

# Herbal Supplements: Why Can't We all Just Get Along?



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## Financial Disclosure

I have nothing to disclose related to this topic

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## Objectives

- Discuss common herbal supplements and potential major drug interactions
- Review available drug information resources for herbal remedies

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## Regulatory



- Dietary Supplement Health & Education Act
  - Definition: A product intended to supplement the diet that bears or contains a vitamin, mineral, herb/ botanical, amino acid, dietary substance, and/or concentrate/ metabolite/ constituent/ extract/ combination
- US Food and Drug Administration
  - Not under the same regulations as prescription medications
  - If a product is deemed unsafe/ imminent hazard to the public than action can be taken to remove from the market

[https://ods.od.nih.gov/About/DSHEA\\_Wording.aspx](https://ods.od.nih.gov/About/DSHEA_Wording.aspx)

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## Why Do Patients Use Herbal Supplements?

- To improve their physical health and to support their emotional health
- To stimulate their immune system and to improve their quality of life
- To relieve side effects from conventional treatments and to relieve cancer-related symptoms
- Dissatisfaction with conventional approaches and having a desire to seek new therapies against cancer



Cassileth BR, et al. The Oncologist. 2004;9:80-89

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## Black Cohosh



- Indications: **hot flashes, cognitive function**, osteoporosis, & rheumatoid arthritis
- Dosing: 40-127 mg daily
- Adverse Effects: Rash, Headache, Dizziness, Weight Gain, Cramping, Breast Tenderness, Vaginal Bleeding, Hypotension, Fatigue, Edema, Arthralgia and Irritability
- Several Reports of liver toxicity
- DDI: CYP2D6 inhibitor; CYP3A4 inhibitor
- Theoretical Disadvantage: May promote growth of certain cancers due to its estrogenic effects & may increase toxicity of doxorubicin and docetaxel

<https://naturalmedicines.therapeuticresearch.com/>  
<https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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## Ginger



- Indication: Nausea and vomiting, motion sickness, diarrhea, & loss of appetite
- Proposed N/V Mechanism: 6-gingerol can inhibit neurokinin-1, serotonin, and dopamine receptors
- Dosing: 0.5-2 grams in 2-4 divided doses
- Adverse Effects: Heartburn, Diarrhea, & Abdominal Discomfort
- DDI: Anticoagulants/ Antiplatelet therapy (Mod)
- Avoid in perioperative setting due to increased risk of bleeding

<https://naturalmedicines.therapeuticresearch.com/>  
Greenlee H, et al. CA Cancer J Clin. 2017;67:194-232.  
<https://www.mdccr.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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## Ginkgo



- Indication: Anxiety, Dementia, & Vertigo
- Evidence: Ginkgo Evaluation of Memory (GEM) study did not find improvement in dementia
- Dosing: 60-240 mg 2 to 3 times per day
- Adverse Effects: GI Upset, Headache, Dizziness, Palpitations, Weakness and Spontaneous Bleeding
- DDI: Anticoagulants/Antiplatelets (Mod), Anticonvulsants (Mod), CYP2C9 inducer & inhibitor (Mod), CYP2D6 inhibitor (Mod), CYP3A4 Inhibitor & Inducer, and Trazodone (Mod)

<https://naturalmedicines.therapeuticresearch.com/>  
<https://www.mdccr.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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## Ginseng



- Asian ginseng (*Panax ginseng*) & American ginseng (*Panax quinquefolius*)
- Indication: Cancer related fatigue, Improving Cognitive Function, Depression, & Anxiety
- Dosing: 400 mg twice daily
- AEs: headaches, menstrual irregularities, insomnia, restlessness, tachycardia, hypoglycemia, and diarrhea
- DDI: Alcohol (Mod), Anticoagulants/ Antiplatelet (Mod), CYP2D6 inhibitor (Mod), CYP3A4 inhibitor (Mod), Estrogen (Mod), Immunosuppressants (Mod), & QT Prolongation (Mod)

<https://naturalmedicines.therapeuticresearch.com/>  
Greenlee H, et al. CA Cancer J Clin. 2017;67:194-232.  
<https://www.mdccr.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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### Quiz Question #1

MW is a 55 year old male recently diagnosed with metastatic Non-Small Cell Lung Cancer (Adenocarcinoma). No molecular drivers present. The oncologist would like to start the patient on Carboplatin/ Pemetrexed/ Pembrolizumab (High Emetic Potential Regimen). Patient would like to start a supplement to help with nausea in addition to her prescribed medications.

Which of the following Supplements would be most appropriate?

- A. Black Cohosh
- B. Ginger
- C. Gingko
- D. Ginseng

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### Glutamine



- L-glutamine is an amino acid produced in skeletal muscle
- Food Sources: Wheat, corn, barley, peanuts, soybeans, egg whites, and milk
- Indications: Wound healing, Oral mucositis, Post-Op Recovery & Diarrhea
- Dosing: 4 grams swish and swallow q4h
- AEs: Nausea, Chest pain, Fatigue, and Musculoskeletal pain
- DDI: Anticonvulsants (Mod)

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### Green Tea



- Indications: Cognitive Function, Depression, Cancer Prevention/ Treatment & Hyperlipidemia
- Dosing: Varies
- AEs: GI intolerance, Hypokalemia, Muscle Pain, Hypotension, Hypertension and Hepatotoxicity
- DDI: Anticoagulants/ Antiplatelets (Mod), CYP3A4 inhibitor (Mod), and Palbociclib (Mod)

<https://naturalmedicines.therapeuticresearch.com/>  
<https://www.mdccr.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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## Cannabis



- Federally classified as a schedule 1
- Several States have legalized & decriminalized
- Indication: Nausea & Vomiting, Depression, Anxiety, Insomnia, Neuropathic Pain, and Cancer-related pain
- Linked to development of Emphysema, Cardiovascular complications, Seizures, and Mood Disturbances.
- AEs: Headache, Dizziness, Drowsiness, Fatigue, Nausea, Paranoid delusions, Increased Appetite, Impaired Reaction time, & Depression
- DDI: Anesthesia (Mod), Anticoagulant, Antiplatelet (Sev), CNS Depressants (Mod), CYP2C9 inducer & Inhibitor (Mod), CYP3A4 inducer & Inhibitor (Mod), & P-Glycoprotein inhibitor (Mod)

<https://naturalmedicines.therapeuticresearch.com/>

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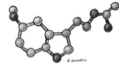
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## Melatonin



- Stimulated by darkness, suggesting involvement in circadian rhythm
- Indication: insomnia, relieve jet lag, pain, and anxiety
- Dosing: 2-3 mg before bed for up to 29 weeks
- AEs: Headache, Dizziness, Nausea, Drowsiness, Tremor, Anxiety, Confusion, and Hypotension
- DDI: Anticoagulant/ Antiplatelet (Mod), Anticonvulsant (High), CYP 2D6 inhibitor (Mild), & CYP3A4 inhibitor (Mild)

<https://naturalmedicines.therapeuticresearch.com/>

<https://www.mdccr.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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## Milk Thistle



- Indications: Toxin-induced Liver Damage, Alcohol-related Liver Disease, Non-Alcoholic fatty liver disease, Chemotherapy induced Nephrotoxicity, and Radiation Dermatitis (topically)
- Dosing: 140 mg Three Times Daily
- AEs: Laxative Effect, Nausea, Diarrhea, Dyspepsia, Abdominal Bloating, and Anorexia
- DDI: P-Glycoprotein (Mod) & Tamoxifen (Mod)

<https://naturalmedicines.therapeuticresearch.com/>

<https://www.mdccr.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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## Soy



- Legume originated in China
- Indication: Menopausal symptoms, osteoporosis, dementia, hypertension, and dyslipidemia
- Dosing: Varies
- AEs: Constipation, Diarrhea, Bloating, Nausea, & alteration in Thyroid function
- DDI: Antidiabetic Drugs (Mod), Antihypertensive (Mod), Estrogens (Mod), Tamoxifen & Aromatase Inhibitors (Severe)

<https://naturalmedicines.therapeuticresearch.com/>  
Greenlee H et al. CA Cancer J Clin. 2017;67:194-202.  
<https://www.ncbi.nlm.nih.gov/pubmed/28100000>

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## St. John's Wort



- Indication: Depression
- Dose: 300 mg by mouth three times daily
- AEs: Insomnia, Vivid Dreams, Anxiety, Agitation, Diarrhea, Fatigue, Dry Mouth, Dizziness, and Headache
- DDI: Triptans (High), Alprazolam (Major), Contraceptive Medications (Major), CYP2C19 inducer (Mod), CYP2C9 inducer (Mod), CYP3A4 inducer (Major), Digoxin (Major), Docetaxel (Major), and More

<https://naturalmedicines.therapeuticresearch.com/>  
<https://www.ncbi.nlm.nih.gov/pubmed/28100000>

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## Tumeric

- Indications: Depression, Radiation Dermatitis (topical), Cancer, and Oral Mucositis
- AEs: Nausea, Vomiting, Gastritis, Allergic Dermatitis, and Vertigo
- DDI: Anticoagulants (Mod), CYP3A4 (Mod), Doxorubicin (Mod) and Paclitaxel (Mod)



<https://naturalmedicines.therapeuticresearch.com/>

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## Turkey tail

- Indications: Cancer prevention & treatment, Hepatitis, and Chemotherapy side effects
- Dosing: 2000 mg daily
- AEs: Nausea, Vomiting, Pigmentation of nails, Elevated Liver Enzymes, Fatigue, and Cough
- DDI: Cyclophosphamide (Mod)



<https://naturalmedicines.therapeuticresearch.com/>  
<https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>

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## Online References

- Memorial Sloan Kettering Cancer Center-FREE
  - <https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs>
- Natural Medicines Therapeutic Research-Requires Subscription
  - <https://naturalmedicines.therapeuticresearch.com/>
- NIH Dietary Supplement Label Database- FREE
  - <https://www.dslid.nlm.nih.gov/dslid/prdLabel.jsp?id=78377>
- NIH Herbs at a Glance- Free
  - <https://nccih.nih.gov/health/herbsataglance.htm>

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## Quiz Question #2

Which of the following Online References for Herbal Supplements provided Drug Interaction information?

- A. Memorial Sloan Kettering Cancer Center
- B. Natural Medicines Therapeutic Research
- C. NIH Dietary Supplement Label Database
- D. NIH Herbs at a Glance
- E. Options A and B

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## Take Home Points

- Herbal Supplements are not Benign
- Hold Everything for surgery
- Utilize your resources to determine safety
- Discuss Risk versus Benefits with your patients
- Recommend waiting to start new supplements

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## Questions?



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