

# The Effects of Home Medicine Cabinet (& Kitchen Pantry)



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1

# Herbal Supplements

2

<h2 style="text-align: center;">Herbal Supplements</h2>	<ul style="list-style-type: none"> <li>• Herbal supplements are a \$27-billion-a-year business</li> <li>• Half of all Americans take herbal supplements</li> <li>• Surveys estimate that: <ul style="list-style-type: none"> <li>• 22% to 32% of patients undergoing surgery use herbal medications</li> <li>• 90% of anesthesiologists do not routinely ask about herbal medicine use</li> <li>• more than 70% of patients are not forthcoming about their herbal medicine use</li> </ul> </li> </ul>
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3

<h2 style="text-align: center;">Herbal Supplements</h2>	<ul style="list-style-type: none"> <li>• Herbal supplements increase risks of surgery <ul style="list-style-type: none"> <li>• Increase the risk of bleeding</li> <li>• Raise or lower blood pressure</li> <li>• Interfere with anesthesia medications</li> <li>• Prolong the effects of anesthesia</li> </ul> </li> <li>• American Society of Anesthesiologists (ASA) <ul style="list-style-type: none"> <li>• Provides no formal guidelines regarding anesthetic management of patients taking herbal supplements <ul style="list-style-type: none"> <li>• Very few randomized, controlled trials that evaluate effects of herbal medicine on patients before, during and after surgery</li> <li>• Insufficient scientific data for ASA to make recommendations</li> <li>• Recommends only that patients stop taking supplements prior to surgery</li> </ul> </li> </ul> </li> </ul>
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4

## Garlic

- A component of crushed garlic has potent antibiotic properties
- Thought to reduce oxidative stress and stimulate cellular immunity.
- Lowers cholesterol and triglycerides
- Prevents infection
- Improves diabetes mellitus management
- Decreases blood pressure
- Decreases platelet aggregation; potentiates anticoagulant effects aspirin and warfarin; can increase risk of bleeding
- One case report of spontaneous epidural hematoma in patient who consumed excessive amounts of garlic
- Discontinue 7-14 days before surgery



5

## Ephedra

- Banned by FDA, NCAA, NFL, and IOC
- Indirect acting sympathomimetic drug that causes release of norepinephrine
- Weight loss supplement (appetite suppression)
- Increases energy and athletic performance
- Treatment of asthma
- Cardiac: tachycardia, hypertension, arrhythmias
- May lead to neurotransmitter depletion resulting in intraoperative hypotension
- Interacts with monoamine oxidase inhibitors and CNS stimulants.
- Increases blood glucose levels
- Discontinue at least 24-48 hours before surgery (cleared quickly by kidneys)



6

## Valerian

- No scientific agreement regarding active components of valerian
- May increase GABA concentrations at the synaptic cleft
- Root is used to treat insomnia, anxiety, and headaches
- May potentiate benzodiazepines and barbiturates
- Can prolong effects of anesthesia
- Reported cases of hepatotoxicity and acute pancreatitis
- Taper and stop over 2 to 3 week period prior to surgery



7

## Kava

- Inhibits cytochromes P450 and 2E1
- Inhibits  $\gamma$ -aminobutyric acid (GABA)-mediated neurotransmission
- Promotes relaxation, anxiolysis, and sleep (GABA inhibition)
- May possess neuroprotective and antiepileptic properties
- May act synergistically with benzodiazepines and barbiturates to increase sedative effects of anesthesia
- Cytochromes P450 and 2E1 inhibition affects metabolism of acetaminophen (hepatotoxicity, renal dysfunction, impaired platelet function)
- Discontinue at least 24 hours before surgery



8

<h2>Ginkgo biloba</h2>	<ul style="list-style-type: none"> <li>• Inhibits platelet activation factor</li> <li>• Extract contains terpenoids and flavonoids thought to protect vascular walls and nerve cells</li> <li>• Enhance memory; treatment of dementia, tinnitus</li> <li>• Antiplatelet and antithrombotic properties; treatment of PVD, intermittent claudication, Raynaud disease</li> <li>• Treatment of asthma</li> <li>• Risk of bleeding, especially when combined with other anticoagulants</li> <li>• Case reports of subarachnoid hemorrhage, subdural hematomas, and unexpected blood loss after surgery</li> <li>• Discontinue at least 36 hours before surgery</li> </ul>	 
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9

 <p>101 medicinal herbs ginseng</p>	 	<h2>Ginseng</h2> <ul style="list-style-type: none"> <li>• Used widely throughout the world</li> <li>• Inhibits platelet aggregation in vitro and prolongs thrombin time in rats</li> <li>• Stimulant and diuretic</li> <li>• Improves cognitive &amp; physical performance</li> <li>• Improves diabetic glucose control</li> <li>• Inhibits clotting</li> <li>• Tachycardia, hypotension</li> <li>• Risk of hypertensive crisis (negative interaction with monoamine oxidase inhibitors)</li> <li>• May cause hypoglycemia from fasting prior to surgery</li> <li>• Increased risk of bleeding</li> <li>• Discontinue at least 7 days before surgery</li> </ul>
		

10

## St. John's Wort







- Inhibits serotonin, norepinephrine, and dopamine reuptake (can cause Serotonin Syndrome when used with SSRIs)
- Induces cytochrome P450
- Interferes with statins and calcium channel blockers
- Decreases benzodiazepine and oxycodone blood concentrations
- Eases anxiety and helps with sleep; antidepressant
- Treats OCD, attention-deficit hyperactivity disorder
- Can cause hypertension from inhibition of neurotransmitter re-uptake
- Interferes with metabolism of drugs (norepinephrine, dopamine, warfarin, benzodiazepines, opioids)
- Can precipitate opiate withdrawal
- May prolong effects of anesthesia
- Discontinue at least 5 days before surgery





11







## Echinacea







- Debate regarding which of the active ingredients causes the medicinal effects
- May affect cytochrome P1A2 (CYP1A2) and P3A4 (CYP3A4)
- Believed to improve immune system function
- Treatment of upper respiratory tract infections
- Interacts with simvastatin, lansoprazole, and losartan to increase blood levels of these drugs
- Affects metabolism of antipsychotic and antidepressant drugs
- Impairs activity of immunosuppressive drugs
- Can impair wound healing when taken long-term
- Discontinue as far in advance as possible, especially for transplant patients

12



## Ginger

- Flowering plant whose root is used as a spice and herbal medicine
- Belongs to the same family as turmeric and cardamom
- Competitively antagonizes serotonin 5HT<sub>3</sub> receptors and prostaglandins
- Treatment of nausea, motion sickness, GI discomfort
- Treatment of drug withdrawal symptoms
- Treatment of rheumatoid arthritis, osteoarthritis
- Increases potency of warfarin
- Inhibits platelet aggregation

13



## Chamomile

- One of the oldest medicinal herbs known
- Used as an antiseptic and anti-inflammatory
- Mild sedative and digestive relaxant
- Used to treat insomnia, colic, gout, eczema, sciatica, and mucositis
- A theoretical increase of anticoagulant effects of warfarin may occur
- FDA recognizes chamomile as generally safe for consumption

14

## Other Herbal Supplements

- **Fish Oil** - known to have blood thinning capabilities; can increase risk of hemorrhage during surgery. Stopping fish oil 4 to 7 days prior to surgery may be sufficient
- **Feverfew** – interacts with anticoagulants. Feverfew be stopped at least 1 to 2 weeks prior to surgery
- **Dong quai** - used as hormone replacement menopause symptoms. It has blood thinning properties and can increase the risk of bleeding in surgery. Should be stopped 2 weeks prior to surgery
- **Goldenseal** - inhibits an enzyme in the liver that helps your body metabolize certain drugs leading to toxic levels of medications. Goldenseal should be stopped 10 days to 2 weeks before surgery
- **Licorice** - can raise blood pressure and lower the levels of potassium in body. Stop using licorice two weeks before
- **Vitamin E** – Taken to slow the aging process but it can increase bleeding and cause blood pressure problems. Unknown.



15

## Herbal supplements that may cause bleeding problems

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|-----------------|---------------------------------|-----------------------|---------------------------|------------------|
| • agrimony      | • cassio                        | (angelica)            | • licorice                | • quassia        |
| • alfalfa       | • celery seed                   | • fenugreek           | • meadowsweet             | • red clover     |
| • aniseed       | • chamomile                     | • feverfew            | • melatonin               | • resveratrol    |
| • arnica        | • Chinese wolfberry             | • fish oil            | • melilot                 | • sea buckthorn  |
| • artemesia     | • chondroitin                   | • flax seed           | • nattokinase             | • sweet clover   |
| • asa foetica   | • clove                         | • gamma linoleic acid | • onion                   | • sweet woodruff |
| • bishop's weed | • cod liver oil                 | • garlic              | • pantethine              | • tonka beans    |
| • bladderwrack  | • coltsfoot                     | • ginger              | • papain (papaya extract) | • turmeric       |
| • bochu         | • dandelion                     | • ginkgo              | • parsley                 | • vinpocetine    |
| • bogbean       | • danshen (salvia)              | • ginseng             | • passionflower           | • vitamin E      |
| • boldo         | • devil's claw                  | • glucosamine         | • policosanol             | • wild carrot    |
| • bromelains    | • dihydroepiandrosterone (DHEA) | • horse chestnut      | • poplar                  | • wild lettuce   |
| • burdock       | • dong quai                     | • horseradish         | • prickly ash             | • willow bark    |
| • capsicum      |                                 |                       |                           |                  |

16