L-Theanine in Tea: The Science Reference

From the teas.co.uk wiki

> **L-theanine in tea, in summary:** L-theanine is the tea-unique amino acid that, with caffeine, produces collected focus, not jitter; highest in shaded teas and premium green.

Last reviewed by the teas.co.uk team in January 2026.

L theanine is the amino acid in tea that explains why tea's caffeine "feels different" from coffee's caffeine. Same caffeine molecule; a different feel, because L theanine softens the caffeine's edge, giving easy concentration rather than jitters. The pairing is one of tea's most useful features.

What L theanine is

L theanine (? glutamylethylamide) is an amino acid found almost exclusively in tea (Camellia sinensis) and a few mushroom species. The compound:

- Crosses the blood brain barrier within 30 minutes of consumption
- Increases alpha brain wave activity (linked to a relaxed but awake state)
- Modulates GABA, dopamine, and serotonin levels mildly
- Combines synergistically with caffeine for sustained focus

The L theanine + caffeine synergy

The two compounds work together:

- **Caffeine alone (coffee):** A sharp lift, possible jitters and nerves, then a crash after the peak.
- **Caffeine + L theanine (tea):** Composed, alert focus, smoother curve, less anxiety, gentler decline.

Multiple studies show the combination produces measurably better cognitive performance for sustained tasks (writing, study, problem solving) than caffeine alone.

L theanine content across teas

Tea type	L theanine per 200ml
Gyokuro (shaded sencha)	30-50mg
Matcha (per gram)	20-40mg

Sencha (Japanese)	15-30mg
Long Jing (Chinese green)	10-20mg
White tea	8-15mg
Black tea	10-20mg
Decaf tea	8-18mg
Herbal infusions	0mg (unless they contain real tea)

Why shaded teas are higher in L theanine

L theanine is produced in tea plant roots and transported to the leaves. When the plant is shaded (gyokuro, matcha), photosynthesis slows but L theanine continues accumulating. The leaves end up with significantly higher L theanine concentration. The shading process is the main reason gyokuro and matcha taste so umami sweet.

The cognitive effects (with evidence)

Relaxed, alert focus

Multiple controlled trials show L theanine + caffeine produces:

- Improved attention
- Faster reaction time
- Reduced jitteriness compared to caffeine alone
- Sustained focus over 1-3 hours

Anxiety reduction

L theanine alone has some evidence for anxiety reduction at moderate doses. Tea strength is at the lower end; supplement strength is more researched.

Sleep quality

L theanine taken before bed shows some evidence for improved sleep quality. But: tea contains caffeine alongside L theanine, so drinking tea before bed is counterproductive for sleep. Decaf tea or L theanine supplements give the L theanine benefit without caffeine.

Mood

Some evidence for mood support at moderate intake. Effect is gentle.

Cognitive ageing

Observational evidence suggests regular tea consumption (with its L theanine + polyphenol load) is associated with reduced cognitive decline in elderly populations. Causation hard to establish from observational data.

Tea types for L theanine intake

Maximum L theanine

- **Gyokuro.** Premium shaded sencha. 30-50mg per cup. Premium pricing.
- **Matcha.** 20-40mg per gram of powder. Whole leaf consumption.
- **Premium sencha.** 20-30mg.

Mid L theanine

- Standard sencha, Long Jing, gunpowder green: 10-20mg per cup.
- Premium black tea: 15-20mg.

Lower L theanine

- Standard mass market black tea bags: 10-15mg.
- Decaf tea: 8-18mg (decaffeination loses some L theanine).

L theanine supplements vs tea

L theanine is also available as capsule supplements (typically 100-200mg per capsule). Compared to tea:

- **Supplements:** Higher dose, no caffeine, more researched for specific effects.
- **Tea:** Lower dose, plus caffeine, polyphenols and the habit of a brew.

For specific anxiety or sleep concerns, supplements may be more effective. For everyday drinking, tea supplies L theanine in a form you can keep up daily.

How to maximise L theanine extraction

- **Choose shaded teas.** Gyokuro and matcha are highest.
- **Brew at lower temperature.** 70-80°C extracts L theanine well; boiling water also extracts more bitter compounds that mask the umami.
- **Don't oversteep.** L theanine extracts in the first 1-2 minutes; longer steeps mostly extract tannins.
- **Consume the leaves (matcha).** Whole leaf consumption captures all the L theanine.

Caffeine ratio matters

Drink	Caffeine:L theanine ratio
Coffee	100:0
Black tea	2:1 to 3:1
Standard green tea	1:1 to 2:1
Gyokuro / matcha	1:2 (more L theanine than caffeine)

Premium green teas are L theanine favoured, producing the clearest focused, unhurried character.

FAQ

What is L theanine? An amino acid found in tea that produces a steady, alert state when combined with caffeine.

Which tea has the most L theanine? Gyokuro (shaded sencha) and matcha. Premium green teas overall.

Does decaf tea have L theanine? Yes, about 80-90% of original L theanine is preserved in CO2-decaffeinated tea.

Should I take L theanine supplements? If specific anxiety or sleep concerns, possibly, discuss with GP. For ordinary daily life, tea supplies it steadily.

Why does green tea feel different from coffee? The pairing of L theanine and caffeine feels easygoing and clear headed rather than sharp like coffee.

Curator's note: L theanine is the underrated reason to drink tea. That relaxed, clear headed character is really useful, better for long stretches of writing or work than coffee's jitters. Premium green tea gives the strongest dose; even regular black tea has meaningful amounts. Lee, teas.co.uk, Tunbridge Wells.

This is general information, not medical advice. For anxiety, sleep or medication questions, speak to your GP or pharmacist.

Reference noted

- PubMed: L-theanine and attention (clinical trial)

The teas that come up around this subject: English Breakfast, Earl Grey, green tea, loose leaf tea, Darjeeling, oolong, and herbal tea. The rest of the tea shop sits here for shaded greens and more, with UK shipping free above £35.

FROM THE CURATOR

teas · Shaded greens cost more, so judge them by price per cup. Loose shaded green usually wins that way, though supermarket bags can surprise.

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