to be sure.

- **Glaucoma**

One study published in the *British Journal of Ophthalmology* found that individuals who consumed at least one cup of hot tea per day had a 74 percent reduced risk of developing glaucoma compared to non-drinkers. No such association was found in people consuming iced tea, decaf tea, coffee, or decaf coffee.

- **Cold and Flu Symptoms**

If you're stuffed up, hot tea is the way to go. In one study, researchers found that cold water made nasal mucus harder to pass through the respiratory tract as it became harder and thicker. Hot liquids, on the other hand, made them easier to pass and helped participants to breathe more easily.



- **Higher Caffeine Levels**

If you need an energy boost or want to improve focus and alertness in the middle of a long workday, hot tea is probably best. It usually has more caffeine than cold tea, with the possible exception of oolong tea, which in one study, released more caffeine in cold infusions.

- **Warming Up**

Few things feel as cozy as a hot cup of tea on a warm day!

- **Socializing**

Though iced tea is often served at social events, hot tea may be better. In one study, researchers found that the mere act of holding a warm cup of tea made people act warmer toward each other and perceive other people as friendlier.

In a second related study, people who hold a warm cup of tea were more likely to choose a gift for a friend, whereas those who held cold therapeutic pads were more likely to choose a gift for themselves.

- **Calm Anxiety**

If you're feeling nervous or anxious, choosing hot tea over iced tea can help. Hot tea has been shown in many studies to help improve mood and reduce stress and anxiety levels.

- **Ease Digestion**

Tea with your meal can help move your digestion along. It aids the stomach in metabolizing and breaking down certain types of foods, especially those containing fat, while cold beverages can do the opposite.

Iced Tea is Better For:

- **Antioxidant Levels**

If you want your cup of tea to have the optimal level of antioxidants and other healthy compounds, iced tea or cold brewed tea is the way to go. These methods seem to preserve the important parts of the leaf better than hot water alone.



- **Lower Caffeine Levels**

For those trying to cut back on caffeine, choose cold-brewed tea. It usually produces tea with less caffeine than hot-water brewing. This may be because cold teas bind caffeine with antioxidants.

- **Cooling Off**

Many people find it difficult to even think about a cup of hot tea on a hot day! Yet a refreshing cup of iced tea can be just the thing you need to cool off.

- **Alternative to Sugary Sodas**

If you're trying to break the soda habit, iced tea can help, as long as you choose the unsweetened kind. It has no sugar and usually a lot fewer calories too yet can taste just as refreshing.

- **Adding to Your Tea Consumption**

On those days when it's too hot to drink a cup of hot tea, choose iced tea instead. That way, you'll still get the healthy components in the tea while enjoying a healthy beverage.

What About Convenience Iced Teas?

All of the above information is on homemade iced tea. If you buy iced tea pre-bottled at the store, be careful, as some may contain fewer healthy compounds than homemade iced tea.

Prevention magazine tested several convenient iced teas and found that most homemade iced tea (hot-brewed and cold-brewed) contained more antioxidants than most convenience teas. Some convenience teas, though, still retained high antioxidant levels. These included:



- Nestea Liquid Concentrate Iced Tea
- Honest Tea Moroccan Mint
- Lipton Iced Tea
- Lipton Cold Brew tea bags

The good news is that even the lowest-scoring convenience iced teas contained at least as many antioxidants as fruits and veggies like strawberries and spinach.

Chapter 14

When Some Teas May Be Bad for Your Health

Tea is generally one of the healthiest beverages you can drink.

But there are some situations where you may want to be careful about which teas you choose and how often you drink them.

We review those in this chapter.

1. You're Concerned About Your Liver Health

If your liver is compromised, you have liver disease, or you're otherwise concerned about your liver health, you'll want to be careful not to consume too much of some types of tea.

Comfrey tea, for instance, is made using the leaves of the comfrey plant. It has a long history of use as a treatment for aches and pains, and modern research suggests that topical treatment with comfrey may help ease back pain, osteoarthritis, and sprains.

But comfrey also contains compounds that can be toxic to the liver. In 2001, the U.S. Food and Drug Administration

advised supplement manufacturers to remove supplements containing comfrey from the market because of this risk.

Green tea *extract*, kava kava, and chaparral have also been linked to liver damage when taken in supplement form and at high doses. Green tea, on the other hand, has been shown to be protective of liver health.

In general, one to two cups of tea aren't going to hurt you, but if you have liver disease, always check with your doctor about consuming more than that.



2. You're Prone to Heartburn and Reflux

Tea is mildly acidic, which means that if you regularly suffer from heartburn and acid reflux, you may find that it causes symptoms.



Other times, however, people with reflux issues find that tea can help ease symptoms.

It depends on a lot of factors, including what kind of tea you drink and how you make it. How long you steep it affects its acidity, so if it's bothering you, try steeping for a little less time. Adding lemon and sugar can also trigger acid reflux, so it's best to leave these out.

Green tea is the best choice for people with heartburn and similar issues as it's

one of the least acidic teas. Other good options include ginger, holy basil, and chamomile.

Teas that are more likely to stir up your symptoms include peppermint and spearmint—they have developed a reputation for worsening reflux episodes. Fruit-infused teas like lemon and orange can also cause problems, as may teas with a high caffeine content like black and oolong.

3. You're Sensitive to Caffeine

If you're sensitive to caffeine, you may choose tea over coffee. Tea does have a lower caffeine content than coffee, so this will help to a certain point.

If you consume a lot of black, pu-erh, or oolong tea, however, you could still be getting more caffeine than your body would like. Drinking too much black tea throughout the day, for instance, could result in symptoms like anxiety, stress, restlessness, and irritability. Some sensitive people may also suffer from headaches.

You can fix this easily by adding in some low-caffeine or zero-caffeine herbal teas in between your cups of black tea. That will help you cut down on your caffeine intake.

4. You're Vulnerable to Kidney Stones

Kidney stones are hard deposits made of minerals and salts that form inside your kidneys. Some people are more at risk for them than others.

Common risk factors for kidney stones include the following:

- Family history of kidney stones
- Not drinking enough water
- Eating a diet high in protein, sodium, and sugar
- Obesity
- Inflammatory bowel disease
- Repeated urinary tract infections
- Certain supplements and medications, when used excessively



Black tea has a high oxalate content, and we know that oxalates can bind to calcium and form kidney stones. That's why tea is often on the list of things to avoid for those prone to oxalate kidney stones.

The studies on this, however, have been mixed. Some studies show an increased risk when drinking black tea while others don't. Some studies even show that those drinking black tea are less likely to get kidney stones.

Still, there is a risk with black tea, so if you are vulnerable to kidney stones, it's best to limit how much black tea you drink until we know more. Meanwhile, feel free to drink more green tea. Studies indicate that green tea has compounds that make it more difficult for certain kidney stones to form. Specifically, green tea bonds to calcium oxalate and makes the resulting crystals a different shape, which makes them less likely to clump together.

5. You Have High Blood Pressure

If you have high blood pressure, you may want to be extra cautious with licorice tea.

This tea is made from the root of the licorice plant. It has a similar flavor to black licorice with notes of anise and peppermint. Traditionally, it was used to help ease digestive problems and soothe symptoms associated with nausea and upset stomach. It also has antispasmodic effects that may help with gas and bloating.

Licorice also has healthy antioxidants and anti-inflammatories that can help delay premature aging, promote oral health, and ease a sore throat. It can interact with some medications, though, including high blood pressure medications. It contains glycyrrhizinic acid, which sets off a chain reaction in the body that can increase blood pressure.

True teas, however, like black and green tea, have been shown in several studies to help reduce blood pressure, so choose one of these instead.

6. You're Concerned About Pesticides

Pesticides are regularly used to grow crops, and tea is no exception. But just how much of those pesticides are making it into your cup?



This is something scientists have been looking into recently. There's good and bad news. The bad news is that some studies have found pesticide residues in tea, sometimes at levels higher than are considered safe.

The good news is that other studies have found that even when pesticides are present, they are not highly soluble in water, so they don't come

through to your cup. (Extended brewing or steeping time resulted in a higher transfer of pesticides to the tea brew.) Other studies have shown the processing of the tea leaves—when they are baked, roasted, or withered in the sun—also helps significantly reduce pesticide residues.

If you're concerned about pesticides, be more careful about the types of tea you purchase. Buying from those companies who have relationships with farmers is likely a good choice and buying organic may also help reduce your exposure (though organic farms do still use some pesticides).

7. You're Drinking Bottled Tea

It's nice to have so many beverage choices when you go to the store. You can grab some refreshing iced tea on the go and not have to make it yourself.

According to the Tea Association of the USA, about 75-80 percent of the tea consumed in the U.S. is iced tea. And Americans drink more than 1.8 billion gallons of ready-to-drink iced tea in 2018, making it one of the most popular drinks.

Unfortunately, many ready-made bottled iced teas are not good for you. They contain a lot of added sugar, for example, which makes them similar to soda pop. Snapple Peach Tea, for instance, contains a whopping 19.5 grams of sugar. Lipton Pureleaf Iced Tea Extra Sweet contains 23 grams. Some contain even more than that, particularly if they have more than one serving in a bottle, which is common.

The American Heart Association recommends that men consume no more than 36 grams a day and women no more than 32 grams, so if you choose these types of teas, you could be blowing more than half your allotment in one beverage.

What about the diet iced teas? These are sweetened with artificial sweeteners like aspartame or sucralose. Yes, they have fewer calories, but recent research has linked consumption of these sweeteners with an increased risk of heart disease, obesity, and diabetes.



In a recent 2022 study, for instance, researchers found that higher consumption of artificial sweeteners—including aspartame and sucralose—was linked with an increased risk of cardiovascular disease.

In a 2020 study, researchers noted that artificial sweeteners are metabolized differently from regular sugars, which may explain why they have negative effects. In 2017, researchers noted that artificial sweeteners change the microbiome—the balance of natural bacteria in the digestive system—which can lead to increased calorie consumption and weight gain.

Finally, if you want to get those healthy antioxidants from your tea, realize that you probably won't get many from bottled iced tea. In laboratory testing on a variety of bottled iced teas, researchers found that black tea bags steeped for 5 minutes in hot water contained more than 600 mg per cup of polyphenols—a type of antioxidant—while bottled black tea contained only 68 mg per cup.

Why would this be? Researchers theorized that the ratio of water to tea is higher in bottled teas than in the tea you make at home.

So, either choose to make your own iced tea and put it in a water bottle to take with you or look for higher quality unsweetened bottled teas.

Bottom Line

Most of the time, you can feel good about drinking your cup of tea or iced tea. But it's good to be aware of those situations where certain teas may not be a good idea, depending on your unique physiological makeup and on what type of tea you buy.

Chapter 15

How to Make the Best Cup of Tea

Many of us are perfectly satisfied tossing a tea bag in a cup and splashing some boiling water over it.

But real tea enthusiasts say that’s just not the way to do it.

If you want to enjoy your best cup of tea, try these tips on how to make it!

Step 1: Choose the Best Tea

We’ve talked quite a bit in this ebook about the quality of the tea you buy. In most cases, loose-leaf tea will make a healthier and more flavorful cup of tea than will crushed tea leaves and tea dust, which is



often what you find in commercially produced tea bags.

For a great brew, your tea leaves also need room to expand, and bags tend to restrict them to some extent. In addition, when tea comes in a bag, it’s harder to judge the quality, as you can’t see it as well.

If you’re choosing loose-leaf tea, what you see is what you get. Look for leaves that are intact and avoid those that look crumbly or appear to contain a lot of stalks and woody fragments, as these will be less flavorful and may contain

fewer healthy compounds. Read the ingredients, which should include simply the tea leaves themselves. (Beware of any products with additional ingredients like artificial flavors and colors.)

Take a moment to inhale the aroma of the tea. When steeped, quality tea should be deeply aromatic.

It may help to touch the leaves as well. They should have a slight heft in your hands, with the leaves feeling smooth, whole, and robust. If the tea feels feather-light, it may be over-dried or starting to get old. High-quality loose-leaf tea should keep its shape with gentle handling. If it crumbles or disintegrates, pass it by.

If you do choose a bagged tea, look for those that have whole leaves inside them. Those packaged in see-through sachets or pyramids give you a glimpse of the tea inside and expand more easily than flat bags. Seek out quality brands that use only high-quality tea leaves. Some manufacturers use blends containing high-quality teas mixed with those of lower quality.

No matter what kind of tea you get, do some research on the manufacturer to find out how they harvest and process the tea. You'll get more information on the quality of the tea that way.

Finally, keep in mind that quality teas have a shorter shelf-life, and after some time, will start to deteriorate. Fresh teas will have the highest health-boosting ingredients.

2. Boil the Water

Select the water you're going to use. Typically, that's tap water, but many tea enthusiasts use filtered water to get the best taste. You can use a charcoal filtration system like what you'll find with Brita brand filters or purchase filtered water.

Different types of tea require different water temperatures to brew. An electric kettle with a temperature setting can make this step easier, but you can always use a thermometer as well.



Check the packaging for guidance, or follow these general guidelines:

- **Black Tea:** 205-212 degrees Fahrenheit
- **Pu-erh Tea:** 180-195 degrees Fahrenheit
- **Green Tea (or Matcha Tea):** 175-180 degrees Fahrenheit
- **Oolong Tea:** 185-205 degrees Fahrenheit
- **White Tea:** 165-170 degrees Fahrenheit
- **Herbal Tea:** 175-212 degrees Fahrenheit

3. Warm the Pot

Whether using tea bags or loose-leaf tea, warm your pot before you put brew the tea. This will not only help keep your tea nice and hot, but it will avoid “shocking” the tea when you put it in. The cold temperature of a pot colliding with boiling water can negatively affect the quality of the brew. Pre-warming also helps prevent cracking and crazing (fine spider lines) that can appear when hot water shocks a cold teapot.

Simply take some of the boiled water, fill half the teapot, give it a few swirls, then throw out the water.

Consider too what type of pot you have. If you want the best-tasting tea, avoid metal tea ware. Metal is fine for boiling water, but the metal can react with the tea, particularly at high temperatures. Instead, choose glazed clayware, porcelain, and glassware. Often porcelain is considered best as it helps keep your tea warm.

4. Put the Tea in the Teapot and Add the Hot Water

As soon as your water boils, pour it over the tea. Overboiling will deplete the oxygen in the water, making the tea taste “flat.”



It’s also important to always add the boiling water to the tea, not the other way around — putting the water in the cup and adding the tea to it. Unless the water is at a boiling point when it makes contact with the tea, the tea won’t brew properly.

The general rule is one tea bag or 1-2 teaspoons of loose tea for every 6–8-ounce cup. If you like your tea stronger, increase the amount of tea but not the steeping time, as that can result in a

bitter-tasting cup.

If making a single cup of loose tea, place the tea into a tea strainer, put the strainer into your cup, then pour the freshly heated water directly over the leaves. If using a teapot, measure 1-2 teaspoons per 8 ounces of water. You can also put the loose leaves directly into the pot, then use a strainer when pouring the tea into your cup.

Finally, cover your tea if you can while it brews. Both your taste buds and your sense of smell contribute to the flavor you perceive. Contain all those aroma compounds by keeping your cup or pot covered, then inhale all the goodness when you take your first sip.

5. Give the Tea the Appropriate Steep Time

How long you steep the tea is very important to the final taste. If you don’t let the leaves (or bag) sit in the water long enough, you’ll get a weak tea. If you let them sit for too long, you’ll have a strong, bitter-tasting cup of tea.

In general, green tea steeps the fastest, so there is a greater risk of bitterness. Oolong and black tea need a little more time. White tea is the exception—it usually doesn’t become bitter even with longer steep times. Similarly, most herbal teas simply become stronger the longer you steep them.

Here are some general steep-time recommendations:

- **White:** 2-4 minutes
- **Green:** 1-3 minutes
- **Oolong:** 2-4 minutes
- **Black:** 3-5 minutes
- **Pu-erh:** 5 minutes
- **Herbals:** 3-5 minutes or longer

For the best-tasting cup of tea, set your timer!

6. Prepare Your Cup

When the tea is done, enjoy it immediately if you can. That means removing the bag or pouring the tea into your cup (through a strainer if needed).

With loose-leaf tea, your best approach is to use a tea infuser inside your cup or teapot, as that way you can remove the tea leaves from the water after the first pour. This prevents the leaves from sitting in the pot or cup where they can cause the tea to become bitter tasting.

Whatever type of tea you're making (except for herbal tea), always remove the tea leaves or tea bag once you've finished steeping. That way you can use either again for a second or third cup. For the second steep, make sure you start with fresh water (old water lacks oxygen) and add 1-2 more minutes to the steep time.



7. Don't Squeeze the Bag!

If you're using a tea bag, resist the urge to squeeze it before you remove it. Whether you use a spoon to smash it against the side of the cup or strangle it with its own string, what you're doing is squeezing the bitter tannins in the tea back into your cup. That will give your tea a bitter taste when it didn't have one in the first place.

Instead, gently remove the tea and either save it for another brew or toss it.

8. What About Milk?

Whether or not you add milk is all up to personal preference. The idea became common in Britain in the 18th century, and there are several theories as to why.



Tea was valuable then, so some think people added milk to it so they could use less and preserve what they had. The milk also helped cool the tea down enough so that it wouldn't crack the China cups they used.

Another theory is that the tea back then didn't taste the best, as it had to endure long sea voyages in less-than-optimal containers, so people added milk to improve it. During the industrial revolution, working-class Brits added milk

to their teas to help them keep going through the long workday.

In Tibet, adding milk to tea helped stave off hunger. In India, milk is an integral part of masala chai, and its history may have started thousands of years ago.

Regardless of how it originated, tea with milk in it has remained a favorite in many households. The taste is usually better if you add the tea to the milk rather than the other way around. That brings the milk to the temperature of the tea, distributing the flavor more evenly.

Does adding milk dull tea's health benefits? Studies are mixed on this. Proteins in milk can bind to the antioxidants in tea, which could interfere with their absorption, but we don't know how much.

One study, for example, found that adding milk to black tea inhibited the activation of a gene that helps to open blood vessels. In other words, the study results suggested that adding milk may inhibit tea's natural ability to lower blood pressure.

Other studies have found similar results, showing that black tea with milk didn't have the same health benefits as black tea without milk. But then we have some studies suggesting that milk makes no difference in the absorption of some antioxidants and that longer brew times may lead to better absorption regardless of the addition of milk.

The bottom line is right now, we just don't know, so it's best to enjoy your tea as you like it. In general, black and dark teas seem to work best with milk. Of course, you can add it to lighter teas as well, but you may want to taste green and white teas on their own first. If you want to get fancy, add frothed milk or condensed milk to your cup with a drop of vanilla.

9. Can I Use the Microwave to Make Tea?

Most tea experts recommend that you do not use the microwave to make tea. When you use an electric kettle or heat water on a stovetop, you get uniformly hot water. In the microwave, the water has hot and cold spots that aren't ideal for steeping tea.

It's also difficult to determine the temperature of water heated in the microwave. You can use it in a pinch, but for the best-tasting tea, boil your water with traditional methods.

10. What About Iced Tea?

In general, the recommendations for making the best iced tea are similar to those for making the best hot tea, particularly if you hot-brew your tea first. You may want to use a bit more tea, though, as cool temperature numbs the flavor, so iced tea in general should be brewed a bit stronger than hot tea.

Brew the tea for the stated brew times, then strain it, let it cool a bit at room temperature, and put it into the refrigerator until it's chilled. Cooling at room temperature first helps prevent cloudy iced tea.



If you're in a hurry, you can pour your brewed tea over ice and consume it right away, but beware that this may release more tannins and result in a more bitter-dry taste. Or you can steep a tea "concentrate" in boiling water, strain or remove the tea bag, then add an equal amount of cold water to cool it down. Serve immediately over ice.

With cold-brewed iced tea (made with cold water), follow these tips to get the best results:

- Use one tea bag or 1-2 teaspoons of loose-leaf tea per cup of water.
- Add the tea to the water and cover your pitcher.
- Refrigerate for 8-12 hours. The longer you leave the tea in, the stronger the flavor. It's best to brew for no more than 12 hours.
- Remove the tea bags or infuser and your tea is ready to drink.

With cold brewing, you don't have to worry as much about bitter taste, as the cold water doesn't release the tannins as much as hot water. So, you can leave the tea in longer.

Be aware that iced tea has the potential for bacterial growth. If you notice that your tea smells "off" or that it has a thick or syrupy appearance, it's bad and needs to be discarded. The best approach is to make smaller batches that you will use quickly. Then store under a tight seal.

If you add sweeteners, fruits, or garnishes, these will decrease the tea's shelf life. Add them the day that you will consume them.

Chapter 16

10 Tips to Help You Find the Highest-Quality Tea

You're convinced. You're ready to elevate your standards and enjoy the highest-quality tea possible.

Where do you start?

We've got five tips you can use to hunt down the best teas to enjoy in your home or on the go.

1. Be Willing to Pay for It

Like most things, you get what you pay for when you buy tea. Those available at the cheapest prices are typically lower-quality teas. Often these are made with the CTC (cut, tear, curl) method when the leaves are sent through a machine that cuts, tears, and curls them into small pellets. They're then stuffed into cheap teabags that are convenient to use and have a long shelf-life.



CTC processing is suitable for standard grocery-store teabags and delivers a dark, strong brew quickly, though often at the expense of the more subtle aromas of tea. If you want a higher quality tea,

choose one made by the Orthodox method in which tea leaves are delicately handled to ensure minimal breakage.

This is a more time- and labor-intensive process, and therefore the final product will be more expensive. If you choose well, though, you'll be rewarded with an amazing-tasting and smelling cup of tea.

Of course, not all expensive tea is good tea, and not all tea is wildly expensive, but quality tea leaves grown and processed with skill will cost more than the tea you typically buy at the grocery store.

2. Read the Label

Though tea manufacturers are likely to put their best foot forward on the front of the label with flattering descriptions of their teas, the real message is in the ingredient list. Make sure you always check before you buy a tea and avoid anything that includes artificial flavors, sweeteners, and other ingredients you don't recognize, as it's likely these are covering up a low-quality tea.

3. Examine the Particle Size

The size of the tea particles can vary from small powdery particles to delicately rolled full-size leaves. The full-size leaves are the best. After that, larger particles indicate a higher quality tea. If you're choosing tea bags, look for those with see-through sachets or pyramids, then examine the particles. The bigger the better.

4. Choose Loose Leaf Tea

We've mentioned this in previous chapters, but it's worth stating again here as it's so important to the quality of the tea. By far, the best tea comes in loose-leaf forms.

But how do you choose the best quality loose-leaf tea? It turns out that tea leaves are available in different grades. That grading is based on the size of the leaf and the types of leaves included in the tea. You may have heard of terms like “#1 Grade,” “1st Flush,” or “Orange Pekoe.” These all describe the grade of the tea, but they can be confusing!

Unfortunately, there is no worldwide industry standard when it comes to tea grading. In India, they use the Orange Pekoe grading system, which has nothing to do with oranges. In China, they often use a number system, with #1 being the highest grade. In Japan, they tend to grade by the part of the tea used in harvest and on some processing variations.



Generally, the more whole the leaf is and the more buds it contains, the higher the grade of tea. Here is a general introduction to different types of tea grading to get you started:

Orange Pekoe Grading (used for black teas mostly, and sometimes green teas)

- **Pekoe (P):** smaller, shorter leaf than OP
- **Orange Pekoe (OP):** long, thin, tightly rolled leaves
- **Flowery Orange Pekoe (FOP):** longer leaf than an OP but not as tightly rolled; “flowery” denotes the large tea leaves which are typically plucked from new shoots and consist of two leaves and a bud
- **Golden Flowery Orange Pekoe (GFOP):** FOP with some golden tips (the very end of the golden tea buds)
- **Tippy Golden Flowery Orange Pekoe (TGFOP):** GFOP with more golden tips
- **Finest Tippy Golden Flowery Orange Pekoe (FTGFOP):** better quality TGFOP teas
- **Broken Orange Pekoe (BOP):** OP leaves that are broken
- **Flowery Broken Orange Pekoe (FBOP):** FOP leaves that are broken

In general, the higher grades of tea are harvested from the very top bud in a tea shrub, whereas the lower grades are harvested from the lower, larger leaves. In the grading system above, more descriptors indicate a better quality or fancier tea.

Flush Grading

The time of year the tea is harvested can affect quality. Each seasonal harvest, or flush, has a different flavor. The early spring First Flush has a light aroma and subtle flavor, whereas later flushes have a full-bodied flavor.



Numbered Grading

Many Chinese teas are graded by a number with #1 being the best and #5 being the lowest grade.

Description Grading

Many tea companies use descriptive words to grade their teas. These may include:

- Special
- Finest
- Common
- Choicest
- Extra Fancy
- Topset
- Superior

There are no standardized meanings for these words, so take them with a grain of salt. Check the tea leaves carefully to determine their quality.

Japanese Tea Grading

This grading system is usually based on when the plant was harvested and what parts were used.

- **Sencha:** The first and second flush of green tea made from leaves exposed directly to sunlight. This is the most common green tea in Japan.
- **Gyokuro:** This is a fine and expensive type of tea that is grown under shade for about 20 days. The shading increases the theanine and caffeine content in the tea while decreasing bitterness.
- **Matcha:** A fine ground tea that's similar to Gyokuro but is powdered.
- **Bancha:** A lower grade of Sencha harvested as a third- or fourth-flush tea between summer and autumn.
- **Kukicha (twig tea):** A tea made from stems, stalks, and twigs. It has a mild nutty, toasted, and slightly creamy flavor.

5. Check the Leaves Carefully

The leaves should be fresh and fully intact. Look them over. If they are broken and covered in tea dust, they're not as high a quality as those that aren't compromised.



Loose-leaf tea should not contain any stems, stalks, or woody fragments either. The leaves should have a smooth texture. Put a few in your hands and see how they feel. Any type of roughness is not a good sign. The tea leaves should also hold up to gentle handling. If they crumble under pressure, they've been baked too long or they're old and stale.

Check the color too. Look for dark or bright full colors. Dull colors or color tints that don't match the type of tea (green tea that looks yellow) are an indication of a lower-quality tea.

6. Use Your Nose

A lack of smell in the loose-leaf container is an immediate giveaway of a low-quality tea. If you inhale deeply and get only a trace amount of scent, the tea is either inferior or stale. You want light, fresh, and soothing fragrances emanating from the bag or tin. When you steep the tea, it should also be deeply aromatic.

7. Taste is King

Finally, let your taste buds be the judge. When tea is prepared properly, it should taste fresh initially with a pleasant aftertaste. Sip slowly, allowing the tea to roll over different parts of your tongue. You should be able to notice different flavor notes.

When brewing your tea, check that the flavor matches the description of the tea that you purchased. If it has a stale or musty flavor, pass it by next time. Or if the flavor is barely noticeable, overly astringent, or unpleasantly chemical-tasting, you're drinking inferior or old tea.

8. Buy from a Tea Shop

If you have a tea shop near you, do your shopping there. That's because most tea shops will be happy to brew you a sample, allowing you to taste it before you purchase. A good tea merchant will also be able to tell you about the tea, including where it comes from, how it was made, and what's unique about it.

Some companies will allow you to customize your teas—choose your own color, flavor, or blend. This can be beneficial if you're looking for certain flavors or health benefits.

9. Buy from Quality Online Shops

If you aren't lucky enough to have a good tea shop in your area, take your search online. Beware of the big chains, however, as they typically don't carry high-quality tea. The names you commonly see in grocery stores will carry more blends and sweetened teas than quality tea. They tend to buy leaves in vast quantities from middleman brokers and then add spices, herbs, and sometimes flavorings and sweeteners to their products to mask the taste of the low-quality tea.



Instead, think of smaller companies. Some of the best teas in the world are sold by small businesses that have relationships with tea farms. If you see a site that offers you 100s of types of teas from around the world, realize that they are buying them from brokers, so it will be harder to trace the source.

Smaller companies offering a more modest inventory are more likely to have the information you need to determine the quality of the tea. They are more likely to buy direct from tea farms every year.

Here are some quality online sources you can try:

- Song Tea (<https://songtea.com/>)
- T Shop (<https://www.tshopny.com/>)
- Verdant Tea (<https://verdanttea.com/>)
- In Pursuit of Tea (<https://inpursuitoftea.com/>)
- Rishi Tea & Botanicals (<https://rishi-tea.com/>)
- Adagio Teas (<https://www.adagio.com/>)
- Mountain Rose Herbs (<https://mountainroseherbs.com/>)
- Art of Tea (<https://www.artoftea.com/>)
- Harney & Sons (<https://www.harney.com/>)

10. Do Your Research

When you're shopping, don't be afraid to do some research and/or ask questions. Many small businesses will include detailed descriptions of the farmers' methods for growing and processing their teas right on the website. This is usually a good sign that they work closely with their suppliers to purchase quality teas.

Check over the product labels, the manufacturer's website, and customer reviews. Then don't be afraid to call if you have more questions. Many tea shop employees will be happy to answer your questions.

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Chapter 16

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About Exercises For Injuries

Exercises For Injuries – Your Trusted Resource for Pain-free Living

Recognized as a global leader in injury prevention and recovery since 2008!

At Exercises For Injuries (EFI), we recognize that traditional exercise and treatment programs often do not produce the results that people are looking for. We believe that understanding the cause of injuries and painful conditions can help heal and prevent them. Therefore, our programs are based on years of research, study, creativity and hands-on testing. Our methods successfully determine what works to heal injuries and eliminate pain without expensive appointments, addictive prescriptions or risk-laden surgery.

Often recognized as the “Trainer to the Trainers” and the “Expert to the Experts,” company founder Rick Kaselj has been featured in major publications such as Livestrong.com, Men’s Health magazine, the San Francisco Chronicle, Canada.com, Iron Man Magazine, Men’s Journal magazine, and has delivered presentations and seminars to *more than 6,000 health and fitness professionals across North America*. As an internationally renowned injury and pain expert, Kinesiologist, author and public speaker, Rick has made it his personal mission to make his groundbreaking programs available to as many people as possible so that they can return to pain-free lives.

Today, the EFI team is comprised of health and wellness experts from around the world. We help hundreds of thousands of people each year live fuller, healthier, pain-free lives by addressing all areas of health, fitness and personal well-being.

Access our vast FREE library of health-promoting recipes, pain-relief resources and injury recovery information, online at ExercisesForInjuries.com

About Rick Kaselj

Hi, I'm Rick Kaselj. I create exercise programs that help people heal injuries, eliminate pain, lose weight, increase energy and more ... so they can go back to living a full, active, healthy life.

Here are a few relevant facts about me:

- I've been a Kinesiologist and pain and injury specialist since 1994.
- I spent six years at university studying Kinesiology, corrective exercise and therapeutic exercise and got my master's degree in exercise science.
- I have 25+ years of hands-on experience, working directly with clients and teaching my techniques and programs to fitness professionals, Kinesiologists and healthcare providers.
- I have personally conducted thousands of personal training sessions.
- I have reviewed and carefully scrutinized hundreds of scientific and medical research papers and studies.
- I'm also an author and speaker, and I've given more than 260 presentations to more than 6,000 fitness professionals across Canada and the U.S.



I USE RESEARCH, STUDY AND HANDS-ON TESTING TO FIND WHAT REALLY WORKS TO HEAL INJURIES AND ELIMINATE PAIN

I'm all about finding what works ... and, unfortunately, much of the advice out there, even from trained professionals and reputable sources ... does not work!

Some of the most effective methods I've discovered for eliminating pain and healing injuries are *counterintuitive* — they required extensive research, testing and *creativity* to discover.

People get the best results when they follow a program that's been *designed properly*. The best programs include only the exercises that are necessary, instructions for how to perform them properly, the proper order in which to perform them and instructions for what the right amount of rest is and when to take it.

What Our Customers Say

"Your exercises have changed my life. I have been in constant pain for 15 years."

— **Shelley Watson, Carmel, California**

"I just wanted to say thank you for providing what I needed to resolve my hip problem! After following your exercises, I went through work all day with no pain and no pain medication. Yeah! Thanks so much for a simple answer to a problem I have been dealing with for months."

— **Tracy Walker, North Carolina**

"Before I used the information, I couldn't walk normally for at least the first 15 minutes each morning. After using the program, I only have a little pain but, eventually, it all got better with continued attention."

— **Cher Anderson, Athens, Tennessee**

"Thank you, Rick. You saved my career!"

— **Marco Mura, Professional Forester, Sardegna, Italy**

"I thought I would just have to retire due to foot pain, but now my pain is gone with your program. It has helped me a lot. Thank you, Rick!"

— **Audal Acosta**

"I noticed a difference by the second morning. I was able to get up out of bed without the immediate pain and stiffness I am used to experiencing in the morning. I am now able to walk 1.5 miles without pain during or after my walk. That is exciting! I was in constant pain before I started the program and now, I am able to take walks with my husband, pain-free."

— **Jennifer Dixon, Payroll Supervisor, CPP, Wenatchee, Washington**

"I have suffered with plantar fasciitis for over a year, with no relief, no matter what I tried. One week into your program, and I'm able to do exercises that I have been unable to perform for some time now."

— **Dave Elder, CFT, Infinite Fitness, Fort Wayne, Indiana**

"The best thing about the program is that it starts to work quickly. I have already started to notice improvement. My heel says, 'Thank You, Rick!'"

— **Sue, Former Fitness Instructor**

Free DVD Offer

I HAVE A FREE GIFT FOR YOU... *THAT WILL START DECREASING YOUR PAIN NOW!*

I want to send you some of my very best *pain-hacking techniques* FOR FREE!

It's a DVD called "The Pain Hacker," and I **want you to have it for free.**

On the DVD, you'll find an extensive collection of 90-second pain fixes, which are exactly what they sound like — techniques you can do in just 90 seconds that can start reducing your pain almost immediately! In the video, I go through each technique slowly and carefully to show you exactly how to do them. Here's what you can look forward to:



- "The Pain Hacker" DVD contains 90-second fixes for shoulder pain, back pain, knee pain, elbow pain, foot pain, neck pain, wrist pain, hip pain, hand pain and more.
- The pain techniques in this DVD will work for you regardless of your current health condition, gender or age.
- **TWO SURPRISE BONUSES!** With your free DVD, I'm also going to throw in two bonus programs that will teach you simple exercises that could radically change the way you feel from day to day.

We have limited supplies right now ... so get your FREE copy of "The Pain Hacker" DVD before we run out. Go here to get yours now:

ThePainHacker.com/Free-DVD-2

Our TOP 5 Best Selling Exercise Programs

#1: The Whole Enchilada

The “Whole Enchilada” is the most comprehensive collection of research-based and scientifically proven pain and injury recovery programs available anywhere. This package includes a total of 31 unique exercise programs, each designed to heal a specific injury, eliminate a specific pain, or help improve your health in a specific way.

These programs WORK, because they were all developed using the most cutting-edge research, scientific studies, and medical papers. Here are the programs included:



- *10 Easy Movements for Hip Bursitis*
- *Achilles Tendinitis Exercise Solution*
- *Ankle Sprain Solved*
- *Arthritis Handbook*
- *Balance Training Handbook*
- *Best Gluteus Maximus Exercises*
- *Best Gluteus Medius Exercises*
- *Effective Rotator Cuff Exercises*
- *Frozen Shoulder Solution*
- *Hamstring Injury Solution*
- *Hip Replacement Handbook*
- *Iliotibial Band Syndrome Solution*
- *Jumper's Knee Solution*
- *Knee Pain Solved*
- *Knee Replacement Handbook*
- *Low Back Pain Solved*
- *Lumbar Spinal Fusion Recovery*
- *Meniscus Tear Solution*
- *Neck Pain Solved*
- *Patellofemoral Syndrome Solution*
- *Piriformis Syndrome Solution*
- *Plantar Fasciitis Relief in 7 Days*
- *Recovery Workouts*
- *Sacroiliac Pain Solution*
- *Scapular Stabilization Exercises*
- *Shin Splints Solved*
- *Shoulder Pain Solved*
- *Tennis Elbow Pain Solution*
- *Thoracic Outlet Syndrome Solves*
- *Unlock Your Tight Ankles*
- *Unlock Your Tight Shoulders*

When you order "The Whole Enchilada", we'll send you a USB Flash Drive that comes pre-loaded with all 31 programs. You only need to plug it in your computer or gadget to instantly access the programs.

Visit: [ExercisesForInjuries.com/Shop](https://www.ExercisesForInjuries.com/Shop)

Type or paste in the Search box one or more keywords of the product name: **The Whole Enchilada.**

#2: Flexibility Over 40 Handbook

You probably already know that inflexibility can lead to balance problems, which can lead to dangerous falls, which can lead to serious injuries... especially in older individuals.

But did you know that inflexibility may be a signal that your arteries are clogged?

SCIENTIFIC RESEARCH has shown that a specific kind of stretching can improve your balance (so you can avoid dangerous falls and injuries), and may even help prevent and reverse heart disease.

Here is some good news...

- Improving your flexibility can make you feel better than you have in years (maybe even decades!)
- Improving your flexibility can make it much easier to do your day-to-day tasks and movements.
- Improving your flexibility can help you resume the activities you LOVE.
- Improving your flexibility can help you regain solid balance and stability.
- Improving your flexibility can help you prevent, and possibly even reverse heart disease.

IMPORTANT NOTE: Most exercise programs that improve flexibility are too advanced and too difficult for older adults, but the stretching routine in our Flexibility Over 40 program was designed specifically for women and men over the age of 40.

Visit: [ExercisesForInjuries.com/Shop](https://www.ExercisesForInjuries.com/Shop)

Type or paste in the Search box one or more keywords of the product name: **Flexibility Over 40 Handbook.**



#3: Piriformis Syndrome Solved

At last, there is a comprehensive, yet simple to follow program that contains the exercises you need to know to naturally rid yourself of Piriformis Syndrome pain.

Imagine being able to bend over or walk up stairs without feeling sharp pain...

Imagine no longer having to spend your money on injections, pain medication and inferior solutions that only work temporarily, or worse, not at all...

Imagine being able to play your favorite sport once again, pain free...

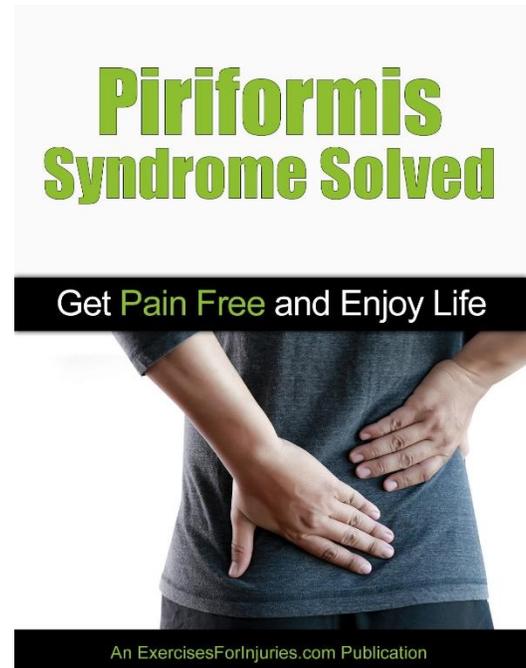
The Piriformis Syndrome Solution is filled with expert tips and exercises that will allow you to eliminate discomfort and pain as fast as possible.

Plus, with the videos, you can see exactly how to properly execute the exercises, so you can avoid using bad form that could negatively impact your results.

Save yourself money and frustration – get the Piriformis Syndrome Solved today and restore pain-free movement!

Visit: [ExercisesForInjuries.com/Shop](https://www.ExercisesForInjuries.com/Shop)

Type or paste in the Search box one or more keywords of the product name: **Piriformis Syndrome Solved.**



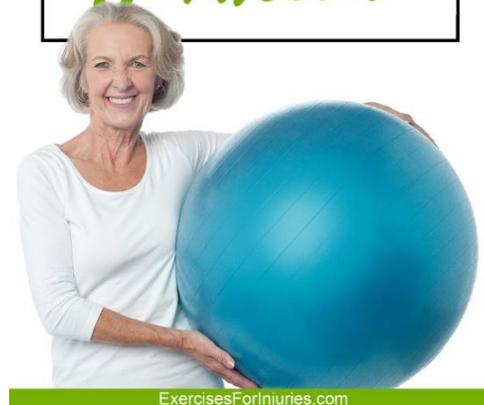
#4: Balance Training Handbook

Regain Your Balance and Your CONFIDENCE with the Balance Training Handbook.

This simple, easy, gentle 8-minute exercise routine will help you improve your balance, prevent falls and protect you from the “bad balance negative downward health spiral.”

Replace your fears of falling and increase your physical activity with confidence! Strengthen your legs, stabilize and strengthen your core and get back to living your life fully.

Return to doing the day-to-day things you NEED to do, and doing them YOURSELF, so you don't have to depend on or burden other people!



Visit: ExercisesForInjuries.com/Shop

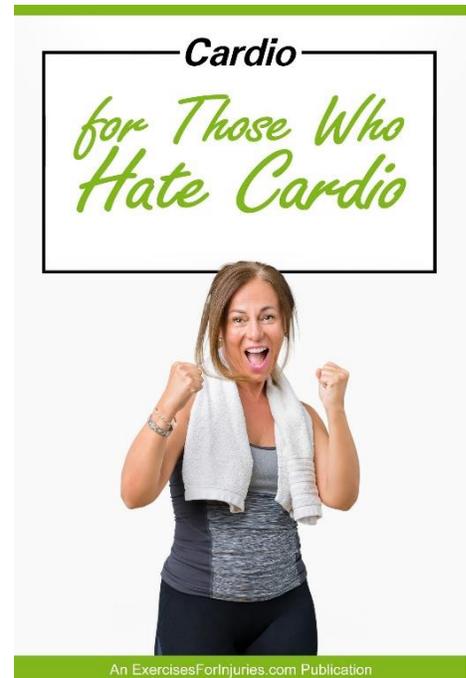
Type or paste in the Search box one or more keywords of the product name: **Balance Training Handbook**

#5: Cardio for Those Who Hate Cardio

Cardiovascular exercise has been proven to help keep your heart healthy... but you HATE CARDIO!

Did you know... you don't have to do "traditional" cardio exercises? This program provides you with a much easier and more enjoyable way to keep your heart healthy, get fit, feel great, and even lose weight.

- This program is designed specifically for women and men over the age of 45, so it's gentle, safe, and very easy to do. It's also fast—you can do the entire routine in under 7 minutes a day.
- And you don't need a gym, any expensive equipment, or special workout clothes.
- This program can ALSO help you lose weight (because you'll be burning more calories throughout the day automatically), increase your energy, prevent injuries, improve coordination and balance, improve your flexibility, and protect against chronic pain



So, get moving today! Burn those calories and invest in your heart-health without the typical boring cardio activities that most people dread.

Visit: [ExercisesForInjuries.com/Shop](https://www.ExercisesForInjuries.com/Shop)

Type or paste in the Search box one or more keywords of the product name: **Cardio For Those Who Hate Cardio.**

GOT PAIN? We Have a Program for You

If you've got a specific pain or injury that you need help with ... *you're in the right place*. For 25+ years, Rick Kaselj has been developing easy-to-learn, easy-to-do, highly-effective, research-based, low-impact exercise programs that are designed to reduce, heal and eliminate *specific* pains and injuries. **These are just some of Rick's programs, categorized by pain and injury:**

BACK PAIN

- Best Gluteus Medius Exercises (back and hip pain)
- Best Gluteus Maximus Exercises (low back, hip and knee pain)
- Sacroiliac Pain Solution (low back pain)
- Lumbar Fusion Exercises (recover faster from lumbar fusion surgery)
- Effective Exercises for Scoliosis (back pain)
- Low Back Pain Solved (low back pain)

KNEE PAIN

- Patellofemoral Syndrome Solution (knee pain)
- Best Gluteus Maximus Exercises (low back, hip and knee pain)
- Knee Replacement Handbook (recover faster from knee replacement surgery)
- Iliotibial Band Syndrome (knee pain)
- Meniscus Tear Solution (knee pain)
- Jumper's Knee Solution (knee pain)
- Knee Pain Solved (knee pain)

FOOT, HEEL & ANKLE PAIN

- Plantar Fasciitis Relief in 7 Days (foot and heel pain)
- Ankle Sprain Solved (ankle pain)
- Unlock Your Tight Ankles (ankle pain)
- Unlock Your Tight Ankles (ankle pain)

SHOULDER PAIN

- Thoracic Outlet Syndrome Solved (shoulder, neck and arm pain)
- Frozen Shoulder Solution (shoulder pain)
- Effective Rotator Cuff Exercises (shoulder pain)
- Scapular Stabilization Exercises (shoulder pain)
- Shoulder Pain Solved (shoulder pain)
- Unlock Your Tight Shoulders (shoulder pain)

NECK PAIN

- Neck Pain Solved (neck pain)
- Thoracic Outlet Syndrome Solved (shoulder, neck and arm pain)

LEG PAIN

- Hamstring Injury Solution (hamstring pain)
- Shin Splints Solved (shin pain)
- Achilles Tendonitis Exercise Solution (calf pain)

MISCELLANEOUS

- Arthritis Handbook (joint pain)
- Piriformis Syndrome Solved (buttock pain)
- Recovery Workouts (speed up recovery between workouts)
- Tennis Elbow Pain Solution (elbow pain)

**To find out more about any of these
or our other pain, injury or exercise programs, go to:**

[ExercisesForInjuries.com/Shop](https://www.ExercisesForInjuries.com/Shop)