

GREEN TEA <<interacts with>> (click view details)[Hide Details](#)

Interaction Rating = Major Do not take this combination.

ATORVASTATIN (Lipitor)

Interaction Rating = Major Do not take this combination.

Severity = Moderate • Occurrence = Likely • Level of Evidence = B

Green tea extract seems to reduce the levels and clinical effects of atorvastatin. In healthy humans, taking green tea extract 300 mg or 600 mg along with atorvastatin reduces plasma levels of atorvastatin by approximately 24%. The elimination of atorvastatin is not affected (102714). Atorvastatin is a substrate of organic anion-transporting polypeptides (OATPs). Research shows that two of the major catechins found in green tea, epicatechin gallate (ECG) and epigallocatechin gallate (EGCG), inhibit OATPs. Some OATPs are expressed in the small intestine and are responsible for the uptake of drugs and other compounds, which may have resulted in reduced plasma levels of atorvastatin (19079). It is not clear if drinking green tea alters the absorption of atorvastatin.

EPHEDRINE

Interaction Rating = Major Do not take this combination.

Severity = High • Occurrence = Probable • Level of Evidence = D

Theoretically, concomitant use might increase the risk for stimulant adverse effects.

Green tea contains caffeine. There is evidence that using ephedrine with caffeine might increase the risk of serious life-threatening or debilitating adverse effects such as hypertension, myocardial infarction, stroke, seizures, and death (6486,10307).

NADOLOL (Corgard)

Interaction Rating = Major Do not take this combination.

Severity = Moderate • Occurrence = Likely • Level of Evidence = B

Green tea seems to reduce the levels and clinical effects of nadolol. Preliminary clinical research shows that green tea consumption reduces plasma concentrations of nadolol. Compared to a control group, both peak levels and total drug exposure (AUC) of nadolol were reduced by approximately 85% in subjects who drank green tea daily for two weeks. Drinking green tea with nadolol also significantly reduced nadolol's systolic blood pressure lowering effect (19071). Other clinical research shows that a single dose of green tea can affect plasma nadolol levels for at least one hour (102721). Green tea catechins have been shown to inhibit organic anion transporting polypeptides (OATP), one of which, OATP1A2, is involved in the uptake of nadolol in the intestine (19071,19079,19080,98461). The interaction is thought to be due primarily to the epigallocatechin gallate (EGCG) content of green tea (98461).

5-FLUOROURACIL

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = D

Theoretically, high doses of green tea might increase the effects and side effects of 5-fluorouracil.

Animal research shows that taking green tea in amounts equivalent to about 6 cups daily in humans for 4 weeks prior to receiving a single injection of 5-fluorouracil increases the maximum plasma levels of 5-fluorouracil by about 2.5-fold and the area under the curve by 425% (98424).

ADENOSINE (Adenocard)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = B

Theoretically, green tea might decrease the vasodilatory effects of adenosine and interfere with its use prior to stress testing.

Green tea contains caffeine. Caffeine is a competitive inhibitor of adenosine at the cellular level. However, caffeine doesn't seem to affect supplemental adenosine because high interstitial levels of adenosine overcome the antagonistic effects of caffeine (11771). It is recommended that methylxanthines and methylxanthine-containing products be stopped 24 hours prior to pharmacological stress tests (11770). However, methylxanthines appear more likely to interfere with dipyridamole (Persantine) than adenosine-induced stress testing (11771).

ANTICOAGULANT/ANTIPLATELET DRUGS

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Unlikely • Level of Evidence = D

Theoretically, green tea may increase the risk of bleeding if used with anticoagulant or antiplatelet drugs.

Conflicting reports exist regarding the effect of green tea on bleeding risk when used with anticoagulant or antiplatelet drugs; however, most evidence suggests that drinking green tea in moderate amounts is unlikely to cause a significant interaction. Green tea contains small amounts of vitamin K, approximately 7 mcg per cup (100524). Some case reports have associated the antagonism of warfarin with the vitamin K content of green tea (1460,1461,1463,4211,6048,8028,20868). However, these reports are rare, and very large doses of green tea (about 8-16 cups daily) appear to be needed to cause these effects. Furthermore, the catechins and caffeine in green tea are reported to have antiplatelet activity (733,8028,8029,12882,100524).

BETA-ADRENERGIC AGONISTS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • Occurrence = Probable • Level of Evidence = D

Green tea contains caffeine. Theoretically, concomitant use of large amounts of caffeine might increase cardiac inotropic effects of beta-agonists (15).

BORTEZOMIB (Velcade)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might interfere with the effects of bortezomib. In vitro research shows that green tea polyphenols, such as epigallocatechin gallate (EGCG), interact with bortezomib and block its proteasome inhibitory action. This prevents the induction of cell death in multiple myeloma or glioblastoma cancer cell lines (17212). Advise patients taking bortezomib, not to take green tea.

CARBAMAZEPINE (Tegretol)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might reduce the effects of carbamazepine and increase the risk for convulsions.

Green tea contains caffeine. Animal research suggests that taking caffeine can lower the anticonvulsant effects of carbamazepine and can induce seizures when taken in doses above 400 mg/kg (23559,23561). Human research has shown that taking caffeine 300 mg in three divided doses along with carbamazepine 200 mg reduces the bioavailability of carbamazepine by 32% and prolongs the plasma half-life of carbamazepine 2-fold in healthy individuals (23562).

CELIPROLOL (Celocard)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might reduce the levels and clinical effects of celiprolol. In a small human study, taking green tea daily for 4 days appears to decrease blood and urine levels of celiprolol by at least 98% (104607). This interaction is possibly due to the inhibition of organic anion transporting polypeptide (OATP). Green tea catechins have been shown to inhibit organic anion transporting polypeptides (OATP), one of which, OATP1A2, is found in the intestine (19079,19080,98461) The interaction is thought to be due primarily to the epigallocatechin gallate (EGCG) content of green tea (98461).

CIMETIDINE (Tagamet)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • Occurrence = Likely • Level of Evidence = B

Theoretically, concomitant use might increase the effects and adverse effects of caffeine in green tea.

Green tea contains caffeine. Cimetidine can reduce caffeine clearance by 31% to 42% (11736).

CLOZAPINE (Clozaril)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = B

Theoretically, green tea might increase the levels and adverse effects of clozapine and acutely exacerbate psychotic symptoms.

Animal research suggests that, although green tea extract does not affect the elimination of clozapine, it delays the time to reach peak concentration and

reduces the peak plasma levels (90173). Also, concomitant administration of green tea and clozapine might theoretically cause acute exacerbation of psychotic symptoms due to the caffeine in green tea. Caffeine can increase the effects and toxicity of clozapine. Caffeine doses of 400-1000 mg daily inhibit clozapine metabolism (5051). Clozapine is metabolized by cytochrome P450 1A2 (CYP1A2). Researchers speculate that caffeine might inhibit CYP1A2. However, there is no reliable evidence that caffeine affects CYP1A2. There is also speculation that genetic factors might make some patients be more sensitive to the interaction between clozapine and caffeine (13741).

CONTRACEPTIVE DRUGS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • Occurrence = Probable • Level of Evidence = B

Theoretically, concomitant use might increase the effects and adverse effects of caffeine found in green tea.

Green tea contains caffeine. Oral contraceptives can decrease caffeine clearance by 40% to 65% (8644).

CYTOCHROME P450 1A2 (CYP1A2) INHIBITORS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, concomitant use might increase the levels and adverse effects of caffeine.

Green tea contains caffeine. Caffeine is metabolized by cytochrome P450 1A2 (CYP1A2) (3941,5051,11741,23557,23573,23580,24958,24959,24960,24962), (24964,24965,24967,24968,24969,24971,38081,48603). Theoretically, drugs that inhibit CYP1A2 may decrease the clearance rate of caffeine from green tea and increase caffeine levels.

DIPYRIDAMOLE (Persantine)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = B

Theoretically, green tea might decrease the vasodilatory effects of dipyridamole and interfere with its use prior to stress testing.

Green tea contains caffeine. Caffeine might inhibit dipyridamole-induced vasodilation (11770,11772). It is recommended that methylxanthines and methylxanthine-containing products be stopped 24 hours prior to pharmacological stress tests (11770). Methylxanthines appear more likely to interfere with dipyridamole (Persantine) than adenosine-induced stress testing (11771).

DISULFIRAM (Antabuse)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • Occurrence = Probable • Level of Evidence = B

Theoretically, disulfiram might increase the risk of adverse effects from caffeine.

In human research, disulfiram decreases the clearance and increases the half-life of caffeine (11840).

DIURETIC DRUGS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, using green tea with diuretic drugs might increase the risk of hypokalemia.

Green tea contains caffeine. In excessive amounts, caffeine can reduce potassium levels due to stimulation of the sodium-potassium pump (23579,37905,37953,38003,38034). Diuretics can also cause lower potassium levels.

ESTROGENS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • Occurrence = Probable • Level of Evidence = B

Theoretically, estrogens might increase the levels and adverse effects of caffeine.

Green tea contains caffeine. Estrogen inhibits caffeine metabolism (2714).

ETHOSUXIMIDE (Zarontin)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might reduce the effects of ethosuximide and increase the risk for convulsions.

Green tea contains caffeine. Animal research suggests that caffeine 92.4 mg/kg can decrease the anticonvulsant activity of ethosuximide (23560). However, this effect has not been reported in humans.

FELBAMATE (Felbatol)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might reduce the effects of felbamate and increase the risk for convulsions.

Green tea contains caffeine. Animal research suggests that a high dose of caffeine 161.7 mg/kg can decrease the anticonvulsant activity of felbamate (23563). However, this effect has not been reported in humans.

FEXOFENADINE (Allegra)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = B

Green tea can decrease blood levels of fexofenadine. Clinical research shows that green tea can significantly decrease blood levels and excretion of fexofenadine. Taking green tea extract with a dose of fexofenadine decreased bioavailability of fexofenadine by about 30%. In vitro, green tea inhibits the cellular accumulation of fexofenadine by inhibiting the organic anion transporting polypeptide (OATP) drug transporter (111029). Research shows that two of the major catechins found in green tea, epicatechin gallate (ECG) and epigallocatechin gallate (EGCG), inhibit OATPs, specifically OATP1A2, OATP1B1, and OATP2B1. In addition, green tea has been shown to reduce the absorption of some drugs that are OATP substrates (19079,102714,102730).

FLUTAMIDE (Eulexin)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might increase the levels and adverse effects of flutamide. Green tea contains caffeine. In vitro evidence suggests that caffeine can inhibit the metabolism of flutamide (23553). Theoretically, concomitant use of caffeine and flutamide might increase serum concentrations of flutamide and increase the risk adverse effects.

FLUVOXAMINE (Luvox)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • Occurrence = Probable • Level of Evidence = D

Theoretically, fluvoxamine might increase the levels and adverse effects of caffeine. Green tea contains caffeine. Fluvoxamine reduces caffeine metabolism (6370).

HEPATOTOXIC DRUGS

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Unlikely • Level of Evidence = D

Theoretically, concomitant use might have additive adverse hepatotoxic effects. Green tea extract supplements have been linked to several cases of hepatotoxicity (14136,14310,53740,53742,53746,53752,53775,54016,15026,54027)(93256,102722).

IMATINIB (Gleevec)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might reduce the levels and clinical effects of imatinib. In animal research, a single dose of green tea extract reduces the area under the curve (AUC) of imatinib by up to approximately 64% and its main metabolite N-desmethyl imatinib by up to approximately 81% (104600). This interaction has not been shown in humans. The mechanism of action is unclear but may involve multiple pathways.

LISINAPRIL

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = B

Theoretically, green tea might reduce the levels and clinical effects of lisinopril. Preliminary clinical research shows that a single dose of green tea extract reduces plasma concentrations of lisinopril. Compared to a control group, peak levels and area under the curve (AUC) of lisinopril were reduced by approximately 71% and 66%, respectively (104599). This may be due to inhibition of organic anion

transporting polypeptides (OATP) by green tea catechins ([19079,19080,98461](#)) The interaction is thought to be due primarily to the epigallocatechin gallate (EGCG) content of green tea ([98461](#)).

LITHIUM

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = D

Theoretically, abrupt green tea withdrawal might increase the levels and adverse effects of lithium.

Green tea contains caffeine. Abrupt caffeine withdrawal can increase serum lithium levels ([609](#)). Two cases of lithium tremor that worsened with abrupt coffee withdrawal have been reported ([610](#)).

MONOAMINE OXIDASE INHIBITORS (MAOIs)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = D

Theoretically, concomitant use might increase the risk of a hypertensive crisis.

Green tea contains caffeine. Caffeine has been shown to inhibit monoamine oxidase (MAO) A and B in laboratory studies ([37724,37877,37912,38108](#)). Concomitant intake of large amounts of caffeine with MAOIs might precipitate a hypertensive crisis ([15](#)). In a case report, a patient that consumed 10-12 cups of caffeinated coffee and took the MAOI tranylcypromine presented with severe hypertension ([91086](#)). Hypertension was resolved after the patient switched to drinking decaffeinated coffee.

NICOTINE

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = D

Theoretically, concomitant use might increase the risk of hypertension.

Green tea contains caffeine. Concomitant use of caffeine and nicotine has been shown to have additive cardiovascular effects, including increased heart rate and blood pressure. Blood pressure was increased by 10.8/12.4 mmHg when the agents were used concomitantly ([36549](#)).

NINTEDANIB (Ofev)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = B

Green tea seems to reduce the levels of nintedanib.

Clinical research shows that green tea can significantly decrease blood levels of nintedanib. Taking green tea extract twice daily for 7 days 30 minutes prior to a meal along with nintedanib with the meal decreased the 12-hour area under the curve (AUC) values for nintedanib by 21%. There was no effect on the maximum concentration of nintedanib ([111028](#)).

ORGANIC ANION-TRANSPORTING POLYPEPTIDE SUBSTRATES (OATP)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = D

Theoretically, green tea might reduce the absorption of organic anion-transporting polypeptide (OATP) substrates.

OATPs are expressed in the small intestine and liver and are responsible for the uptake of drugs and other compounds. Research shows that two of the major catechins found in green tea, epicatechin gallate (ECG) and epigallocatechin gallate (EGCG), inhibit OATPs, specifically OATP1A2, OATP1B1, and OATP2B1. In addition, green tea has been shown to reduce the absorption of some drugs that are OATP substrates, including lisinopril and celiprolol ([19079,102714,102730](#)).

PENTOBARBITAL (Nembutal)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = B

Theoretically, green tea might decrease the effects of pentobarbital.

Green tea contains caffeine. Theoretically, caffeine might negate the hypnotic effects of pentobarbital ([13742](#)).

PHENOBARBITAL (Luminal)

Interaction Rating = Moderate Be cautious with this combination.

Severity = High • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might reduce the effects of phenobarbital and increase the risk for convulsions.

Green tea contains caffeine. Animal research suggests that caffeine can decrease the anticonvulsant activity of phenobarbital ([23558,23559,23561](#)). The exact mechanism of this interaction is unclear.

PHENYLPROPANOLAMINE

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Probable • **Level of Evidence** = B

Theoretically, phenylpropanolamine might increase the risk of hypertension, as well as the levels and adverse effects of caffeine.

Green tea contains caffeine. Concomitant use of phenylpropanolamine and caffeine might cause an additive increase in blood pressure ([11738](#)).

Phenylpropanolamine also seems to increase caffeine serum levels ([13743](#)).

PHENYTOIN (Dilantin)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, green tea might reduce the effects of phenytoin and increase the risk for convulsions.

Green tea contains caffeine. Animal research suggests that caffeine can decrease the anticonvulsant activity of phenytoin ([23559,23561](#)). The effect does not seem to be related to the seizure threshold-lowering effects of caffeine. However, the exact mechanism of this interaction is unclear.

PIOGLITAZONE (Actos)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, green tea might increase the levels and clinical effects of pioglitazone.

Green tea contains caffeine. Animal research suggests that caffeine can modestly increase the maximum concentration, area under the curve, and half-life of pioglitazone, and also reduce its clearance. This increased the antidiabetic effects of pioglitazone ([108812](#)). However, the exact mechanism of this interaction is unclear.

QUINOLONE ANTIBIOTICS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Mild • **Occurrence** = Probable • **Level of Evidence** = B

Theoretically, quinolone antibiotics might increase the levels and adverse effects of caffeine.

Green tea contains caffeine. Quinolones (also called fluoroquinolones) can decrease caffeine clearance by inhibiting cytochrome P450 1A2 (CYP1A2) enzyme ([606,607,608,23554,23555,23556](#)).

RILUZOLE (Rilutek)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, concomitant use might increase the levels and adverse effects of both caffeine and riluzole.

Green tea contains caffeine. Caffeine and riluzole are both metabolized by cytochrome P450 1A2, and concomitant use might reduce metabolism of one or both agents ([11739](#)).

ROSUVASTATIN (Crestor)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, green tea extract might alter the absorption and distribution of rosuvastatin.

In animal research, giving green tea extract with rosuvastatin increased plasma levels of rosuvastatin. Rosuvastatin is a substrate of organic anion-transporting polypeptide (OATP)1B1, which is expressed in the liver. The increased plasma levels may have been related to inhibition of OATP1B1 ([102717](#)). However, in humans, taking EGCG with rosuvastatin reduced plasma levels of rosuvastatin, suggesting an inhibition of intestinal OATP ([102730](#)). It is not clear if drinking green tea alters the absorption of rosuvastatin.

STIMULANT DRUGS

Interaction Rating = Moderate Be cautious with this combination.
Severity = Moderate • Occurrence = Probable • Level of Evidence = C

Theoretically, concomitant use might increase stimulant adverse effects. Green tea contains caffeine. Due to the central nervous system (CNS) stimulant effects of caffeine, concomitant use with stimulant drugs can increase the risk of adverse effects (11832).

THEOPHYLLINE

Interaction Rating = Moderate Be cautious with this combination.
Severity = Moderate • Occurrence = Probable • Level of Evidence = B

Theoretically, green tea might increase the levels and adverse effects of theophylline. Green tea contains caffeine. Large amounts of caffeine might inhibit theophylline metabolism (11741).

VALPROATE

Interaction Rating = Moderate Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, green tea might reduce the effects of valproate and increase the risk for convulsions. Green tea contains caffeine. Animal research suggests that caffeine can decrease the anticonvulsant activity of valproate (23558,23559,23561,37882). However, the exact mechanism of this interaction is unclear.

VERAPAMIL (Calan, others)

Interaction Rating = Moderate Be cautious with this combination.
Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, concomitant use might increase the levels and adverse effects of both verapamil and caffeine. Animal research suggests that the green tea constituent EGCG increases the area under the curve (AUC) values for verapamil by up to 111% and its metabolite norverapamil by up to 87%, likely by inhibiting P-glycoprotein (90138). Also, theoretically, concomitant use of verapamil and caffeinated beverages such as green tea might increase plasma caffeine concentrations and the risk of adverse effects, due to the caffeine contained in green tea. Verapamil increases plasma caffeine concentrations by 25% (11741).

WARFARIN (Coumadin)

Interaction Rating = Moderate Be cautious with this combination.
Severity = High • Occurrence = Unlikely • Level of Evidence = D

Theoretically, green tea may increase the risk of bleeding if used with warfarin. Conflicting reports exist regarding the potential of green tea to antagonize the effect of warfarin; however, most evidence suggests that drinking green tea in moderation is unlikely to cause a significant interaction. Green tea contains a small amount of vitamin K, approximately 7 mcg per cup (100524). Some case reports have associated the antagonism of warfarin with the vitamin K content of green tea (1460,1461,1463,4211,6048,8028,20868). However, these reports are rare, and very large doses of green tea (about 8-16 cups daily) appear to be needed to cause these effects (1460,1461,1463,8028). Therefore, use of green tea in moderate amounts is unlikely to antagonize the effects of warfarin; however, very large doses should be avoided.

ALCOHOL (Ethanol)

Interaction Rating = Minor Be watchful with this combination.
Severity = Mild • Occurrence = Possible • Level of Evidence = D

Theoretically, alcohol might increase the levels and adverse effects of caffeine. Green tea contains caffeine. Concomitant use of alcohol and caffeine can increase caffeine serum concentrations and the risk of caffeine adverse effects. Alcohol reduces caffeine metabolism (6370).

ANTIDIABETES DRUGS

Interaction Rating = Minor Be watchful with this combination.
Severity = Moderate • Occurrence = Unlikely • Level of Evidence = B

Theoretically, taking green tea with antidiabetes drugs might interfere with blood glucose control. Concomitant use of green tea and antidiabetes drugs might interfere with blood glucose control. The data are conflicting. Reports claim that green tea and/or caffeine, a constituent of green tea, might increase or decrease blood sugar

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES

Interaction Rating = Minor Be watchful with this combination.

Severity = Moderate • **Occurrence** = Unlikely • **Level of Evidence** = D

Green tea is unlikely to produce clinically significant changes in the levels and clinical effects of CYP3A4 substrates.

In vitro and in vivo research suggests that green tea can inhibit intestinal CYP3A and induce hepatic CYP3A4 enzymes (20896,53747,53835,90170). However, this effect is unlikely to be clinically significant, as green tea does not appear to affect CYP3A4 activity in humans (14429,90170).

FLUCONAZOLE (Diflucan)

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = B

Theoretically, fluconazole might increase the levels and adverse effects of caffeine. Green tea contains caffeine. Fluconazole decreases caffeine clearance by approximately 25% (11022).

METFORMIN (Glucophage)

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, metformin might increase the levels and adverse effects of caffeine. Green tea contains caffeine. Animal research suggests that metformin can reduce caffeine metabolism (23571). Theoretically, concomitant use can increase caffeine serum concentrations and the risk of caffeine adverse effects.

METHOXSALEN (Oxsoralen)

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = B

Theoretically, methoxsalen might increase the levels and adverse effects of caffeine.

Green tea contains caffeine. Methoxsalen can reduce caffeine metabolism (23572). Concomitant use can increase caffeine serum concentrations and the risk of caffeine adverse effects.

MEXILETINE (Mexitil)

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = B

Theoretically, mexiletine might increase the levels and adverse effects of caffeine. Green tea contains caffeine. Mexiletine can decrease caffeine elimination by 50% (1260).

MIDAZOLAM (Versed)

Interaction Rating = Minor Be watchful with this combination.

Severity = Moderate • **Occurrence** = Unlikely • **Level of Evidence** = D

Theoretically, green tea might increase the levels and adverse effects of midazolam.

Animal research suggests that green tea extract can increase the maximum plasma concentration, but not the half-life, of oral midazolam. This effect has been attributed to the inhibition of intestinal cytochrome P450 3A4 (CYP3A4) and induction of hepatic CYP3A4 enzymes by green tea constituents (20896). However, it is unlikely that this effect is clinically significant, as the dose used in animals was 50 times greater than what is commonly ingested by humans.

NICARDIPINE (Cardene)

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, green tea might increase the levels and adverse effects of nicardipine.

Green tea contains EGCG. Animal research shows that EGCG increases the area under the curve (AUC) and absolute oral bioavailability of nicardipine. The mechanism of action is thought to involve inhibition of both intestinal P-glycoprotein and hepatic cytochrome P450 3A (90136). The effect of green tea itself on nicardipine is unclear.

PHENOTHIAZINES

Interaction Rating = Minor Be watchful with this combination.
Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, phenothiazines might increase the levels and adverse effects of caffeine.
Green tea contains caffeine. Phenothiazines can reduce the metabolism of caffeine by inhibiting cytochrome P450 1A2 (CYP1A2) (23573,23574).

TERBINAFINE (Lamisil)

Interaction Rating = Minor Be watchful with this combination.
Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = B

Theoretically, terbinafine might increase the levels and adverse effects of caffeine.
Green tea contains caffeine. Terbinafine decreases the clearance of intravenous caffeine by 19% (11740).

TIAGABINE (Gabitril)

Interaction Rating = Minor Be watchful with this combination.
Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, green tea might increase the levels and adverse effects of tiagabine.
Green tea contains caffeine. Animal research suggests that chronic caffeine administration can increase the serum concentrations of tiagabine. However, concomitant use does not seem to reduce the antiepileptic effects of tiagabine (23561).

TICLOPIDINE (Ticlid)

Interaction Rating = Minor Be watchful with this combination.
Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, ticlopidine might increase the levels and adverse effects of caffeine.
Green tea contains caffeine. In vitro evidence suggests that ticlopidine can inhibit caffeine metabolism (23557). However, this effect has not been reported in humans.

SIDA CORDIFOLIA <<interacts with>> (click view details)

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Interaction Rating = Major Do not take this combination.

METHYLYXANTHINES

Interaction Rating = Major Do not take this combination.
Severity = High • **Occurrence** = Probable • **Level of Evidence** = D

Theoretically, Sida cordifolia might increase the risk of serious adverse effects when taken with methylxanthines.
Sida cordifolia contains ephedrine. Use of ephedrine-containing herbs with caffeine or other methylxanthines such as theophylline might increase the risk of stimulatory adverse effects. Some clinical research and case reports suggest that using ephedrine with caffeine might increase the risk of serious life-threatening or debilitating adverse effects such as hypertension, myocardial infarction (MI), stroke, seizures, and death (1275,1380,6486,8641,10307).

QT INTERVAL-PROLONGING DRUGS

Interaction Rating = Major Do not take this combination.
Severity = High • **Occurrence** = Probable • **Level of Evidence** = B

Theoretically, Sida cordifolia might increase the risk of additive QT interval prolongation when taken with QT interval-prolonging drugs.
Sida cordifolia contains ephedrine. Clinical research shows that ephedrine from another herb, ephedra, can prolong the QT interval (11355).

STIMULANT DRUGS

Interaction Rating = Major Do not take this combination.
Severity = High • **Occurrence** = Probable • **Level of Evidence** = D

Theoretically, Sida cordifolia might increase the risk of adverse cardiovascular effects when taken with stimulant drugs.
Sida cordifolia contains ephedrine. Drugs with CNS stimulant properties, such as phenylpropranolamine, pseudoephedrine, and diethylpropion, and many others can increase the risk of hypertension and adverse cardiovascular effects when taken with ephedrine (4304).

ANTIDIABETES DRUGS

Interaction Rating = Moderate Be cautious with this combination.
Severity = Moderate • **Occurrence** = Probable • **Level of Evidence** = B

Theoretically, *Sida cordifolia* might reduce the effectiveness of antidiabetes drugs. *Sida cordifolia* contains ephedrine. Clinical research shows that ephedrine can increase blood glucose levels (12857).

DEXAMETHASONE (Decadron)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = B

Theoretically, *Sida cordifolia* might reduce the effectiveness of dexamethasone. *Sida cordifolia* contains ephedrine. Clinical research shows that ephedrine can increase the clearance rate of dexamethasone (11462).

ERGOT DERIVATIVES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Probable • **Level of Evidence** = B

Theoretically, *Sida cordifolia* might increase the risk of additive hypertension when taken with ergot derivatives.

Sida cordifolia contains ephedrine, which can cause vasoconstriction. This can lead to significant elevations in blood pressure when taken with ergot derivatives (6009).

MONOAMINE OXIDASE INHIBITORS (MAOIs)

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Probable • **Level of Evidence** = B

Theoretically, *Sida cordifolia* might increase the risk of hypertension when taken with MAOIs.

Sida cordifolia contains ephedrine. Clinical research shows that ephedrine can increase blood pressure (6009).

JUNIPER <<interacts with>> (click view details)

[Hide Details](#)

Interaction Rating = Moderate Be cautious with this combination.

ANTIDIABETES DRUGS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, taking juniper berry with antidiabetes medications might cause additive hypoglycemia.

Animal research shows that juniper berry can lower blood glucose (4,10580,14907).

DIURETIC DRUGS

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, juniper berry might increase the risk of adverse effects from diuretic drugs.

Juniper berry is thought to have mild diuretic effects (4,512).

LITHIUM

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, juniper berry might reduce lithium excretion and increase serum levels of lithium.

Juniper berry is thought to have mild diuretic effects (4,512).

UVA URSI <<interacts with>> (click view details)

[Hide Details](#)

Interaction Rating = Moderate Be cautious with this combination.

CYTOCHROME P450 2C19 (CYP2C19) SUBSTRATES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, uva ursi may decrease the metabolism of CYP2C19 substrates.

In vitro, uva ursi appears to inhibit cytochrome CYP2C19 (98550). This effect has not been reported in humans.

CYTOCHROME P450 3A4 (CYP3A4) SUBSTRATES

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • **Occurrence** = Possible • **Level of Evidence** = D

Theoretically, uva ursi may decrease the metabolism of CYP3A4 substrates.

In vitro, uva ursi appears to inhibit CYP3A4 (98550). This effect has not been

reported in humans.

GLUCURONIDATED DRUGS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Theoretically, uva ursi may increase levels of drugs metabolized by glucuronidation.

In vitro, uva ursi extract appears to strongly inhibit UDP-glucuronosyltransferase (UGT) 1A1 (UGT1A1). However, uva ursi extract does not appear to inhibit UGT1A1 in animal models (98549). This effect has not been reported in humans.

LITHIUM

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Probable • Level of Evidence = D

Theoretically, uva ursi may increase lithium levels, necessitating a decrease in dose. Uva ursi may have diuretic properties (81637). Diuretics may increase lithium reabsorption with sodium in the proximal tubule of the kidney. Theoretically, uva ursi might reduce excretion and increase levels of lithium.

URINARY ACIDIFYING AGENTS

Interaction Rating = Moderate Be cautious with this combination.

Severity = Moderate • Occurrence = Possible • Level of Evidence = D

Effects of uva ursi in the urinary tract may be reduced by urinary acidifying agents. Uva ursi seems to work best in alkaline urine. Theoretically, taking uva ursi with medications known to acidify the urine may decrease any effects of uva ursi on the urinary tract (19).

P-GLYCOPROTEIN SUBSTRATES

Interaction Rating = Minor Be watchful with this combination.

Severity = Mild • Occurrence = Possible • Level of Evidence = D

Theoretically, uva ursi may alter the levels of drugs transported by P-glycoprotein. In vitro, uva ursi appears to inhibit the multi-drug transporter protein, P-glycoprotein (98550). This effect has not been reported in humans.

Disclaimer: Currently this does not check for drug-drug interactions. This is not an all-inclusive comprehensive list of potential interactions and is for informational purposes only. Not all interactions are known or well reported in the scientific literature, and new interactions are continually being reported. Input is needed from a qualified healthcare provider including a pharmacist before starting any therapy. Application of clinical judgement is necessary.