

Dandelion

Uses

- Rx for liver disease (e.g., liver congestion, hepatitis, jaundice)
- Rx for gallbladder disease
- Rx for appendicitis
- Rx for fluid retention (diuretic)
- Rx for appetite stimulate
- Less commonly used for mastitis, heartburn, boils, fevers, heart failure, among other uses
- Dietary supplement as a source of vitamins and minerals, including vitamin A, B, C, and D as well as minerals iron, potassium, and zinc

Perioperative Risks

- No clinical trial to date on hemodynamic instability.
- There is no clinical trial to date, but dandelion use may include risk of bleeding secondary to decreased clotting, especially if pt already taking blood thinners.
- Potential for lyte imbalances due to diuretic effects.
- Potential increase in stomach acid.

Worry About

- If used in combination with prescription diuretic drugs, effects of either or both drugs may be enhanced, leading to a hypovolemic state.
- Multiple minerals in dandelion may ↓ systemic absorption of PO-administered drugs (e.g., ciprofloxacin, famotidine, and esomeprazole).

- Given dandelion's ability to lower blood glucose, if used in combination with diabetic medications, there is risk for hypoglycemia.
- May worsen side effects of lithium.
- Too much vitamin A.

Overview/Pharmacology

- Dandelion leaves and root contain quercetin, luteolin, p-hydroxyphenylacetic acid, germacranolide acids, chlorogenic acid, cichoric acid, and monocaffeoyltartaric acid. The leaves contain scopoletin, aesculetin, aesculin, cichoriin, arnidiol, and faradiol. The roots contain caffeic acid, taraxacoside, taraxasterol, and the polysaccharide inulin.
- Primary effect in relieving dyspepsia disorder is caused by taraxerol.
- Stimulates bile release by the liver and gallbladder, hence improving both bile flow (cholagogue effect) and release (cholagogue effect).
- Diuretic activity comparable to that of furosemide has been demonstrated in mice; however, because dandelion replaces potassium lost through diuresis, metabolic complications occur only rarely.
- Insulin, a polysaccharide fiber composed of long chains of fructose-containing molecules contained in the plant, may act to buffer fluctuations in blood sugar levels.

Usual Dose

- Dosing of dandelion depends on several factors; there is no scientific data to determine a exact dosing requirement.
- Root used for general tonic and mild liver remedy up to tid.
 - Dried root: 2–8 g by infusion, or decoction
 - Fluid extract: 4–8 mL
 - Tincture, alcohol based: Not recommended secondary to high dosage required
 - Juice of fresh root: 4–8 mL
 - Powdered solid extract: 250–500 mg
- Leaf preparations used for diuretic effects tid.
 - Dried leaf by infusion: 4–10 g
 - Fluid extract: 4–10 mL

Toxicity

- Generally considered one of the safest medicinal plants used.
- Potential for allergic reaction when taken by mouth or applied to skin of sensitive pts.
- May be potentially toxic because of the high content of K, Mg, and other minerals, and vitamin A.

Assessment Points

System	Effect	Assessment by Hx	PE	Test
CV	Hypovolemia	Orthostasis, polyurea, polydipsia	Decreased skin turgor, hypotension, tachycardia, orthostasis	Orthostatic BP, HR
GI	Increased gastric secretion	Diarrhea		
RENAL	Prerenal failure	Polyurea, polydipsia	As for CV	BUN/Cr
METAB	Hypoglycemia	Lightheaded, clammy, shaky	Sweaty	Blood glucose

Key References: Murray MT, Pizzorno Jr JE: *Taraxacum officinale* (dandelion). In Pizzorno Jr JE, Murray MT, editors: *Textbook of natural medicine*, ed 2, London, 1999, Churchill Livingstone, pp 979–982; Jellin JM, Gregory PJ, Batz F, et al (eds): *Dandelion. Natural medicines: pharmacist's letter/prescriber's letter natural medicines comprehensive database*, ed 13, Stockton, CA, 2012, Therapeutic Research Faculty, pp 511–512.

Perioperative Implications

Preoperative Concerns

- Unknown effects in pediatric and pregnant pts.
- Rely on pt self-report. ASA guidelines hold all herbal products 2–3 d prior to surgery, as half-lives of these products are unknown.
- Due to increased stomach acid production, antacids may not work as well.

Monitoring

- Routine.
- May require fluid bolus if there is an indication of hypovolemia and UO.
- Consider intraoperative blood glucose monitoring as indicated.

Regional Anesthesia

- Not clear but can potentially affect platelet function and increased bleeding risk.

Emergence/Extubation

- No known complications to date.

Postoperative Period

- Continue to assess volume status and treat accordingly.
- Potentially increased bleeding.
- Continue to monitor blood glucose in pts on diabetic medications.

Dehydroepiandrosterone

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Uses

- Proposed uses DHEA with insufficient evidence:
 - Vasodilation, anti-inflammatory, antiatherosclerotic, antiaging
 - Physical performance: Increase muscle mass, strength, and energy
 - SLE, multiple sclerosis, osteoporosis, adrenal insufficiency, Crohn disease, COPD
 - Alzheimer disease, Parkinson disease, fibromyalgia
 - Depression, schizophrenia, chronic fatigue, anorexia nervosa, sleep disorders
 - CV disease, diabetes, obesity, metabolic syndrome
 - Improve menopausal symptoms, bone mineral density, and vaginal atrophy
 - Improve erectile dysfunction in men; cervical dysplasia, trichia pubis, sexual dysfunction, and well-being in healthy women

Risk

- May cause hirsutism, acne, headache, insomnia, wt gain, alopecia, deepening of voice, and abnormal menses in women, or gynecomastia in men.
- Cardiac arrhythmias occur rarely, even with large doses.
- May worsen liver diseases and polycystic ovary syndrome and lower HDL levels. (It also decreases total cholesterol, LDL, and triglycerides.)
- Associated with cases of mania and palpitations.
- Diabetics may be prone to hyperglycemia.
- Unknown coagulation and vasoconstriction/dilation effects.
- Use contraindicated in pregnancy, endometriosis, leiomyoma; breast, ovarian, uterine, and prostate cancers.
- Possibly unsafe with more side effects if used long term and in larger doses (higher than 50–100 mg/d).

Perioperative Risks

- Single case report associated DHEA with cardiac arrhythmias and immune suppression.
- High DHEA levels can be associated with insulin resistance.
- Unknown effects on periop stress response, adrenal, and cardiac function.

Overview/Pharmacology

- DHEA is naturally produced by the adrenal gland and converted to other forms of androgens and estrogens in the liver and peripheral tissues.
- FDA categorized DHEA as an unapproved drug in 1985; reclassified as a dietary supplement by 1994.
- Popularized after a *New England Journal of Medicine* report that high levels correlated with fewer cardiac